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U.S. PRESIDENT'S MALARIA INITIATIVE

Guinea

Malaria Operational Plan FY 2023

This FY 2023 Malaria Operational Plan has been approved by the Acting 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 2023 appropriation from the U.S. Congress. Any updates will be reflected in revised postings.

This document was prepared in the early months of 2022 as the COVID-19 pandemic continued to evolve worldwide, including in PMI-partner countries. The effects of the pandemic on malaria control and elimination work in 2023 are difficult to predict. However, because U.S. Congressional appropriations for PMI are specific to work against malaria and any appropriations for work against COVID-19 are specific for that purpose and planned through separate future U.S. government planning processes, this FY 2023 MOP will not specifically address the malaria–COVID-19 interface and will reassess any complementary work through timely reprogramming in countries.

CONTENTS

ABBREVIATIONS

ACT	Artemisinin-based Combination Therapy
AI	Active Ingredient
ANC	Antenatal Care
API	Application Programming Interface
CHW	Community Health Worker
DHIS2	District Health Information Software, Version 2
DNPM	*Direction National de la Pharmacie et du Médicament* (National Directorate of Pharmacy and Medicines)
DPS	*Direction Préfectorale de la Santé* (Prefectural Directorate of Health)
DQA	Data Quality Assessment
eLMIS	Electronic Logistics Management Information System
EPI	Expanded Program on Immunization
FETP	Field Epidemiology Training Program
FY	Fiscal Year
Global Fund	Global Fund to Fight AIDS, Tuberculosis and Malaria
HMIS	Health Management Information System
IPTp	Intermittent Preventive Treatment for Pregnant Women
IRS	Indoor Residual Spraying
ITN	Insecticide-treated Mosquito Net
MCH	Maternal and Child Health
MIP	Malaria in Pregnancy
MIS	Malaria Indicator Survey
MOH	Ministry of Health
MOP	Malaria Operational Plan
NMCP	National Malaria Control Program
OR/PE	Operational Research/Program Evaluation
PARMA	PMI-supported Antimalarial Resistance Monitoring in Africa
PCG-SA	*Pharmacie Centrale de Guinée-Société Autonome* (Guinea Central Pharmacy)
PMI	U.S. President's Malaria Initiative
PMS	Post-marketing Surveillance
RDT	Rapid Diagnostic Test
SBC	Social and Behavior Change
SM&E	Surveillance, Monitoring, and Evaluation
SP	Sulfadoxine-pyrimethamine
TES	Therapeutic Efficacy Study
TWG	Technical Working Group
USAID	U.S. Agency for International Development
WHO	World Health Organization

EXECUTIVE SUMMARY

To review specific country context for Guinea, please refer to the country malaria profile, which provides an overview of the country malaria situation, key indicators, the National Malaria Control Program (NMCP) strategic plan, and the partner landscape.

U.S. President's Malaria Initiative

Launched in 2005, the U.S. President's Malaria Initiative (PMI) supports implementation of malaria prevention and treatment measures as well as cross-cutting interventions. PMI's 2021–2026 strategy, *End Malaria Faster*, envisions a world free of malaria within our generation with the goal of preventing malaria cases, reducing malaria deaths and illness, and eliminating malaria in PMI partner countries. PMI currently supports 24 countries in sub-Saharan Africa and three programs across the Greater Mekong Subregion in Southeast Asia to control and eliminate malaria. Guinea began implementation as a PMI partner country in fiscal year (FY) 2011.

Rationale for PMI's Approach in Guinea

Though Guinea has made significant health gains over the past 20 years, its under-five mortality remains among the world's highest. Malaria is the leading cause of clinical consultations, morbidity, and mortality, particularly among children under five years of age. PMI's approach in Guinea is based on the PMI's five core areas of strategic focus: 1) reach the unreached; 2) strengthen community health systems; 3) keep malaria services resilient; 4) invest locally; and 5) innovate and lead. PMI programming is carefully coordinated with the Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund) to ensure geographic coverage of priority malaria interventions.

Overview of Planned Interventions

The proposed FY 2023 PMI funding for Guinea is $14 million. PMI will support the following intervention areas with these funds:

1. Vector Monitoring and Control

PMI supports longitudinal entomological (monthly) monitoring in two prefectures in Guinea (Boké and Faranah). Spot checks (one-time assessments, normally in June) have rotated yearly among seven additional prefectures (Dabola, Kankan, Kissidougou, Labé, Lola, Maferinyah, and Siguiri) across Guinea's four natural regions (Maritime, Middle, Upper, and Forested), which have distinctive climate, ecological, geographical, and anthropological characteristics. Entomological monitoring includes pyrethrum spray catches, human landing catches, and light trap collections. Insecticide resistance testing is also done at 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 2023 funds, PMI will continue to support surveillance and capacity strengthening within the NMCP and other national structures to conduct entomological surveillance as well as supporting the maintenance of the national laboratory and insectary. Additionally, PMI will procure insecticide-treated mosquito nets (ITNs) for routine distribution at antenatal visits and support mass campaign distribution (the next one is scheduled for 2025) of ITNs in PMI-supported areas, though the nets will be procured by another partner.

2. Malaria in Pregnancy

Pregnant women receiving at least one dose of intermittent preventive treatment (IPTp) increased dramatically from 4 percent in 2005 to 79 percent in 2018. However, there is a substantial gap between women who receive one dose and those who receive the recommended three doses (just 36 percent receive IPTp3). PMI will continue to focus on promoting antenatal care (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.

3. Case Management

The NMCP is committed to ensuring universal testing of all suspected malaria cases with rapid diagnostic tests or microscopy and prompt treatment of confirmed malaria cases with efficacious antimalarials, primarily in the form of artemisinin-based combination therapies or injectable artemisinin derivatives. The NMCP revised the national malaria guidelines to ensure adequate COVID-19 prevention measures to protect health workers and clients. PMI supports the NMCP by providing injectable artemisinin derivatives to treat severe malaria. PMI provides the necessary training and supervision of health care workers in health facilities and at the community level to ensure appropriate testing and treatment practices. PMI will continue this support using FY 2023 funds, but will adapt its priorities to match the NMCP strategic shift in focus from training to supervision as the expansion of testing and treatment reaches maturity. PMI will also pay community health worker monthly salaries with FY 2023 funds.

4. Drug-based Prevention

PMI will support the continuation of seasonal malaria chemoprevention (SMC) for children 3 to 59 months of age in seven of the 17 SMC-eligible districts in northern Guinea. SMC in Guinea is implemented using a door-to-door approach over a period of four months and includes testing and treatment of febrile cases.

5. Health Supply Chain and Pharmaceutical Management

To ensure continuous availability of malaria commodities at health facilities and in the community, and to avoid stockouts, PMI will support the NMCP and its supply chain partners in strengthening drug regulatory capacity and logistics management, focusing on district and community levels. FY 2023 supply chain activities will be similar to those of FY 2020–2022, with increased focus on data quality, interpretation, and use via the interoperability tool connecting drug logistics data in the electronic Logistics Management Information System (eLMIS) and service delivery data in the Guinea Health Management Information System (HMIS), which uses the District Health Information Software 2 (DHIS2). The interoperability tool is an application programming interface that permits different systems linked to DHIS2 to communicate with each other and display data to users. A new task will be to coordinate supportive supervision with integrated teams (HMIS, NMCP, Guinea Central Pharmacy (*Pharmacie Centrale de Guinée-Société Autonome*, or PCG-SA), and implementing partners) during quarterly site visits.

6. Social and Behavior Change

PMI-supported social and behavior change (SBC) activities include community dialogues through community action groups, radio spots, training for community health workers, and production of conversation and educational aids, posters, and other print materials. FY 2023 funds will support mass media and interpersonal communication to promote 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 sub-national level, PMI will support the country's SBC technical working group (TWG), workshops and training, and partnerships with local organizations to conduct patient advocacy at the community and facility level.

7. Surveillance, Monitoring, and Evaluation

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 DHIS2 at the health center level. Reporting rates are consistently high, with recent improvements in the percentage of reports submitted on time, but data quality gaps remain. In FY 2023, the NMCP and partners aim to increase the number of health facilities directly entering epidemiologic and commodities data into DHIS2 and eLMIS, respectively. Commodities logistics data are entered into the eLMIS, which links to DHIS2. PMI-supported implementing partners will coordinate with NMCP, HMIS, and the supply chain teams to conduct quarterly supportive supervision and data quality reviews. PMI will support heightened collaboration among NMCP, HMIS, PCG-SA, and partners, given the HMIS database and related upgrades to patient data

collection forms (and related data elements) used at all health pyramid levels which took place in January 2022.

8. Operational Research and Program Evaluation

PMI will not use FY 2023 funds to support operational research and program evaluation in Guinea.

9. Capacity Strengthening

Recent progress and results include revision of the 2022 NMCP annual plan and development of quarterly work plans. Continued activities include risk mitigation and partner coordination within the COVID-19 context and organization of monthly TWG meetings for the following units: SBC, Diagnosis, Surveillance, Monitoring and Evaluation (SM&E), Case Management, Prevention, and Supply Chain Management. FY 2023 funds will support training and capacity building of NMCP staff, NMCP participation in a Baseline Field Epidemiology Training Program, and small project grants to Peace Corps malaria volunteers. PMI will support the NMCP with team building, logistics and supervision, systems strengthening, and office management, including internet connectivity.

I. CONTEXT AND STRATEGY

1. Introduction

Guinea began implementation as a U.S. President's Malaria Initiative (PMI) partner country in fiscal year (FY) 2011. This FY 2023 Malaria Operational Plan (MOP) presents a detailed implementation plan for Guinea, based on the strategies of PMI and the National Malaria Control Program (NMCP). It was developed in consultation with the NMCP and with the participation of national and international partners. PMI is proposing activities that build on partner investments to improve and expand malaria-related services, including investments by the Global Fund to Fight AIDS, Tuberculosis, and Malaria (Global Fund). This document provides an overview of the strategies and interventions in Guinea, describes progress to date, identifies challenges and relevant contextual factors, and provides a description of activities that are planned with FY 2023 funding. For more detailed information on the country context, please refer to the Country Malaria Profile, which provides an overview of the country malaria situation, key indicators, the NMCP strategic plan, and the partner landscape.

