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Burundi

Malaria Operational Plan FY 2024

This FY 2024 Malaria Operational Plan has been approved by the U.S. Global Malaria Coordinator and reflects collaborative discussions with national malaria control programs and other partners. Funding available to support outlined plans relies on the final FY 2024 appropriation from U.S. Congress. Any updates will be reflected in revised postings.

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ABBREVIATIONS

| | |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| ABREMA | Autorité Burundaise de Régulation des Médicaments à usage humain et des Aliments (Burundian Regulatory Authority for Medicines for Human Use and Food) |
| ACT | Artemisinin-based Combination Therapy |
| AL | Artemether-lumefantrine |
| AI | Active Ingredient |
| ANC | Antenatal Care |
| CAMEBU | Central des Achats des Médicaments Essentiels du Burundi (Essential Medicines Purchasing Center) |
| CDC | U.S. Centers for Disease Control and Prevention |
| CHW | Community Health Worker |
| CY | Calendar year |
| DHIS2 | District Health Information Software 2 |
| EPI | Expanded Program on Immunization |
| EUV | End-use Verification Survey |
| FP | Family Planning |
| FY | Fiscal Year |
| Global Fund | Global Fund to Fight AIDS, Tuberculosis, and Malaria |
| HD | Health District |
| HMIS | Health Management Information System |
| iCCM | Integrated Community Case Management |
| AI | Active Ingredient |
| IPC | Interpersonal communication |
| INSBU | Institut National de la Statistique du Burundi |
| INSP | Institut National de Santé Publique (National Institute of Public Health) |
| IPTp | Intermittent Preventive Treatment for Pregnant Women |
| IRS | Indoor Residual Spraying |
| ITN | Insecticide-treated Mosquito Net |
| kdr | knock-down resistance |
| LMIS | Logistic Management Information System |
| MCH | Maternal and Child Health |
| MIP | Malaria in Pregnancy |
| MOH | Ministry of Health |
| MOP | Malaria Operational Plan |
| MSF | Médecins sans Frontières |
| NMCP | National Malaria Control Program |
| PBF | Performance-based Financing |
| PBO | Piperonyl Butoxide |
| PCR | Polymerase Chain Reaction |

| | |
|---------|-----------------------------------------------------------------------------|
| PECADOM | Prise en Charge à Domicile (malaria community case management for all ages) |
| PMI | U.S. President's Malaria Initiative |
| ProCCM | Proactive Community Case Management |
| RAS | Rectal Artesunate Suppositories |
| RDT | Rapid Diagnostic Test |
| SBC | Social and Behavior Change |
| SP | Sulfadoxine-Pyrimethamine |
| TES | Therapeutic Efficacy Study |
| UNICEF | United Nations Children's Fund |
| USAID | U.S. Agency for International Development |
| WHO | World Health Organization |

EXECUTIVE SUMMARY

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

U.S. President's Malaria Initiative

Launched in 2005, the [U.S. President's Malaria Initiative \(PMI\)](#) supports implementation of malaria prevention and treatment measures as well as cross-cutting interventions. PMI's 2021–2026 strategy, [End Malaria Faster](#), envisions a world free of malaria within our generation with the goal of preventing malaria cases, reducing malaria deaths and illness, and eliminating malaria in PMI partner countries. PMI currently supports 27 countries in Sub-Saharan Africa and three programs across the Greater Mekong Subregion in Southeast Asia to control and eliminate malaria. Burundi began implementation as a PMI partner country in fiscal year (FY) 2023 and the U.S. Agency for International Development (USAID) has been a proud partner in Burundi's fight against malaria since 2010.

Rationale for PMI's Approach in Burundi

Malaria is the leading cause of morbidity and mortality in Burundi, with 8,251,354 malaria cases reported in 2022, representing an increase from the 6,758,569 cases reported in 2021. The highest incidence occurs in the north, north-west and south-east. PMI's approach to malaria prevention and control in Burundi is based on the strategies of PMI and is aligned with the Burundi National Malaria Strategic Plan (2021–2027) which aims to reduce malaria-related morbidity by 60 percent and mortality to zero by 2027. PMI programming focuses on malaria high-burden provinces and prioritizes vector control interventions, supply chain and pharmaceutical management, case management, malaria in pregnancy, surveillance, monitoring and evaluation, and social and behavior change (SBC) activities. PMI funding complements the investments from the Government of Burundi and the Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund).

Overview of Planned Interventions

The proposed FY 2024 PMI funding for Burundi is \$13 million. PMI will support the following intervention areas with these funds:

1. Vector Monitoring and Control

PMI supports the Burundi vector control strategy through the routine distribution of insecticide treated mosquito nets (ITNs) at antenatal care (ANC) clinics and immunization services,

entomological monitoring, and technical assistance to the NMCP indoor residual spray implementation.

With FY 2024 funds, PMI will:

- Procure ITNs for routine distribution for pregnant women attending their first antenatal care (ANC1) visit and children under five years of age.
- Continue to strengthen local capacity in entomology.
- Strengthen the quality of indoor residual spray campaigns and monitor the performance of the insecticides used.
- Support insecticide resistance monitoring in nine sentinel sites and support two NMCP-managed insectaries, one with molecular testing capacity and one which serves to maintain *Anopheles (An.) gambiae* s.s. strains, identify *Anopheles* mosquitoes from various sentinel sites, and perform other lab tests.
- Introduce *An. stephensi* surveillance.

2. Malaria in Pregnancy

PMI supports the full package of the malaria in pregnancy (MIP) activities in the national strategy and is aligned with the 2016 World Health Organization strategy.

With FY 2024 funds, the priorities to continue improving quality integrated offer of MIP in ANC are:

- Support training sessions/refresher training in ANC, MIP prevention, and MIP treatment for health providers both at facility and community levels.
- Organize coaching sessions and supportive supervision for both facility and community providers.
- Print and distribute job aids for facility and community providers.
- Strengthen the capacity of the community health workers in the provision of sulfadoxine-pyrimethamine in the community through three contacts with pregnant women.
- Improve community health worker involvement in sulfadoxine-pyrimethamine uptake through SBC.
- Expand digital health at the community level to monitor referral of pregnant women for community intermittent preventive treatment for pregnant women and ITNs.

