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Côte d'Ivoire

Malaria Operational Plan FY 2024

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This FY 2024 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 2024 appropriation from U.S. Congress. Any updates will be reflected in revised postings.

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ABBREVIATIONS

ACT	Artemisinin-based Combination Therapy
AIDS	Acquired Immunodeficiency Syndrome
AL	Artemether-lumefantrine
An	Anopheles
ANC	Antenatal Care
ASAQ	Artesunate-amodiaquine
CDC	Centers for Disease Control and Prevention
CHW	Community Health Worker
CY	Calendar Year
DSC	Directorate of Community Health (*Direction de la Santé Communautaire*)
DHS	Demographic and Health Survey
DHIS2	District Health Information Software
DIIS	Directorate of Information Technology and Health Information, *Direction de l'Informatique et de l'Information Sanitaire*
Dual AI	Dual Active Ingredient
eLMIS	Electronic Logistics Management Information System
EUV	End use verification
EPI	Expanded Program on Immunization
FSN	Foreign Service National
FY	Fiscal year
Global Fund	Global Fund to Fight AIDS, Tuberculosis and Malaria
HMIS	Health Management Information System
iCCM	Integrated Community Case Management
IG2	Interceptor Generation 2
INHP	National Institute of Public Hygiene, *Institut National de l'Hygiène Publique*
IPC	Interpersonal Communication
IPTp	Intermittent preventive treatment for pregnant women
IRS	Indoor Residual Spraying
ITN	Insecticide-Treated mosquito Net
LMIS	Logistics Management Information System
MIP	Malaria In Pregnancy
MOP	Malaria Operational Plan
NMP	National Malaria Program
NSP	National Strategic Plan
NPSP	New Public Health Pharmacy [*Nouvelle Pharmacie de Santé Publique]*
OR/PE	Operational Research Program Evaluation
OTSS+	Outreach Training and Supportive Supervision Plus
PBO	Pyrethrin-piperonyl butoxide
PMI	U.S. President's Malaria Initiative

RDT	Rapid Diagnostic Test
RDQA	Routine Data Quality Assessments
SBC	Social and behavior change
SM&E	Surveillance, monitoring, and evaluation
SMC	Seasonal Malaria Chemoprevention
SP	Sulfadoxine-pyrimethamine
SPAQ	Sulfadoxine-Pyrimethamine plus Amodiaquine
TA	Technical assistance
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WHO	World Health Organization

EXECUTIVE SUMMARY

To review specific country context for Côte d'Ivoire, please refer to the country malaria profile, which provides an overview of the country's malaria situation, key indicators, the National Malaria Program (NMP) 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 to strengthen health systems. 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 27 countries in Sub-Saharan Africa and three programs across the Greater Mekong Subregion in Southeast Asia to control and eliminate malaria. Côte d'Ivoire began implementation as a PMI partner country in FY 2018.

Rationale for PMI's Approach in Côte d'Ivoire

PMI's investment in Côte d'Ivoire complements the Global Fund's investment to support the country achieve malaria control objectives set forth in the National Strategic Plan. As revealed by the 2021 Demographic and Health Survey preliminary results, more efforts are needed for the country to improve basic health indicators (child mortality, maternal mortality, etc). Moving forward, PMI will augment efforts to support a responsive primary and community health care system, serving as the engine of United States Agency for International Development (USAID)'s multiple health element focus as a primary impact country.

Overview of Planned Interventions

The proposed FY 2024 PMI funding for Côte d'Ivoire is $24 million. PMI will support the following intervention areas with these funds:

1. Vector Monitoring and Control

PMI's vector control strategic approach consists of supporting the country's interventions as approved in the National Strategic Plan (NSP) with the exception of larval source management. In Côte d'Ivoire, PMI will continue supporting vector control activities including procurement and distribution of insecticide-treated nets (ITNs) for routine distribution. With FY 2024 funds, PMI will procure 942,330 pyrethrin-piperonyl butoxide (PBO) and dual active ingredient ITNs for routine distribution and support entomological monitoring activities in 21 sites, including collection, testing and analysis of *Anopheles* species from the different sites.

2. Malaria in Pregnancy

Since FY 2021, PMI has integrated malaria in pregnancy activities in maternal, child health and reproductive health by way of improving the uptake of intermittent preventive treatment of malaria during pregnancy (IPTp). With FY 2024 funds, PMI will continue supporting malaria in pregnancy, including IPTp, training and supervision of malaria case management among pregnant women, and monitoring and supervision of ITN distribution during antenatal care visits in its targeted 45 health districts. This activity will contribute to USAID's Primary Impact activities to improve the overall maternal mortality and child mortality rates in Côte d'Ivoire.

3. Drug-Based Prevention

The NSP includes implementation of seasonal malaria chemoprophylaxis (SMC) as an intervention to reduce malaria morbidity and mortality among children under five years of age. PMI has agreed to support this approach and planning is underway with PMI's technical assistance to implement two cycles of SMC, scheduled to launch in September 2023. A full four-cycle campaign will operate in 2024 in two districts with PMI support.

4. Case Management

PMI supports malaria case management in health facilities in 45 health districts and integrated community case management (iCCM) in 29 health districts. The latter is expected to expand, as PMI has agreed with the NMP to provide resources for iCCM in some additional districts not currently covered. Additionally, with Côte d'Ivoire selected as one of the partner countries for USAID's Primary Impact initiative to accelerate primary health care, PMI is increasing its investment in the community health system. FY 2024 Malaria Operational Plan funds will be used to procure essential case management commodities, such as malaria rapid diagnostic tests, artemisinin-based combination therapies, and rectal artesunate suppositories in support of both health facility-based case management and iCCM.

5. Health Supply Chain and Pharmaceutical Management

Côte d'Ivoire's supply chain and pharmaceutical system continues developing despite many challenges including availability at the last mile and expiry of drugs, including iCCM commodities. PMI will continue its support to commodity quantification, procurement and distribution as well as to improve the electronic logistics information management system (eLIMS) and mSupply software systems. FY 2024 funds will be used to strengthen the supply chain and pharmaceutical system.

6. Malaria Vaccine

Côte d'Ivoire has selected 12 districts out of 113 to roll-out the malaria RTS,S vaccine. The country plans on submitting its application to Gavi, the Vaccine Alliance in July 2023. PMI has not received any specific request from the NMP to support the roll-out of the vaccine. However, based on PMI guidance regarding vaccine support, PMI will determine any need for support from the NMP and do reprogramming if necessary.

7. Social and Behavior Change

Since its inception in Côte d'Ivoire, PMI has supported the NMP to strengthen social and behavior change activities to increase use of malaria prevention measures and control tools. PMI will work to reinforce these activities for increasing correct and consistent ITN use and care, prompt care-seeking for fever, and uptake of IPTp by intensifying pregnant women lost-follow up at community level.

With FY 2024 funds, PMI plans on accelerating and expanding tailored social and behavior change interventions for new interventions such as SMC and the RTS,S vaccine. Therefore, PMI will support reinforcing interpersonal communication (IPC), group discussion and mass media activities including rumor mitigation for acceptance of these new strategies.

8. Surveillance, Monitoring, and Evaluation

PMI support for Surveillance, Monitoring, and Evaluation is aligned with the Côte d'Ivoire Malaria Monitoring and Evaluation Plan 2021–2025 and the 2021–2025 Ministry of Health Strategic Information Department monitoring and evaluation plan. These strategic plans prioritize improving data quality and visualization and increasing data use at all levels of the health information system. With FY 2024 funds, PMI will also support activities intended to improve routine data quality in FY 2024 including routine data quality assessments at peripheral and district levels of the health system (including community level), data validation and data check activities, and integration of new data validation and security features into the national surveillance data platform.

9. Operational Research and Program Evaluation

PMI does not plan to support any operational research in Côte d'Ivoire with FY 2024 funding. The NMP is working on the Country Operation Research plan and PMI can reprogram funds to support some of these research projects if requested.

10. Capacity Strengthening

According to an externally-led capacity strengthening assessment of the NMP conducted by PMI in 2019, program effectiveness is limited by issues in coordination, supply chain management and data quality. PMI has provided technical assistance and other forms of support to the program since then, including funding other major sources of technical support such as entomological research institutions to enable them to produce data necessary for decision making. PMI will continue supporting capacity strengthening activities, including improvement of data quality and partnerships with local governments, the private sector, and the civil society that are equitable and dignified in order to lead the design and implementation of malaria interventions.

11. Staffing and Administration

A team of five staff manage PMI/Côte d'Ivoire, with three locally employed staff (a malaria specialist, a data management specialist and a shared project management specialist). The PMI Team is an integral part of the USAID Health Office and reports to the director as designated by the USAID representative.

I. CONTEXT & STRATEGY

1. Introduction

Côte d'Ivoire began implementation as a PMI partner country in FY 2018. This FY 2024 Malaria Operational Plan (MOP) presents a detailed implementation plan for Côte d'Ivoire, based on the strategies of PMI and the National Malaria Program (NMP). It was developed in consultation with the NMP and national and international partners. The activities PMI is proposing build on investments made by partners to improve and expand malaria-related services, including the Global Fund to Fight AIDS, Tuberculosis, and Malaria (Global Fund). This document provides an overview of the strategies and interventions in Côte d'Ivoire, describes progress to date, identifies challenges and relevant contextual factors, and provides a description of activities that are planned with FY 2024 funding. For more detailed information on the country context, please refer to the Country Malaria Profile, which provides an overview of the country's malaria situation, key indicators, the NMP strategic plan, and the partner landscape.

2. U.S. President's Malaria Initiative

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 (CDC). 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 27 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 NMPs 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 Côte d'Ivoire

3.1. Malaria Overview for Côte d'Ivoire

Despite receiving funding from both PMI and the Global Fund, progress in the fight against malaria in Côte d'Ivoire has stalled. All individuals living in Côte d'Ivoire are at risk for malaria infection throughout the year and national incidence has steadily climbed from 173.4 cases per 1,000 residents in 2020 to 231 cases per 1,000 residents in 2021[1]. Children under five years of age are particularly vulnerable to malaria infection. Preliminary results from the 2021 Demographic Health Survey (DHS) demonstrate an increase in malaria prevalence in this group from 18 percent in 2011 to 26 percent in 2021.[2] Nearly all malaria infections in Côte d'Ivoire are caused by *Plasmodium falciparum*.

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

3.2. Key Challenges and Contextual Factors

Preliminary data from the 2021 DHS show that the malaria control progress in Côte d'Ivoire is stalling. For example, the percentage of households possessing a net only increased slightly from 67 percent in 2011/12 to just 72 percent in 2021 despite significant investment in ITNs. Also, the number sleeping under a net the previous night was 59 percent for children under five and 64 percent for pregnant women. The percentage of children under five years of age with fever for whom advice or treatment was sought was 59 percent. In addition, adoption of interventions that have been successful in reducing the malaria burden in moderate to high

[1] Source: The 2020 RASS and the 2021 Health Statistics Directory of the Ministry of Health.
[2] 2011 Demographic and Health Survey (based on microscopy).

transmission areas of neighboring countries including SMC and continuous distribution of ITNs has been slow. One illustration is the roll-out of the continuous distribution of nets (beyond distribution at antenatal care [ANC] visits and associated with the Expanded Program on Immunization [EPI]), which in the current country context, could have contributed to increasing the nets ownership and usage rate. While a national community health strategy exists, this area is still subject to many challenges and is not always seen as a priority.

As indicated by the data provided in the Country Malaria Profile, malaria indicators are not improving, thus putting the country in the situation where incidence is increasing from 173.4 per 1,000 in 2020 to 231 per 1,000 in 2021 in the general population. For children under five years of age, the malaria incidence recorded the same trend from 2020 with 441 per 1,000 to 494 per 1,000 in 2021. Recurrent supply chain challenges leading to poor availability of commodities, in particular at the community level hinder progress in malaria control. This affects not only malaria commodities, but all commodities for integrated community case management (iCCM), such as oral rehydration salts and antibiotics.

3.3. PMI's Approach for Côte d'Ivoire

Since its inception in 2018 in Côte d'Ivoire, PMI has consistently supported most of the interventions adopted in the National Strategic Plan (NSP) and PMI's support has always been jointly designed and implemented with the NMP. For example, PMI procures ITNs for both routine distribution and distribution through mass campaigns and provides guidance and funding for entomological monitoring. PMI expanded its community health support from 23 districts to 29 districts in 2021. In addition, and consistent with the country's selection as a *Primary Impact* country,[3] this FY 2024 MOP will focus on interventions that support primary health care, in line with other health funding streams (maternal and child health, family planning and reproductive health) from USAID/Côte d'Ivoire. This MOP will also support new and high-impact interventions such as SMC.

Consistent with an increased focus on localization, PMI and the NMP will continue supporting civil society organizations to advocate for policy change that will boost malaria control efforts, but most importantly, better engage communities in the fight against malaria and use of primary health care services.