2. U.S. President's Malaria Initiative (PMI)

The U.S. President's Malaria Initiative (PMI) is led by the U.S. Agency for International Development (USAID) and implemented together with the U.S. Centers for Disease Control and Prevention. Launched in 2005, PMI supports implementation of malaria prevention and treatment measures—insecticide-treated mosquito nets (ITNs), indoor residual spraying (IRS), accurate diagnosis and prompt treatment with artemisinin-based combination therapies (ACTs), intermittent preventive treatment of pregnant women (IPTp), and drug-based prevention—as well as cross-cutting interventions such as surveillance, monitoring and evaluation; social and behavior change; and capacity strengthening. PMI's 2021–2026 strategy, *End Malaria Faster*, envisions a world free of malaria within our generation with the goal of preventing malaria cases, reducing malaria deaths and illness, and eliminating malaria in PMI partner countries. PMI currently supports 24 countries in sub-Saharan Africa and three programs in the Greater Mekong Subregion in Southeast Asia to control and eliminate malaria. Over the next five years, PMI aims to save lives, reduce health inequities, and improve disease surveillance and global health security.

Under the strategy, and building upon the progress to date in PMI-supported countries, PMI will work with NMCPs and partners to accomplish the following objectives by 2026:

1. Reduce malaria mortality by 33 percent from 2015 levels in high-burden PMI partner countries, achieving a greater than 80 percent reduction from 2000.

2. Reduce malaria morbidity by 40 percent from 2015 levels in PMI partner countries with high and moderate malaria burden.
3. Bring at least 10 PMI partner countries toward national or subnational elimination and assist at least one country in the Greater Mekong Subregion to eliminate malaria.

These objectives will be accomplished by emphasizing five core areas of strategic focus:

1. **Reach the unreached:** Achieve, sustain, and tailor deployment and uptake of high-quality, proven interventions with a focus on hard-to-reach populations.
2. **Strengthen community health systems:** Transform and extend community and frontline health systems to end malaria.
3. **Keep malaria services resilient:** Adapt malaria services to increase resilience against shocks, including COVID-19 and emerging biological threats, conflict, and climate change.
4. **Invest locally:** Partner with countries and communities to lead, implement, and fund malaria programs.
5. **Innovate and lead:** Leverage new tools, optimize existing tools, and shape global priorities to end malaria faster.

3. Rationale for PMI's Approach in Guinea

3.1. Malaria Overview for Guinea

Malaria is endemic throughout Guinea. The country has made important progress in malaria control and prevention, substantially reducing malaria prevalence in children under 5 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 NMCP and supported by PMI and Global Fund. Comparison of indicator data from several surveys shows a substantial decrease in the prevalence of malaria parasitemia in children 6–59 months of age between the 2012 and 2016 surveys, and a slight increase in 2021 (see Country Profile, Table 3). There is substantial regional variation in the ratio of bed net use to access across all regions (see Country Profile, Figure 3). This may partially be related to the timing of national mass bed net campaigns every three years: 2013, 2016, 2019, and 2022 (in progress at time of MOP drafting).

For more detailed information on malaria indicators, please refer to the Country Malaria Profile.

3.2. Key Challenges and Contextual Factors

Though Guinea has made significant health gains in the past 20 years, its under-five mortality remains among the world's highest. Malaria is the leading cause of clinical

consultations, hospitalizations, and hospital deaths, and is the biggest killer of children under five years of age (over 14 percent in this age group). The 2021 Malaria Indicator Survey (MIS) reflected a malaria prevalence of 17 percent in children 6–59 months of age (by microscopy) compared to 15 percent in the 2016 Multiple Indicator Cluster survey. High regional variation in malaria parasitemia prevalence continues, with high prevalence in some regions.

Guinea has among the highest maternal mortality rates in sub-Saharan Africa, at 679 per 100,000 women.[1] Nearly half of all women of reproductive age are anemic, often due to a combination of poor birth spacing, high parasite prevalence, and lack of access to or use of health supplies and services. The 2021 MIS showed 6 percent of women did not receive any prenatal care, an improvement from 17 percent reported in 2005.[2]

Progress continues in several areas. The gap between rural and urban access to prenatal care in 2021 (82 percent and 96 percent, respectively) improved from 40 percent and 84 percent, respectively, in 2018. Malaria prevalence in children under five years of age, annual malaria incidence, and in-patient deaths all reduced between 2005 and 2018. The proportion of women receiving three recommended doses of malaria preventive treatment during pregnancy rose to 50 percent in 2021 from 11 percent in 2012 and 36 percent in 2018. Insecticide-treated bed net use among pregnant women rose to 39 percent from 28 percent in the two previous surveys.

Maintaining gains in Guinea will require a concerted effort, including increased host country financing. The government's financial contribution to malaria control remains low and significant staff vacancies and capacity gaps persist, with NMCP and Ministry of Health (MOH) staff overcommitted. Additionally, repeated outbreaks of vaccine-preventable disease and viral hemorrhagic fevers stretch an already overburdened health system, which has undergone significant staffing changes nationwide since the coup in September 2021.

3.3. PMI's Approach for Guinea

Apart from the national-level support to the NMCP, PMI supports malaria prevention and control activities in 13 of 33 districts in Guinea, plus all five communes of Conakry. Global Fund supports activities in the remaining 20 districts. PMI and Global Fund collaborate to support the NMCP priorities identified in the National Malaria Strategic Plan, 2018–2023. An annual gap analysis is used as the basis for development of a joint action plan and budget use negotiations. Both donors use the same materials and

[1] Institut National de la Statistique and ICF. 2022. *Enquête Démographique et de Santé (EDS) en Guinée 2021*. Conakry, Guinée, and Rockville, Maryland, United States of America.
[2] Ibid.

tools and collaborate on a number of activities, including the development of policies and guidelines.

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

- Vector control: Distribution of long-lasting ITNs through mass campaigns and continuous distribution channels; IRS; and larviciding
- Targeted prevention interventions (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 Guinea Central Pharmacy (*Pharmacie Centrale de Guinée-Société Autonome*, or PCG-SA)
- Social and behavior change (SBC), 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.

Both PMI and Global Fund support all of the above interventions except larviciding and IRS, both of which do not receive any financial support. PMI supports vector surveillance and therapeutic efficacy studies (TES) as well. In Guinea, IRS is supported by mining companies in at least two districts (Siguiri in Upper Guinea and Lola in Forested Guinea). PMI assists the NMCP to review and revise national documents regarding these and all vector control interventions. Also, starting in 2022, Global Fund supports the NMCP to have integrated sentinel sites, an approach PMI does not support.

PMI's overall approach in Guinea is to maintain current levels of financial, intervention, and technical support in collaboration with NMCP and Global Fund. Annual adjustments to increased commodity, operating, and administrative costs, health system shocks, and increased demands are addressed as best as possible. Areas of PMI focus include vector surveillance and control; supply chain management; strategic information derived from epidemiology, commodity, and vector data; human resources capacity building; and health system strengthening, with the goal of maintaining and building on prior years' gains at all levels. Because digital data collection and use are increasing among

the NMCP, MOH, and funding and implementing partners, PMI will continue to adjust and support these innovations.

3.4. Key Changes in this MOP

To harmonize approaches in PMI and Global Fund regions and ensure continuous community-level malaria interventions, in this MOP PMI will support the payment of community health worker (CHW) salaries. Due to budget constraints, PMI will distribute but not procure ITNs for routine distribution.

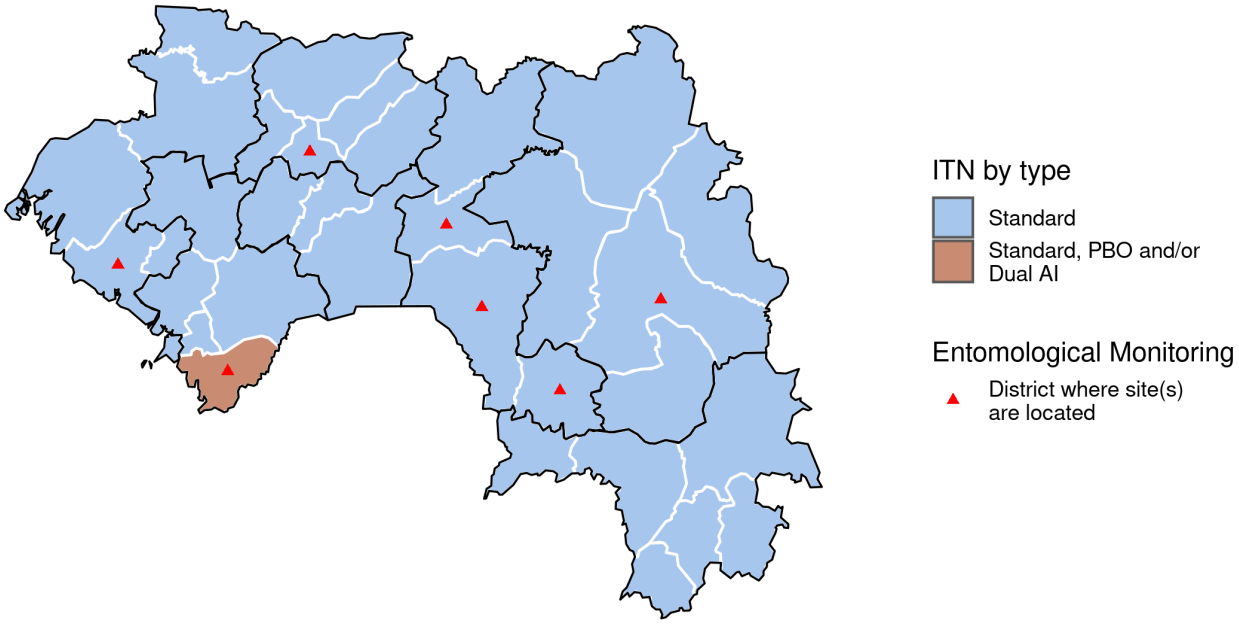
II. OPERATIONAL PLAN FOR FY 2023

1. Vector Monitoring and Control

1.1. PMI Goal and Strategic Approach

The NMCP's malaria strategic plan promotes an integrated vector management strategy, including vector surveillance, insecticide resistance management, IRS, larval source management, and continuous and mass distributions of ITNs. PMI/Guinea supports the use of all of these interventions except for IRS and larval source management. In 2021, PMI supported longitudinal bionomics monitoring in six sentinel sites (villages) in the prefectures of Boké and Faranah in collaboration with the NMCP. Insecticide resistance monitoring took place in Boké, Faranah, Kissidougou, and Labé. For more information about entomological monitoring, please refer to the 2021 Entomological Report. These sites may change slightly in 2022 given the need to accommodate entomology surveillance activities in four sub-prefectures (Maferinyah Centre, Kakossa, Kaback, and Benty) in response to the pilot distribution of dual active ingredient (AI) ITNs in parts of Forécariah. Figure 1 provides a map of proposed vector control monitoring sites in 2022 in Guinea. In 2022, with the assistance of Global Fund, NMCP installed five integrated sentinel surveillance sites nationwide. Though PMI does not support this approach, it will coordinate its current activity support with the NMCP to maximize efficiencies of scale or collaboration.