3. Drug-Based Prevention

PMI does not support seasonal malaria chemoprevention and/or other drug-based prevention in Burundi. However, the NMCP intends to pilot perennial malaria chemoprevention in two districts in coordination with the expanded program on immunization program based on 2021

World Health Organization guidelines. No FY 2024 funds are currently planned for perennial malaria chemoprevention, pending results of the planned pilot.

4. Case Management

PMI support is fully aligned with the national strategy on case management, promoting a comprehensive case management strategy, including testing of all cases of suspected uncomplicated malaria, prompt and effective treatment with artemisinin-based combination therapy, and referral and appropriate treatment of severe malaria at facility and community level.

With FY 2024 funds, PMI will continue to improve the quality of malaria services provided at health facilities and at community levels through:

- Procuring malaria diagnosis and treatment commodities.
- Expanding case management both at public and private health clinics.
- Increasing supervision for both community and facility health providers.
- Expanding integrated community case management and community case management of malaria for all ages (*Prise en charge à domicile*, or PECADOM, malaria community case management for all ages in English) in the eight provinces (Cankuzo, Cibitoke, Gitega, Karusi, Kirundo, Makamba, Muyinga, Rutana).
- Strengthening integrated community case management of childhood illness including PECADOM in these ten provinces (Bururi, Cankuzo, Cibitoke, Gitega, Karusi, Kirundo, Makamba, Muyinga, Rumonge, Rutana), improving proactive community case management in high-burden areas.

5. Health Supply Chain and Pharmaceutical Management

PMI works to ensure uninterrupted supply of health commodities in the country.

FY 2024 funds will serve:

- To decentralize malaria commodities forecasting exercises and stock review workshops at provincial level.
- To support the supply chain logistics and pharmaceutical management systems at the national, district, and health facility levels.
- To strengthen the monitoring of commodities stocks delivered at facility level for both community and facility consumption.
- To coordinate efforts with NMCP to improve stock availability at health facilities and community levels.
- To improve the logistics management information system.
- To conduct an end-use verification survey to assess the stock situation to inform quantification, malaria diagnosis and treatment at facility and community level.

6. Malaria Vaccine

Burundi Gavi's application was submitted in January 2023 and was approved. The objective of introducing RTS,S/AS01 in 2024, is to cover 250,000 children under two years old with four malaria vaccine doses, integrated into the routine expanded program on immunization schedule, in 25 high-burden districts, in combination with other proven interventions.

With FY 2024 funds, PMI will support the country to introduce the vaccine with increased supervision and SBC in supported districts.

7. Social and Behavior Change

PMI's support will strengthen the NMCP's capacity in SBC.

With FY 2024 funds, PMI will continue:

- To develop, validate and disseminate the national malaria SBC strategy, with an emphasis on activities geared towards health providers at facility and community levels.
- To strengthen individual and organizational SBC capacity.
- To connect Burundi's SBC practitioners to the international SBC network forum for continuous capacity strengthening.
- To support implementation of a package of SBC interventions to address the factors—including social and cultural ones—that influence the practice of key malaria-related behaviors, including prompt care-seeking for fever for children under five year of age; improved demand, use, and care of ITNs; early ANC attendance and IPTp uptake; and demand for and uptake of the malaria vaccine.

8. Surveillance, Monitoring, and Evaluation

PMI's support for malaria surveillance, monitoring, and evaluation aims to strengthen the decision-maker's capacity and systems to generate, analyze, and use high-quality malaria health information for decision-making at all levels of the health system.

With FY 2024 funds, PMI's support will focus on data quality in 12 provinces, including:

- Increasing supervision and quarterly review meetings at private, public and community level with appropriate tools such data quality review module and a monthly reporting form for private health facility data in District Health Information Software 2.
- Strengthening community health worker training and data validation at facility level.
- Supporting digital transformation of the health sector in accordance with PMI digitalization guidance and the national strategy.

9. Operational Research and Program Evaluation

PMI does not plan any Operational Research and Program Evaluation (OR/PE) in Burundi. FY 2024 funds will not support OR/PE.

10. Capacity Strengthening

PMI's support for capacity strengthening for the National Malaria Program is described in the relevant technical sections of this MOP.

11. Staffing and Administration

The team overseeing PMI in Burundi (led by the USAID Country Representative), consists of five people who work together with cross-cutting staff to manage all technical and administrative aspects of PMI.

I. CONTEXT & STRATEGY

1. Introduction

USAID has been investing in Burundi's fight against malaria since Fiscal Year (FY) 2010 and Burundi began implementation as a U.S. President's Malaria Initiative (PMI) partner country in FY 2023. This FY 2024 Malaria Operational Plan (MOP) presents a detailed implementation plan for Burundi, based on the strategies of PMI and the National Malaria Control Program (NMCP). It was developed in consultation with the NMCP and with the participation of national and international partners. 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 Burundi, describes progress to date, identifies challenges and relevant contextual factors, and provides a description of activities that are planned with FY 2024 funding. For more detailed information on the country context, please refer to the Country Malaria Profile, which provides an overview of the country's malaria situation, key indicators, the NMP strategic plan, and the partner landscape.

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

The U.S. President's Malaria Initiative (PMI) is led by the U.S. Agency for International Development (USAID) and implemented together with the U.S. Centers for Disease Control and Prevention (CDC). Launched in 2005, PMI supports implementation of malaria prevention and treatment measures – insecticide-treated mosquito nets (ITNs), indoor residual spraying (IRS), accurate diagnosis and prompt treatment with artemisinin-based combination therapies (ACTs), intermittent preventive treatment of pregnant women (IPTp), and drug-based prevention – as well as cross-cutting interventions such as surveillance, monitoring and evaluation; social and behavior change; and capacity strengthening. PMI's 2021–2026 strategy, [End Malaria Faster](#), envisions a world free of malaria within our generation with the goal of preventing malaria cases, reducing malaria deaths and illness, and eliminating malaria in PMI partner countries.