Since Côte d'Ivoire's selection as a Primary Impact country, USAID and the PMI Team have engaged in discussion to develop a workplan to support the country to improve primary health care to the population, in the context of stagnating health impact indicators. Consistent with the USAID Health Office's option of making malaria the engine of primary health care, the PMI Team and the Health Office have engaged in dialogue with the Ministry of Health, mainly the

[3] Côte d'Ivoire is one of seven USAID Global Health Bureau Primary Impact countries. Primary Impact is a USAID initiative to accelerate progress on primary health care, with the recognition that PHC is the foundation to improve health outcomes across the lifespan. Primary Impact aims to improve coordination and integration of PHC programming across USAID with a focus on five priority domains: effective models of PHC delivery, community engagement and partnership, sub-national and facility management, system integration and interoperability, and resilient health systems and services.

NMP Director, the Directorate of Community Health and the Directorate of Health Information System to discuss best ways of programming PMI resources under Primary Impact. This dialogue has been reinforced during the FY 2024 MOP planning discussion with the National Malaria Program leadership.

In addition, the MOP Team and the NMP agreed that the Directorate of Community Health and the Directorate of the Information System should be two major partners to work with more in the future, in addition to the NMP, in order to maximize and sustain the impact of PMI's investment in the health system.

3.4. Key Changes in this Malaria Operational Plan

Outside what has been previously mentioned, there are no major changes in this year's MOP compared to last year. However, PMI will support SMC implementation and SBC activities around vaccine roll out in the country in 2025. Also, as Cote d'Ivoire has been selected as Primary Impact country, PMI will serve as the engine for rolling out integrated service delivery, including expanding iCCM in more districts. PMI will provide specific support to the Directorate of Community Health to strengthen its capacity to coordinate the community health system and to the Directorate of the Health Information System to improve data quality, which remains a challenge.

II. OPERATIONAL PLAN FOR FY 2024

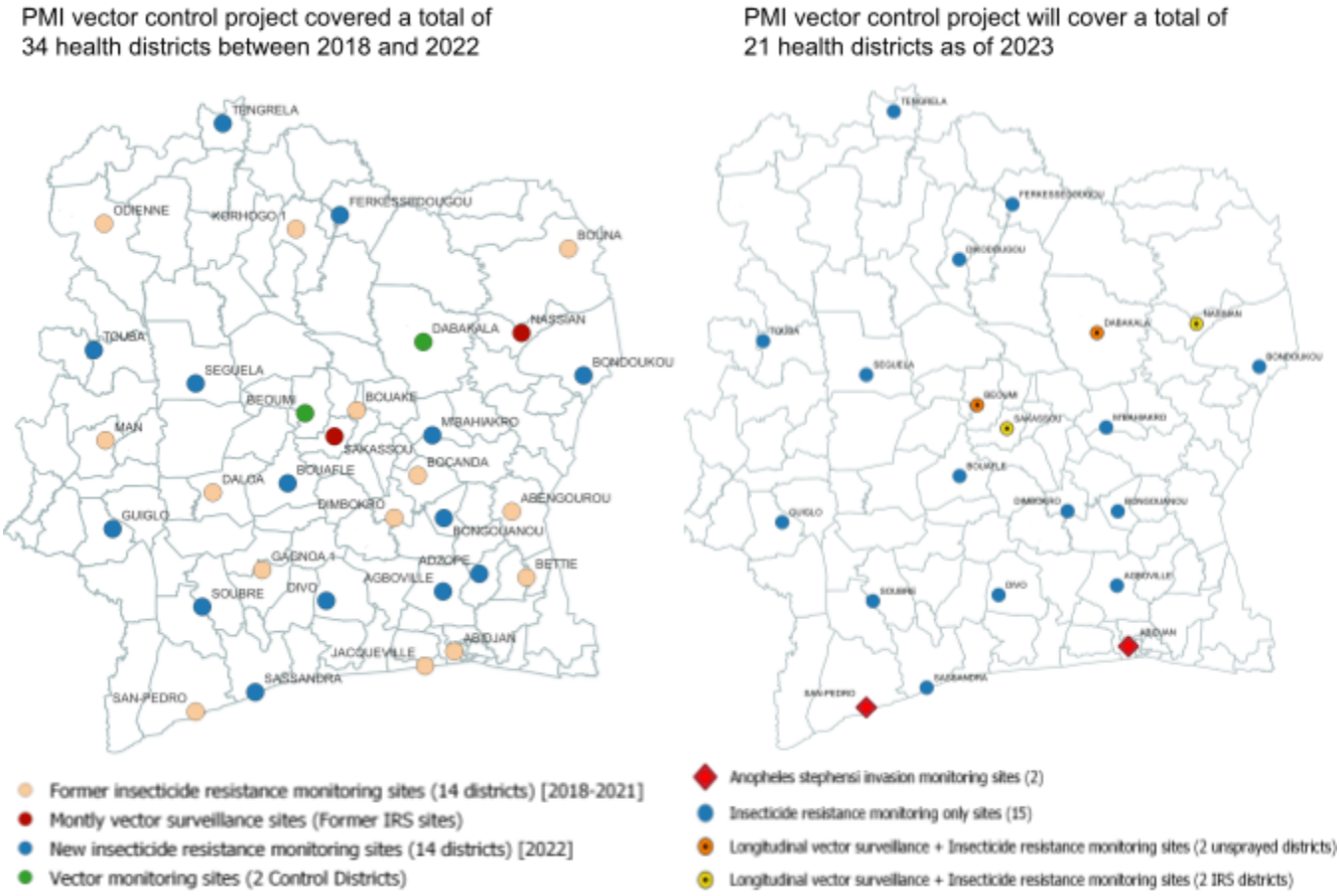
1. Vector Monitoring and Control

1.1. PMI Goal and Strategic Approach

The NSP promotes an integrated vector management strategy, including vector surveillance, insecticide resistance monitoring, continuous and mass distribution of ITNs. PMI supports entomological monitoring in 21 sites. PMI and the Global Fund support mass ITN campaigns every three years. In addition, PMI supports continuous distribution of ITNs via ANC and EPI channels nationwide. Insecticide resistance remains a major threat to the advancement of malaria vector control in Côte d'Ivoire. The NMP, with PMI's support, conducted an ITN stratification exercise in 2022 that defined the type of net needed in each of the country's 113 districts: a) standard ITNs in 24 districts, b) dual active ingredient (AI) ITNs in 32 districts, and PBO ITNs in 57 districts.

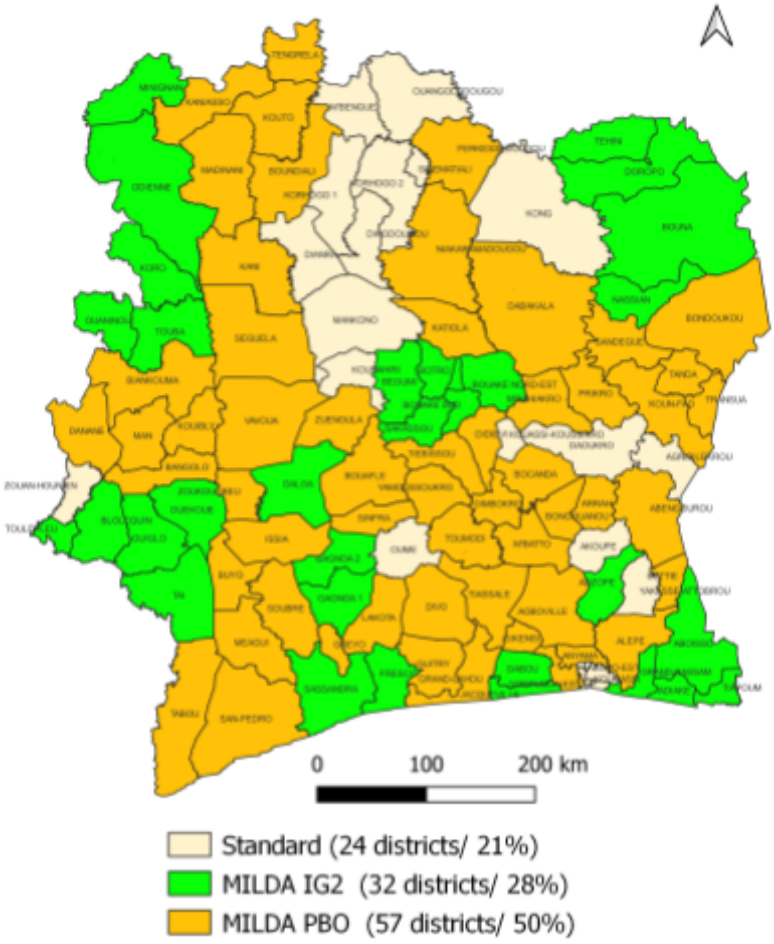
Figure 1a, shows two side-by-side illustrations of the PMI-supported entomological monitoring activities from 2018 to 2022 and in 2023 at district level.

Figure 1a. Map of Côte d'Ivoire Showing PMI Entomological Monitoring Sites



The map in Figure 1b shows the 2022 ITN stratification by insecticide types: Standard nets in 24 health districts, IG2 nets (Interceptor Generation 2 is an insecticide-mixture long-lasting insecticide-treated mosquito net, which combines wash-resistant formulations of chlorfenapyr and the pyrethroid alpha-cypermethrin) in 32 health districts, and PBO nets in 57 health districts.

Figure 1b. Map of Côte d'Ivoire Showing the 2022 Insecticide-treated Mosquito Net Stratification by Insecticide Type



1.2. Recent Progress (April 2022–April 2023)

- Supported entomological monitoring in 18 sentinel sites in 18 health districts, in partnership with four local institutions: the *Centre Suisse de Recherches Scientifiques,* the *Centre d'Entomologie Médicale et Vétérinaire,* the *Institut National de l'Hygiène Publique (INHP),* and the *Institut Pierre Richet*. Monitoring activities included insecticide resistance monitoring at all 18 sentinel sites, vector bionomics monitoring in four sites, and insecticide residual efficacy monitoring at the two IRS sites. See Figure 1. For more information about entomological monitoring, please refer to the Entomological Monitoring Report Cote d'Ivoire 2022.
- Collected data on human-vector behavior in four sites.
- Provided technical assistance (TA) to local research institutions and NMP for entomological monitoring. Assistance included the renovation of the insectary and animal units, and provision of laboratory supplies and equipment.
- Assisted the NMP with the 2022 ITN stratification exercise, results of which informed the ITN procurement for the upcoming 2024 mass campaign.

- Supported the procurement and distribution of standard and PBO ITNs to pregnant women and children under five years of age through routine distribution channels.
- Supported prevention of malaria in pregnancy (MIP) by providing ITNs to women at their first ANC visit.
- Supported ITN durability monitoring, including 12-month and 24-month data collection to monitor the PBO and dual AI nets distributed in 2021.
- Supported the development of a national guide for continuous distribution of ITNs.
- Supported national, facility and community-level social and behavior change (SBC) activities to improve demand for ITNs, increase appropriate use, promote care, and mitigate against misuse. For more information, please refer to the SBC section.
- Supported the planning, implementation, and evaluation of the IRS campaign that took place from May 16 to June 10, 2022 in two districts, covering 70,392 structures and protecting 228,431 people. For more information about the campaign, please refer to the 2022 End of Spray Report.
- Supported enumeration of IRS eligible structures and payment of IRS workers on mobile devices.
- Provided TA to the NMP, the Global Fund Principal Recipient, and District Health Offices with the planning, training, supervision, and close-out of IRS operations in two districts.

1.3 Plans and Justification for FY 2024 Funding

The FY 2024 funding tables contain a full list of vector monitoring and control activities that PMI proposes to support.

1.3.1. Entomological Monitoring

PMI Côte d'Ivoire will continue to support entomological monitoring activities as described in the Recent Progress section above. PMI will conduct entomological monitoring in selected districts receiving dual AI and PBO ITNs, as well as the districts that received IRS in 2022. These data will feed into the durability monitoring and evaluation activities and will help to inform decisions (e.g., to monitor impact of new nets, to better understand vector-human interactions, to properly stratify ITNs at subnational level).

PMI is expanding support for entomological monitoring from 18 sites to 21 sites, adding three new districts. Two of the new sites are port areas devoted to *Anopheles (An.) stephensi* surveillance. There is an urgent need to establish these sites in Côte D'Ivoire in view of the reported presence of the invasive *An.stephensi* in neighboring Ghana. The third new site is Dikodougou, one of the two SMC sites (Dabakala, the second SMC site, is among the current 18 entomologic monitoring sites). The addition of the SMC sites as entomological monitoring sites was recommended by the entomologist team to observe the vectors' behaviors in these areas. PMI will continue to provide TA to build the capacity of local research institutions in supporting the country's vector control portfolio.

