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**U.S. PRESIDENT'S MALARIA INITIATIVE**

**Guinea**

**Malaria Operational Plan FY 2022**

This FY 2022 Malaria Operational Plan has been approved by the U.S. Global Malaria Coordinator and reflects collaborative discussions with national malaria control programs and other partners. Funding available to support outlined plans relies on the final FY 2022 appropriation from U.S. Congress. Any updates will be reflected in revised postings.

This document was prepared in the early months of 2021 as the COVID-19 pandemic continued to evolve worldwide, including in PMI-focus countries. The effects of the pandemic on malaria control and elimination work in 2022 are difficult to predict. However, because U.S. Congressional appropriations for PMI are specific to work against malaria and any appropriations for work against the COVID-19 are specific for that purpose and planned through separate future U.S. Government planning processes, this FY 2022 MOP will not specifically address the malaria-COVID-19 interface and will reassess any complementary work through timely reprogramming in countries.

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## ABBREVIATIONS

ACT	Artemisinin-based combination therapy
AI	Active ingredient
AL	Artemether-lumefantrine
AMF	Against Malaria Foundation
ANC	Antenatal care
ASAQ	Artesunate-amodiaquine
BMGF	Bill & Melinda Gates Foundation
CDC	U.S. Centers for Disease Control and Prevention
CY	Calendar year
DHIS2	District Health Information System, version 2
DHS	Demographic and Health Survey
DNPM	<i>Direction Nationale de la Pharmacie et du Médicament</i> (National Directorate of Pharmacy and Medicines)
DPS	<i>Direction Préfectorale de la Santé</i> (Prefectural Directorate of Health)
DQA	Data quality assessment
DRS	<i>Direction Régionale de la Santé</i> (Regional Directorate of Health)
EPI	Expanded Programme on Immunization
EUV	End-user verification survey
FETP	Field Epidemiology Training Program
FY	Fiscal year
GHI	Global Health Initiative
Global Fund	Global Fund to Fight AIDS, Tuberculosis, and Malaria
HMIS	Health management information system
IP	Implementing partner
IPTp	Intermittent preventive treatment for pregnant women
IRS	Indoor residual spraying
ITN	Insecticide-treated mosquito net
KAP	Knowledge, attitudes, and practices
LMIS	Logistics Management Information System
LNSP	Laboratoire National de la Santé Publique (National Public Health Laboratory)
LTTA	Long-term technical assistance
M&E	Monitoring and evaluation
MDA	Mass drug administration
MICS	Multiple Indicator Cluster Survey
MIP	Malaria in pregnancy
MIS	Malaria Indicator Survey
MOH	Ministry of Health
MOP	Malaria Operational Plan
NGO	Nongovernmental organization
NMCP	National Malaria Control Program

NSP	National Strategic Plan
NTD	Neglected tropical diseases
PARMA	PMI-supported Antimalarial Resistance Monitoring in Africa
PBO	Piperonyl butoxide
PCG	<i>Pharmacie Centrale de Guinée</i>
PCG-SA	<i>Pharmacie Centrale de Guinée – Societe Autonome</i>
PMI	U.S. President’s Malaria Initiative
RDT	Rapid diagnostic test
RECO	<i>Relais communautaire</i> (local term for a community health worker)
s.l.	sensu lato
s.s.	sensu stricto
SARA	Service Availability and Readiness Assessment
SBC	Social and behavior change
SM&E	Surveillance, monitoring, and evaluation
SMC	Seasonal malaria chemoprevention
SP	Sulfadoxine-pyrimethamine
SPAQ	Sulfadoxine-pyrimethamine + amodiaquine
TA	Technical assistance
TES	Therapeutic efficacy study
TWG	Technical working group
UNICEF	United Nations Children’s Fund
USAID	United States Agency for International Development
WHO	World Health Organization

## EXECUTIVE SUMMARY

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 by 66 percent through investments totaling almost \$133.4 million.

The proposed PMI fiscal year (FY) 2022 budget for Guinea is \$14 million. This Malaria Operational Plan (MOP) outlines planned PMI activities in Guinea using FY 2022 funds. Developed in consultation with the national malaria control program (NMCP) and key malaria 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 is a highly malaria endemic country with year-round malaria transmission that peaks from July through October in most areas, although the magnitude of the seasonal swings are generally larger in the north of the country. The entire population of 12.9 million is at risk for malaria. The annual incidence rate of confirmed malaria cases in 2020 was 159.5 per 1,000 according to the DHIS2.

PMI will support investments in the following intervention areas with FY 2022 funds:

### Vector Control

**Entomologic monitoring and insecticide resistance management:** PMI supports ongoing longitudinal entomological (monthly) monitoring in two prefectures in Guinea; longitudinal entomological monitoring has only occurred in Boké and Faranah prefectures. Spot checks (one-time assessments, normally in June) have rotated yearly among seven additional prefectures (Dabola, Kankan, Kissidougou, Labe, Lola, Maferinyah, and Siguiri) across Guinea's four natural regions; these natural regions (Maritime, Middle, Upper, and Forested) are characterized by distinctive climate, ecology, geography, and anthropological characteristics. The entomological monitoring for longitudinal and spot check sites includes pyrethrum spray catches, human landing catches, and light trap collections. Insecticide resistance testing is also done in longitudinal and spot check monitoring sites, normally in June of each calendar year. Current PMI support is used to conduct standard entomological surveillance, including species identification, abundance measurement, mosquito infection rate, and insecticide resistance, and to build capacity of key personnel to conduct and manage the entomological surveillance program. With FY 2022 funds, PMI will continue to support surveillance and skills building within the NMCP and other national structures to conduct entomological surveillance. Additionally, PMI will support the maintenance of the national laboratory and insectary.

**Insecticide-treated nets (ITNs):** The current objective is 90 percent coverage of the population at risk of malaria with ITNs by the end of 2022. The 2016 Multiple Indicator Cluster Survey (MICS) showed remarkable improvement in ITN coverage but also room for improvement in reaching targets. Almost 85 percent of households surveyed had at least one mosquito net. However, the percentage of households having at least one ITN for every two persons was only 48 percent. The proportion of children and pregnant women who slept under an ITN the night before the survey was 68 percent and 83 percent, respectively.

Since late 2014, PMI has supported routine distribution and contributed a total of 1,203,500 nets for distribution to pregnant women and children under the age of one during antenatal care (ANC) and Expanded Program on Immunization (EPI) visits. Guinea conducted mass bed net distributions in 2013–2014 and 2016 to which PMI contributed approximately 1.75 million and 1 million ITNs, respectively. PMI supported the 2019 mass campaign by providing 1,484,500 nets and supporting the distribution cost of the remaining 984,500 nets for the PMI zone, regardless of who procured them. PMI also continues to promote correct and consistent use of ITNs throughout the year and to support ITN durability monitoring. With FY 2022 funds PMI will procure and distribute 719,211 standard ITNs for routine distribution.

## Human Health

**Case management:** The NMCP is committed to ensuring universal testing of all suspected malaria cases with rapid diagnostic tests (RDTs) or microscopy and prompt treatment of confirmed malaria cases with efficacious antimalarials, primarily in the form of ACTs or injectable artemisinin derivatives. With the COVID-19 pandemic, NMCP in collaboration with partners revised the national guidelines for the fight against malaria in the context of COVID-19. PMI has supported this through provision of RDTs, artemisinin-based combination therapy (ACT), and injectable artemisinin derivatives, as well as 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 2022 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.

**Drug-based prevention:** 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 promoting ANC visits to women and their families, including IPTp, and will support provider training on technical skills, improved supervision of providers, and tracking of pregnant women.

PMI will support the continuation of seasonal malaria chemoprevention (SMC) for children in seven districts in northern Guinea. Also, PMI will continue to support annual therapeutic efficacy monitoring and conduct quarterly malaria RDT quality assurance.

## Cross-cutting and Other Health Systems

**Supply chain:** To ensure continuous availability of malaria commodities at health facilities and the community level, PMI will support the NMCP and its supply chain partners in strengthening regulatory capacity and logistics management, focusing on the peripheral levels. FY 2022 supply chain activities will be similar to FY 2021 and FY 2020 supply chain activities with increased focus on strategies to improve data quality and availability of malaria medicines at all levels.

**Surveillance monitoring and evaluation (SM&E):** In the 18 PMI-supported districts, seven districts enter all malaria data from health centers into DHIS2 at the district level, and 88 health centers in the remaining 11 districts enter data directly into the District Health Information System, Version 2 (DHIS2) at the health center level. Reporting rates are consistently high with recent improvements in the percentage of reports submitted on time. In FY 2022, an aim is to increase the number of health facilities with monthly data entry capability directly into DHIS2 for both epidemiological and logistics data.

**Program Evaluation & Operational Research:** PMI does not currently support these activities in Guinea.

**Social and Behavior Change (SBC):** Past SBC activities have included support of community dialogues through community action groups, radio spots, training for community health workers (known locally as *Relais Communautaire*– RECOs), and production of conversation and educational aids, posters, and other print materials. FY 2022 funds will support mass media and interpersonal communication to support consistent ITN use, early and frequent ANC attendance, and prompt care-seeking for fever. To bolster Guinea’s capacity for the design, implementation, and evaluation of SBC activities at both the national and subnational level, PMI will support coordination of the country’s SBC technical working group (TWG); workshops and training; and patient advocacy at the community and facility level through partnerships with local organizations.

**Health Systems Strengthening (HSS):**

Recent progress and results include revision of the National Strategic Plan (NSP), annual work plan and quarterly work plan development; organization of malaria quarterly data reviews; submission of the 2021–2023 Global Fund funding request; implementation of risk mitigation and partner coordination within the COVID-19 pandemic context; and organization of the NMCP monthly TWG meetings for SBC, vector control, diagnosis, SM&E, case management, and supply chain management. FY 2022 funds will support management support for NMCP, training and capacity-building of NMCP staff, support to third-year Peace Corps malaria volunteers and small project assistance grants, and support for a long-term technical advisor embedded with the NMCP. Support to the NMCP to assist with the renovation of a new office, team building, logistics and supervision, office management including communication capacity/connectivity, and systems strengthening.

## 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 parasitemia by 66 percent through investments totaling almost \$133.4 million.

The proposed PMI fiscal year (FY) 2022 budget for Guinea is \$14 million. This Malaria Operational Plan (MOP) outlines planned PMI activities in Guinea using FY 2022 funds. Developed in consultation with the National Malaria Control Program (NMCP) and key malaria 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.

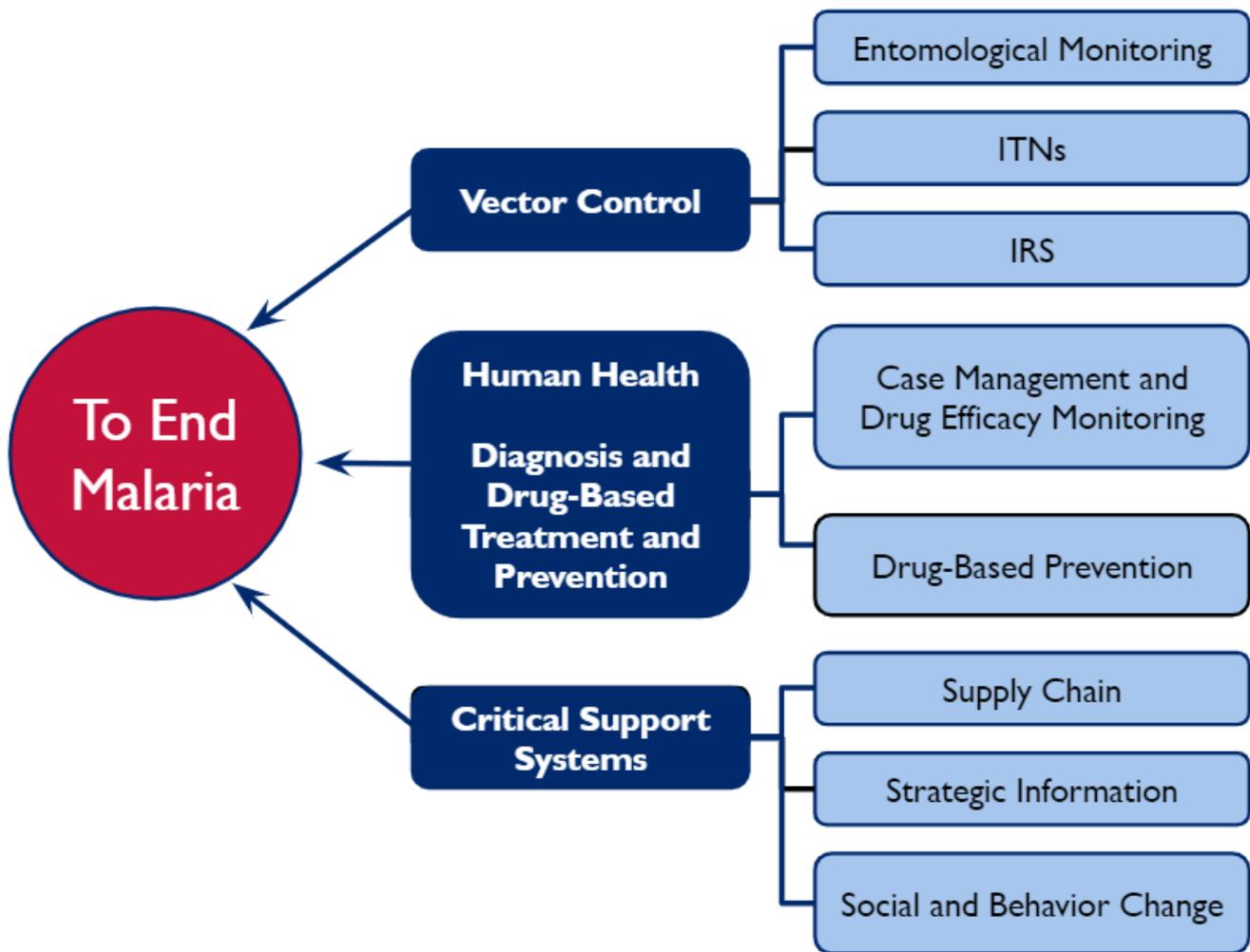
### Guinea at a Glance

- **Geography:** Guinea is in western Africa, bordering the North Atlantic Ocean, between Guinea-Bissau and Sierra Leone. Guinea has four ecoregions. The forest-savanna mosaic covers most of the country, spanning most of Maritime Guinea and Upper Guinea, as well as the lower elevations of the Fouta Djallon. It extends north into Guinea Bissau and Senegal, and east through Mali and Ivory Coast. Western Guinean lowland forests occupy the southwestern portion of Maritime Guinea around Conakry, and Forest Guinea, along with coastal Sierra Leone, Liberia, and western Ivory Coast. Guinean mountain forests cover the Fouta Djallon and Guinea Highlands of southeast Guinea above an elevation of 600 meters. Guinean mangroves, in the coastal estuaries, extend north into Guinea Bissau, Gambia and Senegal, and southeast through Sierra Leone, Liberia, and Ivory Coast. Current environmental issues in Guinea include: deforestation; inadequate supplies of potable water; desertification; soil contamination and erosion; and overfishing and overpopulation in forest regions. Poor mining practices have led to environmental damage ([https://en.wikipedia.org/wiki/Geography\\_of\\_Guinea](https://en.wikipedia.org/wiki/Geography_of_Guinea)).
- **Climate and Malaria Transmission Seasonality:** The capital Conakry’s year-round average high is 29 °C (84.2 °F), and the low is 23 °C (73.4 °F). Conakry’s average annual rainfall is 4,300 mm (169.3 in). The coastal region of Guinea and most of the inland have a tropical climate, with a monsoonal-type rainy season lasting from April to November, relatively high and uniform temperatures, southwesterly winds, and high humidity. Sahelian Upper Guinea has a shorter rainy season and greater daily temperature variations. There is a dry season (December to May) with northeasterly harmattan winds. Malaria transmission is higher during rainy season ([https://en.wikipedia.org/wiki/Geography\\_of\\_Guinea](https://en.wikipedia.org/wiki/Geography_of_Guinea); PMI MOP FY 2020).
- **Population in 2021:** 12,907,399 (Guinea MOH, DHIS2)
- **Population at Risk of Malaria:** 12,907,399 (100%) (Guinea MOH, DHIS2)
- **Principal Malaria Parasites:** *Plasmodium falciparum* (Guinea, DHS 2012)
- **Principal Malaria Vectors:** *Anopheles gambiae* s.l. (Guinea malaria NSP 2018–2023)
- **Malaria Case Incidence per 1000 Population:** 159.5 (Guinea MOH, DHIS2, for 2020)
- **Under-Five Mortality Rate:** 111 per 1,000 live births (Guinea, DHS, 2018)

- **World Bank Income Classification and GDP:** Low income; GDP (2019) \$12.297 billion (<https://data.worldbank.org/country/guinea> )
- **Government Health Budget:** \$1,997,538
- **Trafficking in Persons Designations, 2018–2020:** Tier 2 Watch List (<https://www.state.gov/reports/2020-trafficking-in-persons-report/guinea/>)
- **Malaria Funding and Program Support Partners Include:**
  - U.S. President’s Malaria Initiative (PMI)
  - Global Fund to Fight AIDS, Tuberculosis, and Malaria (Global Fund)
  - 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:** Apart from the national-level support to the NMCP, PMI supports malaria prevention and control activities in 13 of the 33 districts in Guinea, plus the 6 communes of Conakry, while the Global Fund supports these activities in the remaining 20 districts. (See III. Overview of PMI’s support of Guinea’s Malaria Control Strategy for additional details.)
- **PMI Investments:** Guinea began implementation as a PMI focus country in FY 2011. The proposed FY 2022 PMI budget for Guinea is \$14 million; this brings the total PMI investment to nearly \$146.35 million.

PMI organizes its investments around the activities below, in line with the Guinea national malaria strategy 2018–2023.

Figure 1. PMI's approach to end malaria<sup>1</sup>



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 is paramount to PMI. The majority of PMI's planned support for FY 2022, across the areas of vector control, human health, and critical support systems such as supply chain, contains elements of capacity-building and system strengthening. PMI's approach is both consistent with and contributes to sustainability. 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 2022 in the areas of vector control, human health, supply chain, and strategic information contains elements of capacity-building and system strengthening.

<sup>1</sup>A number of actions are cross-cutting in nature. For example, social and behavioral change (SBC) is embedded in all vector control and human health work; program evaluation (PE) and operational research (OR) are relevant in all of the fieldwork; finance and management support and the introduction of new tools/interventions are critical for all programs; and elimination requires work across the full spectrum of transmission.

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).

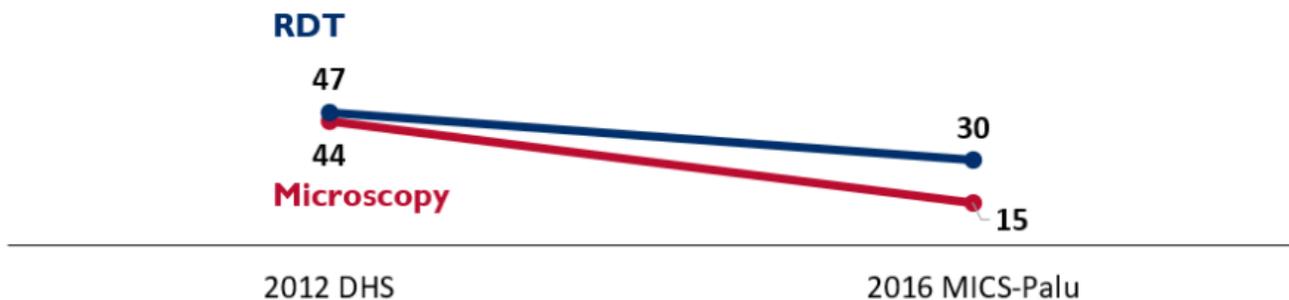
To accelerate sustainable development, PMI developed a programmatic inventory to assess the strengths and persistent challenges of Guinea’s program (see Annex B). The activities proposed in this MOP are tailored to draw on these strengths and address weaknesses; activities will be monitored to evaluate the effectiveness of capacity-building efforts. In addition, while PMI understands it will take time for Guinea to fully finance its development priorities, PMI will work with other partners (e.g., the Global Fund) to jointly track Guinea’s funding commitments across the malaria portfolio.

## II. MALARIA SITUATION AND PROGRESS

Malaria is endemic throughout Guinea. The country has made important progress in malaria control and prevention, substantially reducing malaria prevalence in children under five years of age, 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 the Global Fund. 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 to 59 months of age (Figure 2). However, there is substantial regional variation in malaria parasitemia prevalence with high prevalence prevailing in some regions (Figure 3).

**Figure 2. Trends in malaria prevalence**

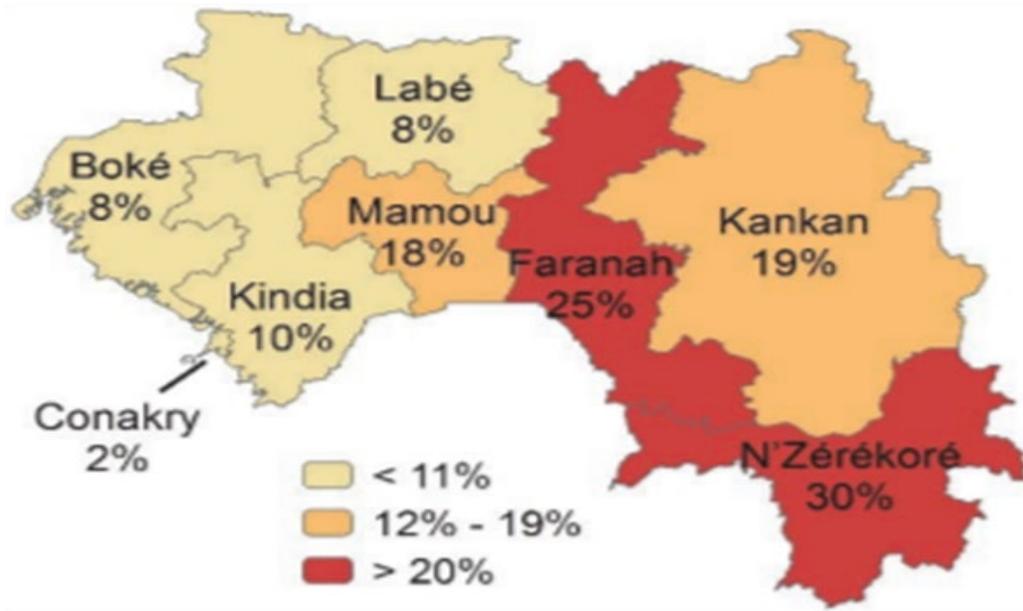
*Children 6 to 59 months of age who tested positive for malaria by microscopy and RDT, 2012–2016*



Data from nationally representative household surveys show that malaria prevalence in children 6 to 59 months of age decreased from 47 percent in 2012 to 30 percent in 2016, as measured by RDT, and from 44 percent in 2012 to 15 percent in 2016, as measured by microscopy.

**Figure 3. Malaria prevalence by geographic area**

*Children 6 to 59 months of age who tested positive for malaria by microscopy [2016 MICS/Palu]*



This map shows the malaria prevalence in children 6 to 59 months of age by region according to the 2016 MICS, which is a nationally representative household survey. Malaria prevalence is 10 percent or less in Conakry (2 percent), Boké (8 percent), Labé (8 percent), and Kindia (10 percent); malaria prevalence is between 11 percent and 20 percent in Mamou (18 percent) and Kankan (19 percent); and prevalence is greater than 20 percent in Faranah (25 percent) and Nzerekore (30 percent).

**Table 1. Key indicators from demographic health surveys (DHS) and Multiple Indicator Cluster Surveys (MICS)**

Indicator	2012, DHS	2016, MICS Palu	2018, DHS
% 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 a fever in the last two weeks for whom advice or treatment was sought	53	42	62
% Children under five years of age with a 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 a fever in the last two weeks who received any antimalarial drug	5	17	18
% Women who received two or more doses of IPTp during their last pregnancy in the last two years	22	49	62
% Women who received three or more doses of IPTp during their last pregnancy in the last two years	11	30	36
<5 mortality rate per 1,000 live births	123	88	111
% Children under five years of age with parasitemia by microscopy	44	15	n/a
% Children under five years of age with parasitemia by RDT	47	30	n/a
% Children under five years of age with severe anemia (Hb<8gm/dl)	16	18	2

**Table 2. Evolution of key malaria indicators reported through routine surveillance systems**

Indicator	2016	2017	2018	2019	2020
# Suspect malaria cases <sup>1</sup>	1,527,537	2,137,471	2,706,206	3,077,841	3,431,609
# Patients receiving diagnostic test for malaria <sup>2</sup>	1,510,121	2,134,437	2,693,952	3,036,927	3,396,830
Total # malaria cases <sup>3</sup>	995,320	1,335,208	1,552,159	1,791,268	2,009,081
# Confirmed cases <sup>4</sup>	995,320	1,335,208	1,552,159	1,791,268	2,009,081
# Presumed cases <sup>5</sup>	0	0	0	0	0
% Malaria cases confirmed <sup>6</sup>	100	100	100	100	100
Test positivity rate (TPR) <sup>7</sup>	66%	63%	58%	59%	59%
Total # <5 malaria cases <sup>8</sup>	372,116	501,175	574,864	654,548	719,044
% Cases in children under five years of age <sup>9</sup>	37	38	37	37	36
Total # severe cases <sup>10</sup>	115,298	132,084	143,810	160,057	151,063
Total # malaria deaths <sup>11</sup>	867	1,162	1,848	1,676	1,119
# Facilities reporting <sup>12</sup>	538	542	542	542	542
% Data completeness <sup>13</sup>	99	100	96	98	99

1 Number of patients presenting with signs or symptoms possibly due to malaria (e.g., fever). 2 RDT or microscopy, all ages, outpatient and inpatient. 3 Total reported malaria cases; all ages, outpatient and inpatient, confirmed and unconfirmed cases. 4 Diagnostically confirmed; all ages, outpatient and inpatient. 5 Clinical/presumed/unconfirmed; all ages, outpatient and inpatient. 6 # confirmed cases divided by total # cases. 7 Confirmed cases divided by # patients receiving a diagnostic test for malaria (RDT or microscopy). 8 Outpatient and inpatient, confirmed and unconfirmed. 9 Total # <5 cases divided by total # of cases. 10 In Guinea, “severe” cases are defined as hospitalized with malaria. 11 All ages, outpatient, inpatient, confirmed, and unconfirmed. 12 Total # of health facilities reporting data into the HMIS/DHIS2 system that year. 13 # monthly reports from health facilities divided by # health facility reports expected. Note: 2016–2018 data copied from FY 2020 MOP (except #Facilities reporting; updated 2021), with 2019 and 2020 data from DHIS2.

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

Guinea began implementation as a PMI focus country in FY 2011. Apart from the national level support to the NMCP, PMI supports malaria prevention and control activities in 13 out of the 33 districts in Guinea as well as the 6 communes of Conakry while the Global Fund supports these activities in the remaining 20 districts. PMI and the Global Fund 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.