PMI currently supports 27 countries in sub-Saharan Africa and three programs in the Greater Mekong Subregion in Southeast Asia to control and eliminate malaria. Over the next five years, PMI aims to save lives, reduce health inequities, and improve disease surveillance and global health security.

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

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

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

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

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

3. Rationale for PMI's Approach in Burundi

3.1. Malaria Overview for Burundi

According to the NMCP 2022 report, malaria is the leading cause of morbidity and mortality in Burundi with 8,251,354 malaria cases reported in 2022, representing an increase from the 6,158,102 cases reported in 2021 and an incidence rate of 528.1 per 1,000 inhabitants (NMCP report, 2022). Malaria incidence generally peaks from March to June and October to December, associated with annual rainy seasons. Malaria is responsible for 13.9 percent of in-hospital deaths (2,295/16,450; per the NMCP report 2021-2022), with case fatality among hospitalized patients at .77 percent in 2022. The most vulnerable populations are children under five years of age and pregnant women. Thirty-one of 49 health districts have high incidence (450-1,500 cases of malaria per 1,000 inhabitants) and are located mostly in the north, north-west and south-east of the country. Outbreaks have consistently occurred in the same districts, in three northern provinces (Kirundo, Muyinga and Cankuzo).

Malaria continues to be a major public health problem and among the health priorities for the Government of Burundi. The National Malaria Strategic Plan (2021–2027) aims to reduce malaria-related morbidity by 60 percent and mortality to zero by 2027 with 11 specific objectives and seven strategic focus areas. The Plan also includes innovations to expand community-based health services, strengthen entomological surveillance, and introduce the malaria vaccine and perennial chemoprevention (being considered by the NMCP for children under two years of age). International donors work collaboratively with the Government of

Burundi to provide financial and technical support to address the country's need to fight against malaria.

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

3.2. Key Challenges and Contextual Factors

Since the 2020 presidential election, there is a changing environment toward building peace in Burundi. Despite this positive context, the health system remains fragile and vulnerable. There have been socio-economic repercussions of the war in Ukraine, affecting households' financial access to health care and food. Burundi has one of the highest stunting rates in the world at 52.2 percent (2016-2017 Demographic and Health Survey) and is classified among the world's poorest countries in the 2021 World Bank report.

With the financial and technical support from PMI, Global Fund, and other donors, the NMCP is implementing a comprehensive package of malaria control activities including case management, entomological monitoring, mass distribution of and routine distribution of ITNs to pregnant women and children under five years of age, SBC, and IRS. Despite all these efforts, Burundi's malaria program continues to face challenges, such as:

- 1) Difficulty in controlling upsurges associated with the two seasonal peaks from April to May and October to December due to weak malaria surveillance systems.
- 2) Low quality of case management: in 2022 only 69 percent of confirmed malaria cases in children under five years of age were treated with ACT according to the national protocol, while the national malaria strategic plan aims to have 100 percent of children treated according to national malaria guidelines (2022 End-Use Verification [EUV] survey report).
- 3) Low coverage of community-based case management nationwide: in December 2021, there were 11,698 community health workers, among which 5,320 were implementing integrated community case management (iCCM), covering only 40 percent of the targeted population (Burundi Health Statistics Yearbook 2021).
- 4) Low uptake of IPTp, 76.6 percent of pregnant women attending antenatal care (ANC) received IPTp1, 58.7 percent received IPTp3+ (2022 NMCP report).
- 5) Frequent stockouts reported at health facilities and district level: 25-37 percent of health facilities reported stockouts of the various presentations of artemether-lumefantrine (AL) on the day of the EUV survey (2022 End-Use Verification Survey Report). Stock out rate appears low in the routine data due to data quality issues that PMI is seeking to fix in collaboration with other donors.

Burundi is in eastern Africa, close to the region where the new species of *An. stephensi* has appeared and is thriving in urban as well as rural habitats, persisting throughout dry seasons.

This situation calls for rigorous entomological surveillance, especially in urban areas, where this new species is most prevalent.

Burundi neighbors three countries Rwanda, Tanzania, Uganda, that have found evidence of emerging artemisinin partial resistance (Rwanda and Tanzania data not published yet). In this context, Burundi is planning to conduct therapeutic efficacy studies in 2023 and 2025 and will consider adapting its ACT-related policy to maintain AL efficacy.

In 2025, Burundi will organize a parliamentary election which could affect the implementation of large interventions like the ITN mass distribution campaign because the community stakeholders who are critical for the mass campaign are also key actors for the election.

3.3. PMI's Approach for Burundi

PMI is the second-largest donor in Burundi's fight against malaria and strategically leverages Global Fund investments to address the country's overall needs. PMI supports targeted routine ITN distribution, and procurement of other malaria commodities (ACTs, rapid diagnostic tests [RDT], injectable artesunate, sulfadoxine-pyrimethamine [SP], and rectal artesunate suppositories [RAS], each as needed) for distribution nationwide. USAID/Burundi, including PMI, supports an integrated maternal and child health/family planning/malaria project both at community and public health facilities in six provinces: Kirundo, Karusi Muyinga, Bururi, Makamba, and Rumonge, including 16 districts, 15 hospitals, and 304 facilities. USAID invests in service delivery provision (including a focus on malaria service provision) in the private sector, targeting 189 private and faith-based clinics.

PMI-supported integrated family planning/maternal child health, and malaria projects will extend their geographic scope to four additional provinces, to reach a total of ten provinces: Gitega, Cibitoke, Cankuzo, Kirundo, Karusi, Muyinga, Bururi, Makamba, Rumonge and Rutana, eight are malaria high-burden provinces. PMI will work in these ten provinces prioritizing hard-to reach groups and strengthening frontline health providers including those working at community level. PMI will support facility case management in these ten provinces, including strengthening data quality and use at all levels of the health system. PMI will also conduct a health facility survey that will help document the presence of any AL resistance and a malaria behavior survey that will provide household-level data and information to inform a five-year SBC change strategic plan for Burundi.

3.4. Key Changes in this Malaria Operational Plan

In 2023, PMI announced that Burundi would officially become a PMI partner country, after more than a decade of receiving USAID malaria funds with a more modest budget envelope.