Summary of Distribution and Bionomics of Malaria Vectors in Côte d'Ivoire

As of 2022, the primary malaria vector in Côte d'Ivoire remains *An. gambiae* s.l. (94 percent of all *Anopheles* collected); secondary vectors are: *An. funestus* s.l., and *An. nili. An. pharoensis* represents the other *Anopheles* species collected in Côte d'Ivoire. Mosquito populations peak in the country from April to July. However, in the four entomological monitoring sites, there is a variation in peak of *An. gambiae* s.l. biting. Mosquito biting is bimodal in Nassian with peaks occurring May to July and September to October, and in Sakassou with peaks in March to April and October to November. In Beoumi, the mosquito biting pattern is trimodal with peaks in June, August, and October. Four peaks occur in Dabakala in April, June, August, and October. See Figure 1 for entomological monitoring site locations.

At all sites, the peak biting time of *An. gambiae* s.l. is between 12:00 a.m. and 4:00 a.m both indoors and outdoors.

Status of Insecticide Resistance in Côte d'Ivoire

An. gambiae s.l. is resistant to the three pyrethroids (deltamethrin, permethrin and alphacypermethrin) in all 18 sites surveyed, with moderate-to-high resistance intensity. As of 2022, PBO partially restores susceptibility to all three pyrethroids in *An. gambiae* s.l. in 11 of the 18 sites and fully restores susceptibility to deltamethrin in two sites. *An. gambiae* s.l. resistance to pirimiphos-methyl was detected in five out of the 18 sites. There is emerging resistance to clothianidin reported in 11 of the 16 sites tested using World Health Organization (WHO) bottle bioassay methods. There is also emerging resistance to chlorfenapyr at 100 µg/bottle in six out of the 18 sites tested.

1.3.2. Insecticide-Treated Nets

PMI will continue to support procurement and distribution of ITNs through continuous distribution. With FY 2024 funds, PMI will procure 942,330 PBO and dual AI nets for routine distribution for ANC and EPI at the facility level. PMI will also support SBC to improve use and care of ITNs and to mitigate against misuse.

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

Insecticide-Treated Net Distribution in Côte d'Ivoire

In Côte d'Ivoire, ITNs are distributed via mass campaigns every three years, most recently in 2021, with the next campaign planned for 2024. Continuous distribution channels are: routine distribution to pregnant women at ANC visits and to children under five years of age at EPI and curative consultations. The country slowly transitioned from standard (74 percent) to PBO (10 percent) and dual AI (16 percent) nets during its 2021 mass distribution campaign. Based on

the 2022 resistance data, there are plans to distribute more PBO (51 percent) and dual AI (27 percent) nets than standard (21 percent) nets during the 2024 campaign. For this MOP, PMI budgeted for a mix of PBO (75 percent) and dual AI (25 percent) nets with the exact mix to be determined closer to procurement.

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

Table 1. Standard Durability Monitoring

Campaign Date	Site	Brand	Baseline	12-month	24-month	36-month
April 25-29, 2021	Abengourou	PBO (PermaNet 3.0)	October 2021	April 2022	April 2023	Planned for April 2024
April 25-29, 2021	Aboisso	IG2 (Interceptor G2)	October 2021	April 2022	April 2023	Planned for April 2024

IG2: Interceptor Generation 2 (an insecticide-mixture long-lasting insecticide-treated mosquito net, which combines wash-resistant formulations of chlorfenapyr and the pyrethroid alpha-cypermethrin). PBO: pyrethrin-piperonyl butoxide.

1.3.3. Indoor Residual Spraying

The high operational costs of IRS preclude implementing it in more than a few districts. As a result, in consultation with the NMP, PMI discontinued its support to IRS activities in Côte d'Ivoire in June 2022 with the last IRS campaign conducted from May 16 to June 14, 2022 in Sakassou and Nassian districts. Consequently, no resources were allocated to IRS in FY 2022, 2023, or 2024 MOPs. The PMI Côte d'Ivoire decision to withdraw the IRS after CY 2022 was made in consultation with the NMP. However, stopping IRS requires a replacement with an effective exit strategy to guide against potential rebound and increase in malaria cases. In this context, PMI created awareness on the IRS withdrawal for residents that previously received it and prioritized the distribution of PBO and dual AI ITNs in the two IRS districts. Additional plans include: (a) increasing entomological surveillance at the former IRS sites; (b) intensifying malaria epidemiological surveillance activities; (c) reinforcing community case management; and (d) continuing support for SBC to promote malaria awareness and care-seeking behaviors, improve use and care of ITNs and to mitigate against misuse.

The PMI is not supporting any additional vector control activities other than entomological monitoring and ITNs.

2. Malaria in Pregnancy

2.1. PMI Goal and Strategic Approach

The revised National Strategic Plan 2021–2025 objectives include at least 80 percent of pregnant women receiving three or more doses of sulfadoxine-pyrimethamine (SP) during their latest pregnancies by 2025.

PMI continues to provide technical assistance for MIP strategy implementation. At district and facility levels, PMI supports provision of supplies (cups for example) which are useful for directly observed therapy strategy implementation during ANC. PMI additionally supports training and supervision to improve the quality of ANC service and IPTp uptake. These services include ITN distribution at the first ANC visit, administration of a minimum of three doses of IPTp during ANC, and effective case management of malaria according to WHO guidelines. In addition, during ANC a screening is conducted for management of uncomplicated malaria and severe malaria in the first and second/third trimesters.

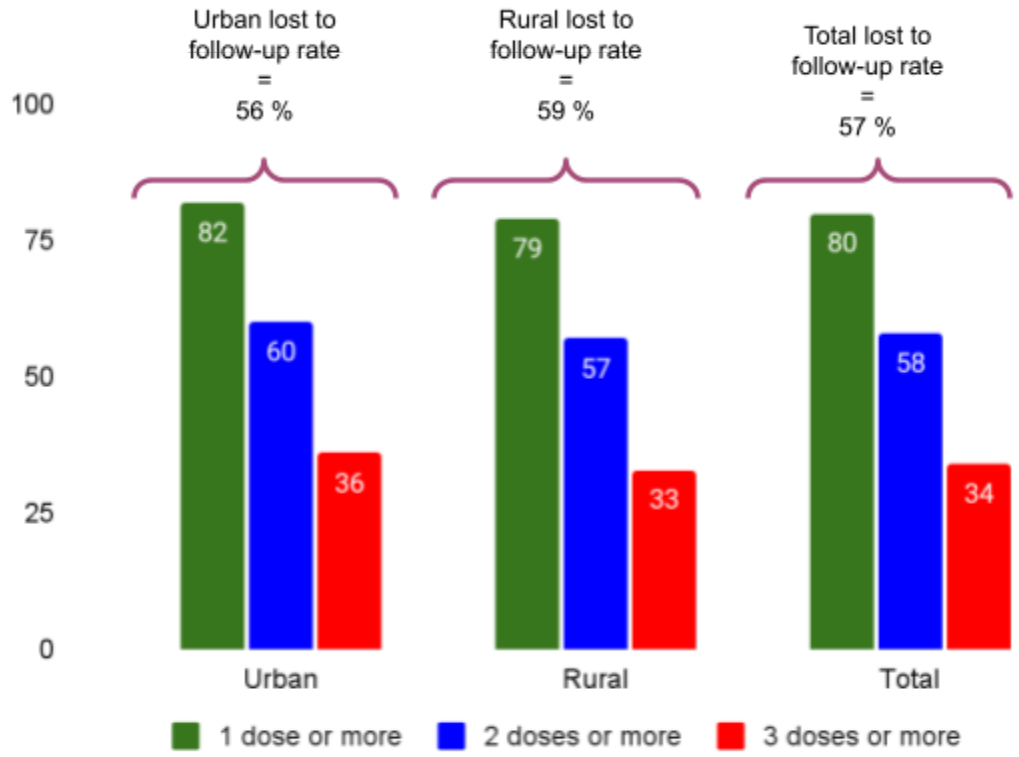
PMI also supports SBC activities aiming to increase access to ANC and IPTp uptake through an integrated approach, leveraging USAID-integrated maternal, child health, and family planning projects. This strategy helps increase the uptake of IPTp and increase the number of women receiving antenatal care as recommended. In addition, PMI supports women's groups working at the community level to follow up with pregnant women. This approach has helped the program identify many pregnant women who did not receive SP and bring them to health facilities to obtain SP.

Finally, PMI provides TA to improve healthcare provider behavior IPC with pregnant women during ANC in order to avoid missing opportunities to increase IPTp uptake.

2.2. Recent Progress (April 2022–March 2023)

According to the 2021 DHS, the percentage of pregnant women receiving at least three doses of IPTp is 34 percent with 57 percent of pregnant women lost to follow-up at the ANC clinic. The graphic below (Figure 2) shows the trend in the uptake of IPTp in rural (33 percent) and urban (36 percent) areas. In addition, the percentage of pregnant women lost to follow-up at the ANC is higher in rural areas (59 percent) than in urban areas (56 percent), but the difference is not significant.

Figure 2. National Coverage of Sulfadoxine-Pyrimethamine in 2021



SP chemoprophylaxis is conducted during pregnancy at health facility level as IPTp by giving at least three doses of SP starting during the second trimester of pregnancy if the pregnant woman is not on cotrimoxazole, per WHO guidelines. In addition, ITNs are distributed to pregnant women during the first ANC.

According to the 2021 DHS, eight out of ten women who had a live birth in the two years before the survey received at least one dose of IPTp (80 percent); in 58 percent of cases, the women received two doses; and about a third (35 percent) received at least three doses of IPTp. There is substantial regional variation; the percentage of pregnant women who received at least three doses of IPTp is relatively low in the Denguélé region (17 percent); the highest regions are Comoe (PMI supported) and Bandama Valley (GF supported), with 49 and 42 percent, respectively.

The maternal health indicators collected during the 2021 DHS showed that among women who had a live birth and/or a stillbirth during the two years preceding the survey, 95 percent received antenatal care from a skilled health provider, almost six out of ten (57 percent) made at least four ANC visits, nearly nine out of ten (87 percent) took iron supplements during pregnancy, and three out of four women received postnatal care (75 percent).

The high ANC drop-out rate (high number of pregnant women who do not complete the ANC4 minimum before delivery) continues to be one of the main issues in Côte d'Ivoire, and PMI will

help address this issue through community-based activity conducted by women groups, model mothers and husbands' schools.

After PMI helped develop a feedback channel between pregnant women and facility-based health care workers who provide them care during ANC, PMI assessed ANC service provider behavior change approach in six health districts. The overall findings indicate early ANC attendance has increased in all health facilities where the approach was implemented, but some districts are still experiencing late ANC1 for many pregnant women mainly due to the late announcement of pregnancy because of social norms related to pregnancy disclosure. Also, to address this high ANC drop-out rate and late ANC initiation, PMI continues to explore innovative approaches at health facility level, such as a behavioral economics-based service delivery approach to improve quality service during ANC and strengthen the sense of accountability among providers and ownership among clients through SBC. Therefore, home-based visits are conducted by women groups for early initiation of ANC. This behavioral economics-based service is also looking at the satisfaction of pregnant women during ANC. Thus, door-to-door activity is a key innovative approach implemented by the women group for early ANC and lost-to-follow-up.

See the SBC section below for more details.

2.3. Plans and Justification for FY2024 Funding

The FY 2024 funding tables contain a full list of malaria in pregnancy activities that PMI proposes to support.

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

PMI will continue to support the USAID-integrated maternal, child health, and family planning project at community and facility levels. PMI will also continue to support integrated community-based approaches with women's groups, model mothers' groups, and school for husbands for finding ANC loss-to-follow-up pregnant women who will be referred to the health services for improving ANC visit rates and uptake of SP. This integrated approach will be extended to other sites within the health districts by providing training to the women's groups in collaboration with the health care providers.

At the facility level, PMI will continue to support the extension of the provider behavior change activity to improve IPTp3 rate among pregnant women. PMI will continue to support on-site training of health care providers and supervision based on Outreach Training and Supportive Supervision Plus (OTSS+) for the health care providers on IPTp.

PMI will continue to support SBC activities aiming to encourage early ANC visits. This includes home-based visits conducted by women's groups for early initiation of ANC.

Under the leadership of the National Program for Child and Maternal Health, PMI will continue to support the MIP Technical Working Group (TWG) for better quality service delivery at health facility level and strengthening coordination at central level. In addition to the NMP and National Program for Child and Maternal Health, some directorates of the Ministry of Health, such as Directorate of Information Technology and Health Information (*Direction de l'Informatique et de l'Information Sanitaire,* DIIS) and DISC participate in the TWG. PMI will also support MIP supervisions and TWG meetings at regional and district levels to speed the implementation of strategic recommendations from the TWG central-level meetings.

According to the gap analysis, the Government of Côte d'Ivoire plans to procure 2.351 million SP doses in 2024 and 2.451 million doses in 2025. There is a gap of 87,687 doses in 2024 and 125,826 doses in 2025. The NMP will conduct resource mobilization through advocacy to donors and the private sector to fill this gap. PMI and the Global Fund will not procure SP.