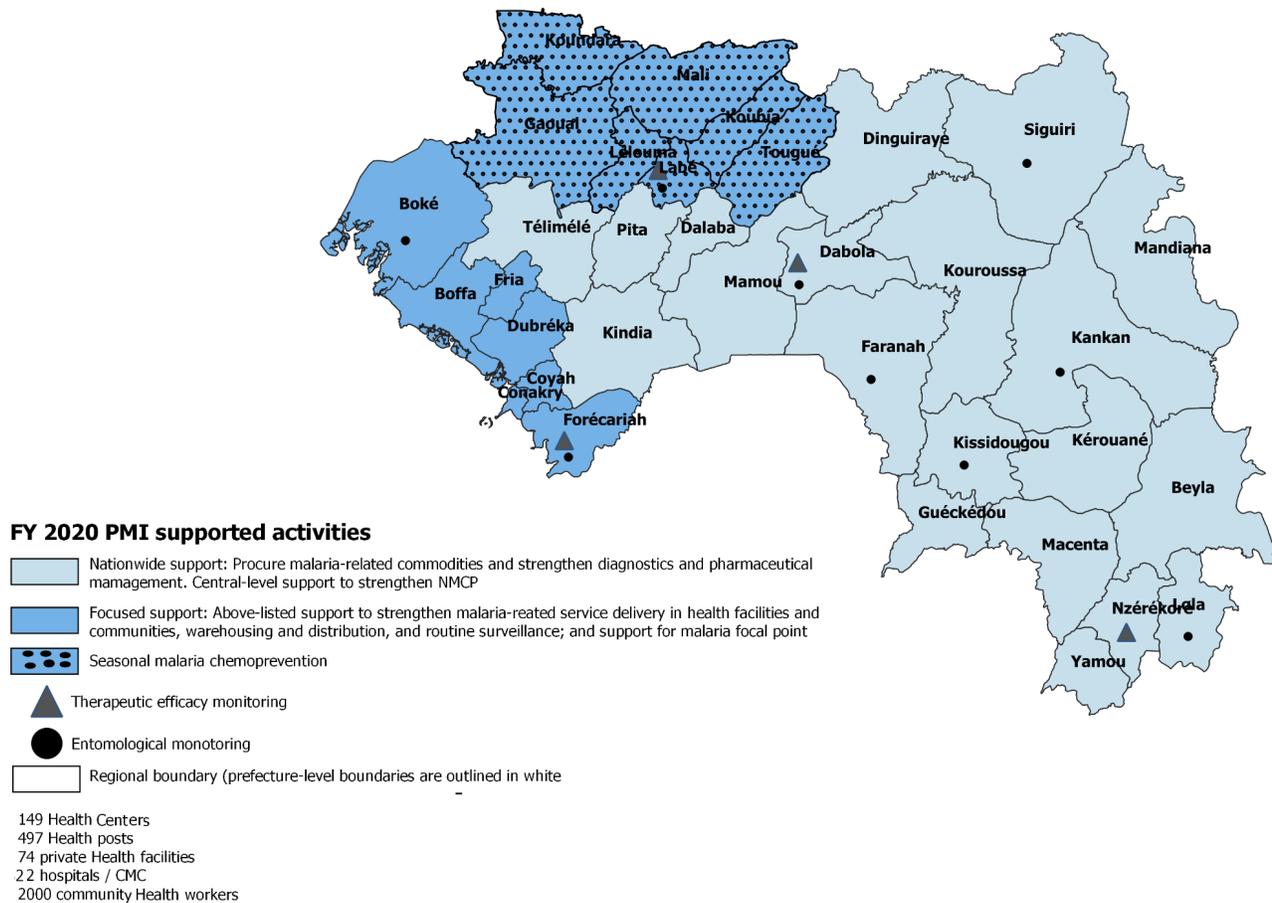
The main interventions described in the Guinea National Strategic Plan include:

- Vector control (distribution of long-lasting insecticide-treated mosquito nets (ITNs) through mass campaigns and continuous distribution channels)
- Indoor residual spraying (IRS)
- Larviciding
- Targeted prevention interventions (intermittent preventive treatment of malaria during

- pregnancy (IPTp) and seasonal malaria chemoprevention (SMC)
- 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
- 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)
- Behavior change communication including interpersonal communication, mass media, advocacy and social mobilization
- Strengthening surveillance, monitoring, and evaluation (SM&E) at all levels for the collection and analysis of high-quality data to inform decision-making
- Improving program management at the national, regional, and district levels and strengthening partnerships

All the above interventions are supported by both PMI and the Global Fund except larviciding and IRS, both of which do not receive any support. In Guinea, IRS is supported by mining companies in two districts (Siguiri in Upper Guinea and Lola in Forest Guinea).

Figure 4. Map of target areas for PMI interventions



## IV. PARTNER FUNDING LANDSCAPE

PMI emphasizes the importance of partner alignment for malaria control, recognizing that different partners bring complementary expertise and resources. In recent years, PMI, the Global Fund, and the Bill & Melinda Gates Foundation (BMGF) have harmonized financial, supply chain, and programmatic data. In particular, PMI and the Global Fund agreed to a harmonized financial taxonomy to aid comparison of our investments to better identify potential overlap or gaps.

Due to the U.S. Government FY budget cycle and approximate timing of annual appropriations, PMI MOP resources fund activities that largely occur during the following fiscal year (FY). For example, this FY 2022 MOP is anticipated to largely fund implementation of activities starting in 2023. Global Fund resources are based on the calendar year and planned for a three-year grant cycle. Most partner country governments and other partners also budget based on the calendar year.

The tables below summarize contributions by key external partners and partner country governments in calendar years 2020–2022, providing insight into total country investments. Because new grants funded through the Global Fund 2021–2023 grant cycle are just beginning, or will begin later in 2021, Global Fund country investments may still evolve in some countries. The partner country government invests substantial funding into the national-to-local infrastructure and service delivery that benefits malaria programs and many others. However, it is not always possible to attribute funding for malaria specifically from the partner country government without a standardized method. There may be similar challenges for attributing other partner funds.

**Table 3a. Annual budget by Level I category for FY 2019/CY 2020**

Funder	Vector Control	Case Management	Drug-Based Prevention <sup>1</sup>	Supply Chain <sup>2</sup>	Monitoring, Evaluation & Research	Cross-cutting and HSS <sup>3</sup>	Total Per Funder
PMI	\$0.8M	\$5.8M	\$2.3M	\$0.9M	\$1.6M	\$3.7M	\$15.0M
Global Fund	\$2.1M	\$2.6M	\$3.7M	\$0.7M	\$1.9M	\$8.8M	\$19.8M
<b>Total Per Category</b>	\$2.8M	\$8.4M	\$6.0M	\$1.6M	\$3.5M	\$12.5M	\$34.8M

**Table 3b. Annual budget by Level I category for FY 2020/CY 2021**

Funder	Vector Control	Case Management	Drug-Based Prevention <sup>1</sup>	Supply Chain <sup>2</sup>	Monitoring, Evaluation & Research	Cross-cutting and HSS <sup>3</sup>	Total Per Funder
PMI	\$3.5M	\$1.7M	\$3.1M	\$3.0M	\$1.1M	\$3.6M	\$16.0M
Global Fund	\$1.2M	\$2.8M	\$4.3M	N/A	\$1.8M	\$7.8M	\$17.9M
<b>Total Per Category</b>	\$4.7M	\$4.6M	\$7.4M	\$3.0M	\$3.0M	\$11.3M	\$33.9M

**Table 3c. Annual budget by Level I category for FY 2021 /CY 2022**

Funder	Vector Control	Case Management	Drug-Based Prevention <sup>1</sup>	Supply Chain <sup>2</sup>	Monitoring, Evaluation & Research	Cross-cutting and HSS <sup>3</sup>	Total Per Funder
PMI	\$4.8M	\$3.5M	\$1.8M	\$1.7M	\$0.5M	\$2.7M	\$15.0M
Global Fund	\$1.8M	\$2.8M	\$4.3M	N/A	\$1.6M	\$28.2M	\$38.8M
<b>Total Per Category</b>	\$6.6M	\$6.3M	\$6.2M	\$1.7M	\$2.1M	\$31.0M	\$53.8M

1. Drug-based prevention, including SMC and malaria in pregnancy (MIP) where applicable. 2. Covers management of in-country warehousing and distribution of malaria commodities, except for ITNs, which are separately captured under Vector Control. 3. HSS = health systems strengthening.

**Table 4a. Annual budget, breakdown by commodity, FY 2019/CY 2020**

Funder	ITNs <i>Continuous Distribution</i>	ITNs <i>Mass Distribution</i>	IRS <sup>1</sup> <i>Insecticide</i>	ACTs	RDTs	Severe Malaria	SMC-Related	IPTp-Related	Total
PMI <sup>2</sup>	\$0.0M	\$0.0M	\$0.0M	\$2.5M	\$0.9M	\$0.4M	\$0.6M	\$0.0M	\$4.4M
Global Fund <sup>3</sup>	\$1.3M	\$0.0M	\$0.0M	\$0.5M	\$0.5M	\$0.5M	\$0.9M	\$0.3M	\$4.0M
<b>Total</b>	\$1.3M	\$0.0M	\$0.0M	\$3.0M	\$1.4M	\$0.9M	\$1.5M	\$0.3M	\$8.4M

**Table 4b. Annual budget, breakdown by commodity, FY 2020/CY 2021**

Funder	ITNs <i>Continuous Distribution</i>	ITNs <i>Mass Distribution</i>	IRS <sup>1</sup> <i>Insecticide</i>	ACTs	RDTs	Severe Malaria	SMC-Related	IPTp-Related	Total
PMI <sup>2</sup>	\$1.0M	\$1.1M	\$0.0M	\$0.0M	\$0.0M	\$0.0M	\$0.0M	\$0.0M	\$2.1M
Global Fund <sup>3</sup>	\$0.0M	\$0.0M	\$0.0M	\$1.0M	\$0.8M	\$0.0M	\$1.4M	\$0.4M	\$3.6M
<b>Total</b>	\$1.0M	\$1.1M	\$0.0M	\$1.0M	\$0.8M	\$0.0M	\$1.4M	\$0.4M	\$5.7M

**Table 4c. Annual budget, breakdown by commodity, FY 2021 /CY 2022**

Funder	ITNs <i>Continuous Distribution</i>	ITNs <i>Mass Distribution</i>	IRS <sup>1</sup> <i>Insecticide</i>	ACTs	RDTs	Severe Malaria	SMC- Related	IPTp- Related	Total
PMI <sup>2</sup>	\$0.7M	\$0.0M	\$0.0M	\$0.0M	\$0.0M	\$2.2M	\$0.0M	\$0.0M	\$2.9M
Global Fund <sup>3</sup>	\$0.0M	\$0.0M	\$0.0M	\$1.1M	\$0.9M	\$0.0M	\$1.5M	\$0.4M	\$3.9M
<b>Total</b>	\$0.7M	\$0.0M	\$0.0M	\$1.1M	\$0.9M	\$2.2M	\$1.5M	\$0.4M	\$6.8M

Note: Categories reflect the harmonized financial taxonomy (Levels 1-3) developed by BMGF, Global Fund, and PMI in 2019, as part of a broader data harmonization initiative but may continue to evolve. 1. IRS insecticide: for PMI, commodity costs may be inextricable from IRS implementation costs in historical data – field identified as ND where this is the case. 2. PMI commodity costs are fully loaded, including costs for the ex-works price of the commodity, quality control, freight, insurance, and customs. 3. Global Fund commodity costs in the table above are fully loaded, including costs for the ex-works price of the commodity, quality control, freight, insurance, and customs.

## V. ACTIVITIES TO BE SUPPORTED WITH FY 2022 FUNDING

The FY 2022 budget tables contain a full list of activities that PMI proposes to support in Guinea with FY 2022 funding. Please visit [www.pmi.gov/resource-library/mops](http://www.pmi.gov/resource-library/mops) for these FY 2022 budget tables. Key data used for decision-making for this MOP planned investments is provided in Annex A of this document.

# ANNEX A: INTERVENTION-SPECIFIC DATA

*This section outlines key data that helped inform decision-making around FY 2022 MOP funding allocations to PMI-supported activities.*

# I. VECTOR CONTROL

## NMCP Objective

In accordance with the National Strategic Plan (NSP) 2018–2023, the aim of the National Malaria Control Program (NMCP) is to ensure that at least 90 percent of the population at risk for malaria is using ITNs by 2023. 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 2023. No areas are currently targeted for IRS by the NMCP. However, mining companies did perform IRS in 13 villages (population of 47,075) in Siguri in 2019. The NMCP has indicated they would like to support this effort with technical assistance (TA). The NMCP has proposed promoting larval control through a community-based approach with integration into hygiene promotion activities.

## NMCP Approach

### PRIMARY VECTOR CONTROL INTERVENTIONS

1. ITN distribution in mass campaign
  - 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 distribution takes place during targeted times aligned 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 bed nets (ITNs) 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 ITNs, the partnership between the public sector, the private sector, civil society, and grassroots communities will be strengthened.
2. Continuous distribution of ITNs
  - a. Continuous distribution of ITNs will be developed across multiple distribution channels to cover new targets and achieve universal coverage. In accordance with the 2018–2023 NSP, the following channels will be used:
    - i. Health center channel: Free net distribution to pregnant women and children under one year of age at ANC, EPI, and Health Post levels.
    - ii. Community channel: (1) Net distribution through local officials who will provide free distribution to households identified by RECOs 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 with community health workers. (2) Occasional distributions will be made in the community through the donations of associations and companies in specific situations (e.g., recrudescence of malaria, natural disaster, influx of refugees).

- iii. School channel: Free ITNs distributed 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 and 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 revised 2018–2023 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. However, it is not clear when these activities will take place.
4. Larval control:
  - a. While currently not financially or operationally supported by the NMCP, in accordance with the revised 2018–2023 NSP, community-based larval control approach will be developed with an emphasis on promoting hygiene and sanitation and 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 and nongovernmental organizations [NGOs] such as *Organisation de Communauté de Base, Petites et Moyennes Entreprises*, etc.)

Though IRS and community-based larval control programs are desirable to the NMCP, there has been limited action or funding to support these activities from the government of Guinea and donors.

## PMI Objective in Support of NMCP

- PMI and the Global Fund work collaboratively to support the NMCP priorities identified in the National Strategic Plan 2018–2023. 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 the Global Fund mainly support ITN interventions from Guinea’s NSP, including continuous distribution via EPI and ANC platforms as well as some community-focused distribution.
- Although IRS and larval control are mentioned in Guinea’s 2018–2023 NSP, they are not currently supported financially or operationally by the NMCP. The NMCP continues to engage with several mining companies interested in technical support for IRS and larval control within mining claims. PMI Guinea’s funding envelope limits substantial investment in other vector control interventions beyond ITNs. Current WHO guidance states, “*Priority should be given to delivering either ITNs or IRS at high coverage and to a high standard, rather than introducing the second intervention as a means to compensate for deficiencies in the implementation of the first intervention.*” PMI technical guidance concurs with the strategy. Because of this guidance and limited funding envelope, PMI Guinea will continue to emphasize ITNs as its key vector control investment rather than supporting any capacity-

building for IRS or larval control at this time. However, PMI will work with the NMCP to ensure that mining company operations align with WHO and PMI guidance on insecticide resistance management. For example, current guidance suggests that neonicotinoids plus deltamethrin IRS products should not be used in areas where deltamethrin-based ITNs are being used; this guidance is to reduce deltamethrin resistance pressure.

## PMI-Supported Recent Progress

- To increase the number of households that own and use an ITN, in calendar year (CY) 2019 PMI worked with community health workers (RECOs) and NGO field agents to conduct home visits in all regions supported by the project. These visits assessed the availability of distributed nets and their regular/correct use and educated household representatives on how to properly maintain nets. In CY 2020, the project visited a total of 18,592 households: ITNs were available in 95 percent of households, and 86 percent of children under five years of age and 92 percent of pregnant women slept under a net the night before the survey. The project also distributed ITNs to displaced people, people with disabilities, and disaster victims. The project distributed 4,309 ITNs to 592 households and soldiers' duty stations. In addition, PMI supported the broadcast of 2,754 radio spots and 165 television spots (public service announcements) that promoted the importance of regular and correct ITN use.
- Through technical and financial support of PMI, an investigative study on the resistance status of malaria vectors in Faranah was completed from September 24 to October 14, 2020. This was done in response to a decision by NMCP to acquire piperonyl butoxide (PBO) ITNs for the Faranah Region in the 2022 ITN campaign. The results of the study showed the mortality rate of malaria vectors ranged from 95 percent to 97 percent after exposure to deltamethrin, suggesting low resistance to this particular pyrethroid.
- PMI recommended to the NMCP that it was premature to procure PBO ITNs based on the insecticide resistance data from the Faranah study. Based on these results, the NMCP decided to continue to monitor insecticide resistance in Guinea and try to develop methods to improve ITN deployment and utilization.

## Challenges

- In CY 2020, delays in obtaining project funds prevented some vector control activities. PMI focused mainly on supporting the Ministry of Health (MOH)/NMCP to organize the fourth round of the seasonal malaria chemoprevention (SMC) campaign in seven districts to increase malaria prevention among children 3 to 59 months of age.
- The COVID-19 pandemic in CY 2020 caused declines in health service utilization. Outreach activities, including community distribution of ITNs, were conducted to address some of the resulting malaria prevention needs. Accounting for community ITN distribution has been a challenge because the health facility reporting forms are currently limited to ANC and EPI distribution. This results in underreporting of ITN distribution.

## PMI-Supported Planned Investments Underway

During CY 2021, the following activities will be supported by PMI:

- Insecticide resistance monitoring and spot checks at four to seven sites — number of sites will depend on funding and priorities

- Monthly vector bionomics monitoring at two sites
- Distribution of 387,000 ITNs via ANC and EPI channels
- Ongoing planning support for the mass ITN campaign in April 2022 in 19 districts and communes in PMI locations
- Data collection on 24-month durability monitoring
- Community mobilization activities for ITN campaign

Planned activities for the next 12 to 18 months will be a continuation of previous activities of CY 2020.

### Entomological monitoring

- 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 the Global Fund. 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 the supervisory burden on the NMCP.
- PMI will continue 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).

### ITNs

- PMI will continue support for routine distribution of ITNs through ANC and EPI in PMI focus zones.
- PMI will support prospective monitoring of ITNs distributed during the CY 2019 mass campaign. Data will be collected 24-m post-campaign on net survivorship and physical integrity, bio-efficacy of insecticides, and insecticidal content.

## I. I. 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.

Please see Table 2 for a detailed list of proposed activities with FY 2022 funding.

### Key Question I

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

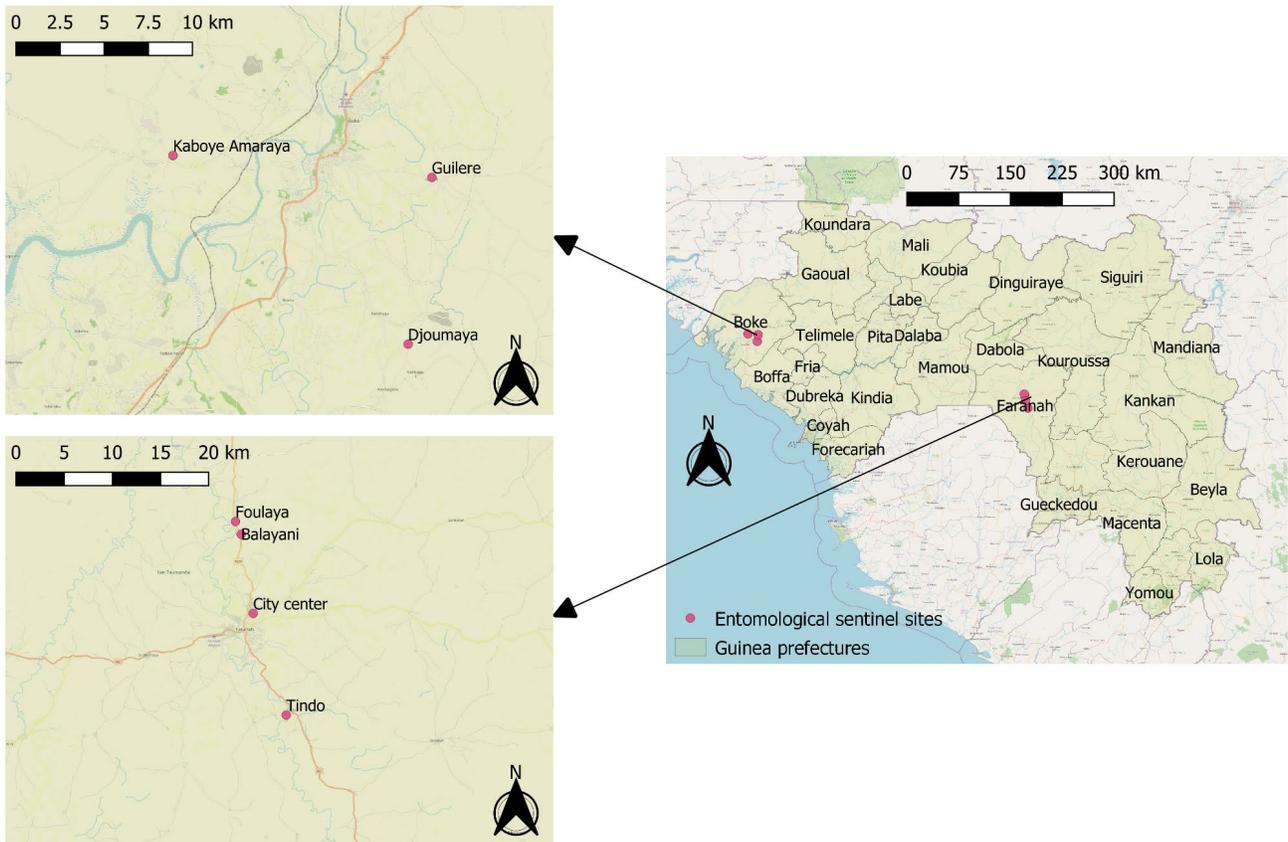
Supporting Data

**Table A-1. Entomological monitoring activities**

Site	District	Activities	Supported by
Dioumaya	Boké	Insecticide resistance* Longitudinal sites	PMI
Guilere	Boké	Insecticide resistance* Longitudinal sites	PMI
Kaboye	Boké	Insecticide resistance* Longitudinal sites	PMI
Balayani	Faranah	Insecticide resistance Longitudinal sites	PMI
Foulaya	Faranah	Insecticide resistance Longitudinal sites	PMI
Tindo	Faranah	Insecticide resistance Longitudinal sites	PMI
Faranah city center	Faranah	Insecticide resistance Longitudinal sites	PMI

\* Insecticide resistance testing not done due to COVID-19 and financial constraints.

Figure A-1. Geographic location of PMI supported entomological monitoring sites



While there are nine sites that have been supported by PMI, normally, four to six additional Guinea prefectures, in addition to Boké and Faranah, would have been monitored for insecticide resistance and spot checks to provide data for all natural regions in Guinea (Maritime, Middle, Upper, and Forested).<sup>2</sup> However, the COVID-19 pandemic prevented this activity from occurring in CY 2020. In addition, budget constraints also limited additional entomological activity from occurring later in the year. Therefore, only Boké and Faranah were monitored in CY 2020 and not at the desired frequency.

<sup>2</sup> Guinea has four natural regions (Maritime, Middle, Upper, and Forested) characterized by distinctive climate, ecology, geography, and anthropological characteristics

Table A-2. Distribution and bionomics of malaria vectors

Site/ District	Vector*	Season (month)	Preferred Biting Location	Peak Biting Time	Preferred Resting Location**	Preferred Host**	Annual EIR**
Dioumaya/ Boké	<b>An. gambiae</b> s.l.	June	Indoor/ outdoor (0.90/0.10)	11:00 p.m.– 4:00 a.m.	N/A	N/A	N/A
Guilere/ Boké	<b>An. gambiae</b> s.l.	June	Indoor/ outdoor (0.80/0.20)	11:00 p.m.– 4:00 a.m.	N/A	N/A	N/A
Kaboye/ Boké	<b>An. gambiae</b> s.l.	June	Indoor/ outdoor (0.88/0.13)	11:00 p.m.– 4:00 a.m.	N/A	N/A	N/A
Balayani/ Faranah	<b>An. gambiae</b> s.l.	June	Indoor/ outdoor (0.36/0.64)	11:00 p.m.– 4:00 a.m.	N/A	N/A	N/A
Faranah city center/ Faranah	<b>An. gambiae</b> s.l.	June	Indoor/ outdoor (0.36/0.64)	11:00 p.m.– 4:00 a.m.	N/A	N/A	N/A
Foulaya/ Faranah	<b>An. gambiae</b> s.l.	June	Indoor/ outdoor (0.43/0.57)	11:00 p.m.– 4:00 a.m.	N/A	N/A	N/A
Tindo/ Faranah	<b>An. gambiae</b> s.l.	June	Indoor/ outdoor (0.55/0.45)	11:00 p.m.– 4:00 a.m.	N/A	N/A	N/A

\*Primary vector listed first, in bold, followed by secondary vectors.

\*\* EIR = Entomological inoculation rate, marked as N/A if simultaneous indoor and outdoor collections are not conducted or if analysis was not done.

Some contextual considerations:

Entomological monitoring in Guinea initially started in February and March 2020 but was stopped after receiving WHO and PMI guidance on entomological monitoring during COVID-19 in March/April 2020. While revised PMI guidance in May 2020 allowed entomological monitoring to restart in Guinea under specific COVID-19 mitigation measures, financial constraints prevented monitoring to continue fully in all monitoring planned sites in Guinea. The data presented in Table A-2 are based on piecemeal monitoring that occurred between January and December 2020 in Boké and Faranah. In Boké, monitoring occurred from February to March and November to December 2020; in Faranah, monitoring occurred at the same time as Boké but additional monitoring occurred from September to October 2020.

Molecular testing of the sibling species of *Anopheles gambiae* sensu lato (s.l.) from the CY 2020 Guinea collections has not yet occurred. However, past reports in the same sites have molecularly identified members of *An. gambiae* complex in Guinea as *An. gambiae* sensu stricto (s.s.), *An. coluzzii*, and *An. arabiensis*. In those reports, *Anopheles gambiae* s.s. was the primary vector accounting for approximately 60 percent to 100 percent of the mosquitoes collected.

The preferred biting location of *An. gambiae* s.l. was based on human landing collections and CDC light trap data. However, most mosquitoes were collected by human landing collections.

Outdoor resting collections are not done in Guinea at this time. Only indoor spray catches are done to measure the resting mosquito population.

There is currently no PMI-supported blood meal analysis data for Guinea. However, PMI is continuing to work with the NMCP to build capacity to collect this information.