This FY 2024 MOP is the first MOP to have been written with a planning budget commensurate with status as a PMI partner country, and planning has included discussions on how to best use the increased budget to advance PMI's objectives in Burundi. These planning

discussions have resulted in budget increases across proven interventions, such as SBC and case management both at the facility and community levels to ensure high coverage and quality. Increased technical assistance will be provided for IRS, facility- and community-based case management, routine surveillance systems, and SBC. The staffing budget line is also increased in order to ensure a robust in-country PMI team for Burundi. These large budget line increases are accompanied by modest increases for the procurement and distribution of ITNs, the procurement of ACTs, and private sector case management.

II. OPERATIONAL PLAN FOR FY 2024

1. Vector Monitoring and Control

1.1. PMI Goal and Strategic Approach

The NMCP specific objectives in malaria vector control are to ensure universal coverage through rapid scale-up of cost-effective prevention interventions by 2023:

- At least 95 percent of households have ITNs distributed during mass distribution campaigns.
- At least 95 percent of pregnant women who come for ANC1 receive ITNs.
- At least 95 percent of children coming for measles and rubella vaccination receive ITNs.
- At least 95 percent of households in the target zone receive ITNs during continuous distribution.
- At least 95 percent of households in the target zone are covered by IRS in target areas.
- At least 80 percent of children under five years of age sleep under an ITN.
- At least 80 percent of pregnant women sleep under an ITN.

The NMCP's approach to malaria vector control in Burundi consists of two key interventions: 1) ITN provision through mass campaigns, via community channels and routine distribution, and 2) the implementation of IRS. Vector insecticide susceptibility evidence from entomological monitoring (supported by USAID since 2015) is used to guide decisions on both IRS products and ITNs in Burundi.

PMI supports the Burundi vector control strategy by procuring ITNs, which are routinely distributed at ANC clinics and expanded program on immunization (EPI) channels nationwide. Additionally, USAID provides funding to build capacity in entomological monitoring. Global Fund supports mass campaigns every three years. Burundi's 2022 net campaign was implemented September 16-23, 2022, with a preliminary report showing a household coverage rate of 93 percent. The 2022 mass distribution campaign targeted 42 health districts not covered for IRS and ITN distribution through community channels. Three types of ITNs were distributed (standard ITNs, Piperonyl Butoxide [PBO] ITNs and dual active ingredient [AI] ITNs) to mitigate vector resistance to pyrethroid insecticides, guided by the entomological monitoring results. The distribution of ITNs through the community is being carried out in two health districts, Giteranyi and Ngozi, with support from the Global Fund.

PMI provides technical assistance for IRS implementation by other partners, including environmental compliance, testing of insecticide resistance, IRS operation standardization across partners in accordance with international standards, and monitoring the residual efficacy of insecticide on sprayed walls after IRS, as well as multisectoriel collaboration and introduction of digital solution to IRS. The IRS is conducted in four health districts: Muyinga, Gashoho, Kiremba, and Buye with support from the Global Fund.

PMI supports nine sentinel sites for entomological data collection in Kirundo, Cibitoke, Bubanza, Cankuzo, Ngozi, Rutana, Makamba, Gitega, and Bururi provinces. Monitoring is conducted using three collection methods, including: pyrethrum spray catches, U.S. Centers for Disease Control and Prevention (CDC) light traps, and human landing catches. The country intends to add four additional sentinel sites with the Global Fund grant cycle seven (GC7) funds. Data from these sentinel sites will help the country analyze vector behavior and insecticide resistance across the entire country annually.

Figure 1. Map of Vector Control Activities in Burundi

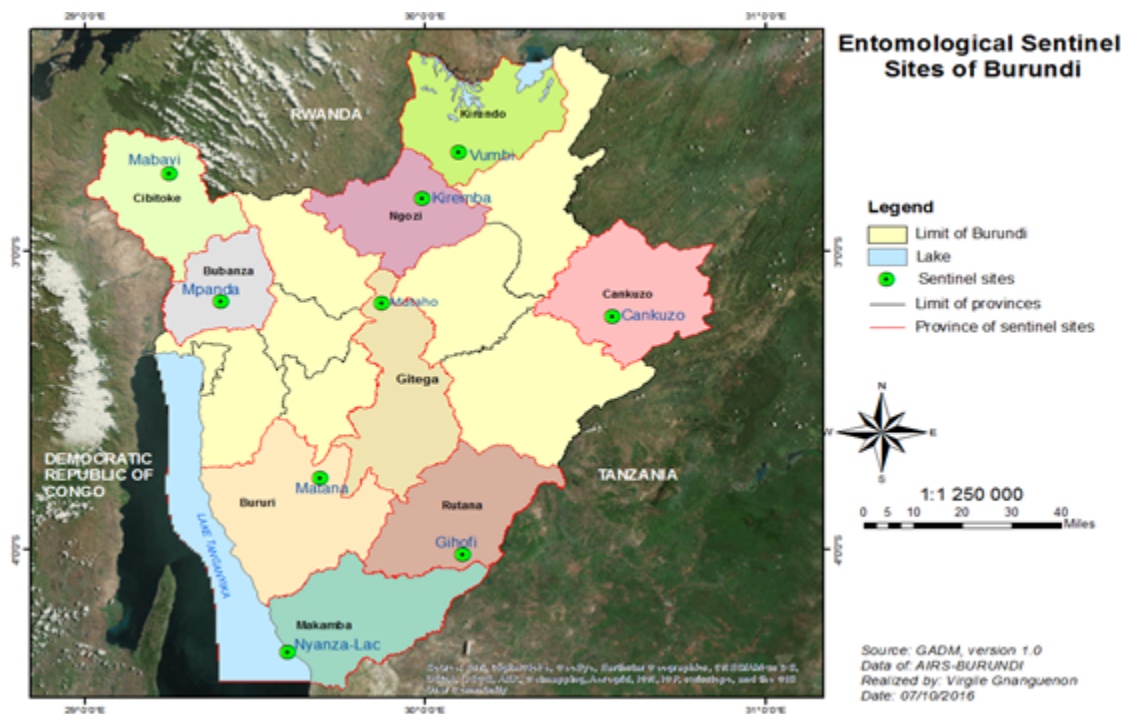


Figure 1 shows the nine sentinel sites supported by PMI for entomological data collection (green dots). They are located in Cankuzo (Cankuzo province), Kiremba (Ngozi province), Gihofi (Rutana province), Mabayi (Cibitoke province), Matana (Bururi province), Mpanda (Bubanza province), Mutaho (Gitega province), Nyanza-Lac (Makamba province), and Vumbi (Kirundo province). Data are collected on a monthly basis on vector species composition, behavior, and susceptibility to insecticides used in vector control in Burundi. Due to the lack of sufficient numbers of mosquito larvae to be collected at the Matana sentinel site, it was moved to Bururi in FY 2021, another site in Bururi province.