Figure 1. Map of Vector Control Activities in Guinea



1.2. Recent Progress (between January 2021 and December 2021)

- Monthly technical working groups (TWGs) were organized for the Prevention/Vector Control unit at the NMCP. During these meetings, data on the entomological monitoring activities and ITN durability monitoring activities were reviewed. PMI supported an initial collaboration workshop among the NMCP, the World Health Organization (WHO), and other partners to adapt a WHO-developed District Health Information Software, version 2 (DHIS2) vector control data module for malaria and vectors of other arboviral diseases. PMI also assisted in developing a protocol to evaluate dual AI ITNs that will be distributed sub-nationally in selected sub-prefectures of Forécariah in 2022.
- A total of 234,900 dual AI ITNs were procured for distribution in five selected sites (sub-prefectures) in Forécariah (Kaback, Maferinyah, Allassoyah, Forécariah Centre, and Kalliah).
- PMI supported prevention of malaria in pregnancy (MIP) in accordance with the national policy by providing over 300,000 ITNs via continuous distribution channels. The MIP strategy includes provision of ITNs at first antenatal care (ANC) visit, with distribution of ITNs envisioned to be scaled up in ANC by 2023.
- PMI collaborated intensively with NMCP, Global Fund, and other partners to plan and roll out the first national digitized (using a DHIS2 field collection tool adapted to the Guinean context) bed net campaign population enumeration and distribution in 2022.
- PMI supported ITN durability monitoring by implementing 24-month data collection, monitoring the Yorkool® ITNs from Forécariah, and PermaNet® 2.0 ITNs from Koundara from the 2022 cohort.
- PMI supported facility- and community-level SBC activities to improve demand for ITNs, increase appropriate use, promote care, and mitigate against misuse. For more information, please refer to the Social and Behavior Change section.

1.3. Plans and Justification for FY 2023 Funding

The FY 2023 funding tables contain a full list of vector monitoring and control activities that PMI proposes to support in Guinea with FY 2023 funding. Please visit www.pmi.gov/resources/malaria-operational-plans-mops for these FY 2023 funding tables. Funding for entomology activities has increased due to a change in implementing partner and higher operating costs.

1.3.1. Entomological Monitoring

In CY 2022, PMI/Guinea will conduct monthly entomological monitoring in the Forécariah prefecture. Two sub-prefectures (Kabak and Maferinyah) receiving dual AI ITNs (Interceptor G2) and two sub-prefectures (Benty and Kakossa) receiving standard ITNs have been selected for monitoring. Monitoring is anticipated at these sites for at least three years (CY 2022–2024). These data will be used to identify any changes in malaria trends in the Forécariah prefecture after the mass ITN campaign in CY 2022 and provide information on the potential effect of scale-up of dual AI ITNs in future ITN campaigns. From CY 2022 to CY 2024, PMI/Guinea will also continue to conduct yearly (rainy season) insecticide resistance testing and spot checks, where feasible, in up to seven sites representing the different administrative regions in Guinea. Specific sites to be targeted will include areas of relatively high malaria transmission and mining communities where mining companies are conducting IRS.

Given the change of the implementing partner for entomological monitoring, PMI/Guinea will review and update the entomology processes and use of data with the NMCP, and put greater emphasis on better defining the objective(s) of routine entomological monitoring; the NMCP has requested support here, particularly regarding the WHO malaria risk stratification exercise and proposed changes in implemented activities. Though *Anopheles stephensi* has not currently been identified in Guinea, PMI/Guinea will include training for the identification of this mosquito during routine entomological monitoring. PMI/Guinea will also support TWG meetings with stakeholders involved with entomological monitoring or vector control. Continued support will also be provided for technical assistance in public health entomology to reinforce the capacity of the NMCP. This will involve trainings and workshops for the central and district entomology staff (for example: training on standard PMI entomological techniques and a workshop on the DHIS2 entomology module adapted to the new DHIS2 instance installed in January 2022), and procurement of supplies and equipment where indicated. Given the NMCP's efforts to start an integrated sentinel site program, funded by Global Fund, some entomology staff assigned to work in these sites may benefit from additional training. PMI will coordinate with NMCP and Global Fund on these activities by location.

Summary of Distribution and Bionomics of Malaria Vectors in Guinea

As of CY 2021, the primary vector is *An. gambiae* s.l.; secondary vector(s) are *An. funestus* s.l.; approximately 99 percent of the vectors were morphologically identified as *An gambiae* s.l. The species composition of the *An. gambiae* s.l., analyzed by molecular test, consisted of *An. gambiae* s.s. (92 percent), *An. coluzzi* (7 percent), and *An. arabiensis (*1 percent). Seasonal peak mosquito biting is variable. For example, in villages in Faranah prefecture, peak biting occurs from May to August, while in villages in Boké prefecture it occurs in August. The preferred biting location of the primary vector is variable, with predominant indoor or outdoor biting occurring during different times of

the month and at different locations. In Boké villages, there is generally higher biting indoors, while in Faranah villages, there is generally higher biting outdoors. The preferred resting location of the primary vector has not been investigated to date. Overall, peak biting time in Boké ranged between 10 p.m. and 1 a.m., and in Faranah between midnight and 3 a.m. However, biting rates are similar indoors and outdoors.

Status of Insecticide Resistance in Guinea

Prior to CY 2020, PMI reports of insecticide resistance showed that *An. gambiae* s.l. was susceptible to deltamethrin (>98% mortality at the diagnostic dose) but resistant to alpha-cypermethrin and permethrin. However, as of CY 2020 and 2021, based on intensity assays, low (<98 mortality at 1× the diagnostic dose) to intermediate (<98% mortality at 5× the diagnostic dose) resistance to all pyrethroids, including deltamethrin, has been reported at selected sites. PMI reports provide the regional difference and evolution of resistance in Guinea. As of 2021, insecticide resistance tests in *An gambiae* s.l. suggests piperonyl butoxide partially restores susceptibility to pyrethroids (i.e., greater than 10 percent increase in absolute mortality in assays with a pyrethroid + piperonyl butoxide, compared to assays with a pyrethroid only). In 2021, *An gambiae* s.l. were fully susceptible to chlorfenapyr.

1.3.2. Insecticide-treated Mosquito Nets

Due to PMI/Guinea's need to prioritize its FY 2023 budget, it is only planning to procure ITNs for routine distribution at ANC in PMI-supported areas. At the time of writing, all of the ITNs for the CY 2024 mass campaign will be procured by Global Fund while PMI will pay for their distribution in PMI-supported districts.

1.3.3. ITN Distribution in Guinea

In Guinea, ITNs are distributed via mass campaigns every three years, including CY 2022. Continuous distribution channels are: distribution to pregnant women at ANC, distribution to children during vaccination visits through the Expanded Program on Immunization, and distribution via CHWs using a voucher system. Per NMCP, standard ITNs are distributed unless insecticide resistance assay data to all pyrethroids falls under the 98 percent WHO guideline and are corroborated by intensity assays. The NMCP, with the support of PMI, is continuing to monitor insecticide resistance, including synergist and intensity assays, to better understand the extent and regional differences of pyrethroid resistance and plan for the next ITN campaign in CY 2025. As mentioned above, Forécariah will be piloting dual AI ITNs; this is due to high levels of resistance reported to all pyrethroids in the area. Dual AI ITNs will be distributed sub-nationally as a pilot during the CY 2022 mass ITN campaign and in the ANC and Expanded Program on Immunization channels from 2022 until the next campaign in CY 2025.

In CY 2024, there will be a gap of 617,842 ITNs. PMI/Guinea may be able to fill the gap if opportunities to reprogram funds or coordinate with the private sector emerge.

Please refer to the **ITN Gap Analysis Table** in the annex for more detail on planned quantities and distribution channels.

Standard durability monitoring was done in Guinea for ITNs distributed in CY 2019. The data collection only goes up to 24 months due to the CY 2022 campaign occurring during the collection period.

Table 1. Standard Durability Monitoring

Campaign Date	Site	Brand	Baseline	12-month	24-month	36-month*
April/May2019	Forécariah	Yorkool® (standard ITN)	Jan 2020	Jun 2020	Jun 2021	ND
April/May2019	Koundara	PermaNet 2.0® (standard ITN)	Jan 2020	Jun 2020	Jun 2021	ND

* 36 month of data collection was not done (ND) because of overlap with the 2022 ITN mass campaign.

1.3.3. Indoor Residual Spraying (IRS)

PMI does not support IRS in Guinea.

2. Malaria in Pregnancy

2.1. PMI Goal and Strategic Approach

The revised NMCP Strategic Plan 2018–2023 emphasizes improving the coverage rate of IPTp. The plan follows the standard WHO recommended practices for the prevention of MIP. There is currently no central forum or TWG that brings together the NMCP and maternal and child health (MCH). The current collaboration is initiated at the district level mainly on training and program implementation (case management in pregnant women, IPTp uptake, routine distribution of ITNs during ANC visits, etc.).

2.2. Recent Progress (between October 2020 and September 2021)

To increase the uptake of IPTp, PMI worked with the NMCP to train 1,044 health providers on integrated malaria control activities, including the availability of IPTp during ANC visits, and provided refresher training for 839 CHWs who help refer pregnant women to ANC. PMI distributed 1,091,200 sulfadoxine-pyrimethamine (SP) tablets for use in IPTp provided at health centers.

To improve eligible women's access to ANC services and IPTp, PMI also supported outreach activities, resulting in an additional 881 women living in hard-to-reach areas who received SP doses and 356 pregnant women who received tetanus vaccines. The IPTp coverage rate in the 13 project-supported prefectures increased from 75 percent in the first quarter to 79 percent in the fourth quarter, and from 84 percent to 87 percent in the five communes of Conakry.

To strengthen the capacity of providers to prevent and treat malaria during pregnancy, PMI supported the monthly monitoring of ANC/IPTp services used by pregnant women based on the facility's ANC register. Thirty-eight ANC staff from communes with low IPTp coverage received refresher training on IPTp administration and the use of data collection tools.

To promote ANC and IPTp services, PMI implemented several SBC activities, including community action groups and community dialogues to promote the use of malaria products and services. Using facilitators from non-governmental associations, PMI conducted group discussions with different types of women's groups to sensitize the community and have facilitators directly address common attitudes or barriers to malaria prevention and care. These groups included women working at sewing and hairdressing salons, local women's associations, and any family members (sisters and mothers-in-law) because they often influence decisions about keeping ANC appointments. PMI also worked with the SBC TWG to develop posters and radio and television spots (translated into three local languages) to promote IPTp uptake in the COVID-19 context.