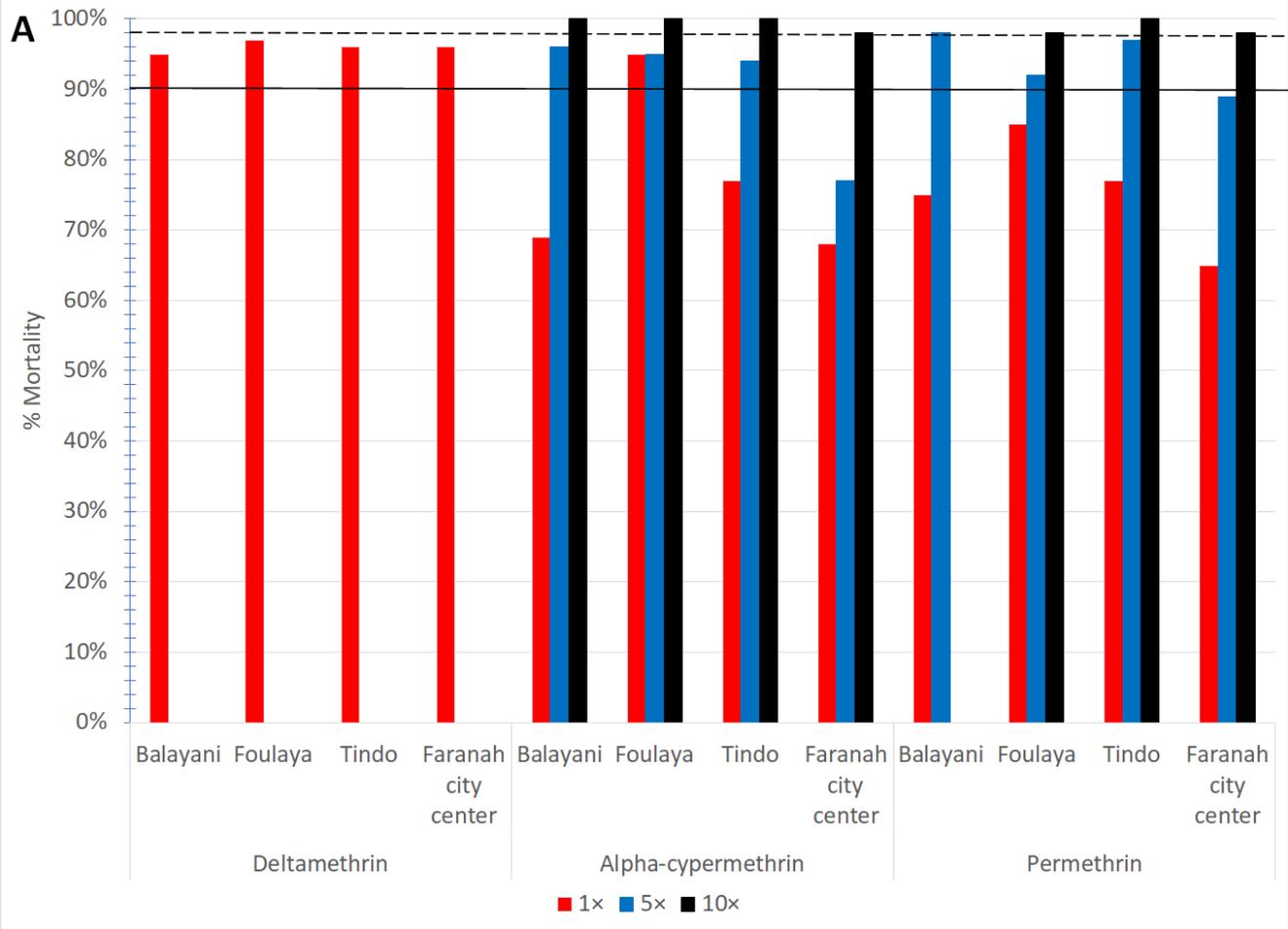
Entomological inoculation rate (EIR) was not calculated because sporozoite analysis has not been done yet for collections conducted in CY 2020; however, sporozoites rates up to 2.6 percent have been reported in Kissidougou in CY 2017. The most recent reported sporozoite data from Boké and Faranah in CY 2019 was 0 percent and 1 percent, respectively.

More detailed information on entomological trends from past reports can be found on the PMI.gov website.

## Key Question 2

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

Figure A-2. Insecticide profile of the Faranah district, Guinea



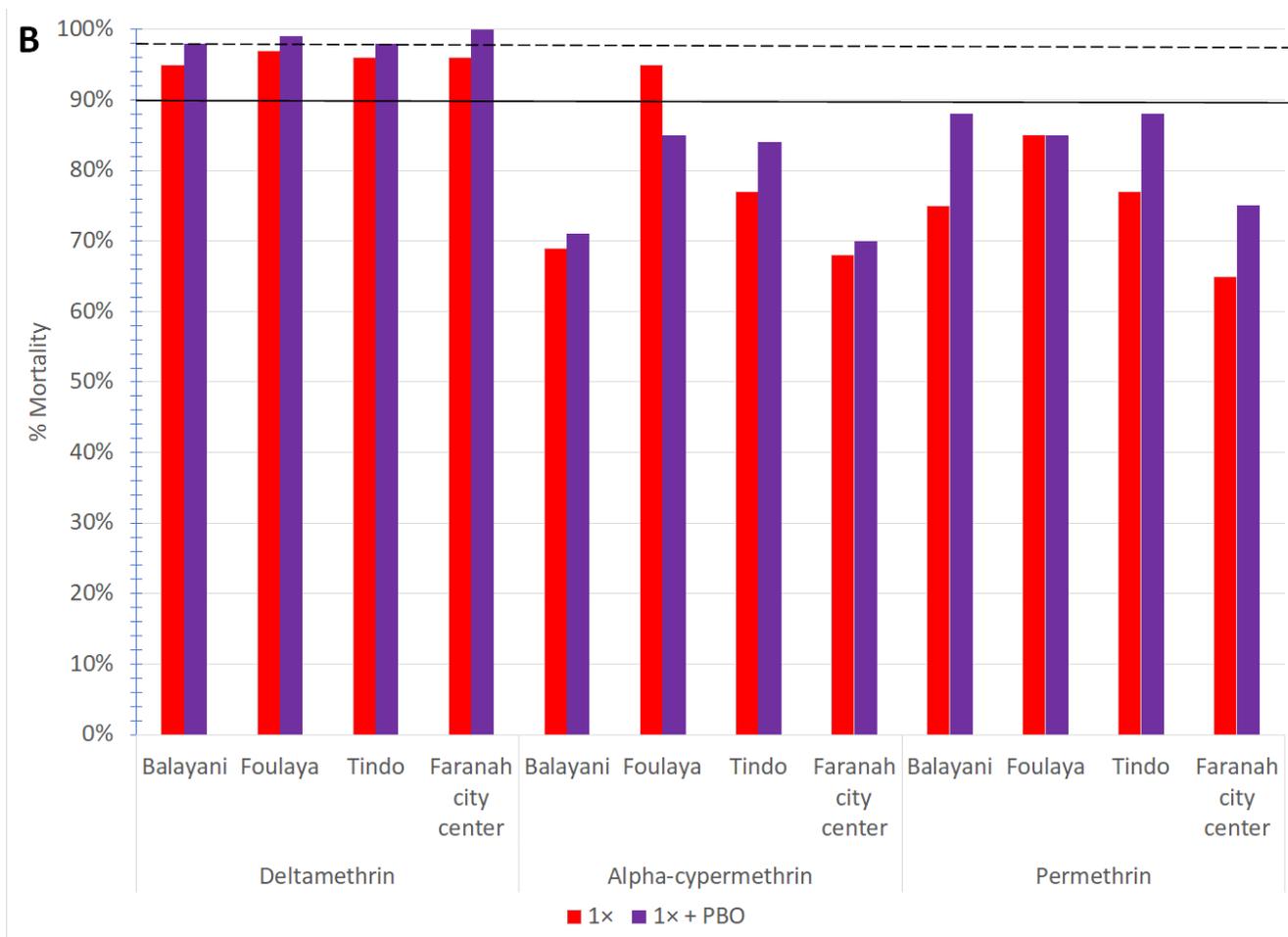


Figure A-2 provides resistance data from four monitoring sites in Faranah from September to October 2020.

Figure A-2A provides the results of the intensity assay at 1x, 5x, and 10x the diagnostic dose of a pyrethroid.

At the diagnostic dose (1x), suspected resistance to deltamethrin was noted in *Angambiae* s.l. varying between 95 percent in Balayani and 97 percent in Foulaya. In Foulaya, suspected resistance was also detected for alpha-cypermethrin (95 percent mortality rate); however, confirmed resistance (mortality less 90 percent) was observed for alpha-cypermethrin in Balayani, Tindo, and Faranah city center. Confirmed resistance to permethrin was observed in all sites.

For 5x the diagnostic dose, *Angambiae* s.l. were susceptible to permethrin at (98 percent mortality rate), but suspected resistance was detected to alpha-cypermethrin (96 percent mortality rate) in Balayani; there was suspected resistance to permethrin (92 percent) and alpha-cypermethrin (95 percent) in Foulaya and resistance to permethrin (89 percent mortality rate) and alpha-cypermethrin (77 percent mortality rate) in Faranah city center.

At 10x the diagnostic dose, mortality at all sites were  $\geq 98$  percent.

Figure A-2B provides the results of the piperonyl butoxide (PBO)<sup>3</sup> assay at 1 × the diagnostic dose of a pyrethroid and 1 × + PBO.

Deltamethrin (1 ×) plus PBO increased the sensitivity to deltamethrin as follows: Balayani (98 percent mortality rate), Foulaya (99 percent mortality rate), Tindo (98 percent mortality rate), and the Faranah city center (100 percent mortality rate). Resistance to permethrin (1 ×) plus PBO varied between 75 percent in Faranah city center and 88 percent in Balayani and Tindo. Resistance to alpha-cypermethrin (1 ×) plus PBO varied between 70 percent in Faranah city center and 85 percent in Foulaya. In summary, there was an increase in pyrethroid induced mortality after PBO pre-exposure in all sites except in Foulaya for alpha-cypermethrin. The difference in mortality between pyrethroid only versus pyrethroid plus PBO ranged between 0 percent in Foulaya to 13 percent in Balayani for alpha-cypermethrin, 2 percent in Foulaya to 4 percent in Faranah city center for deltamethrin, and 0 percent in Foulaya to 11 percent in Tindo for permethrin.

### Conclusions for Entomologic Monitoring Investments

Boké, Faranah, Dabola, Kankan, Kissidougou, Labe, Lola, Maferinyah, and Siguiri are nine prefectural sites where PMI has conducted entomological monitoring (longitudinal or spot check) and insecticide resistance testing from 2017 to present. However, from year to year some sites were not monitored due to priorities, budget limitations, or other logistical constraints. While the actual activities in entomological monitoring will generally remain the same, we anticipate an increase in the entomological monitoring budget to accommodate the onboarding of a new implementer for entomological monitoring. The increase in budget accounts for the potential higher operational cost of the new implementer. The new implementer will have a greater role in supporting the NMCP in entomological monitoring and dedicated backstop support from their headquarters level.

An insecticide resistance study conducted in CY 2018 by a research team from the London School of Hygiene and Tropical Medicine (LSHTM)<sup>4</sup> raised questions about vector resistance to deltamethrin in the Faranah prefecture. The study reported deltamethrin mortality rates ranged from 73 percent in Faranah city center to 95 percent in Foulaya village at the diagnostic dose. While past PMI/NMCP studies at the same sites and in the same vectors had not detected deltamethrin resistance at the diagnostic dose, the NMCP was considering procurement of PBO ITNs for distribution in the Faranah region based on LSHTM results and the high malaria transmission rates reported in the area. PMI and the NMCP conducted a follow-up study to verify resistance to deltamethrin in Faranah. From the PMI/NMCP study, resistance to deltamethrin was considered low. Based on WHO guidelines, it was decided that standard ITNs should continue to be distributed. Insecticide resistance will continue to be monitored in Faranah.

Given the high level of outdoor biting in Faranah, assessment of ITN usage through durability monitoring, direct observation or survey of households, and nighttime mosquito activity through entomological monitoring will be monitored. Additionally, to fill the gap on information on the preferred host and sporozoite data, PMI will

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<sup>3</sup> PBO is an insecticide synergist that increases killing of pyrethroids by stopping insect oxidases that metabolize pyrethroids.

<sup>4</sup> Stica, C., Jeffries, C.L., Irish, S.R., Barry, Y., Camara, D., Yansane, I., Kristan, M., Walker, T., & Messenger, L.A. Characterizing the molecular and metabolic mechanisms of insecticide resistance in *Anopheles gambiae* in Faranah, Guinea. *Malar J.* 2019 Jul 17;18(1):244. doi: 10.1186/s12936-019-2875-y. PMID: 31315630; PMCID: PMC6637595.

support collection of this information to better inform the program on entomological indicators impacting transmission.

PMI does not currently support IRS activities in Guinea. However, some private mining companies do perform IRS in villages near their operations. For example, since CY 2019 a mining company in Siguiiri has performed IRS in 13 villages. Where feasible and beneficial, PMI can work with the NMCP to develop a one-time entomological bionomics assessment of an area, which includes insecticide resistance testing, to provide information on the program.

Rather than increasing the budget for entomological monitoring, PMI will work with the NMCP and make better use of the entomological work plans to help answer key entomological questions for better operational implementation. For example, technical tools, such as the Entomological Surveillance Planning Tool<sup>5</sup> may be used to develop more informative entomological monitoring.

Please see FY 2022 PMI budget tables for a detailed list of proposed activities with FY 2022 funding.

## I.2. INSECTICIDE-TREATED NETS (ITNs)

### Key Goal

Achieve 90 percent or more of ITN coverage and use targets with effective nets, based on insecticide resistance data, in PMI-supported areas and maintain 90 percent or more coverage and use with consistent ITN distribution (via campaigns and/or continuous channels).

### Key Question I

How has net ownership evolved since the start of PMI in the country?

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<sup>5</sup> <http://www.shrinkingthemalariamap.org/tool/entomological-surveillance-planning-tool-espt>

Supporting Data

**Figure A-3. Trends in ITN ownership**  
*Percentage of households that own ITNs*

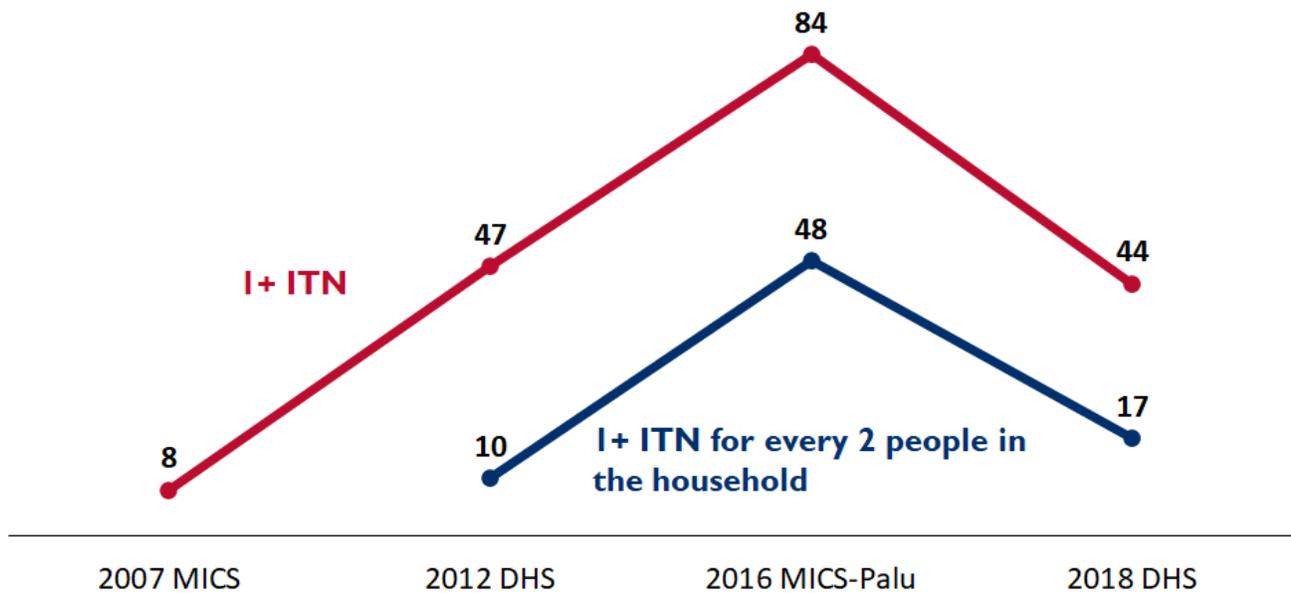
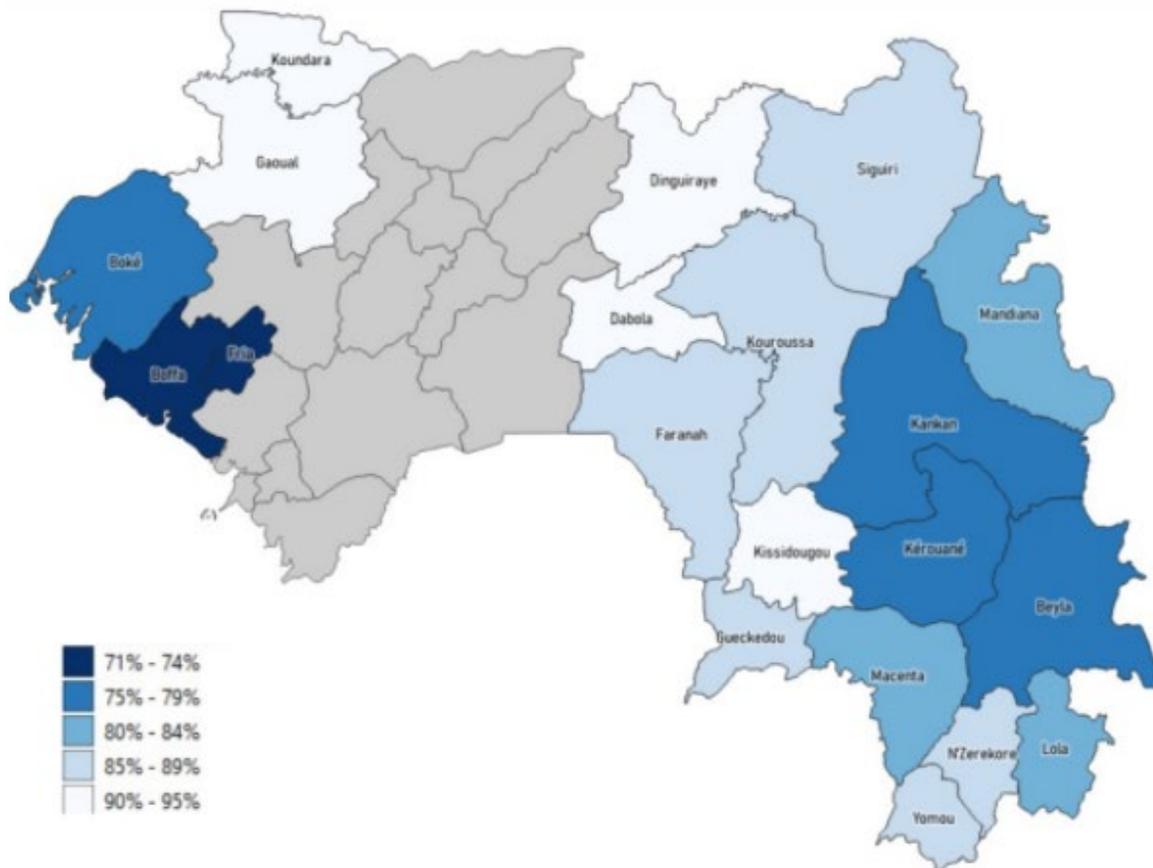


Figure A-3 shows a substantial decline in ITN ownership occurred between the 2016 MICS-Palu survey and the 2018 DHS. This decline may be due, in part, to the timing of mass ITN distribution campaigns in relation to the timing of data collection for the surveys (the 2016 survey was conducted after the CY 2016 ITN campaign and the 2018 survey was conducted right before the CY 2019 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.

Figure A-4. AMF’s 18 month post-campaign evaluation prefecture map of household ITN ownership after the 2019 mass ITN campaign

Guinea ITN ownership 18 months after the 2019 ITN campaign  
 Source: Cabinet Diagnostic



Following the 2018 DHS, a nationwide ITN distribution mass campaign was implemented in CY 2019. The Against Malaria Foundation (AMF) supported this campaign by donating 5 million ITNs, which were distributed in 20 of the 38 districts in Guinea (shown above). AMF contracted Cabinet Diagnostic to carry out a post-distribution evaluation after 9 and 18 months of the ITN campaign. The post-distribution evaluation done 18 months after the CY 2019 campaign shows that on average 85 percent of ITNs distributed are present in households (Figure A-4), representing a drop of 9 percent compared to the 94 percent coverage seen during the post-distribution evaluation carried out 9 months after the campaign. Concurrently, Guinea is continuing to implement routine distribution through ANC, EPI, and community-based channels.

Key Question 2a

What proportion of the population has access to an ITN? Of those who have access, what proportion of the population reports using an ITN?

**Figure A-5. Trends in ITN access and use**

*Percentage of household population with access to an ITN and percentage of those who slept under an ITN the night before the survey*

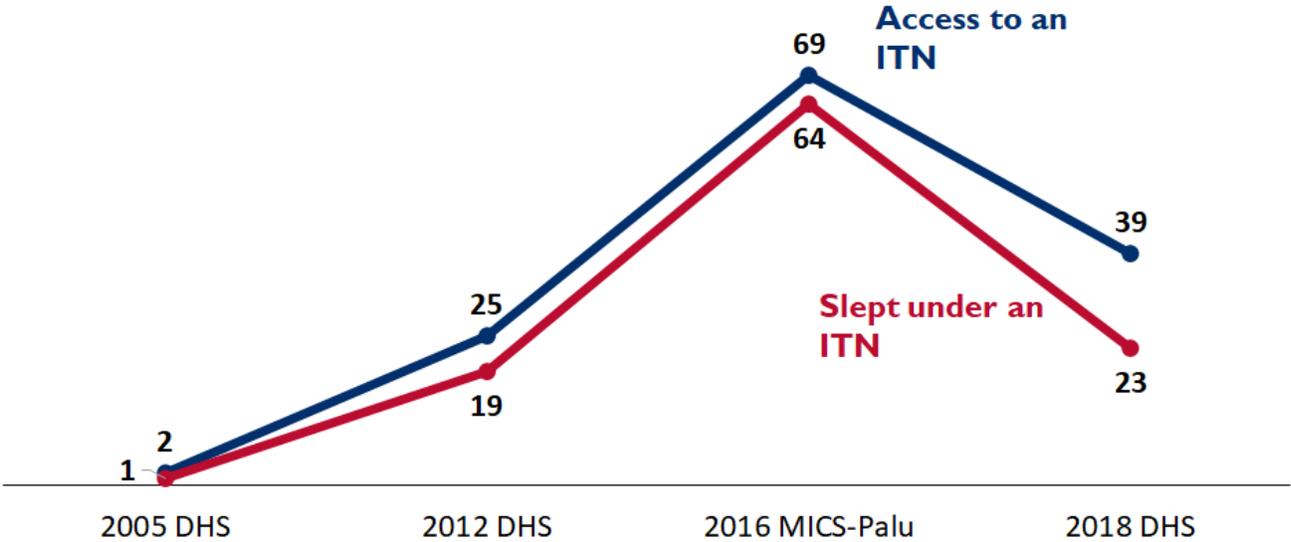
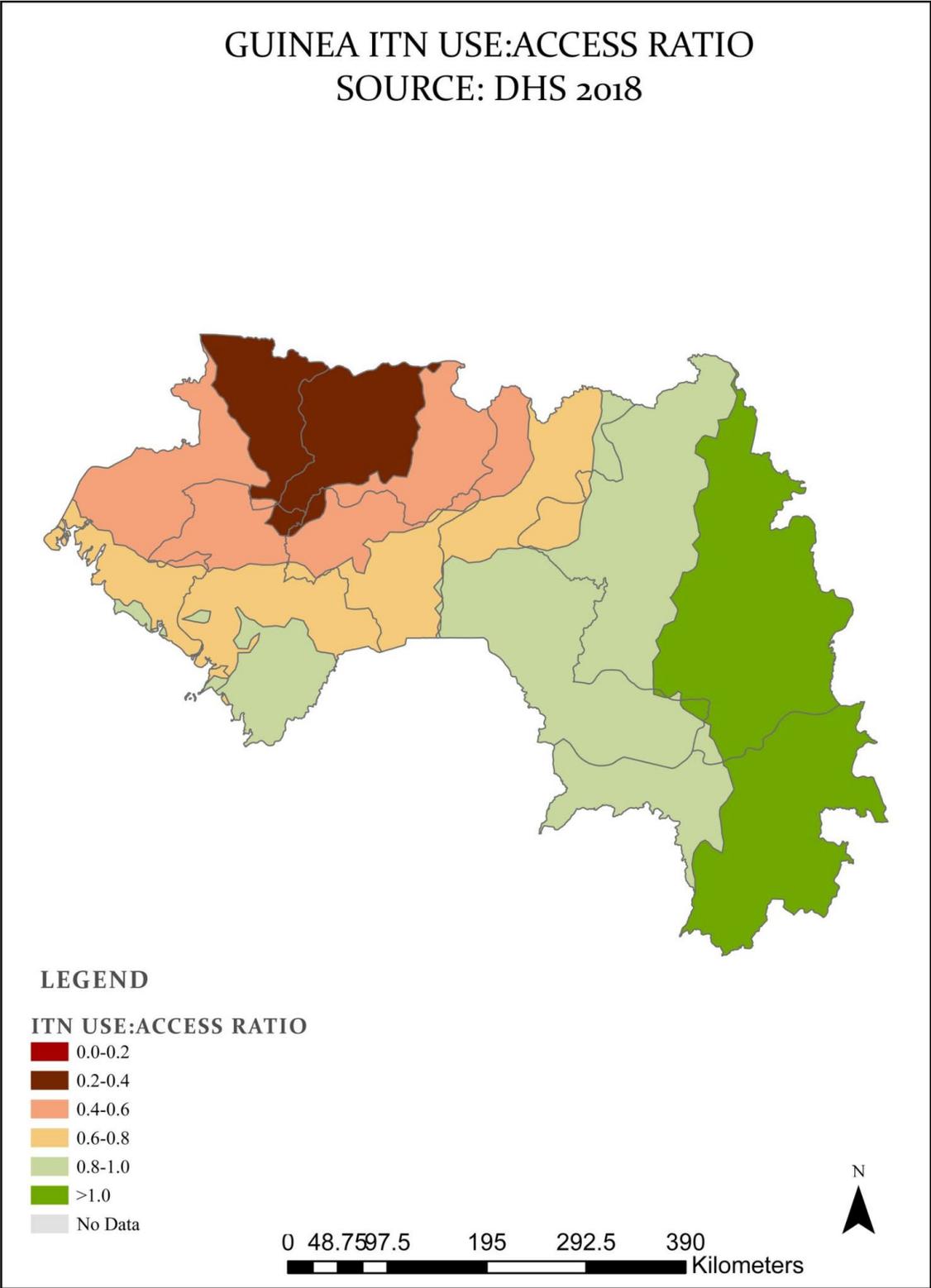


Figure A-5 shows a substantial decline in ITN access and use occurred between the 2016 MICS-Palu survey and the 2018 DHS. These patterns mirror the trends seen in ITN ownership in the previous section. This is important, as individuals who do not own ITNs cannot use ITNs (66 percent of households did not own an ITN in 2018).