3. Drug-Based Prevention

3.1. Seasonal Malaria Chemoprevention

3.1.1. PMI Goal and Strategic Approach

After the issuance of new WHO SMC guidance, the NMP requested PMI's support to implement SMC in Dikodougou and Dabakala, two districts located in the northern region of the country. These two districts are part of a total of sixteen districts deemed eligible per the modeling exercises conducted by a WHO consultant in collaboration with the NMP. In addition, the results of a multi-country study conducted by the National Public Health Institute and their partners that included sites in Cote d'Ivoire provided information on SMC introduction in these districts. For example, adherence of guardians and SPAQ distributors was good, adherence improved by the third SMC cycle, and children who received SMC were less likely to be diagnosed with malaria compared with children who did not take SMC. Furthermore, SMC was determined to be feasible and acceptable in these districts.[4]

The target population (children under five years of age) for the two districts is estimated to be 54,000. Dialogue between PMI and the NMP has led to ordering sulfadoxine-pyrimethamine plus amodiaquine (SPAQ) to support the implementation of a first two-cycle campaign scheduled to start in September 2023. Although not meeting the WHO's SMC guidance that recommends three to five cycles, PMI agreed to this two-cycle campaign to enable the NMP and other stakeholders to learn and plan for a four-cycle campaign in 2024. The NMP is discussing support for future SMC campaigns with other donors. PMI will continue to monitor rainfall patterns to ensure SMC implementation, both timing and location, is in line with climate-related shifts.

[4] Mise en oeuvre d'un projet pilote de chimioprévention du paludisme saisonnier en Côte d'Ivoire: Étude d'acceptabilité et de faisabilité - Rapport d'Étude, Dr Kangah Orphée, Dr Zongo Issaka, Pr Yavo William, Juliiet 2022.

The following two maps show the two districts of Dikodougou and Dabakala selected for SMC implementation (two cycles in 2023 and four cycles starting from 2024 onward).

Figure 3. Map of Seasonal Malaria Chemoprevention Implementation in Côte d'Ivoire

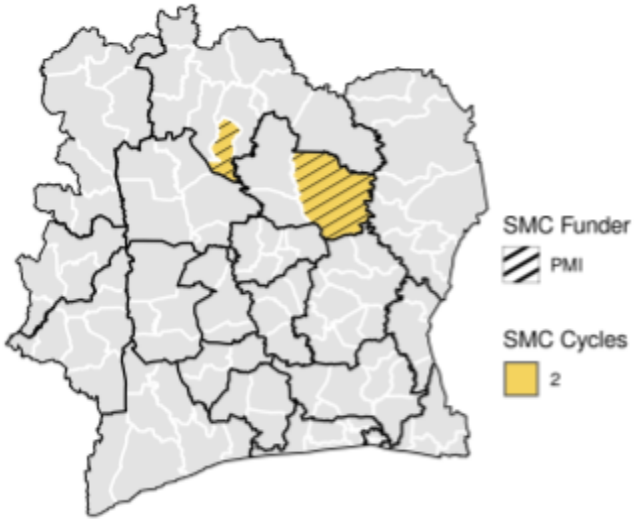


Figure 3a: **SMC Implementation in 2023**

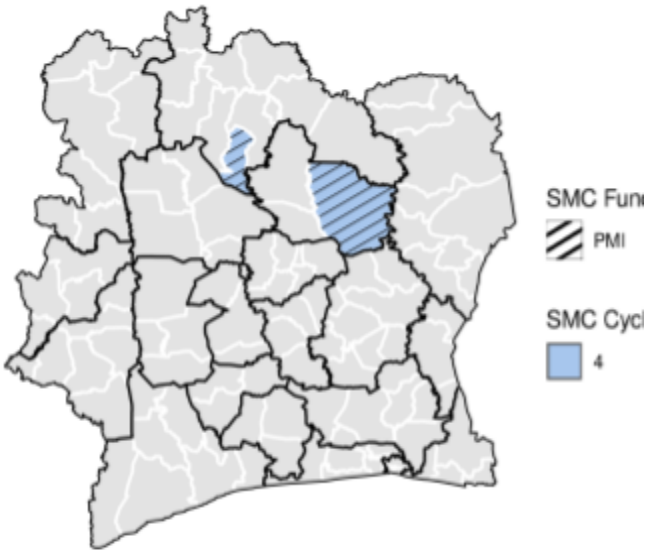


Figure 3b: **SMC Implementation in 2024/ 2025**

3.1.2. Recent Progress (October 2022–present)

PMI will support the first SMC campaign in September 2023. This first campaign will operate two cycles only. A full four-cycle campaign is expected to operate in 2024.

3.1.3. Plans and Justification for FY 2024 Funding

The FY 2024 funding tables contain a full list of SMC activities that PMI proposes to support.

For MOP FY 2024 funds, PMI plans to procure 260,750 doses of SPAQ for the two districts to cover four cycles of SMC, as well as provide support for implementation and planning.

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

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

4. Case Management

4.1. PMI Goal and Strategic Approach

PMI supports the NMP's 2021–2025 NSP which was recently revised to comply with the Global Fund Grant Cycle 7 (CG7) requirements. The revised NSP aims to achieve the following strategic objectives by 2025:

- At least 90 percent of suspected malaria cases presenting to public and private health facilities are managed according to national guidelines;
- At least 90 percent of confirmed uncomplicated malaria cases in public and private health facilities are correctly treated with antimalarial medication according to national guidelines;
- At least 90 percent of confirmed severe malaria cases presenting to or transferred to reference hospitals receive appropriate antimalarial treatment in accordance with national guidelines;
- At least 90 percent of confirmed severe malaria cases managed in the subset of private health facilities that have adequate technical resources and equipment to treat and diagnose severe malaria receive correct treatment according to national guidelines;
- At least 90 percent of confirmed uncomplicated malaria cases among children under five years of age diagnosed by community health workers receive appropriate antimalarial treatment within 24 hours of the onset of fever in accordance with national guidelines.

The case management objectives in the revised 2021–2025 NSP are fully aligned with PMI's 2021–2026 strategic plan at both the facility and community levels. The revised 2021–2025 NSP promotes a comprehensive case management strategy including quality-assured parasitological testing of all individuals with suspected uncomplicated malaria (defined as individuals with recent history of fever), prompt and effective treatment with artemisinin-based combination therapy (ACT) of all individuals with uncomplicated parasitologically-confirmed malaria infection, and emergent pre-referral therapy and/or definitive management of severe febrile illnesses including severe malaria. PMI supports all aspects of this approach through support to national-level policy and programmatic activities, improvement of facility and community level health worker performance, and commodity procurement. PMI has historically provided approximately 50 percent of the national supply of malaria rapid diagnostic tests (RDTs), up to 60 percent of the national need for ACTs, mainly artemether-lumefantrine (AL), and approximately 100 percent of the required rectal artesunate.

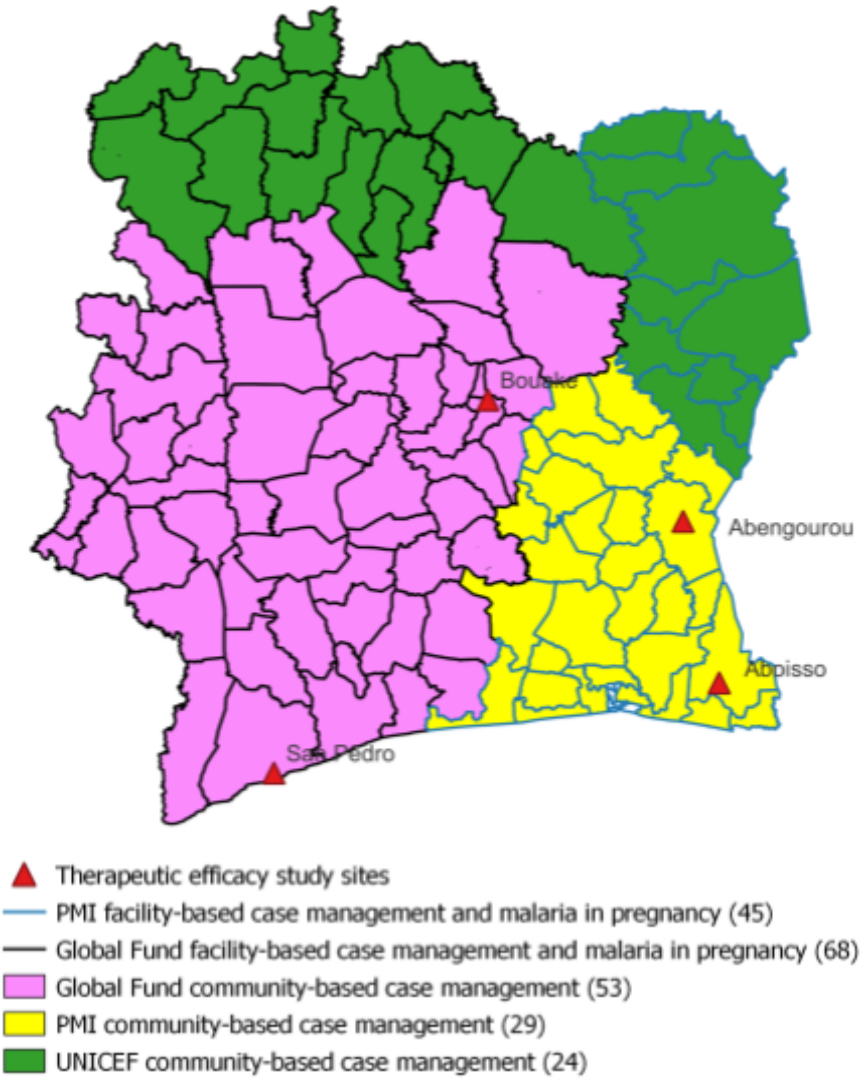
PMI also supports outreach training and supportive supervision activities for health care workers in 45 districts in 12 regions to encourage compliance with national case management guidelines (Figure 4).

PMI supports approximately 2,000 community health workers in 29 districts to deliver community-based case management services by providing equipment, training, supervision, and incentive payments. Malaria community case management in Côte d'Ivoire is largely restricted to children under five years of age and is delivered as part of iCCM packages and includes pre-referral rectal artesunate for children diagnosed with severe malaria. With FY 2023 and FY 2024 funds, PMI and the NMP plan to expand iCCM to 10 additional districts as

part of a plan to ensure community case management services are universally available throughout the country.

The largest challenge currently faced by the community health system is the lack of commodities at the community level despite their availability at health facilities and central storage depots. To address issues with last mile distribution, PMI is working with the USAID Health Office, the NMP, the New Public Health Pharmacy (*Nouvelle Pharmacie de Santé Publique,* NPSP), and the Directorate of Community Health to reduce the frequent commodity stock-outs through data collection and use for better programming.

Figure 4. Map of Case Management, Community Health and Malaria in Pregnancy Service Delivery Activities in Côte d'Ivoire in Côte d'Ivoire



4.2. Recent Progress (April 2022–March 2023)

National-Level Case Management Activities

- Supported the review, revision, and validation of the 2023–2025 National Community Health Strategy and engaged with the Directorate of Community Health as part of USAID's Primary Impact activities to strengthen the community health system.
- Supported the launch of community health worker (CHW) enumeration activities in partnership with the United Nations Children's Fund (UNICEF) to assist the assessment of the CHW landscape and subsequent planning for increased population access to community health care.
- Supported the dissemination of the revised case management guidelines.

Commodities

- Supported the procurement and distribution of 4,000,000 RDTs, covering 50.2 percent of the nationally projected need.
- Supported the procurement and distribution of 876,000 ACTs, accounting for approximately 20.5 percent of the nationally projected need.
- Supported the procurement and distribution of 55,800 rectal artesunate suppositories, accounting for approximately 100 percent of needs.

Facility-Level Case Management Activities

- PMI supported the training of 91 laboratory technicians of the 93 working in supported areas (98 percent) in 31 district-level reference laboratories. Laboratory technicians' performance in microscopic detection of *Plasmodium* parasites subsequently improved from 36 percent in 2022 to 43 percent in 2023 as measured by OTSS+.
- Trained 50 district supervisors and 30 regional supervisors to conduct OTSS+. Between two and four supervision visits were held in 80 percent of health facilities across PMI supported districts.
- Supported on-the-job training for 1480 providers (of 1631 expected, 91 percent) in primary health facilities in 20 districts across five health regions. In addition, 609 reference hospital care providers among 766 expected (80 percent) received PMI-supported training in 15 health districts.

