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Burkina Faso

Malaria Operational Plan FY 2024

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CONTENTS

ABBREVIATIONS

ACT	Artemisinin-based combination therapy
AI	Active ingredient
AL	Artemether-lumefantrine
ANC	Antenatal care
ANRP	*Agence nationale de régulation pharmaceutiques* (National Pharmaceutical Regulatory Agency)
ANSSEAT	*Agence nationale pour la sécurité sanitaire de l'environnement, de l'alimentation, du travail et des produits de santé* (National Agency for Environmental Health Safety, Food, Work, and Health Products)
ASPY	Artesunate-pyronaridine
CAMEG	*Centrale d'achat des médicaments essentiels génériques* (Central Medical Stores)
CDC	Centers for Disease Control and Prevention
CHAI	Clinton Health Access Initiative
CHW	Community health worker
CRUN	Centre de Recherche de Nanoro
CY	Calendar year
DGAP	*Direction générale de l'accès aux produits de santé* (Directorate General for Access to Health Products)
DHS	Demographic and Health Survey
DHIS2	District Health Information Software 2
DOT	Directly observed therapy
DP	Dihydroartemisinin-piperaquine
EIR	Entomological inoculation rate
EPI	Expanded Program on Immunization
EUV	End-use verification survey
eLMIS	Electronic logistics management information system
FETP	Field Epidemiology Training Program
FY	Fiscal year
GHSC-PSM	Global Health Supply Chain Program-Procurement and Supply Management
Global Fund	Global Fund to Fight AIDS, Tuberculosis and Malaria
GRAS	Groupe de Recherche Action en Santé
iCCM	Integrated community case management
IPTp	Intermittent preventive treatment for pregnant women
IRS	Indoor residual spraying
IRSS	*Institut de recherche en sciences de la santé (*Institute for Health Sciences Research)
ISO	International Organization for Standardization
ITN	Insecticide-treated net
LMIS	Logistics management information system

MOH	Ministry of Health
MOP	Malaria Operational Plan
NSP	National Strategic Plan for Malaria Control
PBO	Piperonyl butoxide
PMI	U.S. President's Malaria Initiative
PMS	Postmarketing surveillance
QC	Quality control
RAS	Rectal artesunate
RDT	Rapid diagnostic test
SBC	Social and behavior change
SMC	Seasonal malaria chemoprevention
SM&E	Surveillance, monitoring, and evaluation
SP	Sulfadoxine-pyrimethamine
SP+AQ	Sulfadoxine-pyrimethamine amodiaquine
SP/Palu	*Secrétariat permanent pour l'élimination du paludisme* (Permanent Secretariat for Malaria Elimination)
TES	Therapeutic efficacy study
TWG	Technical working group
UNICEF	United Nations Children's Fund
USAID	U.S. Agency for International Development
WHO	World Health Organization

EXECUTIVE SUMMARY

To review the specific country context for Burkina Faso, please refer to the country malaria profile located on PMI's country team landing page, which provides an overview of the country's malaria situation, key indicators, the strategic plan of the *Secrétariat permanent pour l'élimination du paludisme* (Permanent Secretariat for Malaria Elimination, or SP/Palu), and the partner landscape.

U.S. President's Malaria Initiative

Launched in 2005, the U.S. President's Malaria Initiative (PMI) supports implementation of malaria prevention and treatment measures as well as cross-cutting interventions. PMI's 2021–2026 strategy, *End Malaria Faster*, envisions a world free of malaria within our generation with the goal of preventing malaria cases, reducing malaria deaths and illness, and eliminating malaria in PMI partner countries. PMI currently supports 27 countries in Sub-Saharan Africa and 3 programs across the Greater Mekong Subregion in Southeast Asia to control and eliminate malaria. Burkina Faso began implementation as a PMI partner country in fiscal year (FY) 2017.

Rationale for PMI's Approach in Burkina Faso

Malaria is endemic throughout Burkina Faso, and the country is one of 11 nations designated by the World Health Organization (WHO) as "high-burden high-impact countries" that bear 70 percent of the world's malaria burden. Seasonal peaks occur between May and October and vary in timing and intensity across the country's three major geographic zones due to regional differences in the rainy season. Routine data collected by the Ministry of Health (MOH) show that there were 11,656,675 malaria cases and 4,243 malaria-attributable deaths reported in 2022, which is a decrease from 12,231,086 cases and 4,355 deaths reported in 2021. As described throughout this document, PMI supports a wide range of malaria prevention and control interventions, and all support is aligned with the revised 2021–2025 National Strategic Plan (NSP) for malaria control, under the leadership of Burkina Faso's SP/Palu.

Overview of Planned Interventions

The proposed FY 2024 PMI funding for Burkina Faso is $24 million. PMI will support the following intervention areas with these funds.

1. Vector Monitoring and Control

Building on the support to net distribution efforts, PMI plans to procure 750,000 piperonyl butoxide (PBO) insecticide-treated nets (ITNs) with FY 2024 funds for the 2025 mass distribution campaign. In addition, PMI will continue to support entomological monitoring of vector bionomics at six sites, track insecticide resistance at 12 sentinel sites, provide

laboratory supplies and technical support to local research partners and SP/Palu, and fund advanced molecular analysis of mosquito samples.

2. Malaria in Pregnancy

Key interventions highlighted by SP/Palu's NSP include a provision of an ITN to all pregnant women at the time of their first antenatal care (ANC) visit, provision of four or more doses of sulfadoxine-pyrimethamine (SP) as intermittent preventive treatment for pregnant women (IPTp), and effective case management of diagnosed malaria per WHO guidelines. The aspiration of complete national coverage of pregnant women has yet to be realized in Burkina Faso, with SP/Palu reporting that 82.6 percent of pregnant women received an ITN and 68.6 percent received IPTp3 in 2022, which are both below the 100 and 80 percent respective targets set in the NSP. Several factors are associated with incomplete uptake of these interventions among the population, many of which are nonmodifiable. However, despite these challenges, a recent pilot demonstrated the effectiveness of a community program to distribute IPTp. PMI plans to continue to support this intervention in the areas it was piloted as well as its potential upscaling in the future in the PMI-supported regions. support supply chain strengthening and on-the-job training for and supervision of health care workers, as needed.

3. Drug-Based Prevention

SP/Palu's NSP promotes seasonal malaria chemoprevention (SMC) as a nationwide malaria prevention intervention for all children between 3 and 59 months of age. PMI supports the use of SMC as defined in WHO guidance through the procurement of SP and amodiaquine (SP+AQ) to meet the needs of the eligible population and support for all aspects of implementation, including planning, training, paying distributors, and social and behavior change activities. With FY 2024 funds, PMI will continue to support SMC in 19 health districts, with other partners providing support for the other 51 health districts.

4. Case Management

To maintain access to life-saving treatments, with FY 2024 funds, PMI/Burkina Faso plans to purchase 8 million rapid diagnostic tests (RDTs), 4 million existing first-line artemisinin-based combination therapies (ACTs), and 200,000 artesunate-injectable treatments (to complement an additional 1 million artesunate-injectable treatments procured with the PMI pipeline). PMI will fund 25 percent of the incentive payment, tools, training, and supervision for community health workers (CHWs) in three regions. PMI will provide technical assistance to national and regional diagnostic laboratories.

5. Health Supply Chain and Pharmaceutical Management

PMI FY 2024 funds will support SP/Palu to ensure the continual availability of quality products needed for malaria control at the health facility and community level. To prevent stockouts of commodities to the extent targeted by the national strategy, PMI will support the MOH to implement annual commodities inventory, an end-use verification survey (EUV), formative

supervision, and logistics management information system (LMIS) preservice training. PMI will also support the MOH to expand the electronic LMIS (eLMIS) to PMI-supported regions. PMI will continue to support last-mile distribution efforts for antimalarial commodities in collaboration with the *Centrale d'achat des médicaments essentiels génériques* (Central Medical Stores, or CAMEG). Additionally, PMI will ensure that fire security plans are implemented at commodity storage facilities in collaboration with other donors, and it will aim to improve commodity quality control (QC) through regular postmarketing surveillance (PMS) activities and through steps toward achieving accreditation of the national public health laboratory (*Laboratoire national de santé publique*) under International Organization for Standardization (ISO) 17025 standards.

6. Malaria Vaccine

Building on the support PMI has provided to develop the malaria vaccine roadmap, with FY 2024 funding, PMI will continue to support the planning, implementation, and monitoring of the malaria vaccine implementation. Gavi (the Vaccine Alliance) has already confirmed the allocation of RTS,S vaccines for distribution in Burkina Faso beginning in the first quarter of 2024. Burkina Faso's *Agence nationale de la regulation pharmaceutique* has approved a second malaria vaccine, R21, for introduction once it becomes available.

7. Social and Behavior Change

Social and behavior change (SBC) activities boost the effectiveness of PMI investments and promote positive health behaviors. With FY 2024 funds, PMI will continue to support a multifaceted approach to SBC interventions, including interpersonal communication and human-centered design to encourage early care seeking and greater uptake of malaria prevention activities, especially at the community level. PMI funds will also be used to support national World Malaria Day awareness activities and to contribute to implementation of the national SBC strategy in coordination with Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund).

8. Surveillance, Monitoring, and Evaluation

Routine malaria case data from health facilities and CHWs are reported to SP/Palu through District Health Information Software 2 (DHIS2) and the weekly integrated disease surveillance and response system. Routine data are supplemented by periodic surveys in the form of population-based surveys, health facility surveys, and therapeutic efficacy studies. Although the efforts to strengthen the surveillance, monitoring, and evaluation (SM&E) capacity across all levels of the health system have been adversely affected by recent insecurity, PMI support contributed to ongoing SM&E training of SP/Palu staff and Field Epidemiology Training Program (FETP) trainees, publication of an updated Demographic and Health Survey (DHS), and the development of plans to streamline SM&E efforts nationally. With FY 2024 funds, PMI will continue to provide central-level support for planning, coordination, and implementation of SM&E activities.

9. Operational Research and Program Evaluation

PMI does not currently support operational research or program evaluation in Burkina Faso and does not plan to do so using FY 2024 funds.

10. Capacity Strengthening

PMI's approach to capacity strengthening includes strengthening the leadership and management skills of SP/Palu team as well as strengthening the malaria case management and data collection capabilities of CHWs. Using FY 2024 funds, PMI will continue to support a community health technical advisor secondee to the MOH's *Direction de la promotion et de l'éducation pour la santé* (health promotion and education directorate) to develop and implement SM&E courses for regional- and provincial-level doctors and SM&E officers, and will support the MOH to develop a malaria vaccine roadmap and timeline.

I. CONTEXT & STRATEGY

1. Introduction

Burkina Faso began implementation as a PMI partner country in fiscal year (FY) 2017. This FY 2024 Malaria Operational Plan (MOP) presents a detailed implementation plan for Burkina Faso based on the strategies of PMI and the *Secrétariat permanent pour l'élimination du paludisme* (Permanent Secretariat for Malaria Elimination, or SP/Palu). It was developed in consultation with SP/Palu and with the participation of national and international partners. The activities that 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 Burkina Faso, 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, SP/Palu strategic plan, and the partner landscape.

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

PMI is led by the United States Agency for International Development (USAID) and implemented with the U.S. Centers for Disease Control and Prevention. Launched in 2005, PMI supports the implementation of malaria prevention and treatment measures such as insecticide-treated mosquito nets (ITNs), indoor residual spraying (IRS), accurate diagnosis and prompt treatment with artemisinin-based combination therapies (ACTs), intermittent preventive treatment for pregnant women (IPTp), and drug-based prevention, as well as cross-cutting interventions such as surveillance, monitoring, and evaluation; social and behavior change (SBC); and capacity strengthening. PMI's 2021–2026 strategy, *End Malaria Faster*, envisions a world free of malaria in 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 3 programs in the Greater Mekong Subregion (GMS) 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 on progress already made in PMI-supported countries, PMI will work with national malaria control programs 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 Burkina Faso

3.1. Malaria Overview for Burkina Faso

Malaria is endemic throughout Burkina Faso and poses a major health problem. Seasonal peaks occur between May and October and vary in length and intensity across the three major geographic zones due to differences in the rainy seasons; elevated transmission lasts up to three months in the north, six months in the center, and nine months in the south. Routine data collected by the Ministry of Health (MOH) show that there were 11,656,675 reported malaria cases presumed and confirmed, with 99.4 percent confirmed by rapid diagnostic test (RDT) or microscopy in 2022 compared with 12,231,086 cases in 2021 (with 99.4 percent confirmed). Malaria-attributable deaths remained stable from 4,355 in 2021 to 4,243 in 2022. Burkina Faso is one of 11 countries designated by the World Health Organization (WHO) as "high-burden high-impact," and its population experienced 3.3 percent of all malaria cases globally and 3.4 percent of all malaria deaths in 2021, per the 2022 World Malaria Report.