Figure A-6. Map of ITN use:access ratio in Guinea derived from 2018 DHS data<sup>6</sup>



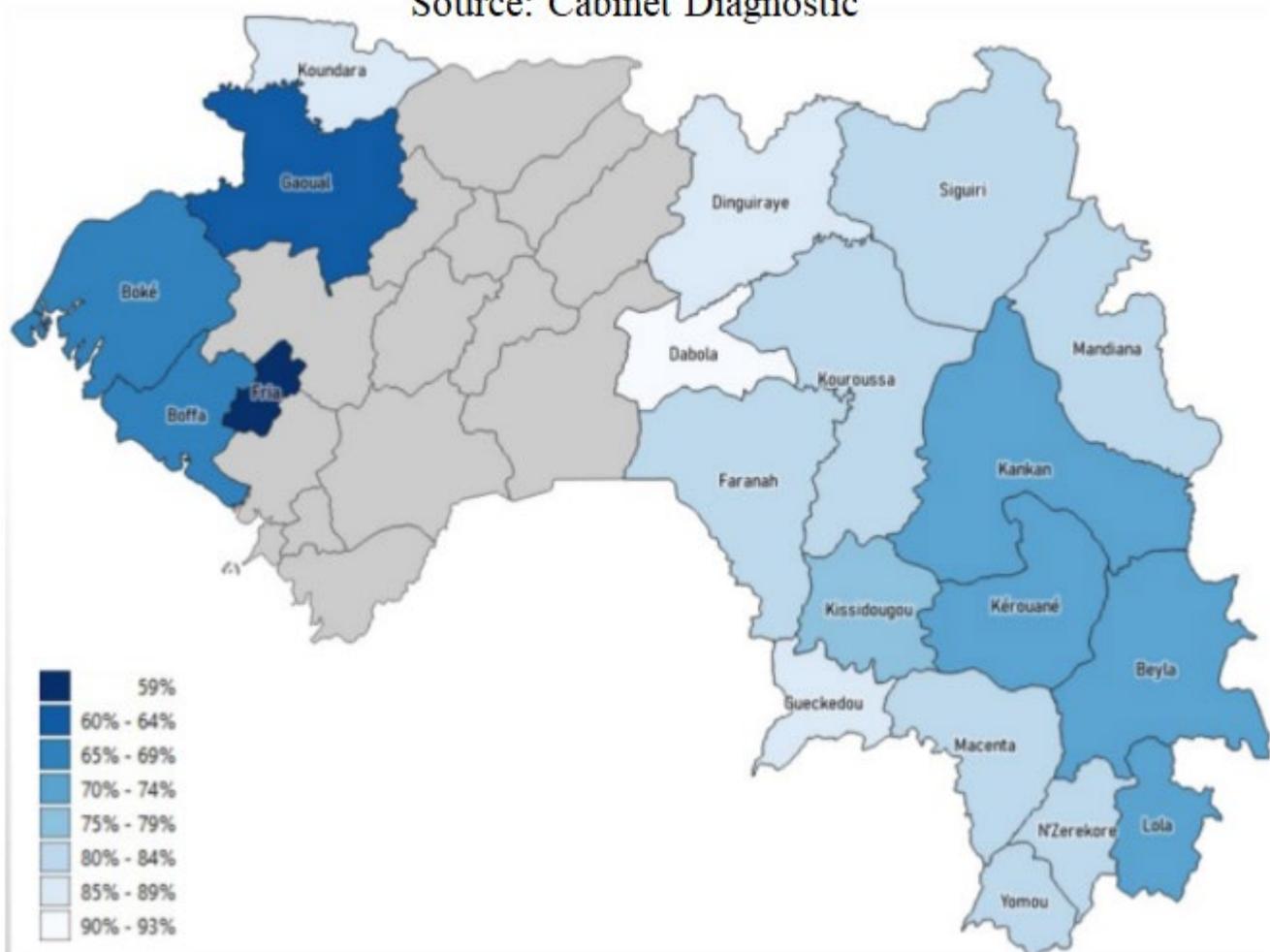
<sup>6</sup> Source: <https://breakthroughactionandresearch.org/resources/itn-use-and-access-report/guinea/>

The ITN use:access ratio is intended to measure whether there is a problem with low ITN use when ITNs are available. In Guinea, the use:access ratio map (Figure A-6) indicates that in the regions of Conakry, Faranah, Kankan, and Nzerekore, if people have ITNs they are likely to use them; use:access ratio values ranged between 0.81 in Conakry to 1.00 in Nzerekore. Conversely, Boké, Kindia, Labe, and Mamou regions had low use:access ratios with values ranging from 0.38 in Labe to 0.58 in Boké. Therefore, there seems to be a regional difference in lack of ITNs (i.e., an ownership issue) and use.

Figure A-7. AMF’s 18 month post-campaign evaluation prefecture map of household ITN usage after the 2019 mass ITN campaign

### Guinea ITN usage 18 months after the 2019 ITN campaign

Source: Cabinet Diagnostic



After the 2019 national mass distribution campaign, the post distribution evaluation done by AMF in 20 of 38 districts (shown above) showed that at 18 months after the distribution, the proportion of ITNs received that are used at night remains high (see Figure A-7): 78 percent at 18 months compared with 82 percent at 9 months post-CY 2019 mass ITN campaign. However, usage is lower in the four districts supported by PMI (Fria, Gaoual, Boké, and Boffa). SBC activities are being reinforced to increase the use of ITNs in these localities. This further supports regional differences in use:access.

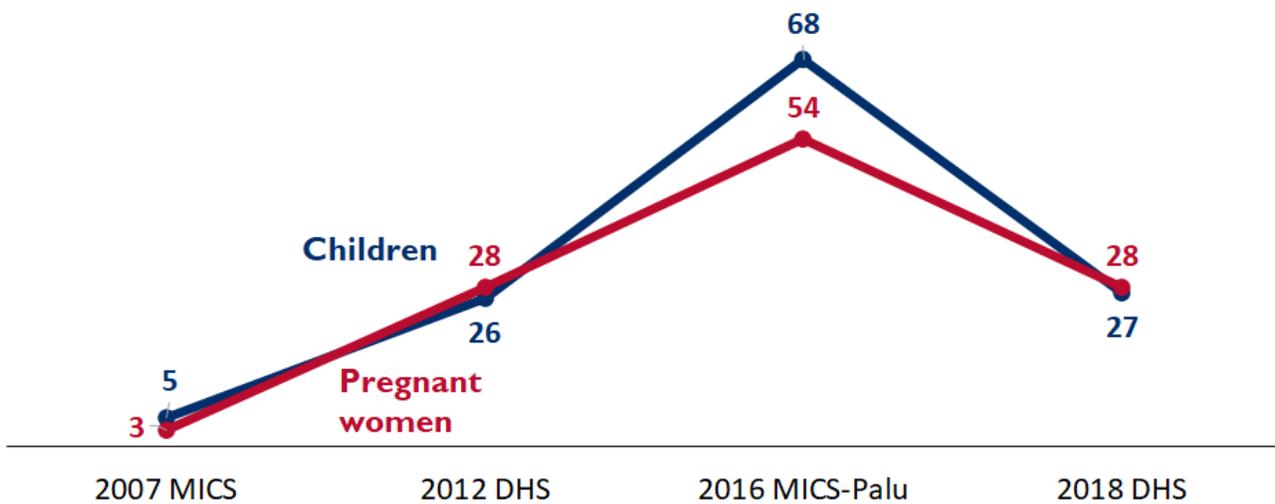
## Key Question 2b

What percent of pregnant women and children under five years of age report sleeping under an ITN?

### Supporting Data

**Figure A-8. Trends in ITN use among children and pregnant women**

*Children under age five years of age and pregnant women 15 to 49 years of age who slept under an ITN the night before the survey*



After great success in improving ITN use in vulnerable populations (children under five years of age and pregnant women) between CY 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 CY 2018). Because the use of nets is impossible without access, a corresponding decrease in ITN use was also seen in 2018. The post-distribution evaluation done after the 2019 ITN campaign does not specify ITN use among children and pregnant women. The previously discussed strategies for increasing ITN ownership should lead to a corresponding increase in the use of ITNs by children and pregnant women.

## Key Question 3

If ITN access is high but use is low, what significant structural and/or behavioral challenges affect the adoption and maintenance of ITN use and care behaviors?

### Supporting Data

A post-distribution evaluation was conducted by AMF in CY 2020, nine months after the 2019 campaign. AMF's post-distribution report indicated that in certain localities in the districts of Boké and Gaoual, 75 percent of households had ITNs. However, a limitation of the post distribution evaluation did not include a knowledge,

attitudes, and practices (KAP) component allowing for better understanding of the behaviors. The home visits conducted in the health districts of Koundara also showed some areas with low ITN coverage rates. To address these reported shortcomings, PMI implemented a series of community distribution activities aimed at improving the availability and use of ITNs in the districts of Boké and Koundara. The communities around the health centers of Kassopo and Dibia (Boké District) and the health center of Termessè (Koundara District) benefited from these community distributions. In total, these activities helped distribute 1,232 ITNs to 340 enumerated households. The 18 months post-campaign distribution survey shows high access (85 percent) and use (78 percent) of ITNs in 20 of the 38 districts covered with AMF ITNs. Four PMI-supported districts (Fria, Boké, Boffa, and Gaoual), had lower access and use, which varied from 69 percent to 71 percent for the access and from 59 percent to 69 percent for the use. It may be useful to do another KAP survey to assess the factors that affect the adoption and the maintenance of ITN use and/or care behaviors. However, during supervision and focus group discussions, frequently mentioned reasons for low ITN use in PMI-targeted areas included:

- Perception of suffocation and heat under the net
- People do not know or realize all the consequences of malaria (economic consequences for example)
- People believe that malaria exists only during the rainy season and therefore they do not use ITNs during the rest of the year
- In the Labe region, people think there are no mosquitoes because their homes are clean and they do not hear the sounds of mosquitoes

A Malaria Indicator Survey (MIS) is being implemented in 2021 and a KAP study is planned for CY 2022; these studies will provide more accurate information about ITN use behaviors.

Please refer to Section 3.4 for information on how SBC interventions will be directed to address the challenges identified above.

#### Key Question 4

What type of nets are being distributed via which channels?

#### Supporting Data

**Table A-3. Insecticide Treated Net (ITN) Distribution**

Level Nationwide/Region/ State/Province	Mass Campaign [April–May 2019]	ANC	EPI	School	Community
Nationwide	Pyrethroid	Pyrethroid	Pyrethroid	N/A	Pyrethroid

#### Key Question 5

What is the estimated need for ITNs during CY 2021–2023? How many, and what types, of ITNs will be procured, and by what partners? Through what channels will ITNs be distributed? Are there any projected ITN gaps?

## Supporting Data

Presently, the procured and distributed ITN type in Guinea for continuous distribution and mass campaign is standard single pyrethroid only ITNs.

Continuous distribution: The need for routine ITNs was calculated based on reported ITN consumption rates. However, disaggregation was not possible for children under one year of age and pregnant women. A buffer stock is included in the supply plan, with a minimum of 5 months and a maximum 10 months. In the FY 2020 MOP, it is mentioned that 282,485 PBO ITNs would be procured; this was special funding of \$1 million earmarked by the U.S. Congress to assist Guinea in combating insecticide resistance. However, instead of PBO nets, dual active ingredient (AI) nets will be procured by PMI in CY 2022. Approximately 265,251 ITNs will be procured (~\$3.77 per ITN). PMI is planning with the NMCP to conduct a pilot of these ITNs in Guinea. This distribution will consist of a targeted ITN distribution in a specific prefecture and distribution via continuous channels in that selected prefecture (see below “Conclusions for ITN Investments” for additional information). In the FY 2021 MOP, 250,000 standard ITNs will be procured by PMI, and in the FY 2022 MOP 719,211 standard ITNs will be procured also by PMI.

Mass campaign: For the mass campaign, a 20 percent buffer is included for PMI procurement of ITNs. In Guinea, a 20 percent buffer is being used based on the results of household registration during the 2019 campaign. The discrepancy between the census projections and registered households during the 2019 campaign was very high, so the NMCP decided to increase the buffer stock from 10 percent to 20 percent.

The mission and NMCP are having discussions to cover the transportation costs of 400,400 standard pyrethroid ITNs from the FY 2020 MOP for the CY 2022 campaign. These ITNs will be purchased by the AMF.

ITN Gap: For the mass campaign planned in CY 2022, Guinea still has a gap of almost 3 million ITNs. The Global Fund indicated the ITNs may be available through the new funding model-third cycle (NFM3), but could not guarantee availability of funding to procure the necessary number of ITNs to fill the gap. Currently, AMF and the MOH are having discussions to fill the gap in the ITN campaign. PMI is supporting the NMCP in the negotiations with AMF. A key consideration in these negotiations is that AMF could procure the 3 million ITNs for the campaign on the condition that Guinea digitizes the campaign in the areas where AMF-procured ITNs are distributed. PMI is planning to do a reprogramming of FY 2020 and FY 2021 funds to support the digitalization of the campaign to satisfy the conditions of AMF and facilitate their support to fill the ITN gap.

**Table A-4. ITN Gap Analysis Table**

Calendar Year	2021	2022	2023
Total country population	13,825,035	14,129,186	14,440,028
Total population at risk for malaria	13,825,035	14,129,186	14,440,028
PMI-targeted at-risk population	5,616,669	5,770,818	5,927,804
Population targeted for ITNs	13,825,035	14,129,186	14,440,028
<b>Continuous Distribution Needs</b>			
Channel 1: ANC	0	0	0
Channel 2: EPI	0	0	0
Channel 3: School	0	0	0
Channel 4: ANC+EPI	780,318	931,399	1,078,843
Additional ITNs required to avoid ITN stockouts	325,133	388,083	449,518
<i>Estimated Total Need for Continuous Channels</i>	1,105,451	1,319,482	1,528,361
<b>Mass Campaign Distribution Needs</b>			
Mass distribution campaigns	0	9,419,450	0
<i>Estimated Total Need for Campaigns</i>	0	9,419,450	0
<b>Total ITN Need: Continuous and Campaign</b>	<b>1,105,451</b>	<b>10,738,932</b>	<b>1,528,361</b>
<b>Partner Contributions</b>			
ITNs carried over from previous year	950,070	94,620	0
ITNs from Government	0	0	0
ITNs from Global Fund	0	6,629,400	609,150
ITNs from other donors: Against Malaria Foundation (AMF)	0	0	0
ITNs planned with PMI funding	250,000	250,000	719,211
<b>Total ITNs Contribution Per Calendar Year</b>	<b>1,200,070</b>	<b>6,974,020</b>	<b>1,328,361</b>
<b>Total ITN Surplus (Gap)</b>	<b>94,620</b>	<b>(3,764,912)</b>	<b>(200,000)</b>

Key Question 6

What is the current status of durability monitoring?

Supporting Data

**Table A-5. Timing of Durability Monitoring**

Campaign Date	Site	Brand	Baseline	12-month	24-month	36-month
April 27, 2019	Forécariah	Yorkool	January 2020	June 2020		
May 11, 2019	Koundara	PermaNet 2.0	January 2020	June 2020		

Monitoring is ongoing and conclusions will be presented at the end of the monitoring activity. It is anticipated that the final report, which will include 36 months of durability monitoring, will be finalized in the fourth quarter of 2022.

### Conclusions for ITN Investments

In this MOP (FY 2022), PMI's ITN investments will focus mainly on supporting continuous distribution and associated social and behavior change (SBC) in PMI zones. However, PMI will be looking to make improvements in ITN ownership, access, and usage.

The 2018 DHS survey suggested that there have been large declines in reported ITN ownership and ITN access and use since the previous survey in 2016. Reported ITN use in pregnant women and children has also decreased. PMI has taken steps to address gaps in access and usage by doing home visits in certain areas. These home visits have led to community distribution of ITNs and promotion of their use. While there is no major adjustment being made to procurement or SBC to address gaps in this MOP (FY 2022), PMI continues to adapt to the needs of Guinea and provide prioritized support when needed.

Nonetheless, a key investment, though not covered in this MOP (FY 2022), will be the digitalization of the mass ITN campaign. Digitalizing the mass campaign may fill a gap in the CY 2022 ITN campaign because it will support a requirement by AMF. While this activity is based on the necessity to fill an ITN gap, the activity will be helpful in tracking and mapping households that receive ITNs. This activity will be covered by reprogramming of FY 2020 and FY 2021 funds. This activity may improve access to ITNs.

Using U.S. congressional funding (\$1 million) allocated to PSM for procurement of next-generation ITNs in FY 2020, a pilot distribution of these ITNs (dual AI) will be conducted in CY 2022 [sites(s) to be determined] to evaluate their impact. A brief outline of the plan is as follows:

- One to two prefectures will be selected for both prefectural-wide distribution and continuous distribution at local ANC and EPI community-based channels using next-generation ITNs. A neighboring prefecture(s) [sites(s) to be determined], where standard ITNs will be distributed, will be selected and used as a comparison.
- The timing of the deployment of these ITNs in these sites will be as close as possible to the actual mass ITN distribution in FY 2022. If feasible, digitalization of this pilot campaign will also be done.
- SBC activities such as messaging and surveys, where feasible, will be done to assess and promote usage of the ITNs.
- Routine epidemiological surveillance and entomological monitoring will be used to evaluate the impact of the new ITNs.

The result of this pilot will be used to guide the future use of next generation ITNs in Guinea. The implication of this pilot distribution on the FY 2022 MOP is that ideally, continued evaluation of entomologic and epidemiologic impact after distribution of next-generation ITNs would occur for three consecutive years (CY 2022 to CY 2025) until the next mass ITN campaign in CY 2025, assuming Guinea maintains a three-year cycle for mass ITN distribution; therefore, funding would be needed to support CY 2023 monitoring. However, rather than having a separate line item for these activities, PMI Guinea will see if these activities can be supported under partner work plans and integrated under scopes of work.

Please see FY 2022 PMI budget tables for a detailed list of proposed activities with FY 2022 funding.

### 1.3. INDOOR RESIDUAL SPRAYING (IRS)

PMI does not engage in IRS in Guinea.

## 2. HUMAN HEALTH

### 2.1. CASE MANAGEMENT

#### NMCP Objective

The NMCP case management objective, according to the extended 2018–2023 National Malaria Strategic Plan, is to ensure correct and early management of at least 90 percent of malaria cases. This includes the laboratory diagnosis of all suspect cases identified and the effective and early treatment of cases in health facilities and at the community level.

#### NMCP Approach

With the COVID-19 pandemic and in collaboration with partners, NMCP revised the national guidelines for the fight against malaria in the context of COVID-19. This revised tool will serve as a reference document to guide the interventions of the implementing actors as well as the beneficiaries. The differential diagnosis between malaria and coronavirus disease is a major concern for providers because of the similarity of signs (e.g., fever, headache, muscle aches, etc.). Consequently, any patient received in health facilities or at the community level must be considered as both a suspected COVID-19 and a suspected malaria case. Thus, the guidelines recommend the systematic measurement of the temperature with a ThermoFlash thermometer, the respect of barrier measures, and the appropriate disinfection of materials and solid surfaces used during the diagnosis and treatment of malaria cases.

#### Diagnosis of Malaria

Any suspected malaria case seen at a health facility or by a community health worker (RECO) must be tested. Any suspected case confirmed biologically by microscopy or RDT is considered to be malaria. In the COVID-19 context, the risk of contamination is very high through contact between the provider and the patient when performing the RDT and microscopy. The guidelines recommend protective measures, namely routine use of masks, gloves, handwashing, and disinfection of equipment and solid surfaces when performing tests. All service providers (laboratory staff, nursing staff, and RECOs) must be trained in the techniques of performing microscopy and/or RDTs with their regular supervision to ensure the quality of the diagnosis.

The microscopy must be carried out at the level of health facilities with suitable equipment and qualified personnel in all reference facilities (national, regional and prefectural hospitals, private clinics, etc.), and gradually at the level of private, faith-based facilities. RDTs must be performed in all health structures (public, private, confessional) where microscopic examination is not available and at the community level. In referral hospitals, RDTs should be used in emergency services, during call duty, and when microscopy is not functional. A quality

assurance system must be put in place as part of the biological diagnosis of malaria (microscopy, RDT). It should make it possible to standardize laboratory procedures in general (laboratory network) and to harmonize the techniques for carrying out microscopy and RDTs. Quality controls of the biological diagnosis of malaria, internal and external, must be carried out regularly at the health facility level under the supervision of the NMCP and in close collaboration with reference structures (national reference laboratories, universities, and WHO reference laboratories).

## **Malaria Treatment**

Artemisinin-based combination therapies (ACTs) were introduced into national policy in 2005. This policy recommended the use of artesunate-amodiaquine (ASAQ) as a first-line treatment for uncomplicated malaria and artemether + lumefantrine (AL) as second-line treatment in the event of treatment failure or intolerance to ASAQ. In 2017, with the advent of seasonal malaria chemoprevention (SMC) in children 3 to 59 months of age, ASAQ was withdrawn from the national protocol and first-line uncomplicated malaria treatment is provided with AL. To date, AL is the only drug used for uncomplicated malaria treatment in Guinea. The risk of misuse of this medication, or of prescribing other drugs that are not recommended, is high and could affect the effectiveness of the treatment of malaria in the long term. To preserve AL effectiveness in the management of uncomplicated malaria, and to improve the preferred treatment for severe malaria cases occurring in children and adults, NMCP is considering the introduction of pyronaridine-artesunate (Pyramax). This medication has been included in the protocol for malaria case management in health facilities. Currently NMCP plans to pilot use of Pyramax in Siguiri with support from Medicines for Malaria Venture, but there are no current plans to procure Pyramax outside of this pilot.

**Treatment of uncomplicated malaria:** Any case of uncomplicated *Plasmodium falciparum* malaria should receive antimalarial treatment with oral ACT. This treatment must be carried out at the level of all public, denominational, associative, private, and community health facilities. Patients evaluated for uncomplicated malaria will be monitored and all the protective measures listed above will apply during consultation. However, if after 48 hours of correct treatment the fever does not decrease, other causes of fever will be sought and patients referred to specialized centers for further workup and COVID-19 testing.

**Treatment of severe malaria:** Any case of severe malaria should be treated with antimalarial medication consisting of artemisinin derivatives or parenteral quinine salts. As soon as the oral route is possible, the treatment should be done with ACTs. The management of severe malaria must be carried out in health facilities with capacities for adequate treatment. Patients hospitalized for severe malaria will be monitored and all the standard protective measures listed will be applied to them. If after 48 hours of correct treatment the fever does not decrease, look for other causes of fever and refer patients for appropriate care.

**Treatment of malaria in pregnant women:** Any case of *uncomplicated* malaria in pregnant women should be treated with oral quinine during the first trimester of pregnancy, and oral ACTs during the second and third trimesters. Any case of *severe* malaria in pregnant women should be treated with parenteral quinine during the first trimester of pregnancy, and artemisinin derivatives or parenteral quinine salts in the second and third trimesters. Pregnant women hospitalized for severe malaria will be monitored and all the protective measures listed above will be applied to them. If after 48 hours of correct treatment the fever does not decrease, look for other causes of fever and refer the patients to a higher level of care.

**Pre-referral treatment for severe malaria:** All cases of severe malaria seen in a health facility without adequate management capacity should benefit from specific pre-transfer treatment with artemisinin derivatives intramuscularly or as a suppository before being referred. Children between six months and six years of age seen at the community level (RECOs trained on malaria) should benefit from specific pre-transfer treatment with artemisinin derivatives in suppository before being referred to the nearest health facility. The guidelines recommend compliance with barrier measures (gloves, mask, handwashing) during this pre-transfer treatment both in health facilities and at the community level.

Guinea has four fixed sentinel sites for therapeutic efficacy monitoring throughout the country: Maferinyah, Labe, Dabola, and Nzerekore. The most recent therapeutic efficacy study (TES) with PCR-corrected results available was conducted in 2016 and showed that ASAQ and AL were still effective and safe in the treatment of uncomplicated malaria caused by *Plasmodium falciparum* in children 6 to 59 months of age in the Maferinyah and Labe sentinel sites. Although PCR analysis is ongoing for the 2017–2019 studies, uncorrected efficacy was above 90 percent for all arms.

At the health facility level, NMCP will continue to build providers' capacities at all levels, equip laboratories with microscopes and reagents, and perform regular monitoring of the execution of activities. Emphasis will be placed on the extension of case finding through the integration of 961 health posts, 60 military health structures, 50 school and university infirmaries, and 50 structures (private, confessional, and associative [small clinics often supported by religious organizations]) into the formal health system. These structures will be strengthened in terms of training, supply of antimalarial commodities (RDT, ACT), post-training follow-up, and supervision. To improve the quality of provider training, the training of a pool of high-level trainers from university hospital centers and hospitals (pediatricians, gynecologists, and general practitioners) will be organized. To this end, 160 managers will be trained by level (17 from the central level and 143 from the regional level) on the fight against malaria. Specific strategies will be implemented to improve the quality of treatment case load at the hospital level. They will focus on:

- Advocacy with hospital officials for adherence to national guidelines for case management and reporting in DHIS2
- Capacity-building for hospital providers (post-training follow-up, coaching, supervision, scientific days)
- Close monitoring of activities, through monitoring and supervision
- The regular supply of antimalarial commodities to avoid stockouts and overstocks, along with training and supervision for improved monthly stock management

Collaboration with other services and MOH programs involved in case management (e.g., Integrated Management of the Disease of the Newborn and the Child, Direction of Healthcare Establishments, Direction of Pharmacy and Medicines, and Laboratory Management) will be improved through their involvement in developing normative documents, capacity-building of service providers, monitoring activities, and supervising providers. Actions will be taken to consider the directives on the fight against malaria in the training curricula as well as in the research programs of universities, health schools and research institutions.

In view of the weakness of the health system, the extended 2018–2023 NMCP strategic plan will focus particularly on improving the management of malaria at the community level. This will occur through the strengthening of home case management by collaboration with the relevant programs and institutions (National

Community Health Direction, National Family Health and Nutrition Direction, etc.). To this end, the following actions will be taken:

- Increase the number of RECOs from 10 per health center to 20 for malaria management, prevention and sensitization
- Ensure payment of RECOs at government-established rates (to be paid by government or partners)
- Ensure regular supply of drugs and other commodities to RECOs
- Build capacity of community health workers through training, monitoring, post-training, supervision, and supply of materials and equipment
- Strengthen the monitoring of community activities by the health centers in collaboration with NGOs and community-based organizations

## PMI Objective in Support of NMCP

PMI supports the country's malaria case management strategy by procuring essential prevention, diagnostic, and treatment commodities. PMI also provides training and supportive supervision for cadres of health workers, including lab technicians, facility-based health workers, ANC providers, and community health workers. PMI supports a microscopy quality assurance program and therapeutic efficacy studies to monitor antimalarial resistance. At the central level, PMI supports the case management TWG. This group holds regular meetings to strengthen capacity in commodities quantification, regulatory capacity, and logistics management by supply chain partners, focusing on the peripheral levels.

## PMI-Supported Recent Progress During Calendar Year 2020

In CY 2020, PMI supported activities with the below results:

- PMI trained 70 laboratory technicians on malaria diagnosis (microscopy and RDT use).
- To assess the laboratories' performance, PMI, along with the national malaria control program, conducted quarterly supervision visits. These visits included testing technicians' diagnostic skills for reading slides. Malaria diagnosis supervision involved 543 contacts (including 251 women) covering 46 facilities. The average annual performance in parasite detection was 91 percent, parasite identification was 81 percent, and parasite quantification was 70 percent.
- PMI worked with the NMCP TWG and the National Directorate of Laboratories to update the standard operating procedures for laboratories to include the new preferred brand for RDTs (ParaHit test, Span Diagnostics Ltd., Surat, India). PMI printed and distributed the new standard operating procedures to participants and laboratories supported by the project.
- PMI worked with the *Direction Préfectorale de la Santé* (DPS) to train the heads of health facilities and their replacements on the new malaria prevention and treatment protocols in the COVID-19 context. A total of 309 providers benefited from these in 13 districts supported by PMI.
- In collaboration with the NMCP, PMI trained 460 health providers and 1,048 RECOs on malaria case management in the supported zones.
- Provided on-site training on malaria case management to 1,003 health providers.

- PMI also supported health centers to organize mobile clinics to improve access to malaria control services in areas with high incidence rates. As a result, the clinics tested an additional 5,359 people, among whom 1,919 were positive and 1,917 received treatment.
- Trained community health workers tested 287,978 patients for malaria and treated 126,532 positive patients with ACTs.
- Using FY 2019 funds, PMI procured 2,599,875 RDTs and 2,440,830 ACTs and distributed 974,240 RDTs and 1,724,455 ACTs through the health facilities.

Challenges related to malaria case management activities in Guinea include:

- Compliance of health providers to follow proper case management protocols in hospitals, municipality hospitals, private facilities, and some health posts.
- Delay in scaling up pre-referral treatment (injectable Artesunate) in health centers. NMCP recommends a dose of injectable artesunate for pre-transfer treatment in adults and children over six years of age.
- The payment of RECOs and the extension of the community health policy in the regions supported by PMI. With the implementation of the community health policy, the idea of guaranteed remuneration for community health workers improves the chances of the sustainability of their actions. This payment policy is supported by multiple partners in selected municipalities or communities, but in PMI-supported areas, few districts have been chosen. In PMI areas, RECOs receive travel costs but do not receive monthly salaries, which demotivates many community health workers. Further demotivation stems from restrictions impelled by the COVID-19 pandemic in that many in-person trainings have been cancelled.

