

PMI

U.S. PRESIDENT'S MALARIA INITIATIVE

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This Malaria Operational Plan has been approved by the U.S. Global Malaria Coordinator and reflects collaborative discussions with the national malaria control programs and partners in country. The funding available to support the plan outlined here is pending finalization of the FY 2020 appropriation. If any further changes are made to this plan it will be reflected in a revised posting.

U.S. PRESIDENT’S MALARIA INITIATIVE

GUINEA

Malaria Operational Plan FY 2020

Suggested Citation: U.S. President’s Malaria Initiative Guinea Malaria Operational Plan FY 2020.
Retrieved from (www.pmi.gov)

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ABBREVIATIONS

ACE-1	Acetylcholinesterase-1 gene
ACPR	adequate clinical and parasitological response
ACT	Artemisinin-based combination therapy
AL	Artemether-lumefantrine
ANC	Antenatal care
AS/AQ	Artesunate-amodiaquine
BMGF	Bill and Melinda Gates Foundation
CDC	Centers for Disease Control and Prevention
CHW	Community health worker
CMC	<i>Centre Médical Communal</i>
CY	Calendar year
DHS	Demographic and Health Survey
DHIS2	District Health Information System 2
DNLP	National Directorate of Pharmacies and Laboratory
DNPM	National Directorate of Pharmacies and Medicines
DPS	Prefectoral Health Directorates
DQA	data quality assessment
EPI	Expanded program on immunization
FY	Fiscal year
GHI	Global Health Initiative
GFATM	Global Fund to Fight AIDS, Tuberculosis and Malaria
GOG	Government of Guinea
HMIS	national health management information system
IDSR	Integrated Disease Surveillance and Response
IPTp	Intermittent preventive treatment for pregnant women
IRS	Indoor residual spraying
ITN	Insecticide-treated mosquito net
KAP	Knowledge, attitudes, and practices
KDR	Knockdown resistance gene
(e)LMIS	(electronic) Logistics Management Information System
LNCQM	National Laboratory for the Quality Control of Medicines
MIP	Malaria in pregnancy
MICS	Multiple Indicator Cluster Surveys
MIS	Malaria indicator survey
MSF	<i>Médecins Sans Frontières</i>
MoH	Ministry of Health
MOP	Malaria Operational Plan

NGO	Non-governmental organization
NMCP	National Malaria Control Program
NSP	National Strategic Plan
PARMA	PMI-supported Antimalarial Resistance Monitoring in Africa
PCG	<i>Pharmacie Centrale de Guinée, the central medical store</i>
PCR	Polymerase Chain Reaction
PCV	Peace Corps Volunteer(s)
PMI	U.S. President's Malaria Initiative
PQM	Promoting the Quality of Medicines Program
QA/QC	Quality Assurance/Quality Control
PSN	<i>Plan strategique national</i> (national strategic plan)
RDT	Rapid diagnostic test
SARA	Service Availability and Readiness Assessment survey
SBC	Social and behavior change
SMC	Seasonal malaria chemoprevention
SM&E	Surveillance, monitoring, and evaluation
SP	Sulfadoxine/pyrimethamine
TES	therapeutic efficacy study
TWG	Technical working group
UGANC	Gamal Abdel Nasser University of Conakry
UNIKAG	University Kofi Annan de Guinee
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
USP	U.S. Pharmacopeial Convention
WHO	World Health Organization

I. INTRODUCTION

The U.S. President's Malaria Initiative (PMI)—led by the U.S. Agency for International Development (USAID) and implemented together with the U.S. Centers for Disease Control and Prevention (CDC)—delivers cost-effective, lifesaving malaria interventions alongside catalytic technical and operational assistance to support Guinea to end malaria. PMI has been a proud partner of Guinea since 2011, helping to decrease child death rates by 10 percent and malaria parasitemia prevalence among children by 66 percent through investments totaling almost \$117.35 million.

The proposed PMI fiscal year (FY) 2020 budget for Guinea is \$15 million. This Malaria Operational Plan (MOP) outlines planned PMI activities in Guinea for FY 2020. Developed in consultation with the National Malaria Control Program (NMCP) and key stakeholders, proposed activities reflect national and PMI strategies, draw on best-available data, and align with the country context and health system. Proposed PMI investments support and build on those made by the Government of Guinea as well as other donors and partners.

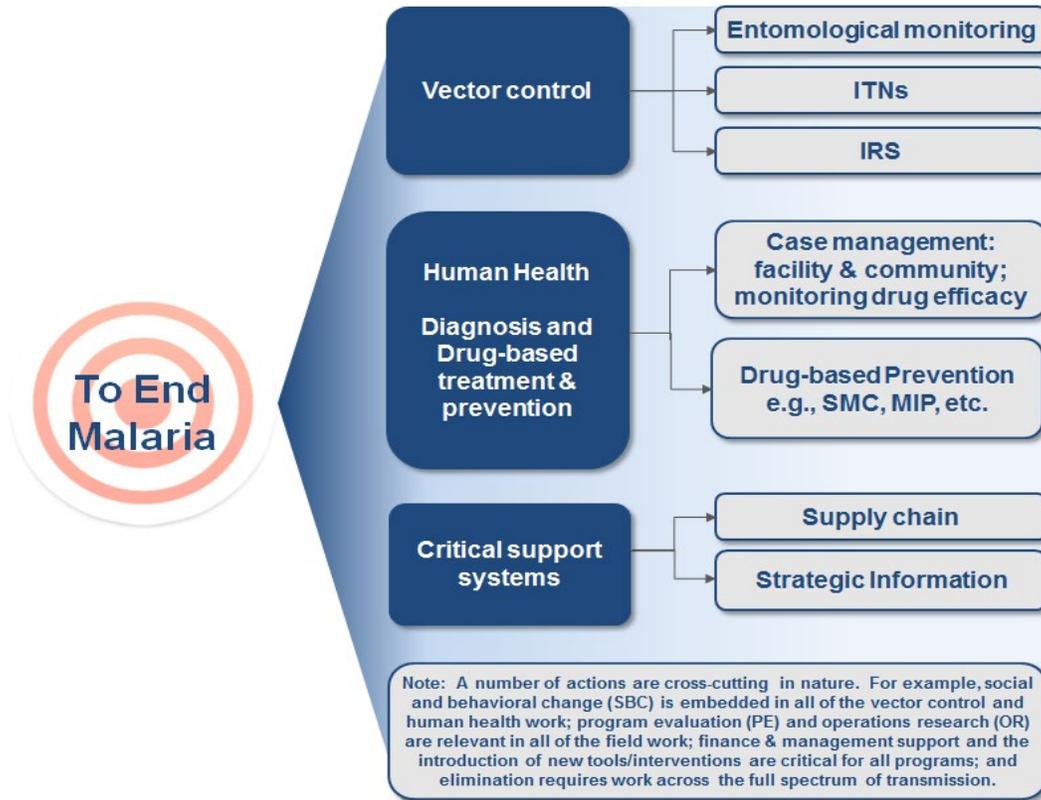
Guinea at a glance

- **Geography:** The Republic of Guinea is located in West Africa and bordered to the northwest by Guinea-Bissau, the north by Senegal and Mali, the east by Côte d'Ivoire, the south by Liberia and the southwest by Sierra Leone. Guinea's many rivers supply water to much of West Africa. The River Niger flows north from the southern highlands into Mali before turning south again through Niger and Nigeria. The coastal plain is made up of mangrove swamps, while inland are the Fouta Djallon hills which form several distinct ranges and plateaus over the whole of western Guinea. In the northeast, savannah plains of the Sahel region stretch into Mali. To the south are mountains known as the Guinea Highlands.
- **Climate:** The climate is tropical and humid with a wet and a dry season. Guinea is one of the wettest countries in West Africa. The monsoon season with a southwesterly wind lasts from June to November; the dry season with a northeasterly harmattan lasts from December to May. (<https://www.worldtravelguide.net/guides/africa/guinea/weather-climate-geography/>).
- **Population in 2019:** 10,924,000 (US Census Bureau International Division)
- **Population at risk of malaria:** 100% (WHO)
- **Malaria incidence per 1000 population:** 125
- **Under-five mortality rate:** 111 deaths per 1,000 live births (Guinea, DHS 2018)
- **World Bank Income Classification & GDP:** \$1,300
<https://data.worldbank.org/country/guinea>

- **Political system:** Guinea is a presidential representative democratic republic, wherein the president is to be elected by popular vote for a five-year term. President Alpha Conde was re-elected for a second term in 2015 after delayed elections, and the next elections are scheduled for 2020. Guinea is divided into eight regions and 33 prefectures.
- **Trafficking in Persons designations, 2016-2018:** Tier 2
- **Malaria funding and program support partners include (but are not limited to):**
 - Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM)
 - U.S. President’s Malaria Initiative (PMI)
 - The World Health Organization (WHO)
 - Against Malaria Foundation (AMF)
 - *Organisation de la Mise en Valeur du fleuve Sénégal* (OMVS)
- **PMI Support of National Malaria Control Strategy:** (See III. Overview of PMI’s support of Guinea’s Malaria Control Strategy for additional details): Apart from the national level support to the NMCP, PMI supports malaria prevention and control activities in 14 out of the 33 prefectures in Guinea as well as the 5 communes of Conakry while GFATM supports these activities in the remaining 19 prefectures.
- **PMI Investments:** Guinea began implementation as a PMI focus country in FY 2011. The proposed FY 2020 PMI budget for Guinea is \$15 million; that brings the total PMI investment to nearly \$132.35 million.

PMI organizes its activities and planning levels around the activities in Figure 1, in line with the national malaria strategy.

Figure 1. PMI’s Approach to End Malaria



PMI’s approach is both consistent with and contributes to USAID’s Journey to Self-Reliance framework. Building and strengthening the capacity of Guinea’s people and institutions – from the central level to communities – to effectively lead and implement evidence-based malaria control and elimination activities remains paramount to PMI. As denoted in Table 2 (the budget table), nearly all of PMI’s planned support for FY 2020 in the areas of vector control, human health, supply chain and strategic information contains elements of capacity building and system strengthening. PMI/Guinea will continue to rely on and engage with local partners such as the University of Gamal Abdel Nasser de Conakry (UGANC) and the University Kofi Annan de Guinee (UNIKAG). Finally, PMI/Guinea will continue to rely on private sector partnerships such as Orange, a telecommunications company, to build a health telecommunication package for use by health workers and build local capacity of use and maintenance of this health information and communication technology systems to ensure long term availability of accurate data to guide informed decision-making.

To accelerate the journey to self-reliance, PMI developed a programmatic inventory to assess the strengths and persistent challenges of Guinea’s program (see Annex B). The activities proposed in this MOP are tailored to draw on these strengths and address the weaknesses, which will be monitored to evaluate the effectiveness of capacity-building efforts. In addition, while PMI is

cognizant that it will take time before Guinea is capable of fully financing its development priorities, PMI will work with other partners (e.g., the GFATM) to jointly track Guinea’s funding commitments across the malaria portfolio.

II. MALARIA SITUATION AND MALARIA CONTROL PROGRESS IN GUINEA

Malaria is endemic throughout Guinea. The country has made important progress in malaria control and prevention, substantially reducing malaria prevalence in children under 5, annual malaria incidence, and in-patient deaths. These gains were driven by the rapid scale-up of malaria prevention and control interventions, led by the country’s National Malaria Control Program (NMCP) and supported by PMI and GFATM. Comparison of the 2012 DHS with the 2016 MICS shows that Guinea noted a substantial decrease in the prevalence of malaria parasitemia in children 6-59 months of age (Figure 2). However, there is substantial regional variation in malaria parasitemia prevalence with high prevalence prevailing in some regions (Figure 4).

Figure 2. Trends in Malaria Prevalence, Percent of children age 6-59 months who tested positive for malaria by microscopy and RDT



Figure 3. Trends in Prevalence of Low Hemoglobin, Percent of children age 6-59 months with moderate-to-severe anemia (hemoglobin <8.0g/dl)



Figure 4. Malaria parasite prevalence among children under five years of age by geographic area, Percent of children age 6-59 months who tested positive for malaria by microscopy (2016 MICS-Palu)

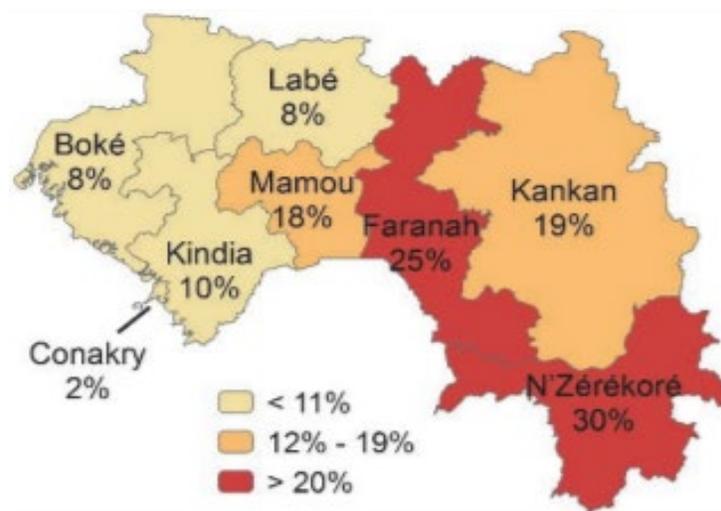


Figure 5. Key indicators for malaria prevention and treatment coverage and impact indicators from household surveys from 2012-2018

Indicator	2012 DHS	2016 MICS-Palu	2018 DHS KIR
% Households with at least one ITN	47	84	44
% Households with at least one ITN for every two people	10	48	17
% Population with access to an ITN	25	69	23
% Population that slept under an ITN the previous night*	19	64	31
% Children under five years of age who slept under an ITN the previous night*	26	68	27
% Pregnant women who slept under an ITN the previous night*	28	70	28
% Children under five years of age with fever in the last two weeks for whom advice or treatment was sought ¹	53	42	62
% Children under five years of age with fever in the last two weeks who had a finger or heel stick	9	17	21
% Children receiving an ACT among children under five years of age with fever in the last two weeks who received any antimalarial drugs	5	17	18

Indicator	2012 DHS	2016 MICS-Palu	2018 DHS KIR
% Women who received two or more doses of IPTp during their last pregnancy in the last two years ²	22	49	62
% Women who received three or more doses of IPTp during their last pregnancy in the last two years ²	11	30	36
Under-five mortality rate per 1,000 live births	123	88	111
% Children under five years of age with parasitemia (by microscopy , if done)	44	15	N/A
% Children under five years of age with parasitemia (by RDT , if done)	47	30	N/A
% Children under five years of age with severe anemia (Hb<8gm/dl)	16	18	2

¹Note that this indicator has been recalculated according to the newest definition, care or treatment from any source excluding traditional practitioners wherever possible

²Note that this indicator has been recalculated according to the newest definition, at the specified number of doses of SP/Fansidar from any source wherever possible

Figure 6. Evolution of key malaria indicators reported through routine surveillance systems*

	2014	2015	2016	2017	2018
# Suspect malaria cases ¹	938,819	1,336,358	1,527,537	2,137,471	2,706,206
# Patients receiving diagnostic test for malaria ²	927,536	1,287,846	1,510,121	2,134,437	2,693,952
Total # malaria cases ³ (confirmed and presumed)	654,328	924,721	995,320	1,335,208	1,552,159
# Confirmed cases ⁴	654,328	897,232	995,320	1,335,208	1,552,159
# Presumed cases ⁵	0	0	0	0	0
% Malaria cases confirmed ⁶	100%	100%	100%	100%	100%
Test positivity rate (TPR) ⁷	71%	70%	66%	63%	58%
Total # under 5 malaria cases ⁸	233,170	328,444	372,116	501,175	574,864
% Cases under 5 ⁹	36%	37%	37%	38%	37%
Total # severe cases ¹⁰	112,531	118,759	115,298	132,084	143,810
Total # malaria deaths ¹¹	1,066	847	867	1,162	1,848

# Facilities reporting ¹²	208	420	462	488	525
Data form completeness (%) ¹³	88%	96%	99%	100%	96%
*Système National d'Information Sanitaire, République de Guinée (https://dhis2.sante.gov.gn) N/A = not available					
Definitions: 1 Number of patients presenting with signs or symptoms considered to be possibly due to malaria (e.g., this could be the number of patients presenting with fever or history of fever in the previous 24 or 48 hours) 2 Number of patients receiving a diagnostic test for malaria (RDT or microscopy). All ages, outpatient, inpatient 3 Total # cases: Total number of reported malaria cases. All ages, outpatient, inpatient, confirmed and unconfirmed cases. 4 # confirmed cases: Total diagnostically confirmed cases. All ages, outpatient, inpatient. 5 # presumed cases: Total clinical/presumed/unconfirmed cases. All ages, outpatient, inpatient. 6 % Malaria Cases confirmed: # confirmed cases (#4 above) / Total # cases (#3 above) 7 Test Positivity Rate (TPR): Number of confirmed cases (#4 above)/Number of patients receiving a diagnostic test for malaria (RDT or microscopy) (#2 above) 8 Total #<5 cases: Total number of <5 cases. Outpatient, inpatient, confirmed, and unconfirmed. 9 Total # <5 cases (#8 above) / Total # of cases (# 3 above) 10 As there may not be a standard definition across countries, please specify if there is such a variable available and the definition that is used; if “severe malaria” is not used or collected but “hospitalized for malaria” is a standard in the country, please insert that label and the relevant data by year. 11 Total # Malaria Deaths Reported: All ages, outpatient, inpatient, confirmed, and unconfirmed. 12 Total # of health facilities reporting data into the HMIS/DHIS2 system for that year. 13 Data completeness: Number of monthly reports received from health facilities/Number of health facility reports expected (i.e., number of facilities expected to report multiplied by the number of months considered).					

III. OVERVIEW OF PMI’S SUPPORT OF GUINEA’S MALARIA CONTROL STRATEGY

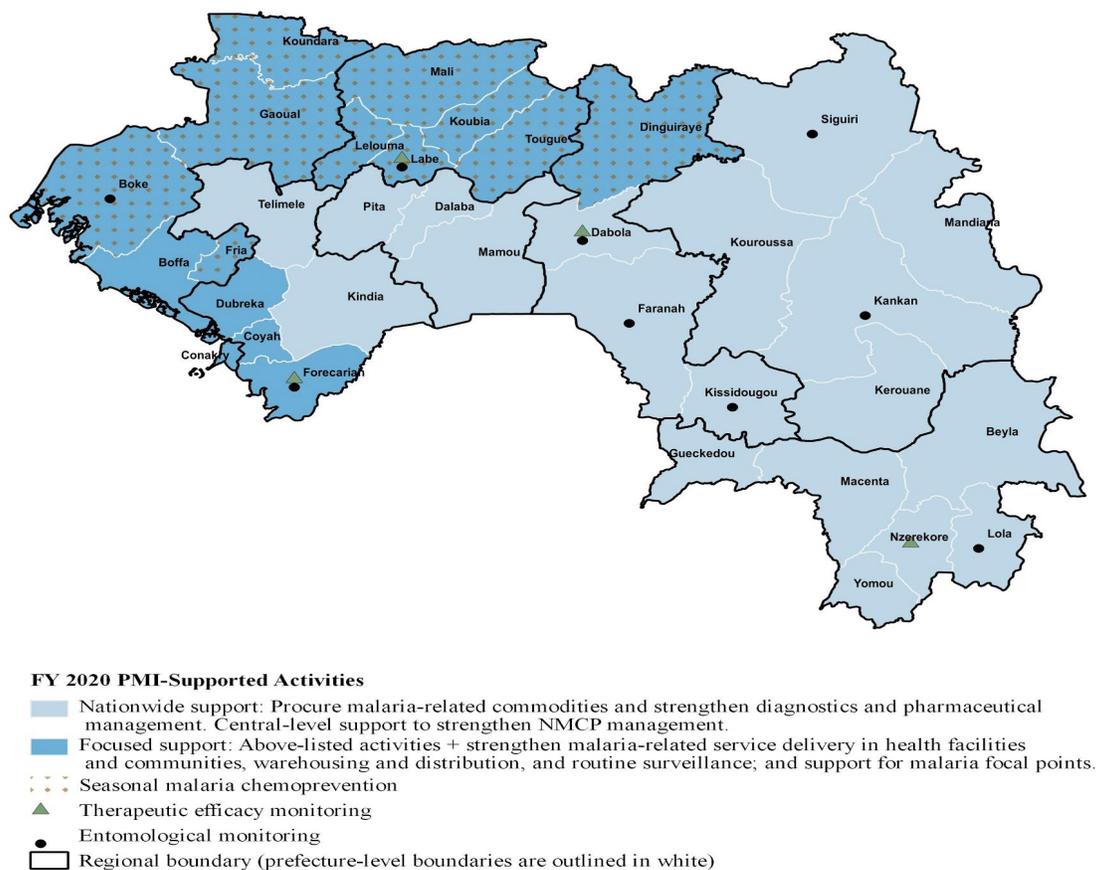
Guinea began implementation as a PMI focus country in FY 2011. The proposed FY 2020 PMI budget for Guinea is \$15 million. Apart from the national level support to the NMCP, PMI supports malaria prevention and control activities in 14 out of the 33 prefectures in Guinea as well as the 5 communes of Conakry while GFATM supports these activities in the remaining 19 prefectures. PMI and GFATM work collaboratively to support the NMCP priorities identified in the National Strategic Plan 2018-2022. An annual gap analysis is used as the basis for a joint action plan. Both donors use the same materials and tools and collaborate on a number of activities including the development of policies and guidelines.

The main interventions described in the National Strategic Plan include:

- 1) Vector control (distribution of long-lasting insecticide-treated mosquito nets (ITNs) through mass campaigns and continuous distribution channels);
- 2) Indoor residual spraying (IRS);
- 3) Larviciding;
- 4) Targeted prevention interventions (intermittent preventive treatment of malaria during pregnancy (IPTp) and seasonal malaria chemoprevention (SMC));

- 5) Ensuring laboratory confirmation by rapid-diagnostic test (RDT) or microscopy for all suspected cases of malaria and proper management of all confirmed cases in health facilities and in the community;
- 6) Strengthening pharmaceutical management, including improved quantification, storage and distribution, logistics information system, pharmacovigilance, and quality control, as well as strengthening the Central Pharmacy of Guinea (PCG);
- 7) Behavior change communication including interpersonal communication, mass media, advocacy and social mobilization;
- 8) Strengthening surveillance, monitoring, and evaluation (SM&E) at all levels for the collection and analysis of high-quality data to inform decision-making; and
- 9) Improving program management at the national, regional, and district levels and strengthening partnerships. All the above interventions are supported by both PMI and GFATM except larviciding and pharmacovigilance, which do not receive any support, and IRS, which is currently supported by mining companies in two districts (Sigiri in Upper Guinea and Lola in Forest Guinea).

Figure 7. PMI Intervention Support Map

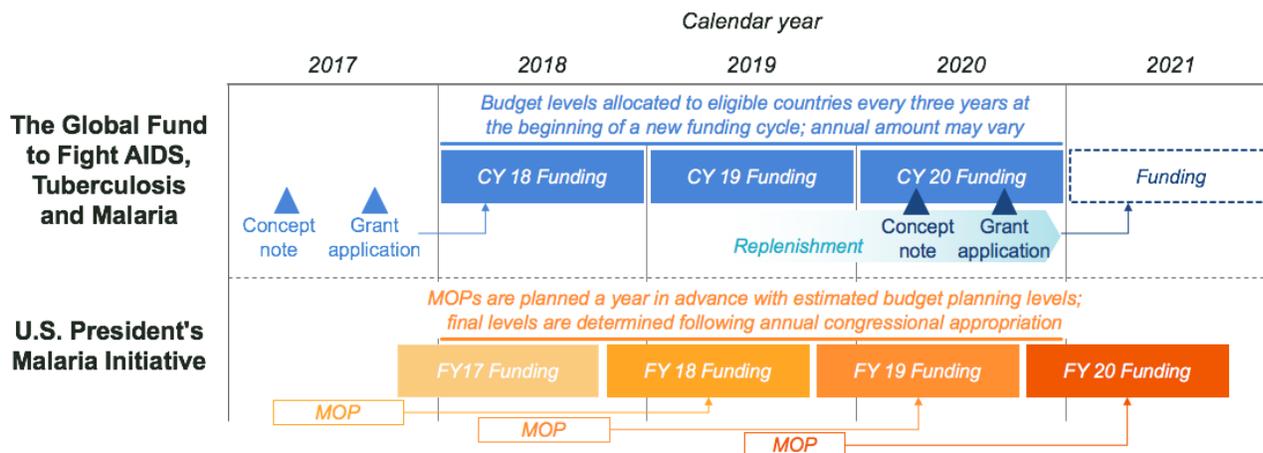


IV. PARTNER FUNDING LANDSCAPE

PMI emphasizes the importance of partner alignment on malaria control. With the recognition that each of the agencies emphasizes complementary funding support for the national malaria control effort in a given country, over the last year, PMI, GFATM, and the Bill and Melinda Gates Foundation (BMGF) set out to harmonize financial, supply chain, and programmatic data, and this effort remains ongoing as of the time of this MOP. A harmonized financial taxonomy has been developed for PMI and Global Fund (i.e., mapping cost categories across organizations).

Figure 8 (below) visualizes the annual cycle of PMI funding and the MOP implementation year. As the figure illustrates, any given FY MOP funds activities that take place during the next fiscal year. For example, an FY18 MOP funds implementation during FY19. Whereas GFATM funding (and often, other partners and host country governments) is based on a three-year grant cycle on a calendar year (CY) timeframe during which activities were implemented. Annual PMI country budget allocations depend largely on the U.S. Congress' total overall malaria funding appropriation to USAID in a given fiscal year, as well as other considerations (e.g., previous funding levels, activity and program pipelines, other donor contributions, known commodity needs/gaps, progress on ongoing PMI-supported activities, clear evidence of continued government commitment to malaria control).

Figure 8. PMI and Global Fund Funding Cycle Alignment



Footnote: In some cases, Global Fund's funding may come in partway through the calendar year. Funding levels in "Section IV - Partner Funding Landscape" and commodity procurement amounts listed in "Annex A - Intervention Specific Data" may differ given the lag between the year that funding was planned and the year when procurement orders were placed. Differences may be a reflection of timing and/or based on changes in commodity consumption levels at country level, changes in commodity costs, or other donor orders.

Figure 9 and Figure 10 summarize contributions by external partners and host country government in calendar years 2018-20, with the goal of highlighting total country investments. For Guinea, data is available for PMI (FY 2018) and GFATM (CY 2018-20). As GFATM 2021-23 grant funding cycle is not yet underway at the time of this PMI FY 2020 MOP development, GFATM country investments for the 2021 implementation period and beyond are not yet known. Note that the host country government invests substantial funding into the national-to-local infrastructure and service delivery for malaria and many other programs. However, there has not been a standardized method for attributing those investments to malaria specifically. Thus, it may not yet be possible in the FY 2020 MOP cycle to attribute funding from the host country government. There may be similar challenges for other partners.

Figure 9. Annual budget by Level 1 category

Year ¹	Funder	Vector Control	Case Management	Drug-Based prevention ²	Supply Chain ³	Monitoring, Evaluation & Research	Other Cross-Cutting and Health Systems Strengthening	Total
FY17/ CY18	PMI	\$4.9M	\$3.1M	\$2.4M	\$1.0M	\$0.7M	\$2.9M	\$15.0M
	GFATM	\$0.6M	\$1.6M	\$2.6M	\$1.4M	\$2.0M	\$4.5M	\$12.7M
	Total	\$5.5M	\$4.7M	\$4.9M	\$2.4M	\$2.7M	\$7.5M	\$27.7M
FY18/ CY19	PMI	\$5.2M	\$3.4M	\$2.2M	\$0.8M	\$0.5M	\$2.9M	\$15.0M
	GFATM	\$18.0M	\$2.3M	\$2.5M	\$0.3M	\$1.4M	\$6.4M	\$30.9M
	Total	\$23.2M	\$5.7M	\$4.7M	\$1.1M	\$1.9M	\$9.3M	\$45.9M
FY19/ CY20	PMI	\$0.8M	\$6.1M	\$2.7M	\$0.8M	\$0.5M	\$3.1M	\$14.0M
	GFATM	\$2.1M	\$2.8M	\$2.7M	\$0.2M	\$1.5M	\$5.8M	\$15.1M
	Total	\$2.9M	\$8.9M	\$5.3M	\$1.1M	\$2.1M	\$8.8M	\$29.1M

1. Each year's figures represent the FY for PMI and one CY for GFATM that most closely align 2. Drug-based prevention, including SMC and MIP where relevant; 3. Covers management of in-country warehousing & distribution of malaria commodities, except for ITNs which are separately captured under "Vector Control"

Note: Categories shown reflect the harmonized financial taxonomy (Levels 1-3) developed by BMGF, GFATM, and PMI in 2019, as part of a broader data harmonization initiative; potential for categories to continue to evolve through FY 2020 MOP process, as well as for additional donors and host country governments to adopt and reflect funding using the same categories.