For more detailed information on malaria indicators, refer to the country malaria profile.

3.2. Key Challenges and Contextual Factors

Burkina Faso is facing a rapidly deteriorating security situation. Several regions of the country have become increasingly nonpermissive, with occasional severe limitations on access to and delivery of basic health services. As of March 31, 2023, there were 2 million internally displaced persons, 10.6 percent of whom live in PMI-supported regions due to ongoing violence (compared with less than 50,000 at the end of 2018). The MOH, including SP/Palu, recognizes the need to assess current service delivery activities and to identify potential changes and adaptations that could improve access to care for internally displaced persons and to ensure continued access to quality care for host communities.

The health sector has been both directly and indirectly affected by the deteriorating security situation. As of January 2023, the MOH reported that 683 health facilities were affected by insecurity, 265 of which are completely closed, leaving approximately 2.5 million individuals with limited access to health care. Among the 683 health facilities affected, 124 (18 percent) were from PMI zones; and among the 265 health facilities closed, 72 (27 percent) were from PMI zones. Health facilities were targets of violence, and 94 percent of health facility closures were reportedly due to direct attacks on the facilities themselves by unidentified armed groups. Access to health care is also indirectly affected by increased pressure on existing services from large influxes of internally displaced persons and lack of access to certain populations due to armed groups isolating and encircling certain areas.

Burkina Faso is also currently experiencing political instability. After the January 24, 2022, coup, a portion of USAID's foreign aid funds for family planning were suspended, resulting in gaps in health strengthening efforts that would benefit the malaria program. A second coup took place the same year, on September 30, 2022, with a pause in coordination activities at the central level.

3.3. PMI's Approach for Burkina Faso

The current National Strategic Plan (NSP) for malaria control, which was revised in 2022, covers 2021–2025. It draws from the overall National Plan for Economic and Social Development 2020–2022, which emphasizes malaria control, and is in line with the Burkina Faso government's long-term vision of eliminating malaria in Burkina Faso by 2030. The NSP 2021–2025 objectives, listed below, align with the WHO's Global Technical Strategy and PMI's strategy:

- Reduce the malaria death rate by 2025 in Burkina Faso by 75 percent from 2015 levels;
- Reduce the malaria incidence rate by 2025 in Burkina Faso by 75 percent from 2015 levels; and
- Reinforce SP/Palu management capacities by 2025 in Burkina Faso.

Of the 10 focus areas highlighted in the NSP 2021–2025, 9 are aligned with PMI-supported key intervention areas and receive varying levels of PMI funds. Epidemic control and emergency management is a focus area of the NSP that has not to date received PMI support.

3.4 Key Changes in this MOP

There are no significant changes in strategies, activities, or budget levels compared to the FY 2023 MOP.

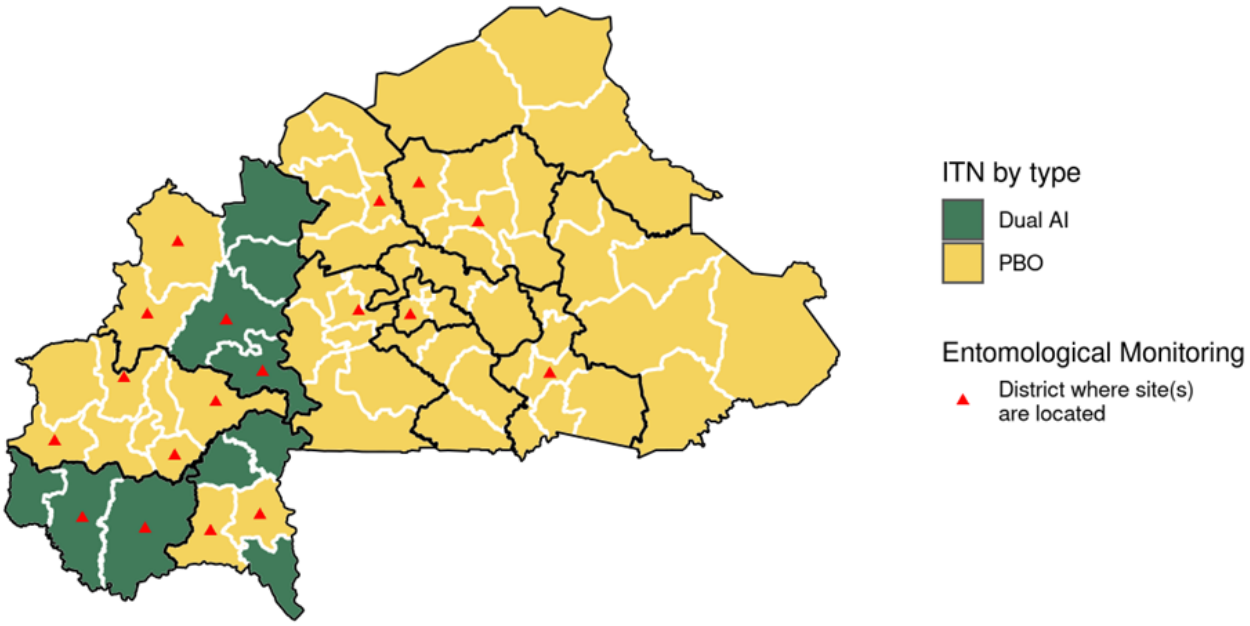
II. OPERATIONAL PLAN FOR FY 2024

1. Vector Monitoring and Control

1.1. PMI Goal and Strategic Approach

The Burkina Faso 2021–2025 NSP recommends several insecticide-based vector control interventions, including ITNs, IRS, larval source management, insecticide-resistance management, and entomology surveillance. In 2022, PMI supported all of these interventions, except IRS and larval control. PMI and the Global Fund jointly support mass campaigns of ITNs, deploying both dual active ingredient (AI) and PBO ITNs every three years, in addition to the continuous distribution of ITNs via antenatal care (ANC) and Expanded Program on Immunization (EPI) channels nationwide.

Figure 1. Map of 2022 Vector Control Activities in Burkina Faso



1.2. Recent Progress (January 2022–December 2022)

- Supported routine entomological surveillance to monitor vector bionomics at six sentinel sites in collaboration with SP/Palu and the *Institut de recherche en sciences de la santé* (IRSS). The sites include two former sprayed sites (Solenzo and Kampti), two paired unsprayed sites (Nouna and Gaoua), and two other sites (Karangasso-Vigué and Soumousso) where piperonyl butoxide (PBO) ITNs were distributed.
- Supported insecticide-resistance monitoring at 18 sites to monitor the spread of resistance in malaria vector populations in Burkina Faso.
- Supported ITN durability monitoring by conducting 36-month data collection of a 2019 cohort of ITNs. ITNs examined included Interceptor G2, a dual-AI ITN in Banfora

health district; Interceptor, a standard pyrethroid ITN in Gaoua health district; and PermaNet 3.0, a pyrethroid ITN with the insecticide synergist PBO, in Orodara health district.
- Provided technical assistance to the IRSS on the molecular analysis of mosquito samples and training on entomological monitoring for surveillance and identification of the invasive malaria vector *Anopheles stephensi*.
- Supported national-level SBC to improve demand for ITNs, increase appropriate use, promote care, and mitigate against misuse. For more information, refer to the SBC section.

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 in Burkina Faso with FY 2024 funding.

1.3.1. Entomological Monitoring

PMI will continue to support entomological monitoring activities as described in the recent progress section above. Activities will include insecticide-resistance monitoring, vector bionomics, and ITN durability monitoring. Vector bionomics monitoring will be carried out at six sites (including sites where PBO ITNs were distributed and where IRS has been withdrawn). PMI/Burkina Faso will increase insecticide-resistance monitoring from 18 to 19 sites. As part of the IRS exit strategy, PMI will increase entomological surveillance and strengthen community-based entomological surveillance, including detection of the invasive malaria vector *Anopheles stephensi*. These entomological data will assist SP/Palu with evidence-based decision making. PMI will also provide technical support (through training) to strengthen the entomological capacity of SP/Palu and local research institutes to better understand vector-human interactions.

Summary of Distribution and Bionomics of Malaria Vectors in Burkina Faso

As of December 2022, the primary malaria vectors in Burkina Faso were *Anopheles gambiae* and *Anopheles coluzzii*. *An. gambiae* is the predominant vector in the southwestern districts (Gaoua, Kampti, Soumousso, and Karangasso-Vigué), while *An. coluzzii* is more frequent in the north-central Centre-Nord District (Séguénéga and Kongoussi) and West-Central Districts (Nouna and Solenzo). *Anopheles arabiensis* is a secondary vector increasingly being detected in the western and southwestern regions where it was formerly absent. Indoor resting densities and biting rates both peaked in August/September at all sentinel sites. The overall entomological inoculation rate was high at the sites monitored in the southwest of Gaoua (unsprayed) for seven months (June–December 2022), with 126 infectious bites per person over 120 indoor collection nights. The rate was also quite high in the neighboring sprayed health district of Kampti, with 161 infective bites per person over the same time period. However, the outdoor entomological inoculation rates for the same sites are substantially higher, with 445 infectious bites per person in Gaoua, and 268 infectious bites per person in

Kampti. In Karangasso-Vigué, the site where PBO ITNs were distributed, the rate was estimated to be relatively reduced following PBO ITNs distribution.

Status of Insecticide Resistance in Burkina Faso

Pyrethroid resistance in *An. gambiae s.l.* is widespread in Burkina Faso. In 2022, *An. gambiae s.l.* was resistant to all pyrethroids tested (alpha-cypermethrin, deltamethrin, and permethrin), with high pyrethroid-resistance intensity at all sites for deltamethrin and alpha-cypermethrin, and moderate intensity for permethrin.

PBO significantly increased mosquito susceptibility to alpha-cypermethrin, deltamethrin, and permethrin but did not fully restore susceptibility at any of the sites. The effect of the PBO was higher with deltamethrin compared with permethrin or alpha-cypermethrin, resulting in increased mortality of up to 90 percent at most sites. There is emerging resistance to chlorfenapyr at two sites (Dedougou and Koudougou) and clothianidin at four sites (Diebougou, Solenzo, Vallée du Kou, and Orodara). *Anopheles gambiae s.l.* was fully susceptible to pirimiphos-methyl at all sites except the sprayed site of Solenzo and in the unsprayed sites of Orodara and Gaoua where resistance was suspected. For more information about entomological monitoring, refer to the 2022 Annual Entomological Monitoring Report.

1.3.2. Insecticide-Treated Nets

PMI will continue to support procurement and distribution of PBO ITNs through continuous distribution and increase advocacy to improve the use and care of ITNs that were distributed in 2022.

ITN Distribution in Burkina Faso

In Burkina Faso, ITNs are distributed via mass campaign every three years with Global Fund and PMI support. Between mass distribution campaigns, ITNs are distributed continuously through a number of channels, including ANC visits to pregnant women; communities to internally displaced persons, schools, and through the EPI. The country transitioned to the distribution of PBO nets and Interceptor® G2 (dual-AI) nets from standard ITNs during its 2019 mass distribution campaign. For both mass campaigns and routine distribution, PBO nets are distributed in the majority of districts, with dual-AI nets procured by the Global Fund and distributed in 10 districts, as shown in Figure 1. Currently, there is a gap projected for the 2025 ITN campaign. Approximately 11 percent of nets procured by the Global Fund are to be dual-AI, however, the next Global Fund grant has not yet been finalized and ITNs funding will be prioritized as well as the other malaria commodities. The source of ITN distribution costs for the mass campaign has yet to be confirmed, but the PMI team will continue to work closely with other donors and SP/Palu to close those gaps for routine distribution in 2025, utilizing the existing PMI pipeline to procure additional ITNs, if needed.

Refer to the ITN gap table in the annex for more details on planned quantities and distribution channels.

Table 1. Standard Durability Monitoring

Campaign Date	Site	Brand	Baseline	12-month	24-month	36-month
October 2019	Banfora	Interceptor G2	December 2019	October 2020	November 2021	July–August 2022
August 2019	Gaoua	Interceptor	December 2019	September 2020	October 2021	July–August 2022
June and July 2019	Orodara	PermaNet 3.0	December 2019	September 2020	July 2021	July–August 2022

The final durability monitoring report pertains to ITNs distributed in the 2019 mass distribution campaign.

1.3.3. Indoor Residual Spraying (IRS)

PMI last supported IRS in Burkina Faso in 2021 where cone bioassays with a susceptible insectary strain showed that both clothianidin-based insecticides and pirimiphos-methyl lasted for at least seven months at IRS sites (see the final IRS report). However, PMI no longer supports IRS in the country to maximize its budget and obtain greater vector control coverage through nets due to the availability of PBO and dual-AI ITNs, which may be more effective than standard pyrethroid ITNs. An IRS exit strategy was put in place in 2021 to include the distribution of new types of ITNs at IRS sites, increased SBC activities to improve the use and care of ITNs and to mitigate against misuse, epidemiological surveillance, and strengthening community-based entomology surveillance.