## PMI-Supported Planned Investments Underway

With the substantial increase in the malaria allocation from \$58 million to \$72 million under the 2021–2023 Funding Cycle from the Global Fund, PMI and Global Fund undertook a holistic review of their areas of support, taking into consideration national priorities, funding, comparative advantages, and strategic long-term objectives for the National Malaria Control Program and each donor entity's corporate strategy. The operational collaboration framework will enable planning, budgeting, implementation, monitoring, and evaluation of the malaria response in Guinea during the coming three-year period. To decrease the risk of stockouts for malaria commodities due to procurement delays, PMI and Global Fund agreed that PMI would procure severe malaria products and laboratory commodities but no health products (e.g., RDTs, ACTs, and sulfadoxine-pyrimethamine + amodiaquine [SPAQ] for SMC). Global Fund will procure commodities for uncomplicated cases of malaria, but both are procuring nets for campaign and routine distribution.

In 2022, PMI will:

- *Procure injectable artesunate:* approximately 981,500 vials of injectable artesunate for use in public hospitals and Communal Medical Centers (CMC).
- *Procure other diagnostic related commodities:* microscope consumables (reagents, slides, and repair materials for previously purchased microscopes).
- *Support facility-based case management:* Supportive supervision of case management (inclusive of diagnosis by RDT, treatment) practices at all levels of the healthcare system, including public and private hospitals, health centers, health posts, and RECO in PMI zones using comprehensive malaria-specific

supervision tools. District Health Team staff and Regional Health Team staff will continue to be actively involved in supervision activities, along with Health Center staff for supervision of RECOs. At the district level, each supervision visit will target a hospital, a DPS, an urban health center, rural health centers, and private facilities. Supervision visits will include observation of patient consultations and feedback to providers. Refresher training in malaria case management (including in RDT use and malaria in pregnancy). This training will include new health facilities (public, para-public, and private). Training will be followed by post-training monitoring to ensure that competencies are being implemented.

- *Support community-based case management:* Operational/support costs for RECOs in PMI zone to support the community health strategy, including transport, data collection tools, and equipment (boots, gloves, and flashlights).
- *Provide national-level support for case management:* PMI will continue to 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. This will include refresher training on malaria microscopy, microscope maintenance, and regular supervision of microscopy performance in health facilities, including systematic review of a predetermined number of positive and negative blood smears collected in the health facility, as well use of the NMCP slide bank. Quality assurance and quality control for RDTs, based on observation and supportive supervision of health workers and RECOs, will take place during case management supervision as listed above.
- *Promote SBC for case management:* PMI will continue to support 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. The communication package includes case management at the health facility and community levels. PMI will support these activities in the PMI zones and other donors will support these activities elsewhere in line with the NMCP national communication strategy.
- *Conduct therapeutic efficacy study (TES) and monitor Guinea's first-line ACT (AL):* The TES takes place in four sites every two years (two sites in one year and the remaining two sites the following year). The FY 2022 funds are meant to cover monitoring activities (including testing of molecular markers of ACT resistance) in two sites as well as sulfadoxine-pyrimethamine (SP) resistance testing in the site that is in the SMC zone.

## Key Goal

Improve access to and use 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 provide quality, effective care.

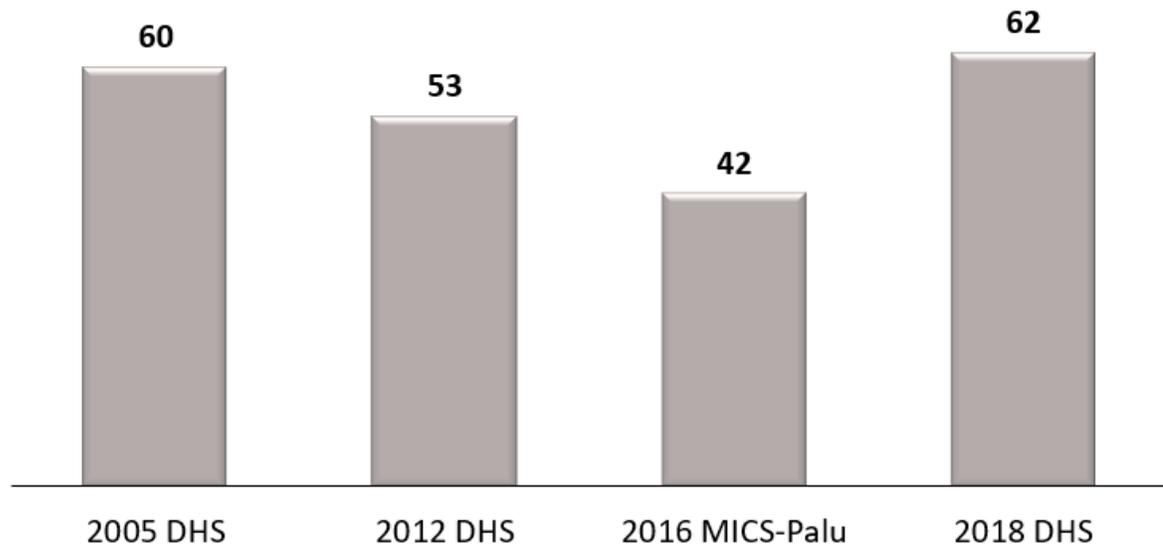
## Key Question 1a

What is the status of care-seeking and/or access to care for children under five years of age with fever?

## Supporting Data

### Figure A-9. Trends in care-seeking for fever

*Among children under five years of age with fever in the two weeks before the survey, percentage for whom advice or treatment was sought*



*\*Excludes treatment or advice from a traditional practitioner*

**Conclusion:** The MIS being conducted in 2021 will show care-seeking behaviors in the context of COVID-19, which are likely to include a reduction of health facility utilization. Care-seeking behavior reflected in household survey data showed slight variations between 2005 and 2018. Efforts must be focused to increase demand for case management services, improve the quality-of-service provision, and ensure commodity availability at service delivery points along with SBC activities to encourage prompt care-seeking.

## Key Question 1b

What significant structural and/or behavioral challenges affect prompt care-seeking?

## Supporting Data

The below structural and behavioral challenges affecting the prompt care-seeking for fever were described in the activity reports of our implementing partner:

- Difficulties in accessing health centers in some localities (distance), RECOs do not exist in all villages
- People do not know or realize all the consequences of malaria (economic consequences for example)
- The perception that the patient must always pay, so those who do not have money do not go into the health facility—this reflects a lack of patient and provider awareness or practice that malaria diagnosis and treatment are free in Guinea
- Minimization of fever symptoms
- Over-reliance on or misuse of traditional treatment

- Self-diagnosis and self-medication
- Women need permission from husbands to take children or go themselves for care or to health facilities
- General illiteracy and lack of health literacy

**Conclusion:** It is noted that distance to a health facility is one of the greatest barriers to care. Access is usually by foot or by bicycle across difficult terrain, which is made more problematic during the rainy season. Although some routes are navigable by bicycle or motorbike, hiring a motorbike for transport requires additional out-of-pocket expenditures. Therefore, most people walk (carrying their sick child) or prefer to start by consulting a traditional healer before going to a health center or consulting a RECO. This behavior should be targeted through messaging to encourage the population to consult a RECO when a child has a fever. Overall, case management SBC should focus on taking children under five years of age to a RECO within 24 to 48 hours of a fever. Encouraging families to utilize a RECO instead of a health facility could help to address the transportation barrier.

*Please refer to Section 3.4 for information on how SBC interventions will be directed to address the challenges identified above.*

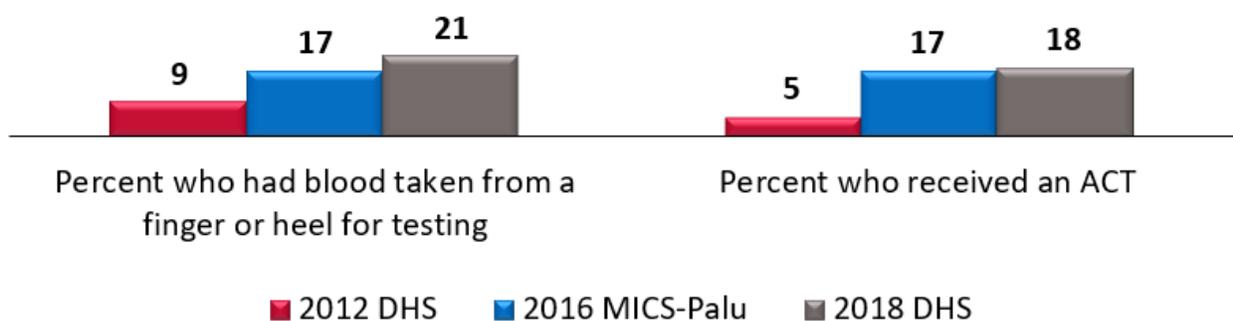
### Key Question 2a

What proportion of patients are being tested and appropriately treated for malaria?

### Supporting Data

**Figure A-10. Trends in diagnosis and treatment of children with fever**

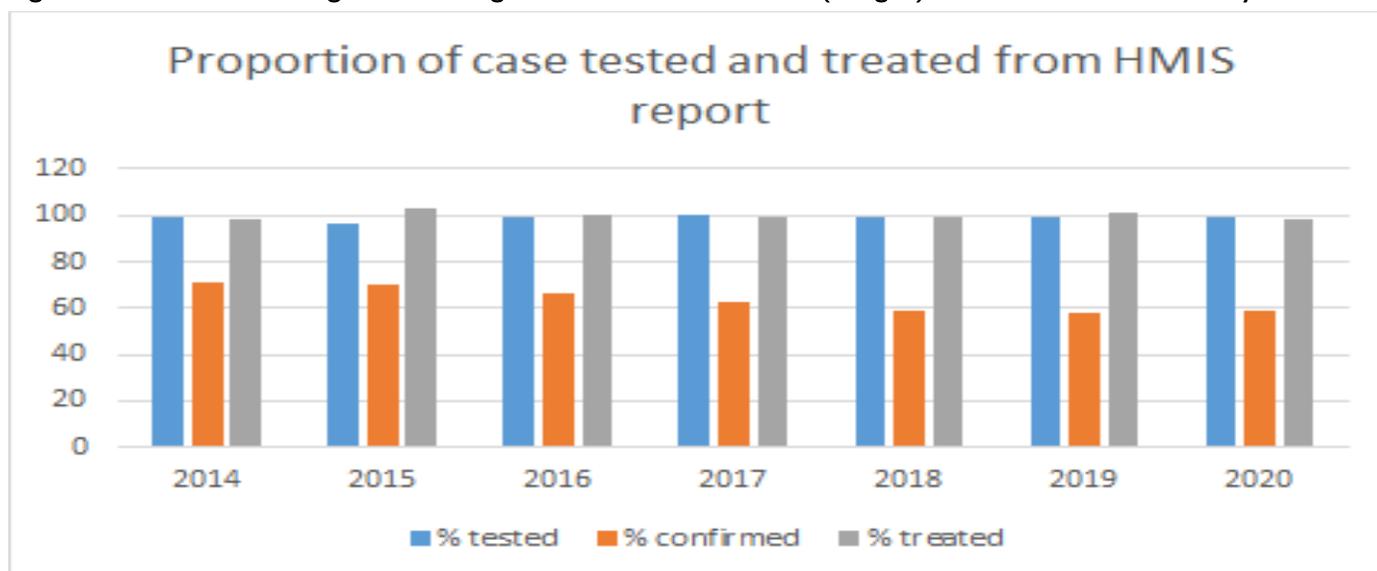
*Among children under five years of age with fever in the two weeks before the survey and with fever in the two weeks before the survey who received any antimalarial*



Among children who had a fever in the last two weeks before the interview and who took any antimalarial, 18 percent were treated with ACT. This percentage has increased substantially from only 5 percent in 2012, yet remains low. It should be noted, however, that a recall validation study in Mali among caregivers of febrile children under five years of age showed that responses to questions on antimalarial drug consumption in household surveys have low validity (among 1,602 caregivers, recall of ACT being given had a sensitivity of 43.2 percent and specificity 90.2 percent (<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.

**Figure A-1 I. Trends in diagnostic testing and treatment of malaria (all ages) from routine health facility data**



**Conclusion:** Routine data showed the improvements in diagnosis testing practices of febrile and treatment over time from 2014 to 2020 and the number of confirmed cases decreased; this can be explained by the prevention activities implemented by the NMCP with the support of partners. Despite this improvement, facility-based case management services still need to be strengthened. Targeted training complemented by supportive supervision and other innovations to improve health worker adherence to national case management policies is a priority for PMI support.

#### Key Question 2b

What significant structural and behavioral challenges affect testing and treatment practices among providers?

#### Supporting Data

- Health facilities in which behaviors 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, according to the 2018 data validation report.
- 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 percent of negative RDT tests were treated with ACT), according to implementing partner reports. A countrywide adherence study (Camara et al., 2016) found that 20.8 percent of patients were clinically diagnosed with uncomplicated malaria without a test.
- Supervision visits found poor RDT performance, especially among new staff members and interns who are performing tasks with no training on national guidelines and protocols.

- Availability of commodities: On the day of the 2015 Service Availability and Readiness Assessment (SARA) survey, only 67 percent of health facilities had ACT available and 79 percent had capacity to perform RDT or microscopy. The data verification report found high rates of stockouts of quinine tablets. The 2020 SARA survey showed that 95 percent of health facilities provided malaria diagnostics and treatment.

**Conclusion:** Malaria case management in Guinea is negatively affected by the unavailability of commodities and lack of training and guidelines for providers. Providers are sometimes providing ACT treatment even though the test is negative because of their lack of confidence in RDT results. While more research is needed on drivers of non-adherence and facilitators to adherence to norms and protocols, PMI is currently training providers on the use of PMI-procured *Pf*-only RDTs.

*Please refer to Section 3.4 for information on how SBC interventions will be directed to address the challenges identified above.*

### Key Question 3

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

### Supporting Data

**Figure A-12. PMI-supported districts**



Within PMI-supported prefectures, indicated in blue/gray in Figure A-12, the health infrastructure includes 1,800 RECOs, 502 health posts, 157 health centers, 22 hospitals, and 74 private health facilities. PMI supports malaria activities at all of these levels. Malaria program activities in the other prefectures are supported by the Global Fund.

**Health facilities:** In the current context of the ongoing COVID-19 pandemic, respect for the principle of universal protection is an essential element of malaria control. To protect health providers and patients, protection kits of soaps, bibs, gloves, ThermoFlash thermometers, hydroalcoholic or chlorinated solutions, seals with taps, and a biomedical waste management kit have been made available by the National Health Security Agency and are currently being used by providers and patients at health facilities.

Laboratory confirmation of all cases of fever (RDT or microscopy) is systematic in all health facilities and treatment is based on the national malaria control guidelines, including the use of ACTs for uncomplicated malaria and the severe malaria management protocol. If fever persists after 48 hours, patients are referred to an appropriate structure. A series of joint supervisions (MOH and partners) are organized at all levels. Movements from the central level to the operational level obey the measures decreed by the competent authorities.

**Community level:** RDTs are performed for all febrile patients and for those with a history of fever. Only confirmed cases of malaria are treated with the ACT recommended by the country. To minimize the risk of contamination, RECOs' protective measures are reinforced when performing these RDTs. RECOs are recommended to use one pair of gloves per patient and ensure their systematic destruction after each test. RECO and health workers are being provided with a prevention kit. This kit includes bleach, gloves, bibs, 72 percent soap, friction gel, and handwashing device. The RECOs should be oriented toward the preventive measures recommended by the MOH. If the RDT is negative, the likelihood of other febrile illnesses including COVID-19 is high. The RECOs are trained to refer the patient to the nearest health center for a more in-depth examination and adequate treatment in the case of a negative malaria test.

Community health workers carry out awareness-raising activities through regular home visits. These awareness-raising activities are based on communication media that has been developed and adapted to the context of the COVID-19 pandemic. Educational talks on malaria prevention in the context of the COVID-19 pandemic have been organized for communities through leaders of community-based organizations. The NMCP have made ThermoFlash thermometers available to RECOs to make the diagnosis of fever faster and more systematic during household visits and refer cases associating symptoms such as a cough and other signs of COVID-19.

Community-level malaria activities are covered by PMI in 13 districts plus the six communes of Conakry and by the Global Fund in the remaining 20 districts (see Figure A-12). While current malaria case management activities must be conducted with caution and a focus on IPC to prevent the spread of COVID-19, hopefully, the context will change in the next few years. With FY 2022 funding, PMI will continue to support community case management, 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 RDTs, in addition to continued support for the suite of case management activities to ensure adherence to all protocols.

## Key Question 4

What is the estimated need for RDTs during calendar years 2021–2023? Are there any projected RDT gaps based on anticipated partner contributions compared to estimated needs?

### Supporting Data

The Global Fund will procure RDTs to cover the need for the use in the health facilities and by RECOs per the PMI/Global Fund collaboration framework. No gaps are anticipated.

**Table A-6. RDT Gap Analysis Table**

Calendar Year	2021	2022	2023
Total country population	13,825,035	14,129,186	14,440,028
Population at risk for malaria	13,825,035	14,129,186	14,440,028
PMI-targeted at-risk population	5,616,669	5,770,818	5,927,804
<b>RDT Needs</b>			
Total number of projected fever cases	3,853,114	3,964,703	4,076,293
Percent of fever cases tested with an RDT	100%	100%	100%
<b>RDT Needs (tests)</b>	<b>3,853,114</b>	<b>3,964,703</b>	<b>4,076,293</b>
<i>Needs Estimated based on Consumption Data</i>			
<b>Partner Contributions (tests)</b>			
RDTs from Government	0	0	0
RDTs from Global Fund	3,736,700	3,336,750	6,194,250
RDTs from other donors	0	0	0
RDTs planned with PMI funding	397,200	0	0
<b>Total RDT Contributions per Calendar Year</b>	<b>4,133,900</b>	<b>3,336,750</b>	<b>6,194,250</b>
<b>Stock Balance (tests)</b>			
Beginning Balance	3,958,111	4,238,897	3,610,944
- Product Need	3,853,114	3,964,703	4,076,293
+ Total Contributions (received/expected)	4,133,900	3,336,750	6,194,250
Ending Balance	4,238,897	3,610,944	5,728,901
Desired End of Year Stock (months of stock)	14	14	14
Desired End of Year Stock (quantities)	4,495,300	4,625,487	4,755,675
<b>Total Surplus (Gap)</b>	<b>(256,403)</b>	<b>(1,014,543)</b>	<b>973,226</b>

## Key Question 5

What is the estimated need for ACTs during calendar years 2021–2023? Are there any projected ACT gaps?

### Supporting Data

The Global Fund will procure ACTs to cover the needs for the use in the health facilities per the USAID/Guinea collaboration framework. No gaps are anticipated.

**Table A-7. ACT Gap Analysis Table**

Calendar Year	2021	2022	2023
Total country population	13,825,035	14,129,186	14,440,028
Population at risk for malaria	13,825,035	14,129,186	14,440,028
PMI-targeted at-risk population	5,616,669	5,770,818	5,927,804
<b>ACT Needs</b>			
Total projected number of malaria cases	2,430,517	2,489,982	2,506,135
<b>Total ACT Needs (treatments)</b>	<b>2,430,517</b>	<b>2,489,982</b>	<b>2,506,135</b>
<i>Needs Estimated based on HMIS Data</i>			
<b>Partner Contributions (treatments)</b>			
ACTs from Government	0	0	0
ACTs from Global Fund	2,360,160	2,744,340	992,880
ACTs from other donors <i>[specify donor]</i>	0	0	0
ACTs planned with PMI funding	569,010	0	0
<b>Total ACTs Contributions per Calendar Year</b>	<b>2,929,170</b>	<b>2,744,340</b>	<b>992,880</b>
<b>Stock Balance (treatments)</b>			
Beginning Balance	2,123,238	2,621,891	2,876,249
- Product Need	2,430,517	2,489,982	2,506,135
+ Total Contributions (received/expected)	2,929,170	2,744,340	992,880
Ending Balance	2,621,891	2,876,249	1,362,994
Desired End of Year Stock (months of stock)	14	14	14
Desired End of Year Stock (quantities)	2,835,603	2,904,979	2,923,824
<b>Total Surplus (Gap)</b>	<b>(213,712)</b>	<b>(28,730)</b>	<b>(1,560,830)</b>

### Key Question 6

What is the estimated need for definitive treatment and pre-referral treatment for severe malaria during calendar years 2021–2023? Are there any anticipated gaps?

### Supporting Data

For CY 2023, PMI will procure 751,735 doses of injectable artesunate for the use in the health facilities and PMI will procure 25,866 artesunate suppositories for the use in the communities per the PMI/Global Fund collaboration framework agreement.

**Table A-8. Inj. Artesunate Gap Analysis Table**

Calendar Year	2021	2022	2023
<b>Injectable Artesunate Needs</b>			
Projected number of severe cases	160,936	139,974	115,820
Projected number of severe cases among children	65,517	56,983	47,150
Average number of vials required for severe cases among children	3	3	3
Projected number of severe cases among adults	95,419	82,991	68,670
Average number of vials required for severe cases among adults	9	9	9
<b>Total Injectable Artesunate Needs (vials)</b>	<b>1,018,113</b>	<b>893,440</b>	<b>751,735</b>
<i>Needs Estimated based on HMIS Data</i>			
<b>Partner Contributions (vials)</b>			
Injectable artesunate from Government	0	0	0
Injectable artesunate from Global Fund	0	0	0
Injectable artesunate from other donors [specify donor]	0	0	0
Injectable artesunate planned with PMI funding	1,253,800	981,500	751,735
<b>Total Injectable Artesunate Contributions per Calendar Year</b>	<b>1,253,800</b>	<b>981,500</b>	<b>751,735</b>
<b>Stock Balance (vials)</b>			
Beginning Balance	332,830	568,517	656,577
- Product Need	1,018,113	893,440	751,735
+ Total Contributions (received/expected)	1,253,800	981,500	751,735
Ending Balance	568,517	656,577	656,577
Desired End of Year Stock (months of stock)	14	14	14
Desired End of Year Stock (quantities)	1,187,799	1,042,347	877,024
<b>Total Surplus (Gap)</b>	<b>(619,282)</b>	<b>(385,770)</b>	<b>(220,447)</b>

**Table A-9. RAS Gap Analysis Table**

Calendar Year	2021	2022	2023
<b>Artesunate Suppository Needs</b>			
Number of severe cases expected to require pre-referral dose	11,283	10,953	10,496
<b>Total Artesunate Suppository Needs (suppositories)</b>	<b>18,916</b>	<b>34,481</b>	<b>30,168</b>
<i>Needs Estimated based on Other (please specify in comment section)</i>			
<b>Partner Contributions (suppositories)</b>			
Artesunate suppositories from Government	0	0	0
Artesunate suppositories from Global Fund	0	0	0
Artesunate suppositories from other donors	0	0	0
Artesunate suppositories planned with PMI funding	80,772	0	25,866
<b>Total Artesunate Suppositories Available</b>	<b>80,772</b>	<b>0</b>	<b>25,866</b>
<b>Stock Balance (suppositories)</b>			
Beginning Balance	0	61,856	27,375
- Product Need	18,916	34,481	30,168
+ Total Contributions (received/expected)	80,772	0	25,866
Ending Balance	61,856	27,375	23,073
Desired End of Year Stock (months of stock)	10	10	10
Desired End of Year Stock (quantities)	15,763	28,734	25,140
<b>Total Surplus (Gap)</b>	<b>46,093</b>	<b>(1,359)</b>	<b>(2,067)</b>

### Key Question 7

What is the estimated need for any other standard antimalarial drug used in the country (e.g., primaquine for *P. vivax*) during calendar years 2021–2023? Are there any anticipated gaps?

### Supporting Data

NMCP has introduced Pyramax and plans to pilot in Siguiiri with support from Medicines for Malaria Venture but there are no current plans to procure Pyramax outside of this pilot.

### Key Question 8

Are first-line ACTs effective and monitored regularly?

### Supporting Data

**Table A-10. Recently completed and ongoing antimalarial therapeutic efficacy studies**

Year	Sites	PMI Funded Y/N	Treatment Arms	PCR-Corrected ACPR>90%	Location Molecular Resistance Work Completed or Planned
2016	Maferinyah and Labé	Y	ASAQ/AL	Corrected efficacy >90% in all arms	Completed through PARMA-Atlanta
2017	Dabola and Nzerekore	Y	ASAQ/AL	Pending, but uncorrected efficacy >90% in all arms	In progress through PARMA-Atlanta
2018	Maferinyah and Labé	Y	ASAQ/AL	Pending, but uncorrected efficacy >90% in all arms	In progress through PARMA-Atlanta
2019	Dabola and Nzerekore	Y	ASAQ/AL	Pending, but uncorrected efficacy >90% in all arms	In progress through PARMA-Atlanta
2020–2021*	Maferinyah and Labé	Y	AL**	Data collection ongoing	Data collection ongoing. Molecular work planned either through PARMA-Atlanta or PARMA-Senegal

ACPR: adequate clinical and parasitological response; AL: artemether-lumefantrine; ASAQ: amodiaquine-artesunate; PARMA: PMI-supported Antimalarial Resistance Monitoring in Africa

\*Due to COVID-19 delays, the Labe site began study enrollment during the dry season 2021, which resulted in low case finding. The decision was made to enroll only in Forecariah until the rainy season, which would allow sufficient enrollment in Labe.

\*\*Due to COVID-19-induced shipping delays in 2020, ASAQ was unavailable for use, therefore, only AL was initially included in 2020–2021. There are ongoing discussions for either adding back ASAQ or another ACT such as pyronaridine-artesunate.

### Key Question 9

Are there other areas (e.g., lab strengthening, private sector support, etc.) that should be considered for PMI support?

### Supporting Data

N/A

### Conclusions for Case Management Investments

NMCP has revised the National case management protocol to adapt it to the COVID-19 context and the introduction of Pyramax as the second first-line treatment for uncomplicated malaria. PMI will continue to support national quality control laboratories through hands-on training and technical assistance to improve laboratory standards and compliance with internationally recognized standards. PMI will support continuous capacity-building of providers in the biological diagnosis of malaria to reinforce the knowledge and competencies of health providers in health facilities to provide malaria prevention, diagnosis, and treatment services according to national protocols and guidelines.

Please see FY 2022 PMI budget tables for a detailed list of proposed activities with FY 2022 funding.

## 2.2. DRUG-BASED PREVENTION

### NMCP Objective

The revised NMCP national strategic plan articulates a 2023 target of at least 60 percent of pregnant women receiving at least three SP doses (IPTp3) to prevent malaria throughout their pregnancy. The national strategy also articulates at least 90 percent of children 3 to 59 months of age in areas targeted receiving malaria seasonal chemoprevention drugs to prevent malaria in the period of high transmission.

### NMCP Approach

The revised NMCP Strategic Plan 2018–2023 places a particular emphasis on improving the coverage rate of IPTp. The plan continues to follow standard WHO recommended practices for the prevention of malaria in pregnancy (MIP) including the administration of IPTp with 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 revised 2018–2023 strategic plan, an SMC campaign is organized each year. These campaigns will cover health districts eligible for SMC according to the WHO criteria (malaria transmission and the majority of clinical malaria cases occur during a short period of about four months, the clinical attack rate of malaria is greater than 0.1 attack per transmission season in the target age group, and AQ+SP remains efficacious with >90 percent efficacy).<sup>7</sup> 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 areas already covered by SMC to assess the possible eligibility of new districts as well as the extension of the strategy to the group 5 to 10 years of age. Guinea began implementing SMC in 2015 in six health districts 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 districts has gradually been expanded and is currently implemented in eight PMI-supported districts. The activity comprises four rounds of distribution of amodiaquine and sulfadoxine-pyrimethamine (AQ+SP) to all children 3 to 59 months of age. 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

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<sup>7</sup> [https://www.who.int/malaria/publications/atoz/smc\\_policy\\_recommendation\\_en\\_032012.pdf](https://www.who.int/malaria/publications/atoz/smc_policy_recommendation_en_032012.pdf)

door-to-door by the RECOs attached to the health center in the targeted districts. Administrative coverage data and the Global Fund funded post-campaign household surveys provide monitoring data for campaign coverage.