To improve the implementation of the 2016 WHO ANC guidance, PMI supported prevention services in health centers and certain integrated health posts. However, because accessibility to care remains challenging, outreach services started in each facility to allow health care workers to provide routine preventive services for eligible populations with accessibility barriers. This outreach strategy is intended for communities located 5–10 km from the nearest health center.

2.3. Plans and Justification for FY 2023 Funding

The FY 2023 funding tables contain a full list of malaria in pregnancy activities that PMI proposes to support in Guinea with FY 2023 funding. Please visit www.pmi.gov/resources/malaria-operational-plans-mops for these FY 2023 funding tables.

PMI/Guinea will continue to support MIP activities as described in the Recent Progress section in the geographic area depicted in Figure 3. Additional opportunities for innovative cross health sector interventions benefiting MIP may be considered through integrated health programming.

PMI/Guinea will continue to support integrated case management training, including MIP. This training will include health providers in any newly inaugurated health facilities (public, para-public, and private) or any health facilities newly integrated into the Health Management Information System (HMIS). Training will be followed by post-training monitoring to ensure that competencies are being implemented.

PMI/Guinea has not planned for the procurement of SP due to the existing collaboration framework between the U.S. Agency for International Development (USAID) and Global Fund. In the document which will expire in December 2023, Global Fund will procure SP to meet national needs for Guinea. Global Fund expressed willingness to continue to have a collaboration framework for the next grant starting in 2024. The discussion on the content will start around June 2023.

Please refer to the **SP Gap Analysis Table** in the annex for more detail on planned quantities and distribution channels.

Please see the Social and Behavior Change section for details on challenges and opportunities to improve intervention uptake or maintenance.

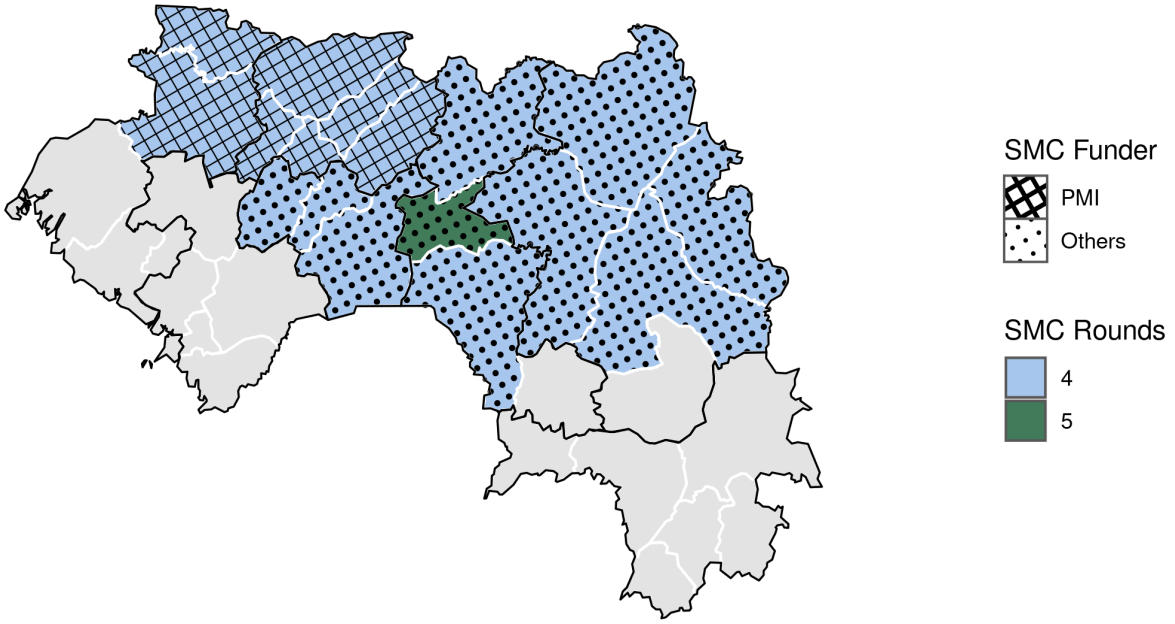
3. Drug-based Prevention

3.1 Seasonal Malaria Chemoprevention

PMI Goal and Strategic Approach

The NMCP's revised 2018–2023 Malaria Strategic Plan promotes SMC as a malaria prevention intervention in areas with highly seasonal malaria transmission. PMI supports the use of SMC as defined in WHO guidance. PMI currently supports SMC activities with the NMCP at the central level (planning, training, supervision, etc.) and all aspects of implementation (paying distributors, field supervision, monitoring, SBC activities, etc.), except drug procurement, which is covered by Global Fund, in seven districts (Koundara and Gaoual in Boké region, and Koubia, Labé Centre, Lélouma, Mali and Tougué in Labé region). In the other 10 SMC-eligible districts, Global Fund supports all aspects of SMC implementation.

Figure 2. Map of Seasonal Malaria Chemoprevention Implementation in Guinea



Note that planned implementation in CY 2022 will be the same as that of CY 2021.

3.2. Recent Progress (between February 2021 and February 2022)

For the 2021 SMC campaign, PMI supported:

- SBC activities (radio spots, roundtable events and interactive radio programs, advocacy meetings, mobile caravans, village meetings) focused on demand generation at the community level.
- Training of 2,086 distribution agents, 333 local supervisors, 84 national- and regional-level trainers, and 438 social mobilizers on SMC procedures, reaching 306,337 children 3 to 59 months of age (out of 330,947 targeted) with four cycles of sulfadoxine-pyrimethamine and amodiaquine (SPAQ) through a door-to-door campaign for a coverage of 93 percent. Across all 17 SMC-eligible districts, 1,103,059 children were targeted and of these, 93 percent received all four cycles. Approximately 37,000 children in Dabola received a fifth cycle as part of a pilot project supported by SMC Impact.
- Training of CHWs to facilitate testing and treatment of febrile people for malaria during the SMC campaign.
- Digitization (using DHIS2 field collection tool adapted to the Guinean context) of the SMC campaign for the first time, which resulted in a daily bulletin of campaign measures (e.g., coverage rate by age group per district). This innovation was so helpful that the NMCP proposed its use for all 17 SMC districts in 2022.

- A pilot of integrated vaccination, ANC, and nutrition program activities in the five prefectures of Labé during the fourth cycle of SMC in October, which also included testing and treatment for fevers or referral for follow-up care as indicated. This was done in conjunction with Gavi, the Vaccine Alliance, and relevant programs within the MOH (Nutrition, Vaccination, Community Health, and MCH). Gavi provided financial assistance for this integrated health campaign activity.
- Monitoring activities, including training of independent monitors to track 10 households per village during distribution and 30 households per health center after distribution to validate coverage and adherence estimates for each round.
- NMCP planning and post-implementation validation meetings.

3.3. Plans and Justification for FY 2023 Funding

The FY 2023 funding tables contain a full list of SMC activities that PMI proposes to support in Guinea with FY 2023 funding. Please visit www.pmi.gov/resources/malaria-operational-plans-mops for these FY 2023 funding tables.

Guinea began implementing SMC in 2015 in six health districts in the northern part of the country. The number of districts has gradually been expanded, and SMC is currently implemented in seven PMI-supported districts, with ten additional districts supported by Global Fund.

In FY 2023, PMI/Guinea will continue to support SMC as described above in the Recent Progress section.

Please refer to the **SPAQ Gap Analysis Table** in the annex for more detail on the planned quantities and distribution channels.

4. Case Management

4.1. PMI Goal and Strategic Approach

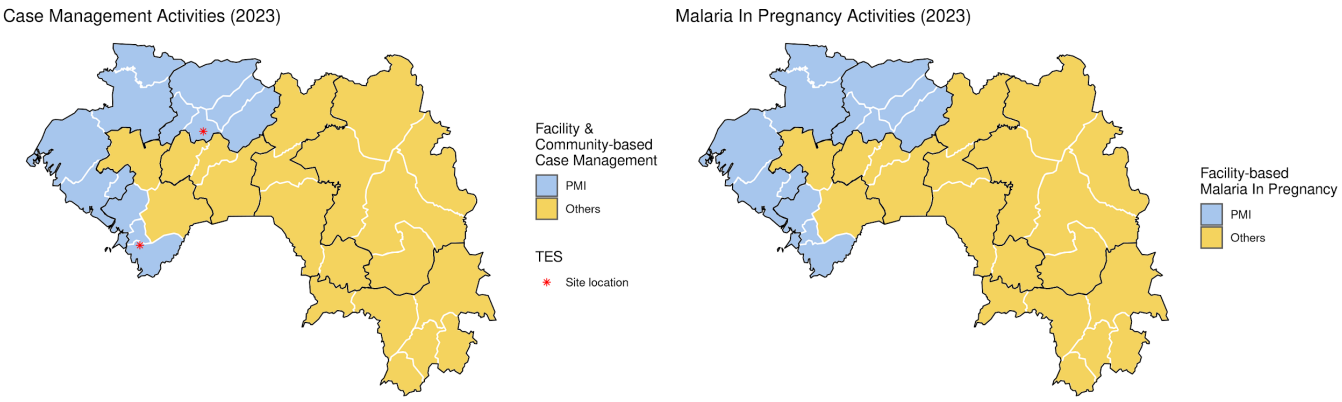
The NMCP case management objective, according to the extended 2018–2023 National Malaria Strategic Plan, is to ensure correct and early management of at least 90 percent of malaria cases. This includes the laboratory diagnosis of all suspected cases identified and the effective and early treatment of cases in health facilities and at the community level. PMI supports all aspects of this approach through support to national-level policy and programmatic activities, commodity procurement, and improvement of facility and community-level health worker performance. Based on the joint framework between PMI and the Global Fund to guide and structure malaria programming in Guinea, PMI agreed to procure medical products for laboratories and severe malaria, while the Global Fund agreed to procure RDTs, SMC treatment for children, IPTp medication for

pregnant women, and medication for uncomplicated malaria. Additionally, PMI supports outreach training and supportive supervision activities in 18 districts and the Global Fund supports 20 districts. PMI will also continue to support annual therapeutic efficacy monitoring in two sites per year, which rotate with two other sites every other year, and conduct quarterly malaria RDT quality assurance.