2. Malaria in Pregnancy

2.1. PMI Goal and Strategic Approach

Malaria infection during pregnancy is a public health problem in Burkina Faso, causing substantial risks for the mother, her fetus, and the newborn. PMI supports the national strategy for the prevention of malaria in pregnancy in Burkina Faso, which includes the provision of ITNs at the first ANC visit, a minimum of four doses of IPTp starting at 16 weeks gestational age, and effective case management of malaria per WHO guidelines.

The national strategy promotes 100 percent of pregnant women receiving an ITN through routine distribution.

The national strategy also provides IPTp to pregnant women nationwide free of charge. This is provided through ANC visits at health facilities and by community health workers (CHWs) in

certain regions. The goal is to provide at least four supervised doses of IPTp with sulfadoxine pyrimethamine (SP) to every pregnant woman.

According to the 2021 Demographic Health Survey, 98 percent of pregnant women in Burkina Faso attended at least one ANC visit by a skilled provider, and 92 percent received IPTp at least once during pregnancy. Coverage of IPTp2 and IPTp3 were 79 and 57 percent, respectively. Many factors explain the number of ANC visits a pregnant woman attends and the number of IPTp doses she receives over the course of her pregnancy in Burkina Faso, such as:

- Early initiation of IPTp at 13 weeks of pregnancy is not included in SP/Palu guidelines due to the difficulty of determining 13–16 weeks of pregnancy at most health facilities without appropriate equipment;
- Use of health services, including prenatal visits, decreased during the COVID-19 pandemic and across insecure regions, which affected ANC4 coverage;
- Additional social and environmental non-modifiable determinants negatively impact ANC attendance, including ethnicity, religious beliefs, and household income; and
- Reinforced SBC activities using CHWs are associated with improved IPTp uptake.

2.2. Recent Progress (January 2022–December 2022)

SP/Palu reported that 82.6 percent of pregnant women received an ITN and 68.6 percent received IPTp3 in 2022, which are both below the 100 and 80 percent respective targets set in the NSP.

Results from a 2021 pilot activity implementing community IPTp showed that community IPTp increased IPTp coverage through well-trained, well-equipped, and well-supervised CHWs without negatively affecting the number of ANC visits attended by pregnant women. Per the NSP and in alignment with WHO's new 2022 recommendations, community IPTp is expanding to all 19 health districts supported by PMI, with all CHWs expected to be trained by the end of September 2023. The first dose of IPTp will be given at health facilities in the context of ANC1, with subsequent doses able to be administered by CHWs under supervision.

The effective administration of IPTp depends on SP availability. A recent study demonstrated that improved availability of SP at study sites contributed to significant improvement in its uptake. SBC activities targeting pregnant women and their partners, including using CHWs to create awareness and facilitate linkages to antenatal services, also has a positive effect on IPTp administration as demonstrated in the same study. Insufficient training of health personnel is an environmental barrier for IPTp administration and control sites where staff did not receive training or retraining, and supportive supervision had lower IPTp uptake than study sites.[1]

2.3. Plans and Justification for FY 2024 Funding

[1] Feasibility Study of Intermittent Preventive Treatment of Malaria in Pregnancy at the Community Level in Burkina Faso, 2018.

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

PMI will continue to support the promotion of ITN and IPTp uptake during ANC visits.

Using CHWs to promote early ANC and IPT messaging in their communities, directly with pregnant women and their partners, and administer IPTp doses after IPTp1 was successful in the PMI-funded community IPTp pilot; it will be scaled up to cover all 19 health districts in the three PMI-supported regions (Centre-Est, Centre-Ouest, and Sud-Ouest) in 2022–2023. FY 2024 funding will complement these efforts by supporting supervision of these CHWs. In addition, PMI will continue to support supply chain strengthening efforts to ensure constant availability of SP at the health facility and community levels, as well as on-the job training and supportive supervision of health care workers. This activity will be integrated with other malaria case management activities and be supported with other USAID funding streams.

SP is procured by the Burkina Faso government. Refer to the SP gap table in the annex for more details on planned quantities and distribution channels.

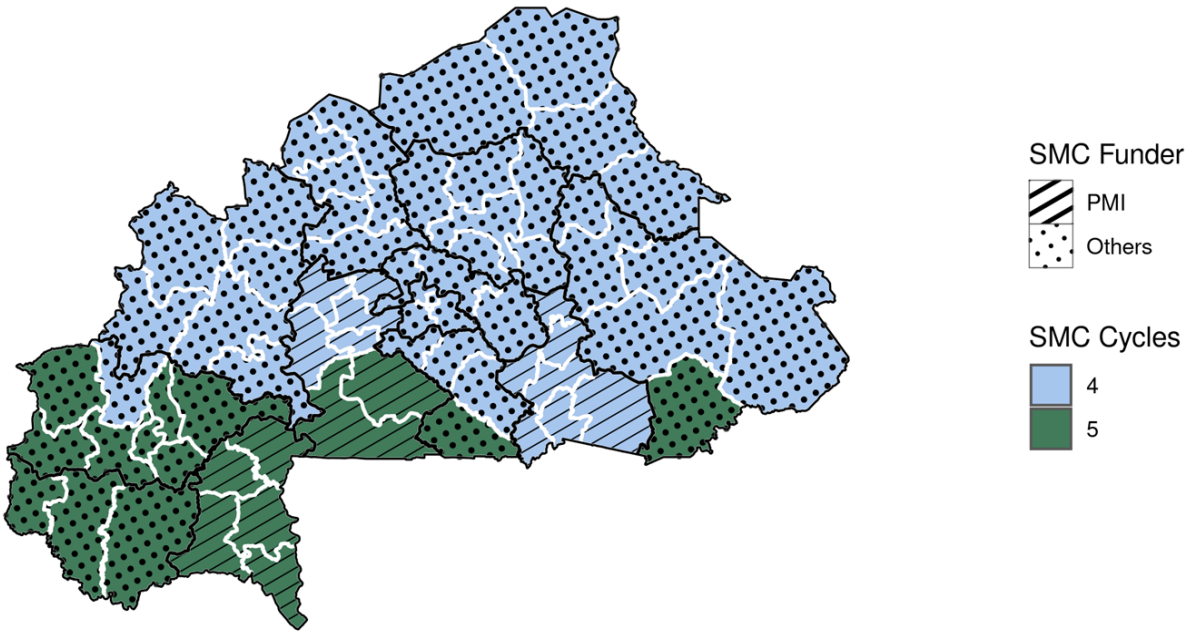
3. Drug-Based Prevention

3.1. Seasonal Malaria Chemoprevention

3.1.1. PMI Goal and Strategic Approach

SP/Palu's NSP promotes seasonal malaria chemoprevention (SMC) as a malaria prevention intervention for all children 3 to 59 months of age nationwide, and PMI supports its use as defined in WHO guidance. PMI financially supports SMC in 19 health districts, including the procurement of co-blistered sulfadoxine-pyrimethamine amodiaquine (SP+AQ) as well as all aspects of its distribution (e.g., planning, training, paying distributors, SBC activities, and supervision). Other partners support SMC in the other 51 districts. Support for these districts during the 2022 campaign was provided by the Malaria Consortium (27 districts), the Global Fund (22 districts), and the United Nations Children's Fund (UNICEF) (2 districts). In 2021, one district (Tougan) implemented a pilot to digitalize its SMC campaign, but this has not yet been expanded due to resource constraints. PMI also supports SP/Palu's SMC activities (e.g., planning, training, and supervision) at the central level.

Figure 2. Map of SMC Implementation in Burkina Faso by Supporting Partners and Number of Cycles, 2022



3.1.2. Recent Progress (January 2022–December 2022)

PMI supported SMC that provided protection to over 800,000 children 3 to 59 months of age in 19 districts. Five cycles of SMC were provided in seven districts, and four cycles were provided in the remaining 12 districts. In general, SMC campaign coverage across the country continues to be high, at 93.8 percent, however campaign coverage was calculated to be greater than 100 percent in the PMI-supported districts in the 2022 campaign, likely due to underestimation of the target population. Itemized accomplishments from calendar year (CY) 2022 include:

- Procured SP+AQ blister packs to meet the need in the PMI-supported implementation areas;
- Procured and distributed materials and supplies (other than SP+AQ) needed for the campaign; conducted cascade training for trainers, supervisors, and community distributors; and oversaw supervision by central-, regional-, and district-level teams from the MOH;
- Supported an evaluation of directly observed therapy (DOT) on SMC treatment adherence for all three SMC doses (DOTx3) in the five districts of the Sud-Ouest Region;
- Conducted routine data collection, independent monitoring surveys, and rapid household surveys;
- Supported SP/Palu to hold planning and post-implementation validation meetings;

- Supported SBC activities focused on demand generation at the community level, such as community meetings, town criers, and local media. For more information, refer to the SBC section below.

Because of the increased number of malaria cases within the SMC target population, concerns have been raised by SP/Palu and others about possible reductions in the impact of SMC on prevention of malaria infection among children 3–59 months of age. PMI and others, including the Malaria Consortium, have been supporting SP/Palu to better monitor whether the effectiveness of SMC is reflected in children under 5 years of age. Since 2021, PMI has been supporting ongoing weekly monitoring of malaria incidence and mortality trends during the high transmission season, which coincides with SMC campaigns. As a result, SP/Palu and its partners have initiated an investigation to determine potential drivers of the increase in malaria cases and deaths in particular districts, including effectvie implementation of SMC. Findings from this study will be used to modify SMC implementation, if necessary.

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 in Burkina Faso with FY 2024 funding.

PMI will continue to support SMC activities in Burkina Faso as described in the recent progress section, with one exception. PMI does not currently plan to continue supporting DOTx3 for SMC in any of the PMI-supported implementation areas because an evaluation did not indicate much benefit to SMC adherence with DOTx3. As described in the recent progress section, SP/Palu (with support from multiple partners) is investigating potential decreases in SMC effectiveness. The study will evaluate the implementation process and determine the level of drug resistance markers and blood concentration of the SMC drug. If necessary, PMI will support relevant changes to SMC implementation based on the results of these investigations.

SP/Palu conducted a mid-term NSP review that included a subnational intervention-tailoring exercise and determined that select districts should extend the SMC age groups to children up to 9 years old in 27 districts in 2024 or 2025. In addition, SP/Palu plans to increase the number of cycles from four to five in an additional two districts, bringing the total number of districts with five cycles to 21 in 2024 or 2025. Unfortunately, the current resource gap has not allowed PMI or the Global Fund to support these expansion efforts; however, the PMI team will continue to reflect and discuss with SP/Palu and other stakeholders to determine the best options with the current resource envelope and consider findings from ongoing SMC studies. PMI and other partners will continue to support SP/Palu to provide the SMC commodities for the children 3 to 59 months of age.

Refer to the SP+AQ gap table in the annex for more details on planned quantities and distribution channels.

See the SBC section for details on challenges and opportunities to improve intervention uptake and maintenance.

4. Case Management

4.1. PMI Goal and Strategic Approach

In the NSP, SP/Palu announced that it is striving to reduce malaria-associated deaths by 75 percent from 2015 levels by the end of 2025. To that end, national case management goals include the following.

Facilities

- Ninety-five percent of suspected malaria cases receive an RDT or microscopy.
- Ninety percent of uncomplicated malaria cases diagnosed in a health facility receive correct treatment.
- Ninety percent of severe malaria cases confirmed in health facilities receive correct treatment.

Communities

- Ninety-five percent of suspected malaria cases receive a diagnostic test (RDT or microscopy).
- Eighty percent of uncomplicated malaria cases diagnosed at the community level receive treatment.
- Ninety percent of uncomplicated malaria cases diagnosed in a humanitarian emergency setting receive correct treatment.
- At least 80 percent of severe malaria cases confirmed at the community level receive correct prereferral antimalarial treatment.

SP/Palu's approach to case management is that all suspected malaria cases should be tested using either RDT or microscopy. Suspected malaria cases are defined as patients presenting to a health facility or a CHW with fever or history of fever. Guidelines do not depend on patient age; as such, diagnostic testing for malaria is considered mandatory for febrile patients from all age groups presenting for care at both the health facility and community levels. Only patients who test positive should receive treatment.

Along with other financial and technical partners, PMI contributes to the nationwide implementation of case management in Burkina Faso through support to national-level policy and programmatic activities, commodity procurement, and improvement of facility- and community-level health worker performance.