Figure 10. Annual budget by Level 3 category, detailed breakdown for PMI and Global Fund

Level 1 Category	Level 3 Category	FY17/CY18 ¹		FY18/CY19 ¹		FY19/CY20 ¹	
		PMI	GFATM	PMI	GFATM	PMI	GFATM
Vector Control	Procure ITNs for Continuous Distribution	\$1.3M	-	-	\$2.2M	-	\$1.3M
	Distribute ITNs via Continuous Distribution	\$0.3M	\$0.01M	-	\$0.1M	\$0.2M	\$0.1M
	Procure ITNs for Mass Campaigns	\$2.3M	-	-	\$8.4M	-	-
	Distribute ITNs via Mass Campaigns	-	-	\$4.7M	\$5.2M	-	\$0.04M
	Other ITN Implementation*	\$0.4M	-	-	-	\$0.1M	-
	IRS Implementation ⁴	-	-	-	-	-	-
	Procure IRS Insecticide ⁴	-	-	-	-	-	-
	Other IRS*	-	-	-	-	-	-
	Entomological Monitoring	\$0.6M	-	\$0.5M	-	\$0.5M	-
	SBC for Vector Control ⁵	-	\$0.5M	-	\$0.5M	-	\$0.5M
	Other vector control measures	-	\$0.1M	-	-	-	-
	Removing human rights- and gender-related barriers to vector control programs**	-	-	-	-	-	-
Case Management	Active Case Detection**	-	-	-	-	-	-
	Community-based case management	-	\$0.6M	-	\$0.8M	-	\$0.9M
	Facility-based case management	-	\$0.5M	-	\$0.1M	-	\$0.1M
	Private-sector case management	-	\$0.003M	-	\$0.003M	-	-
	Procure ACTs	\$0.5M	\$0.1M	\$0.2M	\$0.4M	\$2.5M	\$0.4M

		FY17/CY18 ¹		FY18/CY19 ¹		FY19/CY20 ¹	
Level 1 Category	Level 3 Category	PMI	GFATM	PMI	GFATM	PMI	GFATM
	Procure Drugs for Severe Malaria	\$0.5M	\$0.2M	\$0.9M	\$0.1M	\$0.4M	\$0.1M
	Procure Other Diagnosis-Related Commodities	\$0.1M	\$0.1M	\$0.1M	\$0.1M	\$0.1M	\$0.1M
	Procure Other Treatment-Related Commodities	\$0.02M	-	\$0.04M	\$0.1M	\$0.01M	-
	Procure RDTs	\$0.2M	-	\$0.9M	\$0.5M	\$1.3M	\$0.8M
	Therapeutic Efficacy	\$0.1M	-	\$0.1M	-	\$0.1M	-
	SBC for Case Management ⁵	-	-	-	-	-	-
	Other Case Management	\$1.7M	\$0.04M	\$1.2M	\$0.01M	\$1.6M	\$0.01M
Drug-Based Prevention²	Procure SMC-Related Commodities	\$0.8M	\$0.6M	\$0.4M	\$0.4M	\$1.2M	\$0.5M
	SMC Implementation	\$1.1M	\$1.6M	\$1.6M	\$1.9M	\$1.4M	\$1.9M
	Prevention of Malaria in Pregnancy Implementation	\$0.5M	\$0.2M	-	-	\$0.1M	\$0.01M
	Procure IPTp-Related Commodities	-	-	\$0.2M	-	-	\$0.1M
	IPTi**	-	-	-	-	-	-
	SBC for Drug-Based Prevention ⁵	-	\$0.01M	-	\$0.01M	-	\$0.01M
	Other Prevention**	-	-	-	-	-	-
Supply Chain³	In-Country Supply Chain ³	\$0.4M	-	\$0.3M	-	\$0.4M	-
	Supply Chain Infrastructure	-	\$0.8M	-	\$0.01M	-	\$0.01M
	Ensuring Quality	-	\$0.4M	-	\$0.07M	-	\$0.02M
	Pharmaceutical Management Systems Strengthening	\$0.6M	-	\$0.5M	-	\$0.4M	-

		FY17/CY18 ¹		FY18/CY19 ¹		FY19/CY20 ¹	
Level 1 Category	Level 3 Category	PMI	GFATM	PMI	GFATM	PMI	GFATM
	Supply Chain System Strengthening	-	\$0.2M	-	\$0.2M	-	\$0.2M
Monitoring, Evaluation & Research	Reporting, Monitoring, and Evaluation	\$0.5M	\$0.4M	\$0.5M	\$0.2M	\$0.5M	\$0.2M
	Program and data quality, analysis and operations research	-	\$1.3M	-	\$0.7M	-	\$1.1M
	Surveys	\$0.2M	\$0.2M	-	\$0.5M	-	\$0.2M
	Other Data Sources**	-	-	-	-	-	-
	Support for FETP*	-	-	-	-	-	-
Other Cross-Cutting and Health Systems Strengthening	Integrated service delivery, quality improvement, and national health strategies**	-	-	-	-	-	-
	Financial management systems**	-	-	-	-	-	-
	Community responses and systems**	-	-	-	-	-	-
	Support for PCV and SPAs*	\$0.03M	-	\$0.03M	-	\$0.03M	-
	Cross-Cutting Human Resources for Health**	-	-	-	\$1.6M	-	\$1.4M
	Central and Regional Program management ⁶	\$1.1M	\$0.04M	\$1.3M	\$0.04M	\$1.1M	\$0.04M
	In-Country Staffing and Administration*	\$1.1M	-	\$1.0M	-	\$1.4M	-
	Other Program Management**	-	\$4.5M	-	\$4.8M	-	\$4.3M
	SBC Unspecified ⁵	\$0.7M	-	\$0.6M	-	\$0.6M	-
Total		\$15.0M	\$12.7M	\$15.0M	\$30.9M	\$14.0M	\$15.1M

¹. Each year's figures represent the FY for PMI and CY for GFATM that most closely align;

². Drug-based prevention, including SMC and MIP where relevant;

³. Covers management of in-country warehousing & distribution of malaria commodities, except for ITNs which are separately captured under "Vector Control";

⁴. May include cost of IRS insecticides if full cost of IRS implementation including commodities was bundled within single line in prior year's Table 2;

⁵. SBC was not historically split in the PMI budget across intervention areas, hence the row "SBC (unspecified)" for the FY2020 MOP cycle. Going forward, SBC proposed activities will be categorized across vector control, case management, and prevention (new categories).

⁶. PMI Proposed Activity "National-level support for case management" rolls up under "Case Management" Level 1

Note: Categories shown reflect the harmonized financial taxonomy (Levels 1-3) developed by BMGF, GFATM, and PMI in 2019, as part of a broader data harmonization initiative; potential for categories to continue to evolve through FY 2020 MOP process, as well as for additional donors and host country governments to adopt and reflect funding using the same categories.

* Category currently funded by PMI only

** Category currently funded by Global Fund only

Figure 11. Annual budget, breakdown by commodity

Year ¹	Funder	ITNs for Continuous Distribution	ITNs for Mass Distribution	IRS Insecticide ⁴	ACTs	RDTs	Severe Malaria	SMC-Related	IPTp-Related	Total
FY17/ CY18	PMI	\$1.3M	\$2.3M	-	\$0.5M	\$0.2M	\$0.5M	\$0.8M	-	\$5.5M
	GFATM	-	-	-	\$0.1M	-	\$0.2M	\$0.6M	-	\$0.9M
	Total	\$1.3M	\$2.3M	-	\$0.5M	\$0.2M	\$0.6M	\$1.4M	-	\$6.4M
FY18/ CY19	PMI	-	-	-	\$0.2M	\$0.9M	\$0.9M	\$0.4M	\$0.2M	\$2.4M
	GFATM	\$2.2M	\$8.4M	-	\$0.4M	\$0.5M	\$0.1M	\$0.4M	-	\$12.0M
	Total	\$2.2M	\$8.4M	-	\$0.5M	\$1.4M	\$0.9M	\$0.9M		\$14.4M
FY19/ CY20	PMI	-	-	-	\$2.5M	\$1.3M	\$0.4M	\$1.2M	-	\$5.5M
	GFATM	\$1.3M	-	-	\$0.4M	\$0.8M	\$0.1M	\$0.5M	\$0.1M	\$3.1M
	Total	\$1.3M	-	-	\$3.0M	\$2.1M	\$0.5M	\$1.7M	-	\$8.6M

¹. Each year's figures represent the FY for PMI and CY for GFATM that most closely align.

². PMI commodity costs are fully loaded, including costs for the ex-works price of the commodity, quality control, freight, insurance, and customs.

³. GFATM commodity costs in table above only include ex-works commodity value in a given year. Additional costs, including quality control, freight, insurance, and customs totaled \$2.7M over the CY2018-2020 period;

⁴. IRS insecticide; for PMI, IRS insecticide commodity costs may be inextricable from IRS implementation costs in historical data – field left blank where this is the case.

Note: Categories shown reflect the harmonized financial taxonomy (Levels 1-3) developed by BMGF, GFATM, and PMI in 2019, as part of a broader data harmonization initiative; potential for categories to continue to evolve through FY 2020 MOP process, as well as for additional donors and host country governments to adopt and reflect funding using the same categories.

V. ACTIVITIES TO BE SUPPORTED WITH FY 2020 FUNDING

Please see the FY 2020 budget tables (Tables 1 and 2) for a detailed list of activities PMI proposes to support in Guinea with FY 2020 funding. Please refer to www.pmi.gov/resource-library/mops for the latest tables. Key data used for decision-making can be found in Annex A.

ANNEX A: INTERVENTION-SPECIFIC DATA

1. VECTOR CONTROL

NMCP objective
In accordance to the National Strategic Plan (NSP) 2018-2022, the aim of the National Malaria Control Program is to ensure that by 2022 at least 90% of the population at risk for malaria is using ITNs. Mass campaigns will continue to be the primary method of distribution of ITNs, but distribution through antenatal clinics, the expanded program on immunization (EPI), community health workers, schools, and the private sector are to be scaled up by 2022. Additionally, 90% of the population that is targeted by IRS should be covered - although, no areas are currently targeted for IRS. Larval control will be promoted through a community approach through integration into hygiene promotion activities.
NMCP approach
<u>PRIMARY VECTOR CONTROL INTERVENTIONS</u>
1. ITN distribution in mass campaign
<ul style="list-style-type: none">a. Distribution of ITNs will be implemented via national universal coverage campaigns every three years, with the next one scheduled for 2022. Distribution will take place in several phases and in zones taking into account, the agricultural calendar so that the distribution takes place during targeted times aligned with optimum times for transmission interruption. Implementation will include production of distribution tools, acquisition of ITNs, the supply of equipment, training, stakeholder supervision, population awareness, micro-planning, population count, ITN distribution, and monitoring and evaluation activities.b. The mosquito nets distributed will be long-lasting insecticide-treated bednets and should bear a distinction that distinguishes them from commercial ones. The goal will be for every household to have one net for every two people.c. To enable rapid scaling up of insecticide-treated bed nets, the partnership between the public sector, the private sector, civil society and grassroots communities will be strengthened.
2. Continuous distribution of ITNs
<ul style="list-style-type: none">a. Continuous distribution of ITNs will be developed across multiple distribution channels to cover new targets and achieve universal coverage. In accordance to the 2018-2022 NSP, the following channels will be used:

- i. **Health center channel:** free-of-charge net distribution to pregnant women and children under 1 year of age at ANC, EPI and Health Post level.
- ii. **Community channel:** 1) net distribution through local officials who will provide free distribution to households identified by CHWs during home visits. The ITNs will be securely stored by the district president or village chief who will manage the delivery procedures and distribution in collaboration the community health worker. 2) Occasional distributions made in the community through the donations of associations and companies in specific situations (recrudescence of malaria, natural disaster, influx of refugees ...).
- iii. **School channel:** ITNs distributed free of charge to primary school students following a procedure and mechanisms that will be developed by the School Health Directorate and the Ministry of Supervision.
- iv. **Private channel:** As part of the promotion of the use of ITNs, nets will be sold at subsidized prices in private pharmacies supermarkets in collaboration with the NMCP.

SECONDARY VECTOR CONTROL INTERVENTIONS

3. Indoor residual spraying (IRS):

- a. While currently not financially or operationally supported by the NMCP, according to the 2018-2022 NSP, IRS implementation will be guided by feasibility studies and pilot projects supported by research institutions and mining companies. Normative documents (Standards and Procedures, Implementation Plan) will be developed and disseminated.

4. Larval control:

- a. While currently not financially or operationally supported by the NMCP, in accordance to the 2018-2022 NSP, community-based larval control approach will be developed with an emphasis on promoting hygiene and sanitation, destruction and treatment of breeding sites with operational research components developed in parallel. Normative documents (norms and procedures) will be developed in collaboration with the concerned ministries and with the technical support of the partners. These documents will be disseminated to all the actors (local communities, NGOs / *Organisation de Communauté de Base (OCB)*, *Petites et Moyennes Entreprises (PME)*, etc.)

PMI objective, in support of NMCP

- PMI and GFATM work collaboratively to support the NMCP priorities identified in the National Strategic Plan 2018-2022. An annual gap analysis is used as the basis for a joint action plan. Both donors use the same materials and tools, and collaborate on a number of activities including the development of policies and guidelines as detailed in the FY 2018 MOP.
- PMI and GFATM mainly support ITN interventions from Guinea's NSP.
- Although IRS and larval control are mentioned in Guinea's 2018-2022 NSP, they are not currently supported financially or operationally by the NMCP. If the NMCP pursues scale-up of these interventions, PMI may support these activities by performing feasibility studies, developing supporting documentation and guidelines, support capacity building for IRS or larval control under scenarios and strategic plans with high likelihood of success.

PMI-supported recent progress (past ~12-18 months)

- Since the opening of the entomology laboratory and insectary at Gamal Abdel Nasser University of Conakry (UGANC) in November 2016, 11 trainees were selected and completed their insectary internship in FY 2018. In addition, 13 generations of *An. gambiae s.s.* (Kisumu strain) were produced in FY 2018 in the insectary. On May 30, 2019, the insectary team received *An. gambiae* Kisumu strain mosquito eggs from Switzerland. The project entomology team is maintaining this colony.
- PMI supported the NMCP's Vector Control Unit to organize eight monthly meetings in FY 2018 where vector control activities were reviewed and discussed.
- During the past 18 months (February 2018 to October 2018), entomological monitoring occurred in 24 villages in eight prefectures in four natural regions in Guinea.
- Pyrethrum spray catches, human landing catches, and light trap collections have occurred at all sites. Two rounds of collection have occurred in Labe, Kankan, Kissidougou, Siguiiri, Lola and Maferinyah during the period of January to March and April to June in 2018, while seasonal monitoring has occurred monthly in Boké and Faranah in FY 2018 and FY 2019.
- Species identification by polymerase chain reaction (PCR), sporozoite enzyme-linked immunosorbent assay (ELISA) and molecular resistance testing (phenotypic assays, intensity assays and insecticide resistance molecular genotyping) were done in Guinea in FY 2018.
- Both *An. gambiae s.s.* and *An. coluzzii* were identified from all sites. Currently, the same number of sites are being monitored to characterize population dynamics, infection status and insecticide resistance.

Figure A1. Regions and Rounds of Collection

Natural Regions	Prefectures	Villages (Sentinel sites)	Rounds of collection
Guinée Maritime	Boké	Kaboye, Dioumaya, Guilere	Seasonal (monthly sampling)
Haute Guinée	Faranah	Balayani, Foulaya, Tindo	
Guinée Maritime	Maferinyah	Madinagbe, Fandie, Moribaya	Two collections - January to March and April to June in 2018
Moyenne Guinée	Labé	Banty, Thialy, Toutouroun	
Haute Guinée	Siguiri	Dankakoro, Tiguigbiri, Tabakoro	
Guinée Forestière	Kissidougou	Gbangbadou, Kérédou, Tongbékoro	
Haute Guinée	Kankan	Dalabani, Balandou, Makonon	
Guinée Forestière	Lola	Gama konikoni, Togbanata, Weyekore	

- In 2019, a mass bed net distribution campaign was conducted from April to August. The nets distributed were deltamethrin, polyester nets (Dawa Plus®, Yorkool®, PermaNet 2.0®). PMI-supported districts accounted for approximately half of the country. A four-phase voucher system was used:
 - The first phase was conducted in 16 prefectures, where 2,722,021 ITNs were distributed with a 95 percent coverage rate.
 - The second phase was conducted in 10 prefectures, where total of 2,410,735 ITNs were distributed with a 94 percent coverage rate.
 - The third phase targeted three prefectures and the five communes of Conakry, in which 1,805,831 ITNs were distributed with a 93 percent coverage rate.
 - The fourth phase was conducted in three prefectures, where total of 1,370,646 ITNs were distributed with 95 percent coverage rate.
 - Overall, 8,309,233 were distributed with a 94 percent overall coverage rate. The ITNs for the campaign were procured by PMI, GFATM, AMF and the *Organisation pour la Mise en Valeur du fleuve Sénégal (OMVS)*.

- Additional support of PMI beyond net procurement include:
 - ITN distribution logistics (i.e. transportation, (micro-)planning, pre- and post-distribution training, 5 percent monitoring, supervision, social mobilization, communication and other coordination efforts)
 - An assessment of the feasibility of a continuous net distribution scheme, with report findings concluding the following:
 - School-based distribution is more feasible as part of Guinea’s ITN distribution strategy than is community-based distribution; and
 - School-based distribution has impressive reach and could significantly improve access to ITNs throughout the country.
 - Entomological monitoring activities following ITN distribution, which include:
 - Standard WHO protocol to assess the durability and efficacy of distributed ITNs for 2016 nets (analysis is not yet complete).
- Durability monitoring will be conducted according to WHO standard protocol to assess the physical integrity and efficacy of distributed ITNs.

PMI-supported planned activities (next ~12-18 months, supported by currently available funds)

- Planned activities for the next 12-18 months will be a continuation of previous activities of 2019.
- Support for basic entomological monitoring will continue in each of the four ecological zones, consistent with the previous MOP. Potential support for expansion of the number of sites may be provided by GFATM. Data collected from these sites will provide information on the species of malaria vectors, infection rates, biting times and other behavior, effectiveness of vector control tools, and resistance status (including resistance intensity bioassays). Additionally, seasonal monitoring in selected sites will provide improved understanding of the seasonality of different species and their roles in malaria transmission. Budget includes support for transport and analysis of samples, capacity building for entomologists, and support for NMCP staff supervision. This will permit mosquito collections and insecticide resistance testing to be done in Guinea thereby reducing supervisory burden on the NMCP.
- Continued operational support for the insectary based at UGANC and associated laboratory, which includes electricity, internet, general maintenance, security, and support for the biological specimens (mosquitoes and animal blood sources).

- Continued support for routine distribution of ITNs through ANC and EPI in PMI zones.
- Continued prospective monitoring of ITNs distributed during the 2019 mass campaign. Data will be collected 6- and 12-months post-campaign on: 1) net survivorship and physical integrity; 2) bio-efficacy of insecticides; and 3) insecticidal content.
- An evaluation of routine ITN distribution will be conducted to identify areas of potential improvement. This may be national in scale if GFATM co-funds the activity.

1.A. ENTOMOLOGICAL MONITORING

Key Goal

Determine the geographic distribution, bionomics, and insecticide resistance profiles of the main malaria vectors in the country to inform vector control decision-making

Do you propose to increase, decrease, or maintain funding allocation levels for this activity? Why, and what data did you use to arrive at that conclusion?

We propose that the funding allocation for entomological monitoring remain the same.

While there are areas where NMCP is doing well, there is still room for significant improvement: Currently, there is an insectary with full-time staff; in-country capacity for strain verification for mosquitoes is not sufficient but PMI is supporting NMCP to develop that capacity; collaborative review of entomological data for timely evidence-based decision making does occur but does not occur at optimum regularity. We believe our current funding levels and continued technical assistance for entomological monitoring can lead to the necessary improvements.

In order to address an identified anomaly between the lower insecticide resistance status reported by the PMI program compared to the higher insecticide resistance status reported by the London School of Hygiene and Tropical Medicine in a recent publication (Collins et al Sci Rep. 2019 Jun 20;9(1):8846. doi: 10.1038/s41598-019-45261-5.), we are working with GFATM to support enhanced insecticide resistance monitoring. This GFATM support may include an expansion in the number of entomology surveillance sites. Understanding the reason for this anomaly will help inform the program if there are operational factors that lead to differential insecticide resistance patterns.

Please see Table 2 for a detailed list of proposed activities with FY 2020 funding.

Key Question 1

Where is entomological monitoring taking place, what types of activities are occurring, and what is the source of funding?

Supporting Data

Figure A2. Prefectures and Activity Support

Prefectures	Monitoring sites	Activities *	Supported by
Labé (PMI Zone)	1	<ul style="list-style-type: none"> Spot check monitoring Insecticide resistance monitoring 	PMI
Kankan	3	<ul style="list-style-type: none"> Spot check monitoring Insecticide resistance monitoring 	PMI
Kissidougou	3	<ul style="list-style-type: none"> Spot check monitoring Insecticide resistance monitoring 	PMI
Siguiri	3	<ul style="list-style-type: none"> Spot check monitoring Insecticide resistance monitoring 	PMI
Lola	3	<ul style="list-style-type: none"> Spot check monitoring Insecticide resistance monitoring 	PMI
Maferinyah	3	<ul style="list-style-type: none"> Spot check monitoring Insecticide resistance monitoring 	PMI
Boké (PMI Zone)	3	<ul style="list-style-type: none"> Seasonal monitoring Insecticide resistance monitoring 	PMI
Faranah	3	<ul style="list-style-type: none"> Seasonal monitoring Insecticide resistance monitoring 	PMI
Dabola	1	<ul style="list-style-type: none"> Spot check Molecular insecticide resistance monitoring 	PMI

*Spot check = a one or two time entomological sampling survey to obtain bionomics information at a single point in time in the selected site (<https://www.who.int/malaria/publications/atoz/9789241505819/en/>).

In 2018, 8,636 *Anopheles* were collected comprising of 8,401 *An. gambiae s.l.* and 235 *An. funestus s.l.* All selected prefectures had *An. gambiae s.s.*, while only Boké, Faranah and Kankan had *An funestus. s.l.*

Molecular testing of 1,410 *An. gambiae s.l.* identified *An. gambiae s.s.* (n = 1131) as the most commonly identified species in the selected sites. *A. coluzzi* (n = 268), *A. arabiensis* (n = 6) and

hybrids of *A. gambiae s.s.* and *A. coluzzi* (n = 5) were also identified. Figure A3 provides a map of the percentage and distribution of mosquitoes collected in selected sample sites.

Figure A3. Percentage and Distribution of Anopheles gambiae s.l. in selected sites in Guinea

Percentage and Distribution of Anopheles gambiae s.l. in selected sites in Guinea

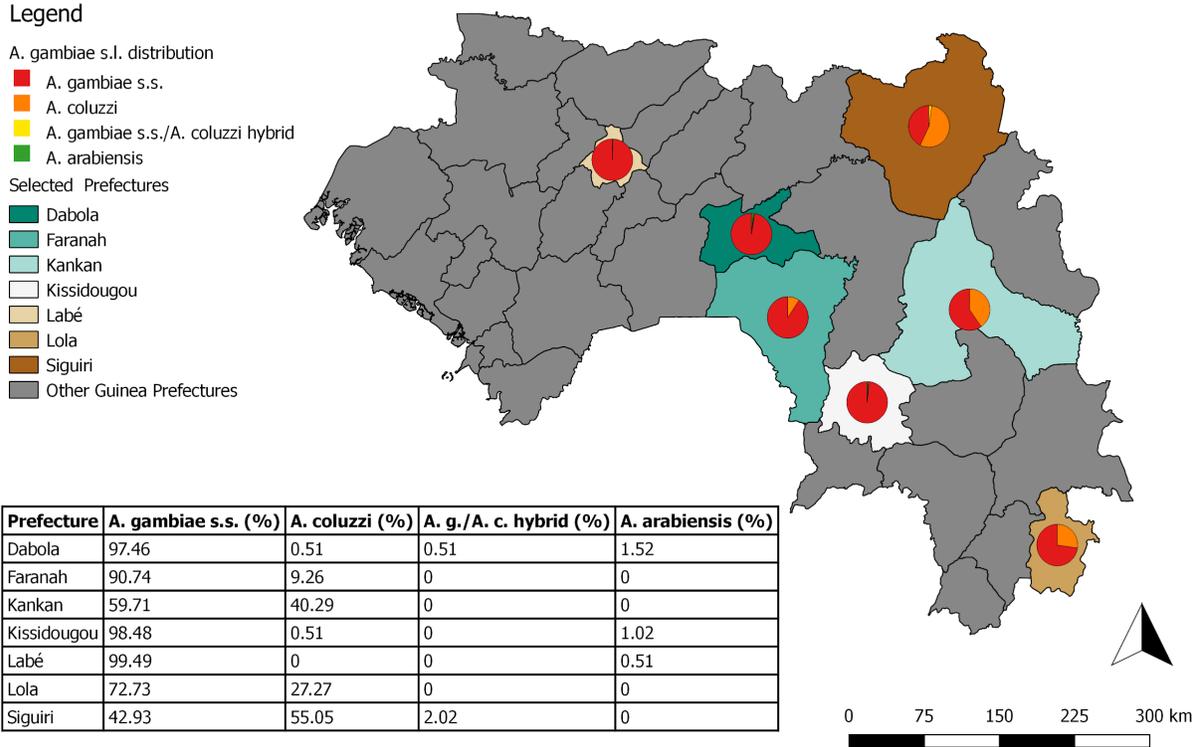


Figure A4. Peak Abundance and Preferred Biting Locations by Prefecture

Prefecture	Major Vector	Minor Vector	Peak Abundance/nightly	Preferred Biting Location	Human biting rate/night	Sporozoite Rate	Annual* EIR
Boké (PMI Zone)	<i>An. gambiae s.l.</i>	<i>An. funestus s.l.</i>	Indoors: 2am to 3am Outdoors: 3am to 4pm	Outdoors (50.6%)	1.6	2.0% (1/50)	11.68
Faranah	<i>An. gambiae s.l.</i>	<i>An. funestus s.l.</i>	Indoors: 4am to 5am Outdoors: 2am to 3am	Outdoors (50.4%)	25.0	1.4% (5/350)	127.75

Prefecture	Major Vector	Minor Vector	Peak Abundance/ nightly	Preferred Biting Location	Human biting rate/night	Sporozoite Rate	Annual* EIR
Kankan	<i>An. gambiae s.l.</i>	<i>An. funestus s.l.</i>	Indoors: 1am to 2am Outdoors: 1am to 2am	Indoors (55.0%)	10.8	N/A	N/A
Kissidougou	<i>An. gambiae s.l.</i>		Indoors: 12am to 1am Outdoors: 12am to 1am	Indoors (56.7%)	4.8	N/A	N/A
Labé (PMI Zone)	<i>An. gambiae s.l.</i>		Indoors: 12am to 1am Outdoors: 11pm to 12am	Indoors (55.1%)	3.2	N/A	N/A
Lola	<i>An. gambiae s.l.</i>		Indoors: 4am to 5am Outdoors: 2am to 3am	Indoors (55.0%)	6.4	N/A	N/A
Maferinya	<i>An. gambiae s.l.</i>		Indoors: 3am to 4am Outdoors: 4am to 5am	Indoors (55.7%)	28.2	N/A	N/A
Siguri	<i>An. gambiae s.l.</i>		Indoors: 11pm to 2am Outdoors: 1am to 2am	Indoors (53.3%)	0.9	N/A	N/A
* Data from January to June; EIR = Entomological Inoculation Rate							

Conclusion

The data suggest classical African malaria transmission dynamics, with *An. gambiae s.s.* as the primary vector and predominantly night-time indoor feeding. However, continued entomological monitoring is needed to detect shifts in mosquito bionomics that may have implications on the current vector control strategy. PMI will continue to work with GFATM to improve entomological monitoring to achieve maximum impact with our intervention strategies. Both PMI and GFATM have heavily invested in these strategies.

Key Question 2

What is the current insecticide resistance profile of the primary malaria vectors?

Supporting Data

Figure A5 below demonstrates the insecticide resistance data collected in 2018 by the PMI program using adult nulliparous female mosquitoes (two- to five-day old post-emergence) sourced from larvae and pupae in the different prefectures. WHO tube assay at the diagnostic dose and CDC intensity bottle bioassay were used for the tests. The goal of this work was to determine the resistance status in the selected prefectures.

Figure A5. Percent mortality of *Anopheles gambiae* s.l. with the WHO tube assay at the diagnostic concentration using deltamethrin, permethrin and alpha-cypermethrin, pirimiphos-methyl, bendiocarb and propoxur:

Insecticides	Concentration	Boke	Labe	Kankan	Kissidougou	Lola	Faranah	Siguiri	Maferinyah
Deltamethrin	0,05%	100	98	100	100	100	100	100	100
Permethrin	0,75%	94	97	95	91	72	96	91	94
Alpha-cypermethrin	0,05%	88	75	90	95	92	94	100	90
Pirimiphos-methyl	0,25%						100		
Bendiocarb	0,1%						100		
Propoxur	0,1%						100	100	

Key:
Susceptibility (98 – 100% mortality); Possibility of resistance (90 – 97%); Resistance (<90%)

Figure A6. Percent mortality of *Anopheles gambiae* s.l. with the CDC intensity bottle bioassay using deltamethrin, permethrin and alpha-cypermethrin:

Insecticide	Dose	Boké (%)	Labe (%)	Kankan (%)	Kissidougou (%)	Maferinyah (%)
Deltamethrin	1×	100	98	98	100	100
	2×	100	100	100	100	100
	5×	100	100	100	100	100
	10×	100	100	100	100	100
Permethrin	1×	94	97	95	91	94
	2×	100	100	100	100	100
	5×	100	100	100	100	100
	10×	100	100	100	100	100

Insecticide	Dose	Boké (%)	Labe (%)	Kankan (%)	Kissidougou (%)	Maferinyah (%)
Alpha-cypermethrin	1×	88	75	95	95	90
	2×	98	100	100	100	100
	5×	100	100	100	100	100
	10×	100	100	100	100	100

Key:
Susceptibility (98 – 100% mortality); Possibility of resistance (90 – 97%); Resistance (<90%)

Additionally, in 2018, a total of 1,400 *An. gambiae s.l.* were shipped to Entomological Research Center of Cotonou (CREC) for detection of the knockdown resistance gene (Kdr) West and acetylcholinesterase gene (Ace) 1R mutations. *Anopheles gambiae s.l.* from Dabola, Faranah, Kankan, Kissidougou, Labe, Lola and Siguri were tested. Determinations of the Kdr L1014F (Kdr West) and Ace-1 mutations were carried out following the protocol of Martinez-Torres et al (1998) and Weill et al (2004), respectively. Of 1,410 mosquitoes analyzed for Kdr PCR in all sites, 987 were resistant homozygotes (RR), 278 heterozygotes (RS), and 145 susceptible homozygotes (SS). The allelic frequency of the Kdr (F(Kdr)) mutation in *An. gambiae s.s.* ranged from 69 percent in Labé to 87 percent in Kissidougou. Furthermore, Ace-1R mutation was recorded in all localities with very low frequencies (F(Ace-1)), ranging from 1 percent in Siguri to 5 percent in Kissidougou.

A separate study was conducted in 2017 in six villages in the Maferinyah sub-prefecture, Forecariah Prefecture (Fandie, Madinagbe, Maferinyah Centre I, Moribayah, Senguelen and Yindi), in Southwest Guinea. This study was done in collaboration with the London School of Hygiene and Tropical Medicine and the *Centre National de Formation et de Recherche en Santé Rurale de Maferinyah*, with technical assistance from PMI. The objective of the study was to assess the relationship between insecticide resistance, mosquito age, and malaria prevalence in *Anopheles gambiae s.l.* from Guinea. The results showed that local mosquito populations were intensely resistant to pyrethroids (alpha-cypermethrin, deltamethrin and permethrin) and carbamate (bendiocarb). Mortality rates in the 10× concentration of the CDC intensity assay were as low as 83 percent for alpha-cypermethrin, 86 percent for deltamethrin, 78 percent for permethrin and 83 percent for bendiocarb. The pyrethroid resistance was associated with high frequencies of the L1014F kdr allele. N1575Y and I1527T mutations in the voltage-gated sodium channel gene were present at lower levels and may warrant increased surveillance efforts, particularly as L1014F kdr approaches fixation. Restoration of mosquito susceptibility following pre-exposure to Piperonyl butoxide (PBO) indicates increased activity of detoxification enzymes

is also contributing to pyrethroid resistance in this area and requires additional characterization. Despite no ongoing vector control activities using carbamates, bendiocarb resistance was also detected, and the G119S Ace-1 allele was detected in a subset of tolerant individuals. Malaria infection (oocyst rate) was not associated with pyrethroid resistance but it was associated with bendiocarb resistance. In general, resistant vectors were younger than their susceptible counterparts; however, a small proportion of intensely resistant mosquitoes were older.

Conclusion

It is not clear why the 2018 insecticide resistance data of the PMI program suggested less intense resistance than was reported in the recent publication (Collins et al Sci Rep. 2019 Jun 20;9(1):8846. doi: 10.1038/s41598-019-45261-5.). This discordance may be attributed to several factors such as mosquito rearing or quality of assay; we will assess these factors to determine what role they play in resistance. However, we will also assess the effects of spatial and/or temporal factors on resistance. Further investigations are necessary to assess the status of insecticide resistance in Guinea. Increased spatial and temporal resistance testing, particularly for pyrethroids, will be critical to determine the extent of resistance in Guinea. It will also be useful to explore the association between insecticide resistance and vector fitness as a function of space and time. We are currently working with GFATM to develop a plan to support enhanced insecticide resistance monitoring including an expansion in the number of entomological surveillance sites in order to address these questions.

Key Question 3

What are the in-country considerations (e.g. in-country staffing capacity, political climate, security concerns) that impact your funding allocation in this category?