Community-Level Case Management Activities:

- Supported monitoring of community health activities (monthly on-site data validation, supervision, data entry in the District Health Information Software [DHIS2] platform) in 29 health districts.
- Supported training and supervision of 1590 of 1934 (82 percent) active CHWs in PMI-supported health districts, who managed 182,249 cases of fever and treated 132,888 confirmed cases of malaria (73 percent).
- Conducted an evaluation of quality of community-level data reported by 58 health facilities in 23 of 29 health districts. The evaluation revealed that only 9 percent of the health facilities (5 out of 58) had collected data for the four indicators selected (number

of suspected malaria cases (fevers), number of persons tested for malaria (RDT), number of persons tested positive for malaria (RDT) and number of confirmed malaria cases at community level). PMI, the GF, and other partners are working with the NMP and the DIIS to address ongoing data quality challenges in Côte d'Ivoire.

Please note that recent progress with monitoring antimalarial efficacy and the therapeutic efficacy study approach is presented in the Plans and Justification for FY 2024 Funding section below.

4.3. Plans and Justification for FY 2024 Funding

The FY 2024 funding tables contain a full list of case management activities that PMI proposes to support.

National Level Case Management Activities

Côte d'Ivoire has been selected as a partner country in Primary Impact, the USAID initiative to accelerate primary healthcare. This initiative will allow PMI and USAID to focus more on community health system strengthening by closing the gap in the access to primary health care for people who do not have access to health care in health facilities and improving the quality of care and availability of commodities at the last mile. Therefore, PMI plans on shifting more resources towards community health service delivery under Primary Impact by reprogramming FY 2022 and FY 2023 MOPs. PMI and the USAID Health Office are currently working with relevant national health authorities, including the Directorate of Community Health, the Directorate of Information System, and the Directorate of the Maternal and Child Survival Program, to design a comprehensive community health strengthening activity as a foundation for Primary Impact. Primary Impact will require financial support from FY 2024 funds; though anticipated activities are expected to be closely aligned with PMI priorities. Additional details will be known once the design has been completed.

Commodities

PMI will continue to procure RDTs, ACTs, and artesunate suppositories to support facility and community malaria case management. As in past years, PMI-procured commodities will complement the GF-funded case management commodities (RDTs and ACTs) under the Grant Cycle 7 (CG7) to fill the projected needs nationwide. With FY 2024 funds, PMI will procure:

- 3,453,422 RDTs.
- 3,748,256 treatments of ACT.
- 94,887 artesunate suppositories for pre-referral treatment of severe malaria identified in the community.

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

Facility Level

With FY 2024 funds, PMI will provide direct TA and support to strengthen malaria case management in 827 public and private nonprofit health facilities operated by nongovernmental organizations. This will include training and supportive supervision for health care providers in the diagnosis and treatment of malaria. TA will also be provided for malaria microscopy quality control. Additional activities supported with FY 2024 funds will include training on data collection and reporting to the national DHIS2 surveillance platform for healthcare providers working at private, for-profit facilities located outside of Abidjan.

Community Level

PMI will continue supporting community health system strengthening, mainly through training and supervision. Direct TA and support will be provided to strengthen existing iCCM activities in the 29 districts where PMI already supports it. PMI will expand support of iCCM to ten additional districts in the northern and central regions of the country, bringing the total number of districts with PMI-supported iCCM to 39. FY 2024 funds will also be used for technical support of iCCM at the national level, in an effort to improve implementation nationwide. In the context of Primary Impact, PMI will support the expansion of iCCM activities to the ten additional districts aforementioned. The integrated package will include strengthening ANC visits and other maternal and child health services funded with other USAID health funds.
In the revised community health strategy, the government has not adopted formal salary payment to CHWs. PMI, like other partners, is currently supporting a stipend equivalent to $100 each quarter.

Monitoring Antimalarial Efficacy

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	Abengourou, Aboisso, Bouaké, San Pedro	AL, ASAQ	● Genotyping in country ● Poly-alpha in Mali at University of Bamaco
Planned Therapeutic Efficacy Studies (funded with previous or current MOP)			
Year	**Site name**	**Treatment arm(s)**	**Plan for laboratory testing of samples**
2023	TBD	AL, ASAQ	● TBD

AL: Artemether-lumefantrine; ASAQ artesunate-amodiaquine; TBD: to be determined.

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

5. Health Supply Chain and Pharmaceutical Management

5.1. PMI Goal and Strategic Approach

Since FY 2018, PMI has opted for an integrated approach to support the supply chain, leveraging resources invested by the President's Emergency Plan for AIDS Relief during the past 16 years. PMI's support has included provision of support to the NMP and the NPSP for quantification, procurement, storage, and distribution of commodities from the central warehouse to districts. PMI's support has also included strengthening the electronic Logistics Management Information System (eLMIS) and mSupply systems. Finally, PMI has supported the implementation of the malaria commodities management control (ABC) and end-use verification (EUV) surveys on an annual basis.

PMI support to the supply chain has three specific objectives: 1) Ensure a rational and transparent supply, appropriate storage, and effective distribution of certain health commodities to service providers; 2) Ensure ease of the customs clearance and transit operations of the other health projects financed by the U.S. Government; and 3) Ensure maintenance of the eLMIS and implementation of a formal mechanism of data analysis for better decision-making at all levels of the supply chain.

Côte d'Ivoire is in the process of updating its national supply chain strategy—the most recent strategy, the "*Plan National Stratégique de la Chaîne D'Approvisionnement en Produits Pharmaceutiques et Intrants Stratégiques*, 2016–2020," came to an end in 2020, and a new strategy has not yet been approved. The previous strategy had as its main objective to improve the availability of and access to medicines, vaccines, and other essential commodities at service delivery points. In supply chain activities, PMI adheres to government supply chain priorities as outlined by NMP and the NPSP in MOP planning meetings. These priorities focus on: capacity-building at all levels for supply chain management; increased data visibility; improved use of supply chain data for decision-making; and improved availability of health products at the last mile and, in particular, at the community level. These are the priorities on which this MOP focuses.

For more details of the country's public sector healthcare supply chain, please see the Côte d'Ivoire Malaria Profile.

5.2. Recent Progress (October 2021–September 2022)

As is the case for many countries, Côte d'Ivoire faces commodity gaps in routine availability of timely and quality supply chain data. There is still an over-dependence on surveys and spot checks to monitor system performance. While data from districts and health facilities are

limited and of uncertain quality there is no data on availability at community level, although anecdotally there are reports of significant stockouts. Availability of products at the central level was high over 2021 and 2022, with no stockouts recorded. There have been a few challenges with oversupply at the central level (while availability at service delivery points remains constrained). There were some expiries of rectal artesunate in 2023, and the country is currently dealing with a significant oversupply of one presentation of AL; however, it is believed that immediate action can avoid expiries. The EUV surveys for 2021 and 2022 showed no inability to treat (all facilities had antimalarial treatments in stock on day of visit). Per the EUV, the AL stockout rate in 2022 was 1 percent (inability to treat with ALu). The stockout rates were zero for RDTs, 47 percent for SP, 35 percent for artesunate suppositories, and from 0 to 5 percent for ITNs (depending on the type). The 2022 EUV Survey also showed generally good availability of products at the district level. There is no data as to availability of malaria products at the community level, although stakeholders declare improving visibility and availability at this level a priority. Stakeholders discussed adding community level to the 2023 EUV and also creating a report in the electronic LMIS (mSupply and or eSIGL) for community-level data, though this is not yet underway. The main cause of oversupply at the central level and understocking at the lower levels is a lack of continuous accountability from the central to the region and health district levels. The health districts are supposed to oversee and supply commodities at the health facilities and the health facilities, in turn, to supply the community health workers. To address these issues and ensure commodity availability at all levels, particularly at the lower levels and the CHWs, the USAID Health Office and PMI are currently working to identify additional technical assistance to the NPSP.

5.3. Plans and Justification with FY 2024 Funding

The FY 2024 funding tables contain a full list of health supply chain and pharmaceutical management systems strengthening that PMI proposes to support.

For MOP 2024, support will continue for an annual quantification for malaria products. In addition, quarterly supply plans will be developed and shared with PMI's central procurement project. The NPSP through local health supplies and procurement logistics activity will support the reception and central level storage of products. In addition, the NPSP will support routine delivery of products to districts and to a limited number of larger health facilities. For MOP 2024, support to the eLMIS will continue to be a priority. This includes both the district level eLMIS system and, at facility level, the mSupply system and support for the use of data for decision-making. To complement eLMIS, the ABC and EUV surveys will again be combined. The ABC samples high-volume sites to support annual quantification, while the EUV Survey included a representative sample of facilities. Combining the two will achieve cost economies. Investments in eLMIS will be primarily to strengthen mSupply at the facility level. Use of the system at facilities is not optimal, and so there will be more emphasis on monitoring and supporting system use, including on-site support and training.

While support for the community-level supply chain is not specifically called out in this MOP, PNLP, NPSP, and PMI will, prior to this implementation year, assess performance and bottlenecks for the supply chain at the community level and propose specific activities to strengthen. In summary, the MOP 2024 supply chain activities are:

- Strengthen the end-to-end supply chain. Support the NPSP, district, health facility staff and community health workers involved in the management of the supply chain to strengthen warehousing and inventory management. This includes support for mSupply inventory management systems at health facilities and for improved product distribution and transportation, especially to service delivery points.
- Support for a combined EUV and ABC survey in facilities. The survey will assess product availability, management, and use, and the work will include dissemination of results to stakeholders.
- Strengthen Logistic Management Information System: Work with the NPSP to expand the use of eLMIS to all health staff through training and IT support. Support to the NPSP and district pharmacists to ensure that the district-level eLMIS is used regularly and that data are complete and of good quality.
- Support the routine distribution of all products from districts to health centers, including redistribution if needed.

6. Malaria Vaccine

6.2.1. PMI Goal and Strategic Approach

The PMI Côte d'Ivoire goal for the malaria vaccine is to support the Ministry of Health to strategically deploy this intervention as a complementary tool to the existing core interventions. This includes technical assistance to the National Malaria Program as it engages with the national EPI to strategically use data to decide on where to introduce the malaria vaccine. Vaccine introduction will be led by the national EPI, thus PMI Côte d'Ivoire will work with the NMP and national immunization colleagues to provide complementary support in the planning, delivery and monitoring of vaccine deployment. This includes support to maximize uptake of the vaccine without adversely affecting coverage of other malaria interventions.

6.2.2. Recent Progress (April 2022–April 2023)

Côte d'Ivoire submitted a letter of intent to Gavi to express the country's desire to receive the vaccine. In preparation for the vaccine application, the NMP attended the vaccine workshop in Nairobi, Kenya. The NMP and the EPI have been working on the vaccine application package.

Côte d'Ivoire will be submitting its malaria vaccine application to GAVI in July 2023.

Map shows target districts for malaria vaccine implementation with malaria vaccine procurement to be supported by Gavi. All districts in Côte d'Ivoire are considered eligible; the first phase of introduction identifies twelve focus districts.

Figure 5. Map of Malaria Vaccine Plans in Côte d'Ivoire

6.2.3. Plans and Justification for FY 2024 Funding

Due to uncertainty around rollout, timelines and needs PMI did not budget any funds in this MOP but if needed can reprogram funds in the future.

7. Social and Behavior Change

7.1. PMI Goal and Strategic Approach

PMI provides technical support to NMP based on the national SBC strategy. Thus, the SBC activities fit within the national approaches from central level to district level. The key strategies are mass media communication with national TV and radio and local radio at district level. In addition, mass communication is used by community leaders and religious leaders, respectively, during their meetings and sermons. IPC is used by healthcare providers, community action groups, women groups and CHWs for group discussions and one to one communication.

The specific objectives of SBC activities are to increase correct and consistent ITN use and care, prompt care-seeking for fever, and uptake of IPTp by intensifying pregnant women lost-follow up at community level. At the facility level, SBC activities are conducted to improve provider adherence to national guidelines around RDTs and IPTp, and provider adherence to diagnostic results for treatment with ACTs at facility level. At the national and district levels, PMI provides TA for capacity-strengthening, including coordination.

PMI will continue to provide technical support to the NMP according to the National Communications Strategy for Malaria Control (2021–2025). The main objectives are to increase knowledge levels about malaria transmission and prevention from baseline to at least 90 percent by 2025 and to improve uptake and correct use of key malaria interventions from baseline to 90 percent by 2025. PMI will continue to support SBC activities at the district level to increase access to quality service at facility and community levels. People will be aware of malaria transmission mode and adopt healthy behaviors and use prevention and treatment services.

The achievements are based on the trend of data from service delivery sites deployed within the PMI geographic focus areas. Through partnerships with local media, community-based organizations, and collaboration with women's groups, community action groups, and CHWs, PMI supports the NMP's efforts to expand mass media, community mobilization, and IPC at the community level.

In addition, PMI will continue to support an extension of the behavioral economics approach for better IPC between providers and clients, strengthening the sense of accountability among providers and ownership among clients. This approach has been implemented since 2019 and has shown significant results. Initially tested in eight health centers across five health districts, in 2019, the project expanded this approach to 286 health centers in 17 health districts by training 339 healthcare providers to improve provider-client interactions and ultimately increase the uptake of intermittent preventive treatment during pregnancy. According to the last annual report (October to September 2022) the number of women receiving their third dose of SP has improved from 57 percent in the first quarter to 100 percent in the last quarter.