PMI supports the supply of 34 percent of the country's malaria RDT needs (excluding the buffer stock), 58 percent of ACTs, and 47 percent of injectable artesunate. Rectal artesunate (RAS) is fully supported by the Burkina Faso government, and the Global Fund supports procurement of the remaining case management commodities. PMI also supports outreach training and supervision activities in 19 health districts in 3 regions; the Burkina Faso government and the Global Fund support the 51 districts in the remaining 10 regions.

The biggest challenges currently faced by the community health system are the irregular payment of incentives for workers; lack of training and supervision; insufficient equipment, including data collection and reporting tools; and malaria commodity stockouts. To address these challenges to community case management, PMI supports the training and recurrent supervision of CHWs as well as the malaria commodity supply chain. Under current national plans and guidance, health facility staff should supervise CHWs once every two months in collaboration with civil society. Supervision of CHWs focuses on case management, including diagnostic testing with RDTs and provision of ACTs based on test results; SBC activities; and data reporting. Integrated community case management (iCCM), including malaria case management, is available from CHWs for children under five years of age in villages located more than 5 km from the nearest health facility. There are at least two CHWs per village throughout Burkina Faso and up to four in villages with more than 2,000 inhabitants. The national policy provides for an incentive of 20,000 CFA francs (about $34) per month for CHWs in addition to remuneration for training and immunization campaigns. At present, the CHW incentive is jointly supported by the Burkina Faso government and the Global Fund, or by the Burkina Faso government and USAID. PMI plans to support payment for CHWs in the three PMI-focus regions with FY 2024 funds.

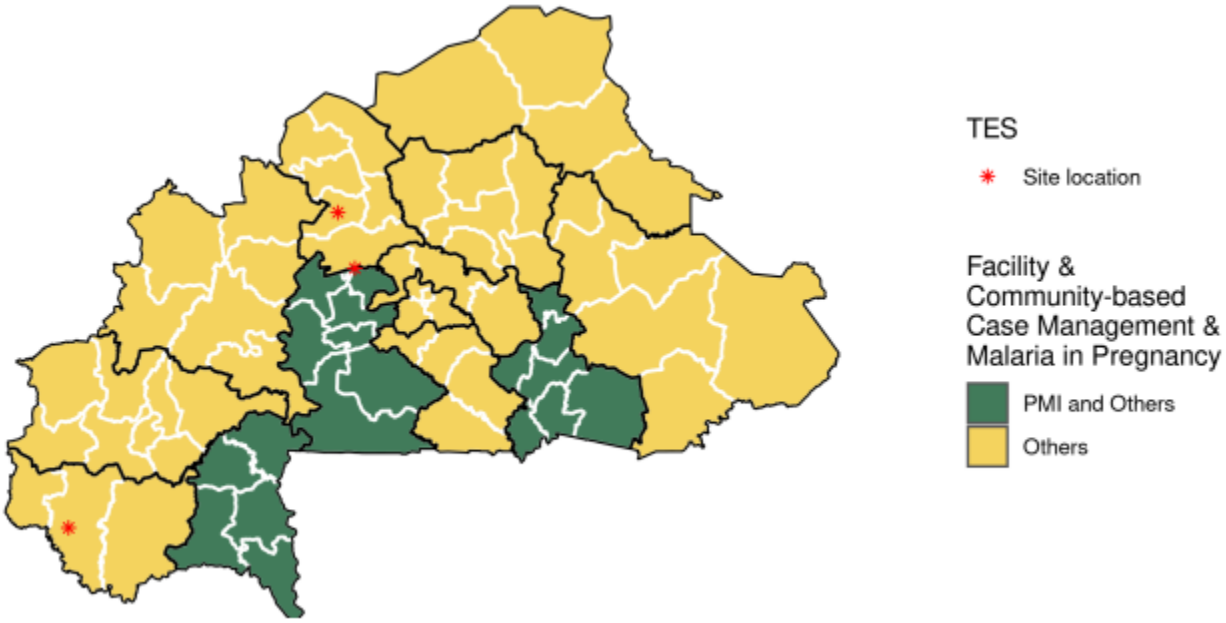
Given results of multiple therapeutic efficacy studies indicating low efficacy of artemether-lumefantrine (AL) in multiple sites in Burkina Faso, there is a need to pursue procuring an alternative ACT nationally.

SP Palu conducted a revision of the national treatment guidelines for uncomplicated malaria management in November 2021. Burkina Faso adopted dihydroartemisinin-piperaquine (DP) as first-line treatment and replaced the artesunate amodiaquine combination (amodiaquine has been used exclusively since 2019 in combination with SP for SMC) by Artesunate-pyronaridine (ASPY) as the second-line treatment, and AL as the third-line treatment. Burkina Faso initially planned the deployment of the three types of ACTs as follows:

- AL will remain in 7 health regions;
- DP will be deployed in 5 health regions;
- ASPY will be deployed in 1 health region.

PMI is currently assisting SP/Palu in an ACT transition plan that prioritizes areas with high incidence for the deployment of DP and ASPY at public health facilities. Within the same health region, all patients will use the same type of ACT. SP/Palu requested PMI and Global Fund support for ASPY and DP procurement. PMI committed to support ASPY deployment in one region in 2022 and may cover more regions if funding allows. SP/Palu is still awaiting Global Fund approval for DP introduction. The expected start date for DP deployment is Q4 CY 2023 with MOH domestic resources. Up to the timing of MOP discussions in August 2023, ASPY has been procured for one region due to the prohibitively high cost compared with AL. If the cost of ASPY comes down in future years, PMI will support SP/Palu to implement this change.

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



4.2. Recent Progress (January 2022–December 2022)

National-Level Case Management Activities

- Procured and distributed a new ACT, ASPY, to health facilities in one region (Centre-Ouest), as budgetary constraints prevented PMI from scaling up ASPY to multiple regions.

Commodities

- Supported the procurement and distribution of 7,500,000 malaria RDTs for nationwide use, accounting for approximately 29 percent of need.
- Supported the procurement and distribution of 6,000,000 ACTs for nationwide use, accounting for approximately 50 percent of need.
- Supported procurement of 1,000,000 vials of injectable artesunate for nationwide use for treatment of severe malaria.

Facility-level

- Trained 126 health workers in three PMI focus regions on new case management guidelines.
- Trained health care workers on the introduction and use of ASPY in the Centre-Ouest region.

- Integrated service delivery training for 3,288 health care workers in 568 health care facilities.
- Provided long-term mentoring to 3,288 health care workers.

Community-level

- Trained 4,703 CHWs on community case management.

Recent progress on monitoring antimalarial efficacy and the therapeutic efficacy study (TES) 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 in Burkina Faso with FY 2024 funding.

National-Level Case Management Activities

PMI will support private-sector quarterly meetings, facilitate reporting and data sharing with regional/district authorities, and conduct training of trainers for malaria case management in private sector clinics in priority urban areas. This will support coordination between the public and private sector to ensure adherence to guidelines and data reporting.

Commodities

PMI will continue to meet the country's needs for malaria commodities (including those for community case management) in collaboration with the Burkina Faso government and the Global Fund.

Refer to the ACT, RDT, injectable artesunate, and artesunate suppository gap analysis tables in the annex for more detail on planned quantities and distribution channels.

Facility Level

PMI will continue to support refresher training and supervision of health care workers for malaria case management. SBC activities will also include changing health care worker behaviors regarding adherence to case management guidelines and/or supply chain best practices. These activities will be implemented in the three USAID focus regions (see Figure 4) with the goal of improving the quality of care delivered and increasing the number of individuals receiving it for uncomplicated and severe malaria.

PMI will also support malaria case management training and reporting for 30 medical providers for the national armed forces under the leadership of regional/health district authorities to ensure adherence to case management guidelines in all sectors.

Community-level

PMI will support payment of 25 percent of salaries for 7,703 CHWs working in the three PMI-focus regions, with the Burkina Faso government covering the remaining 75 percent. Additionally, PMI will continue to support supervision and mentoring of CHWs by health facility staff. Additional SBC activities targeting communities will focus on care-seeking behavior and use of ITNs for malaria prevention.

PMI support to the community health system is aligned and coordinated with support from other USAID funding streams (such as maternal, newborn, and child health), and from other donors and partners, including the Global Fund.

Refer to the ACT, RDT, injectable artesunate, and artesunate suppository gap tables in the annex for more details on planned quantities and distribution channels.

Monitoring Antimalarial Efficacy

Table 2. Ongoing and Planned Therapeutic Efficacy Studies

Year	Site Name	Treatment Arm(s) (ACTs)	Plan for Laboratory Testing of Samples
Ongoing TES			
2021–2022	Gourcy, Nanoro, Niangoloko	AL, DP, ASPY	U.S. Centers for Disease Control and Prevention/Atlanta (SP-resistance marker testing included), University of Cape Town
Planned TESs (funded with previous or current MOP)			
2023	Koupela, Nanoro, Niangoloko	AL, DP, ASPY	CIGASS Dakar (SP-resistance marker testing to be included)
2025	TBD	TBD	TBD

AL: artemether and lumefantrine; ACT: artemisinin-based combination therapy; ASPY: artesunate-pyronaridine; DP: dihydroartemisinin-piperaquine; MOP: Malaria Operational Plan; SP: sulfadoxine-pyrimethamine; TBD: to be determined; TES: therapeutic efficacy study.

PMI supports TES every two years in accordance with WHO's recommendations. SP-resistance-marker testing will continue to be included in the next TES planned for mid-2023.

See the SBC section below for details on challenges and opportunities to improve intervention uptake and maintenance.

5. Health Supply Chain and Pharmaceutical Management

5.1. PMI Goal and Strategic Approach

SP/Palu aims to ensure an uninterrupted supply of quality products for malaria control. This falls under the third objective 3 of the NSP 2021–2025, which aims to reinforce SP/Palu's managerial capacities. To achieve this goal, the country identified four major interventions: improving availability of malaria commodities; strengthening the quality control (QC) system for

commodities; strengthening of the pharmacovigilance system; and reinforcing the fight against substandard and falsified medical products.

SP/Palu—in collaboration with the *Direction générale de l'accès aux produits de santé* (Directorate General for Access to Health Products, or DGAP); *Agence nationale de régulation pharmaceutiques* (National Pharmaceutical Regulatory Agency, or ANRP); *Agence nationale pour la sécurité sanitaire de l'environnement, de l'alimentation, du travail et des produits de santé* (National Agency for Environmental Health Safety, Food, Work, and Health Products, or ANSSEAT), the former national public health laboratory—have identified key activities for each intervention that include the following:

- Improve malaria commodity availability:
    - Quantification of commodities by an inclusive committee;
    - Quarterly review of the supply and procurement plan;
    - Annual physical inventory of the commodities;
    - Controls, training, and formative supervision of health workers;
    - End-use verification survey (EUV);
    - Supply chain data quality assessment; and
    - Reinforcement of the early warning system with civil society organizations.
- To reduce the stockout rate for malaria commodities at service delivery points, the DGAP, in collaboration with SP/Palu, has defined annual targets and launched a pilot project for an electronic logistics management information system (eLMIS) called NetSIGL to strengthen the integrated logistics management information system (LMIS). NetSIGL will be interoperable with the central warehouse system (SAGE) and digital tools at the community level. NetSIGL aims to strengthen the availability of information for decision making and action.
- Strengthening of the QC system for commodities and reinforcement of the fight against substandard and falsified medical products intervention includes annual postmarketing surveillance (PMS) surveys, organization of periodic PMS technical working group (TWG) meetings, support to ANSSEAT QC International Organization for Standardization (ISO) 17205 accreditation and implementation of milestones toward WHO prequalification, communication activities, and controls enhancement.
- Activities to strengthen active and passive pharmacovigilance systems to monitor adverse events of ACTs used in Burkina Faso with a focus on artesunate-pyronaridine (ASPY). Key PMI supply chain activities are aligned with SP/Palu strategy and will leverage other USAID funding streams to provide technical assistance for quantification of commodities, EUV, storage and distribution capacity strengthening of *centrale d'achat des médicaments essentiels génériques*/central medical stores (CAMEG), QC for commodities, surveillance, and data quality assessment.

To achieve SP/Palu's supply-chain-related objective and improve the availability of malaria commodities at service delivery points, PMI worked with SP/Palu and supply chain actors in 2021 to develop the country's stockout reduction strategy. After defining the average baseline

for the ACT, RDT, and SP stockout rates, SP/Palu set its three-year targets. PMI supported the DGAP to operationalize the stockout reduction strategy initiative in the three USAID-supported regions. PMI will continue to support the extension of NetSIGL at a regional level. PMI will cover three regions (Center West, South West, and Centre-Est) to go from one pilot district (Nanoro district) to 19 districts. Eventually, three hospitals and 700 health facilities will be covered in 2024.