With the COVID-19 pandemic, NMCP has provided the following suggested mitigation measures during the SMC campaign:

- Organize meetings of no more than 20 participants during advocacy, micro-planning, and training meetings
- As much as possible, use the same staff as in previous campaigns (RECOs trained) to reduce the implementation time of activities and the risk of contamination
- Strengthen prevention measures during the SMC campaign (gloves, masks, hand sanitizer) for central supervisors
- Sensitize decision-makers on the importance of SMC in the COVID-19 context (advocacy, radio spots, religious leaders)
- Reactivate SMC community committees for the coordination and facilitation of outreach activities
- Make an inventory of the stocks of drugs available and usable for SMC in the health centers and deploy them as needed
- Transfer skills and empower regional, district, health center, and RECO staffing levels
- Update macro-plan and micro-plan based on the COVID-19 context and in accordance with WHO guidelines

The impact of SMC is assessed through analysis of trends of malaria cases reported by health facilities in target districts, compared to previous years and neighboring districts.

## PMI Objective in Support of NMCP

PMI works with the NMCP and partners to achieve progress toward 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 seven districts in northern Guinea. 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 monitoring and evaluation (M&E) activities to evaluate the continued impact of SMC. With climate-related changes in malaria transmission it is possible that more districts 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

- PMI distributed 3,762,000 SP tablets for use in intermittent preventive treatment of malaria in pregnancy (IPTp).
- To increase the uptake of IPTp, PMI worked with the NMCP to train 460 health providers on integrated malaria control activities, including IPTp, and provided refresher training for 1,048 community health workers.

- To improve eligible women's access to ANC services and IPTp, PMI also supported outreach activities, resulting in an additional 467 women living in hard-to-reach areas who received SP doses. In FY 2020, the IPTp coverage rate in supported regions increased from 62 percent in the first quarter to 78 percent in the fourth quarter.
- As part of strengthening the capacity of providers to prevent and treat malaria during pregnancy, a series of on-site training for ANC providers was carried out in health centers in the regions of the supported regions. These facilities were identified during supervision visits as needing improvement in filling out ANC registers and collecting data to monitor IPTp uptake for pregnant women. To implement this activity, PMI developed a job aid for the on-site training and oriented the identified malaria focal points on using this tool. The objective of this training was to empower the focal points to conduct on-site training for ANC providers in their commune/district and ensure ANC registers were updated through supervision in collaboration with field agents.
- To improve supervision of providers and tracking of pregnant women, PMI conducted several supervision activities targeting ANC services and IPTp provision. PMI conducted a supervision visit to health facilities, targeting ANC services to assess the quality of IPTp services and to help correct issues in the ANC forms. During this activity, the teams also identified overdue ANC forms by month and by locality and wrote a list of these pregnant women. The list was given to the RECOs covering these localities so they could ask these women to come to the health centers for their ANC visit. The team called the women who had their phone number on the ANC form, and this strategy helped to reach several pregnant women who missed their appointments. A total of 1,291 ANC forms were updated in the various health centers and health posts of the region, to the great benefit of pregnant women.
- To promote ANC and IPTp services, PMI implemented several SBC activities. PMI supported community action group members to organize several community dialogues to promote the use of malaria products and services, including IPTp. Through NGO facilitators, PMI conducted group discussions with women working at sewing and hairdressing salons. PMI also worked with the SBC communication TWG to develop posters to promote IPTp uptake in the COVID-19 context.
- During FY 2020, to increase IPTp uptake, PMI supported refresher training for ANC staff members, health workers, and RECOs, and conducted several supervision activities to assess service quality and continue to build their capacity. Many on-site training of ANC staff on data collection tools were conducted to improve the data quality sent to the central level from the health facilities. PMI helped to monitor provider provision of IPTp and supported health facilities with the lowest IPTp coverage in developing strategies to reach pregnant women who did not come to their ANC visits.
- In the effort to improve the implementation of the 2016 WHO ANC guidance, PMI supported alternative approaches as outreach services at the community level to provide health services such as IPTp and EPI to eligible patients, test all cases of fever, treat positive simple malaria cases, and refer negative or severe cases to the necessary higher health facility.
- During Quarter 1, PMI's implementing partner supported the health centers of Bintimodia, Sangarédi, and Tanènè to conduct outreach activities.
- During Quarter 2, the health centers of Dabiss (Boké), Koba (Boffa), and Lombonna (Labé) and the health posts of Kitto, M'bendia (Boké), and Serima (Labé) were supported.
- During Quarter 3, PMI supported outreach activities in the regions of Kindia and Boké.

- In the region of Kindia, based on the low IPTp-3 coverage rates observed in the health centers of Bady, Tondon, Benty, and Kaback, the StopPalu+ project team supported these health facilities to organize outreach services.
- In the region of Boké, the project team supported these activities in 10 health centers (Sangarédi, Kolaboui, Sansalé, Boffa urban center, Coliah, Tounnifily, Tormelin, Baguinet, Banguigny, and Youkounkoun) in the prefectures of Boké, Boffa, Fria, and Koundara.
- During Quarter 4, the health centers of Ouassou, Ansoumania, Moussayah, Allassoyah, and Wonkifong were supported.

Unfortunately, we don't have the number of pregnant women in these areas. Below are the results of outreach activities last year:

Quarter	Pregnant women who received ANC	Pregnant women who received SP	Pregnant women who receive an ITN	Pregnant women vaccinated	Total children vaccinated
Quarter 1	12	12	8	0	0
Quarter 2 <sup>1</sup>	70	70	N/A	N/A	328
Quarter 3	209	197	648	105	449
Quarter 4	130	124	192	112	428
Total	421	403	848	220	1,205

*<sup>1</sup>During Q2 ITNs and vaccines for pregnant women were not available during the outreach activities at the community level.*

- PMI supported the NMCP to organize four rounds of SMC in seven districts and conducted micro-planning to estimate the number of drugs, distributors, social mobilizers, supervisors, data collection tools, and SBC communication tools needed per district.
- To implement the campaign, PMI trained trainers and supervisors, distributors, and community mobilizers; produced communication materials and data management tools; and transported the materials to districts.
- PMI trained 3,212 people on SMC procedures and reached 325,992 children 3 to 59 months of age for each round. Community health workers trained by the project tested 14,425 febrile people for malaria and treated 6,884 people during SMC.
- PMI procured 1,755,700 SPAQ co-blisters and distributed approximately 1,755,700 SPAQ to support SMC implementation in the targeted districts

## PMI-Supported Planned Investments Underway

According to the collaboration framework between USAID/PMI and Global Fund, PMI will not procure SP and SPAQ but will do the following:

1. Provide training/refresher training for midwives and nurses covering the PMI zones; provide refresher training for approximately 587 public and private health facility midwives and nurses (approximately 36 percent of total midwives and nurses) to correctly deliver SP and broader MIP services in the context of the focused antenatal care approach. Refresher training will be provided as part of overall refresher training for service providers in health centers and health posts.
2. Support SBC activities targeting uptake of MIP interventions including use of ITNs by pregnant women, early ANC attendance and adherence to WHO-recommended IPTp schedule, and prompt and effective diagnosis and treatment of malaria cases in pregnant women.
3. Implement all SMC activities from macro- and micro-planning to monthly distribution of drugs and all related SBC activities.

Please see FY 2022 MOP budget tables for a detailed list of proposed activities with FY 2022 funding.

### 2.2.1. MALARIA IN PREGNANCY (MIP)

#### Key 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.

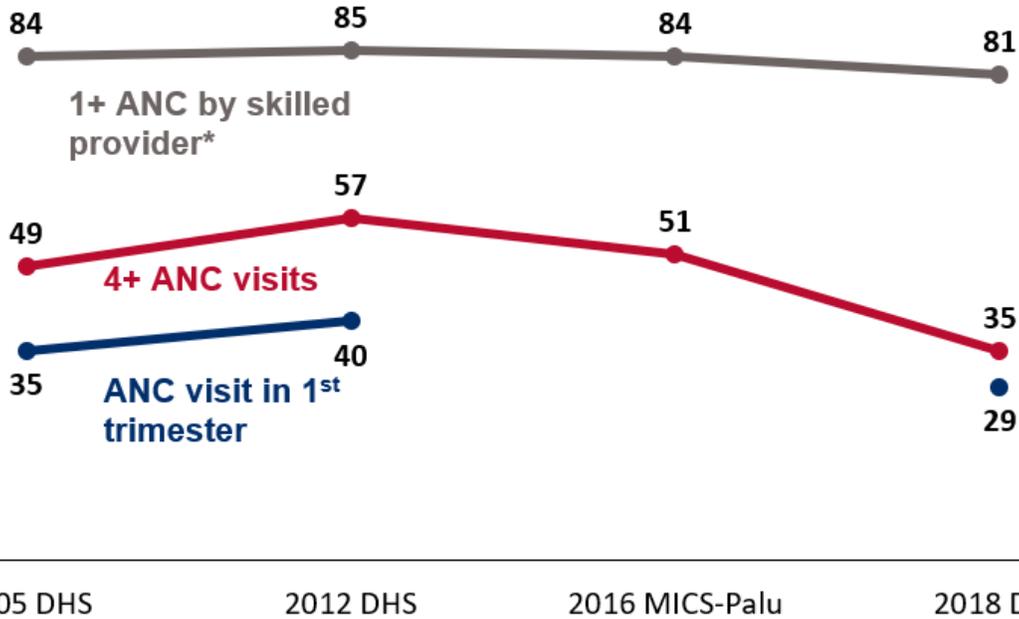
#### Key Question 1a

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

Supporting Data

**Figure A-13. Trends in ANC coverage**

*Women 15 to 49 years of age with a live birth in the five years before the survey (most recent birth)*



*\*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 attending four ANC visits is problematic and signals a need for increased collaboration with the Reproductive Health unit.

Key Question 1b

Are there important health systems and/or behavioral barriers to ANC attendance at health facilities?

Supporting Data

Based on our implementing partners' activity reports, the data on barriers to early ANC attendance are:

- Access to health centers (distance, transportation costs, perception of need to pay for care, etc.)
- The need to have permission from spouses or family in law to go to a health facility
- Inadequate counseling during ANC visits to encourage women to respect their ANC appointments
- Pregnant women tend to neglect and forget the appointment dates for the ANC visits

- Women's poverty and illiteracy

In addition:

- The proportion of women who receive prenatal care from a qualified provider decreases when women advance in age (MICS 2016)
- Poor social norms: If the women do not think most women are going to ANC, they will be less likely to attend themselves—only 46 percent of women estimate that most women in their communities have at least four pregnancy visits by a health professional and 25 percent of them think that all women in their communities have at least these four pregnancy visits (KAP 2018)
- The COVID-19 pandemic has resulted in a drop in attendance by pregnant women; some may be afraid of catching the virus, while others are confused about how to proceed during a pandemic

**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. Please refer to Section 3.4 for information on how SBC interventions will be directed to address the challenges identified above.

#### Key Question 2

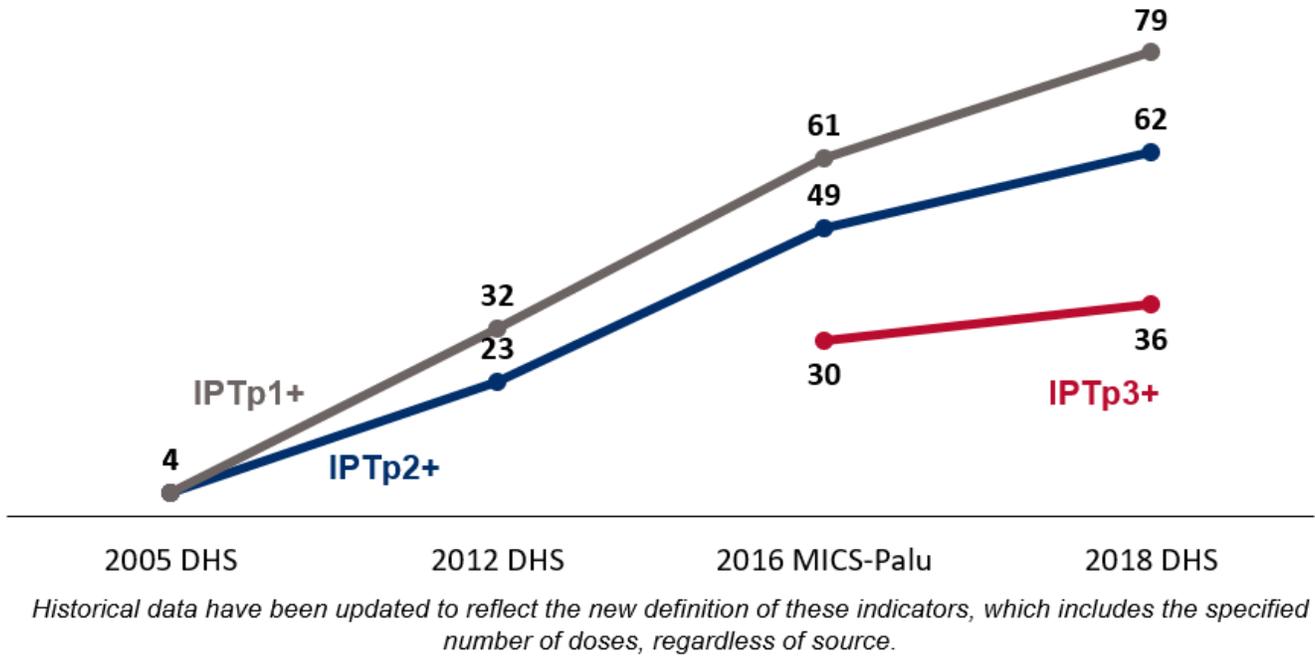
What proportion of pregnant women are receiving the recommended doses of IPTp?

Supporting Data

**Figure A-14. Trends in IPTp**

*Women 15 to 49 years of age with a live birth in the two years before the survey who received the specified number of doses of SP/Fansidar during their last pregnancy*

Note: IPTp3 baseline uses the first survey available after the recommendation was updated to three or more doses



**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 promoting ANC visits to women and their families, including IPTp, and will support provider training on technical skills, improved supervision of providers, and tracking of pregnant women.

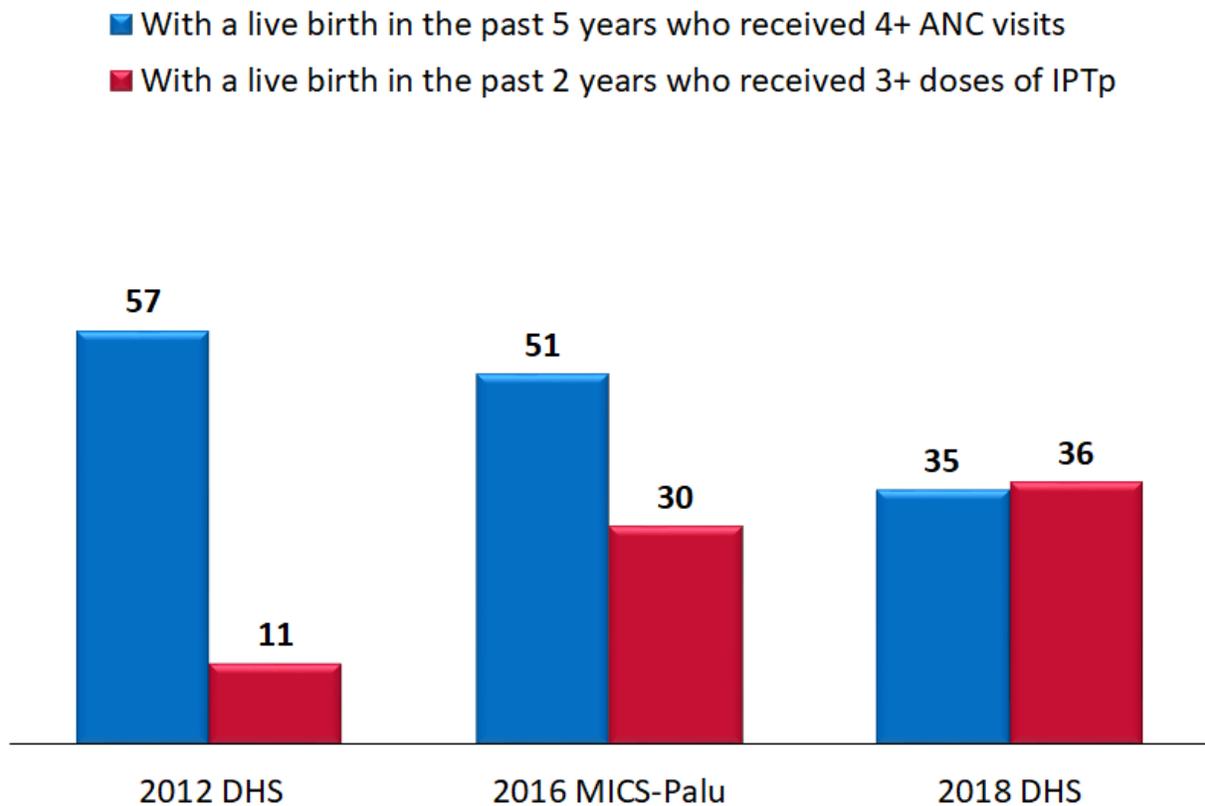
Key Question 3a

What is the gap between ANC attendance and IPTp uptake (i.e., missed opportunities for giving IPTp at ANC)?

## Supporting Data

**Figure A-15. Trends in missed opportunities for IPTp**

*Percentage of women 15 to 49 years of age*



**Conclusion:** 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.

## Key Question 3b

What significant health system and/or behavioral challenges affect provider delivery of MIP services (e.g., IPTp and ITN distribution at ANC)?

## Supporting Data

- Inadequate completion of management tools such as the IPTp monitoring register (e.g., completing the date a pregnant woman takes an SP dose)
- Refusal of some pregnant women to accept their routine ITNs because they have enough at home
- Lack of wall posters, textbooks, and picture boxes in several health facilities

- Insufficient ANC provider inquiry of a patient's awareness of sulfonamide allergy prior to administration of SP
- Inadequate availability of training health providers and malaria commodities (SARA survey 2020). Eighty-one percent of improved health centers, health centers, and medical centers have a very good operational capacity for the fight against malaria. The availability of tracer elements in these structures varies between 64 percent (agent trained in IPT) and 86 percent (insecticide-impregnated mosquito nets). The other types of establishment are insufficiently prepared for the fight against malaria due to operational capacity scores ranging between 33 percent for national hospitals and 49 percent for health posts, nursing practices, and dispensaries. Indeed, these care structures are very poorly provided with guidelines on the diagnosis and treatment of malaria, guidelines for IPT, and personnel trained in IPT. National hospitals do not have insecticide-treated mosquito nets, and only 7 percent of regional hospitals and polyclinics have them. This score is 15 percent for prefectural hospitals, communal medical centers, and clinics and 36 percent for health posts, nursing practices, and dispensaries.

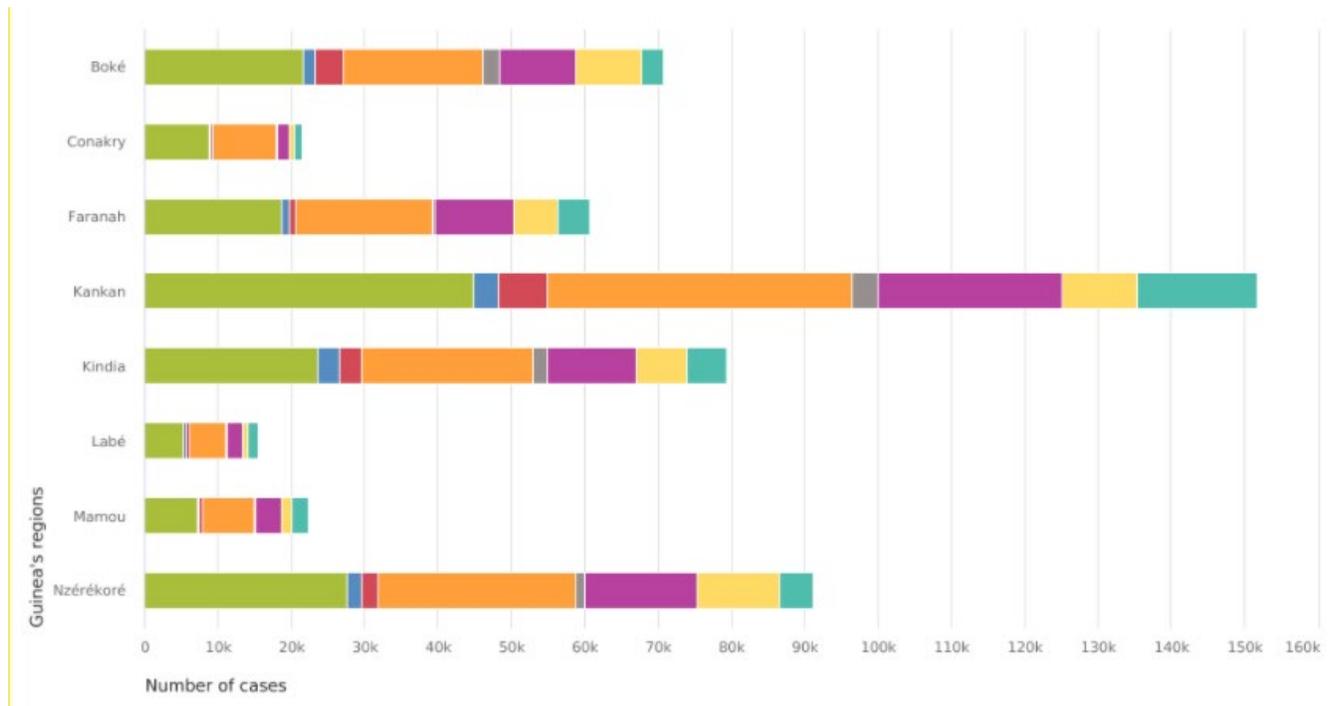
**Conclusion:** The results of the 2020 SARA survey show a narrowing of the gap between participation in antenatal care and provision of IPTp (missed opportunities). A major challenge identified by PMI's implementing partner is the lack of regular attendance at ANC follow-up appointments by pregnant women. To address this challenge, PMI uses ANC registers to monitor attendance of pregnant women in health centers to identify health centers with low attendance rates and work with the providers to find solutions. PMI also supports outreach activities that reach women in difficult-to-reach locations.

#### Key Question 4

Does the national ANC program or health information system collect data and track the proportion of pregnant women with fever, those tested for malaria, those found to have malaria infection, and those who are treated?

## Supporting Data

Figure A-16. Pregnant women suspected, tested, confirmed, and treated for malaria by region, 2020

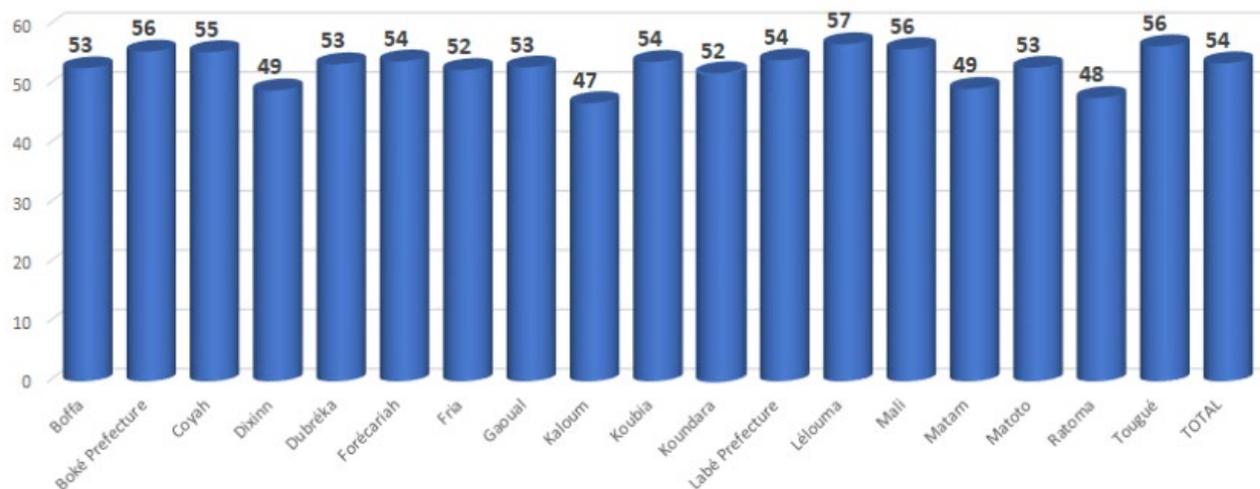


Note: Datasource DHIS2

NMCP data collected and reported in DHIS2, and shown in Figure A-16, include these variables tracked for pregnant women:

- Suspected cases of uncomplicated malaria in pregnant women recorded by the structure(s) (green)
- Suspected cases of severe malaria in pregnant women recorded by the structure(s) (blue)
- Tested case of malaria in pregnant women recorded by the facility(s)/microscopy (red)
- Tested case of malaria in pregnant women recorded by the facility(s)/RDT (orange)
- Confirmed case of malaria in pregnant women recorded by the facility(s)/microscopy (gray)
- Confirmed case of malaria in pregnant women recorded by the structure(s)/RDT (violet)
- Cases of pregnant women treated with quinine recorded by health facilities (yellow)
- Cases of malaria in pregnant women treated with ACT in health facilities (teal)

Figure A-17. Test positivity rate among pregnant women tested for malaria during 2020 in PMI-supported zones



**Conclusion:** Pregnant women who tested malaria-positive were educated on and treated with antimalarial drugs in PMI-supported zones.

#### Key Question 5

What is the estimated need for SP during 2021–2023? Are there any anticipated SP gaps? Are there gaps in other IPTp commodities?

#### Supporting Data

SP will be procured by the Global Fund according to the collaboration framework between USAID/PMI and the Global Fund. There are no anticipated gaps.

**Table A-11. SP Gap Analysis Table**

Calendar Year	2021	2022	2023
Total Country Population	13,825,035	14,129,186	14,440,028
Total Population at Risk for Malaria	13,825,035	14,129,186	14,440,028
PMI Targeted at Risk Population	5,616,669	5,770,818	5,927,804
<b>SP Needs</b>			
Total Number of Pregnant Women	622,127	635,813	649,801
Proportion of women expected to attend ANC1 at 13 weeks or greater	95%	95%	97%
Proportion of women expected to attend ANC2	85%	85%	87%
Proportion of women expected to attend ANC3	78%	78%	83%
Proportion of women expected to attend ANC4	73%	73%	78%
<b>Total SP Needs (treatments)</b>	<b>2,059,861</b>	<b>2,105,178</b>	<b>2,243,764</b>
<i>Needs Estimated based on Other (specify in comments)</i>			
<b>Partner Contributions (treatments)</b>			
SP from Government	0	0	0
SP from Global Fund	843,333	1,738,000	2,493,333
SP from Other Donors	0	0	0
SP planned with PMI funding	0	0	0
<b>Total SP Contributions per Calendar Year</b>	<b>843,333</b>	<b>1,738,000</b>	<b>2,493,333</b>
<b>Stock Balance (treatments)</b>			
Beginning balance	3,616,550	2,400,022	2,032,844
- Product Need	2,059,861	2,105,178	2,243,764
+ Total Contributions (Received/expected)	843,333	1,738,000	2,493,333
Ending Balance	2,400,022	2,032,844	2,282,413
Desired End of Year Stock (months of stock)	14	14	14
Desired End of Year Stock (quantities)	2,403,171	2,456,041	2,617,724
<b>Total Surplus (Gap)</b>	<b>(3,149)</b>	<b>(423,197)</b>	<b>(335,311)</b>

**Conclusions for MIP Investments**

One of the continuing concerns is the number of pregnant women who are eligible for these services but who do not receive them due to their limited access at the health facilities. To address accessibility issues, outreach services have been established in each facility. They allow healthcare workers to provide routine preventive services for eligible populations who cannot reach health facilities or who have difficulty going there. This strategy is intended for communities located between 5 km and 10 km from the nearest health center. PMI will continue to monitor IPTp3 coverage and where it is low, outreach activities will be conducted. These activities consist of offering the comprehensive package of ANC and EPI services, including the routine distribution of ITNs to pregnant women and children under one year of age as well as IPT for pregnant women. During these services, health providers share key messages on the importance of going to ANC appointments and taking SP (for pregnant women), and regularly using ITNs. To strengthen the mobilization, RECOs will visit households in the

districts and sectors to find pregnant women and children’s caregivers and direct them to the location for outreach activities.