PMI currently funds integrated community-based case management in Guinea through support to the MOH to train, equip, and supervise the 1,787 CHWs in PMI-supported districts (up to 15 per health center, instead of the previously mandated 10). PMI also provides stipends for transportation fees to ensure CHW can attend monthly meetings and replenish their RDT and ACT supplies. To better align with Guinea's 2018 community health strategy, PMI is working with the MOH to set up the systems to replace monthly transportation stipends with reliable CHW salaries using validated government pay schedules. The vision is for PMI and Global Fund to each pay CHW salaries in their respective regions while conducting advocacy to ensure transition of salary payments to domestic sources. Creating a mechanism for this transition will be a key PMI priority to be supported with FY 2022 and FY 2023 funds. As CHWs provide integrated child health services, PMI's support for CHWs will be combined with funding from other USAID health programs. PMI will also aim to increase CHW coverage to meet the targets laid out in the community health strategy (~3,100 CHWs, 20 per health center, in PMI-supported areas), although limited PMI and other USAID health program funds will be a constraint.

In response to the COVID-19 pandemic, the NMCP drafted the national guidelines for combating malaria in the context of COVID-19. The differential diagnosis between malaria and COVID-19 is a major concern for providers because of the similarity of the symptoms (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 an individual's temperature with a ThermoFlash thermometer, the use of barrier measures, and the appropriate disinfection of materials and solid surfaces used during the diagnosis and treatment of malaria cases.

Figure 3. Map of Case Management, Community Health, and Malaria in Pregnancy Service Delivery Activities in Guinea, 2023



4.2. Recent Progress (between October 2020 and September 2021)

National-level Case Management Activities

- Worked with the NMCP to revise training manuals and protocols to improve malaria case management at facility and community levels.
- Supported conducting refresher training for 25 national trainers on the revised training manuals.
- Supported one pre-External Competency Assessment for Malaria Microscopists for 15 lab technicians and a regular WHO Malaria Microscopy External Competency Assessment session for 12 who passed the test, in collaboration with the Cheikh Anta Diop University of Dakar, to further build the capacities and skills of laboratory technicians on microscopy for malaria diagnosis.
- Conducted supervision visits at both facility and community levels to assess the quality of services provided and to reinforce competencies where needed.
- Strengthened quality assurance of malaria diagnostics in private health facilities and laboratories through training, professional development, and laboratory supervision.
- Collaborated and coordinated with other relevant country government officials, partners, and stakeholders (e.g., Maternal and Child Health, Ministry of Population) and supported national-level coordination meetings (e.g., malaria TWGs).

Facility Level

- Trained 1,044 health providers, and an additional 891 received on-site training on malaria case management.

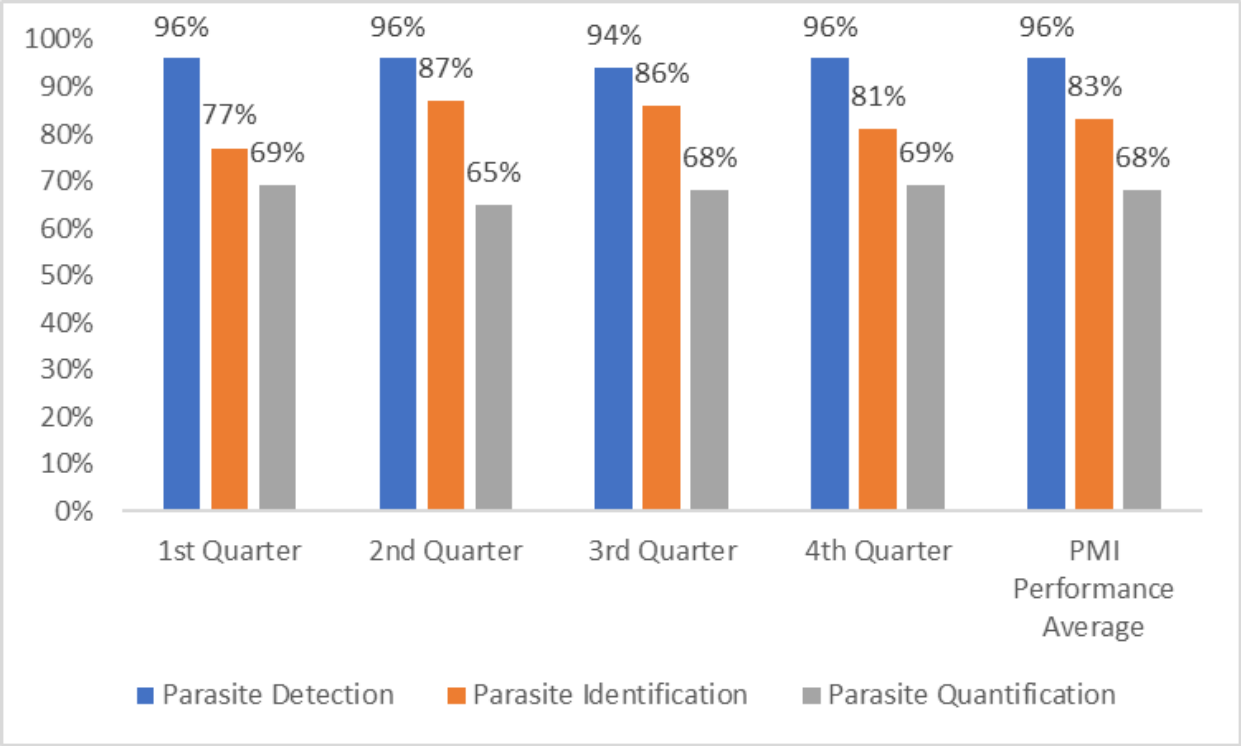
- Collected data during supervision visits of laboratories in Boké, Conakry, Kindia, and Labé Regions, which revealed a relatively high level of skills among microscopists: the average parasite detection was 96 percent, average parasite identification was 83 percent, and average parasite quantification was 68 percent (see Figure 4).
- Supported 758 supervision visits conducted by the Regional Health Director, the Prefecture Health Director (*Direction Préfectorale de la Santé*, or DPS), and municipalities' health director.

Community Level

- Supported refresher training for 839 CHWs on community-based case management of malaria.
- Provided routine support (transportation fees, provision of supplies and RDTs/ACTs) to 1,787 CHWs who conducted 522,851 home visits, tested 388,369 people for malaria, and treated 159,506 malaria cases.
- Improved access to malaria control services in areas with high incidence rates by supporting health centers to organize mobile clinics and testing 24,492 people, among whom 7,850 were positive, 7,839 received treatment, and 11 were referred to a health facility.

Please note that recent progress with monitoring antimalarial efficacy and the TES approach is presented in the Plans and Justification for FY 2023 Funding section below.

Figure 4: Monitoring the Evolution of Diagnostic Performance in the Prefectures Supported by PMI in 2021



4.3. Plans and Justification for FY 2023 Funding

The FY 2023 funding tables contain a full list of case management activities that PMI proposes to support in Guinea with FY 2023 funding. Please visit www.pmi.gov/resources/malaria-operational-plans-mops for these FY 2023 funding tables.

National-level Case Management Activities

Below is a list of national-level case management activities proposed with FY 2023 funding:

- Continue to work with the NMCP and national laboratory to implement a comprehensive quality assurance and control plan for malaria diagnostics, primarily microscopy, at different 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 CHWs, will take place during supervisions.

- Conduct TES and monitor Guinea's first-line ACT artemether-lumefantrine and a new treatment option (Pyramax). Normally, the TES takes place across four sites every two years (two sites in one year and the remaining two sites the following year). In FY 2022, the TES will not take place due to budget constraints. Funds are available to send at least one participant for PMI-supported Antimalarial Resistance Monitoring in Africa (PARMA) hub training in CY 2022 to analyze TES samples collected from 2020 and 2021. FY 2023 funds are meant to cover monitoring activities (including testing of molecular markers of ACT resistance) in two sites. Molecular testing using FY 2023 funds will occur either at the PARMA-Senegal site or in a local Guinean research center, pending technical transfer. CY 2022 is the first year of the Guinea collaboration with PARMA-Senegal in which Guinea will send one to two technicians to be trained at the PARMA-Senegal site using Guinea TES samples. In CY 2023, it is envisioned that PARMA-Senegal will send one to two trainers to Guinea to maximize training for more laboratory technicians on the same methods. FY 2023 funding would continue the support of TES testing in Guinea.

Commodities

- Procure injectable artesunate vials for use in public hospitals and communal medical centers.
- Procure rectal artesunate suppositories for use in public and private health centers.
- Procure other diagnostic-related commodities: microscope consumables (syringes, reagents, slides, and repair materials for previously purchased microscopes).

Please refer to the **ACT, RDT, injectable artesunate, and artesunate suppository Gap Analysis Tables** in the annex for more detail on planned quantities and distribution channels.

Facility Level

PMI will support the supportive supervision of case management practices (inclusive of diagnosis by RDT and treatment) at all levels of the health care system, including public and private hospitals, health centers, health posts, and CHWs in PMI zones using comprehensive malaria-specific supervision tools. District and Regional Health Team staff will continue to be actively involved in supervision activities, along with health center staff for supervision of CHWs. 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 trainings will be held in malaria case management (including in RDT use and MIP). 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.

Community Level

With FY 2023 funds, PMI plans to pay a 450,000 Guinean francs/month salary to a portion of CHWs in PMI-supported districts. Other USAID health program funding will complement this support to pay salaries for the remaining CHWs in PMI districts. Support to CHWs also includes training and refresher training on malaria case management, supervision, monthly meetings at the health center level, transport, data collection tools, and equipment (boots, gloves, and flashlights). Due to limited available funding, it may not be possible to cover the full number of CHWs targeted in the community health strategy (~3,100 in PMI-supported districts). Scale-up of CHW recruitment will be commensurate with available funds.

Monitoring Antimalarial Efficacy

Guinea has a total of four fixed sites for therapeutic efficacy monitoring throughout the country: Maferinyah, Labé, Dabola, and Nzérekoré. Normally, two sites are active and rotate every year; however, due to budget constraints, TES will not be conducted in 2022.

The TES conducted in Dabola and Nzérekoré in 2021 showed an adequate clinical and parasitological response (efficacy) of the two arms of molecules, respectively 95.6 percent of Pyramax and 95.3 percent of artemether-lumefantrine before the molecular correction. Expanded sequencing analysis was conducted on 869 samples collected during the therapeutic efficacy studies from 2017 to 2019 for the *pfk13* (artemisinin), *pfmdr1* (lumefantrine and amodiaquine), *pfcrt* (chloroquine, lumefantrine and amodiaquine), *pfdhfr* (pyrimethamine), *pfdhps* (sulfadoxine), and *pfcytb* (atovaquone) resistance markers.

Preliminary (unpublished) data were consistent with the continued high therapeutic efficacy of ACTs in Guinea. There may be preliminary evidence of selection of markers associated with amodiaquine resistance in SMC zones that requires further validation. There was no indication of high-level SP resistance in any of these four sites.