Supporting Data

PMI supported the entomological capacity strengthening training for NMCP staff from the national level and regional technicians from the sentinel sites at the Entomological Research Center in Cotonou. This training has built the capacity of NMCP staff to carry out entomological monitoring activities. In addition, since 2016, PMI has continued to support the insectary and molecular laboratory of UGANC. Since 2019 the insectary and the laboratory are part of the training platform for students in the medical biology department of the university. This is part of an effort to continue building entomological capacity in Guinea.

One local consideration is the concern that the 2020 election cycle could see similar protests, strikes, unrest, and violence in the streets as occurred around the February 2018 elections. This

could have an impact on the implementation of malaria activities, including entomological monitoring.

Conclusion

The country has capacity to conduct insecticide resistance monitoring in a greater number of sites on an annual basis. The NMCP is developing a network of partners such as the local research institutions (i.e. universities and research centers), GFATM, mining companies, Médecins Sans Frontières (MSF), and PMI for entomological monitoring. Through this network, routine monitoring of some insecticide resistance mechanisms have been evaluated. NMCP capacity to conduct routine entomological monitoring activities and access to the necessary infrastructure is fairly strong. PMI will continue to provide technical assistance to improve capacity in areas that are still weak. In addition, support may be provided by GFATM to expand the number of entomological surveillance sites in order to better address recently identified uncertainties in insecticide resistance.

1.B. INSECTICIDE-TREATED NETS (ITNs)

PMI Goal

Achieve high ITN coverage and usage of effective nets in endemic PMI-supported areas (in the context of the current insecticide resistance); and maintain high coverage and use with consistent ITN distribution (via campaigns and/or continuous channels in a combination that is most effective given country context). Determine the geographic distributions, bionomics, and insecticide resistance profiles of the main malaria vectors in the country to inform vector control decision-making.

Are you proposing to increase, decrease, or maintain funding allocation levels for ITN distribution and SBC activities? Why? What data did you use to arrive at that conclusion?

Funding allocation levels for the ITN category will increase to include advanced purchase of nets for the 2022 mass campaign and for initial campaign planning activities. This is due to the recent trend of late arrival of funds which was problematic for the recently completed campaign. In addition, some reprogramming of FY 2019 funds has been done to support an evaluation of the routine ITN distribution system. This was in response to the substantial decrease in ITN coverage reported between 2016 and 2018 in household surveys. While the timing of data collection in relation to the timing of ITN campaigns likely played a role in the decreasing ITN coverage, the level of decline is concerning. The potential role of the routine distribution system in mitigating such a decline requires investigation. Existing data show a strong net use culture in Guinea (high use:access ratio) so SBC activities focused on net use do not appear to require additional funding; however, PMI will support increased advocacy of routine ITN distribution at the community and health facility levels.

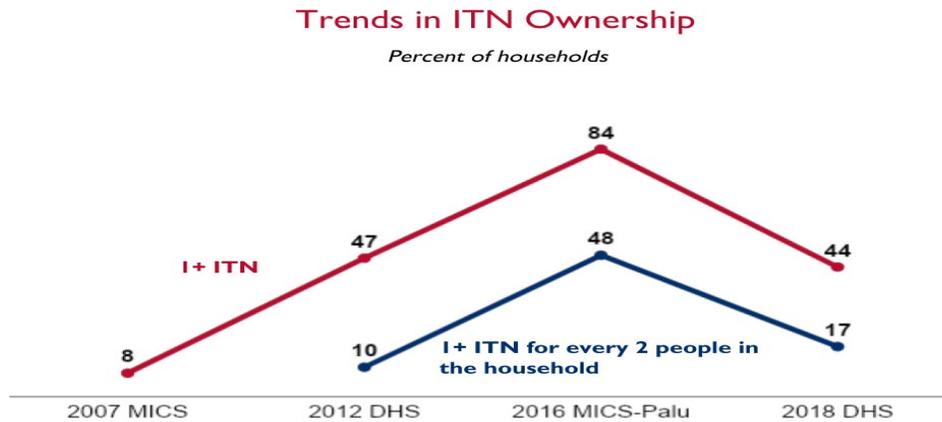
Please see Table 2 for a detailed list of proposed activities with FY 2020 funding.

Key Question 1

How has net ownership evolved since the start of PMI in the country? Are households fully covered?

Supporting Data

Figure A7. Trends in ITN Ownership



Conclusion

A substantial decline in ITN ownership occurred between the 2016 MICS-Palu survey and the 2018 DHS. This decline may be due, in part, to the timing of mass ITN distribution campaigns in relation to the timing of data collection for the surveys (the 2016 survey was conducted after an ITN campaign and the 2018 survey was conducted right before an ITN campaign). Some level of ITN attrition is expected over the three-year interval between campaigns as ITNs get worn and torn and/or repurposed. Nonetheless, the drastic decline in ownership between 2016 and 2018 is worrisome and may indicate a need for improvement in continuous ITN distribution systems. PMI currently supports routine ITN distribution through ANC and EPI in the PMI-supported districts. An evaluation of this activity, preferably at a national level, was identified as an important next step and GFATM has communicated an intention to fund such an evaluation with PMI input. PMI had supported the NMCP's school-based ITN distributed pilot and may use the information to inform future decision-making but at this time will not support school-based distribution channels.

Key Question 2

What proportion of the population has access to an ITN? In contrast, what proportion of the population reports using an ITN? What is the ratio between access and use? Does it vary geographically?

Supporting Data

Figure A8. Trends in ITN Access and Use

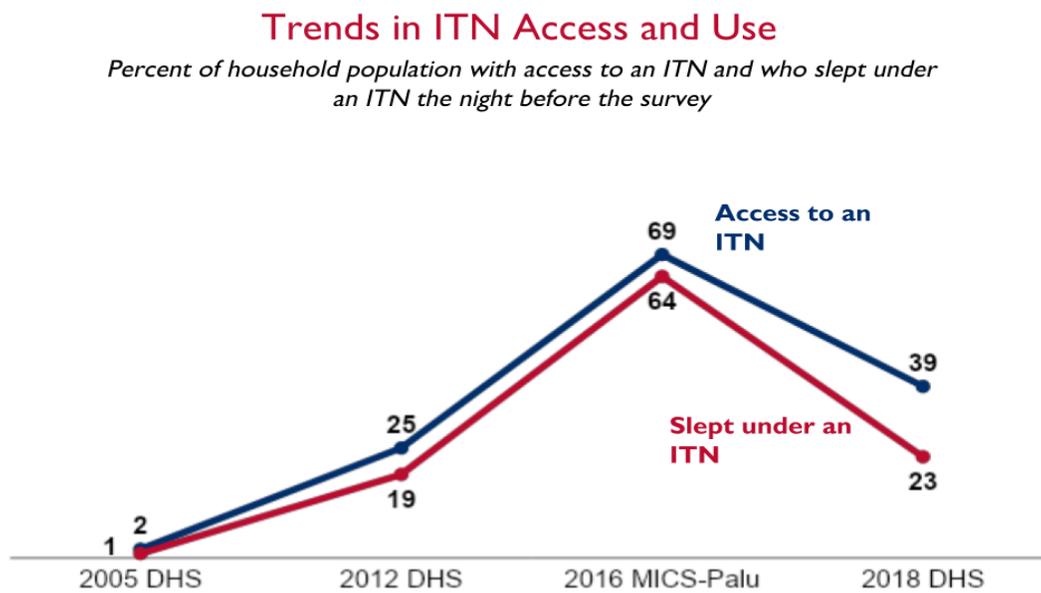
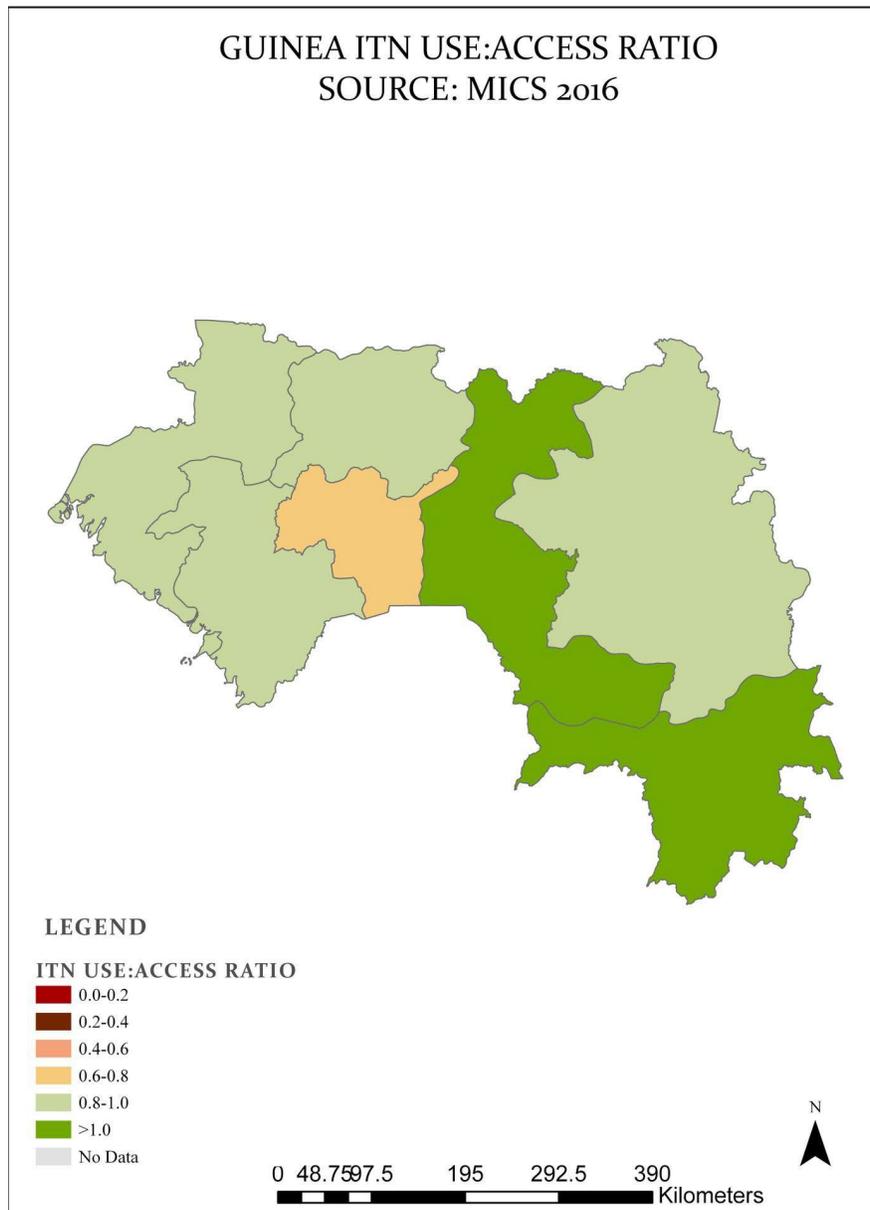


Figure A9. Guinea ITN Use:Access Ratio, from MICS 2016



Conclusion

A substantial decline in ITN access and use occurred between the 2016 MICS-Palu survey and the 2018 DHS. These patterns mirror the trends seen in ITN ownership in the previous section. This is important, as individuals who do not own ITNs cannot use ITNs (66% of households did not own an ITN in 2018). The ITN use:access ratio is intended to measure whether or not there is a problem with low ITN use when nets are available. In Guinea, the use:access ratio map

indicates that if people have nets, they are likely to use them. Most regions of the country have a use:access ratio of at least 80%. Therefore, the real problem appears to be a lack of ITNs (i.e. an ownership issue).

However, it is worth noting the figure on the trend of access and use of ITNs shows use: access data for 2018, but the map is from 2016. The gap between access and use seems to widen in 2018, which presumably may make that map less green and suggest low use-to-access. We will continue to monitor use-to-access and develop appropriate responses based on data.

Key Question 3

In areas where ITN access is high but use is low, what is known about the key barriers and facilitators to use?

Supporting Data

In PMI-supported districts, 45 percent of households use mosquito nets year-round and 24 percent of households only use them in the rainy season, according to the 2018 KAP Survey. These different proportions vary by residence and prefecture. In urban areas, 48 percent of households use mosquito nets year-round, compared to 42 percent in rural areas. The proportion of households using mosquito nets during the rainy season alone is 12 percent in urban areas versus 37 percent in rural areas. Note that the seemingly low ITN use reported includes households that may not even own a net.

Figure A10: Facilitators and Barriers to ITN Use

Facilitator	Type of Factor <i>(Internal, Social, or Environmental)</i>	Data Source ¹	Evidence
Ownership	Environmental	Implementing partner data	65% of households in the PMI-supported districts have mosquito nets that are used or can be used for sleeping. This proportion is higher in rural areas (79%) than in urban areas (52%).

¹ The 2018 Knowledge, Attitudes and Practices (KAP) Survey was conducted in June and July of 2018 in 4,937 households across PMI zones

Social support	Social	KAP Survey, 2018	80% of heads of households and 79% of women say they have encouraged others to use a mosquito net. This behavior is more common in rural areas (88% and 87%) than in urban areas (73% and 74%) - with the exception of the municipalities of Dixinn (20%) and Ratoma (51%).
Knowledge	Internal	KAP Survey, 2018	83% of household heads and 85% of eligible women know that using a mosquito net is the best way to prevent malaria.
Self-efficacy	Internal	KAP Survey, 2018	71% of household heads claim to be able to protect themselves from malaria without difficulty compared to 19% who say they cannot protect themselves and 11% who are not sure. As for women, 70% of them believe they can protect themselves from malaria without difficulty, 20% of them say they cannot and 10% are not sure they can. Overall, 79% of household heads feel they are able to sleep under a mosquito net all night. 78% of women think they can sleep under a mosquito net all night long.
Barrier	Type of Factor <i>(Internal, Social, or Environmental)</i>	Data Source	Evidence
Design of information campaigns	Environmental	KAP Survey 2018	Stakeholders cited issues with sensitization efforts that kept communities from gaining necessary information on nets: ineffective use of communication channels, inaccurate information, timing of broadcasts, lack of information in local languages, illiteracy of community members, lack of access to radio broadcasts.

Access to net	Environmental	KAP Survey 2018	<p>Access to a net is one of the greatest predictors of net use and only 58% of households believe they can get enough mosquito nets to cover all sleeping spaces - and the rate is lower in the municipality of Kaloum (31%), the prefectures of Forecariah (32%), Gaoual (34%), Fria (37%), Boffa (35%) and Coyah (36%). On the whole, 78% of women think they can sleep under a mosquito net all night long, but the rates are much lower in Kaloum (27%), Dixinn (32%) and Coyah (44%).</p> <p>The main reasons people gave for not sleeping under a net every night were not having enough nets for everyone in the household (35%) and not having a net at all (32%).</p>
Low perception of risk	Internal	KAP Survey 2018	<p>39% of household heads and 39% of women think that malaria only exists in the rainy season, and this perception is higher in Koundara (60%), Mali (64%), Labé (76%), Koubia (80%) and Dinguiraye (97%).</p> <p>78% of household heads think that malaria is contracted only when there are many mosquitoes. In each of the prefectures and municipalities except Boffa (30%) and Tougué (43%), more than half of heads of households believed this.</p> <p>15% of household heads and 19% of women are not convinced that every case of malaria has the potential to end in death.</p>
Allergies	Internal	KAP Survey, 2018	<p>Some people say they don't use nets because they believe they are allergic to them.</p>

Conclusion

Many challenges remain in achieving the goal of universal coverage of ITNs. Efforts must continue to increase ITN ownership and access because people cannot use ITNs if they do not have them. More strategic communication should be used to make people aware of ITN campaigns and to address malaria risk perception and attitudes towards net use.

Data from the use:access ratio report do not show evidence that the use of ITNs is low among those with access to ITNs; however, given the very low levels of ITN access from the 2018 DHS, very few individuals are able to use ITNs. According to the 2018 KAP survey, the main

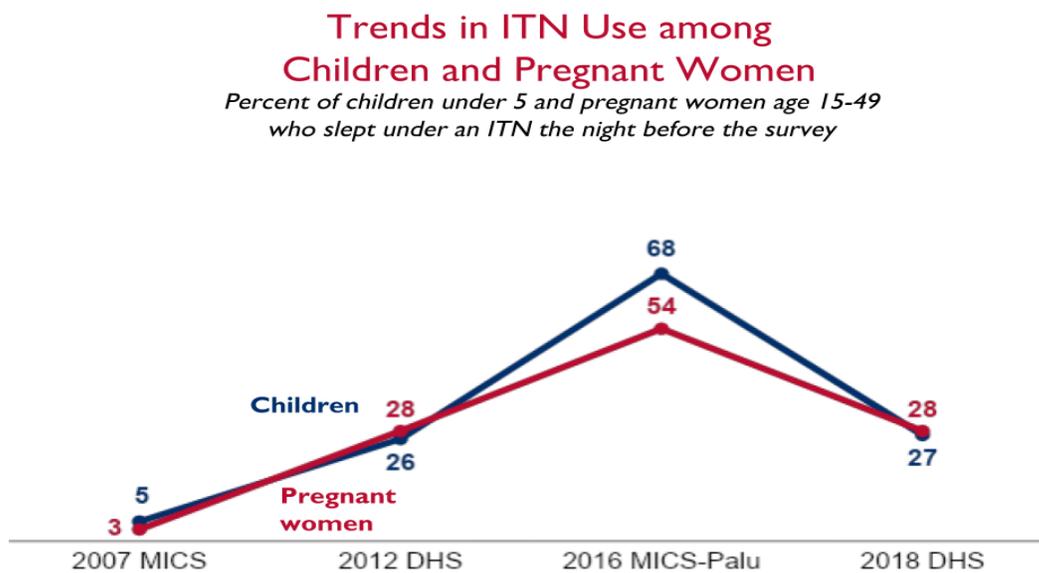
reasons people gave for not sleeping under a net every night were not having enough ITNs for everyone in the household (35 percent) and not having an ITN at all (32 percent). The immediate focus needs to be on increasing ITN ownership. The 2019 mass distribution campaign just concluded and should help to increase ITN ownership and access. The challenge will be maintaining high levels of ITN coverage in non-campaign years. Increased support for the continuous ITN distribution system may assist in filling that gap.

Key Question 4

What percent of pregnant women and children under 5 report sleeping under an ITN?

Supporting Data

Figure A11. Trends in ITN Use among Pregnant Women



Conclusion

After great success in improving ITN use in vulnerable populations (children under five and pregnant women) between 2007 and 2016, a dramatic decline in use was observed between 2016 and 2018. The 2018 DHS shows dramatic reductions in household ownership (84 percent in 2016 to 44 percent in 2018). As the use of nets is impossible without access, a corresponding decrease in ITN use was also seen in 2018. The previously discussed strategies for increasing net ownership should lead to a corresponding increase in the use of ITNs by children and pregnant women.

Key Question 5

What channels are used to distribute ITNs?

Supporting Data

Figure A12. ITN Distribution Channels by Year (2015 – 2021)

Channel	2015	2016	2017	2018	2019	2020	2021
ANC/EPI ¹	167, 896	184,470	222,387	84,658	198,879*		
Schools	0	0	0	20,488	0		
Community	0	0	0	0	0		
Mass Campaign	0	1,000,000	0	0	3,446,094		

*As of August 2019

¹Data from PMI zones only

Source: MICS 2016 and DHS 2018

Conclusion

Guinea has been implementing universal coverage campaigns every three years (2013, 2016, 2019) and routine distribution through ANC and EPI channels throughout the years to improve ITN access between mass campaigns. Additional continuous distribution strategies through schools have been piloted. Given the recent observed declines in ITN access, PMI will invest in an evaluation of routine distribution strategies to identify any weaknesses and identify areas for potential improvement.

Key Question 6

What is the estimated need for ITNs over the next three calendar years? What volume of ITNs are available from partners and the public sector for the next three calendar years?

Supporting Data

Figure A13. Gap Analysis for ITN Commodities by Year

Calendar Year	2019	2020	2021
Total Targeted Population ¹	13,236,234	13,527,431	13,825,035
Continuous Distribution Needs			
Channel #1: ANC ²	536,067	547,861	559,914
Channel #2: EPI ²	476,504	486,988	497,701
<i>Estimated Total Need for Continuous Channels³</i>	780,693	914,806	1,057,615
Mass Campaign Distribution Needs			
2019/2020/2021 mass distribution campaign(s) ⁴	8,824,156		0

Calendar Year	2019	2020	2021
<i>Estimated Total Need for Campaigns</i>	8,824,156	0	0
Total ITN Need: Routine and Campaign	9,604,849	914,806	1,057,615
Partner Contributions			
ITNs carried over from previous year	1,242,153	695,399	504,143
ITNs from MOH	0	0	712,102
ITNs from Global Fund	2,544,742	723,550	332,179
ITNs from other donors (AMF, OMVS)	5,563,353	0	0
ITNs planned with PMI funding ⁴	950,000	0	550,000
Total ITNs Available	10,300,248	1,418,949	2,098,424
Total ITN Surplus (Gap)	695,399	504,143	1,040,809

Footnotes: Add any additional explanations/footnotes in this section to clearly explain the entries in your table. Remember to explain how numbers are derived and specify data sources. Please draw from a validated national malaria quantification if it exists for your country.

1) Source: NMCP's National Strategic Plan (2018 -2022)

2) Targeted population for continuous LLIN needs distribution were based on the following assumptions:

ANC: Projected number of pregnant women: 4.5% of general population

EPI: Newborn & Under 1 year: 4% of general population

3) Historical NMCP's service statistics data show that the targets for routine ITN distribution from the NSP (2018 - 2022) were achieved at 54.5% (2017) and 65.8% (2018) which represents an annual increase of 11%. The estimated needs were arrived at using the service statistics method which assumed an annual increase of 11% in the achievement of the NMCP targets through 2021 i.e. 77.1% for 2019, 88.4% for 2020 and 100% for 2021. Data source : NMCP routine service statistics data (WinDev). These needs were presented part of the national quantification report already validated by PNLP and all stakeholders

4) Purchase of 550,000 ITNs is planned with FY2020 funds for a 2022 campaign given the long lead times for net procurement

Conclusion

PMI will be purchasing a portion of the ITNs required for the 2022 universal coverage campaign with FY2020 funds. This is to ensure that funding and ITNs are available in time for the campaign (long procurement times for ITNs and historically late arrival of funds). The source of the remainder of the campaign nets is uncertain as the current GFATM grant expires at the end of 2020 and the next grant has not been awarded. ITNs for routine distribution will be purchased by GFATM and by the MoH.

Key Question 7

What is the current status of durability monitoring?

Supporting Data

Figure A14. ITNs Evaluated after the Three Campaigns

Campaign Date	Region	Brands	Baseline	12-month	24-month	36-month
2013	Labé Boké	NetProtect	-	X	X	-
2016	Kankan, Nzérékoré	Yorkool	X	X	X	-
2019	TBD	□ Yorkool, DawaPlus, PermaNet 2.0	*	*	*	*

^X Tested done and completed; ^{*} We anticipate conducting net durability monitoring; ⁻ Not conducted; [□] In accordance to PMI guidance only two net types from two sites will be selected for testing.

Figure A15. NetProtect results from 16 months and 28 months post-2013 campaign:

Region	Survey and time since distribution (months)	Attrition wear and tear (%)	Remaining nets in serviceable condition (%)	Remaining nets hanging over sleeping space (%)		Optimal insecticidal effectiveness in bio-assay (%)
				Campaign	Other	
Labé	16m:	27	73	-	-	97
Labé	28m:	33	67	-	-	100
Boké	16m:	37	63	-	-	100
Boké	28m:	34	66	-	-	100

⁻ Data presently not available

For NetProtect nets collected in 2015 and 2016, deltamethrin content was measured using X-ray fluorescence.

Figure A16. Results of average deltamethrin content in the tested nets

Site	Average deltamethrin content in mg/m ² (range)	
	2015	2016
Boké	61.5 (0.6 - 84.9)	70.05 (11.41 - 60.07)
Labé	69.3 (48.1 - 88.1)	67.1 (2.2 - 55.174.0)

Insecticide content of freshly manufactured = 68 mg/m²; Insecticide in nets = deltamethrin

Figure A17. Yorkool results from 6 months post-2016 campaign:

Region	Survey and time since distribution (months)*	Attrition wear and tear (%)	Remaining nets in serviceable condition (%)	Remaining nets hanging over sleeping space (%)		Optimal insecticidal effectiveness in bio-assay (%)
				Campaign	Other	
Kankan	6 m	-	-	-	-	87
Nzérékoré	6 m	-	-	-	-	76

*Final report these nets have not been completed yet
-Data presently not available

For Yorkool nets collected in 2016 and 2018, deltamethrin content was measured using X-ray fluorescence.

Figure A18. Results of average deltamethrin content in the tested nets:

Site	Average deltamethrin content in mg/m ² (range)		
	2016	2017	2018
Kankan	55.0 (24.0 - 87.1)	32.9 (11.41 - 60.07)	22.3 (2.23 - 61.09)
Nzérékoré	55.5 (3.85 - 91.3)	29.2(4.5 - 55.7)	25.8 (9.1 - 47.1)

Insecticide content of freshly manufactured = 55 mg/m²; Insecticide in nets = deltamethrin

Conclusion

For the 2013 assessment on NetProtect nets:

The proportionate hole index (pHI) values for the NetProtect in Guinea only had a median of 1 small hole (interquartile range 0-3.3) in 2015 and a median of zero (IQR = 0-4) in 2016; this was lower than the WHO threshold for net replacement (a pHI of 642, which is equivalent to 1000 cm² of damage.) The results demonstrate that in terms of durability, the majority of nets were in “good” condition at 16 and 28 months. The insecticidal efficacy of the nets was also good at both time points, with 99 percent of nets meeting WHO criteria of >80 percent mortality or >95 percent knockdown in the WHO cone test. Finally, the insecticide quantity was measured with x-ray fluorescence and 88 percent of nets were in the acceptable range of deltamethrin content, at both time points. In general, it appears that the NetProtect nets distributed in Guinea during 2013/2014 were within WHO criteria.

For the 2016 assessment on Yorkool nets:

Final physical durability monitoring reports are still incomplete due to competing priorities related to planning and organization for the 2019 ITN campaign. However, implementers will be

requested to complete all reports for immediate review and finalization. Initial results suggest suboptimal insecticidal efficacy with nets distributed in Nzérékoré with lower mortality than the WHO criteria of >80 percent mortality using susceptible laboratory mosquitoes (*Anopheles gambiae* s.s. Kisumu strain). Nets distributed in Kankan did meet the WHO criteria. The insecticide quantity, measured with x-ray fluorescence, in the nets from the sites showed that at six months post-campaign 23 percent of nets were lower than the manufacturer's listed baseline deltamethrin content. At 12- and 24-months post-campaign, all nets were below the manufacturer's listed baseline deltamethrin content.

For the 2019 assessment of Yorkool, DawaPlus or PermaNet 2.0: Planning discussions will occur during quarter 4, 2019. It is anticipated that monitoring will commence by quarter 1, 2020. Conclusions will be presented at the end of the monitoring activity.

Key Question 8

What are the in-country considerations (e.g. in-country staffing capacity, political climate, security concerns) that impact your funding allocation in this category? If there is a specific budget line item in Table 2 that is not covered by the above questions, please address here.

Supporting Data

ITNs continue to be the key malaria prevention intervention in Guinea. PMI supported the NMCP for the organization of the three mass distribution campaigns in 2013, 2016 and 2019 in collaboration with GFATM and will continue to plan for this activity in the future.

One local consideration is the concern that the 2020 election cycle could see similar protests, strikes, unrest, and violence in the streets that occurred around the February 2018 elections which could have implications for the success of the 2022 ITN campaign.

Conclusion

The PMI/Guinea team will continue to monitor the political situation and will make appropriate judicious adjustments to address any potential barriers to activities.

1.C. INDOOR RESIDUAL SPRAYING (IRS)

Key Goal

Ensure high spray coverage with an appropriate insecticide in target endemic PMI-supported areas

Do you propose to increase, decrease, or maintain funding allocation levels for this activity? Why, and what data did you use to arrive at that conclusion?

The funding level will remain the same as we do not anticipate conducting any IRS activities.

Key Question 1

What areas are targeted for IRS and why?

Supporting Data

IRS is not currently being done in Guinea. However, there are mining companies that do small scale activities. We will continue to work with the NMCP and actors conducting IRS to seek information on any new significant developments on these IRS activities.

Conclusion

We will continue to monitor these private sector IRS activities.

2. HUMAN HEALTH

2.A CASE MANAGEMENT

NMCP objective

Prior to the scale-up of RDTs, national malaria case management guidelines allowed for clinical diagnosis of malaria. However, with increasing RDT availability, PMI supported the revision of the NMCP guidelines to reflect WHO recommendations on laboratory confirmation of all suspected malaria cases prior to treatment. According to NMCP policy, confirmation of cases could be done either by RDTs, provided free of charge and widely used at public health facilities and by community health workers (CHWs), or by microscopy, a paid service at health facilities. The recommendations for universal confirmation apply to both forms of malaria (uncomplicated and severe) and at all levels of the health system, including the community level. Treatment should be provided using artemisinin-based combination therapies or injectable artemisinin derivatives. Specifically, NMCP objectives are for 90 percent of suspected cases to be confirmed and for 90 percent of cases to be appropriately and promptly treated.

NMCP approach

Diagnosis

RDTs are the primary tool for malaria diagnosis at all levels of the health care system, and providing a continuous supply of RDTs at hospitals, health centers, health posts and community level for use by CHWs is an NMCP and PMI priority. It is NMCP policy that malaria microscopy be limited to the hospital and *Centre Médical Communal* (CMC) level. During the 2015 Service Availability and Readiness Assessment (SARA) health facility survey, 71 percent of national-level hospitals, 93 percent of provincial and regional hospitals, and 34 percent of health centers offered microscopy for malaria.

Staff from the NMCP and the National Laboratory, which is part of the National Institute of Public Health, are responsible for supervision of microscopy. With support from partners, the NMCP has procured a slide bank and has started standardizing a policy of external quality control of microscopy, where hospital microscopists are tested using slides from the slide bank. In addition, NMCP has collaborated with the private sector, including confessional and religious institutions, in order to achieve universal coverage of malaria case management and prevention, especially in cities.

Treatment

In Guinea, two artemisinin-based combination therapies (ACTs) have historically been used for treatment of uncomplicated malaria: artesunate-amodiaquine (AS/AQ) and artemether-lumefantrine (AL). Until 2016, AS/AQ was the predominant ACT used throughout the country, with use of AL limited to health prefectures in the SMC zone. However, starting in 2016, NMCP decided to prioritize AL throughout the country and has asked donors to exclusively procure AL for case management. Both drugs are known to be efficacious for the treatment of uncomplicated *P. falciparum* malaria. A 2011–2012 therapeutic efficacy study showed 97 percent efficacy for AS/AQ in children and adults in Forécariah Prefecture. Data from the 2015 round of therapeutic efficacy monitoring in Forécariah and Labé Prefectures show uncorrected 28-day efficacies for AS/AQ and AL above 90 percent, with PCR correction results pending.