1.2. Recent Progress (October 2021–September 2022) Entomological Monitoring

During this period of implementation, PMI:

- Supported entomological monitoring activities in nine sentinel sites in collaboration/partnership with the NMCP. Monitoring activities included insecticide resistance monitoring, vector bionomics monitoring, and insecticide residual efficacy monitoring. For more information about entomological monitoring, please refer to the [2021-2022 Entomological Report](#).
- Supported community-based entomology activities. The entomology team involved 18 community members in mosquito collection at each sentinel site. They are in charge of larval survey, mosquitoes captured on humans, mosquitoes captured with CDC light traps, as well as with pyrethrum spray catches. Local authorities supported community sensitization on implementation of activities.
- Supported activities collecting data on human-vector behavior in the same nine sites.
- Provided technical assistance to the *Institut National de Santé Publique* (INSP, National Institute of Public Health) at the NMCP for entomological monitoring. USAID collaborated with INSP to create a second insectary located in the INSP office that represents a back-up in case of flooding or contamination of the susceptible mosquito strain at the Gihanga insectary.
- USAID supported the procurement (and later distribution) of 632,985 standard nets, 128,755 PBO nets, and 203,819 dual active ingredient (AI) nets to pregnant women and children under five years of age through routine channels.
- Supported prevention of malaria in pregnancy (MIP) by providing ITNs to 96.6 percent of pregnant women attending their first ANC visit and to 92 percent of children under five years of age at EPI clinics.
- Provided technical assistance for planning for the September 2022 ITN mass distribution campaign, which distributed 1,863,810 standard, 1,506,102 PBO, and 3,278,699 dual AI ITNs to 9,824,522 inhabitants in 43 districts. The activity was conducted in collaboration with Global Fund, United Nations Development Programme, Alliance for Malaria Prevention, NMCP, and Caritas Burundi.
- Supported SBC activities to improve demand for ITNs, increase appropriate use, promote care, and mitigate against misuse.

1.3. Plans and Justification for FY 2024 Funding

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

1.3.1. Entomological Monitoring

PMI will conduct entomological monitoring in nine sentinel sites in partnership with the NMCP. Monitoring activities include insecticide resistance monitoring, vector bionomics monitoring, and insecticide residual efficacy monitoring. PMI conducts wall bioassays to monitor residual efficacy in nine sites (four districts receiving dual AI [Mpanda, Cankuzo, Mutaho and Gihofi],

three districts receiving PBO ITNs [Mabayi, Nyanza-lac, Vumbi], one district receiving standard nets [Bururi], and one IRS site that has not received mass campaign nets [Kiremba]). Data will help to capture the effects of IRS and new types of nets and shed light on vector-human interactions.

PMI will continue to strengthen the capacity of local research institutions, providing laboratory staff at the INSP and Gihanga Molecular Assay Lab with ongoing support. INSP staff will be trained and supervised on sample processing workflow, DNA extraction, molecular identification of species and markers for pyrethroid resistance by PCR, gel electrophoresis, general laboratory operational best practice and data management. In addition, training on *Plasmodium falciparum* sporozoite enzyme-linked immunosorbent assay use will be conducted at the Gihanga lab and will include reagent/sample preparation, the enzyme-linked immunosorbent assay protocol, and retesting procedures.

Burundi is in East Africa, close to the region where the new species of *An. stephensi* has appeared. East Africa's unique ecology allows *An. stephensi* to thrive in urban as well as rural habitats and persist throughout dry seasons. This situation calls for rigorous entomological surveillance, especially in urban areas, where this new species is most prevalent. Based on findings from activities being undertaken in FY 2023, PMI plans to support the country to conduct three key interventions: i) include surveillance and morphological identification of *An. stephensi* in malaria vector training programs; ii) establish *An. stephensi* sentinel surveillance sites at the airport and high traffic transportation and commerce corridors (e.g., truck stops); iii) train one entomologist in *An. stephensi* larval surveillance, identification, and control, to facilitate distinction of endemic and invasive populations.

Summary of Distribution and Bionomics of Malaria Vectors in Burundi

According to the 2021–2022 Entomological Report, the primary vectors in Burundi are *An. gambiae* and *An. funestus*, and the secondary vectors are *An. coustani*, *An. squamosus*, *An. maculipalpis*, and *An. ziemanni*. Peak transmission seasons are from March to June and October to December. The high biting seasons of each of the primary vectors are observed between October and February, with the highest biting rate of *An. gambiae* observed in December and in January for *An. funestus*. Biting rates are calculated from direct human biting rate and vary across sentinel sites. Biting occurs predominantly outdoors, at .45 bites/person/hour (compared to .39 bites/person/hour indoors [$p = .05$]) for *An. gambiae*. The highest biting rates were observed at Mpanda (Bubanza province). The lowest human biting rates were observed at Matana (Bururi province), Gihofi (Rutana province), and Kiremba (Ngozi province) during the same October to May period. The usual resting location is indoors, with peak biting time occurring from 12 a.m to 6 a.m., and the preferred host is human. There is a higher abundance of *An. gambiae* over *An. funestus* in all sentinel sites, except at Mabayi, where *An. funestus* is the predominant species.