Table 2. Ongoing and Planned Therapeutic Efficacy Studies

Ongoing Therapeutic Efficacy Studies			
Year	**Site name**	**Treatment arm(s)**	**Plan for laboratory testing of samples**
2021–2021	Maferinyah Labé	AL AL	PARMA Hub in Senegal[1]
2021–2022	Dabola Nzérekoré	AL, As-Pyr AL, As-Pyr	PARMA Hub in Senegal[1]
Planned TESs (funded with previous or current MOP)			
Year	**Site name**	**Treatment arm(s)**	**Plan for laboratory testing of samples**
2023	Dabola Nzérekoré	AL, As-pyr	PARMA Hub in Senegal[1] or Guinea[2]

NB: AL=Artemether Lumefantrine, As-Pyr=Artesunate-Pyronaridine
[1] Testing is planned include expanded list of molecular markers, including *dhfr* and *dhps*.
[2] Pending technology transfer from PARMA-Senegal to Guinea research center.

Please see the Social and Behavior Change section for details on challenges and opportunities to improve intervention uptake or maintenance.

Other Planned Case Management Activities

Guinea will continue to support the planned activities as described in the Recent Progress section.

5. Health Supply Chain and Pharmaceutical Management

5.1. PMI Goal and Strategic Approach

PMI/Guinea's goal is to support the implementation of the national strategic plan for enabling the pharmaceutical system to provide access to malaria diagnosis and treatment to all clients at health facilities and at the community level. PMI/Guinea supports the government's strategy through supply chain and pharmaceutical assistance to the National Directorate of Pharmacy and Medicines (*Direction Nationale de la Pharmacie et du Médicament,* or DNPM), the PCG-SA, and health facilities to ensure consistent availability of lifesaving malaria commodities. PMI also procures malaria medicines, ITNs, and medical supplies for the NMCP. Guinea is implementing PMI's Stockout Reduction Strategy that aims to reduce stockout rates for all malaria commodities to less than 10 percent at all service delivery points in each PMI-supported country.

PMI's principal supply chain investments aim to improve malaria commodity availability at service delivery sites through forecasting and supply planning, procurement of severe malaria commodities and laboratory supplies, maintaining the Management Information System, warehousing and distribution technical assistance, and technical support for a regional warehouse expansion project. Additional details on Guinea's health supply chain system are available in the country profile.

5.2. Recent Progress (between October 2020 and September 2021)

- Supported the expansion of the electronic Logistics Management Information System (eLMIS) to 55 health facilities during the report period and trained pharmacists in Conakry, Kindia, Labé, and Boké regions on the use of the logistic data advanced dashboard. The training increased their capacity to effectively use data for supply decisions and monitor health centers within their districts.
- Supported six performance reviews at the health regions as part of efforts to increase commodity availability. The team reviewed logistics indicators and analyzed commodity orders and distribution plans. PMI/Guinea also supported the MOH to conduct data quality assessments (DQAs) in 24 health facilities and four regional PCG-SA agencies in four health regions (Conakry, Boké, Faranah, and Kankan). The maximum DQA score for a health facility was 9 (promptness, precision, and reliability). The results were 8 at the central PCG-SA and a mean of 7.29 in the health facilities.
- Supported the MOH in completing site assessment for the new national pharmaceutical warehouse project at Coyah and proposed a detailed professional design for the project.
- Supported the improvement of the governance for medical product quality assurance systems and improved country and regional regulatory systems to assure the quality of medical products in the public and private sectors. PMI also supported the establishment of a national multisectoral Post-Marketing Surveillance (PMS) TWG that serves as an instrument of the DNPM to oversee PMS activities in the country.
- Trained the PMS TWG on the online MedRS tool and provided supportive supervision to develop Guinea's first risk-based PMS protocol for antimalarial, MCH, and family planning medicines.
- Worked with the PMS TWG to finalize a national risk-based PMS guidance document.
- Trained the national quality control laboratory staff on good laboratory practices and on six quality control techniques (pH, loss on drying, titrimetry, Karl Fischer titration, ultraviolet-visible spectrophotometry, and high-performance liquid chromatography). These training sessions strengthened the capacity of the National Laboratory for Medication Quality Control (*Laboratoire National de Contrôle du Qualité des Medicaments*) to conduct key quality control techniques respecting good laboratory practices and compendial requirements.
- Recruited international short-term consultants to support the MOH review of its supply chain strategic plan and national pharmaceutical law to ensure

effective coordination and oversight of supply chain and pharmaceutical management.

There was no significant stockout of malaria commodities during the review period. The percentage of facilities with any ACT available on the day of visit increased from 90 percent to 96 percent during the April and December 2021 end-use verification surveys, respectively. The availability of RDTs remained constant at 96 percent during both surveys, while the availability of ITNs decreased from 83 percent to 80 percent. Meanwhile, the availability of SP on the day of visit increased from 88 percent to 92 percent. Fluctuation in stockout rates across the quarters could be explained by an increase in consumption during this period of high transmission. Despite fluctuations, no health facility experienced a stockout of the four ACT presentations during the period.

5.3. Plans and Justification with FY 2023 Funding

The FY 2023 funding tables contain a full list of health supply chain and pharmaceutical management systems strengthening that PMI proposes to support in Guinea with FY 2023 funding. Please visit www.pmi.gov/resources/malaria-operational-plans-mops for these FY 2023 funding tables.

PMI/Guinea will continue to support supply chain and pharmaceutical system strengthening activities with technical assistance as described in the Recent Progress section.

Another priority for PMI/Guinea with FY 2023 funding is supporting the MOH's community-level supply chain activity to improve commodity availability and data management at the last mile while ensuring coordination across all levels of the supply chain.

The eLMIS remains a critical source of supply chain data for planning and implementation. PMI/Guinea will continue to support the MOH and health facilities to compile, analyze, and share critical data with stakeholders for decision-making. The data improvement activities will include the comparison of eLMIS values and calculations, DHIS2 data, and physical stock data to ensure accountability and rational use of malaria commodities.

PMI/Guinea will support the semi-autonomous PCG-SA to implement its strategic objectives, including secure and timely delivery of health products to clinics while ensuring accurate inventory management at all storage locations.

Finally, PMI/Guinea will continue to support improvement of the governance for medical product quality assurance systems and improve country and regional regulatory systems to assure the quality of medical products in the public and private sectors.

6. Social and Behavior Change

6.1. PMI Goal and Strategic Approach

NMCP's strategic plan aims to reach 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.

The NMCP's malaria communication plan for 2018–2023 emphasizes comprehensive strategies and channels to reach various target groups with culturally appropriate messaging on malaria prevention and control. At the national level, PMI/Guinea supports updates to the plan, especially through data gathered from formative assessments on key behavior and knowledge indicators, and provides greater clarity on the perceptions, knowledge levels, social and economic barriers, and behavioral determinants of target populations, especially pregnant women and young children. These have included a 2016 Multiple Indicator Cluster survey, 2018 Knowledge, Attitudes and Practice survey, and 2021 MIS. PMI also supports the SBC TWG overseen and convened by the NMCP SBC unit and composed of representatives from other MOH divisions and technical and financial partners working in malaria control. The TWG's role is to assist the SBC unit to better coordinate and harmonize SBC tools, approaches, and methodologies.

PMI/Guinea also supports SBC activities such as community mobilization and interpersonal communication in PMI zones, while the Global Fund supports activities in the remainder of the country.

6.2. Recent Progress (between October 2020 and September 2021)

To increase regular and correct use of ITNs, adherence to ANC schedules and visits, uptake of IPTp for pregnant women, early care-seeking in the COVID-19 context, and uptake of SMC activities, PMI/Guinea supported multichannel activities:

- Produced radio and television spots (public service announcements) that promoted the importance of correct and consistent ITN use. A total of 3,660 radio spots and 252 television spots were broadcast through 27 public and private radio stations and three television stations. There were also public service announcements about the promotion of regular and correct use of ITNs and care-seeking in the COVID-19 context.

- Supported CHWs in conducting 522,851 door-to-door visits to monitor the regular and correct use of ITNs and, if needed, to hang ITNs and disseminate key messages on IPTp and malaria case management.
- Conducted 5,833 group discussions and educational talks to increase knowledge about malaria and promote the practice of healthy behaviors related to malaria prevention and treatment. These discussions took place in health centers and public places such as soccer fields, marketplaces, hair salons, and sewing salons. These sensitization sessions helped to identify some commonly shared notions that hinder the use of malaria products and services in the communities. The facilitators addressed these concerns with reliable and practical information.
- Updated communication materials for all aspects of ITN use, care, and maintenance
- Produced a calendar to hang in homes, etc. with key messages that promote correct and regular use of ITNs and the use of SP during pregnancy.
- Supported the implementation of the "School and Religious Leaders against Malaria" strategy through the training of 392 religious leaders, 233 peer educators, and 29 school teachers in the regions of Boké and Kindia.
- Used mobile caravans to inform and educate communities about upcoming SMC campaigns, especially in the context of COVID-19. Mobile caravan staff spread awareness of when the teams were planning to visit and the importance of keeping children 3–59 months of age at home so they would benefit from the first dose of drugs. The staff also explained that, because of COVID-19, mothers and caregivers will give the first dose to their children under the supervision of distributors and then counseled them on the importance of giving their children the additional two doses correctly. This strategy resulted in strong participation in the campaign.

Challenges

- Reaching people, especially those without radios, was challenging during periods of high COVID-19 transmission. PMI's use of mobile caravans, as described above, was one approach to mitigate this challenge.
- Case management challenges include ensuring continuity of health care services and adherence to national guidelines and protocols (especially in the hospitals/communal medical centers and private health facilities) and stockouts of malaria commodities in some health facilities. To overcome these challenges, PMI will increase onsite training, coaching, and supervision visits. PMI will also continue to monitor the distribution of malaria commodities and ensure that health facilities and CHWs receive the quantities they have ordered when available.

- At least 80 percent of households visited in PMI-supported prefectures had an ITN. However, the universal coverage goal of one ITN per two people was low, with 63 percent covered throughout the period, and the proportion of ITNs in good condition was at 73 percent. While an average of 83 percent of available ITNs were hanging, the coverage of sleeping spaces remains a problem in households because of low availability. This availability may be related to the deterioration of ITNs in households since the 2019 mass ITN campaign. The 2021 Guinea MIS showed 42 percent of the household population had access to ITNs and 33 percent slept under an ITN the day before the interview. The 9 percentage point gap between access to ITNs and their usage shows the need to strengthen raising awareness on the use of ITNs.[3]

6.3. Plans and Justification with FY 2023 Funding

The FY 2023 funding tables contain a full list of SBC activities that PMI proposes to support in Guinea with FY 2023 funding. Please visit www.pmi.gov/resources/malaria-operational-plans-mops for these FY 2023 funding tables.