PMI objective, in support of NMCP

PMI has supported case management in Guinea through provision of RDTs, ACTs, and injectable artemisinin derivatives, and funding the necessary training and supervision of healthcare workers in health facilities and at the community level to ensure appropriate testing and treatment practices. PMI will continue this support using FY 2020 funds, but will adapt its priorities to match the NMCP strategic shift in focus from training to supervision as the expansion of testing and treatment reaches maturity. PMI will also continue to support annual therapeutic efficacy monitoring and malaria RDT quality assurance. To ensure continuous availability of malaria commodities at health facilities and the community level, PMI will support the NMCP commodity technical working group (TWG) to strengthen their capacity in commodity quantification and its supply chain partners in strengthening regulatory capacity and logistics management, focusing on the peripheral levels.

PMI-supported recent progress (past ~12-18 months)

- To strengthen facility- and community-based malaria diagnostics for case management, PMI supported the following: the revision and validation of the training manual on malaria case management for health providers and CHWs and revision of the laboratory training manual on microscopy maintenance. PMI resources supported the training of 12 national master trainers and 74 lab technicians on malaria diagnosis, as well as 22 national trainers, 404 health providers, and 659 new CHWs on malaria case management. The trained CHWs tested 104,208 people among whom 58,410 were positive and 58,345 were treated with ACTs. Furthermore, PMI in collaboration with NMCP supported the National Armed Forces Health Services to train 56 providers from army barrack clinics. These trainings included malaria prevention, diagnosis, treatment, SBC, data quality collection and reporting.
- PMI also supported the regular supervision of diagnosis and treatment activities in all targeted zones. PMI support allowed the Government of Guinea (GOG) to supervise 305 agents (including 136 women) at 51 facilities. The supervision noted a strong improvement in case management.
- PMI continued to support post-training supervision to improve the quality of services delivery at health facility and community levels, as well as increased support and on-site training for facilities that need additional mentoring.
- With FY 2018 funds, PMI procured 367,875 and distributed approximately 752,812 RDTs. PMI also procured a total of 500,040 and distributed 102,279 ACTs in PMI supported zones as part of the common basket for all donor supported commodities.

PMI-supported planned activities (next ~12-18 months, supported by currently available funds)

1. Procure and distribute single-species RDTs for use in communities and health facilities.
2. Procure and distribute AL for use in communities and health facilities for the treatment of uncomplicated malaria.
3. Procure and distribute injectable artesunate for use in public hospitals and Communal Medical Centers (CMC) for the treatment of severe malaria.
4. Procure injectable artemether for use as pre-referral treatment at the health center level.
5. Procure rectal artesunate for community health workers to administer as pre-referral treatment for severe malaria cases in children.
6. Support implementation of SMC in eight districts, including planning, training, implementation, supervision, monitoring, SBC, etc.
7. Procure microscope consumables (reagents, slides, and repair materials for previously purchased microscopes).

8. *Facility-based case management*: Supportive supervision of case management (inclusive of diagnosis by RDT, treatment) practices at all levels of the health care system, including public and private hospitals, health centers, health posts, and CHWs in PMI zones using comprehensive malaria-specific supervision tool.
9. *Community-based case management*: Operational/supports costs for approximately 1,410 CHWs, including transport, data collection tools, and equipment (boots, gloves, flashlights).
10. *National-Level support for case management*: Work with the NMCP and National Laboratory to implement a comprehensive quality assurance and quality control plan for malaria diagnostics, primarily microscopy, at all levels of the health system.
11. *SBC for case management*: Continued support for the implementation of case management related SBC activities, including community- and facility-based interpersonal communication and national and regional mass media activities, to address the identified barriers to uptake of key malaria-related behaviors.
12. *Therapeutic efficacy monitoring* of Guinea's first-line ACT (AL) will take place in four sites every two years (two sites in one year and the remaining two sites the following year). Funds are meant to cover monitoring activities (including testing of molecular markers of ACT resistance) in two sites as well as SP resistance testing in the site that is in the SMC zone (Labe).

PMI Goal

Improve access to and utilization of timely, quality, and well-documented malaria testing and treatment by providing facility- and community-based health workers with training, supervision, and malaria commodities to be able to provide high quality, effective care.

Do you propose to increase, decrease, or maintain funding allocation levels for this activity? Why, and what data did you use to arrive at that conclusion?

Funding levels for case management activities will decrease from FY 2019 and FY 2020, largely due to smaller gaps in case management commodities. In both FY 2019 reprogramming and FY 2020 plans, there is increased support for community-based case management, as Guinea's community health policy and landscape is rapidly evolving, and an expansion of the number of community health workers per facility is anticipated.

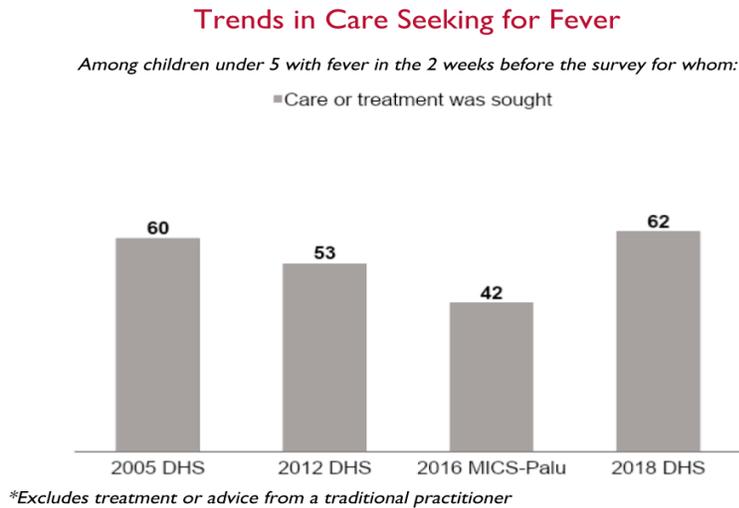
Please see Table 2 for a detailed list of proposed activities with FY 2020 funding.

Key Question 1

What is the status of care-seeking?

Supporting Data

Figure A19. Trends in Care-Seeking for Fever



Conclusion

The 2018 DHS showed that among children with fever, advice or treatment was sought for 62 percent, up from 42 percent in 2016. PMI will continue to support activities that enhance both access to and quality of malaria diagnosis and treatment, along with SBC activities to encourage prompt care seeking.

Key Question 2

What is known about the major barriers and facilitators to care-seeking?

Supporting Data

Figure A20. Facilitators and Barriers to Care-Seeking

Facilitator	Type of Factor (Internal, Social, or Environmental)	Data Source	Evidence
Confidence in ACTs	Internal/Environmental	KAP Survey, 2018	Most household leaders (96%) and women (96%) trust the effectiveness of malaria drugs to cure malaria. Nearly 95% of household heads and 96% of women think that modern medicine is more effective than traditional medicine.

Confidence in healthcare providers	Internal/Environmental	KAP Survey, 2018	There is high confidence in the competence of healthcare providers among both household heads (90%) and women (93%).
Satisfaction with quality of care	Internal/Environmental	KAP Survey, 2018	About 93% heads of household and 73% of women say they are satisfied with the quality of care. These proportions are lower in rural areas than in urban areas and range from almost 100% in Boffa and Kaloum, and 62% in Gaoual.
Prioritizing a trip to the hospital in the event of a fever	Internal	KAP Survey, 2018	90% of women and 89% heads of household prioritize taking someone suspected of malaria to the hospital.
Knowledge of malaria symptoms	Internal	KAP Survey, 2018	71% heads of household and 70% of women know that fever is a symptom of malaria - which is a slight decrease from the 2014 survey. Knowledge of severe malaria symptoms was lower among heads of household: vomiting (55%) and high fever (58%).
Living in an urban area	Environmental	MICS 2016 KAP 2018	Children with fever living in urban areas were more likely to have blood taken for testing and more were likely to be treated with ACTs than children living in rural areas. Overall, 17% of children with fever in the previous two weeks had blood taken from a finger or heel for testing. Depending on the place of residence, the urban area a slightly higher percentage (20%) than rural area (16%). In addition, 81.0% of heads of households and 80.5% of eligible women encouraged other people to visit a health facility or a community worker for fever. This positive attitude affected 72.4% of heads of household in urban areas 90.8% in rural areas.
Barrier	Type of Factor <i>(Internal, Social, or Environmental)</i>	Data Source	Evidence
Difficult access to health services	Environmental	KAP Survey, 2018	Difficulties of access to health facilities in certain localities, particularly due to distance and poverty, keep people from accessing services

Gender-related factors	Social	KAP survey, 2018	According to CHWs, decisions are very often made by men for financial and cultural reasons. Women tend to clean the house, accompany children to health facilities and make sure that hygiene measures are respected as well as the use of mosquito nets.
Social norms	Social	KAP survey, 2018	One in five household leaders think that children in their community all go to a health professional on the day they start to have a fever. Only 16% of women believe that all children in their community go to a health professional on the day they start to have a fever, compared with 44% of them who think they will go the next day. If the perception is that no one goes the first day, then people will not be inclined to go to the doctor right away.
Mistrust of malaria diagnosis tests	Internal	KAP survey, 2018	68% of household heads and 70% of women believe that “sometimes parents think their child has contracted malaria, even when analysis by a health care provider indicates that the child is not affected.” 53% of household heads and women are supportive of people going to a second provider for malaria medication if the first provider told them the fever wasn’t malaria.
Self-medicating	Internal	KAP survey, 2018	5% of household heads and women buy malaria medications at the market instead of seeking care
Illiteracy	Internal	KAP survey, 2018	Respondents described illiteracy as a barrier for parents seeking care for their children.

Conclusion

Distance to a health facility is one of the greatest barriers to care. Access is usually by foot across difficult terrain, which is made more problematic during the wet season. Although some routes are navigable by bicycle or motorbike, hiring transport requires additional expenditure. Therefore, most people walk, carrying their sick child. There is also a strong desire by the population to take ACT - even if told they do not need them - by either obtaining a second opinion or by purchasing the medications on their own. This behavior should be targeted through messaging in order to prevent future issues with drug resistance. Overall, case management SBC should focus on taking children under 5 to a CHW within 24-48 hours of a fever. Encouraging families to utilize a CHW instead of a health facility could help to address the transportation barrier.

Key Question 3

How have malaria testing and treatment practices evolved over time?

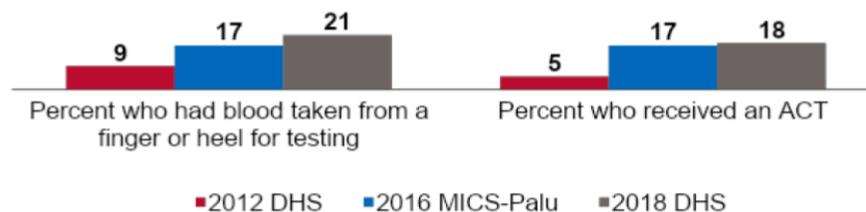
Supporting Data

Figure A21. Trends in Diagnosis and Treatment of Children with Fever

Trends in Diagnosis and Treatment of Children with Fever

Among children under 5 with fever in the 2 weeks before the survey

Among children under 5 with fever in the 2 weeks before the survey who received any antimalarial



Conclusion

Among children who had a fever in the last two weeks before the interview and who took any antimalarial, 18% were treated with ACT. This percentage has increased substantially from only 5% in 2012, yet remains low. It should be noted, however, that recall validation study in Mali among caregivers of febrile children under 5 years showed that responses to questions on antimalarial drug consumption in household surveys have low validity (among 1602 caregivers, recall of ACT being given had sensitivity of 43.2% and specificity 90.2%, (<https://www.measureevaluation.org/resources/publications/ja-18-262>)). This finding may be applicable in Guinea as well. Regardless, more effort is required to improve malaria case management activities. PMI's support will include strengthening the capacity of laboratory technicians in the biological diagnosis of malaria as well as supervision of public and private health facilities to make sure that cases are diagnosed and treated according to national guidelines.

Key Question 4

What is known about provider behavior in relation to testing and treatment practices?

Supporting Data

Figure A22. Facilitators and Barriers to Testing and Treatment

Facilitator	Type of Factor <i>(Internal, Social, or Environmental)</i>	Data Source	Evidence
Availability of commodities	Environmental	SARA, 2015; Data verification report, 2018	On the day of the 2015 SARA survey, only 67% of health facilities had ACT available and 79% had capacity to perform RDT or microscopy. The data verification report found high rates of stockouts of quinine tablets
Social norms	Social	Data verification report, 2018	Health facilities in which behavior such as universal testing and treating according to test results are normalized have substantially better case management than facilities where healthcare workers felt that best practices were not routinely followed.
Barrier	Type of Factor <i>(Internal, Social, or Environmental)</i>	Data Source	Evidence
Providers in the hospitals do not often follow national case management protocols	Internal	Implementing partner reports; adherence report (Camara et al, 2016)	Some providers prescribe specialty drugs that are different from the generic forms recommended by the NMCP. This could be due to the influence of medical delegates who negotiate with doctors - especially in national hospitals - to prescribe their product. Some providers think that some patients who are negative with the RDTs are still positive, so they treat them as malaria cases (4.8% of negative RDT tests were treated with ACT) . An adherence study found that 20.8% of patients were clinically diagnosed with uncomplicated malaria without a test.

Provider perception of side effects	Internal	Adherence report (Camara et al, 2016)	Some providers in the study had reservations about the prescription of ACTs for uncomplicated malaria because of perceived side effects. About 26% of dispensers reported being reluctant to dispense ASAQ due to side effects.
Patient mistrust of malaria diagnosis tests	Internal	KAP survey, 2018	68% of household heads and 70% if women believe that "sometimes parents think their child has contracted malaria, even when analysis by a health care provider indicates that the child is not affected." 53% of household heads and women are supportive of people going to a second provider for malaria medication if the first provider told them the fever wasn't malaria.
Self-medicating	Internal	KAP survey, 2018	5% of women and household heads buy malaria medications at the market instead of seeking care
Insufficient provider communication	Social	Adherence report (Camara et al, 2016)	Less than one in five patients surveyed recalled receiving information about possible adverse events by the prescriber, and less than one in ten recalled receiving information about signs that would necessitate a return to the health facility. About half of patients recalled receiving information about malaria prevention. This lack of complete and accurate information can puts patients at risk.
Lack of familiarity with PMI-procured RDTs	Environmental	program reports	While Guinea previously used pan-species RDTs, PMI now procures <i>pf</i> -only. Reports from the field indicate provider confusion with the new tests and a possibility of an increase in false-negatives due to user error.

Conclusion

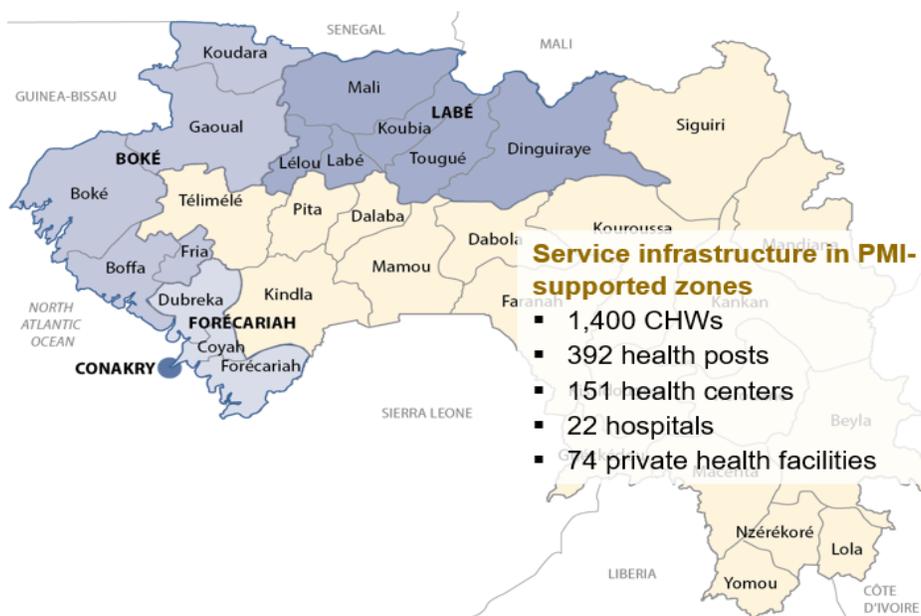
Both patients and providers are skeptical of test results and turn to ACTs even when the results are negative. While more research is needed on facilitators, PMI is supporting efforts to increase provider adherence to protocol, particularly training around the use of PMI-procured *pf*-only RDTs.

Key Question 5

What is the current and planned support for case management at health facilities and in the communities by CHWs?

Supporting Data

Figure A23. Service Infrastructure in PMI Zones



There is a planned expansion of CHWs in PMI-supported zones (blue areas on map) from 1,400 to 2,760 in 2020.

Conclusion

PMI is covering 14 prefectures plus 5 communes of Conakry and GFATM is covering the remaining 19 prefectures. With the planned expansion of the CHW program, PMI is increasing funding for community case management accordingly, to ensure adequate training and supervision on case management for new and existing community health workers. Facility-based case management support will continue, with a focus on ensuring RDT competencies for PMI-procured *pf*-only RDTs, in addition to continued support for the suite of case management activities to ensure adherence to all protocols.

Key Question 6

What is the estimated need for RDTs for FY 2020?

Supporting Data

Figure A24. Gap Analysis for RDT commodities

Calendar Year	2019	2020	2021
RDT Needs			
Total country population ¹	13,236,234	13,527,431	13,825,035
Population at risk for malaria ²	13,236,234	13,527,431	13,825,035
PMI-targeted at-risk population	13,236,234	13,527,431	13,825,035
Total number of projected fever cases ³	2,743,177	2,660,881	2,581,055
Percent of fever cases tested with an RDT ⁴	94.9%	94.9%	94.9%
Total RDT Needs⁴	2,743,177	2,660,881	2,581,055
Partner Contributions (to PMI target population if not entire area at risk)*			
RDTs carried over from previous year	1,450,577	3,686,025	3,625,019
RDTs from Government	0	0	0
RDTs from Global Fund	3,237,750	0	918,000
RDTs from other donors	0	0	0
RDTs planned with PMI funding	1,740,875	2,599,875	769,500
Total RDTs Available	6,429,202	6,285,900	5,312,519
Total RDT Surplus (Gap)	3,686,025	3,625,019	2,731,464

Footnotes: Add any additional explanations/footnotes in this section to clearly explain the entries in your table. Remember to explain how numbers are derived and specify data sources. Please draw from a validated national malaria quantification if it exists for your country.

¹Total population was derived from the NMCP Strategic Plan (2018 – 2022)

²The total population is at risk

³Estimates of needs for RDTs were projected based on historical consumption data reported by health facilities to the NMCP (WinDev database) with forecast accuracy at 90%.

⁴2021: The NMCP stock parameters are defined in a way to keep 14 months of desired stock at the end of the year. To be able to meet this requirement, a quantity 1,687,500 tests (i.e. approx. 8 months of stock based on AMC of 212,000 tests) has been defined as a procurement gap to be filled. This can't be accommodated in the table above.

Conclusion

PMI plans to procure RDTs to cover country needs in addition to Global Funds procurement.

Key Question 7

What is the estimated need for ACTs for FY 2020?

Supporting Data

Figure A25. Gap Analysis for ACT commodities

Calendar Year	2019	2020	2021
ACT Needs			
Total country population ¹	13,236,234	13,527,431	13,825,035
Population at risk for malaria ²	13,236,234	13,527,431	13,825,035
PMI-targeted at-risk population	13,236,234	13,527,431	13,825,035
Total projected number of malaria cases ³	1,558,819	1,543,308	1,497,008
Total ACT Needs^{3,4}	1,558,819	1,543,308	1,497,008
Partner Contributions (to PMI target population if not entire area at risk)¹			
ACTs carried over from previous year	1,469,673	1,931,774	1,908,116
ACTs from Government			
ACTs from Global Fund	451,260	171,360	554,160
ACTs from other donors			
ACTs planned with PMI funding ⁵	1,569,660	1,348,290	1,793,910
Total ACTs Available	3,490,593	3,451,424	4,256,186
Total ACT Surplus (Gap)	1,931,774	1,908,116	2,759,178

Footnotes: Add any additional explanations/footnotes in this section to clearly explain the entries in your table. Remember to explain how numbers are derived and specify data sources. Please draw from a validated national malaria quantification if it exists for your country.

¹Total population was derived from the NMCP Strategic Plan (2018 – 2022)

²The total population is at risk

³ACT needs estimates were estimated using consumption-based method reported by health facilities to the NMCP (WinDev database) with forecast accuracy at 71%, and based on consensus of the malaria PSM technical working group

⁴2021: The NMCP stock parameters are defined in a way to keep 14 months of desired stock along the in-country supply chain at the end of the year. To be able to meet this requirement, a quantity 1,255,550 treatments has been defined as a procurement gap to be filled. This can't be accommodated in the table above

⁵Of total 2,440,860 treatments planned in MOP19, only 1,348,290 were planned for delivery in 2020 considering the required country min-max parameters. The remaining 1,092,570 treatments were reprogrammed in 2021. An additional 701,340 are planned with FY20 funds.

Conclusion

The number of malaria cases projected through this year's national quantification exercise assumes a decrease in cases year over year. PMI plans to procure ACTs to cover remaining country needs following GFATM's procurement.

Key Question 8

What is the projected need for severe malaria treatment and any other treatments as applicable?

Supporting Data

Figure A26. Gap Analysis for Injectable Artesunate Commodities

Calendar Year	2019	2020	2021
Injectable Artesunate Needs			
Projected Number of Severe Cases	106,745	81,670	57,299
Projected # of severe cases among children ¹	52,305	40,018	28,077
Projected # of severe cases among adults ¹	54,440	41,652	29,222
Total Injectable Artesunate vials Needs^{2,3}	433,878	372,726	232,898
Partner Contributions			
Injectable artesunate vials carried over from previous year	238,084	180,106	
Injectable artesunate vials from Government			
Injectable artesunate vials from Global Fund	144,900		93,100
Injectable artesunate vials from other donors			
Injectable artesunate vials planned with PMI funding	231,000	153,500	167,100
Total Injectable Artesunate vials Available	613,984	333,606	260,200
Total Injectable Artesunate vials Surplus (Gap)	180,106	-39,120	27,302

Footnotes:

¹Per the DHIS2 2018 data, the breakdown of malaria severe cases by age is as follows:

<5 years: 49%

>5 years: 51%

²2020: The NMCP stock parameters are defined in a way to keep 14 months of desired stock at the end of the year. To be able to meet this requirement, a quantity 352,700 vials has been defined as a procurement gap to be filled. This can't be accommodated in the table above

³2021: The NMCP stock parameters are defined in a way to keep 14 months of desired stock at the end of the year. To be able to meet this requirement, a quantity of 260,200 vials has been defined as a procurement gap to be filled. This can't be accommodated in the table above

Figure A27. Gap Analysis for RAS Commodities

Calendar Year	2019	2020	2021
Artesunate Suppository Needs			
Projected Number of Severe Cases ¹	106,745	81,670	57,299
Number of severe cases expected to require pre-referral dose at community level ¹	31,238	23,900	16,768
Total Artesunate Suppository Needs^{2,3,4}	31,238	23,900	16,768
Partner Contributions			
Artesunate suppositories carried over from previous year	0	93,915	77,766
Artesunate suppositories from Government	0	0	0

Calendar Year	2019	2020	2021
Artesunate suppositories from Global Fund	0	0	0
Artesunate suppositories from other donors	0	0	0
Artesunate suppositories planned with PMI funding	125,153	7,751	8,791
Total Artesunate Suppositories Available	125,153	101,666	86,557
Total Artesunate Suppositories Surplus (Gap)	93,915	77,766	69,789

Footnotes:

¹ Source: Projections made based on NMCP historical service statistics data (WinDev); 2017 NMCP data (WinDev) indicates that 29.3% of severe cases required pre-referral dose at community level

²Rectocap artesunate suppository needs were estimated using service statistics data

³2020: Due to projected expiry, a quantity of 33,467 suppositories will be needed to fill the pipeline

⁴2021: The NMCP stock parameters are defined in a way to keep 14 months of desired stock at the end of the year. To be able to meet this requirement, a quantity of 11,466 capsules has been defined as a procurement gap to be filled. This can't be accommodated in the table above

Conclusion

PMI plans to procure malaria commodities in accordance with national policy for severe cases to cover country needs in addition to GFATM's procurement.

Key Question 9

Are the first-line ACTs effective and monitored regularly?

Supporting Data

Figure A28. Most Recent Completed and Ongoing Antimalarial Therapeutic Efficacy Studies

Year	Sites	Treatment arms	PCR-corrected ACPR>90%?	Where molecular resistance work was completed or the plan, if any, for molecular resistance work
2016	Maferinyah, Labe	AL, ASAQ	Yes	CDC Atlanta through PARMA
2017	Dabola, Nzerekore	AL, ASAQ	Yes	PARMA Hub(UCAD Dakar)
2018	Maferinyah, Labe	AL, ASAQ	Yes ¹	PARMA Hub(UCAD Dakar)
2019	Dabola, Nzerekore	AL, ASAQ	in process	PARMA Hub (UCAD Dakar)

Source: Draft report of *Etude de l'efficacité et de la tolérance de l'association artesunate + amodiaquine et Artéméther + luméfántrine dans le traitement du paludisme à P. falciparum non compliqué chez les enfants âgés de 6 à 59 mois en République de Guinée.*

¹Corrected results not yet available, uncorrected ACPR>90

Footnotes - ACPR: adequate clinical and parasitological response; AL: artemether-lumefantrine; ASAQ: amodiaquine-artesunate; PARMA: PMI-supported Antimalarial Resistance Monitoring in Africa; UCAD: Université Cheikh Anta Diop

Conclusion

Recent TES results indicate that both AL and ASAQ remain efficacious. Molecular testing of a priority subset of samples is forthcoming.

Key Question 10

Are there other key items, such as lab strengthening, private sector support, etc. that should be considered?

Supporting Data

PMI and USAID via other health funding streams have supported the strengthening the pharmaceutical system to assure the quality, safety, and efficacy of medicines relevant to its health programs. Guinea is often disproportionately affected by the burden of poor-quality medicines. PMI played a key role in strengthening the pharmaceutical system and the capacity of the national drug regulatory authority to assure the quality of medicines in the supply chain through registration, inspection, and quality control activities.

Conclusion

Because Guinea is affected by the poor quality of medicines, PMI will support national quality control laboratories through hands-on training and technical assistance to improve laboratory standards and compliance with internationally recognized standards. Part of support will be assistance for medicines quality monitoring, which involves the collection and testing of medicines to produce data for decision-making.

Key Question 11

What are the in-country considerations (e.g. in-country staffing capacity, political climate, security concerns) that impact your funding allocation in this category? If there is a specific budget line item in Table 2 that is not covered by the above questions, please address here.

Supporting Data

The GOG contribution to the national health budget remains below the 15 percent benchmark specified in the Abuja Declaration, thus the sector relies heavily on donor support. While the government increased its contribution from 3.7 percent to 8.2 percent of its GDP, only an estimated 30 percent of the current annual budget is disbursed. The GOG needs continuous support to strengthen its own leadership for resource mobilization in the health sector. In addition, stock-outs of commodities remain a challenge in ensuring the quality of malaria control and overall primary health care services. Inefficiency and multiple ordering and distribution of

health commodities in the public supply chain system still remains a big challenge. Added to these challenges are lack of adherence to case management guidelines and protocols.

PMI has been supporting the NMCP to build capacity at central, regional, and district level to manage, implement, and monitor prevention, care, and treatment activities. Support involves improving NMCP coordination, facilitating the monthly meetings of the Diagnosis and Case Management Technical Working Group (TWG), finalizing the health providers’ training manual on case management, and ensuring the planned training sessions are respected. PMI also supported the organization of the first malariology course to strengthen the skills of the districts and the project team regarding implementation of malaria control activities.

One local consideration is the concern that the 2020 election cycle could see similar protests, strikes, unrest, and violence in the streets that occurred around the February 2018 elections. This could have an impact on the implementation of malaria activities.

Conclusion

PMI/Guinea team will continue to monitor the political situation and will make appropriate judicious adjustments to address any potential barriers to activities.

2.B. DRUG-BASED PREVENTION

NMCP objective
The national strategic plan articulates a 2022 target of at least 60 percent of pregnant women receiving at least three SP doses (IPTp3) to prevent malaria throughout their pregnancy. For commodity planning purposes and gap analyses, including GFATM proposal, the NMCP uses the ANC visit target as a proxy for IPTp3 coverage. This target is 90 percent for 2017-2019. The national strategy defines a target of 90 percent ITN use by the total population at risk for malaria (including pregnant women). In addition, as of 2017, 100 percent of pregnant women should receive an ITN during an ANC visit.
NMCP approach
The NMCP Strategic Plan 2018-2022 places a particular emphasis on improving the coverage rate of intermittent preventive treatment during pregnancy (IPTp). The plan continues to follow standard WHO recommended practices for the prevention of malaria in pregnancy (MIP) including the administration of IPTp with Sulfadoxine/pyrimethamine (SP) under the direct observation of an ANC attendant, at four-week intervals, starting in the second trimester (from week 13), with at least three treatments given before delivery, and the provision of an ITN at the first ANC visit. Regarding case management of MIP, pregnant women who are diagnosed with uncomplicated malaria should receive quinine in the first trimester and an ACT in the second and third trimesters. All cases of

severe malaria in pregnant women should be treated with parenteral quinine during the first trimester of pregnancy, and intramuscular injection of artemisinin derivatives or parenteral quinine from the second trimester onward. The strategy also follows WHO guidance regarding pregnant women who are HIV-positive. There is currently no central forum or TWG that brings together the NMCP and MCH. The current collaboration is initiated at the district level mainly on training and program implementation (case management in pregnant women, IPTp uptake, routine ITN distribution during ANC visits, etc.).

During the implementation of the 2018-2022 strategic plan, a SMC campaign is organized each year. These campaigns will cover eligible health districts. For each of these campaigns, macro-planning and micro-planning are conducted to determine the necessary resources. Eligibility studies will be carried out in the districts close to the area covered by SMC to assess the possible eligibility of new districts as well as the extension of the strategy to the age group of 5 to 10 years. Guinea began implementing SMC in 2015 in six health prefectures in the northern part of the country, representing a total population of 2.2 million. The activity was initially part of the UNITAID-funded ACCESS-SMC project, led by Malaria Consortium in partnership with Catholic Relief Services and national programs in seven countries (Burkina Faso, Chad, Guinea, Mali, Niger, Nigeria, and The Gambia). The number of prefectures has gradually been expanded and is currently implemented in eight PMI-supported prefectures. The activity comprises four rounds of distribution of amodiaquine and Sulfadoxine/pyrimethamine (AQ+SP) to all children 3-59 months old. The distributions last between four and five days and are done on a monthly basis between July and October, representing the highest transmission period in the area. The distributions are taken door-to-door by the CHWs attached to the health center in the targeted prefectures. Administrative coverage data and GFATM-funded post-campaign household surveys provide monitoring data for campaign coverage. The impact of SMC is assessed through analysis of trends of malaria cases reported by health facilities in target prefectures, compared to previous years and neighboring prefectures.

PMI objective, in support of NMCP

PMI works with the NMCP and partners to achieve progress towards IPTp uptake and ITN distribution targets. PMI's support for MIP includes procuring and distributing SP and ITNs, training and supervision of health workers, and communication activities to promote IPTp uptake and ITN use among pregnant women.

PMI will support the continuation of seasonal malaria chemoprevention (SMC) for children in eight districts in northern Guinea, with the possibility of expanding to two additional prefectures (Boke and Fria) pending the results of an eligibility study. PMI support for SMC will include procurement of AQ+SP to cover four months of SMC in the SMC prefectures. PMI will also support the transport and storage of the AQ+SP, retraining of distribution agents, supervision of distribution agents, SBC activities, advocacy, and other costs associated with the SMC campaigns. PMI will also support

M&E activities to evaluate the continued impact of SMC. With anticipated further reductions in malaria transmission it is possible that more prefectures will become eligible for SMC in the coming years. As the quality and completeness of routine data improves in Guinea, the program, with PMI support, will continue to analyze data to assess eligibility for future SMC campaigns.