Status of Insecticide Resistance in Burundi

Insecticide resistance monitoring was conducted in nine sentinel sites from October 2021 to November 2022. The 2021–2022 Entomological Monitoring Report showed that *An. gambiae* s.l. is fully susceptible to all tested insecticides: clothianidin (4µg/bottle), pirimiphos-methyl (.25 percent), chlorfenapyr (100µg/bottle), bendiocarb (.10 percent), deltamethrin (.05 percent), permethrin (.75 percent), and alpha-cypermethrin (.05 percent). The insecticide resistance mutation detection also showed two forms of knock-down resistance (kdr) mutation (east and west) and most of the samples were susceptible for Ace-1 mutation. The vector susceptibility to insecticides has guided the introduction and distribution of three types of nets during the 2022 mass campaign as well as the recommendation to introduce the rotation of clothianidin & deltamethrin and pirimiphos-methyl in calendar year (CY) 2023.

1.3.2. Insecticide-Treated Nets

PMI will continue to support procurement and distribution of ITNs through routine distribution as described in the recent progress section. PMI will provide technical support through participation on the national task force. PMI will continue to support SBC activities to improve use and care of ITNs and mitigate misuse.

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

Insecticide-Treated Net Distribution in Burundi

The ITNs are distributed via mass campaigns every three years. USAID collaborated with other donors for the macro- and micro-planning for the 2022 mass campaign. The Global Fund has supported this activity nationwide, including piloting the digitalization of micro-planning in two districts (Bujumbura Mairie Sud and Kabezi).

The country introduced dual AI ITNs in its 2022 mass distribution campaign. Based on vector susceptibility to insecticides, three types of ITNs were distributed as follows:

- Dual AI nets were distributed in 20 health districts: Bubanza, Mpanda, Cankuzo, Murore, Gitega, Kibuye, Mutaho, Ryansoro, Buhiga, Nyabikere, Gahombo, Kayanza, Musema, Bugarama, Rumonge, Gihofi, Rutana, Butezi, Kinyinya, and Ruyigi.
- PBO nets were distributed in nine health districts: Busoni, Kirundo, Mukenke, Vumbi, Bukinanyana, Cibitoke, Mabayi, Makamba, and Nyanza-Lac.
- Standard nets were distributed in 14 health districts: Isare, Kabezi, Rwibaga, Bururi, Matana, Rutovu, Bujumbura centre, Bujumbura Nord, Bujumbura sud, Kiganda, Muramvya, Fota, and Kibumbu.

In 2025, the NMCP envisions using two types of nets for the mass campaign, with all districts that had received PBO nets shifting to dual AI nets, for a total of 29 districts. The standard nets coverage will be 14 health districts. The country plans to digitalize the campaign to improve accountability, data quality, and enumeration. Among the six districts not covered, four are covered by IRS (Buye, Kiremba, Gashoho, and Muyinga) and two are covered via continuous distribution of nets by community health workers (CHWs) using a voucher system (Ngozi and Giteranyi).

Routine distribution channels nationwide are fully supported by PMI, focusing on ITN distribution to pregnant women at ANC and at EPI clinics for children under five years of age.

Please refer to the ITN Gap Table in the Annex for more detail on planned quantities and distribution channels. Due to the timing of GC7, the Global Fund contribution to ITNs is not yet known, so the tables show a large gap in ITN supply.

Streamlined Durability Monitoring

PMI is not currently supporting streamlined durability monitoring (see Country Profile for details on completed durability monitoring) but has coordinated with NMCP and Médecins Sans Frontières Belgium (MSF), which are conducting this activity, focusing on standard nets and dual AI nets from the September 2022 mass distribution campaign.

1.3.3. Indoor Residual Spraying

PMI plans to continue the technical support in the same geographic areas as previously supported with FY 2024 funding to help improve the quality of this intervention. The technical assistance to the NMCP and district health officers will continue in the four districts receiving Global Fund-supported IRS (Buye, Kiremba, Gashoho, and Muyinga) to support the planning, implementation, and evaluation of the seventh year of IRS. Burundi has started rotating clothianidin & deltamethrin and pirimiphos-methyl in CY 2023 and will keep the rotation on a two-year basis following World Health Organization (WHO) guidelines.

Insecticide Residual Efficacy in Burundi

The residual life of sprayed insecticide (Fludora Fusion) was monitored through wall cone bioassays in the two IRS provinces (Ngozi and Muyinga) over 11 months (November 2021–September 2022). The residual life of Fludora Fusion was estimated at nine months by wall cone bioassays and represents adequate length of time to effectively reduce the two seasonal peaks of malaria vectors if the intervention is implemented by September each year.

2. Malaria in Pregnancy

2.1. PMI Goal and Strategic Approach

PMI supports the full package of MIP activities in the national strategy. The ANC core package includes four main categories of care: identification of preexisting conditions, early detection of complications, health promotion and disease prevention, and birth preparedness. USAID and NMCP collaborated to revise the malaria prevention in pregnancy guideline based on an assessment of IPTp implementation, conducted in FY 2022.

This resulted in the development of a roadmap which has allowed NMCP and the *Programme national de santé de la reproduction* (National Reproductive Health Program) to revise the national guidelines around ANC visits and IPTp uptake. The new guidelines include six doses of IPTp across eight ANC contacts at the health facility.

The doses by interventions is the following: IPTp1 at 15 weeks through ANC, IPTp2 at 20 weeks through ANC, IPTp3 at 26 weeks through ANC and CHW, IPT4 at 30 weeks through ANC, IPTp5 at 34 weeks through ANC and CHW, IPTp6 at 38 weeks through ANC, and at 40 weeks visit (IPTp6 if no dose in the past month).

CHWs will be in charge of sulfadoxine-pyrimethamine provision in the community through two contacts to allow pregnant women to receive their six doses of SP as a complementary intervention.

PMI fully supports the NMCP's goal of ensuring the timely provision of ITNs at ANC1, a minimum of six doses of IPTp starting at the 13th week of gestation, and effective case management of malaria cases during pregnancy.