PMI/Guinea plans to focus SBC support on early and frequent ANC attendance and prompt care-seeking for fever for children under five years of age through mass media and interpersonal communication (e.g., through religious leaders, community action groups, and CHWs). Specific approaches, messaging, and channels will be planned around a dual analysis of human behaviors and environmental factors. See Table 3 for additional details.

Table 3. Priority Behaviors to Address

Behavior	Target Population	Geographic Focus	Programming to Address Behavior
Early and frequent ANC attendance	Pregnant women and their family members	13 health districts and five communes of Conakry	• Conduct community outreach activities to promote early and frequent ANC attendance • Continue the peer-to-peer, community, household, and health providers-level interpersonal communications
Prompt care-seeking for fever for children under five years of age	Heads of households, mothers, guardians of children under five years of age, health providers, community mobilizers, health	13 health districts and five communes of Conakry	• Continue the peer-to-peer, community, household, and health providers-level interpersonal communications informed by data in prompt care-seeking • Promote improved quality of care at health facilities through community dialogues

[3] Guinea: MIS, 2021 - Final Report (French) - The DHS Program

Behavior	Target Population	Geographic Focus	Programming to Address Behavior
	providers, health authorities		• Provide technical assistance to media stations for production and airing of radio shows and spots to promote prompt care-seeking

Additional Support Activities:
Continued SBC capacity building at both the central and decentralized levels is needed, with increased level of effort at the central level. PMI will continue to support:

- Coordination at the national level through targeted support to improve the effectiveness of the SBC TWG
- Capacity strengthening of key players and stakeholders for effective SBC design and implementation of activities
- With the integrated new bilateral program in Guinea, advocacy for the implementation of an integrated behaviors survey for better targeting of malaria SBC activities

7. Surveillance, Monitoring, and Evaluation

7.1. PMI Goal and Strategic Approach

The Guinea NMCP and malaria partners use the national SM&E plan to guide SM&E priorities, which include data collection activities to inform implementation, such as routine health facility-based surveillance, household surveys, and health facility surveys. Additional priorities include improving interaction with the routine health management information system office (*SNIS* in French), other implementing partners, and regional and district level data managers to strengthen the awareness of malaria data element needs for Guinea. Collectively, the aim of these activities is to maintain a strong foundation for reporting and to use high quality routine malaria data. With FY 2023 funds, PMI/Guinea will continue to support these activities, with a new focus on coordinated supervisions to assist with the application programming interface (API) interoperability tool connecting the epidemiology, logistics, and entomology data across DHIS2 and eLMIS.

7.2. Recent Progress (between October 2020 and September 2021)

PMI supported the following activities at the central level:

- Planning, implementation, and dissemination of the 2021 MIS (originally planned for 2020)
- NMCP SM&E technical working group monthly and quarterly review meetings and supervisions

- Participation in the regional malaria quarterly review meetings
- Production and dissemination of monthly and annual national malaria bulletins
- Expansion of the number of health facilities trained in the use of the API interoperability tool between DHIS2 and eLMIS from 55 to 85
- Training of new MOH central level staff on the use of the API interoperability tool
- Integrated supportive supervisions at selected districts on the API interoperability tool as part of data quality reviews

PMI supported the following activities at the regional and district levels:

- Supported quarterly regional data review meetings in four regions (Boké, Labé, Kindia, Conakry), with participation from 13 districts and five Conakry communes.
- Supported 18 districts (13 plus the five communes of Conakry) to hold monthly malaria DQAs at the health facility level, including evaluation of CHW data.
- Supported 18 districts (13 plus the five communes of Conakry) to supervise malaria activities at both health facility and community levels.
- Conducted DQAs in some health facilities to ensure the quality of the data transmitted by the health facilities and to maintain the progress made over the past year.

The SM&E activities often face supervision challenges at the district and health center levels to properly aggregate monthly malaria epidemiology and logistics data from health center, health posts, and CHWs. Persistent challenges are: the consistent availability of the correct reporting forms for health centers and health posts from HMIS; regular supervision of epidemiology and logistics data aggregation at health center level (health chiefs leading these activities are often overstretched); and variability in timeliness, completeness, and accuracy of data. These are interrelated and remain key areas in need of technical support, strengthening, and financing.

7.3. Plans and Justification with FY 2023 Funding

The FY 2023 funding tables contain a full list of SM&E activities that PMI proposes to support in Guinea with FY 2023 funding. Please visit www.pmi.gov/resources/malaria-operational-plans-mops for these FY 2023 funding tables.

PMI/Guinea will continue to support SM&E activities as described in the Recent Progress section, with some central-level activities as well as focused support to 18 districts. Efforts will focus on the health center level to improve data reporting timeliness, completeness, and accuracy, the benefits of which will compound at the

district, regional, and national level to improve data use, reporting, and communication back to all levels. In addition, PMI will support quarterly in-depth supervision visits and data quality audits for malaria epidemiological, entomological, and commodity data. PMI continues to support 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 epidemiology, entomology, and commodity 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. See Table 4 for a summary of recent, ongoing, and planned malaria surveillance activities.

Table 4. Available Malaria Surveillance Sources

Source	Data Collection Activity	2020	2021	2022	2023	2024	2025
Household Surveys	Demographic Health Survey				P		
Household Surveys	Malaria Indicator Survey	(X)↠	X				
Household Surveys	Multiple Indicator Cluster Survey						
Household Surveys	Expanded Program on Immunization Survey						
Health Facility Surveys	Service Provision Assessment						
Health Facility Surveys	Service Availability Readiness Assessment Survey	X					
Health Facility Surveys	Other Health Facility Survey	X					
Malaria Surveillance and Routine System Support	Therapeutic Efficacy Studies	X	X	X	P	P	
Malaria Surveillance and Routine System Support	Support to Parallel Malaria Surveillance System						
Malaria Surveillance and Routine System Support	Support to HMIS	X	X	X	P	P	
Malaria Surveillance and Routine System Support	Support to Integrated Disease Surveillance and Response	*	*	*	P*	P*	
Malaria Surveillance and Routine System Support	Electronic Logistics Management Information System	X	X	X	P	P	
Malaria Surveillance and Routine System Support	Malaria Rapid Reporting System						

Source	Data Collection Activity	2020	2021	2022	2023	2024	2025
Other	End Use Verification Survey	X	X	P	P	P	
Other	School-based Malaria Survey						
Other	Knowledge, Attitudes and Practices Survey, Malaria Behavior Survey					P	
Other	Malaria Impact Evaluation						
Other	Entomologic Monitoring Surveys	X	X	X	P	P	

*Non-PMI funded activities
↠Due to COVID-19, the MIS was delayed from 2020 to 2021
X denotes completed activities and P denotes planned activities

8. Operational Research and Program Evaluation

8.1. PMI Goal and Strategic Approach

PMI does not currently support operational research or program evaluation (OR/PE) in Guinea. No PMI-supported OR/PE is ongoing or has been recently completed.

In 2022, with support from Global Fund, NMCP hired an operational research focal point who will develop OR/PE for NMCP. Further details will be shared during the year (see Table 5).

Table 5. Non-PMI funded Operational Research/Program Evaluation Studies Planned/Ongoing in Guinea

Source of Funding	Implementing institution	Research Question/Topic	Current status/ timeline
Global Fund	NMCP	TBD	CY 2022

8.2. Plans and Justification with FY 2023 Funding

No OR/PE activities are proposed with FY 2023 funding.

9. Capacity Strengthening

9.1. PMI Goal and Strategic Approach

PMI/Guinea objectives for health system strengthening activities include training of health workers on case management, supply chain management, health information systems strengthening, drug quality monitoring, and NCMP capacity building. These contribute to the government's strategy by renewed financial investment and technical commitment to quality malaria care provision, health system resources, personnel, and processes.

9.2. Recent Progress (between October 2020 and September 2021)

PMI/Guinea provided continued support for capacity strengthening within the NMCP last year. This included financing national and international conference and workshop attendance and the logistics required to hold TWG meetings. PMI also maintained a funding line for NMCP-driven research proposals. Some planned capacity strengthening investments were reprogrammed due to budget shortfalls.

9.3. Plans and Justification with FY 2023 Funding

The FY 2023 funding tables contain a full list of capacity strengthening activities that PMI proposes to support in Guinea with FY 2023 funding. Please visit www.pmi.gov/resources/malaria-operational-plans-mops for these FY 2023 funding tables.

Support for Field Epidemiology Training Program (FETP) and Peace Corps will continue with FY 2023 funds. Previous FY 2021 funding for FETP was redirected to another activity; FY 2022 funding will be used for the first FETP baseline cohort. FY 2023 funding would continue baseline cohort enrollment. Given the anticipated re-entry of Peace Corps volunteers in October 2022, PMI/Guinea funding will be used for any health or malaria-focused volunteers.

10. Staffing and Administration

Five health professionals oversee PMI in Guinea. The interagency team is led by the USAID Health Office Director and consists of a USAID Resident Advisor, a U.S. Centers for Disease Control and Prevention Resident Advisor, a Malaria Specialist, and a Data Specialist. The PMI/Guinea interagency team supports program management, including project design, oversight of the implementation of prevention and treatment activities, monitoring and evaluation of outcomes and impact, reporting of results, and the provision of guidance and direction to PMI implementing partners as needed.