PMI-supported recent progress (past ~12-18 months)

- To increase the use of IPTp during ANC visits, PMI supported the training of 24 national master trainers on malaria in pregnancy, who in turn trained 299 ANC staff members on proper IPTp use. PMI also trained 474 other health providers within the health facility on IPTp using the integrated malaria case management manual. PMI worked with the Prefectoral Health Directions (DPS) to train 659 new CHWs on IPTp key messages, as a result CHWs used their skill during routine home visits to identify and refer pregnant women for their ANC appointments.
- PMI procured 3,695,000 SP tablets (1,231,667 treatments) and distributed 43,775 tablets (14,592 treatments). Given an abundance of GFATM-purchased SP, less PMI-purchased SP was distributed this year. The NMCP prioritized the distribution of GFATM stocks before the more recently purchased USG stocks. The SP procured during FY 2018 with PMI funds will be distributed in FY 2019.
- PMI supported the broadcasting of 1,366 radio spots and 12 TV spots to emphasize the importance of IPTp as a means to prevent pregnant women and their babies from contracting malaria. Messages also emphasized the fact that the service is free of charge. Furthermore, PMI supported the organization of 18 roundtable discussions, 8 interactive radio programs, as well as alternative approaches through outreach services to promote the use of and increase access to IPTp services.
- PMI supported the implementation of the SMC campaigns in 8 of the 13 districts currently found to be meeting the criteria for the implementation of SMC (chosen by the NMCP). GFATM covers SMC costs in an additional five districts. PMI, in collaboration with the NMCP, supported micro-planning activities to estimate the number of eligible children, and the quantity of drugs, social and community mobilizers, and data collection and SBC tools needed. PMI also supported the training of trainers and supervisors to facilitate the implementation process. PMI supported the SBC national working group to revise, validate, and produce SBC materials such as storyboards, posters, job aids, banners, and radio spots to increase community and family members' awareness and knowledge of the importance of SMC. PMI produced and distributed 18,576 tee-shirts, 15,021 caps, 283 banners, 7,776 posters, 3,849 memory aids, and 2,950 storyboards.
- The SMC campaign successfully reached more than 90 percent of the targeted population. As a result, out of a total target of 357,476 children aged 3-59 months coverage between 96–99v

was achieved in the eight PMI districts. PMI procured 1,514,600 SP/AQ co-blisters and distributed approximately 1,456,173 SP/AQ to support SMC implementation in the targeted prefectures.

PMI-supported planned activities (next ~12-18 months, supported by currently available funds)

1. Procure enough SP to ensure an adequate supply for pregnant women to receive three doses throughout their pregnancy. PMI will cover the entire estimated national need for SP (based on NMCP targets for ANC attendance and IPTp coverage).
2. Provide training/refresher training for midwives and nurses (covering the PMI zones; approximately 48 percent of total midwives and nurses) to correctly deliver SP and broader MIP services in the context of the focused antenatal care approach.
3. Support SBC activities targeting uptake of MIP interventions (use of ITNs by pregnant women, early ANC attendance and adherence to WHO-recommended IPTp schedule, prompt and effective diagnosis and treatment of malaria cases in pregnant women)
4. Procure SP-AQ to cover four rounds of SMC distribution for all children age 3-59 months in eight prefectures.
5. Implement all SMC activities from macro- and micro-planning to monthly distribution of drugs and all related SBC activities.

2.B.i SEASONAL MALARIA CHEMOPREVENTION (SMC)

PMI Goal

Support the national strategy for SMC addressing relevant geographic areas and age groups, which includes four rounds for children age 3-59 months, in accordance with the WHO recommendations

Do you propose to increase, decrease, or maintain funding allocation levels for this activity? Why, and what data did you use to arrive at that conclusion?

The funding level will likely be adjusted upward since the NMCP, pending an eligibility study for two additional districts, plans to add two new SMC district in the PMI-supported part of the country.

Please see Table 2 for a detailed list of proposed activities with FY 2020 funding.

Key Question 1

What is the estimated need for SMC commodities over the next three years and what proportion of this need will PMI support?

Supporting Data

Figure A29. Gap Table for SMC Commodities

Calendar Year	2019	2020	2021
SMC drug (SP+AQ) Needs			
Total general population in targeted districts ¹	4,242,332	6,156,024	6,465,344
Population targeted for SMC ²	848,466	1,231,205	1,293,069
PMI-targeted population for SMC ³	367,711	381,669	523,288
Total SP+AQ Needs⁴	3,733,252	5,086,940	5,948,116
Partner Contributions (to PMI target population if not entire area at risk)			
SP+AQ carried over from previous year	370,819	0	0
SP+AQ from Government	0	0	0
SP+AQ from Global Fund	1,553,950	3,331,266	3,541,000
SP+AQ from Other Donors	0	0	0
SP+AQ planned with PMI funding	1,691,471	1,755,674	2,407,200
Total SP+AQ Available	3,616,240	5,086,940	5,948,200
Total SP+AQ Surplus (Gap)	-117,012	0	84

Footnotes: Add any additional explanations/footnotes in this section to clearly explain the entries in your table. Remember to explain how numbers are derived and specify data sources. Please draw from a validated national malaria quantification if it exists for your country.

¹Data source: Ministry of Health, Bureau de Strategie et Developpement, 2014.

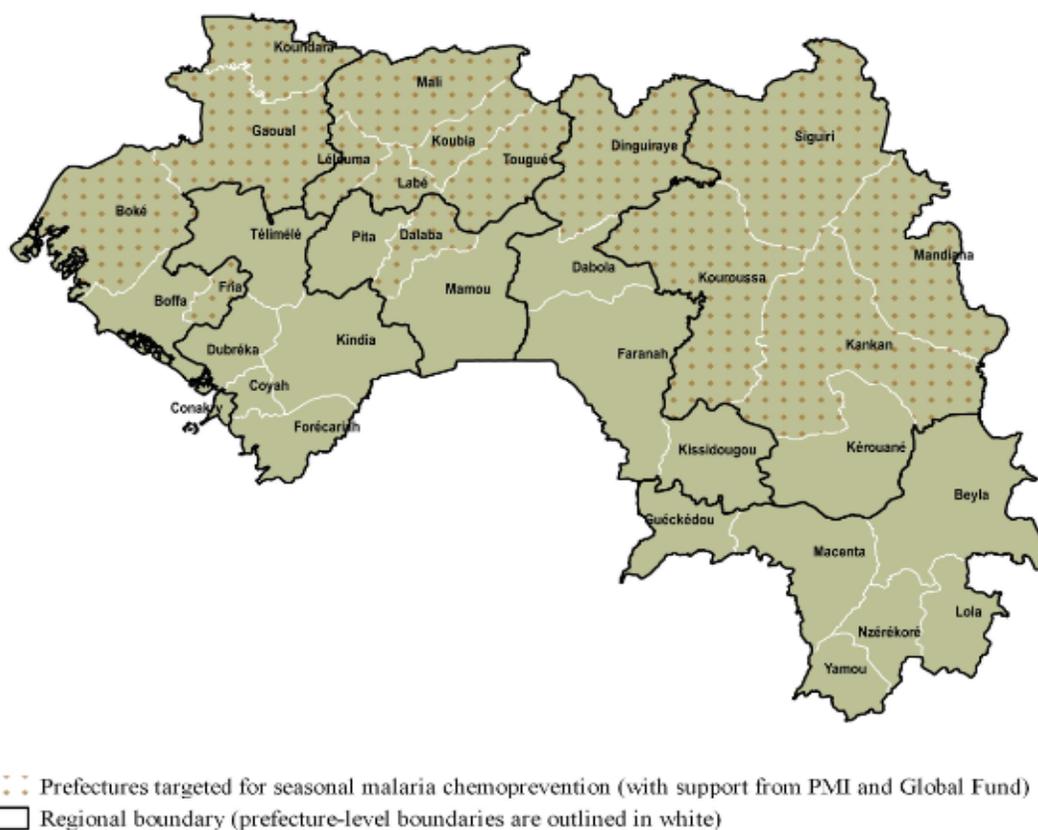
SMC geographic coverage targets 17 districts (both PMI and GF-supported) out of the total 38 districts of Guinea in 2020 and 19 districts in 2021

²Population targeted for SMC is the age group from 3 to 59 months. This age represents 20% of the total general population of the targeted districts

³Out of the 17 districts targeted in 2020, PMI covers 8 districts. This number will increase to total 19 targeted districts (overall) in 2021 where PMI will cover 10 districts

⁴This is the country estimate for the 17 districts (2020) and 19 districts (2021), obtained by multiplying the target population by the number of cycles (4) and the safety stock. Forecast of requirements include: 15% buffer stock
Needs estimated for PMI-covered districts amount to 2,407,127 treatments for 2021

Figure A30. Map of targeted areas (note that, within prefectures supported by PMI, the inclusion of Boké and Fria is subject to a thorough investigation of eligibility).



Conclusion

PMI will procure commodities to cover all children age 3-59 months in PMI-supported prefectures that have been deemed eligible for SMC. With FY2019 funding, eight currently supported districts will continue to be supported. Pending the results of an eligibility study, the number of prefectures targeted for SMC in PMI-supported areas with FY2020 funding may increase from 8 to 10. The commodity procurement currently planned with FY2020 funds in this MOP include estimated need to cover the expansion to 10 districts.

Key Question 2

What are the estimated non-commodity resource needs to properly deliver SMC over the next 3 years? (e.g. staffing, SBC)

Supporting Data

In Guinea the SMC activity is supported by both PMI and GFATM under the leadership of NMCP. PMI is supporting the procurement of commodities, training of the distribution agents, SBC, development of the distribution tools and all other costs related to the SMC activities in the supported zones. The same activities are supported by GFATM in their supported zones.

Conclusion

SMC activity is supported by both PMI and GF. All costs related are supported by partners in the targeted zones.

Key Question 3

What does the data show about SMC refusal rates? How do refusal rates change from round to round? What barriers are contributing to SMC refusal rates?

Supporting Data

There are no survey data showing refusal rates to the SMC administration for previous years. In the PMI area, the monitoring of the different phases in 2018 indicated 0 percent refusal. However, in 2019 independent monitoring during the first round in the Koundara Health District indicated that 5 percent of uncovered children were due to household refusal.

Figure A31. Facilitators and Barriers to SMC Refusal

Facilitator	Type of Factor <i>(Internal, Social, or Environmental)</i>	Data Source	Evidence
Cross-sector Collaboration	Environmental		Health and hygiene committee participation supports the efforts of the CHWs
Barrier	Type of Factor <i>(Internal, Social, or Environmental)</i>	Data Source	Evidence
Rumors of side effects	Internal/Social	StopPalu+	During a neglected tropical diseases campaign, Praziquantel was administered without information on the side effects in several communities. Several reactions from the Praziquantel were noted and created the concerns about parents being reluctant toward the SMC campaign.

Availability of children	Environmental	StopPalu+	Reports on the 2017 SMC campaign said that some children were skipped because the children were not home when distribution teams visited. The project has since asked village leaders to commit to keeping children home during the four days of campaigns.
Village or household skipped	Environmental	StopPalu+	Reports on the 2017 campaign said some villages said they were skipped. For the 2018 campaign, some households called into interactive radio programs to request that the teams come to their homes.

Conclusion

Regular pre-campaign sensitization and mobilization of SMC should continue. This is particularly important after a recent incident during a Praziquantel campaign that led to distrust of the health sector in some communities. More transparency about side effects and education on how to properly administer the SMC could assuage fears.

Key Question 4

What are the in-country considerations (e.g. in-country staffing capacity, political climate, security concerns) that impact your funding allocation in this category?

Supporting Data

The NMCP would like to consider expansion of SMC to older children (5-10 year olds). As this is not currently recommended by WHO, PMI is unable to support such an expansion. Covering older children with this intervention would also add significant costs that would strain an already limited malaria budget. Another change the NMCP would like to implement is the active testing and treatment of febrile children in the community during the door-to-door SMC implementation. This would have some cost implications as more RDTs and ACTs would be needed but the actual costs and funding sources have not been identified.

One local consideration is the concern that the 2020 election cycle could see similar protests, strikes, unrest, and violence in the streets that occurred around the February 2018 elections. This could have an impact on the implementation of malaria activities, including SMC.

Conclusion

PMI/Guinea team will continue to monitor the SMC policy decisions and will communicate with the NMCP when and if any expansion in coverage could be supported. PMI will track the RDT and ACT consumption associated with the next campaign to help estimate commodity needs for

future quantification efforts. PMI will continue to monitor the political situation and will make appropriate judicious adjustments to address any potential barriers to activities.

2.B.ii MALARIA PREVENTION IN PREGNANCY (MIP)

PMI Goal

Support the national strategy for MIP, which includes provision of ITNs at first antenatal care (ANC) visit, intermittent preventive treatment for pregnant women (IPTp) to all pregnant women in malaria endemic area starting at 13 weeks gestational age, for a minimum of three doses, and effective case management of malaria, in accordance with the WHO recommendations.

Do you propose to increase, decrease, or maintain funding allocation levels for this activity? Why, and what data did you use to arrive at that conclusion?

The allocation for MIP will increase in FY 2020 because SP procurement in FY 2019 was covered by FY 2018 MOP funds and GFATM grant 2018-2020.

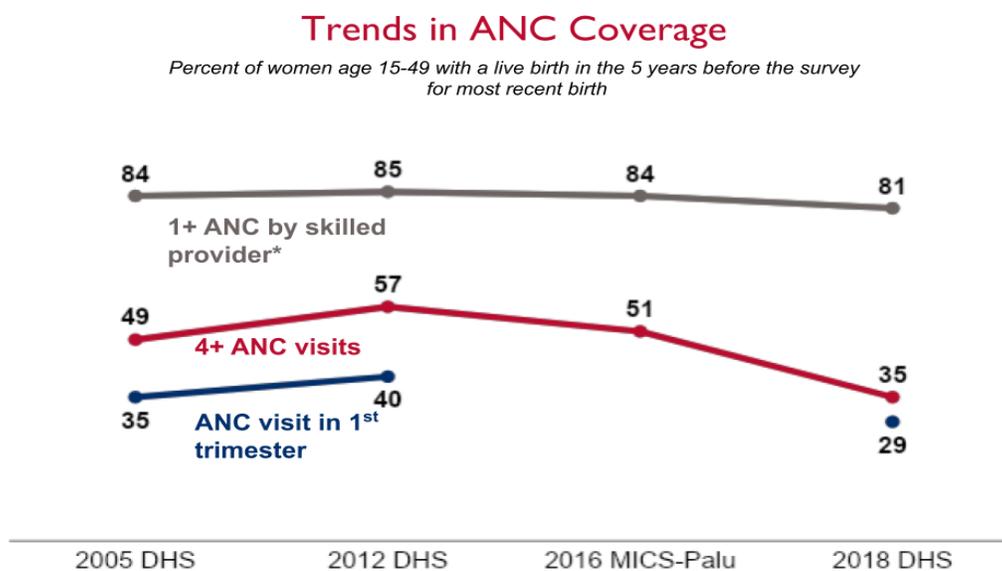
Please see Table 2 for a detailed list of proposed activities with FY 2020 funding.

Key Question 1

What proportion of pregnant women are receiving ANC early and frequently (as recommended by national and/or WHO strategies) during their pregnancy?

Supporting Data

Figure A32. Trends in ANC Coverage



*Skilled provider includes doctor, nurse, or midwife.

Conclusion

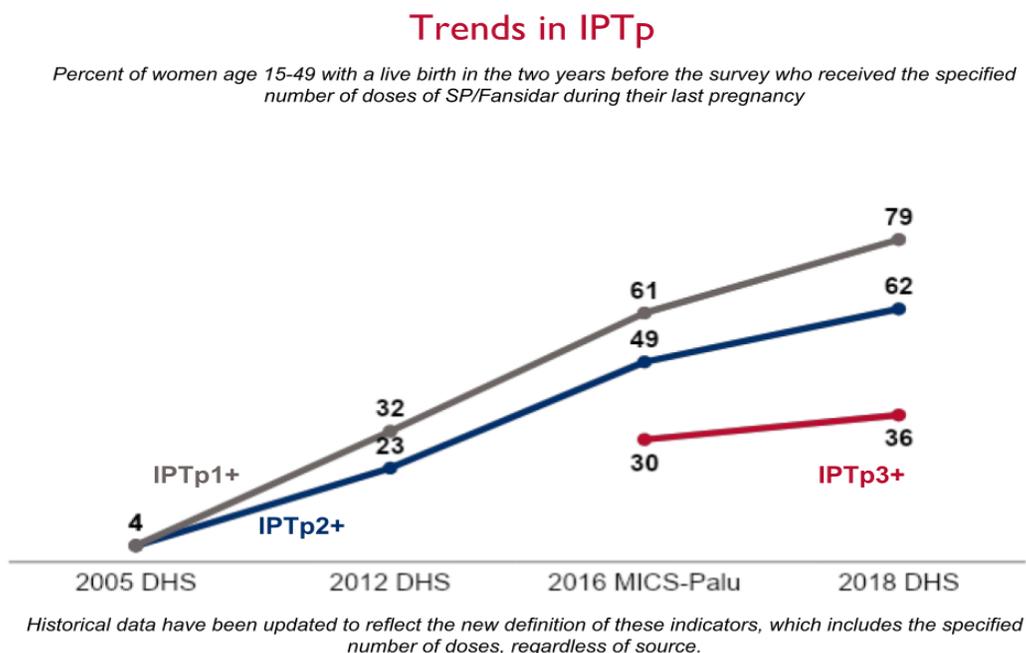
IPTp is delivered on the ANC platform thus the accessibility and use of ANC services is critical to effective implementation of this important malaria control intervention. Survey data show that the proportion of pregnant women receiving ANC from a skilled provider is consistently above 80 percent. The proportion of women attending the recommended four ANC visits has declined over time, dropping to just 35 percent of pregnant women in 2018. Attending ANC early and often is essential to achieve the recommended three doses of SP for prevention of malaria in pregnancy (IPTp3). Only about one third of women attended ANC for the first time in the first trimester. The recent declines in the proportion of women attended four ANC visits is problematic and signals a need for increased collaboration with the Reproductive Health unit.

Key Question 2

What proportion of pregnant women are receiving the recommended doses of IPTp?

Supporting Data

Figure A33. Trends in IPTp



Conclusion

Pregnant women receiving at least one dose of IPTp increased dramatically from 4 percent in 2005 to 79 percent in 2018. However, there is a substantial gap between one dose and the recommended three doses (just 36 percent receive IPTp3). PMI will continue to focus on increasing knowledge of women and other family members of the benefits of ANC visits, including IPTp, and will support provider training on technical skills, improved supervision of providers and tracking of pregnant women.

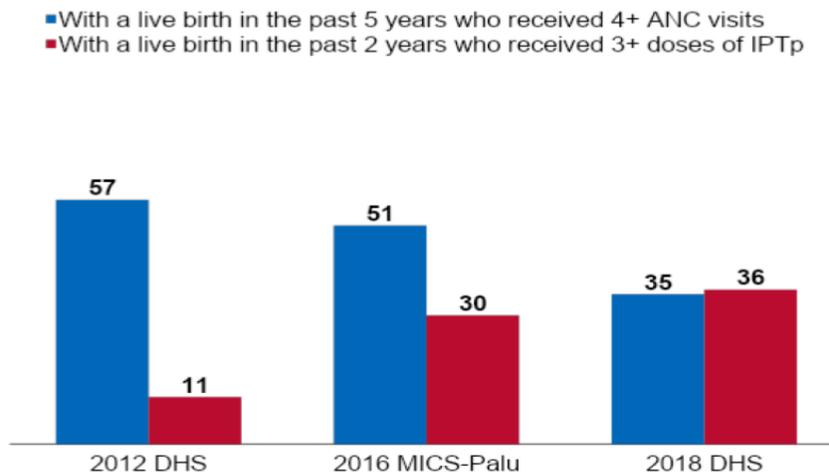
Key Question 3

What is the gap between ANC attendance and IPTp uptake (e.g. missed opportunities for providing IPTp at ANC)? What barriers and facilitators exist, especially among providers?

Figure A34. Trends in Missed Opportunities for IPTp

Trends in Missed Opportunities for IPTp

Percent of women age 15-49



According to available national household survey data, the provision of IPTp at ANC has improved dramatically from 2012 to 2018. In 2012, 57 percent of pregnant women attended at least four ANC visits but only 11 percent received at least three doses of SP. The gap was smaller in 2016 and by 2018, the gap disappeared entirely. It should be noted that ANC4 coverage declined between 2012 and 2018. These data indicate that additional gains in IPTp coverage will be dependent on improving ANC attendance.

Figure 32. Facilitators and Barriers to IPTp

Facilitator	Type of Factor (Internal, Social, or Environmental)	Data Source	Evidence
Access to medications	Environmental	KAP Survey 2018	Most women (94%) reported being able to take SP at each of their ANC visits.
Economic wellbeing of the household	Social	MICS 2016	Proportion of women who receive prenatal care from a qualified provider increases with the level of economic well-being of the households to which they belong.

Level of education	Internal/Social	MICS 2016	Proportion of women who receive prenatal care from a qualified provider increases with women's education level.
Social support	Social	KAP Survey, 2018	95% of household heads are in favor of a woman who thinks she's pregnant, consulting a healthcare provider as soon as possible.
Barrier	Type of Factor <i>(Internal, Social, or Environmental)</i>	Data Source	Evidence
Age	Internal/environmental	MICS 2016	The proportion of women who receive prenatal care from a qualified provider decreases when women advance in age.
Social norms	Social	KAP Survey, 2018	46% of women estimate that most women in their communities benefit from at least four pregnancy visits by a health professional. In addition, 25% of them think that all women in their communities benefit from at least these four pregnancy visits. If the women do not think most women are going to ANC, they will be less likely to attend themselves.
Access to medications	Environmental	KAP Survey, 2018	Pregnant women said they did not take malaria prevention drugs because they did not go to the hospital (34%), and were not provided with medicines (31%) and they did not know they had to take medicines (11%)

Conclusion

Increasing early ANC attendance should be a priority for increasing IPTp coverage. Reducing access barriers such as transportation costs, ensuring that providers follow up-to-date guidelines, and improving patient counseling on IPTp could also facilitate optimal uptake.

Key Question 4

What proportion of pregnant women with fever and malaria infection are getting diagnosed and treated? What barriers and facilitators exist?

Supporting Data

A 2018 survey on quality of malaria case management and reporting of 126 health facilities in found that of the 28 true malaria cases treated incorrectly, 46 percent were pregnant women. This

same survey found low rates of availability of oral quinine tablets, which could contribute to incorrect treatment of pregnant women.

Morbidity data are currently not disaggregated by pregnancy status in the reporting forms. For potentially related data on barriers and facilitators, see 2.B.ii Key Question 3 for related data on ANC and 2.A Key Question 2 on care-seeking.

Conclusion

More data is needed to better understand the treatment of malaria in pregnancy in Guinea, specifically the facilitators and barriers to care.

Key Question 5

What is the estimated need for IPTp commodities over the next three years and what proportion of this need will PMI support?

Supporting Data

Figure A35. Gap Analysis Table for SP Commodities

Calendar Year	2019	2020	2021
Total Population at Risk ¹	13,236,234	13,527,431	13,825,035
SP Needs			
Total number of pregnant women	595,631	608,734	622,127
Total SP Need (in treatments)²	1,669,031	2,052,908	2,463,489
Partner Contributions			
SP carried over from previous years	<i>2,102,871</i>	<i>1,120,840</i>	<i>321,933</i>
SP from Government	<i>269,000</i>	<i>0</i>	<i>990,000</i>
SP from Global Fund	418,000	0	0
SP from Other Donors	0	0	0
SP planned with PMI funding	0	1,254,000	2,508,000
Total SP Available	2,789,871	2,374,840	3,819,933
Total SP Surplus (Gap)^{3,4}	1,120,840	321,933	1,356,443

Footnotes: Add any additional explanations/footnotes in this section to clearly explain the entries in your table. Remember to explain how numbers are derived and specify data sources.

¹Total population at risk was derived from the NMCP Strategic Plan (2018 – 2022)

²Estimates of needs for SP were projected based on historical consumption data reported by health facilities to the NMCP (WinDev database) with forecast accuracy at 82%. Additionally, both consumption and service statistics estimates were very close; something which drove the decision of the malaria PSM technical working group to valid the consumption-based forecast

³2020: The surplus of 321,933 treatments in 2020 represents 1.9 months of stock. However, the NMCP stock parameters are defined in a way to keep 14 months of desired stock at the end of the year. To be able to meet this requirement, an additional quantity 1,958,000 treatments (i.e. 11.4 months of stock based on AMC of 171,000 treatments) has been defined as a procurement gap to be filled. This can't be accommodated in the table above.

⁴2021: The NMCP stock parameters are defined in a way to keep 14 months of desired stock at the end of the year. To be able to meet this requirement, an additional quantity 3,329,333 treatments (i.e. approx. 16 months of stock based on AMC of 205,333 treatments) has been defined as a procurement gap to be filled. This can't be accommodated in the table above

Conclusion

PMI will support the procurement of approximately 2,508,000 doses of IPTp with FY 2020 funds. GFATM is in the process of reprogramming funds to fill the SP procurement gaps for 2019 and 2020 to fill the pipeline to the minimum stock levels.

Key Question 6

What are the in-country considerations (e.g. in-country staffing capacity, political climate, security concerns) that impact your funding allocation in this category?

Supporting Data

One local consideration is the concern that the 2020 election cycle could see similar protests, strikes, unrest, and violence in the streets that occurred around the February 2018 elections. This could have an impact on the implementation of malaria activities, including IPTp.

Conclusion

PMI/Guinea team will continue to monitor the political situation and will make appropriate judicious adjustments to address any potential barriers to activities.

3. CROSS-CUTTING AND OTHER HEALTH SYSTEMS

3.A. SUPPLY CHAIN

NMCP objective
The objective set forth in the national strategic plan for the pharmaceutical system is to provide access to malaria diagnosis and treatment to 100 percent of patients at health facilities and the community level. This overall objective implies supplying quality drugs to health facilities and community workers nationwide in sufficient quantities and on a regular basis.
NMCP approach
As the main institution in charge of implementing the government of Guinea's policy in the pharmaceutical sector, the central medical store (Pharmacie Centrale de Guinée-PCG) was created in 1992 to supply health facilities nationwide with quality drugs in appropriate quantities and in a timely manner. PCG operates under the administrative oversight of the National Directorate of Pharmacies and Medicines (DNPM). PCG has established pharmaceutical depots in five of the eight

regions in Guinea. This institution is also a sub-recipient of GFATM grants to store and distribute drugs for the three priority diseases (HIV, tuberculosis, and malaria). In June 2015, PCG signed an agreement with the government of Guinea articulating the mission for the PCG regarding the procurement of public health needs such as drugs and vaccines, medical and surgical instruments and products, medical consumables, medical equipment, and laboratory reagents. The mission of the PCG is to improve accessibility to quality health commodities that are affordable to the people while ensuring stable internal revenue. The PCG may make partial or total local imports or purchases on the local market of health products, especially essential generic medicines. In support of NMCP efforts to assure effective donor coordination, PMI and the GFATM – as the main malaria commodity donors in country – support the distribution of commodities in their respective focus areas of the country regardless of which donor purchased the commodities (the common basket approach). This increases efficiency and ensures a more reliable supply of commodities for the country. In 2017, PMI’s supply chain implementing partner and PCG established a memorandum of understanding and subcontract for the storage and distribution of PMI malaria and Family Planning/Reproductive Health (FP/RH) commodities. Distributions are directly supported for PMI commodities to the 19 PMI-supported health districts and FP/RH distribution to all 38 health districts.

PMI objective, in support of NMCP

PMI continues to strengthen the pharmaceutical system in Guinea by providing technical assistance as well as global collaboration to improve long-term availability of health commodities.

PMI-supported recent progress (past ~12-18 months)

- PMI supported malaria commodity quantification training for 23 participants from the central level to improve their malaria commodity forecasting skills as well as their ability to develop supply plans using Quantimed and Pipeline tools. NMCP staff, in collaboration with partners, conducted the annual malaria commodities quantification to update the malaria commodity forecasting for the broad supply procurement plan 2018-2020.
- Working with MoH, PMI supported the procurement, delivery, and installation of shelving and pallets in 250 health facilities in PMI-supported districts and procured forklifts for PCG.
- PMI, in collaboration with United Nations Population Fund (UNFPA) and the National HIV and Hepatitis Control Program, supported the MOH’s Logistics Management Unit (LMU) to organize the physical inventory of malaria, contraceptive, and anti-retroviral commodities in 453 health facilities across the country. PMI supported coordination and supervision of this activity with the district team. The team reviewed and updated stock and consumption records and provided on-the-job training to health facility staff on calculating the monthly

stock available, evaluating the stock consumption status, and correcting the imbalances by withdrawing excess stock and re-distributing it to facilities in need.

- PMI contracted a service provider to support PCG with advanced maintenance and system support of the Enterprise Resource Planning software (SAGE) L100 I 7 application. The SAGE system was also enhanced to incorporate additional functionalities such as stock location, data centralization, and new reporting requirements to improve data processing, availability, and timeliness. These functions facilitate PCG to correctly meet the data reporting requirements for various donors and partners.
- PMI supported the MoH to transition from paper-based Logistics Management Information System (LMIS) to electronic LMIS (eLMIS) at the district and hospital levels. PMI supported the roll out of the eLMIS to all 38 districts in the country and trained 302 staff on the use of eLMIS. As of August 2018, all the districts have started reporting logistics data using the eLMIS which allows faster, easier, and more accurate reporting; and better data visibility and information for decision-making regarding commodity management.
- PMI assisted the government to address fake and substandard drugs through support to the National Pharmacy and Medicine Direction (DNPM) to conduct a workshop for the review and technical validation of all pharmaceutical registration procedures in order to align the Guinea system with international guidelines - in particular its harmonization to Economic Community of West African States (ECOWAS) pharmaceutical regulations.
- PMI continued to strengthen the capacity of the National Laboratory for the Quality Control of Medicines (LNCQM) through the provision of technical training to staff; and procurement and installation of new equipment to build capacity and skill for drugs quality evaluation.
- PMI, in collaboration with the European Union, is supporting the renovation effort of the LNCQM through technical assistance to bring the institution up to the standard for certification and international accreditation.
- Over the past two years, PMI supported the MOH in updating the country's 24-year-old pharmaceutical regulatory law thus, giving authority to the NPM for medicines quality assurance and surveillance of medicines in circulation. The revised legislative text was signed into law by the President of Guinea and promulgated in July 2018.

PMI-supported planned activities (next ~12-18 months, supported by currently available funds)

- **Management of pharmaceutical supplies:** Manage the distribution of PMI commodities down to the health facility level, including warehousing, transportation, storage and distribution as well as providing commodities assurance.