5.2. Recent Progress (January 2022–December 2022)

PMI has supported various activities to strengthen the health supply chain and pharmaceutical system management, including annual commodities quantification exercises, physical inventories of malaria commodities, and supportive supervision.

PMI worked with SP/Palu to finalize the ASPY procurement in Burkina Faso and supported the development of a new introduction plan for ACTs (ASPY and DP).

Additionally, PMI has supported the extension of the eLMIS pilot project in three districts in Centre-Est Region in collaboration with Belgian cooperation and provides technical assistance for temperature and humidity monitoring in central and regional CAMEG warehouses, biannual EUV exercises, warehousing and distribution of malaria commodities across all regions in Burkina Faso. PMI supported the dissemination of EUV results to the regional and health district teams and reinforced formative supervision in the three PMI focus regions.

PMI continued to support LMIS preservice training for the health workforce in 48 public and 27 private health schools. Since 2019, 15,641 students have been trained. PMI supported SP/Palu to improve collaboration with the private sector. PMI provided assistance to SP/Palu with the provision of subsidized RDTs to reinforce case management, stock management, and reporting. Unfortunately, two fires in November 2021 and April 2022 that consumed two of the CAMEG warehouses negatively impacted CAMEG's warehousing capacity. PMI leveraged other funding streams to conduct a fire security assessment of all CAMEG central and regional warehouses. A fire security reinforcement plan was developed and is being implemented in collaboration with other health supply chain donors. PMI also supported the reinforcement of fire security at the regional and district level and will procure fire security equipment for 19 health districts.

PMI supported ANRP in collaboration with the national public health laboratory (*Laboratoire national de santé publique*) to use the risk-based approach and MedRs tool for the annual antimalarial PMS exercise. The first survey conducted in 2021 demonstrated the safety and the quality of all the samples of antimalarials. The second survey data were collected in 2022, and the results of this PMS are expected by August 2023. PMI also supported the roll-out of technical assistance for the ANSSEAT ISO 17025 accreditation plan. PMI support was instrumental during the development and the validation of ANSSEAT strategic plan 2022–2026. PMI provided technical assistance to finalize ANSSEAT resources mobilization plan.

The main challenge that continues to threaten the supply chain is the security crisis. The worsening security situation has affected the distribution to the last mile, reduced field supervisions and control possibilities in some areas, and consequently affected technical assistance and the performance of EUV at the operational level. The security crisis is channeling domestic resources initially planned for malaria commodities to other urgent needs. Another challenge is related to fire security at CAMEG and at the operational level, with the frequent fires observed during these last years at the district and hospital stores in the country (about 15 of the 70 districts experienced fire over the last three years). PMI is considering fire safety improvements in the district stores in USAID focus regions (Centre-West, Centre-East and South-West) as a priority. In FY 2023, the Global Health Supply Chain Program-Procurement and Supply Management (GHSC-PSM) assessed the fire safety system in all the 19 district stores in the three focus regions and is currently procuring minimum fire safety equipment such as smoke detectors and fire extinguishers for all 19 district stores.

The latest EUV from Burkina Faso was conducted by GHSC-PSM at 65 health facilities and 29 warehouses in November 2022. All facilities visited had at least one presentation of AL on the day of the visit, 81 percent had all four presentations. The availability of RDTs was 97 percent. This performance was due to the commitment of partners to procurement and adherence to product delivery schedules at different levels. Fifty-three percent of service delivery points had stockouts of injectable artesunate on the day of the visit, and 93 percent had stockouts of injectable quinine (200 mg).

The results of SRS are slightly better in PMI-supported areas, as presented below. This improvement could be explained by the implementation of supportive supervision at service delivery points with financial and technical assistance from GHSC-PSM and GHSC-Technical Assistance Francophone Task Order. In FY 2022, GHSC-PSM provided technical assistance in three regions, and GHSC-Technical Assistance Francophone Task Order covered two regions. On average, 92 percent of malaria cases were diagnosed with RDTs, 2 percent by microscopy, and 6 percent clinically. The entire staff (100 percent) received training on RDT procedures. Ninety-five percent of malaria cases in children under five years of age were treated with ACTs. These high rates are partly attributable to the high availability of RDTs and ACTs at the service delivery point level and at district warehouses. Also, it indicates the efforts made by the health workers to respect malaria diagnosis guidelines. Ninety-three percent of health workers were trained in malaria case management, while only 43 percent were trained in 2021. This improvement may be linked to the joint effort of SP/Palu and partners after the interruption of training during the COVID-19 pandemic.

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 in Burkina Faso with FY 2024 funding.

PMI will ensure continual availability of quality products needed for malaria control (ACTs including ASPY, RDTs, injectable artesunate, and ITNs) at health facilities and at the community level. ITNs will be procured for routine and mass campaign distribution, including the commodities for the CHWs who will provide iCCM in the three PMI-focus regions. PMI will also support an introduction plan for the deployment of DP in the Centre-Est Region.

PMI will continue to support annual commodity quantification exercises, the extension of the eLMIS, nationwide, with cost-sharing by the Global Fund and World Bank. PMI will also support all the activities included in the stockout reduction strategic plan, such as supportive supervision, on-the-job training, preservice training, EUV exercises, results dissemination, data quality assessment, supply chain data validation, and last-mile distribution reinforcement. Finally, PMI will provide continued technical assistance to CAMEG for their product location management system, temperature monitoring, fire security reinforcement, and the warehousing and distribution of malaria commodities. PMI will support SP/Palu to expand the coverage of private health care structures and the military health facilities, which provide free service to internally displaced persons and host communities through a network of 30 health facilities and hospitals. In coordination with SP/Palu, PMI will ensure that private sector and military clinics can offer a complete malaria prevention package to the most vulnerable groups (ITNs for pregnant women and children under the age of one, IPTp, SMC, and RTS,S vaccination in eligible areas) and report back promptly to the national health information system—the District Health Information System2 (DHIS2)—on their activities. PMI will support regular coordination meetings with private sector and army clinics with health district managers, SP/Palu, and all key actors to follow up on this intervention.

SP/Palu will benefit from the subsidized RDTs and ensure that private health and health workers at military health facilities and stock managers are trained and supervised.

PMI is also continuing to support PROPHARM, a local manufacturer, to achieve international standards for commodities production (with a focus on ACTs) and to obtain WHO prequalification for AL and DP by 2025. PMI is planning to procure 1 million doses of ACTs locally if PROPHARM is prequalified and meets all the required conditions to be a PMI supplier.

PMI will support the country's efforts to reinforce the coordination of quality assurance/QC activities and the implementation of ANSSEAT strategic plan activities to maintain the ISO 17025 accreditation for the commodities quality control laboratory. The ANRP will be reinforced for PMS coordination through TWG activities and annual PMS exercises.

6. Malaria Vaccine

6.1. PMI Goal and Strategic Approach

Following the results of the Malaria Vaccine Implementation Program, in October 2021, WHO issued a recommendation for widespread use of the RTS,S/AS01 (RTS,S) malaria vaccine among children in Sub-Saharan Africa and in other regions with moderate to high *P. falciparum*

malaria transmission as a new complementary tool within a comprehensive malaria control program. Gavi (the Vaccine Alliance) opened a funding window to support RTS,S procurement, delivery, and deployment in eligible countries. PMI does not directly support RTS,S implementation but can assist with complementary funds in selected countries.

In October 2021, Burkina showed a strong interest in malaria vaccine introduction and set up an internal inclusive vaccine TWG with the support of WHO and PMI. As the vaccine TWG vice president, PMI was able to provide technical and financial support for the Burkina Faso proposal development in December 2022 and January 2023 along with PATH. UNICEF and WHO also provided technical support for proposal development. PMI has held regular meetings with EPI and SP/Palu malaria vaccine introduction points of contact to provide them with technical information and guidance, share updates, and support technical interagency coordination meetings to prepare for vaccine introduction. PMI is also working with Mission MNCH colleagues to ensure synergy and collaboration.

Burkina Faso submitted a proposal for RTS,S introduction for the second application window, which closed in January 2023. The introduction plan aims to vaccinate 248,986 children 0–12 months of age in 27 health districts with a four-dose routine schedule. Country objectives are to ensure that:

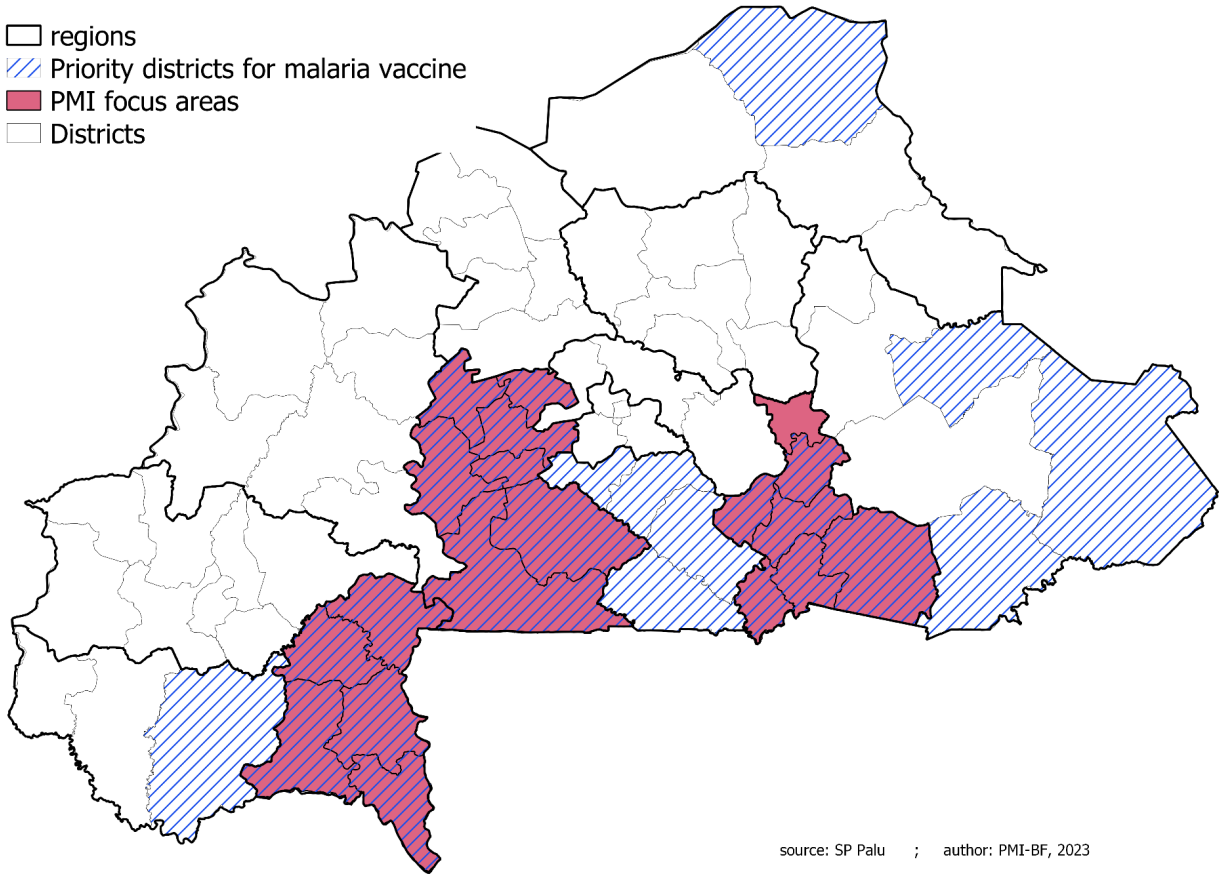
- At least 80 percent of children 0–11 months of age receive at least three doses of RTS,S vaccine by the end of 2024;
- Ninety percent of children 0–11 months of age receive at least three doses of RTS,S vaccine by the end of 2025; and
- Seventy-five percent of children receive their fourth dose of RTS,S vaccine by the end of 2025, and 85 percent of children received their fourth dose of RTS,S vaccine by the end of 2026.

6.2. Recent Progress (January 2022–December 2022)

Burkina Faso has been selected among the 12 countries that will be receiving an RTS,S vaccine. Eighteen districts out of the 28 where the vaccine will be deployed are in PMI-supported areas. PMI supported the proposal development and reinforced the coordination of vaccine introduction between EPI and SP/Palu.

PMI is currently providing TA and funding for a vaccine TWG, jointly with UNICEF, for the development ofSBC guidelines for the introduction of the vaccine.

Figure 4. Map of Malaria Vaccine Plans in Burkina Faso



6.3. Plans and Justification for FY 2024 Funding

The FY 2024 funding tables contain a full list of activities related to other drug-based prevention that PMI proposes to support in Burkina Faso with FY 2024 funding.