ANNEX: GAP ANALYSIS TABLES

Table A-1. ITN Gap Analysis Table

Calendar Year	2022	2023	2024
Total country population	14,129,186	14,440,028	14,757,708
Total population at risk for malaria	14,129,186	14,440,028	14,757,708
PMI-targeted at-risk population	14,129,186	14,440,028	14,757,708
Population targeted for ITNs	15,193,986	14,440,028	14,757,708
Continuous Distribution Needs			
Channel 1: ANC	594,485	607,564	620,931
Channel 1: ANC Type of ITN	Single Pyrethroid	Single Pyrethroid	Single Pyrethroid
Channel 2: EPI	486,397	497,098	508,034
Channel 2: EPI Type of ITN	Single Pyrethroid	Single Pyrethroid	Single Pyrethroid
Channel 3: School			
Channel 3: School Type of ITN			
Channel 4: Community			
Channel 4: Community Type of ITN			
Channel 5:	20,169	20,572	20,984
Channel 5: Type of ITN	Dual AI	Dual AI	Dual AI
Estimated Total Need for Continuous Channels	1,101,052	1,125,234	1,149,949
Mass Campaign Distribution Needs			
Mass distribution campaigns	9,419,457	0	0
Mass distribution ITN type	Dual AI and Single Pyrethroid		
Estimated Total Need for Campaigns	9,419,457	0	0
Total ITN Need: Continuous and Campaign	**10,520,509**	**1,125,234**	**1,149,949**
Partner Contributions			
ITNs carried over from previous year	338,466	637,307	231,284
ITNs from Government	0	0	0
Type of ITNs from Government			
ITNs from Global Fund	7,239,100	0	0
Type of ITNs from Global Fund	Single Pyrethroid	Single Pyrethroid	Single Pyrethroid
ITNs from other donors	3,095,350	0	0
Type of ITNs from other donors	Single Pyrethroid		
ITNs planned with PMI funding	484,900	719,211	300,823
Type of ITNs with PMI funding	Dual AI and Single Pyrethroid	Single Pyrethroid	Single Pyrethroid
Total ITNs Contribution Per Calendar Year	**11,157,816**	**1,356,518**	**532,107**
Total ITN Surplus (Gap)	**637,307**	**231,284**	**(617,842)**

Table A-2. RDT Gap Analysis Table

Calendar Year	2022	2023	2024
Total country population	14,129,186	14,440,028	14,757,708
Population at risk for malaria	14,129,186	14,440,028	14,757,708
PMI-targeted at-risk population	14,129,186	14,440,028	14,757,708
RDT Needs			
Total number of projected suspected malaria cases	4,851,935	5,730,407	6,706,714
Percent of suspected malaria cases tested with an RDT	100%	100%	100%
RDT Needs (tests)	4,851,935	5,730,407	6,706,714
Needs Estimated based on Consumption Data			
Partner Contributions (tests)			
RDTs from Government	0	0	0
RDTs from Global Fund	8,650,925	0	0
RDTs from other donors	0	0	0
RDTs planned with PMI funding	0	0	0
Total RDT Contributions per Calendar Year	**8,650,925**	**0**	**0**
Stock Balance (tests)			
Beginning Balance	2,329,446	6,128,436	398,029
- Product Need	4,851,935	5,730,407	6,706,714
+ Total Contributions (received/expected)	8,650,925	0	0
Ending Balance	**6,128,436**	**398,029**	**(6,308,685)**
Desired End of Year Stock (months of stock)	16	16	16
Desired End of Year Stock (quantities)	6,469,247	7,640,543	8,942,285
Total Surplus (Gap)	**(340,811)**	**(7,242,514)**	**(15,250,970)**

Table A-3. ACT Gap Analysis Table

Calendar Year	2022	2023	2024
Total country population	14,129,186	14,440,028	14,757,708
Population at risk for malaria	14,129,186	14,440,028	14,757,708
PMI-targeted at-risk population	14,129,186	14,440,028	14,757,708
ACT Needs			
Total projected number of malaria cases	3,095,465	3,592,055	4,130,471
Total ACT Needs (treatments)	3,095,465	3,592,055	4,130,471
Needs Estimated based on Consumption Data			
Partner Contributions (treatments)			
ACTs from Government	0	0	0
ACTs from Global Fund	4,065,930	0	0
ACTs from other donors	0	0	0
ACTs planned with PMI funding	0	0	0
Total ACTs Contributions per Calendar Year	**4,065,930**	**0**	**0**
Stock Balance (treatments)			
Beginning Balance	5,760,530	6,730,995	3,138,940
- Product Need	3,095,465	3,592,055	4,130,471
+ Total Contributions (received/expected)	4,065,930	0	0
Ending Balance	**6,730,995**	**3,138,940**	**(991,531)**
Desired End of Year Stock (months of stock)	16	16	16
Desired End of Year Stock (quantities)	4,127,287	4,789,407	5,507,295
Total Surplus (Gap)	**2,603,708**	**(1,650,467)**	**(6,498,826)**

Table A-4. Inj. Artesunate Gap Analysis Table

Calendar Year	2022	2023	2024
Injectable Artesunate Needs			
Projected number of severe cases	188,050	189,283	192,283
Projected number of severe cases among children	77,101	77,606	78,836
Average number of vials required for severe cases among children	6	6	6
Projected number of severe cases among adults	110,950	111,677	113,447
Average number of vials required for severe cases among adults	6	6	6
Total Injectable Artesunate Needs (vials)	**1,128,300**	**1,135,698**	**1,153,698**
Needs Estimated based on Consumption Data			
Partner Contributions (vials)			
Injectable artesunate from Government	0	0	0
Injectable artesunate from Global Fund	0	0	0
Injectable artesunate from other donors	0	0	0
Injectable artesunate planned with PMI funding	981,500	751,735	1,023,978
Total Injectable Artesunate Contributions per Calendar Year	**981,500**	**751,735**	1,023,978
Stock Balance (vials)			
Beginning Balance	1,050,560	903,760	519,797
- Product Need	1,128,300	1,135,698	1,153,698
+ Total Contributions (received/expected)	981,500	751,735	1,023,978
Ending Balance	**903,760**	**519,797**	**390,077**
Desired End of Year Stock (months of stock)	16	16	6
Desired End of Year Stock (quantities)	1,504,400	1,514,264	576,849
Total Surplus (Gap)	**(600,640)**	**(994,467)**	**(186,772)**

Table A-5. RAS Gap Analysis Table

Calendar Year	2022	2023	2024
Artesunate Suppository Needs			
Number of severe cases expected to require pre-referral dose (or expected to require pre-referral dose based on number of providers for the service)	12,246	11,546	9,589
Total Artesunate Suppository Needs (suppositories)	**24,492**	**23,092**	**19,178**
Needs Estimated based on HMIS Data			
Partner Contributions (suppositories)			
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	25,868	25,866	15,295
Total Artesunate Suppositories Available	**25,868**	**25,866**	**15,295**
Stock Balance (suppositories)			
Beginning Balance	0	1,376	4,150
- Product Need	24,492	23,092	19,178
+ Total Contributions (received/expected)	25,868	25,866	15,295
Ending Balance	**1,376**	**4,150**	**267**
Desired End of Year Stock (months of stock)	10	10	10
Desired End of Year Stock (quantities)	20,410	19,243	15,982
Total Surplus (Gap)	**(19,034)**	**(15,093)**	**(15,715)**

Table A-6. SP Gap Analysis Table

Calendar Year	2022	2023	2024
Total Country Population	14,129,186	14,440,028	14,757,708
Total Population at Risk for Malaria	14,129,186	14,440,028	14,757,708
PMI Targeted at Risk Population	14,129,186	14,440,028	14,757,708
SP Needs			
Total Number of Pregnant Women	635,813	649,801	664,097
Percent of pregnant women expected to receive IPTp1	95%	95%	97%
Percent of pregnant women expected to receive IPTp2	86%	86%	87%
Percent of pregnant women expected to receive IPTp3	78%	81%	82%
Percent of pregnant women expected to receive IPTp4	73%	78%	80%
Total SP Needs (doses)	**2,110,900**	**2,209,324**	**2,297,775**
Needs Estimated based on HMIS Data			
Partner Contributions (doses)			
SP from Government	0	0	0
SP from Global Fund	2,273,333	2,934,333	0
SP from other donors	0	0	0
SP planned with PMI funding	0	0	0
Total SP Contributions per Calendar Year	**2,273,333**	**2,934,333**	**0**
Stock Balance (doses)			
Beginning balance	3,498,333	3,660,766	4,385,775
- Product Need	2,110,900	2,209,324	2,297,775
+ Total Contributions (Received/expected)	2,273,333	2,934,333	0
Ending Balance	**3,660,766**	**4,385,775**	**2,088,000**
Desired End of Year Stock (months of stock)	16	16	16
Desired End of Year Stock (quantities)	2,814,534	2,945,766	3,063,700
Total Surplus (Gap)	**846,233**	**1,440,009**	**(975,700)**

Table A-7. SMC Gap Analysis Table

Calendar Year	2022	2023	2024
Total population in the SMC targeted age range	2,825,837	2,888,006	2,951,542
SMC Drug (SP+AQ) Needs			
National population 3-11 months targeted for SMC	238,501	243,748	249,110
National population 12-59 months targeted for SMC	954,003	974,991	996,440
Total national population targeted for SMC	**1,192,503**	**1,218,738**	**1,245,551**
PMI population 3-11 months targeted for SMC	0	0	0
PMI population 12-59 months targeted for SMC	0	0	0
Total PMI population targeted for SMC	**0**	**0**	**0**
Total SP+AQ Needs (co-blisters)	**5,360,256**	**5,478,182**	**5,598,702**
Partner Contributions (co-blisters, national)			
SP+AQ carried over from previous year	679,131	876,946	1,121,890
SP+AQ from Government	0	0	0
SP+AQ from Global Fund	5,318,400	**5,478,182**	0
SP+AQ from other donors	239,671	244944	0
SP+AQ planned with PMI funding	0	0	0
Total SP+AQ Contributions per Calendar Year	6,237,202	6,600,072	1,121,890
Total SP+AQ Surplus (Gap)	**876,946**	**1,121,890**	**(4,476,812)**

Table A-8. Primaquine Gap Analysis Table

Calendar Year	2022	2023	2024
Total Country Population	16,923,449	17,126,530	17,332,049
Total population at risk for malaria	9,212,728	9,355,212	9,477,483
PMI-targeted at-risk population	2,160,334	2,192,364	2,219,885
Primaquine Needs			
Total projected number of malaria cases	9,606	5,849	3,554
Total projected number of Pf cases	982	199	40
Total projected number of Pv cases	7,429	5,305	3,383
Total projected number of mixed cases (Pf + Pv)	8,411	5,504	3,423
Total Primaquine Needs (tablets)	**312,864**	**203,896**	**126,647**
Needs Estimated based on Other (specify in comments)			
Partner Contributions (tablets)			
Primaquine from Government	200,000	0	0
Primaquine from Global Fund	0	0	0
Primaquine from other donors	0	0	0
Primaquine planned with PMI funding	150,000	0	0
Total Primaquine Contributions per Calendar Year	**350,000**	**0**	**0**
Stock Balance (tablets)			
Beginning Balance	70,000	107,136	0
- Product Need	312,864	203,896	126,647
+ Total Contributions (received/expected)	350,000	0	0
Ending Balance	**107,136**	**(96,759)**	**(126,647)**
Desired End of Year Stock (months of stock)	6	6	6
Desired End of Year Stock (quantities)	156,432	101,948	63,324
Total Surplus (Gap)	**(49,296)**	**(198,707)**	**(189,971)**