Over the last three years, the approach has been extended from 3 to 17 health districts out of 35 health districts where community activities are implemented. Provider Behavior Change (PBC) implementation has been extended from 8 health facilities in 2020 to 286 health centers in 2022.

7.2. Recent Progress (April 2022–March 2023)

The following describe progress made during the past 12 months:

Continued to scale up the women's group approach. PMI is strengthening support to the National Malaria Program and the Directorate of Community Health in their efforts to encourage malaria prevention behaviors among Ivorian families. Since FY 2019, PMI scaled up the women's group approach to 200 communities out of 366 within 82 health areas in 35 health districts. PMI also trained 316 health workers who support, oversee, and report on women's group activities. In FY 2021, the women's focal points conducted 68,462 home visits out of 72,000 planned. In total, 163,674 people have heard messages about malaria prevention and treatment from women's focal points. Moreover, these women focal points effectively reached and referred 23,747 pregnant women to health facilities for antenatal care.

Strengthened the capacity of 117 community action teams: Working with multi-sectoral community mobilization teams at the district level, PMI expanded community engagement activities from 35 initial communities to 117 communities in 28 health districts. Working through these district mobilization teams, PMI provided technical support to 110 of 117 project-supported communities to develop and implement their malaria action plans by clarifying roles and expectations. To ensure the sustainability of these community action groups, PMI collaborated with the Ministry of Women, Family, and Children, which has now committed to overseeing and supporting community action groups and women's groups.

Engaged Kings, Traditional Chiefs, and religious authorities to fight malaria. PMI worked with the NMP to obtain a signed letter of commitment to fight malaria from the President of the National Chamber of Kings and Traditional Chiefs of Côte d'Ivoire. In addition, PMI worked with the NMP to reach religious authorities and obtained formal commitments to fight malaria from the President of the Superior Council of Imams and the Bishop of the United Methodist Church of Côte d'Ivoire.

Scaled up the provider behavior change approach to improve malaria prevention in antenatal services. PMI piloted and scaled up an approach that facilitates positive interactions between health providers and clients during antenatal care. Initially demonstrated effective in eight health centers across five health districts, PMI expanded this approach to 286 health centers in 17 health districts. PMI provided technical support to the NMP, which in turn supported 339 healthcare providers to improve provider-client interactions and ultimately increase the uptake of intermittent preventive treatment during pregnancy. According to the last annual report (October to September 2022) the number of women receiving their third dose of SP has improved from 57 percent in the first quarter to 100 percent in the last quarter.

Expanded national and local mass media. PMI worked with the NMP to disseminate malaria prevention content on four television channels, 28 local radio stations, and social media platforms. During FY 2022, malaria spots were broadcast 61,457 times by media partners. On social media, videos and images reached 673,583 people and elicited 9,545 reactions. PMI organized 21 malaria-themed events hosted by local leaders, reaching 25,396 people.

Strengthened the capacity of 369 religious leaders. PMI worked with Directorate of Community Health, NMP and Alliance of Religious for Integral Health and the Promotion of the Human Person in Côte d'Ivoire (ARSIP: *Association des Religieux pour la Santé Intégrale et la Promotion Humain*) to facilitate 14 training sessions, training 369 religious' leaders including 195 Christians (142 men and 53 women), and 174 Muslims (118 men and 56 women). These leaders integrated malaria prevention messages in their regular sermons within their respective prayer sites.

Insecticide-Treated Nets. The 2021 DHS showed that nearly three out of four households (72 percent) own at least one ITN. The percentage of households owning at least one ITN is

higher in rural areas than in urban areas (83 percent against 64 percent). At the regional level, the percentage of households owning at least one ITN varies from 57 percent in the Abidjan region to 86 percent in the Montagnes region. The percentage of households having achieved universal ITN coverage is 51 percent.

According to the 2021 DHS, among children under five, nearly six out of ten (59 percent) had slept under an ITN the night before the interview. This percentage is significantly higher in households with at least one ITN (72 percent). Among pregnant women aged 15–49, almost two-thirds had slept under an ITN the night before the interview (64 percent). In households with at least one ITN, this percentage is significantly higher ,at 79 percent.

Moreover, the percentages of children under five years and pregnant women who used an ITN the night before the interview are higher in rural areas than in urban areas. The 2021 DHS showed that 70 percent of children under five years used ITNs in rural areas versus 47 percent in urban areas. In addition, 72 percent of pregnant women used ITNs in rural areas versus 57 percent in urban areas). The rates of ITN use among children and pregnant women are the lowest in the Abidjan region (31 percent and 40 percent, respectively) and are the highest in the region of Montagnes (80 percent and 86 percent, respectively).

Malaria in pregnancy. The 2021 DHS showed that eight out of ten women who had a live birth in the two years before the survey received at least one dose of IPTp (80 percent); in 59 percent of cases, the women received two doses and about a third (35 percent) received at least three doses. The percentage of pregnant women who received at least three doses of IPTp is relatively low in the Denguélé region (17 percent); by comparison, this percentage is 49 percent in Comoé and 42 percent in the Bandama Valley. None of the health districts reached the national objective of 80 percent.

Early use of ANC by pregnant women and the drop-out rate of ANC are key challenges, which also affect IPTp uptake. The 2021 DHS showed that the national drop-out rate of ANC4 was 57 percent. This rate increased in comparison to the 2016 rate of 51 percent. To address this, on the patient-side, PMI-supported women’s groups–led IPC approaches focus on early use of ANC by pregnant women and loss-to-follow-up of pregnant women, contributing to a significant increase in IPTp uptake.

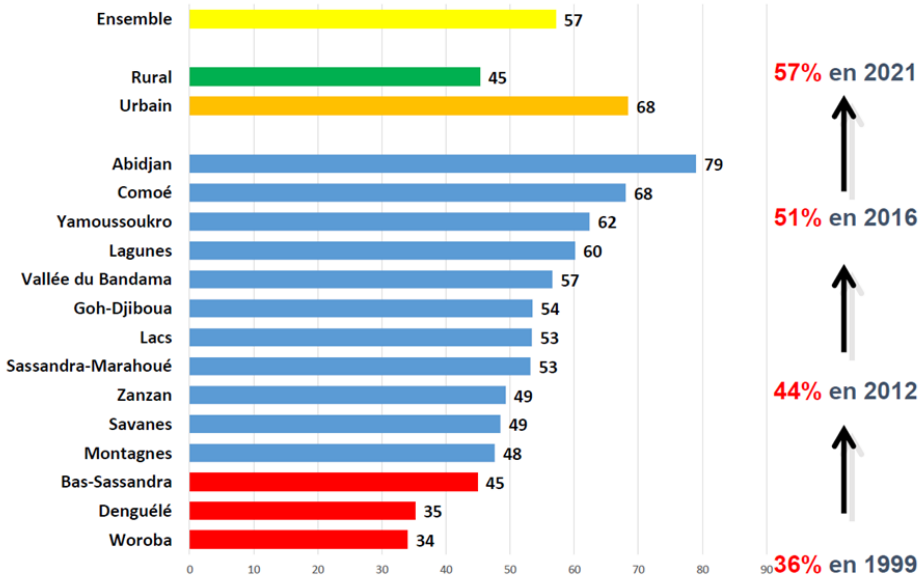
A formative assessment showed that providers' motivations, attitudes, and skills also greatly influence client demand, acceptance, use, and satisfaction with health services such as ANC. Problematic behaviors of providers, including midwives, include: not following national guidelines for administering SP; not providing respectful care; not providing sufficient information to pregnant women about ANC; and not providing quality ANC services.

Environmental factors include stockouts of SP; not having cups or water at ANC; having poor clinic hours; and patients living more than five kilometers from a facility. PMI has supported a

behavioral economics-based approach that uses coaching and checklists to improve midwives' behavior during antenatal services.

The figure below shows the trends in ANC 4 attendance from 1999 to 2021.

Figure 6: Distribution of ANC4 By Region (2021 DHS)



Case Management

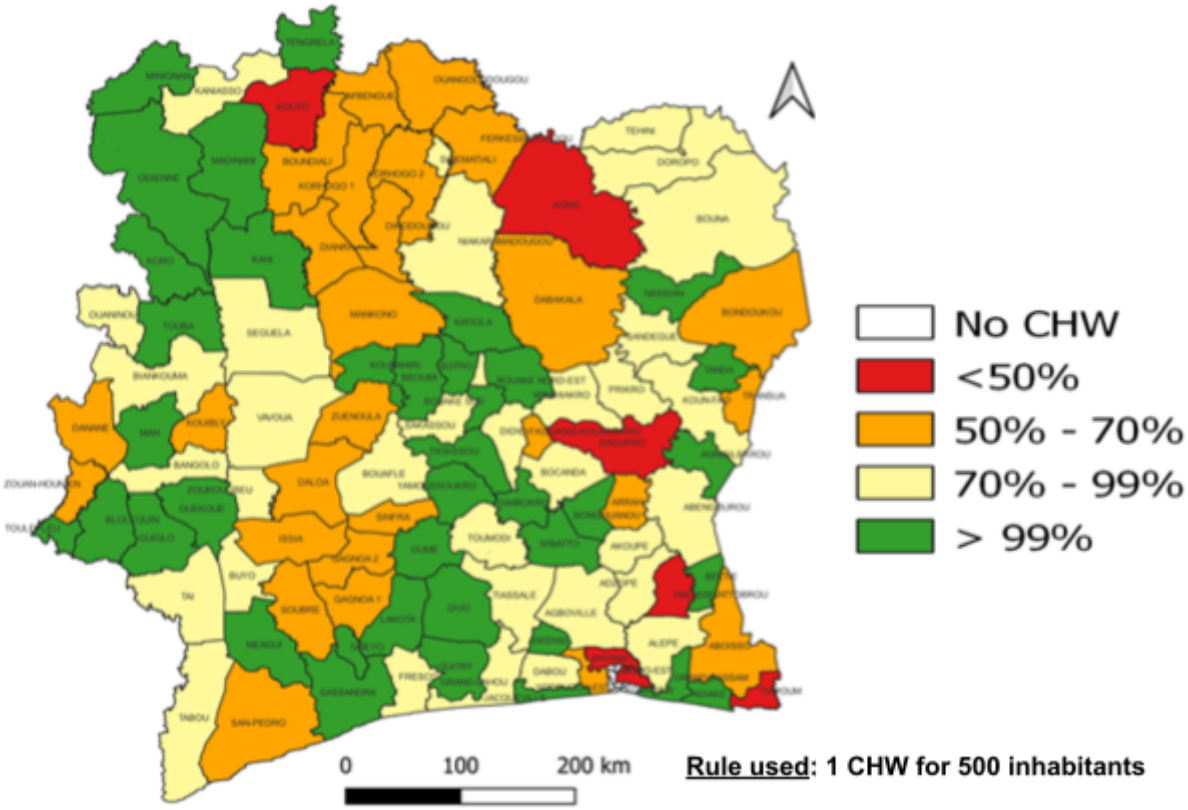
The 2021 DHS showed that only about 36 percent of the children under five years of age seek care the same or the next day and go to a health worker or health facility as their first recourse. A 2023 PMI-supported study on the economic burden of malaria on vulnerable populations will help inform strategies and interventions to reduce barriers to access of health services. In the meantime, PMI plans to strengthen SBC interventions through collaboration with religious leaders, kings, and traditional chiefs committed to malaria control and elimination. PMI will continue to support national malaria SBC media campaigns through local radio, emphasizing prompt care-seeking for fever. PMI will continue to support the malaria-themed campaign on prompt care-seeking for fever, IPTp and ITNs use at the district level. Moreover, CHWs, women's groups, and community action groups use IPC to promote prompt care-seeking of fever, IPTp and ITN use, particularly for children and pregnant women.

Service Delivery

PMI will continue to support the scaling-up of the behavioral economics service provider behavior change approach at the facility level and an OTSS supervision approach at the community level. PMI will continue to contribute to the saturation strategy of having CHWs provide iCCM services to communities living more than five kilometers away from a facility. This saturation strategy will be implemented after mapping CHWs to identify and fill service

delivery gaps according to the national community health strategy guidance (one CHW for 250–500 people). People living more than five kilometers from a facility will be progressively covered by CHWs. Figure 7 describes the current CHW saturation rate in Cote d'Ivoire. The gaps will be filled out for effective service delivery (iCCM) at community level.

Figure 7: Coverage rate of Community Health Workers beyond Five Kilometers



Seasonal Malaria Chemoprevention

SMC—a new strategy for CDI—will be implemented in two health districts that meet WHO eligibility criteria. This will be conducted alongside SBC interventions to promote acceptance of the strategy in these districts. PMI will support community mobilization with local community leaders and IPC through door-to-door activities as part of efforts to "reach the unreached" target population.