PMI will continue to provide training and refresher training for approximately 48 midwives and nurses in PMI zones to correctly deliver SP and broader MIP services in the context of the focused antenatal care approach. Additionally, PMI will support SBC activities targeting uptake of MIP interventions (use of ITNs by pregnant women, early ANC attendance and adherence to WHO-recommended IPTp schedule, and prompt and effective diagnosis and treatment of malaria cases in pregnant women). The NMCP mitigation plan recommended continuing case management activities and IPTp administration during ANC visits. With the collaboration framework between USAID/PMI and the Global Fund, PMI will not procure any SP in 2023 and the Global Fund will procure enough to meet the country’s needs. The prevention services offered in health centers and certain integrated health posts are aligned with NMCP national strategic plan.

Please see FY 2022 MOP budget tables for a detailed list of proposed activities with FY 2022 funding.

## 2.2.2. SEASONAL MALARIA CHEMOPREVENTION (SMC)

### Key Goal

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

### Key Question I

What is the estimated need for SMC drug (SPAQ) during calendar years 2021–2023? Are there any projected SPAQ gaps?

### Supporting Data

See Figure 4 for a map of PMI-supported SMC prefectures.

**Conclusion:** SP+AQ will be procured by the Global Fund according to the collaboration framework between USAID/PMI and Global Fund. No gaps are anticipated.

**Table A-12. SMC Gap Analysis Table**

Calendar Year	2021	2022	2023
Total population in the SMC targeted age range	2,765,007	2,825,837	2,888,006
<b>SMC Drug (SP+AQ) Needs</b>			
National population 3-11 months targeted for SMC	219,098	225,111	231,234
National population 12-59 months targeted for SMC	876,390	900,442	924,938
<i>Total national population targeted for SMC</i>	<b>1,095,488</b>	<b>1,125,553</b>	<b>1,156,172</b>
PMI population 3-11 months targeted for SMC	64,675	66,450	68,258
PMI population 12-59 months targeted for SMC	258,702	332,252	273,032
<i>Total PMI population targeted for SMC</i>	<b>323,377</b>	<b>398,703</b>	<b>341,291</b>
<b>Total SP+AQ Needs (co-blisters)</b>	5,039,250	5,177,600	5,318,450
<b>Partner Contributions (co-blisters, national)</b>			
SP+AQ carried over from previous year	0	0	0
SP+AQ from Government	0	0	0
SP+AQ from Global Fund	5,039,250	5,177,600	5,318,450
SP+AQ from other donors	0	0	0
SP+AQ planned with PMI funding	0	0	0
<b>Total SP+AQ Contributions per Calendar Year</b>	<b>5,039,250</b>	<b>5,177,600</b>	<b>5,318,450</b>
<b>Total SP+AQ Surplus (Gap)</b>	<b>0</b>	<b>0</b>	<b>0</b>

### Key Question 2

What are the estimated non-commodity resources needed to properly deliver SMC over the next three years (e.g., staffing, SBC, etc.)?

### Supporting Data

The SMC commodities will be procured by the Global Fund according to the collaboration framework between Global Fund and USAID/Guinea. PMI will ensure that all materials necessary for implementation are procured and positioned in the PMI-supported SMC districts (Labé, Lélouma, Gaoual, Koundara, Koubia, Tougué, and Mali). PMI will implement all SMC activities from macro- and micro-planning to monthly distribution of drugs and all related SBC activities in the seven SMC-eligible PMI-supported districts. It is noted that the increased number of eligible children will be taken into account by the resources needed to properly deliver SMC over the subsequent years.

### Key Question 3

If refusal or adherence to full dosing of SMC is a challenge, what behavioral challenges affect SMC acceptance and adherence?

## Supporting Data

PMI-supported regions do not have a challenge with SMC acceptance, but rather in managing the consequences of rumors of other problems related to health activities. During a neglected tropical diseases campaign, praziquantel was administered without information on the side effects in several communities. Several reactions to the praziquantel were noted, which created concern from parents about participation in the SMC campaign.

Overlap of rounds 2, 3, and 4 with other campaigns (e.g., vitamin A, neglected tropical diseases (NTD) mass drug administration (MDA), and 2020 government election activities) delayed or affected field implementation of the SMC rounds. Campaign adaptations to previous reports of absent children or villages that had been skipped include commitments from village leaders to keeping children home during the four days of campaigns and an option for households to call into interactive radio programs to request that the SMC distribution 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 in which possible side effects were not communicated to patients, which led to distrust of the health sector in some communities. More thorough training of and communication by health workers about side effects and education on how to properly administer the SMC could assuage these fears. Additionally, overlap of rounds 2, 3, and 4 with other campaigns (e.g., vitamin A, NTD MDA, and 2020 electioneering) delayed or affected field implementation of the SMC rounds.

## Conclusions for SMC Investments

The NMCP would like to consider the expansion of SMC to older children (5 to 10 years of age) and in other districts. As this is not currently recommended by WHO, PMI is unable to support such an expansion. Covering older children and more districts 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. The 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. Finally, to avoid a repeated overlap with other health campaigns, IPs and the NMCP will work to coordinate field schedules in 2021. For example, currently the NTD MDA is scheduled to occur before the malaria SMC campaign in FY 2022.

Please see FY 2022 PMI budget tables for a detailed list of proposed activities with FY 2022 funding.

## 2.2.3. ADDITIONAL DRUG-BASED PREVENTIVE STRATEGIES

This country is not a designated country for near-term pre-elimination or elimination and there is no PMI support planned for such work in Guinea.

## 3. CROSS-CUTTING AND OTHER HEALTH SYSTEMS

### 3.1. 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 the Global Fund 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 imports or purchases on the local market of health products, especially essential generic medicines. In support of NMCP efforts to ensure effective donor coordination, PMI and the Global Fund—as the main malaria commodity donors in the 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 18 PMI-supported health districts and FP/RH distribution to all 38 health districts. In 2020, PCG obtained a new status as PCG-SA (*Societe Autonome*) with more autonomy for procurement and management.

To support and maximize the impact of the MOH's programs, the PCG-SA strategic plan (2017–2024) sets out the vision to implement all activities in the supply chain so that quality products are available in the right quantity, in the right place, at the right time, and at the best quality/price ratio. The strategic plan aims to prioritize some of these actions over three main time blocks:

- The short term: from the end of 2017 to December 2019, with a focus on activities that will have to strengthen the different elements of the distribution chain as well as a series of assessments and other activities to prepare the future supply chain.

- The medium term: from 2020 to 2021/2022, with an emphasis on the integration of the various vertical supply chains and the general strengthening of the chain, to achieve performance toward sustainability but always ensuring the availability of products.
- The long term: from 2021/2022 to 2024, with a focus on supply chain sustainability and efficiency, while ensuring continuous performance and constant product availability.

To achieve the 2024 vision of the strategic plan noted above, and to focus the activities to be implemented in the short, medium, and long term, the strategic plan identifies a number of strategic axes that serve as targets for efforts to improve the supply chain by 2024. There are four strategic axes, and all the priority activities that will be proposed for action support these strategic axes.

**Strategic axis 1:** Improving the availability of quality inputs at all levels of the health pyramid

Priority actions:

- Optimize the supply chain (PCG and health facilities).
- Evaluate the capacity of the PCG in costs of end-to-end chain functions (specifically purchasing, central and regional warehousing, transportation and distribution, and peripheral storage), storage capacity, and distribution capacity (including local means of transport).
- Strengthen the PCG distribution and storage service with TA from distribution and storage experts and logistics training.
- Strengthen the implementation of the strategic plan for the supply chain through the logistics management unit.
- Re-equip storage spaces.
- Strengthen the storage capacity of health facilities.
- Manage biomedical waste and expired products.
- Follow the quality assurance plan.
- Improve the customs clearance process.

**Strategic axis 2:** Strengthening supply chain management through the development of quality human resources

Priority actions:

- Evaluate the skills of human resources in the supply chain and make a corrective action plan.
- Train the human resources involved in the supply chain.
- Operationalize the logistics management unit of health products in the supply chain.
- Evaluate the curriculum of pharmacists and experts in the supply chain and improve training in public and private universities.

**Strategic axis 3:** Strengthening the coordination, leadership, and governance of the supply chain

Priority actions:

- Provide the logistics management unit with competent human, material, and financial resources
- Strengthen institutional capacity (DNPM, logistics management unit, PCG, etc.)

- Analyze the regulatory functions of the DNPM and propose an improvement plan

#### **Strategic axis 4:** Improvement of the logistics data information system for decision-making

Priority actions:

- Implement the electronic logistics management information system (eLMIS) and transfer to the logistics management unit.
- Supervise for the improvement of data quality.
- Inspect health facilities on the reporting of LMIS data.
- Install and support IMPACT teams in health districts, regions, and at the central level

In addition to the priority actions already noted, there are other “corrective solutions” that are drawn from the situation analysis to improve the supply chain of health products.

In general, the strategic plan foresees most of the activities toward the integration of supply chains and/or chain/chain functions in the medium term. That said, although integration is referred to as a medium term “activity,” it is possible to start now with the integration of certain elements/activities of the supply chain.

### PMI Objective in Support of NMCP

PMI continues to strengthen the pharmaceutical system in Guinea by providing TA as well as global collaboration to improve long-term availability of health commodities and ensure drug and other health quality products.

### PMI-Supported Recent Progress

In 2020, PMI:

- Worked with MOH national directorates and nongovernmental stakeholders (Catholic Relief Services, United Nations Population Fund, UNICEF, Physicians for Social Responsibility [PSR]/KFW, Médecins Sans Frontières, Jhpiego, and RTI) to disseminate the results of the National Supply Chain Assessment conducted in 2019. This strategic and planning supply chain activity facilitated an understanding of the evaluation process, shared the results and recommendations of the supply chain assessment, and discussed the next steps for updating the National Supply Chain Strategic Plan (NSCSP). It also ensured that the process serves supply chain actors to leverage existing capabilities, address known gaps and adhere to a thoughtful prioritization of key activities that will help the Ministry of Health (MOH) to realize the goals and vision laid out in the NSCSP.
- Collaborated with NMCP and other malaria stakeholders to support a Forecasting and Supply Planning activity that reviewed the national procurement plan of antimalarial products. This activity produced an updated pipeline database, a reviewed and validated supply plan that informed PMI to reprogram the MOP2 I. Other benefits of the exercise include a reviewed, analyzed, and validated database necessary for updating the malaria supply plan considering data of physical inventory, consumption, reception, expected deliveries, and expiration.
- Supported the continuous improvement of visibility into the storage conditions of health commodities by maintaining existing installations and extending the availability of the automated temperature and humidity

measurement systems in regional warehouses of Faranah, Kankan, and Nzerekore. The installation of these sensors are in addition to the previous installations in Conakry, Labe, and Boké to ensure the complete replacement of the manual temperature measurement system (at risk of human error) by a system consisting of wireless temperature and humidity sensors, a web application, and a warning system in case of temperature deviations beyond the recommended temperatures.

- Collaborated with the NMCP, regional and district health authorities (DRS and DPS) and other stakeholders to organize the End-User Verification (EUV) survey that assessed the availability of malaria commodities at public health facilities as well as the implementation of the national malaria case management guidelines. Results from the EUV will enable an assessment of the quality of supply chain data in health districts of the country and provide the NMCP with an overview of how health facilities are managing malaria commodities and how malaria is being diagnosed and treated.
- Worked with national stakeholders (PCG, NMCP, DNPM and SNIS) to measure targeted supply chain activities for which host country entities achieved technical independence with the support of the project. The process used a standardized list of essential supply chain activities and identified activities for which the host country is expected to be technically independent by the end of the project.
- Supported the MOH to update and improve the administration of the interoperability system by ensuring that the execution of operations is optimized. This task of improving the interoperability system was aimed at the final setting up of a test environment that will regularly monitor results to optimize the interoperability system. Tests of the revised version of the interoperability system were successfully conducted and the data (eLMIS and DHIS2) synchronized. Another important achievement was the development of a guide for the use of logistics data in DHIS2.
- Worked with the MOH to develop a business case for the expansion of eLMIS functionalities and coverage by upgrading to OpenLMIS v3. To initiate this activity, a study was carried out to compare the application requirements of eLMIS Guinea and the OpenLMIS V3.9. The comparative study considered the country preparedness, total cost of sustainability, interoperability, and integration of the supply chain data. Results from the study revealed that the efforts and activities required for a transition are similar to that of implementing a new system, so MOH decided to keep the eLMIS version used in the country and reassess later.
- Collaborated with MOH through regional health authorities to organize supportive supervision of health facilities in various health regions. These training supervisions were planned to strengthen the implementation of paper and electronic logistics management information systems of health products in the country. Benefits of the supervisions include a determination of the level of improvement in reporting and optimization of the management of health products.
- Collaborated with MOH and other stakeholders to support the procurement and distribution of SPAQ during the four rounds of the SMC campaign.
- Initiated the procurement of antimalarial health products and continued to closely monitor the status of orders in the pipeline and inform stakeholders of the expected delivery date to ensure a regular supply of antimalarial products. Consequently, PMI collaborated with stakeholders to coordinate delivery of U.S. Government-funded antimalarial products.
- Played a key role in strengthening the pharmaceutical system and the capacity of the national drug regulatory authority to ensure the quality of medicines in the supply chain through registration, inspection, and quality control activities.

- Supported the recruitment of the Project Manager of the assembly of the prefabricated national warehouse of Coyah.
- PMI's implementing partner selected an external firm to conduct the assessment of the site for the assembly of the prefabricated warehouse.
- Engaged internal and external conversations and meetings with various stakeholders (Global Fund, Gavi, Government of Guinea) to gain a better understanding of assumptions and priorities on how the assembly of the prefabricated warehouse will be supported.

Due to the COVID-19 pandemic, many activities have been delayed and redesigned to be implemented while respecting barrier measures and restrictions.

## PMI-Supported Planned Investments Underway

### Strategic Planning

- Develop last mile distribution strategy using eLMIS:DHIS2 interoperability methods at central, regional, district, and selected healthcare facilities.
- Support PCG-SA to develop their strategic plan.

### Governance

- Develop a pharmaceutical waste management plan.
- Support the country to inventory unusable drugs.
- Work with the *Laboratoire National de la Santé Publique* (National Public Health Laboratory [LNSP]) and DNPM to establish a national PMS-TWG.
- Strengthen the MEDICRIME brigade set up by the DNPM for the fight against the illicit market.

### Human Resources Capacity Development

- In collaboration with two national universities (UGANC and UNIKAG) PMI will support MOH to launch its first pre-service training in supply chain management. PMI will begin its first certifying training courses in supply chain management with the long-term objective of supporting the country in the organization of an inter-university diploma in procurement and supply management.

### Monitoring and Evaluation

- Update the eLMIS supervision tool.
- Support the DNPM and the regional staff on the use of the eLMIS dashboard.
- Support the DNPM and the regional staff on the use on the use combined eLMIS/Service delivery data in DHIS2.
- Support two EUV exercises for FY 2021.
- Conduct data quality assessment (DQA) of logistics data at the health facility level and supervision at the health facilities, district and regional levels.
- Support third-level TA and the activation of the order process in eLMIS.
- Support the upgrade of the MOH server infrastructure.
- Improve the interoperability administration operation, management, and use between eLMIS and DHIS2 at central, regional, district, and health center levels, with an aim to improve last-mile commodities management.

- Strengthen routine support and continuous improvement of the Warehouse Management System.

## Procurement

- Procure health commodities and ensure delivery to the central medical store.

## Warehousing and inventory management

- Continue to assess PCG-SA performance indicators.
- Continue to support inventory and inventory management in PCG-SA stores.
- Continue to support the systematic replenishment of depots.
- Continue to support stock analysis and inventory in health facilities.
- Continue to support the coordination of the distribution chain around the PCG-SA.
- Lead the multi-donor effort for the assembly of the prefabricated warehouse in Coyah.

## Strengthen medicines quality assurance systems

- Strengthen the capacity of the DNPM and the National Medicines Quality Control Laboratory.
- Strengthen the overall medicine regulation and build quality control system capacity
- Prepare the National Medicines Quality Control Laboratory to routinely perform internal audits and use assessment tools like SATTA.
- Support DNPM to improve registration processes.
- Build the capacity of LNSP personnel in preparation for International Organization for Standardization/ International Electrotechnical Commission (ISO/IEC) 17025 accreditation/WHO pre-qualification.
- Support LNSP and DNPM to conduct a risk-based PMS of selected malaria medical products, maternal and child health, and family planning.

## Key Goal

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

## Key Question 1

Has the central level (or subcentral level, if appropriate) been stocked according to plan for ACTs, RDTs, SP, and Art. Inj. over the last year (2020)? If not, have they been under, over, or stocked out?

During FY 2020, we observed stocks below the minimum at the central level (except for SP) and we reached a stockout for AL 6\*1 during FY 2020 Q1 at the central level. This was a consequence of the COVID-19 pandemic which caused delivery delays with the shutdown of several manufacturers and shipping companies.

## Question 2

What are the trends in service delivery point stockout rates for ACTs (including ability to treat), RDTs, Art. Inj., and SP over the last year (if tracked)? Is there a seasonal or geographic difference in stockout rates?

Over FY 2020 AL stockout rate varied between 5 and 20 percent while AL inability to treat remains very low during the year. In addition, RDT and SP stockout rates were very low during the entire year. We noted that consumption increases during peak periods. The availability at health facilities improved with the availability at the central level.

### 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

In FY 2020, data from DHIS2 and eLMIS show:

##### RDTs

- Number of cases tested: 3,205,305 (Source: DHIS2)
- Number of RDTs used: 3,275,041 (Source: eSIGL)
- We have 2 percent of RDTs consumed more than the cases tested.

##### ACTs

- Number of cases treated: 1,982,282 (Source: DHIS2)
- Number of ACTs used: 1,999,861 (Source: eSIGL)
- We have 0.8 percent of ACTs consumed more than the malaria cases treated with ACTs.

Based on the DHIS2 and eLMIS data above, there is a little variation (0.8 percent) between the quantity of ACTs consumed and number of malaria cases treated in FY 2020, while the difference between RDTs consumed and the number of malaria cases tested was 2 percent.

### Key Question 4

To what extent does a functional LMIS provide visibility into timely and quality logistics data from various levels of the system? To what extent is commodity data visibility dependent on surveys or supervisory data rather than routine data reported by an LMIS?

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.

The functional LMIS provides visibility into timely and quality logistic data from facility, district, regional, and central level. However, this depends on the constraints related to limited capabilities of facilities to report data directly into the eLMIS and to send at the fixed time their SIGL paper report to the district to be entered into the eLMIS and to correctly perform monthly inventory. All this will affect the quality of data on the stock on the hand, the average monthly consumption and the quantities to order. The functional LMIS also improves the tracking of input traceability throughout the supply chain. PMI supports the PCG-SA, DNPM, NMCP and DNSFN on the

conformity of the information between the deliveries of the PCG-SA and the registrations on eLMIS. This improves the availability of inputs.

There are different reasons to justify the use of survey data namely:

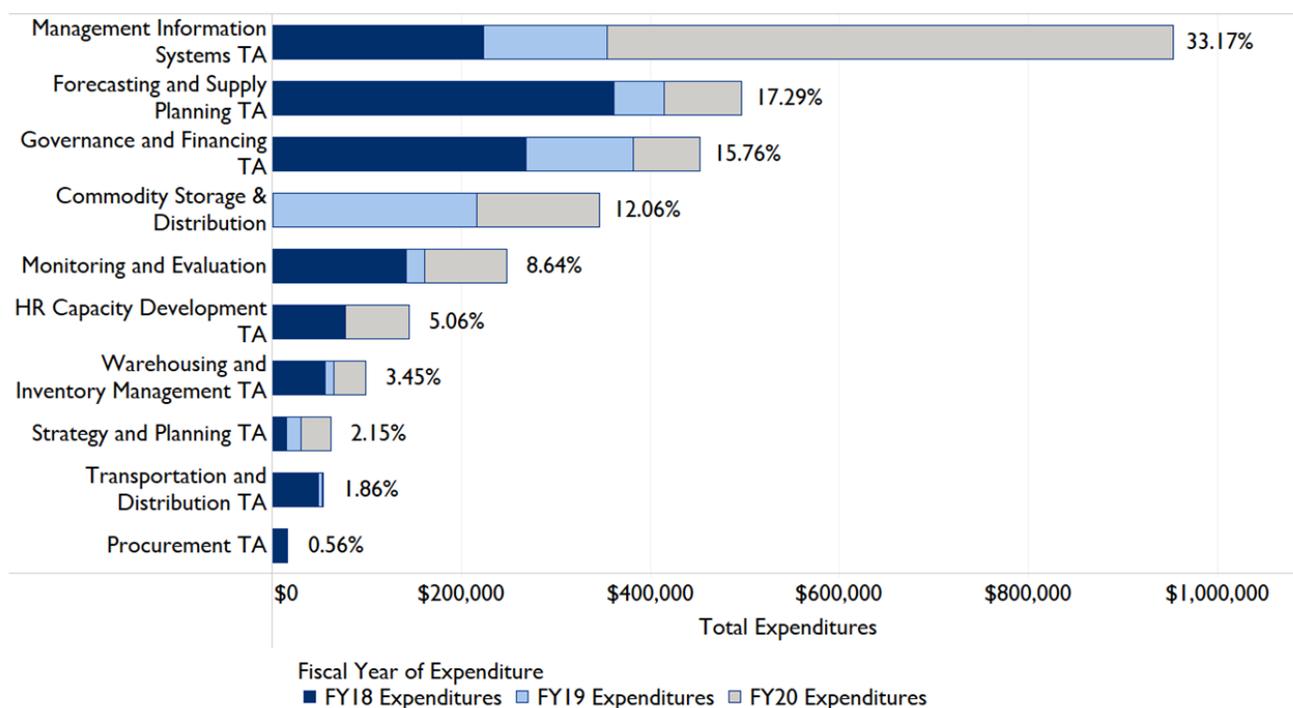
- Limited capacities of stakeholders to use existing electronic tools for logistics data management such as eLMIS, logistics data dashboard, and interoperability data in the national Health Management Information System (HMIS); they are not able to find the required data hence the need sometimes to carry out survey activities on the target area to collect data which is already reported in routine systems.
- Reliability compared to routine data, which have not yet reached a satisfactory level of confidence. This is due to insufficient capacity for data analysis, lack of feedback from users to collectors, and inadequate governance in day-to-day management caused by a lack of leadership at the peripheral level of decision-makers for continuous improvement of data quality.

However, routine data can still be used for quantification and monitoring of the antimalarial supply plan, and for planning, which is carried out entirely on the basis of routine data thus allowing for anticipation of stockouts at the central level.

#### Key Question 5

What are the main supply chain technical assistance functions supported by PMI? Are there additional investments that PMI should make (e.g., increasing visibility of demand at health facilities) to ensure continual availability of quality products needed for malaria control and elimination at health facilities and the community level? In areas performing well, is it dependent on PMI/donor funding (e.g., PMI and Global Fund pay for warehousing and distribution)? Should more be done to foster self-reliance in domestic systems and, if so, what approaches should be considered?

Figure A-18. PMI supply chain investment by technical area



PMI main supply chain-supported functions include: strategy and planning, forecasting and supply planning, procurement, warehousing and inventory management, logistics management information systems (manual and electronic), human resources capacity development, and pharmaceutical sector governance. PMI will also continue to support the National Directorate of Pharmacies and Laboratory and the National Laboratories to build capacity for in-country drug quality monitoring with an aim to receive ISO certification as well as the support for post-marketing surveillance. Previous investments in Guinea’s supply chain have enabled successful implementation of the eLMIS allowing the country to transition from a paper-based system to an automated eLMIS. 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. While the eLMIS is expanded from region to district, and eventually in 55 health facilities in CY 2021 there should remain a medium-term effort, using MOP 2021 and MOP 2022 funding, to manually collect and collate facility level supply chain data that is available through the existing paper-based LMIS. Continued support to the management information systems, to strengthen institutions involved in regulatory and policy aspects related to supply chain and to align our efforts with the Global Fund is recommended to continue as activities will be designed to support Guinea.

In addition to the above list we would like to implement the following additional keys activities if funding allows:

- Implement the new PMI stockout reduction plan under development with all stakeholders.

- Implement pilot phase with logisticians at eight districts level to support and strengthen the field levels in data reporting through eLMIS, quality data review, reporting and forecasting to support the eLMIS rollout at all levels.
- Support safe disposal of expired and unusable medicines and health products.
- Improve the frequency of supervisory activities at the district level to support the periodic audit of the facility in the inventory tasks and in the respect of the procedures to report commodities consumption and ordered quantities.
- Increase the capacity of the supply chain team of the MOH at the district level in the use of appropriate tools for data analysis for better decision-making, to manage the cases of overstock and understock.
- Support the scale-up (computer, power backup) of the eLMIS at the facility level for the reporting of commodities consumption and for the automation of order management.
- Support the activities related to the integration of the eLMIS with other Health Information Systems such as the integration of order management between eLMIS and the warehouse management system.
- Develop the National electronic Product Catalog to provide a standard repository for the naming and coding of products in the supply chain information system.
- Support the development of the national facilities catalogs to provide a formalized and normalized scheme for the naming and coding of facilities in the Health Information System.
- Support the improvement of stock inventory by putting in place a module to automate printing box labels with barcodes and reading the printed barcodes with a scanner appliance during routine inventory and distribution of commodities.
- Strengthen the mobility of regional technical advisors for specific actions.
- Initiate support for the pharmaceutical function at the district level and carry out a pilot phase.

### Key Question 6

Are there any other considerations that impact funding allocation in this category? If there is a specific budget line item in Table 2 that is not covered by the above questions, address here.

### Supporting Data

To support the Government of Guinea's plan to improve the quality of supply chain and product availability at health facility and community level, PMI will consider a proposal to hire district logistic officers in eight focus districts in a phased pilot program. Unfortunately, this critical item was not covered in Table 2 due to limited budget. The remaining activities could be added in the following MOP exercises.

### Conclusions for Supply Chain Investments

FY 2022 MOP-funded supply chain activities will be similar to FY 2021 and FY 2020 supply chain activities with increased focus on strategies to improve data quality and availability of malaria medicines at all levels. PMI will:

- Procure standard ITNs for distribution at ANC and EPI clinics.
- Procure severe malaria commodities, reagents, slides and repair material for previously procured microscopes.
- Provide continued support for national- and district-level supervision, forecasting, and implementation of the LMIS, and TA to the central supply chain unit.

- Procure equipment for the new national warehouse in Coyah.

Please see FY 2022 PMI budget tables for a detailed list of proposed activities with FY 2022 funding.