In January 2023, Burkina Faso applied to Gavi to support the procurement and deployment of the RTS,S malaria vaccine. The RTS,S vaccine in Burkina Faso will be deployed at health facilities to infants at 5, 6, 7, and 17 months of age as a part of the routine EPI service delivery, complemented by periodic intensification of routine immunization activities. Burkina Faso plans to introduce the malaria vaccine in 27 districts that have the highest malaria burdens, beginning in early 2024. This includes 18 PMI-priority districts. Beginning in FY 2024, PMI funding will be used to provide supportive supervision to health care workers who provide the malaria vaccine in these three districts. All malaria vaccine procurement and distribution will be supported by UNICEF with Gavi funding. New SBC investments will focus on malaria vaccine delivery for health care workers, demand generation for parents, retention for the fourth dose in children, and maximizing the uptake of the vaccine without adversely affecting coverage of other malaria interventions. PMI will also support country efforts for vaccine introduction

evaluation and the reinforcement of health information systems for a better monitoring of vaccination impact in PMI areas.

7. Social and Behavior Change

7.1. PMI Goal and Strategic Approach

PMI supports SP/Palu's 2021–2025 NSP, which includes SBC under its second objective, emphasizing advocacy, social mobilization, and behavior change communication to strengthen the capacity of SP/Palu to effectively manage its response against malaria. SP/Palu aims to improve the population's knowledge of malaria; care-seeking practices; ITN use; and uptake of SMC, IRS, and IPTp. It has the following goals:

- At least 80 percent of the population knows three signs of malaria and three preventive measures for malaria and
- At least 90 percent of community leaders (traditional, civil, and religious) are targeted for engagement in the response against malaria.

Activities to advance these goals include community advocacy, interpersonal communication with CHWs and community-based organizations, development/adaptation of SBC tools, and mass communication campaigns.

Key PMI interventions are aligned with SP/Palu's strategy except for interventions related to larval source management. Areas of PMI support for SBC have included revising national malaria SBC strategies; building country capacities in SBC; and implementing SBC interventions to improve intervention uptake. PMI will continue working at the national level with SP/Palu's communication unit and ensure coordination with Global Fund–supported activities to maximize resources. More targeted PMI SBC support will take place in the three PMI focus regions (Centre-Est, Centre-Ouest, and Sud-Ouest) and will leverage other USAID funding streams. PMI will continue to support ~5,000 CHWs in these regions to deliver both routine SBC activities (community events and household visits with flip charts and other tools to facilitate discussion around healthy malaria behaviors) and activities carried out during the SMC and ITN campaigns and RTS,S introduction in the routine EPI program. Additionally, tailored interventions will utilize a mix of communication channels, including mass communication campaigns promoting ITN use, IPTp, community IPTp, early care-seeking behavior; and the targeting of social norms of early ANC, perceived risk of malaria infection, and early care-seeking response efficacy. As in previous years, campaigns will continue via a variety of channels, including short television spots, radio messages, messages from influential cultural leaders/icons, and billboards.

PMI does not directly support RTS,S implementation but can assist with complementary funds in eligible countries to promote demand for the malaria vaccine and to integrate malaria vaccine SBC activities into existing PMI-supported and EPI-supported SBC activities in areas where the malaria vaccine will be introduced. Potential areas of PMI support for the malaria vaccine SBC include:

- Establish a coordination mechanism for malaria vaccine SBC activities that includes representatives from across the MOH, including SP/Palu and EPI efforts;
- Develop a malaria vaccine SBC strategy integrated into both the national malaria SBC strategy and national immunization demand creation strategy;
- Simultaneously emphasize the importance of malaria vaccine uptake as well as the uptake, maintenance, and use of proven malaria control interventions throughout malaria vaccine implementation;
- Design and implement data-driven SBC interventions.
- Integrate the promotion of the malaria vaccine in general and in child health platforms at the facility and community levels.
- Support providers and provider-related behaviors through provider behavior change and support providers to advocate for the malaria vaccine and other malaria control interventions through service communication;
- Engage with influencers on the expanded immunization schedule, including the second year of life in the childhood series; and
- Monitor and respond to emerging hesitancy, rumors, and misinformation.

7.2. Recent Progress (January 2022–December 2022)

Burkina Faso's malaria bilateral mechanism was awarded in August 2021; the significant delay of the award and lack of implementing partner for nine months caused key activities, including some SBC interventions, to be postponed. Additional challenges included the growing insecurity, which affected SBC interventions.

Despite these challenges, PMI support for SBC activities included:

- Malaria prevention messaging through local radios, Whatsapp groups, home visits, SMS, community groups such as husbands' school, community health groups, and teenager's clubs;
- Periodic SBC TWG meetings;
- World Malaria Day celebration advocacy and awareness activities;
- ITNs and SMC campaigns in 2022; and
- Technical and financial support to the MOH for the development of the Integrated Health Communication and Social and Behavioral Change Strategy 2022–2026, validated in March 2022 and adopted by a ministerial order, which accompanies the National Health Development Plan and is the national reference for health communication and community health care; It has three components: institutional and crisis communication, risk communication and community engagement, and social and behavioral change.

Key challenges by technical area are listed below:

- **ITN accessibility:** The security situation and the more than 2 million internally displaced persons (as of June 2023) make access to ITNs and their distribution more

difficult. Health workers need capacity reinforcement and supervision for a better adherence to ITNs routine distribution guidelines.

- **Malaria in pregnancy:** Ensuring the availability of both ITNs and SP for ANC visits at the facility level with several stockout SPI; targeting communication on the importance of early attendance at ANC and IPTp; and advocating for better access to IPTp through administration of community IPTp through CHWs. Population movement and the insecurity in many parts of the country also complicate uptake and adherence to IPTp. SP/Palu is scaling up community IPTp and the training of CHWs after the successful pilot in Burkina Faso.
- **SMC:** Population movement (internally displaced persons) and the timing of SMC phases vis-á-vis farming and agricultural activities. Additional messaging for caregiver administration of subsequent doses will need to be reinforced (e.g., side effects and actions if a child spits up a subsequent dose at home).
- **Case management:** Existing gap of early care-seeking behavior, which in some instances is compounded by security challenges, which have closed several health facilities, and the reluctance to travel far to seek care. Providers know the guidelines they should be following, but their beliefs and attitudes cause them to deviate. For instance, they continue to treat RDT-negative patients with ACT, injectable artesunate, or quinine because they firmly believe that the signs and symptoms point to malaria. They will also prescribe medicines that are not listed in the national malaria guidelines.
- **Capacity strengthening/reinforcement:** Assessment of the national malaria control program and the creation of SP/Palu highlight the need for national and regional capacity reinforcement and the development of national malaria strategy and SBC guidelines for the malaria vaccine.

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 in Burkina Faso with FY 2024 funding.

PMI plans to reinforce the capacity of CHWs and other care providers to improve adherence to case management guidelines for severe and uncomplicated malaria cases and to increase IPTp uptake in the community to support the extension of IPC. The ITN physical and durability survey[2] conducted by IRSS Bobo Dioulasso identified the main causes of ITN damage, which will be used to reinforce ITNs use/care messaging. Demographic and Health Survey (DHS) results show gaps in ITN coverage (see Table 3). SP/Palu, along with support from PMI and other partners, will intensify the mix of SBC interventions to appropriately tailor messaging and activities.

[2] Physical and insecticidal durability of Interceptor®, Interceptor® G2, and PermaNet® 3.0 brand ITNs in Burkina Faso: results from durability monitoring in three sites, 2019–2022.

Table 3. ITN Coverage in PMI-Supported Areas, DHS 2021

	National Strategic Plan for Malaria Control 2021–2025 Target	Centre-Est (DHS 2021)	Centre-Ouest (DHS 2021)	Sud-Ouest (DHS 2021)	National (DHS 2021)
Children under the age of five at risk of malaria slept under an ITN the previous night	85%	78.5%	74.1%	72%	78.7%
Pregnant women at risk of malaria slept under an ITN the previous night	90%	66.7%	71.3%	66%	71%

DHS: Demographic and Health Survey; ITN: insecticide-treated net.

Priorities

While PMI supports SBC activities that promote the uptake and maintenance of all key malaria interventions, the three behaviors outlined in Table 4 will be prioritized with FY 2024 funds.

Table 4. 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	Nationwide and three PMI-focus regions	● Conduct community- and household-level interpersonal communication in prompt care seeking, informed by recent surveys. ● Provide technical assistance to media stations for production and airing of radio shows and spots to promote prompt care seeking. ● Support activities using Whatsapp groups, home visits, SMS, and community groups such as husbands' school, community health groups, and teenagers' clubs.
Consistent, nightly use of ITNs	Caregivers of children under five years of age and pregnant women	Nationwide	● Conduct community- and household-level interpersonal communication to reinforce or maintain consistent ITN use with tailored messages in heath districts, introducing the RTS,S and any other malaria vaccine, informed by recent surveys. ● Support activities include using Whatsapp groups, home visits, SMS, and community groups, such as husbands' school, community health groups, and teenagers' clubs.
Adherence to case management and supply chain guidelines	Health workers	Nationwide and three PMI-focus regions	● Take advantage of on-site training/refresher training opportunities emphasizing behavior change among providers to improve malaria case management. Also support case management activities using Whatsapp groups and SMS to trigger behavior changes. ● Continue to roll out eLMIS training to facilitate up-to-date inventory status and reduce stockouts. Training will also emphasize

			timeliness and completeness of reporting to ensure that commodities can be replenished on time.

eLMIS: electronic logistics management information system; ITN: insecticide-treated net.

Additional Support Activities

No additional SBC data collection activities are planned due to funding limitations and prioritization of other activities.

SP/Palu identified some areas to reinforce the quality of SBC interventions. PMI will support SP/Palu to operationalize the integrated national SBC strategy in 2024. PMI assistance will also include support for the development of malaria-vaccine-specific communications, SBC TWG workshops and meetings, dissemination of SBC tools, and capacity strengthening for regional and district staff to implement, monitor, and evaluate activities. SBC points of contact at the regional and health-district level will be trained to develop and monitor innovative and effective SBC interventions and to provide oversight to the local associations and other civil society partners. Using the opportunity of localization, PMI will subcontract with local partners that have demonstrated capacity in SBC program development and monitoring to provide technical assistance to SP/Palu at the central and operational levels. This integrated activity will be co-funded with other USAID funds and will complement Global Fund resources, drawing on local community-based organizations with SBC experience. Local research centers in coordination with SP/Palu will also provide technical expertise and mentorship for the development of SBC operational research (e.g., protocol review and data analysis).

8. Surveillance, Monitoring, and Evaluation

8.1. PMI Goal and Strategic Approach

Burkina Faso's SP/Palu's monitoring and evaluation team leads malaria SM&E activities, which includes data collection, validation, and analysis routinely reported by health workers on a monthly basis through the national health information system using the DHIS2 platform, and on a weekly basis through the integrated disease surveillance and response system generated through Excel. Using these data, SP/Palu generates a weekly malaria surveillance bulletin, which provides a national snapshot of the malaria situation in the country and reports key indicators over time and stratified by district.

Additional activities led by the monitoring and evaluation team include coordinating population-based surveys, health facility surveys, operational research studies, and therapeutic efficacy studies, all of which complement the routine data. SP/Palu designs and implements these SM&E activities with key partners, including the Bill & Melinda Gates Foundation, the Clinton Health Access Initiative, the Global Fund, PMI, Terre des hommes, the Malaria Consortium, the World Bank, and WHO.

PMI is committed to supporting SP/Palu to improve its SM&E system at all levels of the health system, including strengthening its capacity to conduct surveillance as a core intervention that provides high-quality data from both surveys and routine health information systems. At the central level, PMI supports SP/Palu, the MOH's *Direction des statistiques sectorielles et de l'evaluation* (Directorate of Sectoral Statistics and Evaluation); and the *Direction des systèmes d'information* (Information Systems Directorate) to review policies and to plan, coordinate, and implement broader SM&E strengthening initiatives. SM&E capacity-strengthening efforts in the country are available through the Field Epidemiology Training Program (FETP) for limited SP/Palu staff and regional data managers who support surveillance across all diseases, and a regional francophone SM&E course offered annually by a health research institution. National SM&E courses have been offered in the past but are not routinely funded.

8.2. Recent Progress (January 2022–December 2022)

An assessment of the Burkina Faso national health information system, the implementation of its 2010–2020 strategic plan, and an evaluation of the malaria surveillance system in 2021 revealed a fragmented national system with complex and duplicative processes needing significant improvements at all levels. Based on the recommendations from these assessments, SP/Palu developed a roadmap to inform the design and implementation of future SM&E activities. PMI is dedicated to reinforcing the implementation of these recommendations alongside SP/Palu, Clinton Health Access Initiative, and other partners.