Vaccine

The RTS,S vaccine will be jointly implemented with the national EPI strategy as a routine vaccine at health facility level. As this is a new vaccine, a specific communication plan (including a rumor mitigation plan) will be developed to promote adherence and increase demand and use for the vaccine. In addition, PMI's will continue to promote adherence to other malaria interventions and make clear to communities that the vaccine is an added layer of protection but not a replacement for sleeping under a net.

7.3. Plans and Justification with FY 2024 Funding

The FY 2024 funding tables contain a full list of SBC activities that PMI proposes to support.

PMI will continue to support SBC as a cross-cutting activity to promote all key malaria interventions. These SBC activities will be prioritized based on epidata and resources available to improve health outcomes.

PMI is proposing to increase the funding allocation for SBC activities. In collaboration with the Global Fund, PMI will continue supporting the NMP on changing high-impact malaria-related behaviors. This support will be conducted by:

- Strengthening SBC activity coordination at the national level with NMP.
- Empowering district-specific SBC focal points and community coordinators to increase coordination and ensure the impact of SBC investments.
- Strengthening capacity of key stakeholders for effective SBC design, implementation, and monitoring and evaluation, including digitalization tools for better communication.
- Strengthening capacity for NMP staff on the use of data (from DHIS2 and Malaria Behaviors Survey) to inform SBC program priorities and strategies.
- Empowering civil society for better commitment to malaria control and elimination interventions.
- Supporting advocacy activities towards mayors and other authorities for better involvement in malaria prevention.

Priorities

PMI will work to reinforce the capacity of the NMP, districts, civil society networks, local/traditional/religious/community leaders, and community groups to address individual and social determinants of healthy behaviors and to implement SBC approaches (social mobilization, mass media, IPC including group discussion) focused on three priority behaviors outlined in Table 3 below for prevention and management services.

Table 3. Priority Behaviors to Address

Behavior	Target Population	Geographic Focus	Programming to Address Behavior
Prompt care-seeking for fever for children under five years of age	Caregivers of children under five years of age	All 11 PMI-focus health regions	● Conduct community and household level IPC informed by monthly health facility data in prompt care-seeking with CHW and women groups through door-to-door activities. ● Provide TA to local radio for production and airing of radio shows and spots to promote prompt care-seeking by using local language.
Effective uptake of IPTp	Health facility-based providers Pregnant women	All 11 PMI-focus health regions	● Continue technical assistance to service providers for better adherence to national IPTp guidelines and what the providers need to be doing differently to contribute to increased uptake of IPTp. ● Continue to support positive health provider behaviors through care providers behavior change activities to facilitate discussion between the client and provider about relevant ANC services and build accountability between a client and provider during a routine ANC visit. ● Support women's groups activities to promote and influence behaviors related to IPTp uptake through pregnant women lost to follow-up activities within the community
Sleep under LLINs every night	General population	All 11 PMI-focus health regions	● Women's groups to reinforce capacity of existing networks to promote and influence behaviors related to ITN use through home-based visit. ● Provide support to CHWs living in areas greater than five kilometers from a health facility through door-to-door strategy for using ITN in all the households.

CHW: community health worker; IPC: interpersonal communication; LLIN: long-lasting insecticidal net; IPTp: intermittent preventive treatment during pregnancy; TA: technical assistance.

8. Surveillance, Monitoring, and Evaluation

8.1. PMI Goal and Strategic Approach

In Côte d'Ivoire, PMI collaborates with the Global Fund, UNICEF and others to provide technical assistance and resources to the NMP for surveillance, monitoring, and evaluation (SM&E) activities. In collaboration with these partners, PMI will continue to support the national SM&E Strategic Plan (2021–2025) with particular emphasis on data quality improvement, data visualization, and data use for decision-making at all levels. With PMI support, NMP envisions a system that is adept at providing high-quality data by reinforcing

the operational capacity for malaria data management, developing monitoring and evaluation tools, reinforcing quality control, disseminating data, and using data for informed decision-making.

8.2. Recent Progress (April 2022–March 2023)

From April 2022–March 2023, PMI supported the following SM&E activities:

At central level:

- Assisted the NMP in producing four quarterly malaria bulletins.
- Assisted the NMP in developing a malaria data analysis plan to help the country in analyzing routine data.
- Trained 25 senior staff members at the operational level in SM&E.
- Assisted the Directorate of Community Health (*Direction de la Santé Communautaire*) in the development of a community M&E plan.
- Conducted a community health data assessment in six health districts and three health facilities per district to evaluate the community data quality. The mission reported poor data quality for community health and developed action plans to address issues.
- Organized two SM&E Technical Working Groups.
- Provided NMP support in reviewing cases of potential malaria-related deaths using the Routine Data Quality Assessment (RDQA) tool in the reference hospitals of five health districts.

At operational level:

- Trained 21 people including 15 staff from the private sector on filling out paper-based tools and data entry into DHIS2.
- Supported the NMP in conducting two RDQA at district, facility, and community level in 20 districts.
- Evaluated the use of the mobile applications developed with the support of PMI: scorecard and dashboard applications.
- Supported the DIIS in setting up the malaria RDQA tool in the national DHIS2 to capture data inconsistencies during data entry.
- Developed a data validation rule manual to guide identification and correction of data inconsistencies in collaboration with the NMP and the Directorate of Information Technology and Health Information.
- Trained 19 community focal points in data quality evaluation to improve community data quality.
- Mentoring and coaching of 10 regional technical advisors and 54 district teams to conduct data quality assessment in 60 health facilities.

8.3. Plans and Justification with FY 2024 Funding

The FY 2024 funding tables contain a full list of SM&E activities that PMI proposes to support.

With FY 2024 funding, PMI will continue to contribute to activities aimed at improving routine data quality and data visualizations as they remain SM&E challenges for the country. PMI will work closely with the in-country authority responsible for the health data management (DIIS) to coordinate these activities and ensure alignment with the national strategic plan. Improvement of data visualizations to enable data use in decision making is a priority for the NMP, particularly improvement in visualizations of data inconsistencies at all levels of the health system as the country works to address data quality issues. Most PMI support will be directed at the operational level, including the community health information system. PMI will also continue to support the digitalization of the community health information system.

PMI FY 2024 funds will specifically be used to support the following activities:

For Data Quality Improvement:

- Increasing data integration from private sector facilities (for-profit and not-for-profit) into the national surveillance platform to contribute to the data completeness in DHIS2
- Implementing specific data quality approaches for use within reference hospitals at district and regional levels as we have more health services and the data flow is complex in these health facilities.
- Visiting targeted facilities with more anomalies in their report, and verifying and correcting reported data.
- Conducting RDQA at district level.
- Assisting the NMP in organizing a quarterly data check meeting with all relevant stakeholders.
- Enabling collaboration between the NMP and the DIIS in the organization of the monthly data verification meetings.
- Supporting the digitalization of the community health information system.

For Visualization and Data Use:

- Assisting the NMP in compiling and disseminating its annual report.
- Supporting the NMP to continue the development and dissemination of a quarterly surveillance bulletin.
- Supporting the use of mobile applications to improve data visualization in the HMIS.
- Integrate the use of business intelligence applications to improve data visualization at all levels of the HMIS.
- Supporting the use of informatic applications to visualize data inconsistencies at all levels.

Table 4. Available Malaria Surveillance Sources

Source	Data Collection Activity	2020	2021	2022	2023	2024	2025
Household Surveys	Demographic Health Survey		X				
Household Surveys	Malaria Indicator Survey						
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						
Health Facility Surveys	Other Health Facility Survey		X		P		P
Malaria Surveillance and Routine System Support	Therapeutic Efficacy Studies		X			P	
Malaria Surveillance and Routine System Support	Support to Parallel Malaria Surveillance System						
Malaria Surveillance and Routine System Support	Support to Health Management Information System	X	X	X	X	P	P
Malaria Surveillance and Routine System Support	Support to Integrated Disease Surveillance and Response						
Malaria Surveillance and Routine System Support	Electronic Logistics Management Information System	X	X	X	X	P	P
Malaria Surveillance and Routine System Support	Malaria Rapid Reporting System						
Other	End-use Verification survey				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				P	P	P

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

9. Operational Research and Program Evaluation

As explained in the NSP, the NMP intends to enhance and strengthen the quality of malaria interventions for the Côte d'Ivoire population through effective operations research (OR) and program evaluation (PE) that contributes to improvement of programming, measurement, and implementation of malaria activities.

PMI aims to support the NMP Operational Research and Program Evaluation as defined in the national malaria strategy 2021–2025. The NMP is interested in:

- Health services surveys.
- Annual, mid-term and final reviews. These reviews will provide an overview of the factors that could hinder the achievement of the objectives of the revised NSP 2021-2025. The final review will measure the overall level of achievement of the results initially set.
- National surveys (Multiple Indicator Cluster Surveys, DHS, Malaria Behavior Survey) with the realization that PMI will make a technical and financial contribution. These surveys are used to measure the level of achievement of the performance indicators.

9.1. PMI Goal and Strategic Approach

To date, Côte d'Ivoire does not have an OR strategy. PMI has engaged in dialogue with the program to develop an OR plan that is yet to be finalized. PMI has programmed funding in the FY 2023 MOP to support the OR plan once it becomes available. No OR activity is currently budgeted in this MOP.

9.2. Recent Progress (April 2022 – March 2023)

PMI is supporting the RDT capture and reporting, which is ongoing.

The objectives of this study are as follows:

- To compare malaria testing indicator data, including number of suspected malaria cases tested by RDT, number of positive RDT cases, and malaria test positivity rate (TPR), obtained from automated RDT readers compared to HMIS data and assess patterns of concordance and discordance.
- To assess provider perceptions and behaviors related to RDT result capture and reporting using qualitative methods to better understand social and systemic root causes leading to any discrepancies between actual and reported TPR.

Table 5. PMI-funded Operational Research/Program Evaluation Studies in Côte d'Ivoire

Recently Completed OR/PE Studies	Status of Dissemination	Start date	End date
N/A	N/A	N/A	N/A
Ongoing or Planned OR/PE Studies	**Status**	**Start date**	**End date**
RDT capture and reporting Study	Ongoing	July 2022	June 2024

OR/PE: operations research/program evaluation; RDT: rapid diagnostic test.

USAID funded a project named In2Care EaveTubes for mosquito control through the Development Innovation Ventures program within the Bureau for Development, Democracy and Innovation. To prevent mosquitoes from entering homes, In2Care developed EaveTubes, which are ventilation tubes that are placed in walls to attract, block, and kill mosquitoes. EaveTubes have netting coated with insecticide powder, making them capable of killing even highly insecticide-resistant mosquitoes. The project started EaveTubes cluster randomized control trial baseline and trial site preparation activities in Bouaké (central part of Côte d'Ivoire).

Table 6. Non-PMI funded Operational Research/Program Evaluation Studies Planned/Ongoing in Côte d'Ivoire

Source of Funding	Implementing institution	Research Question/Topic	Current status/ timeline
USAID-DIV	In2Care B.V., Netherlands University of Notre Dame, USA	Test whether EaveTubes protect against mosquitoes (entomological endpoints) and malaria (epidemiological endpoints) in an area where transmission is driven by insecticide-resistant *An.* gambiae mosquitoes.	EaveTubes installed in trial villages May 2023/Study completion July 2025

An.: Anopheles. DIV: Development Innovation Ventures

9.3. Plans and Justification with FY 2024 Funding

No OR/PE activities are proposed with FY 2024 funding.

10. Capacity Strengthening

10.1. PMI Goal and Strategic Approach

According to an externally-led capacity strengthening assessment of the NMP conducted in 2019, program effectiveness is limited by issues in coordination, supply chain management and data quality. NMP is responsible for building the technical and managerial capacity of its staff as required to meet the malaria control goals outlined in the NSP. The NMP relies on partnerships with donors such as PMI, the Global Fund, UNICEF, and the private sector

to strengthen the capacity of local staff to better coordinate malaria interventions nationwide.

An allocation of FY 2024 funds representing an increased investment from PMI will be used for a TA plan for capacity strengthening through temporary duty travel of PMI staff or the hiring of national consultants.

Consistent with the 2021–2026 PMI strategy, PMI will continue to support the government of Côte d'Ivoire's capacity to deliver and manage quality malaria prevention and control interventions through:

- Strengthening national leadership and the technical skills of local staff.
- Strengthening national leadership in innovative approaches such as modeling and intelligent forecasting, last mile distribution of commodities, health digitalization, one health, SMC, and stratification.
- Creating equitable and dignified partnerships with local government, the private sector, and civil society to lead the design and implementation of malaria interventions.
- Strengthening entomology surveillance capabilities of staff from regional offices of the INHP to improve data collection to reduce malaria transmission.