- **Strengthen Logistic Management Information System:** Support to strengthen the LMIS to enable the pharmaceutical system to collect, compile, and processed consumption data to improve forecasting, procurement, and distribution of commodities. Includes support for internet connectivity and eLMIS training, supervision, quantifications/data use at the central (PCG, DNPM), regional, and prefectural levels. Support also includes integration of LMIS into the DHIS2 as well as quarterly malaria reviews.
- **Health facility supervision and DQA:** Routine data quality assessments will be conducted quarterly by a team of supervisors, including NMCP and district health office staff, as well as technical partners. This collaborative activity will include supervision of case management services, routine data quality assessment (DQA), and verification of commodity availability.
- **Improve drug regulatory capacity:** Support improvement of the regulatory and oversight capacities of the DNPM, enhanced control of compliance with pharmaceutical policy and regulations by PCG and the private pharmacies network. Support will also include the development of drug quality assurance tools.
- **Strengthen pharmaceutical storage capacity:** Support the PCG to improve infrastructure necessary to adequately store and manage commodities, focusing on the peripheral (regional and health facility) levels.
- **Strengthen DNPL and national laboratory for drug quality monitoring:** Support the National Directorate of Pharmacies and Laboratory (DNPL) and National Laboratories to build capacity for in-country drug quality monitoring.

PMI Goal

Ensure continual availability of quality products needed for malaria control and elimination (ACTs, RDTs, SP, severe malaria medications, and ITNs) at health facilities and community level.

Do you propose to increase, decrease, or maintain funding allocation levels for this activity? Why, and what data did you use to arrive at that conclusion?

We propose to increase funding allocation levels for this activity given the importance of a functional, timely supply chain. The increases are proposed both for FY2019 reprogramming and for FY2020.

In particular, we are proposing an increase in funding for:

- Investment in an external audit of PCG to ensure security of commodities from central to peripheral levels (co-funded with GFATM).
- Support for quarterly regional malaria performance review meetings.

Please see Table 2 for a detailed list of proposed activities with FY 2020 funding.

Key Question 1

Has the central level, (or sub-central level if appropriate) been stocked according to plan for ACTs, RDTs, SP and Art. Inj over the last year? If not stocked according to plan, have they been under, over or stocked out?

Supporting Data

Figure A36. Central Stock Levels for ACTs

Central Stock Levels for ACTs

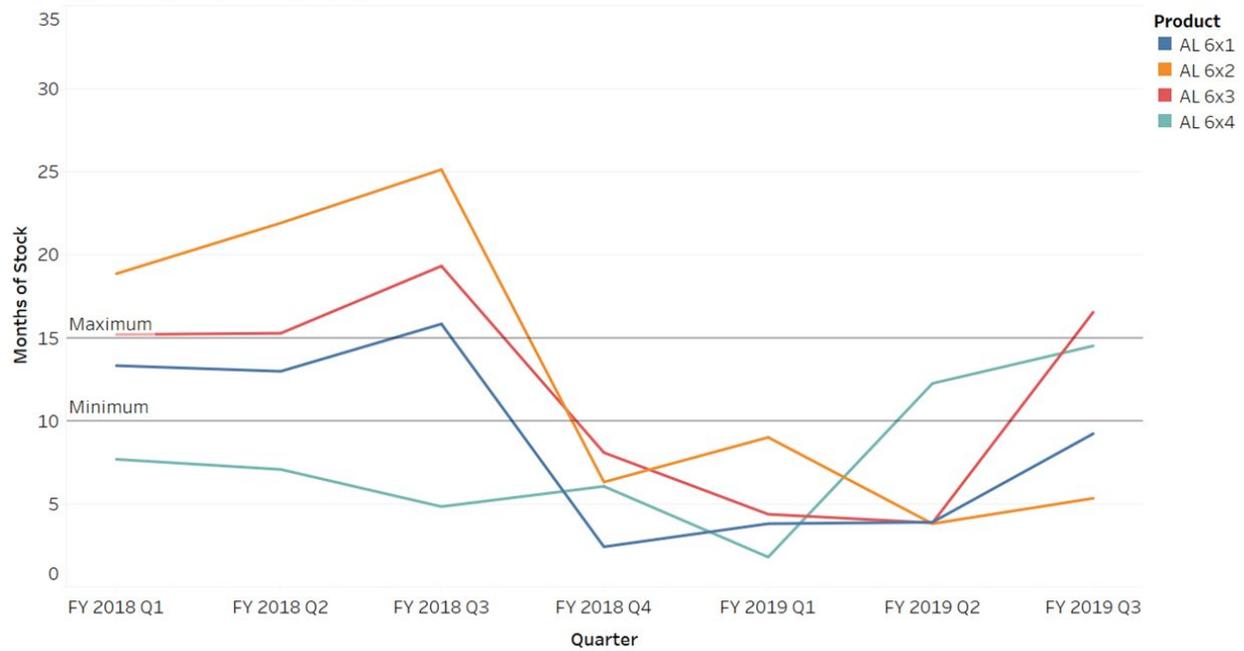
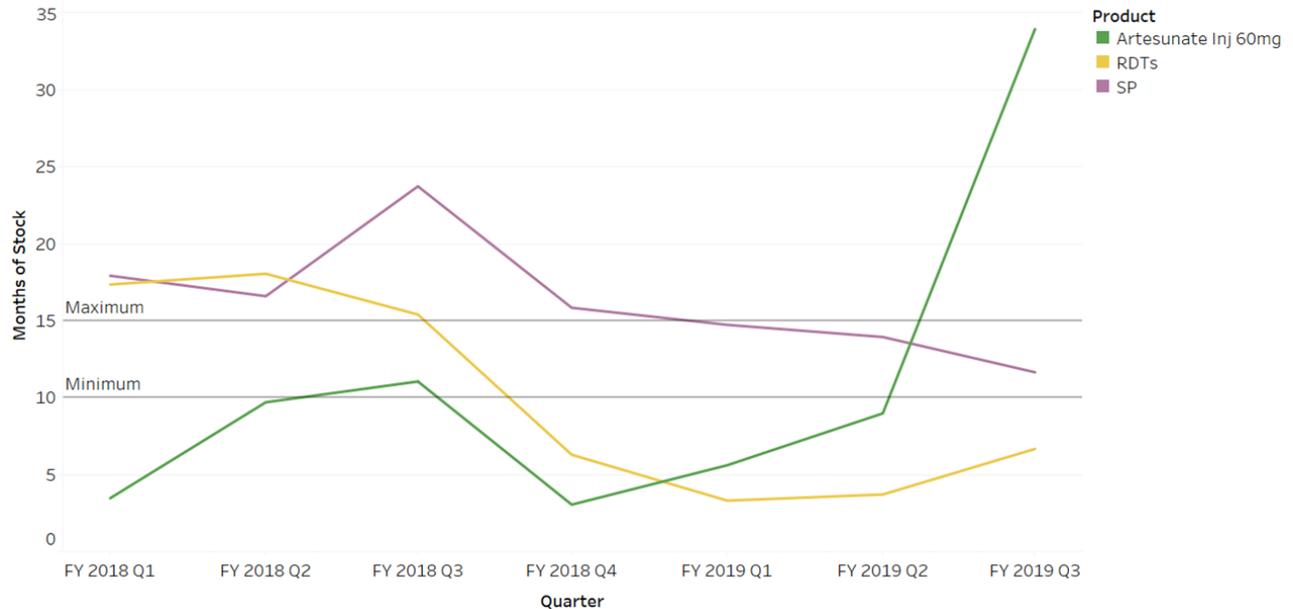


Figure A37. Central Stock Levels for TDTs, SP, and Injectable Artesunate 60mg

Central Stock Levels for RDTs, SP and Injectable Artesunate 60mg



Conclusion

Even though central level stocks are below minimum for several commodities our facility level data do not indicate significant problems with stock-outs (see Key Question 2). These central level trends may be indicative of the products having been pushed out to facilities. The increased stock level in the third quarter of 2019 was due to a recent delivery which was then immediately distributed. PMI’s supply chain partner monitors all orders in the pipeline closely to ensure smooth delivery. Quarter three also follows the period of high transmission, so monthly consumption increased to deal with the complicated cases often observed in this period.

Key Question 2

What are the trends in facility- and community health worker-level stock out rates for ACTs (including AL ability to treat), RDTs, and SP over the last year (if tracked)? Are there a seasonal or geographic differences in stock out rates?

Figure A38. ACT Stockout Rates

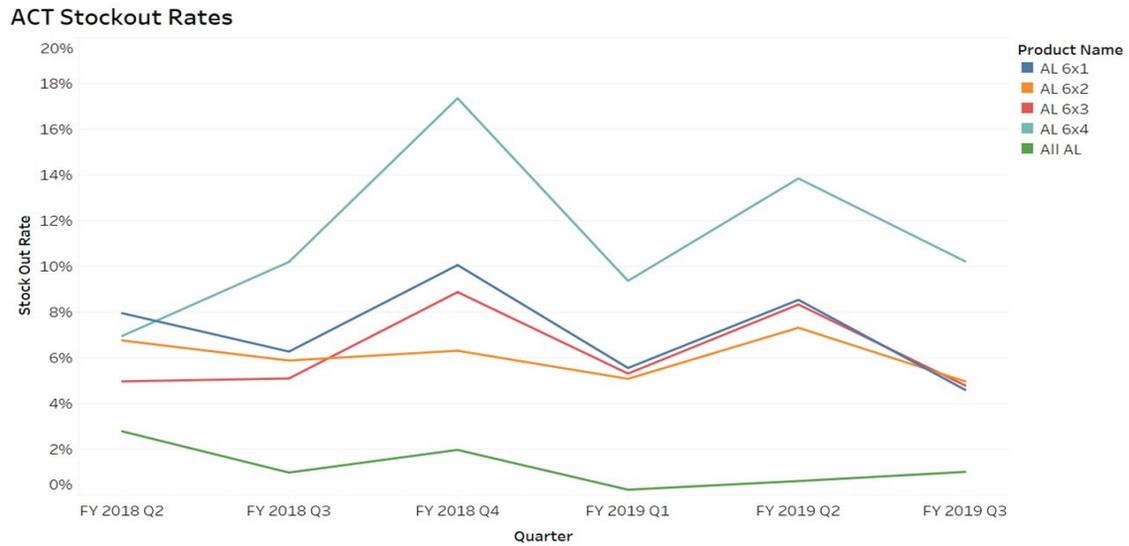
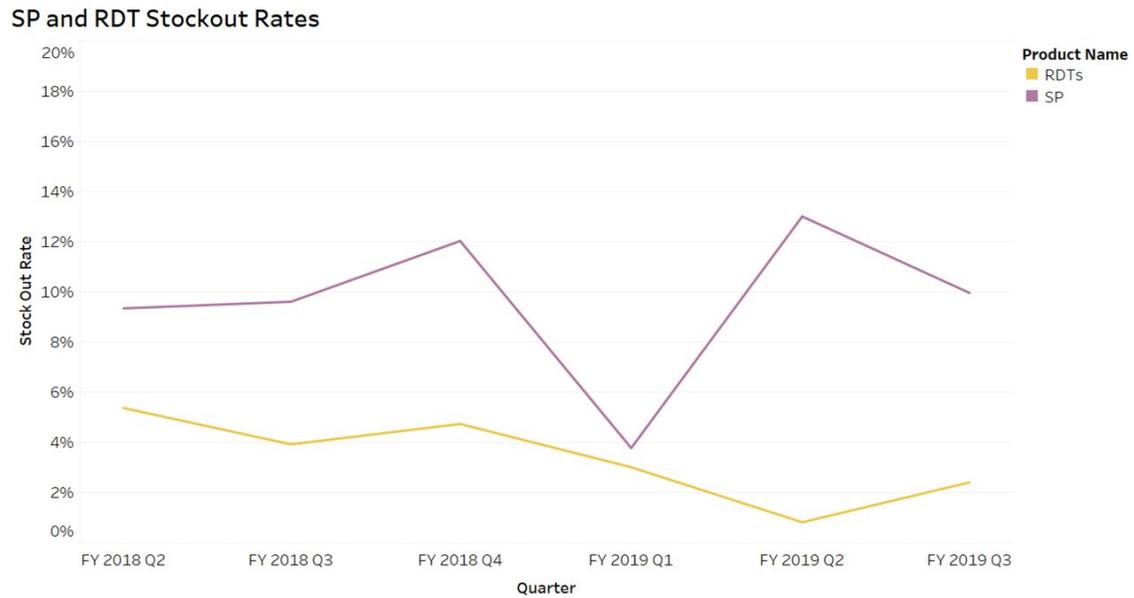


Figure A39. SP and RDT Stockout Rates



² For Guinea, “stockout” is defined as no useable (i.e. not expired) product on the day of reporting.

Conclusion

Guinea's facility-level stock-out rates for malaria commodities are low. The strong performance can be explained by the following:

- successful prepositioning of malaria commodities in PCG regional warehouses ahead of distributions, a process that is based on an inventory control system that has alerts triggered by stock levels that are below or above determined thresholds. PMI's supply chain partner helped PCG to implement this system;
- the distribution of antimalarials occurred on schedule most of the time;
- good collaboration between PCG, the NMCP, district focal points, and regional technical advisors from PMI's supply chain partner who closely coordinated order submission by health facilities
- timely analysis and submission to the regional depot for resupply;
- close follow-up and support by regional technical advisors from PMI's supply chain partner to PCG regional depots in preparing orders, planning and implementing the distribution plan in respect to the timelines agreed upon.

Higher stock-out of AL 6x4 stemmed from an error by PCG in rationing distributions across its six regional depots. Despite this higher stock out, ACT inability to treat (stock out of all four AL presentations) remained very low. Implications are that the support being provided is achieving desired outcomes.

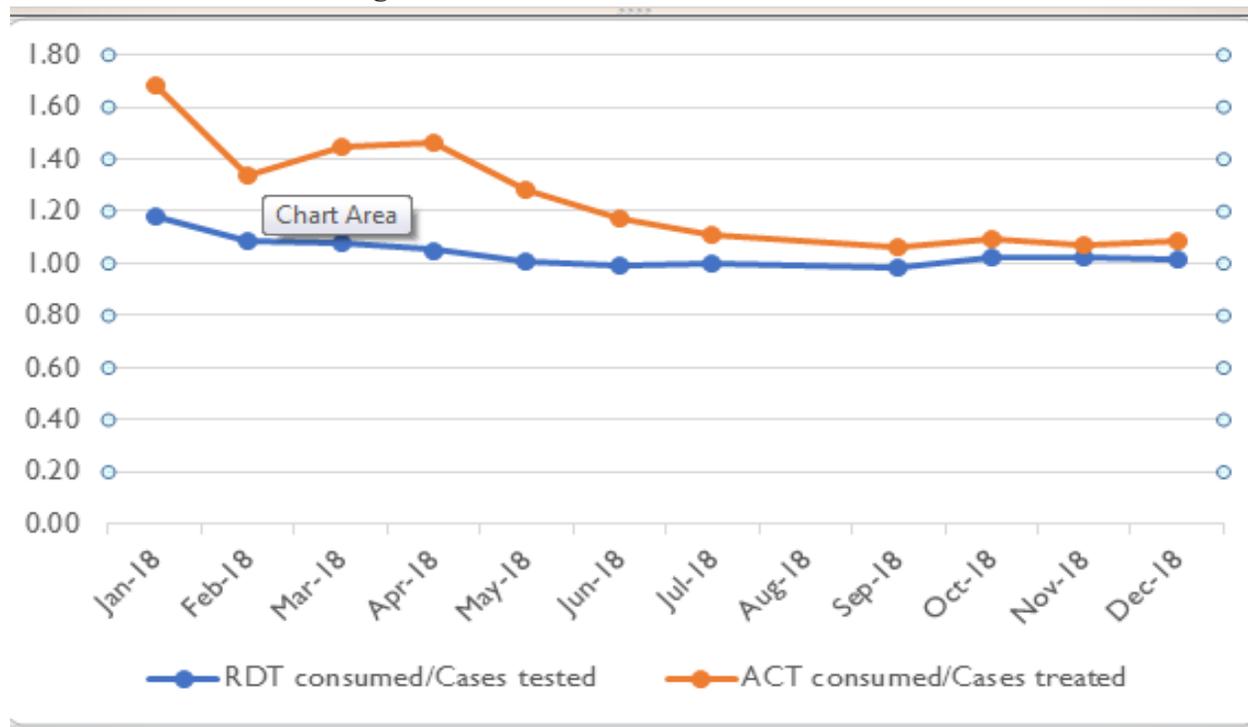
Note that the community-level LMIS data is incorporated in health facility data. The system does not allow for disaggregation between the health facility and community levels.

Key Question 3

What is the difference between quantities for ACTs consumed and malaria cases, and RDTs consumed and numbers tested? What is driving any differences seen?

Supporting Data

Figure A40. RDT and ACT Cases Treated



Conclusion

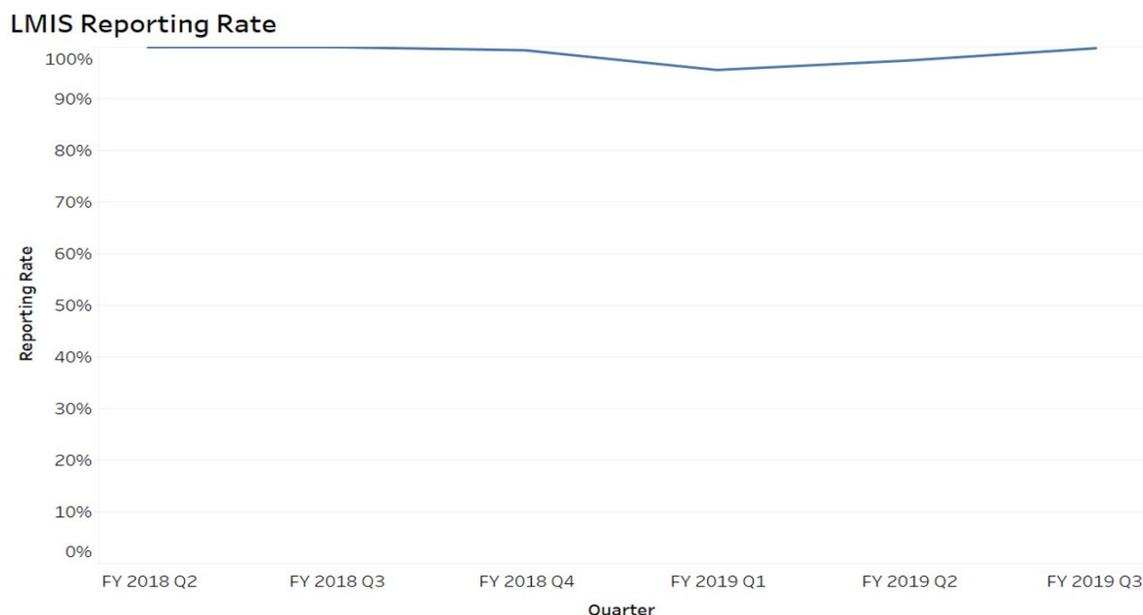
Data discrepancy between RDT consumed and cases tested and between ACTs consumed and cases treated varies on average between 3 percent and 20 percent over 2018. The higher rates of discrepancies observed over January- May 2018 are associated with the introduction of a new reporting template for the malaria logistics data accompanied by a change in data source. Training on the new reporting forms was not provided to users. The data reported in the two forms are not comparable: The older LMIS forms were populated with distribution data from stock cards in the main store while the newer LMIS forms report data on commodities dispensed-to-users. The reduction in the level of discrepancies over the second part of 2018 can be explained by increased support to supply chain staff in health facilities on the use of the new LMIS forms. Additionally, the regional/district supply chain performance review meetings, which focus, among other things, on triangulation of malaria consumption and service statistics data, helped to improve this indicator over time.

Key Question 4

What are the trends in LMIS reporting rates?

Supporting Data

Figure A41. LMIS Reporting Rate



Conclusion

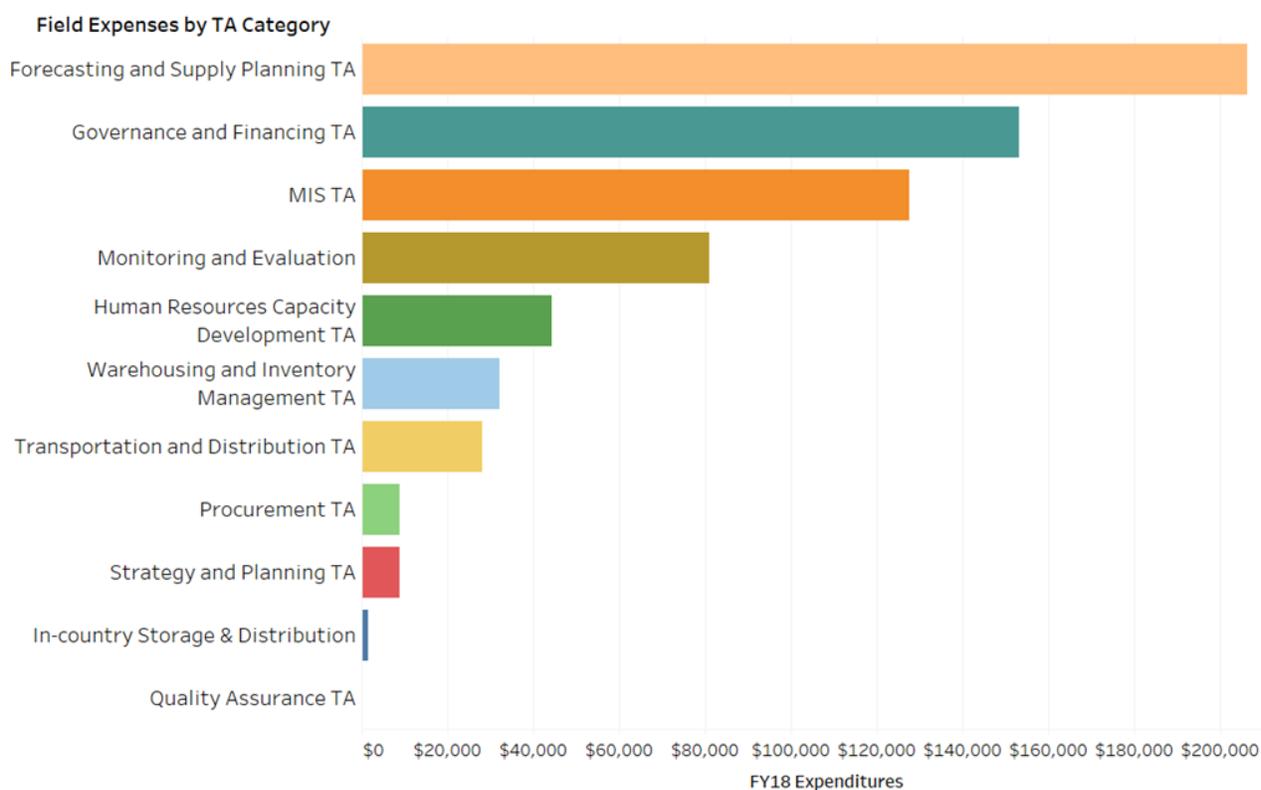
Service Delivery Point reporting rates to the LMIS remained constant over the reporting period with close to 100 percent health facilities reporting. Consistent coaching, follow-up and support provided jointly by the Regional Pharmacy Inspectors and the GHSC-PSM Regional Technical Advisors continue to contribute to this strong performance. Regional supply chain performance meetings that GHSC-PSM supports have incentivized health facility-level supply chain personnel to continually report LMIS data in a timely manner, as evidenced by the increase in overall on-time reporting from 62 to 81 percent since the beginning of FY2019. Maintaining support for these activities is key to continued success.

Key Question 5

What are the main supply chain functions supported by PMI? For areas that are not as strong is there additional investment that PMI should make (e.g. increasing visibility of demand at health facilities)? In areas performing well, is it dependent on PMI/donor funding (e.g. PMI and Global Fund pay for warehousing and distribution) and so should be maintained?

Supporting Data

Figure A42. PMI Supply Chain Investments in FY 2018



Conclusion

PMI main supply chain-supported functions include: strategy & planning, forecasting & supply planning, procurement, warehousing & inventory management, logistics management information systems (manual & electronic), human resources capacity development and pharmaceutical sector governance. Previous investments in Guinea’s supply chain have enabled successful implementation of the eLMIS allowing the country to transition from a paper-based to an automated LMIS. Districts are now able to electronically capture logistics data using eLMIS thus allowing for faster, easier and accurate reporting of logistics data, better data visibility and decision-making regarding commodity availability. Despite these notable achievements, data quality and use remain limited. This in turn impacts on adequate visibility of malaria supply at various supply chain tiers and consequently product availability. To overcome this, additional investments have been planned in the strengthening of LMIS including support for internet connectivity, additional capacity building for quantification at the central (PCG, DNPM), regional, and prefecture levels, integration of LMIS into the DHIS2 and malaria quarterly reviews at the regional level.

Key Question 6

What are the in-country considerations (e.g. in-country staffing capacity, political climate, security concerns) that impact your funding allocation in this category?

Supporting Data

One local consideration is the concern that the 2020 election cycle could see similar protests, strikes, unrest, and violence in the streets that occurred around the February 2018 elections. This could have an impact on the implementation of malaria activities, including the supply chain.

Conclusion

The team needs to be prepared for potential interruptions in service delivery and disruptions to supply chain link with upcoming political activities. This could have programmatic and planning implications.

3.B. SURVEILLANCE, MONITORING & EVALUATION (SM&E)

NMCP objective
Surveillance, monitoring, and evaluation are key components of Guinea’s malaria program. The NMCP plan identifies indicators, targets, and data sources and emphasizes the importance of data collection, data quality assurance, and dissemination and use of data. Specific M&E priorities reflected in the plan include revising and maintaining the national malaria database, including the HMIS and supervision data; creating and disseminating malaria bulletins; building M&E capacity at regional and district levels; and strengthening relationships with partners to collect malaria data, including through HMIS and the Integrated Disease Surveillance and Response (IDSR) system. A technical committee for M&E at the national level is led by the NMCP and made up of donor and partner representatives including PMI and its partners, Catholic Relief Services (GFATM principal recipient), and WHO, among others. A national Malaria Program Review was conducted in late 2016 and the findings were used to update the National Strategic Plan, 2018-2022.
NMCP approach
The following data systems collect malaria data in Guinea: Monthly malaria reporting system: Since the annual HMIS report was not perceived as a timely or valid data source when PMI was first launched, and the HMIS was nonfunctional during the Ebola crisis, starting in late 2013 the NMCP, with the support of the MOH unit responsible for the HMIS, implemented a monthly reporting tool to collect malaria data on commodity availability, commodity consumption, case management (e.g., suspect cases tested, cases treated), and epidemiology (e.g., confirmed cases, deaths) all on the same form. First rolled out in PMI zones, the monthly reporting

tool was expanded to GFATM zones starting in mid-2014 and since that time the monthly malaria reporting system has served as the primary source of data for the NMCP and malaria partners via an NMCP-produced monthly malaria bulletin summarizing the data. Currently, all 33 prefectures and 5 urban communes are consistently reporting data, with district-level reporting completeness nearing 100 percent each month. The reporting tools are filled out at health facilities and sent up to the district health offices for aggregation and electronic data entry before the electronic files are sent to the NMCP. The malaria reporting system captures data from public health facilities (including hospitals and health centers), their affiliated health posts, and community health workers and private non-profit service providers, primarily in Conakry. However, as of September 2019, malaria data will no longer be reported into this system. This is a result of a governmental decree that all health reporting will occur through the integrated HMIS instead of via program-specific parallel systems.

Health Management Information System: The MOH has prioritized the revitalization of the national HMIS on the DHIS2 platform. The system has been rapidly rolled out with regional-level trainings completed. This process was led by the MOH *Bureau de Stratégie et Développement* (BSD) with operational support by donors such as USAID and GFATM. The MOH vision is that parallel reporting systems by the various health programs (e.g., malaria) should be phased out and one, integrated HMIS on the DHIS2 platform should be used for all health reporting. The NMCP and partners have worked hard to build and support the malaria reporting system so the NMCP focus has been on how to ensure a smooth transition from the parallel malaria reporting system to the HMIS without losing gains in completeness and quality of malaria data.

Integrated Disease Surveillance and Response system: Supported by WHO, Guinea's weekly Integrated Disease Surveillance and Response system is based at the Division of Prevention and Disease Control at the MOH. It consists of weekly, telephone-based reporting on ten diseases, including malaria. While a timely tool for routine malaria data, it lacks key indicators, does not stratify by age, does not include data on completeness, and does not generally include data from health posts and community health workers.

Household surveys: Guinea has implemented a DHS in 2005, 2012, and 2018 and a MICS in 2007 and 2016. The 2012 DHS provided the first national estimates of malaria parasitemia prevalence and the 2016 MICS-Palu included malaria biomarkers to provide a second parasitemia prevalence data point. Another DHS was carried out in 2018. In addition to the DHS and MICS, GFATM has supported national surveys in 2009, 2010, and 2015 to measure population coverage with basic malaria interventions (ITNs, IPTp, and ACTs). PMI has also supported national knowledge, attitudes, and practices (KAP) surveys in order to provide formative data on malaria-related behaviors including ITN use and treatment-seeking practices.

Health facility surveys: Various types of health facility surveys have provided complementary data on different aspects of malaria service provision in Guinea. PMI-funded, semi-annual EUV surveys have been implemented since 2013 to provide data on malaria commodity availability and basic case management practices based on a convenience sample of health facilities across the country. These were discontinued in 2018 as the routine data provided a monthly estimate of stock levels and consumption of malaria commodities. In December 2014, a health facility survey was conducted to collect detailed, representative, national-level data on health worker performance regarding malaria case management in the context of Ebola. Results were used to guide national health worker training strategies. The Service Availability and Readiness Assessment (SARA) survey is a standardized health facility survey that covers a broad range of healthcare delivery services. In Guinea, a SARA survey was implemented in September 2015 and 2017 with support from GFATM, the Global Alliance for Vaccines and Immunizations (GAVI), WHO, and PMI. Though not a malaria-specific survey, the standard module includes indicators on health facility readiness to provide malaria services, including health worker training, supervision, and malaria commodity availability. In Guinea, the SARA included a “Malaria Module,” consisting of a patient exit interview to assess the quality of malaria case management services. PMI supported another health facility-based data collection activity in 2017 to better understand how case management and data recording practices at facilities may influence reported indicators and trends in the national routine reporting system.

PMI objective, in support of NMCP

The NMCP and malaria partners use the national M&E plan to guide surveillance, monitoring, and evaluation priorities in Guinea. These priorities include data collection activities to inform implementation, such as routine health facility-based surveillance, household surveys, health facility surveys, and antimalarial therapeutic efficacy monitoring. Additional priorities include health information system strengthening and capacity building. With a strong foundation established for reporting routine malaria data, greater emphasis will shift to data quality improvements through intensive supervision and data quality audits, data analysis, interpretation, and use. PMI works with the NMCP and other partners such as GFATM and UNICEF, to ensure SM&E activities are coordinated and adequately supported. With FY 2020 funds, PMI will continue to support routine information system strengthening, particularly to ensure the integrated Health Management Information System (HMIS) on the District Health Information System 2 (DHIS2) platform is well functioning to improve data quality for decision making.

Efforts will focus at both the facility level to improve reporting, and district/national level to improve data use. In addition, PMI will support quarterly in-depth supervision visits and data quality audits for malaria epidemiological and commodity data. To further support the NMCP in building capacity for data interpretation and use, PMI will support periodic field investigations in response to reported data that may warrant a more in-depth understanding of data reporting practices, health worker and community behaviors, or entomological factors that may influence reported data.