Through two implementing partners, PMI provided support for SM&E to 19 health districts in three regions: Centre-Ouest, Centre-Est, and Sud-Ouest, including the revision of the national strategic plan, the conducting data validation workshops, and supporting an organizational audit of SP/Palu.

During this time, PMI continued to work with SP/Palu and partners to achieve the following:

- The most recent DHS was published in July 2022.
- A second malaria-focused Intermediate FETP cohort of 12 residents completed their training in December 2022, finishing projects aimed to address questions posed by SP/Palu.
- With financial support from Global Fund for application development by the information systems directorate and Dimagi, an initial version of a CommCare-based digital tool for CHWs has been developed, including malaria case management and reporting modules. PMI provided technical assistance related to project coordination, human centered design/user acceptability, and collaborative requirements development. PMI is supporting the roll out of the pilot version of the 2.0 of mHealth and ensuring an optimized digital health environment.

Insecurity issues in Burkina Faso negatively impacted many SM&E activities in 2022, resulting in slowed progress, delays in or lack of reporting, irregular supervision, and suboptimal participation in stakeholder meetings. Additional SM&E challenges include:

- Lack of a functioning SM&E TWG and regular coordination meetings;
- Limited data availability, quality, and use for appropriate analyses;
- Fragmented digitization efforts; and
- Limited SM&E capacity at the community level.

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 in Burkina Faso with FY 2024 funding.

PMI's new bilateral agreement supports SM&E in 19 districts in Centre-Ouest, Centre-Est, and Sud-Ouest regions, and includes an SM&E advisor on staff in Ouagadougou. PMI also onboarded a new malaria data specialist on the in-country team in early 2023. These efforts, in combination with the existing local capacity of health research institutions in Burkina Faso that have conducted SM&E trainings since 2011, will strengthen and advance malaria SM&E.

PMI will continue to implement the recommendations from the 2021 evaluation of the surveillance system in collaboration with other partners, including reinforcing the surveillance system by continuing to provide central-level support for planning, coordination, and implementation of SM&E activities and supporting SP/Palu and other MOH directorates to strengthen health information systems, including eLMIS, particularly at the health-facility level. Activities will include data quality improvement, supportive supervision, data review meetings at the district level, DHIS2 data analysis and use, and refresher training. These integrated activities will be co-funded with other USAID funding and will leverage contributions by the Global Fund.

Table 5. 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				P		
Malaria surveillance and routine system support	Therapeutic efficacy studies		X		P		
Malaria surveillance and routine system support	Support to health management information system	X	X	X	P	P	P
Malaria surveillance and routine system support	Support to integrated disease surveillance and response	*X	*X	*X	*P	*P	*P
Malaria surveillance and routine system support	Electronic logistics management information system		X	X	P	P	P

Source	Data Collection Activity	2020	2021	2022	2023	2024	2025
Other	End-use verification survey	X	X	X	P	P	P
Other	Entomologic monitoring surveys	X	X	X	P	P	P
Other	Entomology, net durability, and indoor residual spray data collection	X	X	X	P		

* Non-PMI funded activities; X: completed activities; P: planned activities.

9. Operational Research and Program Evaluation

9.1. PMI Goal and Strategic Approach

Burkina Faso does not have a specific strategy for malaria-related operational research. The national team will support the development of a specific strategy for operational research when the next malaria strategic plan is elaborated. Ensuring the availability and use of relevant data, including survey and research data, to inform decision making is included as an objective in the NSP. There is a strong network of research institutes in Burkina Faso. and most research activities are led by these institutes in collaboration with SP/Palu.

PMI does not plan to support operational research or program evaluation in Burkina Faso using FY 2024 funds.

9.2. Recent Progress (January 2022–December 2022)

No PMI-supported operational research or program evaluation is ongoing or has been recently completed; however, Table 7 summarizes non-PMI funded planned or ongoing studies in Burkina Faso.

Table 7. Non-PMI funded Operational Research/Program Evaluation Studies Planned/Ongoing in Burkina Faso

Source of Funding	Implementing Institution	Research Question/Topic	Current Status/ Timeline
Bill & Melinda Gates Foundation	Centre national de recherche et formation sur le paludisme	Develop new entomological indicators to assess the effectiveness of net use.	Study ongoing
PATH, UNITAID, Global Fund, IVCC	Centre National de recherche et formation sur le paludisme	Evaluate the impact of new generation ITNs.	Study ongoing
	GRAS	Use of single low-dose primaquine for transmission blocking	Preparation phase

Source of Funding	Implementing Institution	Research Question/Topic	Current Status/ Timeline
Bundesministerium für Bildung und Forschung, through Kreditanstalt für Wiederaufbau, Germany; Inserm, and Institut National de Transfusion Sanguine, France; Irish Aid, Department of Foreign Affairs and Trade, Ireland.	GRAS	PRIMVAC: randomized control trial of vaccine to prevent placental malaria given to pregnant women	Dissemination phase
European and Developing Countries Clinical Trials Partnership	GRAS	Phase 1b randomized, controlled, double-blind, dose-escalation clinical trial to evaluate the safety and immunogenicity of different adjuvant formulations of the R0.6C and ProC6C transmission-blocking plasmodium falciparum vaccine candidates in adults in Burkina Faso	Data analysis phase
Medicines for Malaria Venture	GRAS	Feasibility, acceptability, and costs of a multiple (ACT) strategy for first-line treatment of uncomplicated malaria	Dissemination phase
Unknown	GRAS	SMC optimization (randomized control trial) targeting children 3–59 months of age and children 5–9 years of age	Development phase
Malaria Consortium	CRUN	Innovative intermittent preventive treatment approaches to reduce the burden of malaria in school-aged children (5–15 years of age) in Burkina Faso	Planning phase
Malaria Consortium	Malaria Consortium	Evaluation of quality of SMC implementation	Development phase
Malaria Consortium	CRUN	SMC efficacy study	Dissemination phase
LSHTM	CRUN	Using a pregnancy registry to assess the safety and use of antimalarials during pregnancy	Study ongoing
University of Sciences & Technology, Bamako	CRUN	Increasing IPTp coverage through SMC channels	Study ongoing
University of Sciences & Technology, Bamako	CRUN	PYRAPREG: evaluation of Pyramax for treatment of malaria in pregnant women	Study ongoing
Fonrid	IRSS	Targeting Plasmodium reservoirs with innovative approaches	Study ongoing

Source of Funding	Implementing Institution	Research Question/Topic	Current Status/ Timeline
National Institutes of Health	IRSS	Association between drug levels and risk of antimalarial drug resistance during SMC	Dissemination phase
Initiative 5%	IRSS	REACT2: Randomized control trial on CHW and mobile nurse supervision	Study ongoing
National Institutes of Health	IRSS	Repeat ivermectin mass drug administration to reduce malaria integrated with SMC	Study ongoing
Chinese Center for Disease Control and Prevention via WHO	SP/Palu	The implementation of the 1.7-Malaria Reactive Community-based Testing and Response strategy for the reduction of malaria incidence by over 66%.	Protocol available with ethics committee approval.
UK Joint Global Health Trials with additional funding from PATH Malaria Vaccine Initiative	IRSS, Burkina Faso; London School of Hygiene and Tropical Medicine	Seasonal malaria vaccination with SMC: multiple research questions.	Initial phase completed. Investigations into the safety and efficacy of additional vaccine doses, immune response, the rebound effect, and alternative approaches to vaccine delivery (e.g., with routine childhood vaccination).

ACT: artemisinin-based combination therapy; CHW: community health worker; CRUN: Centre de Recherche de Nanoro; GRAS: *Groupe de recherche action en santé*; IRSS: *Institut de recherche en sciences de la santé*; IPTp: intermittent preventive treatment for pregnant women; ITN: insecticide-treated net; SMC: seasonal malaria chemoprevention; WHO: World Health Organization.

9.3. Plans and Justification with FY 2024 Funding

The FY 2024 funding tables contain a full list of OR/PE activities that PMI proposes to support in Burkina Faso with FY 2024 funding.

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

10. Capacity Strengthening

10.1. PMI Goal and Strategic Approach

The goals of the Burkina Faso SP/Palu include strengthening the leadership and management skills of the SP/Palu team and introducing appropriately trained malaria focal points at the regional and/or health-district levels. As described in the case management and SM&E sections, the country also aims to strengthen the malaria case management and data collection capabilities of CHWs.

- In line with PMI's strategic priority of investing locally, PMI/Burkina Faso is supporting capacity strengthening of local institutions and staff to improve management and technical oversight of malaria interventions. Capacity-strengthening efforts will help streamline SP/Palu management processes, effectively coordinate the implementation of malaria interventions, and improve the monitoring of activities.

PMI supported SP/Palu to conduct a capacity assessment covering both technical and management aspects during CY 2022. This assessment identified areas for improvement in SP/Palu's management of malaria prevention and control activities, including opportunities to build on the leadership and strategic planning skills of key staff.

10.2. Recent Progress (January 2022–December 2022)

- PMI-supported an FETP cohort of 12 residents from the central and regional levels of the MOH. Training of the residents took place from April to November 2022.
- The NCMP was officially elevated to SP/Palu under the office of the Minister of Health with a budget line/
- A technical advisor, supported by PMI, was seconded to the MOH's *Direction de la promotion et de l'éducation pour la santé* (Health Promotion and Education Directorate). The advisor supported the MOH in its efforts to improve stakeholder coordination, capacity strengthening, and overall implementation of the National Community Health Strategic Plan.

10.3. Plans and Justification with FY 2024 Funding

The FY 2024 funding tables contain a full list of capacity strengthening activities that PMI proposes to support in Burkina Faso with FY 2024 funding.

PMI will continue to support SP/Palu with the development of governance and leadership skills, following the recommendations of the organizational audit. Resources will also facilitate the organization of technical working groups, supervision, and World Malaria Day by SP/Palu.

Strengthening the community health system continues to be a priority for both PMI and the Burkina Faso MOH. PMI will support the community health and localization technical advisor, who will be seconded to the MOH. Funds will also support the coordination of community health task force meetings. This activity will be co-funded by other partners, such as the Global Fund and other U.S. government programs. In addition to current PMI intervention areas, PMI supports community health system reinforcement to peri-urban areas and for internally displaced persons.

PMI will support governance improvement for malaria at the regional level and coordination of the localization agenda. This localization effort will be co-funded with other USAID resources.

PMI will continue to provide support for the FETP program and provide technical guidance to candidates focused on malaria-specific projects.

11. Staffing and Administration

A minimum of four health professionals oversee PMI in Burkina Faso. The single interagency team, led by the USAID Mission Director or their designee, consists of a resident advisor representing USAID, a resident advisor representing the U.S. Centers for Disease Control and Prevention, and two locally hired experts known as 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 evaluating outcomes and impact, reporting of results, and providing guidance and direction to PMI's implementing partners.

ANNEX: GAP ANALYSIS TABLES

Table A-1. ITN Gap Analysis Table

Calendar Year	2023	2024	2025
Total country population	22,882,385	23,592,836	24,315,686
Total population at risk for malaria	22,882,385	23,592,836	24,315,686
PMI-targeted at-risk population	22,882,385	23,592,836	24,315,686
Population targeted for ITNs	22,882,385	23,592,836	24,315,686
Continuous distribution needs			
Total number of pregnant women	1144611	1210998	1281236
Channel 1: ANC	1430764	1513748	1601546
Channel 1: ANC Type of ITN	Dual-AI and PBO	Dual-AI and PBO	Dual-AI and PBO
Channel 2: EPI	1,236,933	1,312,881	1,393,492
Channel 2: EPI Type of ITN	Dual-AI and PBO	Dual-AI and PBO	Dual-AI and PBO
Channel 3: School	89,100	12,100	12,100
Channel 3: School Type of ITN	PBO	PBO	PBO
Channel 4: Community	152,001	167,201	183,921
Channel 4: Community type of ITN	Dual-AI and PBO	Dual-AI and PBO	Dual-AI and PBO
Channel 5: Hospitals	378,210	395,241	412,739
Channel 5: Type of ITN	Dual-AI and PBO	Dual-AI and PBO	Dual-AI and PBO
Estimated total need for continuous channels	3,287,008	3,401,171	3,603,798
Mass campaign distribution needs			
Mass distribution campaigns	0	0	16,656,030
Mass distribution ITN type	Dual-AI and PBO	Dual-AI and PBO	Dual-AI and PBO
Estimated total need for campaigns	0	0	16,656,030
Total ITN need: Continuous and campaign	**3,287,008**	**3,401,171**	**20,259,828**
Partner contributions			
ITNs carried over from previous year	1,677,783	0	0
ITNs from government	0	0	0
Type of ITNs from government	Dual-AI and PBO	Dual-AI and PBO	Dual-AI and PBO
ITNs from Global Fund	0	2,485,930	16,486,734