10.2. Recent Progress (April 2022–March 2023)

PMI supported the management capacity strengthening action plan for better coordination of malaria program activities with PMI's partners. PMI supported the following capacity strengthening activities during the past 12 months:

- Strengthened coordination of NMP through quarterly review meetings and annual planning activities (jointly funded by PMI and the Global Fund).
- Provided three entomological institutions (*Institut National d'Hygiène Publique, Centre d'Entomologie,* and *Institut Pierre Richet*) with laboratory donations and infrastructure rehabilitation, insectarium material, laboratory equipment, and other laboratory needs.
- Trained 25 health officers from the central, regional, and district levels on SM&E.
- Provided technical support to the National Laboratory for Public Health quality control program for malaria medications.

10.3. Plans and Justification with FY 2024 Funding

The FY 2024 funding tables contain a full list of capacity strengthening activities PMI proposes to support.

During the next 12 months, PMI will continue supporting the following capacity strengthening activities:

- Quarterly coordination meetings and technical working group meetings held by the NMP and PMI implementing partners.
- NMP participation in educational seminars, international conferences, and study courses.

- Short-term technical assistance for reinforcing coordination, supply chain management and data quality.
- One SM&E training session to educate 25 health officers at the central, regional, and district levels on monitoring malaria prevention and control interventions.
- Provide capacity strengthening to DIIS.
- Reinforcement of the HMIS for data quality improvement.
- Capacity strengthening of the Community Health Directorate for better community health coordination and the innovative approach implementation.
- CHW saturation in the health district for strengthening primary health care at the community level.
- Provide technical support to INHP at central and regional levels to improve the abilities of local staff to conduct routine entomology surveillance.

Staffing and Administration

A team of five health professionals oversee PMI in Côte d'Ivoire, one of whom contributes 50 percent of her time. The single interagency team led by the USAID Mission Director or their designee consists of resident advisors representing USAID and CDC, and one or more locally hired foreign service nationals. The PMI interagency team works together to oversee all technical and administrative aspects of PMI, including finalizing details of the project design, implementing malaria prevention and treatment activities, monitoring and evaluation of outcomes and impact, reporting of results, and providing guidance and direction to PMI implementing partners.

ANNEX: GAP ANALYSIS TABLES

Table A-1. ITN Gap Analysis Table

Calendar Year	2023	2024	2025
Total country population	31,118,437	32,020,872	32,949,477
Total population at risk for malaria	31,118,437	32,020,872	32,949,477
PMI-targeted at-risk population	13,692,112	14,089,184	14,497,770
Population targeted for ITNs	2,226,767	1,211,340	1,248,847
Continuous Distribution Needs			
Channel 1: ANC	1,105,327	912,979	942,619
Channel 1: ANC Type of ITN	All three (Dual AI, PBO and Single Pyrethroid)	All three (Dual AI, PBO and Single Pyrethroid)	Dual AI and PBO
Channel 2: EPI	1,267,046	1,211,340	1,248,847
Channel 2: EPI Type of ITN	All three (Dual AI, PBO and Single Pyrethroid)	All three (Dual AI, PBO and Single Pyrethroid)	Dual AI and PBO
Channel 3: School	0	0	0
Channel 3: School Type of ITN			
Channel 4: Community	0	0	0
Channel 4: Community Type of ITN			
Channel 5:	0	0	0
Channel 5: Type of ITN			
Estimated Total Need for Continuous Channels	2,372,373	2,124,319	2,191,466
Mass Campaign Distribution Needs			
Mass distribution campaigns	19,046,533	0	0
Mass distribution ITN type	All three (Dual AI, PBO and Single Pyrethroid)		
Estimated Total Need for Campaigns	19,046,533	0	0
Total ITN Need: Continuous and Campaign	**21,418,906**	**2,124,319**	**2,191,466**
Partner Contributions			
ITNs carried over from previous year	977,202	0	0
ITNs from Government	280,000	280,000	280,000
Type of ITNs from Government	PBO	Single Pyrethroid	Single Pyrethroid
ITNs from Global Fund	10,982,516	973,948	969,135
Type of ITNs from Global Fund	All three (Dual AI, PBO and Single Pyrethroid)	All three (Dual AI, PBO and Single Pyrethroid)	All three (Dual AI, PBO and Single Pyrethroid)
ITNs from other donors	4,179,016	0	0
Type of ITNs from other donors	All three		

	(Dual AI, PBO and Single Pyrethroid)		
ITNs planned with PMI funding	4,000,000	0	942,330
Type of ITNs with PMI funding	PBO		Dual AI and PBO
Total ITNs Contribution Per Calendar Year	**20,418,734**	**1,253,948**	**2,191,465**
Total ITN Surplus (Gap)	**(1,000,172)**	**(870,371)**	**(1)**

AI: active ingredient ; ANC: antenatal care; EPI: Expanded Program on Immunization; ITN: insecticide-treated mosquito net; PBO: piperonyl butoxide.

Table A-2. RDT Gap Analysis Table

Calendar Year	2023	2024	2025
Total country population	31,118,437	32,020,872	32,949,477
Population at risk for malaria	31,118,437	32,020,872	32,949,477
PMI-targeted at-risk population	13,692,112	14,089,184	14,497,770
RDT Needs			
Total # of projected suspected malaria cases	8,934,779	11,767,203	12,585,356
% of suspected malaria cases tested with an RDT	80%	78%	78%
RDT Needs (tests)	**7,147,823**	**9,225,487**	**9,866,919**
Needs estimated based on other			
Partner Contributions (tests)			
RDTs from Government	0	0	0
RDTs from Global Fund	4,399,317	6,154,541	6,413,497
RDTs from other donors	0	0	0
RDTs planned with PMI funding	6,164,600	3,070,946	3,453,422
Total RDT Contributions per Calendar Year	**10,563,917**	**9,225,487**	**9,866,919**
Stock Balance (tests)			
Beginning balance	568,950	3,985,044	3,985,044
- Product need	7,147,823	9,225,487	9,866,919
+ Total contributions (received/expected)	10,563,917	9,225,487	9,866,919
Ending Balance	**3,985,044**	**3,985,044**	**3,985,044**
Desired end of year stock (months of stock)	6	6	6
Desired end of year stock (quantities)	3,573,912	4,612,744	4,933,460
Total Surplus (Gap)	**411,133**	**(627,699)**	**(948,415)**

RDT: rapid diagnostic test

Table A-3. ACT Gap Analysis Table

Calendar Year	2023	2024	2025
Total country population	31,118,437	32,020,872	32,949,477
Population at risk for malaria	31,118,437	32,020,872	32,949,477
PMI-targeted at-risk population	13,692,112	14,089,184	14,497,770
ACT Needs			
Total projected # of malaria cases	6,604,589	9,225,487	9,866,919
Total ACT Needs (treatments)	**6,594,867**	**9,211,908**	**9,852,395**
Needs estimated based on other			
Partner Contributions (treatments)			
ACTs from Government	0	1,328,563	1,420,935
ACTs from Global Fund	4,471,549	5,375,590	4,683,204
ACTs from other donors	0	0	0
ACTs planned with PMI funding	1,279,320	2,306,867	3,748,256
Total ACTs Contributions per Calendar Year	**5,750,869**	**9,011,020**	**9,852,395**
Stock Balance (treatments)			
Beginning balance	4,168,455	3,324,457	3,123,569
- Product need	6,594,867	9,211,908	9,852,395
+ Total contributions (received/expected)	5,750,869	9,011,020	9,852,395
Ending Balance	**3,324,457**	**3,123,569**	**3,123,569**
Desired end of year stock (months of stock)	6	6	6
Desired end of year stock (quantities)	3,297,434	4,605,954	4,926,198
Total Surplus (Gap)	**27,024**	**(1,482,385)**	**(1,802,629)**

ACT: artemisinin-based combination therapy.

Table A-4. Injectable Artesunate Gap Analysis Table

Calendar Year	2023	2024	2025
Injectable Artesunate Needs			
Projected # of severe cases	462,321	645,784	690,684
Projected # of severe cases among children	315,767	441,072	471,739
Average # of vials required for severe cases among children	1,515,679	2,117,146	2,264,347
Projected # of severe cases among adults	146,555	204,712	218,945
Average # of vials required for severe cases among adults	1,313,596	1,834,870	1,962,445
Total Injectable Artesunate Needs (vials)	**2,829,275**	**3,952,016**	**4,226,793**
Needs estimated based on other			
Partner Contributions (vials)			
Injectable artesunate from Government	671,759	3,952,016	4,226,793
Injectable artesunate from Global Fund	0	0	0
Injectable artesunate from other donors	0	0	0
Injectable artesunate planned with PMI funding	0	0	0
Total Injectable Artesunate Contributions per Calendar Year	**671,759**	**3,952,016**	**4,226,793**
Stock Balance (vials)			
Beginning balance	198,525	0	0
- Product need	2,829,275	3,952,016	4,226,793
+ Total contributions (received/expected)	671,759	3,952,016	4,226,793
Ending Balance	**(1,958,991)**	**0**	**0**
Desired end of year stock (months of stock)	6	6	6
Desired end of year stock (quantities)	1,414,638	1,976,008	2,113,397
Total Surplus (Gap)	**(3,373,629)**	**(1,976,008)**	**(2,113,397)**

Table A-5. RAS Gap Analysis Table

Calendar Year	2023	2024	2025
Artesunate Suppository Needs	81,970	112,466	115,728
# of severe cases expected to require pre-referral dose (or expected to require pre-referral dose based on number of providers for the service)	81,970	112,466	115,728
Total Artesunate Suppository Needs (suppositories)	**81,970**	**112,466**	**115,728**
Needs estimated based on other			
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	29,638	62,752	94,887
Total Artesunate Suppositories Available	**29,638**	**62,752**	**94,887**
Stock Balance (suppositories)			
Beginning balance	80,774	28,442	0
- Product need	81,970	112,466	115,728
+ Total contributions (received/expected)	29,638	62,752	94,887
Ending Balance	**28,442**	**(21,272)**	**(20,841)**
Desired end of year stock (months of stock)	6	6	6
Desired end of year stock (quantities)	40,985	56,233	57,864
Total Surplus (Gap)	**(12,543)**	**(77,505)**	**(78,705)**

RAS: rectal artesunate suppository.

Table A-6. SP Gap Analysis Table

Calendar Year	2023	2024	2025
Total country population	31,118,437	32,020,872	32,949,477
Total population at risk for malaria	31,118,437	32,020,872	32,949,477
PMI targeted at risk population	13,692,112	14,089,184	14,497,770
SP Needs			
Total # of pregnant women	1,192,998	1,280,835	1,317,979
% of pregnant women expected to receive IPTp1	72%	72%	72%
% of pregnant women expected to receive IPTp2	64%	65%	65%
% of pregnant women expected to receive IPTp3	58%	47%	47%
% of pregnant women expected to receive IPTp4			
Total SP Needs (doses)	**2,314,416**	**2,356,736**	**2,425,081**
Needs estimated based on other			
Partner Contributions (doses)			
SP from Government	2,120,000	1,175,621	1,213,760
SP from Global Fund	0	1,175,621	1,213,760
SP from other donors	0	0	0
SP planned with PMI funding	0	0	0
Total SP Contributions per Calendar Year	**2,120,000**	**2,351,242**	**2,427,520**
Stock Balance (doses)			
Beginning balance	1,282,350	1,087,934	1,082,439
- Product need	2,314,416	2,356,736	2,425,081
+ Total contributions (received/expected)	2,120,000	2,351,242	2,427,520
Ending Balance	**1,087,934**	**1,082,439**	**1,084,878**
Desired end of year stock (months of stock)	6	6	6
Desired end of year stock (quantities)	1,157,208	1,178,368	1,212,541
Total Surplus (Gap)	**(69,274)**	**(95,929)**	**(127,663)**

IPTP: intermittent preventive treatment during pregnancy; SP: sulfadoxine-pyrimethamine.

Table A-7. SMC Gap Analysis Table

Calendar Year	2023	2024	2025
Total population in the SMC targeted age range	53,432	54,981	56,575
SMC Drug (SPAC) Needs			
National population 3-11 months targeted for SMC	11,337	11,666	12,004
National population 12-59 months targeted for SMC	42,095	43,315	44,571
Total national population targeted for SMC	**53,432**	**54,981**	**56,575**
PMI population 3-11 months targeted for SMC	11,337	11,666	12,004
PMI population 12-59 months targeted for SMC	42,095	43,315	44,571
Total PMI population targeted for SMC	**53,432**	**54,981**	**56,575**
Total SPAC Needs (co-blisters)	**122,894**	**252,913**	**260,245**
Partner Contributions (co-blisters, national)			
SPAC carried over from previous year	0	0	587
SPAC from Government	0	0	0
SPAC from Global Fund	0	0	0
SPAC from other donors	0	0	0
SPAC planned with PMI funding	123,650	253,500	260,750
Total SPAC Contributions per Calendar Year	122,894	253,500	261,337
Total SPAC Surplus (Gap)	**0**	**587**	**1,092**

SMC: seasonal malaria chemoprevention; SPAC: sulfadoxine-pyrimethamine + plus amodiaquine.