PMI-supported recent progress (past ~12-18 months)

- In FY 2018, PMI continued to strengthen the capacity of the NMCP staff to manage malaria data within the national health management information system (HMIS) platform District Health Information System (DHIS) 2 at the central, regional, and district levels to improve the quality of health program data reporting, including for malaria. Over the course of this reporting period, a total of 264 staff at the central, regional, and district levels were trained to enter malaria data into the DHIS 2 platform as part of the transition from the existing NMCP Routine Malaria Information System (RMIS) to an integrated HMIS. PMI also supported the increased sharing and use of health information for evidence-based decision-making and strategic planning with key national health program leaders.
- PMI continued to support the data collection, analysis, review, and editing of the preliminary results of the Guinean 2018 DHS. These results are key in identifying areas of progress and those with remaining challenges.
- PMI continued to support the NMCP's therapeutic efficacy study (TES) for first- and second- line ACTs used in Guinea. PMI supports the procurement and delivery of all the equipment, commodities, and logistics needed for the study. Furthermore, PMI is supporting the NMCP to initiate regional collaboration with the University of Dakar to build Guinean capacity for molecular resistance testing through the PMI-supported Antimalarial Resistance Monitoring in Africa (PARMA) initiative to monitor the presence of genetic mutations associated with malaria drug resistance mutations in particular.
- PMI supported monthly health facility monitoring meetings followed by data quality assessment (DQA) activities that brought together key actors from different district levels including the health posts, health center, health and hygiene committees, non-governmental organizations (NGO) and the Prefectoral Health Directorates (DPS) to review analyze and validate monthly malaria data before reporting to NMCP and the National Health Information Service.
- PMI also supported the 2017 health facility data quality survey in 126 randomly selected public health facilities. The survey assessed health facility readiness to provide services, including the provision of malaria case management service, the quality and validity of reported routine data for fever assessment, malaria testing, and treatment. This study showed that most cases of malaria were appropriately diagnosed, treated, and documented. The quality of malaria case management and data quality reflected patterns previously detected though the RMIS.

PMI-supported planned activities (next ~12-18 months, supported by currently available funds)

1. *Support routine data collection for malaria:* PMI will support the HMIS to ensure collection and reporting of quality data on malaria commodities and epidemiologic trends at all levels while the HMIS completes the transition to the DHIS2 platform and the quality of the malaria data in the HMIS continues to improve. Activities will focus on monitoring quality of malaria data (completeness, timeliness and accuracy), maximizing data use for decision making, monthly data review meetings at prefecture level, dissemination of monthly malaria bulletins, and support of the M&E technical group. In addition, support will be given for increased DHIS2 trainings with the aim of improving DHIS2 literacy. All of these activities will be done in collaboration with the regional and district levels. These routine surveillance support activities will complement two other PMI-funded SM&E activities (described below). Taken together, they represent a complementary strategic PMI approach to RHIS strengthening for malaria in Guinea. PMI support for this activity is part of a broader HMIS strengthening effort supported by USAID, Global Fund, and other partners.
2. *M&E implementation: Data review response activities:* As an extension of the PMI support for routine surveillance described above, PMI will also support the NMCP to conduct regular, structured review of reported data and to take appropriate action as needed to further investigate anomalies that may emerge in the data. In most cases, these “investigations” will be handled remotely from Conakry via phone or email communication; but in some cases, field activities may be warranted. PMI will provide guidance for the routine data review (i.e., specific indicators and data elements to monitor) and the resident advisors will be engaged in decisions about what type of response may be appropriate (i.e., field activity vs. remote follow-up). The expectation is that the combination of routine surveillance support activities, quarterly health facility supervision and DQA, and technical assistance for rigorous and regular data review will result in improved data availability, data quality, and programmatic decision-making.
3. *Support NMCP research committee:* Support a national malaria research committee housed within the NMCP to strengthen coordination of research activities by various individuals and institutions, promote collaboration, identify research priorities, and facilitate the dissemination of research findings.

PMI Goal

To support the NMCP to build their capacity to conduct surveillance as a core malaria intervention using high quality data from both surveys and routine health information systems.

Are you proposing to increase, decrease, or maintain funding allocation levels for this activity? Why? What data did you use to arrive at that conclusion?

Due to the recent transition from a parallel malaria reporting system to an integrated HMIS on the DHIS2 platform, PMI will provide additional support for data validation activities and capacity development of NMCP staff in DHIS2. A need for increased technical support for the production of the monthly malaria bulletin pulling data from the DHIS2 instead of the parallel malaria system was also identified. Increased support will be directed to the central level to ensure the malaria data are correctly parameterized, and that the NMCP is being sufficiently involved in HMIS planning and decision-making and is being provided training opportunities.

Please see Table 2 for a detailed list of proposed activities with FY 2020 funding.

Key Question 1

Which sources of data are available to inform estimates of intervention coverage, service availability and readiness, and morbidity and mortality?

Supporting Data

Figure A43. Available Data Sources by Year

<i>Data Source</i>	<i>Data Collection Activities</i>	<i>Year</i>								
		<i>2015</i>	<i>2016</i>	<i>2017</i>	<i>2018</i>	<i>2019</i>	<i>2020</i>	<i>2021</i>	<i>2022</i>	<i>2023</i>
<i>Household Surveys</i>	<i>Demographic Health Survey (DHS)</i>				X					
	<i>Malaria Indicator Survey (MIS)</i>		X				(X)			
	<i>Multiple Indicator Cluster Survey (MICS)</i>		X ¹							
	<i>EPI survey</i>									
<i>Health Facility Surveys</i>	<i>Service Provision Assessment (SPA)</i>									
	<i>Service Availability Readiness Assessment (SARA) survey</i>	X			(X)*					

Data Source	Data Collection Activities	Year								
		2015	2016	2017	2018	2019	2020	2021	2022	2023
	Other Health Facility Survey - Health facility supervision and DQA				X	X	(X)			
	Health Facility Data Quality Survey				X					
Other Surveys	EUV	X	X	X				(X)		
	School-based Malaria Survey									
	Other (Knowledge, Attitudes and Practices Survey, Malaria Behavior Survey)				X					
	Other (Impact Evaluation)									
Malaria Surveillance and Routine System Support	Support to Parallel Malaria Surveillance System	X	X	X	X	X				
	Support to HMIS		X	X	X	X	(X)	(X)		
	Support to Integrated Disease Surveillance and Response (IDSR)									
	Other (Electronic Logistics Management Information System (eLMIS))			X	X					
	Other (Malaria Rapid Reporting System)									

*Asterisk denotes non-PMI funded activities, x denotes completed activities and (x) denotes planned activities.

1 This was a MICS with malaria biomarker testing.

Conclusion

The NMCP is prioritizing a nationally-representative survey with collection of malaria biomarkers as parasitemia prevalence has not been measured since 2016. GFATM and PMI are planning to contribute funds to field a Malaria Indicator Survey in 2020 (see FY 2019 reprogramming). The roll-out of DHIS2 and the transition of reporting malaria data from the parallel reporting system to the integrated HMIS are complete. As of September 2019, malaria reporting is fully integrated and parallel reporting will not occur. Implications include the

potential for more challenging interpretation of malaria data and potential decreased reporting rates. Increased attention may be needed at the central level to ensure the malaria data are correctly parameterized, and that the NMCP is being sufficiently involved in HMIS planning and decision-making and is being provided training opportunities.

Key Question 2

What HMIS activities have been supported in your country? What current priorities will be supported with this MOP funding?

Supporting Data

Figure A44. HMIS-Supported Activities

Intervention	PMI-Funded? (X)			Does GFATM plan to fund this? (X)	Does another donor plan to fund this? (X)
	FY 18	FY 19	FY 20		
Central Level					
Register, tools (e.g. checklists, indicator glossary), job aids (design, indicators, definition of data elements, data dictionary, system support)	X	X	X	X	
Data quality assessments (separate from supervision – funding for travel to lower levels)	X	X	X	X	
Program monitoring and technical assistance (funding for travel to lower levels)	X	X	X	X	
Training (funding for central level to conduct training at lower levels, capacity building, i.e. on the job training for central level staff)	X	X	X	X	
Human Resources (secondment of person in NMCP for SM&E, office/team for SM&E)	X	X	X	X	
Data Use (analysis, interpretation, visualization (dashboards, bulletins, dissemination/feedback to lower levels, decision-making)	X	X	X	X	
Policy guidelines and coordination (updating policies, guidelines, supporting sub-committee meetings, supporting participation in sub-committee meetings)	X	X	X	X	
External relations/Communications/Outreach (support travel to international meetings and publications)	X	X	X	X	

Intervention	PMI-Funded? (X)			Does GFATM plan to fund this? (X)	Does another donor plan to fund this? (X)
	FY 18	FY 19	FY 20		
Support to annual operational plans for national malaria program	X	X	X	X	
Desk review to catch “logic errors system” (provide TA to catch logic errors)					
Admin 1 Level (Region). PMI supports activities in 3 regions while GFATM supports activities in 4 regions.					
Registers (warehousing, printing, distribution)					
Data quality assessments (separate from supervision – funding for travel to lower levels)	X	X	X	X	
Program monitoring and technical assistance (funding for travel to lower levels)	X	X	X	X	
Training (funding for regional staff to conduct training at lower levels, capacity building (i.e. on the job training for regional level staff)	X	X	X	X	
Human Resources (secondment of person for malaria SM&E, office/team for SM&E)	X	X	X	X	
Data Use (analysis, interpretation, visualization (dashboards, bulletins), dissemination/feedback to lower levels, decision-making)	X	X	X		
Adaptation of national policy guidelines and coordination (adapting policies, guidelines, supporting sub-committee meetings, supporting participation in sub-committee meetings)	X	X	X	X	
Adaptation of checklists and job-aides	X	X	X	X	
Participation in national meetings (support for travel costs)	X	X	X	X	
Support to Annual Operational Plans for Regional Malaria Program	X	X	X		
Admin 2 Level (Prefecture). PMI supports activities in 19 districts and GFATM supports 19 districts.					
Data entry, summary, and transmission (training, re-training, computers, internet, tools)	X	X	X	X	
Supervision (training, traveling, supervision tools/checklists, create/design system for organized/methodical supervision)	X	X	X	X	

Intervention	PMI-Funded? (X)			Does GFATM plan to fund this? (X)	Does another donor plan to fund this? (X)
	FY 18	FY 19	FY 20		
Data validation (data validation activities before monthly data submission - organize health facilities)	X	X	X		
Monthly/Quarterly data quality review meetings (venue, meeting support)	X	X	X	X	
Data Use (analysis, interpretation, visualization (i.e. dashboards), dissemination/feedback to facilities, decision-making)	X	X	X	X	
Human Resources (secondment of person for malaria SM&E, office/team for SM&E)	X	X	X	X	
Annual planning with region (support travel)	X	X	X	X	
Facility Level (PMI supports health facilities in 19 districts and GFATM in 19)					
Data collection/entry, summary, and transmission (training, re-training, computers, internet, tools)	X	X	X	X	
Supervision of CHWs (training, traveling, administering supervision tools/checklists of community health workers)	X	X	X	X	
Data use (analysis, interpretation, visualization (dashboards), dissemination/feedback to CHWs, decision-making)	X	X	X	X	
Monthly/Quarterly data quality review meetings (support for travel)	X	X	X	X	
Community Level (PMI supports CHW in 19 districts and GFATM in 19)					
Data collection/entry and transmission (training, re-training, tools)	X	X	X	X	
Data use (analysis, interpretation, decision-making)					
Monthly/quarterly data quality review meetings (support for travel)	X	X	X	X	

Conclusion

GFATM provides support to the MoH for many of the health system strengthening activities around data collection and reporting, including substantial support for the recent national roll-out of the DHIS2 platform. The regional- and district-level support for capacity building, including

quarterly data review meetings, is provided by both PMI and GFATM. Malaria Focal Points, stationed at the district level, guide much of this SME support at the peripheral level.

Key Question 3

What are the outcomes of HMIS strengthening efforts?

Supporting Data

Figure A45. Outcomes of HMIS Strengthening Efforts

		2017	2018
Timeliness*	% of reports received on time	NA	44%
Completeness**	"Confirmed malaria cases for children under 5 years of age" was reported in X% of facility-months	NA	92%
Accuracy	Populate with most recent DQA data	NA	NA

*Note: In DHIS2, timeliness for the malaria form is defined as receipt within 15 days of the end of the month. For 2018, 2763/6300 were received within 15 days. Data for the malaria form for 2017 is not available through DHIS2.

**Note: This is likely an underestimate because this data element does not record zeros, therefore the count of values entered will not include those whose value was zero. For Guinea, the rate of form submissions (96% in 2018) may be a better indicator of completeness.

Conclusion

Public health facilities report malaria data to the district level monthly using the malaria reporting form. Reporting rates are consistently high with recent improvements in the percentage of reports submitted on time. For example, 519 of the 525 expected reports (99 percent) for July 2019 were received on time. This is in comparison with 44 percent of reports received on time in 2018.

Key Question 4

What are the in-country considerations (e.g. in-country staffing capacity, political climate, security concerns) that impact your funding allocation in this category?

Supporting Data

One local consideration is the concern that the 2020 election cycle could see similar protests, strikes, unrest, and violence in the streets that occurred around the February 2018 elections. This could have an impact on the implementation of malaria activities, including data collection.

Conclusion

The monthly malaria reporting system has substantially improved its reporting completeness. As of September 2019, 96 percent of expected malaria data forms are received at the district level. These improvements reflect intense efforts by the NMCP, district and regional health authorities, and implementing partners in both the PMI and Global Fund target areas. An integral part of these efforts are regular regional- and district-level meetings to review data, discuss challenges, and promote best practices for data collection and management. NMCP, with PMI support, has made gains in data analysis, interpretation, and use. The consistent availability of routine data has allowed the NMCP to identify high malaria transmission “hotspots” or areas of concern that warrant some level of investigation.

3.C. SOCIAL AND BEHAVIORAL CHANGE (SBC)

NMCP Objective
The strategic plan aims at reaching 90 percent coverage levels in both prevention and case management interventions. To support these objectives, the strategy calls for increased and strengthened interpersonal communication at the individual and community levels; mass media communication including television, national and local radio, internet, and printed support materials; and social mobilization to increase support from community members and leaders.
NMCP Approach
<p>The NMCP’s communication plans for 2018 -2022 was developed in keeping with the vision, purpose, objectives and results defined in 2018-2022 National Malaria Strategic Plan (PSN) and based on lessons learned from the implementation of the 2015-2017 communication plan, the 2013-2017 NSP and the results of the 2018 Knowledge, Attitudes, and Practices (KAP) survey carried out in 4940 households in the 14 districts and 5 communes of Conakry supported with PMI funding. The plan emphasizes comprehensive communication activities: for each malaria control strategy the revised plan includes key findings, the desired behaviors, the target population, the proposed activities, and messages.</p> <p>The NMCP’s SBC unit oversees and convenes a national SBC technical working group (TWG). The TWG is composed of representatives from other MoH divisions and from technical and financial partners working in malaria control in Guinea. The TWG’s role is to assist the SBC unit to better coordinate and harmonize SBC tools, approaches, and methodologies. The NMCP’s communication plan provides strategic guidance for SBC activities in all geographic areas.</p>

PMI Objective in Support of NMCP

The NMCP's current malaria communication plan emphasizes strategies and channels to reach various target groups with culturally-appropriate messaging on malaria prevention and control. An SBC TWG oversees communication and behavior change activities and provides guidance and approval for changes based on current information and data. PMI supported a Multiple Indicator Cluster Survey (MICS-Palu) in 2016 that collected information on key behavior and knowledge indicators, and provided greater clarity on the perceptions, knowledge levels, social and economic barriers, and behavior determinants of target populations, especially pregnant women and young children. In addition, an updated draft plan was developed by PMI taking into account information collected from the 2018 KAP survey.

While donor efforts for SBC activities related to malaria prevention and case management are coordinated at the national level, PMI and GFATM each have geographical areas (zones) which they support as part of the distribution of roles and responsibilities between PMI and GFATM. PMI supports SBC activities in PMI zones and GFATM supports activities in the remainder of the country.

PMI-Supported Recent Progress *(Past 12-18 Months)*

- Updated the NMCP's national communication plan. The national communication plan, training materials, and tools are used not only in PMI target areas, but also by GFATM implementers in the remaining areas of the country.
- Complemented the mass media messaging with home visits, community dialogues, and village dramas on ITN care and maintenance, along with practical CHW-led demonstrations on how to hang, care for, and maintain ITNs in villages with a high incidence of malaria. The CHWs conducted 265,546 home visits and reached 1,327,029 people.
- Supported local NGO facilitators to conduct group discussions in the targeted zones to increase knowledge about malaria and promote the practice of healthy behaviors related to malaria prevention and treatment. These discussions took place in health centers and public places such as soccer fields, marketplaces, hair salons, and tailor shops. The messages focused on promoting regular and correct use of ITNs and early care-seeking, especially for pregnant women and children under-five. As a result, the NGOs agents conducted 3,493 group discussions and reached 64,778 people, including 39,139 women. PMI also trained 539 religious leaders (of churches and mosques) on the key malaria control messages.
- Supported the broadcasting of 1,366 radio spots and 12 TV spots to emphasize the importance of IPTp as a means to prevent pregnant women and their babies from contracting malaria. Messages also emphasized the fact that the service is free of charge.

- Supported the organization of 18 roundtable discussions, 8 interactive radio programs, as well as alternative approaches through outreach services to promote the use of and increase access to IPTp services.
- Supported the SBC national working group to revise, validate, and produce SBC materials such as storyboards, posters, job aids, banners, and radio spots to increase community and family members' awareness and knowledge of the importance of SMC and produced and distributed 18,576 tee-shirts, 15,021 caps, 283 banners, 7,776 posters, 3,849 memory aids, and 2,950 storyboards.
- Supported Peace Corps "Community Fight against Malaria" activities to raise awareness about malaria in households; to increase ITN coverage; to increase early care-seeking behavior; and to decrease morbidity and mortality from malaria by informing different populations in the community through well-trained community health workers. This included a large event with sensitizations and a door-to-door campaign. In addition, Peace Corps Volunteers organized training for 45 community health workers covering many malaria related topics; and engaged community health workers and health center staff to facilitate a large scale malaria sensitization and Test & Treat campaign. With these activities, 59,829 people received malaria SBC messaging regarding early treatment seeking and IPTp and reached out to 60,160 people on ITN use.
- Supported supervision of health providers and CHWs to emphasize their role in delivering key malaria control messages during consultations and remind them of available interpersonal communication tools such as storyboards.

PMI-Supported Planned Activities (*Next 12-18 Months Supported by Currently Available Funds*)

SBC implementation for prevention and for case management: Continued support for the implementation of vector control related SBC activities, including community- and facility-based interpersonal communication and national and regional mass media activities, to address the identified barriers to uptake of key malaria-related behaviors. The communication package includes instructions on ITN use at the health facility and community levels through trained midwives. Reinforcing distribution of ITNs through routine channels (ANC, EPI) was identified as a need. PMI will support these activities in the PMI zones and other donors will support these activities elsewhere in line with the NMCP's National Communication Strategy. PMI will continue to provide support to the NMCP at the national level for coordination and monitoring.

PMI Goal

Through the use of social and behavior change interventions and in alignment with a country's national malaria control communication strategy, PMI supports the uptake and correct and consistent use of malaria interventions, thereby improving the overall quality of malaria control efforts that will contribute to reductions in malaria morbidity and mortality.

Are you proposing to increase, decrease, or maintain funding allocation levels for this activity? Why? What data did you use to arrive at that conclusion?

We propose to maintain funding allocation levels for SBC in Guinea. Because net use among those with access is high, fewer funds will be allocated to SBC for ITNs. These funds will instead be prioritized toward influencing provider behavior, increasing uptake of IPTp3 by encouraging earlier ANC attendance, and increasing care-seeking for children under 5.

Please see Table 2 for a detailed list of proposed activities with FY 2020 funding.

Key Question 1

What behaviors is PMI proposing to prioritize through its SBC programming? Will support be geographically targeted or at national scale? What data support this prioritization?

Supporting Data

Figure A46 . PMI Behavior Priorities

Behavior	Primary Target Population	Geographic Focus	Justification
Early ANC attendance	Pregnant women and their family members	PMI zones	According to the 2018 KAP Survey, only 29.9% of women took at least three or more doses of SP during pregnancy. At the same time, 94.1% reported being able to take SP at each of their ANC visits. According to the 2018 DHS, only 35% had four or more ANC visits. So if women had more ANC visits by initiating their first visit earlier, they should be able to achieve three doses of SP.

Behavior	Primary Target Population	Geographic Focus	Justification
Adherence to case management guidelines	Health care providers	PMI zones	A 2015 Service Availability and Readiness Assessment (SARA) showed that 46% of suspect malaria cases were assessed and treated according to national malaria case management guidelines. Among children who had a fever in the last two weeks before the interview and who took any antimalarial, only 18% were treated with ACT (DHS, 2018), indicating a potential issue with adherence to guidelines.
Prompt care seeking for children under 5	Parents of children under 5	PMI zones	While care seeking behavior has improved in recent years, advice or treatment was only sought for 62% of children with a fever (DHS, 2018). There is a potentially dangerous perception among families that their neighbors do not take their children to a health professional for treatment within a day of the start of a fever (KAP survey, 2018). This community norm could prevent parents from promptly seeking care for their children.

Conclusion

PMI/Guinea proposes prioritizing adherence to case management guidelines and early ANC attendance with FY2020 funds. Additional attention will also be given to early care-seeking for children under 5. While providers are not adhering to test-and-treat guidelines, all of the factors at play are not well understood. Interventions are needed to counter the influence of drug manufacturers trying to encourage providers to deviate from case management guidelines.

Key Question 2

Given the priority behaviors identified, what data are available to better understand the factors influencing low uptake? What are the behavioral determinants of the prioritized behaviors? Are there gaps in understanding the barriers to uptake?

Supporting Data

Figure A47. Facilitators, Barriers, and Knowledge Gaps

Behavior	Key Facilitators	Key Barriers	Knowledge Gaps
Early ANC attendance	Social support	Transportation to care, especially the cost of transportation	While there is research on ANC and IPTp in general, there are no data on barriers and facilitators to early ANC attendance.
Adherence to case management guidelines	<ul style="list-style-type: none"> • Supportive supervision • Social norms 	<ul style="list-style-type: none"> • Influence of drug promotion by medical delegates • Lack of commitment from the ministry of health 	Internal, ideational factors behind provider behavior have not been well studied.
Prompt care seeking for children under five	<ul style="list-style-type: none"> • Confidence in ACTs • Confidence and satisfaction with care providers 	<ul style="list-style-type: none"> • Education level of parents • Complacency toward malaria 	There is no gap at this time.

Conclusion

In order to improve and design appropriate interventions, PMI/Guinea proposes examining the ideational factors associated with provider adherence to case management guidelines using existing tools and data, including quality of care surveys, supportive supervision checklists, and related monitoring tools.

Key Question 3

What activities are needed to bolster the country’s capacity for SBC? Are these activities needed at the national or sub-national level?

Supporting Data

Based on the 2018 KAP Survey, recommendations to improve malaria SBC in Guinea include 1) better timing and tailoring mass media messaging in order better reach targeted audiences and 2) strengthening the ability to share messages in local languages. Resources are needed to bolster the capacity to implement these recommendations at the sub-national level.

At a national level, there needs to be a commitment of the ministry for social and behavior change communication and strong advocacy at the country level to ensure malaria control programs implement SBC systematically. SBC programs should be country-led and ensure harmonization of strategies and messages across donor and partner efforts. There is need to encourage donors and organizations working with country programs to provide funding, capacity building, training and/or technical assistance for SBC programs as also the success of malaria SBC depends on the political will to ensure that the national protocols and service delivery guidelines are adequately disseminated and understood; commodities are available at the health facilities; and service providers receive adequate training, oversight and supportive supervision.

Conclusion

There is a need for continued SBC capacity building at both the national and sub-national levels. To bolster Guinea's capacity for the design, implementation, and evaluation of SBC activities, PMI/Guinea will support:

- Coordination at the national level through the SBC TWG
- County-specific SBC planning aimed at increasing sub-national coordination and ensuring the impact of SBC investments;
- Alignment of SBC implementation efforts with country monitoring and evaluation plans;
- Citizen advocacy at the community and facility level through partnerships with local organizations;
- Strengthening of individual capacity of key players at both the national and sub-national level in order to ensure effective SBC activity implementation; and
- Advocacy with national and county level leadership in order to increase support for malaria control and prevention efforts

Key Question 4

What are the in-country considerations (e.g. in-country staffing capacity, political climate, security concerns) that impact your funding allocation in this category?

Supporting Data

PMI has been building the capacity of NMCP communication TWG and supporting them to make sure the monthly meetings are held on a regular basis. Support also includes revising the communication plan according to the KAP survey results. A key focus of SBC is ensuring that activities are community owned. This focus aligns well with USAID's Journey to Self Reliance,

which emphasizes fostering self-reliance by supporting local capacities and solutions. Through its community-based SBC efforts, PMI/Guinea is committed to strengthening local capacity.

There is a fear that the 2020 presidential elections could cause unrest, which could impact all aspects of malaria programming, including SBC activities.

Conclusion

Local partners will be used for the facilitation of interpersonal communication activities whenever possible.

3.D. PROGRAM EVALUATION AND OPERATIONAL RESEARCH

NMCP objective
No PMI-supported operational research (OR) has been completed to date or is currently ongoing. The Guinea Malaria Program Review planned for December 2019 will probably identify activities to inform both scientific and communications-related strategy development which can be considered for future PMI support.
NMCP approach
The updated National Strategic Plan (2018-2022) reiterates the importance of conducting OR as an essential strategy to measure impact of control and prevention activities, and to identify gaps and weaknesses to improve program implementation. The NMCP, will continue to strengthen the NMCP research committee to follow up on moving the research agenda forward with other stakeholders.
PMI objective, in support of NMCP
No PMI-supported operational research (OR) has been completed to date or is currently ongoing.
PMI-supported recent progress (past ~12-18 months)
<ul style="list-style-type: none"> N/A
PMI-supported planned activities (next ~12-18 months, supported by currently available funds)
<ul style="list-style-type: none"> N/A

PMI Goal

PMI will conduct OR/PE that helps: to evaluate coverage of population at-risk, quality of intervention(s), and efficiency in intervention delivery, or study reducing remaining malaria

transmission and disease burden, test effectiveness of new or evolved priority interventions and strategies, or explore new metrics and mechanisms to assess the impact of interventions.

Are you proposing to increase, decrease, or maintain funding allocation levels for this activity? Why? What data did you use to arrive at that conclusion?

No activities are currently planned.

Key Question 1

Have technical challenges or operational bottlenecks that require operations research or program evaluation been identified in consultation with the NMCP? How have they been prioritized?

Supporting Data

Figure A48. PE/OR currently conducted in country with USG, GF, multilaterals or other major donors

Source of Funding	Implementing institution	Research Question/Topic	Current status/ timeline
Not applicable	Not applicable	Not applicable	Not applicable

Conclusion

N/A

Key Question 2

In the technical areas covered above, are there specific issues in any of the intervention areas that merit further exploration, in anticipation of establishing intervention strategies that are or could become available in the future that could be applied?

Supporting Data

Indoor residual spraying (IRS) has so far been carried out by mining companies in some locations without technical assistance from the NMCP. It would be preferable to have a formal pilot project involving research institutions and mining companies to evaluate entomological and epidemiological outcomes. This would help NMCP to make strategic, evidence-based decisions, and would add to efforts to map vectors (spatial distribution, infectivity and sensitivity of vectors to insecticides).

Conclusion

IRS, which confers community protection if at least 80 percent of houses in a targeted area are sprayed, is highly effective malaria control measure. To support the current vector control strategy in Guinea, PMI is focusing on measures to increase ITN coverage. The possibility of introducing IRS can be reconsidered as evidence from pilot implementation becomes available. To this end, strengthening partnerships and capitalizing on learning opportunities will be promoted between the mining companies and the NMCP.

Key Question 3

What are the in-country considerations (e.g. in-country staffing capacity, political climate, security concerns) that impact your funding allocation in this category?

Supporting Data

N/A

Conclusion

N/A

3.E. OTHER HEALTH SYSTEMS STRENGTHENING

NMCP objective
<p>The goal of the new National Strategic Plan 2018-2022 is to reduce malaria-related morbidity and mortality by 75 percent from the 2016 level, bringing the country to pre-elimination by 2022. According to the plan, controlling malaria will promote sustainable social and economic development. Hence, the MoH has assigned the NMCP the mission of providing the Guinean population with universal access to quality malaria care in accordance with the national health policy. The national health policy also recommends that universal access to malaria care for the people of Guinea should be supported by values such as social justice, solidarity, equity, ethics, probity, and quality. This goal is in line with the country’s vision of a “Guinea without malaria for sustainable socio-economic development.”</p> <p>These objectives are in line with core global and national strategies, including the 2016-2030 United Nations Sustainable Development Goals, the 2016-2030 WHO Global Technical Strategy, and the 2015-2024 National Health Development Plan, among others. The objectives support efforts to strengthen in-country capacity and systems to promote the health of Guineans, such as:</p>

- Promote the national malaria control policy based on the RBM partnership principles;
- Reinforce the epidemiological surveillance system for malaria control through data collection and analysis for decision-making;
- Strengthen behavior change communication among the population in order to promote extensive use of malaria prevention measures and treatment products;
- Elaborate, monitor, and evaluate the implementation of the national malaria strategic plan on an annual basis;
- Mobilize and manage human, financial, and material resources necessary for the implementation of the national malaria strategic plan; and
- Promote and develop partnerships with all stakeholders in the control of malaria

NMCP approach

The vision of NMCP strategy is “a Guinea malaria-free for sustainable socio-economic development.” The planned interventions will enable the realization of the Program's mission of ensuring universal access to quality malaria prevention and care services in accordance with the National Health Policy. The implementation of this plan will be done in accordance with the principles and universal values and principles based on good governance, the gender approach, respect for scientific evidence and international recommendations in the choice of malaria control interventions. Through this strategic plan, the NMCP will intensify coordination, planning, partnership, resource management, advocacy for resource mobilization and governance.

PMI objective, in support of NMCP Infrastructure

PMI supports a broad array of health system strengthening activities which cut across intervention areas, such as training of health workers, supply chain management, health information systems strengthening, drug quality monitoring, and NCMP capacity building.

PMI-supported recent progress (past ~12-18 months)

PMI supported the finalization, validation, and sharing of the 2018-2022 National Strategic Plan. All areas of program intervention were reviewed to identify programmatic gaps and ensure PMI and GFATM investments align with the objectives and budget of the country's malaria prevention and control strategy.

PMI continued to support staff skill development through several mentoring sessions for the NMCP technical coordination units, as well as the administrative and financial department to encourage teamwork, identify organizational/ operational challenges, and to determine program priorities. Mentoring sessions focused on the development of terms of reference, activity planning,

implementation and reporting, as well as the design of technical documents such as private sector integration tools, supervisory tools, and quarterly review materials.

PMI, through its seconded long-term technical advisor, supported the NMCP and the GFATM Principle Recipient, Catholic Relief Services (CRS), to organize regular working sessions to review and improve the financial and programmatic performance of GFATM-funded activities over the year 2018. These working sessions identified constraints in financial management and accountability which reinforces the persistence of GFATM’s “zero cash policy” meaning there is no cash advance from GFATM to the program to start implementation. Owing to delays in program implementation due to late disbursement of funds, the advisor worked with the GFATM to reprogram major activities to get GFATM performance back on track.