The launch of the new guideline will start in FY2023 with training sessions for 3,035 health providers and 8,608 CHWs countrywide. The country will start in 10 districts with gradual extension. The CHWs will be in charge of SBC around adherence to the eight ANC contacts and six doses of SP.

At district and facility level, before the introduction of community intermittent preventive treatment for pregnant women, PMI supported missed appointment tracing, whereby CHWs use a digital solution (called *Connecting with Sara*) to record pregnant women missing ITN in their catchment area and link them to the facility for ITN uptake. As a result, the proportion of pregnant women attending ANC1 who received an ITN has increased from 87 percent in 2021 to 96 percent in 2022. Uptake of IPTp during ANC visits is increasing. The 2022 NMCP report shows that the uptake of at least IPTp3+ increased from 50.5 percent in 2021 to 58.7 percent in 2022. Barriers to improving IPTp may include insufficient education of pregnant women and their families around the importance of the SP during pregnancy, as well as inadequate training

and supportive supervision for providers since the introduction of these interventions in Burundi.

2.2. Recent Progress (October 2021–September 2022)

During this period of implementation, PMI:

- Supported the Government of Burundi to conduct a comprehensive assessment of IPTp that was used to update the new policies.
- Supported NMCP and *Programme national de santé de la reproduction* (National Reproductive Health Program) to update the IPTp guidelines.
- Supported the NMCP to develop the training materials for health providers and CHWs and the training plan for updated ANC guidelines.
- Initiated use of tracking and tracing tools for pregnant women who missed ANC appointments and ensured they are caught up on their ANC visits in nine health districts (HDs): Kirundo, Vumbi, Busoni, Muyinga, Giteranyi, Gashoho, Buhiga, Nyabikere and Makamba. This has increased IPTp uptake.
- Trained 237 CHWs and expanded the digital solution *Connecting with Sara* from one health district to four (Nyabikere, Buhiga, Makamba and Nyanza-Lac) to increase uptake of ITNs and IPTp.
- Involved health promotion technicians at the facilities to ensure pregnant women who have missed ANC appointments are caught up and to improve uptake of IPTp. A health promotion technician is a health care provider who is attached to a health center, responsible for health promotion activities and the supervision of CHWs in a health center's catchment area.

2.3. Plans and Justification for FY2024 Funding

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

PMI will continue to support the full package of MIP interventions, strengthen the quality of care to improve pregnancy outcomes, and advocate for the SP resistance monitoring as it was not included in the previous 2018 and 2021 therapeutic efficacy study (TES).

Specific activities to be financed with FY 2024 funding will include:

- Supporting the procurement of SP if any gap to meet the country's needs is identified. The GC7 identified that due to budget constraints, GF will not procure SP in 2025 and 2026, rather it will be procured by the country.
- Integrating the SP resistance markers samples collection to the upcoming TES and ensuring co-financing with WHO.
- Training, coaching, and supportive supervision of health workers in all supported districts on the ANC core package, with an emphasis on uptake of eight ANC contacts in line with new ANC guidelines and malaria and reproductive health services' integration.

- Supporting the printing and distribution of job aids related to the ANC core package during training and coaching sessions.
- Supporting the implementation of the new community IPTp strategy by training CHWs, health promotion technicians and HF providers to ensure strong linkages between the community and health facilities, particularly for referrals and supply replenishment.
- Supporting quarterly supportive supervision of health workers, including CHWs, to improve implementation of the directly observed therapy strategy for SP during ANC visits.
- Supporting the MOH to train and supervise healthcare workers on the use of ACTs during the first trimester for treatment of malaria cases, per WHO guidelines.
- Strengthening SBC interventions, especially interpersonal communication (IPC) sessions for pregnant women in targeted communities.
- Expanding mobile health at community level to help monitor pregnant women's ANC attendance, stressing the importance of eight contacts and uptake of IPTp and ITNs.
- Collaborating with Global Fund and NMCP to ensure availability of SP at facility and community levels.

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

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

3. Drug-Based Prevention

PMI does not support drug-based prevention in Burundi. However, based on results of the ongoing stratification and tailoring exercises, the Burundi NMCP intends to pilot perennial malaria chemoprevention in two districts in coordination with the EPI program. No PMI support is currently planned for perennial malaria chemoprevention, pending results of the planned pilot.

4. Case Management

4.1. PMI Goal and Strategic Approach

The NMCP's strategic plan and treatment guidelines promote a comprehensive case management strategy, including: universal, quality-assured parasitological testing of all cases of suspected uncomplicated malaria; prompt treatment of all cases of parasitological-confirmed uncomplicated malaria with ACT; and urgent referral and appropriate treatment of severe malaria at facility (both public and private) and community levels. PMI supports all aspects of this approach from national level policy and programmatic activities, commodity procurement, and improvement of facility and community level health worker performance.

PMI supports nationwide procurement of malaria RDTs and ACTs, accounting for approximately 40 percent of procured malaria commodities; the Global Fund supports the procurement of the remaining 60 percent.

USAID supports integrated malaria, family planning (FP), and maternal and child health (MCH) service delivery in 16 of the 49 health districts and 304 health facilities. PMI funding supports training and coaching for health care providers at facility and community levels on quality malaria service delivery, strengthening supervision tools, and providing logistic support to districts for quarterly supportive supervision visits.

USAID also supports 189 private and faith-based clinics in 14 provinces to offer high-quality malaria, FP, and MCH services, including engaging with communities using demand-creation agents to promote early care-seeking and service availability by informing about the opening and closing time of the facilities. Demand creation agents are CHWs linked to the private clinics. PMI funding supports the capacity strengthening of health care providers through training and coaching sessions on quality malaria service delivery, logistic support to districts for quarterly supervision, and strengthening data reporting in District Health Information Software 2 (DHIS2). PMI will support the NMCP to pilot malaria commodities management in ten private facilities, which includes supplying these private clinics with malaria commodities (ACTs, RDTs, SP, and ITNs) that will be free for clients. The pilot evaluation will guide the decision on whether to expand this strategy or not.