## 3.2. SURVEILLANCE, MONITORING, AND EVALUATION (SM&E)

### NMCP Objective

Surveillance, monitoring, and evaluation are key components of Guinea's malaria program. The NMCP SM&E plan identifies indicators, targets, and data sources and emphasizes the importance of data collection, data quality assurance, and dissemination and use of data. Specific SM&E priorities reflected in the plan include revising and maintaining the national malaria database, including the HMIS/DHIS2 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/DHIS2 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 (the Global Fund 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, 2018–2023.

### NMCP Approach

The following data systems collect malaria data in Guinea:

*Monthly malaria reporting system:* Because the annual HMIS report was not perceived as a timely or valid data source when PMI was first launched in 2011, and the HMIS was nonfunctional during the 2014–2016 Ebola crisis, starting in late 2013 with the support of the MOH unit responsible for the HMIS, the NMCP 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 Excel form. First rolled out in PMI zones, the monthly reporting tool was expanded to the Global Fund zones starting in mid-2014. That Excel-based monthly malaria reporting system then served as the primary source of data for the NMCP and malaria partners via an NMCP-produced monthly malaria bulletin until December 2019.

*Health Management Information System (HMIS):* In September 2019, in response to a government decree that all health reporting take place in a centralized (not parallel) system, malaria data began to be entered into DHIS2 and the Excel-based system phased out by December 2019. The system rapidly rolled out with regional- and district-level training completed. This process was led by the MOH *Bureau de Stratégie et Développement* with operational support by donors such as USAID and the Global Fund. The MOH vision was 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 unified HMIS without losing gains in completeness and quality of malaria data. As of 2020, all malaria data are entered monthly into DHIS2 at the district level; some health facilities in PMI-supported districts enter monthly data directly. Currently, all 33 districts and 5 urban communes consistently report data into DHIS2, with district-level reporting completeness nearing 100 percent each month.

For health facilities without DHIS2 data entry capability, paper reporting tools are filled out and sent up to the district health offices for entry into DHIS2. The DHIS2 malaria reporting system captures aggregate monthly data from public health facilities (including hospitals and health centers), their affiliated health posts, community health workers, and private nonprofit service providers, though the latter are primarily from urban Conakry.

*Integrated Disease Surveillance and Response:* Supported by WHO, Guinea's weekly IDSR system is separate from the MOH routine information system used by the NMCP and is based at the Division of Prevention and Disease Control at the MOH. It consists of weekly telephone-based reporting on 10 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. Due to delays in reporting and completeness from districts, data in the weekly reporting system often do not match with the NMCP routine data compiled monthly. District-level data managers are often requested to rectify these disparities, which is not always possible given connectivity and personnel inconsistencies in the field. This often affects weekly timeliness and completeness of malaria indicators in Guinea's IDSR system.

*Household surveys:* Guinea implemented a DHS in 2005, 2012, and 2018 and an 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. PMI has also supported national knowledge, attitudes, and practices (KAP) surveys 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. 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 the Global Fund, Gavi, the Vaccine Alliance, 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 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. The collective aim of these priorities is to maintain a strong foundation for reporting routine malaria data. This will allow greater emphasis to 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 the Global Fund and UNICEF to ensure SM&E activities are coordinated and adequately supported. With FY 2022 funds, PMI will continue to support routine information system strengthening, particularly to ensure the integrated DHIS2 platform functions well to improve data quality for analysis, interpretation, and decision-making.

Efforts will focus at the facility level to improve reporting timeliness, completeness, and quality, the benefits of which will compound at district, regional, and 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. A PMI aim in 2021–2022 is to enable interoperability between the commodities system (eLMIS) and DHIS2, to minimize malaria commodity overstock and understock by better comparing health facility malaria attendance and commodity use at the lowest levels possible (district and health facility). 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, workplace barriers, or entomological factors that may influence reported data.

## PMI-Supported Recent Progress

In 2020, PMI continued to strengthen the capacity of the NMCP staff to manage malaria data within the national health management information platform, DHIS2, 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 or received supportive supervision to enter malaria data into DHIS2. 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 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 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 DQA activities that brought together key actors from different district levels including the health posts, health centers, health and hygiene committees, NGOs, 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-Supported Planned Investments Underway

- *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 in DHIS2. Activities continue to focus on monitoring quality of malaria data (completeness, timeliness, and accuracy), maximizing data use for decision-making, monthly data review meetings at the district level, dissemination of monthly malaria bulletins, and support of the M&E technical working group. Additionally, support will continue to provide DHIS2 training for new employees and refresher training for existing employees with the aim of improving DHIS2 literacy. All activities will be done in collaboration with the regional, district, and selected health facility levels. These routine surveillance support activities will complement two other PMI-funded SM&E activities (described below). Together, they are a complementary strategic PMI approach to routine data management 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.

- *M&E implementation:* 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 routine data and to take appropriate action as needed to further investigate anomalies that may emerge in the routine 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 (e.g., specific indicators and data elements to monitor) and the resident advisors will be engaged in decisions about what type of response may be appropriate (e.g., field activity vs. remote follow-up). The expectation is that the combination of routine surveillance support activities, quarterly health facility supervision and DQA, and TA for rigorous and regular data review will result in improved data availability, data quality, and programmatic decision-making.
- *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.

### Key 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.

### Key Question I

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

### Supporting Data

**Table A-13. Available malaria surveillance sources**

Source	Data Collection Activity	2019	2020	2021	2022	2023	2024
Household Surveys	Demographic Health Survey (DHS)					P	
Household Surveys	Malaria Indicator Survey (MIS)		(x)→	x			
Household Surveys	Multiple Indicator Cluster Survey (MICS)						
Household Surveys	EPI survey						
Health Facility Surveys	Service Provision Assessment (SPA)						
Health Facility Surveys	Service Availability Readiness Assessment (SARA) survey		x				
Health Facility Surveys	Other Health Facility Survey	x	x				
Malaria Surveillance and Routine System Support	Therapeutic Efficacy Studies (TES)	x	x	x	P	P	
Malaria Surveillance and Routine System Support	Support to Parallel Malaria Surveillance System	x	n/a	n/a	n/a	n/a	n/a

Source	Data Collection Activity	2019	2020	2021	2022	2023	2024
Malaria Surveillance and Routine System Support	Support to HMIS–DHIS2	x	x	x	P	P	
Malaria Surveillance and Routine System Support	Support to Integrated Disease Surveillance and Response (IDSR)						
Malaria Surveillance and Routine System Support	Electronic Logistics Management Information System (eLMIS)	x	x	x	P	P	
Malaria Surveillance and Routine System Support	Malaria Rapid Reporting System						
Other	EUV	x	x	P	P	P	
Other	School-based Malaria Survey						
Other	Knowledge, Attitudes, and Practices Survey Malaria Behavior Survey						
Other	Malaria Impact Evaluation						
Other	Entomologic Monitoring Surveys	x	x	x	P	P	

\*Asterisk denotes non-PMI funded activities, X denotes completed activities, and P denotes planned activities.

→Due to COVID-19, the MIS was delayed from 2020 to 2021.

## Key Question 2

What HMIS activities have been supported? What current priorities will be supported with FY 2022 MOP funding?

### Supporting Data

PMI will support the HMIS in Guinea (DHIS2) to consistently collect, enter, and report quality data on malaria commodities and epidemiologic trends at all levels. Activities continue to focus on monitoring quality of malaria data (completeness, timeliness, and accuracy), maximizing data use for decision-making, monthly data review meetings at district level, dissemination of monthly malaria bulletins, and support of the M&E technical group. Additionally, support will continue to include DHIS2 training for new employees and refresher training for existing employees with the aim of improving DHIS2 literacy. All activities will be done in collaboration with the regional, district, and selected health facility level-staff. These routine surveillance support activities will complement two other PMI-funded SM&E activities (all routine national surveys and interoperability between eLMIS and DHIS2). Together, they are a complementary strategic PMI approach to routine data management 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.

## Key Question 3

Are there specific outcomes of past/current HMIS strengthening efforts that can be identified?

## Supporting Data

**Table A-14. Outcomes of HMIS strengthening efforts**

	Indicator	2019	2020
Timeliness*	% of reports received on time	98%	99%
Completeness**	“Confirmed malaria cases for children under 5 years of age” was reported in X % of facility-months	98%	99%
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.

\*\*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 may be a better indicator of completeness.

### Key Question 4

Are there any other considerations that impact your funding allocation in this category (e.g., strategic information or capacity-building in-country)?

## Supporting Data

- Due to discontinued support to supply internet credit to data entry workers at the district or health center level in PMI areas, this was addressed for the remainder of FY 2021 in the FY 2021 RR and a line added to the FY 2022 budget. Otherwise, data entry credits were paid for with personal funds unlike in areas supported by the Global Fund.

### Conclusions for Surveillance, Monitoring, and Evaluation Investments

In the 18 PMI-supported districts, seven districts enter all malaria data from health centers at the district level and 88 health centers in the remaining 11 districts enter data directly into DHIS2 at the health center level. Reporting rates are consistently high with recent improvements in the percentage of reports submitted on time. In FY 2022, an aim is to increase the number of health facilities with data entry capability both for epidemiological data and for logistics data.

The 2020 MIS was postponed to 2021 due to COVID-19 delays. The next DHS is planned for 2023. The next MICS is planned for 2021. All data entry, analysis, and decision support is made with DHIS2 and eLMIS data. No parallel paper-based reporting should occur. The transfer of data from paper to DHIS2 are in districts where health centers do not have direct data entry capability (e.g., computer or tablet, electricity, internet, and training) for monthly epidemiological and commodities data. In 2021, only a few health centers have direct entry data capability or capacity. Support for interoperability between the DHIS2 and eLMIS systems to the health facility level (currently operational to the district level) is a goal for FY 2022.

Please see FY 2022 PMI budget tables for a detailed list of proposed activities with FY 2022 funding.

### 3.3. OPERATIONAL RESEARCH

PMI is not currently contributing to operational research and is not planning to do so with FY 2022 funding.

### 3.4. SOCIAL AND BEHAVIOR 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

The NMCP's communication plans for 2018–2023 was developed in keeping with the vision, purpose, objectives and results defined in 2018–2023 National Malaria Strategic Plan (NSP) 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 4,940 households in the 14 districts and 6 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. The NMCP's SBC unit oversees and convenes a national SBC 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.

#### 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. 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 the Global Fund each have geographical areas (zones) that they support as part of the distribution of roles and responsibilities between PMI and the Global Fund. PMI supports SBC activities in PMI zones and the Global Fund supports activities in the remainder of the country.

## PMI-Supported Recent Progress

- To increase the number of households that own long-lasting insecticide-treated nets (ITNs) and that use the ITNs distributed in FY 2019, the PMI team worked with RECOs and NGO field agents to conduct home visits in all regions supported by the project. These visits assessed the availability of distributed nets and their regular/correct use and educated household representatives on how to properly maintain nets. In FY 2020, the project visited a total of 18,592 households: ITNs were available in 95 percent households, and 86 percent of children under five years of age and 92 percent of pregnant women slept under a net the night before the survey. In addition, PMI broadcast 2,754 radio spots and 165 television spots (public service announcements) that promoted the importance of regular and correct ITN use.
- To increase the use of intermittent preventive treatment of malaria in pregnancy (IPTp) during antenatal care (ANC) visits, PMI worked with the NMCP to train 460 health providers on integrated malaria control activities, including IPTp. The project also conducted refresher training for 1,048 RECOs, including key messages on IPTp.
- To improve eligible women's access to ANC services and IPTp, the project also supported outreach activities (outside of normal health facilities), resulting in an additional 467 women living in hard-to-reach areas who received their SP doses. In FY 2020, the overall IPTp coverage rate in project-supported regions went from 62 percent in Quarter 1 to 78 percent in Quarter 4.
- To promote early care-seeking and the use of malaria diagnosis and treatment services, PMI broadcast 998 radio spots and 165 television spots.
- To increase malaria prevention among young children (3 to 59 months of age) during the rainy season (and within the COVID-19 context), a large part of PMI's efforts focused on supporting the NMCP to organize the four rounds of SMC for FY 2020 in seven districts. To implement the campaign, the project trained trainers and supervisors at all levels, distributors, and community mobilizers. PMI produced all the communication materials and data management tools and transported them to the districts. A total of 3,212 people were trained on SMC procedures.
- To increase community involvement in malaria control activities, PMI continued to support existing community action groups in the four regions supported by the project to implement their action plans. During FY 2020, those groups conducted 488 dialogues in their communities to discuss malaria issues such as the use of ITNs for purposes other than to protect family members against malaria, negative rumors concerning the mass drug administration of praziquantel, and early care-seeking in case of fever (especially in the context of COVID-19, when many people are afraid to visit health facilities).

## PMI-Supported Planned Investments Underway

With FY 2020 funding, PMI is planning to support the following activities for these behaviors:

### **Increase regular and correct use of ITNs by household members**

- Through its NGO partners' field agents, PMI will conduct community outreach activities to promote and monitor correct ITN use and care. RECOs are conducting door-to-door visits to monitor the regular and correct use of ITNs and, if needed, hang ITNs and disseminate key messages on IPTp and malaria case management.

- PMI will support household surveys as one of the essential strategies for improving the use of malaria control products and services. The strategy consists of surveying 20 households per month in the area surrounding each health center. The information collected during these surveys will orient our SBC activities.
- PMI will produce and disseminate SBC materials that promote correct and regular use of ITNS. PMI's implementing partner developed a 2021 calendar with key messages that promote correct and regular use of ITNs and early care-seeking for cases of fever. The calendar will be disseminated to facilities, RECOs, civil society organizations, and community-based organizations. The project also worked with two well-known Guinean comedians to produce new radio and TV spots (public service announcements) that promote regular and correct use of ITN in the COVID-19 context. These spots were translated into three local languages so that a large number of the population could understand the messages.

### **Increased awareness of family members of the need for vulnerable populations to be protected from malaria**

- PMI is supporting roundtables and interactive radio programs in its targeted districts. These radio programs remind the various communities about the advantages of sleeping regularly under an ITN, the mode of transmission of malaria, the signs of malaria, the importance of early care-seeking (as soon as fever appears), the antimalarial products available at no cost in public health facilities, the prevention methods that exist to protect against malaria, and the importance of pregnant women attending all of their ANC appointments. Given the presence of COVID-19 in the country, the participants in the radio broadcasts encourage the communities to continue to adhere to the barrier measures, including wearing a mask and social distancing, to minimize transmission.
- PMI is continuing to work with field agents and community action group members to organize community dialogues in the four regions supported by the project. These dialogues engage communities in solving problems identified during the supervision visits in health facilities, monthly monitoring meetings, and household visits.

### **Increase knowledge of women and other family members of the benefits of ANC visits, including IPTp**

- PMI supported community action group members to organize dialogues on malaria control activities, including IPTp. Some of these targeted women's associations and family members (sisters and mothers-in-law) because they often influence decisions about keeping ANC appointments. These dialogues promoted understanding of the value of ANC and raised awareness about the recommended number of ANC visits.
- PMI developed a poster that promotes IPTp adherence in the COVID-19 context.
- PMI collaborated with two well-known Guinean comedians to produce radio and TV spots that promote IPTp. The spots were translated into three local languages and the broadcast has started.

### **Increase early care-seeking and treatment**

- PMI facilitated stakeholder discussions on child morbidity and mortality from malaria through community dialogues which are opportunities to explain to people the consequences of malaria, especially for pregnant women and children under five years of age, and the importance of protecting them against

malaria. During these dialogues, the facilitators explain the malaria services and products available in the health facilities and at the community level. They encourage people to correctly and regularly use these services and products. In some areas, these dialogues help to improve the relationship between health facility workers and the communities, fostering an increase in the use of health facility services.

- PMI tailored SBC communication materials to promote early care- and treatment-seeking behavior: poster, TV, and radio spots are being developed. The radio spots are broadcasted three times per day and three days a week through 26 radio stations, TV spots are twice a day five days per week through two TV stations. It is difficult to estimate the population reached because there is no study on the mass media attendance. However, because we have at least one radio station in each of our prefectures, we can estimate that 60 percent of the population is reached by these spots. Reach and recall surveys are being implemented.

### Key Goal

Through the use of SBC 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.

### Key Question 1

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

### Supporting Data

**Table A-15. Prioritized behaviors with FY 2022 funds**

Behavior	Target Population	Geographic Focus	Justification
Regular and correct use of ITNs by household members	Households, heads of households, pregnant women, children, guardians of children under five years of age	13 health districts and 6 communes of Conakry	The 2018 DHS shows that in Guinea, the regions of Boké, Kindia, Labe, and Mamou have use:access ratios below 0.80 and in Boké and Kankan the ratios are lower than the national average. AMF post-distribution evaluation 18 months after the campaign highlights high access (85%) and use (78%) of ITNs in 20 of the 38 districts covered with AMF ITNs. We note that in four PMI supported districts (Fria, Boké, Boffa, and Gaoual), the access and the use are lower and vary from 71% to 69% for the access and from 59% to 69% for the use. This suggests a need to increase SBC activities for a regular and correct use of ITNs and reach a use:access ratio close to 1. The 2018 DHS also found that only 28% of pregnant women and 27% of children slept under a net the night before.
Early and frequent ANC attendance	Pregnant women and their family members	13 health districts and 6 communes of Conakry	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	Target Population	Geographic Focus	Justification
Prompt care-seeking for fever for children under five years of age	Heads of the households, mothers, guardians of children under five years of age, health providers, RECOs, health providers, health authorities	13 health districts and 6 communes of Conakry	While care-seeking behavior has improved in recent years, advice or treatment was sought for only 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.

### Key Question 2a

For the regular and correct use of ITNs by household members, what gaps exist in understanding the barriers to the adoption and maintenance of malaria prevention and treatment behaviors?

#### Supporting Data

Additional research is needed to inform the design of SBC activities in this area.

### Key Question 2b

For the early ANC attendance, what gaps exist in understanding the barriers to the adoption and maintenance of malaria prevention and treatment behaviors?

#### Supporting Data

While there is research on ANC and IPTp in general, there are no data on barriers and facilitators to early ANC attendance.

### Key Question 2c

For prompt care-seeking for fever, what gaps exist in understanding the barriers to the adoption and maintenance of malaria prevention and treatment behaviors?

#### Supporting Data

Additional research is needed to inform the design of SBC activities in this area.

### Key Question 3

What is the country's capacity to design, implement, and monitor SBC interventions at the national and subnational level?

## Supporting Data

An SBC TWG oversees communication and behavior change activities and provides guidance and approval for changes based on current information and data. PMI has been supporting the TWG in capacity-building and helping them hold monthly meetings on a regular basis. Support also includes revising the communication plan according to the 2018 KAP survey results. A key focus of SBC is ensuring that activities are community owned.

Resources are needed at the subnational level to bolster the capacity to better time and tailor mass media messaging to reach targeted audiences as well as strengthen the ability to share messages in local languages. Despite PMI's support of some districts to develop their communication plans, funding of these plans remains a problem. These plans have been presented to the municipal and prefectural authorities but to date the only activities carried out are those financed by PMI.

## Conclusions for SBC Investments

FY 2022 funds will support mass media and interpersonal communication (through religious leaders, RECOS, and community action groups) to support consistent ITN use, early and frequent ANC attendance, and prompt care-seeking for fever. There are no plans to deviate from previous SBC activities other than to address new challenges as they arise, as we had to do with COVID-19.

There are no plans to address knowledge gaps through formative assessments, program evaluations, or operation research. Ideally a KAP survey would be conducted in 2022 but funding is limited. It is a priority should PMI or other donor funds become available.

To bolster Guinea's capacity for the design, implementation, and evaluation of SBC activities at both the national and subnational level, PMI/Guinea will support the following:

- Coordination and planning through the SBC TWG and alignment of SBC implementation efforts with country monitoring and evaluation plans
- Patient advocacy at the community and facility level through partnerships with local organizations
- Strengthening individual capacity of key players through training and workshops

Please see FY 2022 PMI budget tables for a detailed list of proposed activities with FY 2022 funding.

## 3.5. OTHER HEALTH SYSTEMS STRENGTHENING

### NMCP Objective

The goal is to bring the country toward pre-elimination by reducing morbidity and mortality related to malaria by 50 percent from 2016 levels by the end of 2023.

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." 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 following objectives support efforts to strengthen in-country capacity and systems to promote the health of Guineans:

- Promote the national malaria control policy based on the Roll Back Malaria 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 to promote extensive use of malaria prevention measures, early care-seeking behavior, and use of diagnosis and treatment products
- Elaborate, monitor, and evaluate the implementation of the NSP on an annual basis
- Mobilize and manage human, financial, and material resources necessary for the implementation of the NSP
- Promote and develop partnerships with all stakeholders in the control of malaria

## NMCP Approach

The 2018–2023 PSN falls within the framework of the country’s vision, “A Guinea without malaria for sustainable socio-economic development.” The planned interventions will enable the achievement of the program’s mission, which is to ensure universal access to quality malaria prevention and care services for the entire population 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.

Guinea NMCP has created a research committee to coordinate malaria research activities in Guinea. This allows the NMCP to have visibility on the diverse malaria research projects in the country and to guide and prioritize activities based on NMCP strategy. The committee has developed a public-facing list of operational research questions prioritized by NMCP, and allows academic and other research groups to submit proposals for consideration. Proposals are reviewed by the committee and those that align with NMCP priorities and are judged favorably are able to receive small grants from NMCP for study implementation.

## PMI Objective in Support of NMCP

PMI supports a broad array of health system strengthening activities that 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

- Supported the Revision of National Strategic Plan (NSP), annual work plan, and quarterly work plan development. NMCP extended the 2018–2023 NSP’s implementation period until 2023 to align with the 2021–2023 Global Fund grant period. Through a long-term technical assistance (LTTA) PMI developed the concept note for the workshop, established working groups, actively participated in the workshop as

a member of the task force, and supervised the working groups during the meeting. The LTTA also helped develop the terms of reference for the national consultant. After the workshop, the LTTA worked with the NMCP to revise related documents, including the procurement plan, performance frameworks, and budgets. The new 2018–2023 NSP was used to elaborate the 2021–2023 Global Fund funding request.

- Supported the organization of malaria of quarterly data reviews. Through the LTTA, PMI proposed an innovative problem-solving approach based on the “Challenge Model” developed by USAID’s Leadership, Management, and Governance Project. The LTTA provided training to NMCP managers so they could share the plan with districts during their quarterly reviews. The LTTA national consultant also worked to improve the district- and central-level data visualization tool for quarterly reviews; the tool summarizes and standardizes key malaria control indicators and allows measurement of these indicators over time. These reviews are integral to monitoring indicators and provide the foundation for identifying major malaria control issues.
- Supported the Global Fund 2021–2023 funding request. Through the LTTA, PMI provided TA to the drafting committee and task force set up by the Global Fund’s National Coordinating Body to help draft the Global Fund Grant Request. The LTTA consultant participated in task force working sessions also supported the NMCP’s supply chain coordinating unit, GHSC-PSM, StopPalu+, and Catholic Relief Services, the current Global Fund Principal Recipient, to plan and organize Guinea’s annual commodity quantification workshop and subsequent revisions of the quarterly supply plan. The results of the quantification workshop were used to fill a program gap analysis table and included in the Global Fund Grant Request.
- Supported the implementation of risk mitigation and partner coordination within the COVID-19 pandemic context. With the onset of the COVID-19 pandemic and the pressing need to continue malaria control activities, the LTTA consultant assisted the NMCP to develop a Coronavirus Risk Mitigation Plan for malaria control activities. The plan was submitted to the national directorate for disease control and was integrated into the Republic of Guinea’s national pandemic response plan. He also worked with the NMCP leadership to develop diagrams describing malaria case management treatment protocols and steps that have been adapted to the COVID-19 context. These diagrams were developed with the intention that malaria treatment providers would display them in their offices for reference during consultations and have been disseminated to all health districts.
- Through the LTTA consultant, PMI worked with the NMCP M&E unit to develop a simplified quarterly performance framework for district and regional health directorates. The framework summarizes indicators on intermittent preventive treatment (IPTp), case management, routine ITN distribution, commodity management, and report submission. This tool tracks results against quarterly targets, allowing for regular monitoring of indicator changes, identification of major problems at the district level, and developing roadmaps to resolve these problems.
- USAID also collaborated with NMCP and other stakeholders to support the forecasting and supply planning process that reviewed the national procurement plan of antimalarial products for 2020–2023. The process enabled 23 technical managers from the MOH to manage an effective quantification exercise that produced an updated pipeline database and a supply plan that informed the USAID Malaria Operation Plan for 2021 and the Global Fund New Funding Model 3 (NFM3) for 2021–2023.
- 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 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 the Global Fund, supports 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

- Management support for NMCP: Support to the NMCP with the acquisition of equipment for their new office, team building, logistics and supervision, office management including communication capacity/connectivity and systems strengthening.
- 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 TWGs via logistical and operational support. This includes coordination at the directorate level to deconflict concurrent activities and to improve communication. Malaria-specific trainings are possible. For example, other PMI-supported countries foster training collaborations with local universities or field epidemiology training programs (FETP) for short-term epidemiology courses to reinforce routine and outbreak malaria epidemiology principles. Similarly, an entomology-focused training on the use of an open-source geographic information system package (QGIS) is planned for selected NMCP entomology and epidemiology staff. The unique training is given by the Liverpool School of Tropical Medicine and reinforces data collection, management, manipulation, analysis, summary, and presentation skills for entomological and epidemiological data. DHIS2 data from routine malaria data collection can be used within QGIS to better visualize, analyze, and use malaria specific data for decision support by NMCP staff.
- 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. Other health-focused volunteers 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.
- NMCP malaria's research activities: NMCP's research committee has developed a public-facing list of operational research questions prioritized by NMCP, and allows academic and other research groups to submit proposals for consideration. The committee reviews the proposals and some of those that align with NMCP priorities and are judged favorably will be supported by PMI.

## Key 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

- PMI has supported malaria focal points in 19 districts who were integrated into the district health teams and who serve as liaisons among the NMCP, the district health teams, and partners to help with training,

supervision, and general capacity development of malaria activities at the peripheral levels. In 2020 the MOH revised the terms of reference of the focal points to establish a comprehensive, coherent, and effective management framework. This was possible due to the pooling of needs and efforts and the avoidance of waste of resources based on the sustainable strengthening of the EPI and interventions to fight disease such as malaria, tuberculosis, and AIDS at the health district level. As of today they become government officials providing TA to the districts and technical support must be provided to make sure that the successful model continues.

- The MOH has a comprehensive community health strategy that requires significant expansion of the current RECOs but it is underfunded.
- Funding for the HMIS use of the DHIS 2 platform is insufficient and is currently supplied entirely by donors. Encouraging the Government of Guinea to use health funds to fill the gap is important to maintain the gains regarding data collection obtained in the last few years.
- Improved data management is a desired goal of the NMCP. Training to support this is desired, whether in the form of working with local universities or a PMI-specific adaptation of the FETP may be possible.

## Supporting Data

### Conclusions for Additional Health Systems Strengthening Investments

There are two proposed additions to health systems strengthening investments, which are both of expressed interest of NMCP.

The first is to fund small research projects within NMCP with the aim to expand its ability to generate and conduct projects on short notice to improve malaria interventions in Guinea.

The second is to support the initiation of a specialized, malaria-focused epidemiology training series for MOH staff at all levels. In 2019 PMI countries began integrating malaria-specific training for qualified NMCP staff to participate in existing country FETPs. Guinea hosts the FETP Frontline and Intermediate levels through its partnership with CDC and AFENET. The proposed funding would be to include a small cohort of four MOH staff in the Frontline and Intermediate FETP-PMI training series. This initial cohort would serve as malaria-specific mentors for future cohorts.

PMI will continue to strengthen the managerial capacity of the NMCP in Guinea, working together with NMCP Coordinator and the deputy. Focus will be on ensuring the NMCP's ownership of interventions and its commitment to addressing the challenges of malaria control.

Please see FY 2022 PMI budget tables for a detailed list of proposed activities with FY 2022 funding.