Type of ITNs from Global Fund	Dual-AI and PBO	Dual-AI and PBO	Dual-AI and PBO
ITNs from other donors			
Type of ITNs from other donors	Dual-AI and PBO	Dual-AI and PBO	Dual-AI and PBO
ITNs planned with PMI funding	520,000	520,000	1,000,000
Type of ITNs with PMI funding	Dual-AI and PBO	Dual-AI and PBO	Dual-AI and PBO
Total ITNs contribution per calendar year	**2,197,783**	**3,005,930**	**17,486,734**
Total ITN surplus (gap)	**(1,089,225)**	**(395,241)**	**(2,773,094)**

Table A-2. RDT Gap Analysis Table

Calendar Year	2023	2024	2025
Total country population	22,882,385	23,592,836	24,315,686
Population at risk for malaria	22,882,385	23,592,836	24,315,686
PMI-targeted at-risk population	22,882,385	23,592,836	24,315,686
RDT needs			
Total number of projected suspected malaria cases	20,047,326	21,568,918	23,421,688
Percent of suspected malaria cases tested with an RDT	100%	100%	100%
RDT needs (tests)	**20,047,326**	**21,568,918**	**23,421,688**
Needs estimated based on other			
Partner contributions (tests)			
RDTs from government	0	1,423,625	1,756,650
RDTs from Global Fund	0	19,240,415	14,591,425
RDTs from other donors			
RDTs planned with PMI funding	7,500,000	8,000,000	8,000,000
Total RDT contributions per calendar year	**7,500,000**	**28,664,040**	**24,348,075**
Stock balance (tests)			
Beginning balance	16,236,661	3,689,335	10,784,458
- Product need	20,047,326	21,568,918	23,421,688
+ Total contributions (received/expected)	7,500,000	28,664,040	24,348,075
Ending balance	**3,689,335**	**10,784,458**	**11,710,845**
Desired end-of-year stock (months of stock)	6	6	6
Desired end-of-year stock (quantities)	10,023,663	10,784,459	11,710,844
Total surplus (gap)	**(6,334,328)**	**(1)**	**1**

Table A-3. ACT Gap Analysis Table

Calendar Year	2023	2024	2025
Total country population	22,882,385	23,592,836	24,315,686
Population at risk for malaria	22,882,385	23,592,836	24,315,686
PMI-targeted at-risk population	22,882,385	23,592,836	24,315,686
ACT needs			
Total projected number of malaria cases	13,929,397	14,415,533	14,846,557
Proportion des cibles par type d' ACT			
Proportion cible artemether lumefantrine	91%	80%	80%
Proportion cible dihydroartemisinin piperaquine	0%	11%	11%
Proportion cible artesunate pyronaridine	9%	9%	9%
ACT needs			
CIBLE artemether lumefantrine	12,730,076	11,541,076	11,886,154
CIBLE dihydroartemisinin piperaquine	0	1,633,280	1,682,115
CIBLE artesunate pyronaridine	1,199,321	1,241,177	1,278,289
Artemether lumefantrine	12,730,076	11,541,076	11,886,154
Dihydroartemisinin piperaquine	0	1,106,531	1,139,616
Artesunate pyronaridine	1,793,016	1,855,592	1,911,074
Total ACT needs (treatments)	**14,523,092**	**14,503,199**	**14,936,844**
Needs estimated based on other			
Partner contributions (treatments)			
ACTs from government	0	607,517	851,966
ACTs from Global Fund	4,327,940	9,371,135	8,109,710
ACTs from other donors			
ACTs planned with PMI funding (AL)	4,314,030	3,752,000	4,141,184
ACTs planned with PMI funding (AsPyr)	2,248,000	2,248,000	1,938,816
ACTs planned with PMI funding (DHA-PPQ)*	1,421,300		
Total ACTs planned with PMI funding	7,983,330	6,000,000	6,080,000
Total ACTs contributions per calendar year	**12,311,270**	**15,978,652**	**15,041,676**

% ACTs planned with PMI funding	65%	38%	40%
Stock balance (treatments)			
Beginning balance	8,100,825	5,889,003	7,364,456
- Product need	14,523,092	14,503,199	14,936,844
+ Total contributions (received/expected)	12,311,270	15,978,652	15,041,676
Ending balance	**5,889,003**	**7,364,456**	**7,469,288**
Desired end-of-year stock (months of stock)	6	6	6
Desired end-of-year stock (quantities)	7,261,546	7,251,599	7,468,422
Total surplus (gap)	**(1,372,543)**	**112,857**	**866**

Table A-4. Inj. Artesunate Gap Analysis Table

Calendar Year	2023	2024	2025
Injectable artesunate needs			
Projected number of severe cases	663,924	695,907	726,583
Projected number of severe cases among children	222,792	221,344	219,905
Average number of vials required for severe cases among children (under the age of five)	4	4	4
Projected number of severe cases among adults (pregnant women)	36,377	36,643	36,910
Average number of vials required for severe cases among adults (pregnant women)	6	6	6
Projected number of severe cases among adults 5–14 years of age	155,417	173,896	192,833
Projected number of severe cases among adults 5–14 years of age	4	8	8
Projected number of severe cases among adults (over the age of 15 years, not including pregnant women)	249,338	264,024	276,935
Average number of vials required for severe cases among adults (above the age of 15, not including pregnant women)	4	4	4
Total injectable artesunate needs (vials)	**2,728,452**	**3,552,499**	**3,751,486**
Needs estimated based on other			
Partner contributions (vials)			
Injectable artesunate from government	0	110,000	150,000
Injectable artesunate from Global Fund	733,900	3,365,026	2,700,997
Injectable artesunate from other donors			
Injectable artesunate planned with PMI funding	1,000,000	1,000,000	200,000
Total injectable artesunate contributions per calendar year	**1,733,900**	**4,475,026**	**3,050,997**
Stock balance (vials)			
Beginning balance	1,848,274	853,722	1,776,249
- Product need	2,728,452	3,552,499	3,751,486
+ Total contributions (received/expected)	1,733,900	4,475,026	3,050,997
Ending balance	**853,722**	**1,776,249**	**1,075,760**

Desired end-of-year stock (months of stock)	6	6	6
Desired end-of-year stock (quantities)	1,364,226	1,776,249	1,875,743
Total surplus (gap)	**(510,504)**	**(0)**	**(799,983)**

Table A-5. RAS Gap Analysis

Calendar Year	2023	2024	2025
Artesunate suppository needs			
Number of severe cases expected to require prereferral dose (or expected to require prereferral dose based on number of providers for the service)	15,837	15,734	15,632
Total artesunate suppository needs (suppositories)	**23,756**	**23,602**	**23,448**
Needs estimated based on other			
Partner contributions (suppositories)			
Artesunate suppositories from government	0	23,563	23,410
Artesunate suppositories from Global Fund			
Artesunate suppositories from other donors			
Artesunate suppositories planned with PMI funding			
Total artesunate suppositories available	**0**	**23,563**	**23,410**
Stock balance (suppositories)			
Beginning balance	78,172	5,939	5,900
- Product need	23,756	23,602	23,448
+ Total contributions (received/expected)	0	23,563	23,410
Ending balance	**54,416**	**5,900**	**5,862**
Desired end-of-year stock (months of stock)	3	3	3
Desired end-of-year stock (quantities)	5,939	5,900	5,862
Total surplus (gap)	**48,477**	**(0)**	**(0)**

Table A-6. SP Gap Analysis Table

Calendar Year	2023	2024	2025
Total country population	22,882,385	23,592,836	24,315,686
Total population at risk for malaria	22,882,385	23,592,836	24,315,686
PMI targeted at-risk population	22,882,385	23,592,836	24,315,686
SP needs			
Total number of pregnant women	1144611	1210998	1281236
Percent of pregnant women expected to receive IPTp1	100%	100%	100%
Percent of pregnant women expected to receive IPTp2	100%	100%	100%
Percent of pregnant women expected to receive IPTp3	100%	100%	100%
Percent of pregnant women expected to receive IPTp4	100%	100%	100%
Total SP needs (doses)	**4,578,444**	**4,843,994**	**5,124,946**
Needs estimated based on other			
Partner contributions (doses)			
SP from government	5,800,000	4,941,186	5,265,450
SP from Global Fund	0	0	0
SP from other donors	0	0	0
SP planned with PMI funding	0	0	0
Total SP contributions per calendar year	**5,800,000**	**4,941,186**	**5,265,450**
Stock balance (doses)			
Beginning balance	1,103,249	2,324,805	2,421,997
- Product need	4,578,444	4,843,994	5,124,946
+ Total contributions (received/expected)	5,800,000	4,941,186	5,265,450
Ending balance	**2,324,805**	**2,421,997**	**2,562,501**
Desired end-of-year stock (months of stock)	6	6	6
Desired end-of-year stock (quantities)	2,289,222	2,421,997	2,562,473
Total surplus (gap)	**35,583**	**(0)**	**28**

Table A-7. SMC Gap Analysis Table

Calendar Year	2023	2024	2025
Total population in the SMC-targeted age range	4,131,775	5,869,822	6,059,945
SMC drug (SP+AQ) needs			
National population 3–11 months of age targeted for SMC	706,267	757,773	783,226
National population 12–59 months of age targeted for SMC	3,425,508	3,678,944	3,800,831
National population 5–7 years of age targeted for SMC		906,825	933,880
National population 8–9 years of age targeted for SMC		526,280	542,008
Total national population targeted for SMC	**4,131,775**	**5,869,822**	**6,059,945**
PMI population 3–11 months of age targeted for SMC	131,370	139,297	143,559
PMI population 12–59 months of age targeted for SMC	679,587	720,883	742,964
PMI population 5–7 years of age targeted for SMC		133,125	137,229
PMI population 8–9 years of age targeted for SMC		78,037	80,442
Total PMI population targeted for SMC	**810,957**	**1,071,342**	**1,104,194**
PMI_Total SP+AQ needs (co-blisters) 25 mg/76.5 mg for population 3–11 months of age	691,100	742,941	765,766
PMI_Total SP+AQ needs (co-blisters) 50 mg/153 mg for population 12–59 months of age	3,694,950	3,979,229	4,101,646
PMI_Total SP+AQ needs (co-blisters) 25 mg/76.5 mg for population 5–9 months of age		1,072,714	1,105,774
PMI_Total SP+AQ needs (co-blisters) 50 mg/153 mg for population 5–9 years of age		1,500,986	1,547,242
Total SP+AQ needs (co-blisters) 25 mg/76.5 mg for population 3–11 months of age	3,605,208	3,890,923	4,021,673
Total SP+AQ needs (co-blisters) 50 mg/153 mg for population 12–59 months of age	18,014,776	19,484,052	20,130,463
Total SP+AQ needs (co-blisters) 25 mg/76.5 mg for population 5–9 years of age		7,211,949	7,427,787
Total SP+AQ needs (co-blisters)50 mg/153 mg for population 5–9 years of age		10,057,902	10,359,018
Total SP+AQ needs (co-blisters)	**21,619,984**	**40,644,825**	**41,938,941**
Partner contributions (co-blisters, national)			
SP+AQ carried over from previous year		1,469,066	0

SP+AQ from government	0	0	0
SP+AQ from Global Fund	6,823,000	7,231,361	8,131,226
SP+AQ from other donors	11,880,000	18,787,188	19,407,405
SP+AQ planned with PMI funding	4,386,050	4,722,170	4,867,412
Total SP+AQ contributions per calendar year	23,089,050	32,209,785	32,406,043
Total SP+AQ surplus (gap)	**1,469,066**	**(8,435,040)**	**(9,532,897)**

Table A-8. Primaquine Gap Analysis Tables

Calendar Year	2023	2024	2025
Total country population	22,882,385	23,592,836	24,315,686
Total population at risk for malaria	22,882,385	23,592,836	24,315,686
PMI-targeted at-risk population	22,882,385	23,592,836	24,315,686
Primaquine needs			
Total projected number of malaria cases	13,929,397	14,415,533	14,846,557
Total projected number of Pf cases			
Total projected number of Pv cases			
Total projected number of mixed cases (Pf + Pv)			
Total primaquine needs (tablets)			
Needs estimated based on other			
Partner contributions (tablets)			
Primaquine from government			
Primaquine from Global Fund			
Primaquine from other donors			
Primaquine planned with PMI funding			
Total primaquine contributions per calendar year	**0**	**0**	**0**
Stock balance (tablets)			
Beginning balance		0	0
- Product need			
+ Total contributions (received/expected)	0	0	0
Ending balance	**0**	**0**	**0**
Desired end-of-year stock (months of stock)	6	6	6
Desired end-of-year stock (quantities)	0	0	0
Total surplus (gap)	**0**	**0**	**0**