PMI supported the development of a post-training monitoring grid with the outreach communication strategy “schoolboy and religious leaders against malaria” and submitted a concept note to the Islamic Development Bank with the aim of introducing malaria prevention messages into the Koranic and laic school curricula.

PMI also supported the regular organization of the NMCP monthly TWG meetings for SBC, Vector Control, Diagnosis, M&E, Case Management and Supply Chain Management units. During these meetings, members reviewed the progress on their implementation and action plans and made recommendations and adjustments as needed.

PMI collaborated with the NMCP and World Health Organization to organize a malariology course for the 19 malaria focal points from PMI-supported prefectures and four project regional coordinators to strengthen the skills of the districts and the project team regarding implementation of malaria control activities.

PMI continued to support the regular organization review meetings at the central and decentralized levels through the quarterly Roll Back Malaria coordination meetings. Furthermore, to improve partner coordination, PMI in collaboration with GFATM, support a joint annual work plan review that tracks all partner proposed activities safeguarding against duplication of efforts with malaria activities across the country.

PMI-supported planned activities (next ~12-18 months, supported by currently available funds)

1. Management support for NMCP: Support to the NMCP to assist with team building, logistics and supervision, office management including communication capacity/connectivity and systems strengthening

2. Training and capacity building of NMCP staff: Continued support for capacity building of the NMCP via conference and workshop attendance, both national and international, and continued support to assist the technical working groups via logistical and operational support. This includes

coordination at the directorate level to deconflict concurrent activities and to improve communication.

3. Support health district-level malaria focal points: Support health district level Malaria Focal Points: The Malaria Focal Points are integrated into the district health teams and serve as liaisons between the NMCP, the district health teams and partners. They support case management, commodity management, planning, monitoring and management of data. They also organize coordination meetings. Support for Focal Points includes supervision by the NMCP.

4. Peace Corps Response Volunteer and small projects grants: Continued support to maintain a third year Peace Corps Malaria Volunteer to coordinate and support volunteers' malaria activities throughout the country; this lead volunteer is based at the Peace Corps Office. The other volunteers only receive financial and technical support to implement small grants in their communities some of which are implemented in collaboration with PMI's main malaria services delivery Implementing Partner.

5. NMCP leadership development: Support the capacity building of the NMCP, the Direction Regional Sante (DRS), and the Direction Prefectural Sante (DPS) (training new NMCP staff, support to the coordination of DRS, DPS in the framework of the fight against malaria) through the long-term technical advisor embedded within the NMCP.

PMI Goal

The goal of PMI for health systems is to ensure that countries acquire the necessary capacities to enable them to plan and monitor the progress of their malaria control activities. This is made possible when a country has a skilled workforce and an infrastructure to work within.

Key Question 1

What additional capacity development support is needed in order to operationalize the existing NMCP National Strategic Plan?

Supporting Data

- PMI currently supports District Malaria Focal Points in 19 districts to help with training, supervision and general capacity development of malaria activities at the peripheral levels. The successful model of providing support at this level has led the MOH to declare that these positions will be made official government posts.
- The MOH has a comprehensive community health strategy that requires significant expansion of the current CHW workforce but which is underfunded.

- Funding for the HMIS and the DHIS 2 platform is insufficient and is currently entirely supplied by donors. Encouraging the Government of Guinea to use health funds to fill the gap is important to maintain the gains obtained the last few years regarding data collection.

Conclusion

Given the uncertainties in the timing and strategy for implementation of these staffing initiatives, the implication for PMI support is somewhat unclear. With an expanded workforce, it could be assumed that capacity development needs will be greater than ever. Available PMI funding will be insufficient to meet needs at the community level so creative solutions and leveraging support from other partners will likely be required. Encouraging the Government of Guinea to use health funds to fill staffing needs and in support of the HMIS is also reasonable.

Key Question 2

What are the in-country considerations (e.g. in-country staffing capacity, political climate, security concerns) that impact your funding allocation in this category?

Supporting Data

PMI has been supporting NMCP capacity building activities (central, regional, district) to manage, implement, and monitor prevention, care, and treatment activities. Recent decrees regarding staffing in the MoH have potential implications for PMI support to NMCP. These include the formalization of the District Malaria Focal Points as government employees and the expansion of the community health platform. Support currently planned for these activities assumes continued need for capacity development at the district and community levels. In addition, support from GFATM for capacity building for FY2020 is uncertain as the current grant will be ending in 2020 and the next has not yet been awarded.

Conclusion

The volatile political situation and changing policy landscape may require reevaluation of PMI support for capacity development activities in the future as policies are implemented or revised. Coordination of support with GFATM is challenging given the timing of the grant application process and the end of the current grant and may require additional conversations in the future to ensure alignment.

ANNEX B: COUNTRY PROGRAM INVENTORY

The MOP seeks to facilitate a consultative, collaborative process between PMI, the NMCP, and other partners, where relevant. This section outlines a high-level program inventory along key intervention areas and is intended to structure discussions around the relative strengths and challenges facing a program, as well as prioritization and opportunities to drive catalytic impact with specific investments.

Key:

Example score

Figure B1. Category: Vector Control

Activity	Metrics/ Criteria	Relative Continuum, for discussion purposes				
		1	2	3	4	5
Entomological Monitoring	Insecticide Resistance monitoring	No insecticide resistance monitoring conducted	Limited insecticide resistance monitoring conducted on an ad-hoc basis	Insecticide Resistance monitoring conducted on an annual basis in a limited number of sites, not covering all administrative units. Occasional monitoring of molecular mechanisms	Insecticide resistance monitoring conducted in a greater number of sites on an annual basis with some collaboration with other partners, routine monitoring of some resistance mechanisms	Regular high-quality insecticide resistance monitoring done in multiple sites per administrative division, consideration of molecular mechanisms and bioassay data, collaboration with other partners and NMCP
	Insectary	No functioning insectaries in country	Insectary present, but frequent ruptures in rearing and contamination of strains, frequent challenges in meeting needs	Insectary present, full-time staff present, some capacity for strain verification, sometimes challenges to get enough mosquitoes, occasional contamination	One or more insectary present, regular verification, rare challenges in getting sufficient mosquitoes, some capacity for strain verification	Highly functioning insectaries with verification of strains, capacity for rearing wild strains, quality controls in place
	Data-based vector control decision making	No consideration of entomological data when making decisions	Limited review of data, reliance on outdated data, uncoordinated analysis of data with limited collaboration with partners	Irregular and incomplete review of data from multiple partners, sometimes in collaboration with research and funding partners	Collaborative but irregular review of entomological data, sometimes providing timely evidence for decisions	Collaborative regular review of entomological data from multiple sources when making decisions about vector control
	Vector bionomics monitoring or research	No research or longitudinal monitoring done in country	Limited longitudinal monitoring and research done in country	Regular vector bionomics monitoring and vector control research done in country, but generally not having an important role in decision making	Regular vector bionomics and vector control research conducted in country but not sufficient to respond to all major needs of the national program	Regular monitoring driven by program priorities conducted alongside research done in country to provide timely data on the best malaria vector control

Activity	Metrics/ Criteria	Relative Continuum, for discussion purposes				
		1	2	3	4	5
	Institutionalization of funding	No resources	Only supported by external partners, no host government funding	Some host country government funding	>50% funded by host country government	Fully funded by host country government
ITNs	Consistent distribution channels, in accordance with national strategy	Infrequent campaigns with no continuous distribution	Regular (e.g., every 3 years) campaigns, no continuous distribution	Regular campaigns, inconsistent continuous distribution	Regular campaigns, plus at least 1 well- managed continuous distribution channel	Regular, well- executed campaigns and well- managed continuous distribution channels
	Regular supervision of routine ITN distribution (e.g. HFs)	No HFs regularly supervised in ITN distribution	0-25% of HFs regularly supervised in ITN distribution	25-50% of HFs regularly supervised in ITN distribution	50-75% of HFs regularly supervised in ITN distribution	75-100% of HFs regularly supervised in ITN distribution
	ITN distribution reporting capabilities	Quantities of ITNs distributed not reported at all into LMIS (or other system)	Some quantities of ITNs distributed reported routinely	Some quantities of ITNs distributed reported routinely but cannot be disaggregated by channel	Quantities of ITNs distributed reported routinely and disaggregated by channel	All ITNs distributed captured routinely, disaggregated, and reported electronically
	Capacity to use data to appropriately target and rotate new types of nets	N/A	No capacity	Limited capacity	Some capacity	Good capacity
IRS	Host country government's IRS implementation capacity	N/A, no host country government implemented spray campaign	Host country government has very limited capacity to implement minor aspects of spray campaign	Host country government has capacity to implement some aspects of spray campaign	Host country government has capacity to implement most aspects of spray campaign	Host country government implements independent spray campaign
	Institutionalization of funding	N/A, no IRS conducted in country	No host country government funding, only supported by external sources	Limited host country government funding in addition to external sources	>50% funded by host country government in addition to external sources	Fully funded by host country government, no external sources

Activity	Metrics/ Criteria	Relative Continuum, for discussion purposes				
		1	2	3	4	5
	Coverage of Government-Implemented Spray Campaign	N/A, no government-implemented spray campaign	Spray coverage not reported	85+% coverage in some government-sprayed areas	85+% coverage in most government-sprayed areas	85+% coverage in all government-sprayed areas

Figure B2. Category: Case Management

Activity	Metrics/ Criteria	Relative Continuum, for discussion purposes				
		1	2	3	4	5
Community-based CM, if in national strategy	Coverage of CHWs trained in and providing CM (geographic or numerical target)	No CHWs conducting CM	0-25% of national target met	25-50% of national target met	50-75% of national target met	75-100% of national target met
	Regular supervision of CHWs in CM (regular defined as per national QA/QC guidelines)	No CHWs regularly supervised in CM	0-25% of CHWs regularly supervised in CM	25-50% of CHWs regularly supervised in CM	50-75% of CHWs regularly supervised in CM	75-100% of CHWs regularly supervised in CM
	CHW reporting capabilities	CHW-managed cases not reported into HMIS	Some CHW-managed cases routinely reported into HMIS	Cases routinely reported into HMIS but cannot be disaggregated from HF-reported cases	Cases routinely reported into HMIS and can be disaggregated from HF-reported cases	All CHW case data routinely captured and reported electronically
	Institutionalization of funding (salaries and/or other support)	No resources	Only supported by external partners, no host government funding	Some host country government funding	>50% funded by host country government	Fully funded by host country government
Facility based CM	Access to HF-based care (within 5 km of a health facility or as per national definition)	0-20% of population has access to HF	20-40% of population has access to HF	40-60% of population has access to HF	60-80% of population has access to HF	>80% of population has access to HF

Activity	Metrics/ Criteria	Relative Continuum, for discussion purposes				
		1	2	3	4	5
	Regular* supervision of public HFs in CM	No HFs regularly supervised in CM	0-25% of HFs regularly supervised in CM	25-50% of HFs regularly supervised in CM	50-75% of HFs regularly supervised in CM	75-100% of HFs regularly supervised in CM
	Drug resistance monitoring	No TES performed in last 3 years	TES performed in last 3 years but results not available	Recent TES results available (within last 3 years) but no training in molecular testing	Recent TES results available (within last 3 years) and in-country staff trained in molecular testing	Recent TES results available (within last 3 years) and in-country capability for molecular testing

Figure B3: Category: Drug-based prevention

Activity	Metrics/ Criteria	Relative Continuum, for discussion purposes				
		1	2	3	4	5
SMC (where applicable)	Geographic scope	No eligible districts receiving SMC		50% eligible districts receiving SMC		All eligible districts receiving SMC
	Coverage in targeted areas (% of eligible children 3-59 months who received complete SMC courses for all 4 rounds)	<60%	60-69%	70-79%	80-89%	90%+
	Institutionalization of funding	No resources	Only supported by external partners, no host government funding	Some host country government funding	>50% funded by host country government	Fully funded by host country government

Activity	Metrics/ Criteria	Relative Continuum, for discussion purposes				
		1	2	3	4	5
MIP	National policy exists for malaria prevention in pregnancy	No policy	Policy exists but is not comprehensive (does not cover all aspects of MIP: ITN, IPTp and case management)	Comprehensive policy exists for prevention (ITNs, IPTp) and case management but not all WHO recommendations are included	Policy meets current WHO recommended MIP prevention	Comprehensive, WHO-aligned policy is actively implemented
	Country policy adoption/adaptation of ANC guidelines with at least 4 recommended contacts	No policy	Country has started discussions and consultations for adopting the new ANC guidelines and recommendations	Country has policy specifying ANC contacts but no provision for early delivery of IPTp and is not able to systematically track ANC visits in HMIS	Country policy specifies ANC contacts and has provision for delivery of IPTp at 13-16 weeks but can not track all ANC visits in HMIS	Country policy specifies the number of contacts to be delivered during pregnancy and has a provision for delivery of IPTp at 13-16 weeks and is able to track ANC visits in HMIS.
	National MIP working group established and coordinating effectively	No working group established	Working group formed and meets on an ad hoc basis, TORs are established	Working group engages in regular coordination but does not have mechanisms to ensure programmatic integration across technical areas	Working group coordinates at the national level only with Malaria and Maternal Health and has limited mechanisms for ensuring programmatic integration across technical areas	Working group engages in regular coordination at national and sub-national level with Malaria and Maternal Health and has mechanisms to ensure programmatic integration across technical areas.
	Supportive MIP supervision conducted	No HFs regularly supervised in MIP	0-25% of HFs regularly supervised in MIP	25-50% of HFs regularly supervised in MIP	50-75% of HFs regularly supervised in MIP	75-100% of HFs regularly supervised in MIP
	Routine SP resistance monitoring via biomarkers conducted	No SP resistance monitoring conducted	SP resistance monitoring conducted in the last 6-10 years	SP resistance monitoring conducted in the last year 4-5 years	SP resistance monitoring conducted in the last year 3 years	SP resistance monitoring conducted in the last 3 years and results published or being published.

Figure B4. Relative Continuum

Activity	Metrics/ Criteria	Relative Continuum, for discussion purposes				
		1	2	3	4	5
Supply Chain	Forecasting and Procurement Planning	<p>Ad hoc forecasting based on poor, inadequate, or inaccessible data</p> <p>Insufficient skills for selecting and implementing appropriate forecasting methodologies.</p> <p>Procurement plans are not developed from forecasts</p> <p>No coordination among procurers</p>	<p>Annual forecasting and supply planning done but is based on poor, inadequate, or inaccessible data</p> <p>Locally based skills in quantification are developing</p> <p>Review of procurement plans is irregular.</p> <p>Coordination among procurers is limited</p>	<p>Annual forecasts incorporate service and/or/consumption data</p> <p>Supply plans updated semi-annually and incorporate review/revisions of available funding</p> <p>Coordinated procurement planning done at the national level (and regional level, if the health system is decentralized) and among procurers</p>	<p>Semi-annual forecasts incorporate service and/or/consumption data, account for seasonality</p> <p>Supply plans updated quarterly and incorporate review/revisions of available funding</p> <p>Coordinated procurement planning done at the national level (and regional level, if the health system is decentralized). Identified commodity gaps effectively communicated to stakeholders for purposes of resource mobilization</p>	<p>Near real-time demand/consumption, enhanced with additional programmatic contributions, drives monthly forecasting</p> <p>Forecasting and supply planning-specific software used and outputs visible across networks.</p> <p>Supply plans updated monthly and incorporate review/revisions of available funding</p> <p>Coordinated procurement planning done at the national level (and regional level, if the health system is decentralized). Identified commodity gaps effectively communicated to stakeholders for purposes of resource mobilization. Outputs shared through global platforms</p>
	Warehousing/ Storage	<p>Quality of infrastructure and operations at all stock holding levels (Central, Sub-central/facility) compromises ability to ensure commodities are adequately protected</p>	<p>Quality of infrastructure and operations in at least one stock holding level (Central, Sub-central/facility) ensures that</p>	<p>Quality of infrastructure and operations in at least two stock holding levels (Central, Sub-central/SDP) ensures that commodities are adequately protected from damage, deterioration and loss. Warehousing SOPs</p>	<p>Quality of infrastructure and operations at all stock holding levels (Central, Sub-central/SDP) ensures that commodities are adequately protected from damage,</p>	<p>Quality of infrastructure and operations at all stock holding levels (Central, Sub-central/SDP) ensures that commodities are adequately protected from damage, deterioration and loss.</p>

Activity	Metrics/ Criteria	Relative Continuum, for discussion purposes				
		1	2	3	4	5
		<p>from damage, deterioration and loss.</p> <p>Unable to locate stock by batch in central/mid-level stores/warehouses.</p>	<p>commodities are adequately protected from damage, deterioration and loss.</p> <p>Paper-based inventory management system.</p> <p>No SOPs.</p>	<p>exist. Able to track inventory level with central level WMS but information is not routinely shared across warehouses.</p> <p>Some maintenance occurring</p> <p>Limited ability to scale storage capacity</p>	<p>deterioration and loss</p> <p>Stock data is digitized in at least two stock holding levels</p> <p>Some routine maintenance occurring</p> <p>Storage capacity scaled through contracting of third party logistics providers (3PLs)</p>	<p>Storage infrastructure and operations adhere to Good Warehousing Practices an/ or meet in-country compliance standards</p> <p>Stock data is digitized at all stock holding levels and near real-time stock visibility available across networks</p> <p>Routine and predictive maintenance budgeted for and institutionalized</p> <p>Storage capacity is logically located and can be effectively scaled with 3PLs</p>
	Routine distribution/resupply between stock holding levels	<p>No routine requisition and resupply schedule between stock holding levels</p> <p>No resources routinely available and allocated for transportation from higher to lower stock holding levels</p>	<p>Routine requisition and resupply between at least two stock holding levels according to a schedule</p> <p>Resources for transportation from higher to lower stock holding levels provided on ad hoc basis</p>	<p>Routine resupply between all stock holding levels according to a schedule</p> <p>Allocated resources for transportation from higher to lower stock holding levels provided on an irregular basis and resupply often achieved through unplanned means</p> <p>Resupply performance monitored post-activity</p>	<p>Routine resupply between all stock holding levels according to a schedule shared with all levels and informed by accurate demand signals</p> <p>Allocated resources for transportation provided on a regular basis and augmented with 3PLs</p> <p>Resupply performance monitored real-time</p>	<p>Routine resupply between all stock holding levels according to a schedule shared with all levels and informed by accurate, timely, demand signals</p> <p>Robust emergency and inter-facility resupply mechanisms are in place</p> <p>Allocated resources for transportation available internally or outsourced with 3PLs.</p> <p>Resupply transaction data is digitized for all stock transfers</p>

Activity	Metrics/ Criteria	Relative Continuum, for discussion purposes				
		1	2	3	4	5
						<p>Near real-time visibility into upstream and downstream activities</p> <p>Resupply operations adhere to GDP and or meet in-country compliance standards for maintaining quality during distribution</p>
	<p>Logistics Management Information System</p>	<p>System to aggregate, analyze, validate and display data (from all levels of the logistics system) that can be used to make logistics decisions and manage the supply chain not institutionalized or followed</p> <p>No facility level records or not maintained. Low reporting rates. No visibility into CHW supplies. No visibility by central level on facilities and none by facility level on central level.</p>	<p>Stand-alone, program specific LMIS processes and structures defined but no formal or ongoing monitoring or measurement protocol exists.</p> <p>Some visibility of facility level inventory and consumption, low reporting rates, mostly paper-based</p>	<p>The country has documented LMIS processes and structures. The structures are functional. Metrics for performance monitoring, quality improvement, and evaluation are systematically used.</p> <p>Migration of data collection and reporting from a paper system to an electronic system at the district level and above. A documented mechanism is in place for maintaining data quality throughout the data supply chain.</p>	<p>Government and stakeholders use the national LMIS systems for key performance monitoring and follow standard practices.</p> <p>Facility inventory and consumption data is digital at facility level, upstream data available to facilities, System alerts for low stock/expiry, use of master product list and master facility list</p> <p>Interoperability with other information systems (e.g., warehouse management, medical records, laboratory management, enterprise resource planning systems, and health</p>	<p>Near real time visibility into inventory and consumption data at all levels, data from multiple systems feed into common platform/control tower (automated process), predictive analytics.</p> <p>The government and stakeholders routinely review interoperability activities and modify them to adapt to changing conditions.</p> <p>Compliance with standards for data exchange, messaging, and security is regularly reviewed. The regulatory framework is reviewed and updated to reflect best practices for data exchange, messaging, and systems security.</p>

Activity	Metrics/ Criteria	Relative Continuum, for discussion purposes				
		1	2	3	4	5
					information management systems)	
Regulatory, Policy and Governance	<p>Legal basis to enable a medicines (and related health commodities - e.g., devices, vaccines, etc) regulatory agency to function is absent or inappropriate</p> <p>Formal organizational structure regarding in-country stakeholders and relevant agencies to whom authority is delegated, is absent or inadequate (e.g., up-to-date organogram of MOH).</p> <p>Human and financial capacity to enable regulatory functionality, weak or absent</p> <p>No approved supply chain strategic plan</p>	<p>Medicines framework exists and is sufficient to support basic regulatory functions including clinical dossier review (licensing) and marketing authorization with registration.</p> <p>Documented domestic financial support to enable regulatory activities - including human resources</p> <p>Approved supply chain strategic plan but not updated recently. Poorly implemented strategic plan</p>	<p>All SDP levels have in place policies that address STG, quality assurance and HR.</p> <p>Management policies for the supply chain system are in place at the MOH level.</p> <p>Policy and strategic leadership is not always translated into robust implementation plans, and supportive supervision, capacity building and guidance to managers within the system.</p> <p>No consistent approach to pharmacovigilance or a standard reporting structure for pharmacovigilance events</p> <p>Overall quality management system in place to support interface of product licensing, registration, manufacturing, post-marketing surveillance.</p> <p>Approved (and up to date) supply chain strategic plan. Partially implemented</p>	<p>Strong policy and strategic leadership by government, with firm grasp of budgets and financial sustainability</p> <p>Robust implementation plans, and supportive supervision, capacity building and guidance to managers within the system.</p> <p>Regulatory and policy bodies in alignment to support quality product availability</p> <p>National and standardized Pharmacovigilance or a standard reporting structure for pharmacovigilance events in place, not fully functional.</p> <p>Approved (and up to date) supply chain strategic plan (contains clear roles and responsibilities, stakeholder mapping, costs).</p>	<p>The MOH leads strategic functions such as, policy formulation, quality assurance and overseeing the funds required for policy implementation.</p> <p>Ability to ensure product quality, automated drug registration process, clear/transparent importation process, robust post-market surveillance system and, track and trace regulations developed and/or in the process of implementation.</p> <p>Approved (and up to date) supply chain strategic plan (contains clear roles and responsibilities, stakeholder mapping, costs). Includes risk mitigation plan.</p>	

Figure B5. Category: Strategic Information

Activity	Metrics/ Criteria	Relative Continuum, for discussion purposes				
		1	2	3	4	5
Data, Surveillance, Monitoring & Evaluation	Overall HMIS reporting rate (CY 2018)	<60%	60-69%	70-79%	80-89%	90%+
	Element specific reporting rate: “Confirmed malaria cases among children under 5” (CY 2018)	<60%	60-69%	70-79%	80-89%	90%+
	HMIS data quality assurance and quality control	Few standards exist for data collection, assembly, & analysis. Data quality reviews and audits are ad hoc for specific data needs. No data-quality assurance plan and national coordinating body exist.	Standards used for data collection, assembly & analysis in limited settings. Some electronic tools used for data quality review and audit. Data-quality assurance plan is available.	Standards defined and implemented for data collection, assembly, analysis, and used nationally. Data quality reviews and audits scheduled and include a remediation process to address identified issues. SM&E staff are seconded to NMCP	Data reviews and audits are integrated in strategic plans, conducted on a regular schedule. Regular meetings held by national data-quality governing body; issues identified are addressed through an established remediation process.	Continuous review and auditing through automated and manual processes, to ensure defined levels of data quality. Data quality metrics are used for continuous improvement. The data-quality assurance plan is reviewed periodically by a national coordinating body and appropriate stakeholders.
	Reporting Systems	Data collection tools are not standard and procedures are not consistently followed; data are collected and stored in an	Data systems support longitudinal health data (clinical, surveillance, M&E) in limited settings. The data are available for centrally mandated	Most data platforms/applications ensure data availability at all levels for decision support and M&E for authorized users. No parallel malaria reporting system exists.	The data systems in use ensure reliable and appropriate access to data at all levels for authorized users. Changes in reporting requirements are accommodated with	Data availability is monitored for continuous improvements and to meet emerging health sector needs. Reporting is available from private facilities and

Activity	Metrics/ Criteria	Relative Continuum, for discussion purposes				
		1	2	3	4	5
		unstructured format. NMCP does not have access to malaria data from HMIS.	reporting. A parallel malaria reporting system may exist.	NMCP has access to malaria data from HMIS.	minimal disruption to data availability. Data systems support secondary use of data and NMCP has access.	community-level providers and can be disaggregated.
	Data collection	Data collection is not done at the most peripheral level (CHWs) and is irregular and inaccurate at rural and more central health facilities. System is entirely paper based, but registers may be absent	Data collection is well managed at HF level, but incomplete at community level (CHWs); most collection is paper based and aggregation is paper based; registers generally available; timeliness and completeness remain challenges	Data collection is well managed at HF level and at community level (CHWs); most collection is paper based, aggregation is electronic; registers available; timeliness and completeness >80%, feedback to collectors limited	Data collection at all levels); collection is electronic and sometimes paper based, aggregation is electronic; registers include all program-critical data; timeliness and completeness >80%, feedback to collectors is standardized	Data collection occurs at all levels, is transmitted in real time with timely feedback to those collecting and those using the data; data checks exist at point of collection; electronic transmission is the norm, including to data collectors
	Data use	Activities (analysis, interpretation, visualization) to ensure data use are rarely implemented	Limited data use activities are implemented (bulletin has been developed but analysis and interpretation for decision- making needs to be strengthened)	Country conducts regular data use activities (review meetings, bulletin at least quarterly, at least at the central level).	Country conducts regular data use activities at all levels (review meetings, bulletins, dashboard at least quarterly).	Country has developed their own high- quality dashboard to facilitate data use, and data-informed decision making is evident at all levels, on a frequent basis.

Activity	Metrics/ Criteria	Relative Continuum, for discussion purposes				
		1	2	3	4	5
OR/PE	PMI in-country OR experience	No previous PMI OR experience in country	PMI team has prepared concept notes (CNs) but has not completed protocols or conducted OR	PMI team has completed protocols and received approval for OR; studies in planning, underway, or recently completed	PMI team and/or other country partners have completed a OR study and prepared and shared reports	Multiple OR studies completed in country that address malaria program implementation bottlenecks with publication and sharing of results, with involvement from MOH co-investigators
	Country mechanisms for OR/PE review	No in-country process for research review, determination or IRB processes	Limited in-country processes for research review, determination and IRB oversight	Processes in place for research and IRB review with federal-wide assurance approval; no previous PMI in-country OR experience	Processes in place for research and IRB review with federal-wide assurance approval; previous PMI in-country OR experience	Full complement of research review, approval, oversight processes including data safety and monitoring boards and systems for results sharing
	In-country partnerships for OR	No in-country partners (academic, NGO, or other) with OR experience	1-2 in-country partners with OR experience, but no malaria specific experience	3+ in-country partners with OR experience; 1+ with some malaria expertise; no current PMI-linked OR work	3+ in-country partners with OR experience; 1+ with malaria expertise; current or recent work with PMI OR	Multiple in-country partners with specific malaria experience in PMI OR, including completed past work and reporting on malaria OR
	Conceptualization of problems needing scientific evaluation	No experience	Some but limited experience in identifying programmatic problems and prioritization	Experience with identifying program problems and prioritizing PE and OR	Experience with identifying problems needing PE or OR and developing study approaches with partners	Extensive experience with problem identification, prioritization, proposal development and conducting PE or OR

Figure B6. Category: Support Systems

Activity	Metrics/ Criteria	Relative Continuum, for discussion purposes				
		1	2	3	4	5
SBC	National Malaria SBC Strategy used to guide design and implementation of malaria SBC activities	No strategy exists.	Strategy exists but there is no evidence that it has been used to guide design or implementation.	Strategy exists and is used from time-to-time to guide design and implementation but is of poor quality and does not include any of the key elements identified in the RBM SBC Working Group National Malaria SBC Strategy Template.	Strategy is used from time-to-time to guide design and implementation but lacks alignment with the broader National Malaria Strategy and only incorporates a couple of the key elements identified in the RBM SBC Working Group National Malaria SBC Strategy Template.	Strategy is well aligned with the broader National Malaria Strategy, includes the key elements identified in the RBM SBC Working Group National Malaria SBC Strategy Template, and is used to guide design and implementation.
	SBC Technical Working Group coordinates effectively	No technical working group exists.	The SBC Technical Working Group exists on paper, but has not been operationalized.	The SBC Technical Working Group has significant resource and staffing gaps and does not have clear pathways for coordination.	The SBC Technical Working Group lacks some needed resources/staff and generally only coordinates at the national level only.	The SBC Technical Working Group is well resourced and staffed and engages in regular coordination at both the national and sub-national level.
	High-quality formative assessments used to inform intervention design	No high-quality, formative assessment conducted in the last five years.	Formative assessment conducted, but significant quality issues in the design and no evidence that data was used to inform intervention design.	High-quality, formative assessment conducted, but no evidence that data was used to inform intervention design.	Data from prior projects used exclusively to guide intervention design; no new data collected.	High-quality, formative assessment conducted and data used to inform intervention design.

Activity	Metrics/ Criteria	Relative Continuum, for discussion purposes				
		1	2	3	4	5
General Infrastructure	Staffing	No staff	Manager and a few technical staff; not all intervention areas are covered	Manager and technical staff for each intervention area; many staff have limited training and experience ; limited program support staff	Full staffing of program areas and support systems but some staff need further training to optimize their effectiveness; limited plans and opportunities for such training	Fully staffed with personnel with relevant training and experience; complete plan for professional development
	Office space, transport	No office space or transport	Office space exists but is insufficient for staff; Transport available at intervals but limited for program needs	Office space adequate for current staff but no growth possible; office not well positioned for access to MOH leadership. Transport available but not covering all needs and not well managed/maintained	Office space adequate for current staff and some technical areas (e.g., lab) but not fully adequate for growth and all technical services. Transport covers most needs.	Office space is fully adequate for current staff and technical needs (lab, insectary, meeting space, etc.) and some growth and well positioned in the MOH; Transport is fully available for needed purposes -- trucks and 4-wheel drive vehicles where needed - all maintained and managed..
	Internet connectivity	No Internet connectivity	Intermittent connectivity; poor bandwidth; challenging maintenance; very little budget	Mostly connected with some outages; ok but not ideal bandwidth; irregular maintenance; modest budget	Generally stable connections, adequate bandwidth for most work, fair to good maintenance and sufficient budget	Fully connected, maintained, good bandwidth for all needs, and sufficient budget including all needed hardware and software
	NMCP placement within Ministry of Health	NMCP exists but is barely visible in the MOH structure	NMCP is visible in the MOH structure but NMCP manager reports to supervisor who is still low in the MOH system	NMCP is visible and manager reports to high level leader in MOH (e.g., Director of Public Health or Permanent Secretary for Health)	NMCP (or NMEP) is highly visible and reports at a high level in MOH and has some access to other ministry leadership (e.g., education, agriculture, community development)	NMCP (or NMEP) is highly visible within MOH and with all other relevant ministries and has ready access to country leadership (e.g., the president/prime minister; and parliament)