PMI supports (through equipment, training, and supervision) 2,722 CHWs trained to deliver community-based case management services that include iCCM, pre-referral RAS, and PECADOM, a strategy of community case management of malaria for all ages. Currently implemented in six provinces, the two interventions were revitalized in 2019 after the country shifted from ASAQ to AL. PMI supported the training of 365 CHW on iCCM in Bururi and Rumonge provinces and 2,357 CHW on PECADOM in Muyinga, Kirondo, Karusi, and Makamba provinces followed by four-day internship at a health facility, supervised by a nurse. PMI supported the CHW kits, job aids and communication tool printing and distribution to trained CHW and post-training supervision and quarterly and monthly supervision.

The WHO stratification of Burundi identified 12 very high and high-burden provinces. Four of these provinces do not currently receive Global Fund or PMI support for PECADOM activities, although they do receive United Nations Children's Fund (UNICEF) support for iCCM. Therefore, in consultation with the NMCP and the Global Fund, PMI decided to expand support for community case management in these geographic areas. PECADOM will be implemented alongside iCCM in these four new provinces to intensify interventions in high-burden provinces, adding nine additional districts to the 16 currently supported, for a total of 25 districts across ten provinces. The two provinces of Rumonge and Bururi, will continue to implement iCCM only because of their low malaria incidence. Focus will be placed on

increasing the quality of iCCM, which should contribute to decreasing deaths due to malaria among children under five years of age.

While continuing to advocate for the institutionalization of CHWs in Burundi, PMI plans to support training and payment of incentives (through PBF and transportation fees) to current and newly recruited CHWs in the 25 districts. The biggest challenges currently faced by community health system are low household coverage, high workload for CHWs, frequent commodity stockouts, insufficient supportive supervision, and insufficient and poor quality data reported into the national health management information system (HMIS). PMI, and USAID more broadly, are working with the MOH, the NMCP, and other partners to address these challenges.

Figure 2. Map of Case Management, Community Health, and Malaria in Pregnancy Service Delivery Activities in Burundi

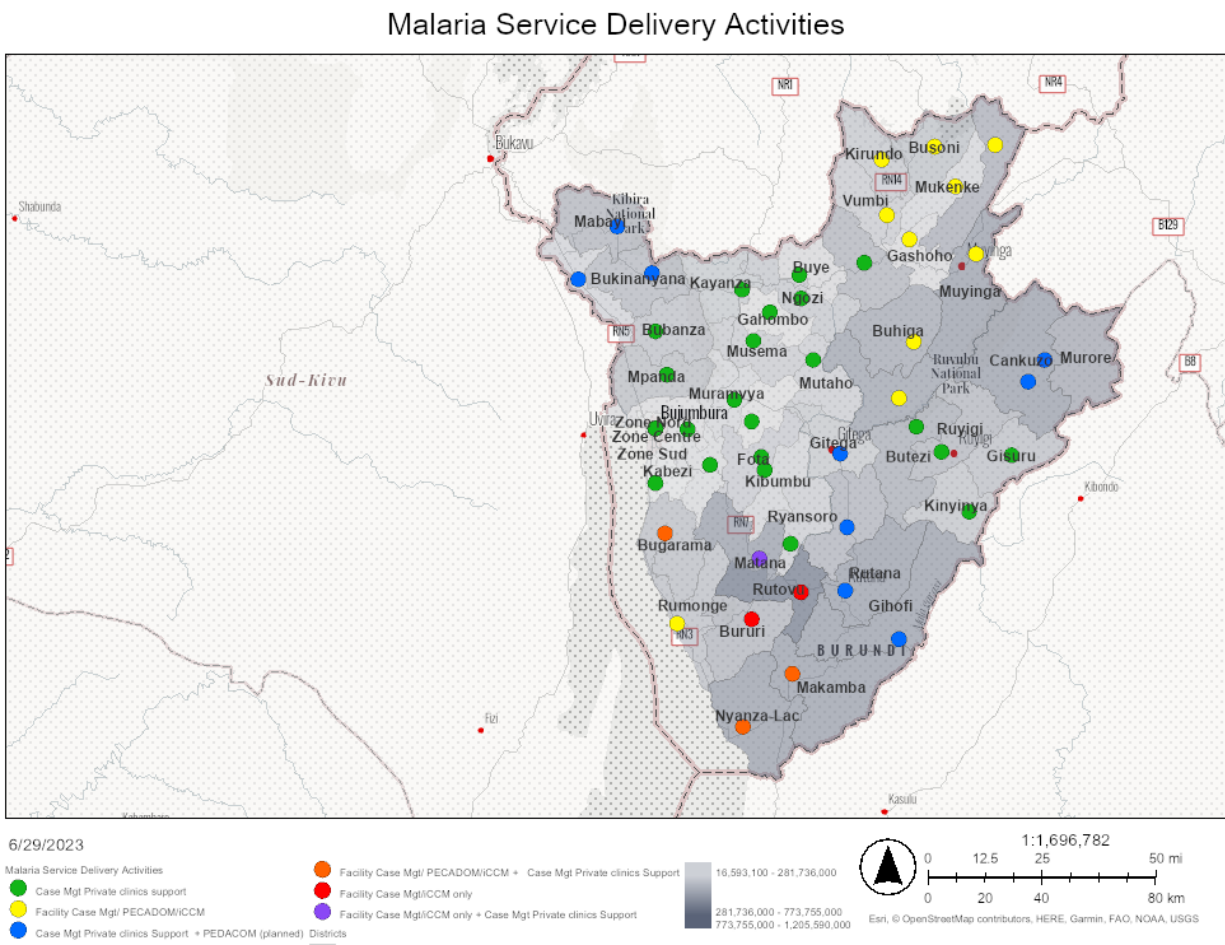


Figure 2 shows the districts supported by PMI, including the 16 health districts and 304 health facilities, currently supported with PECADOM and iCCM (orange and yellow dots)

with a focus on integrated MCH/FP/malaria, cross-cutting SBC, and USAID more broadly intervention and service delivery provision in private health facilities within the districts (*green dots*). The expansion to four new provinces is shown by the blue dots representing districts within these provinces.

Table 1. Community Case Management Model by Geographic Area

| Province | Districts | Community Case Management Model | Implementation status |
|----------|---------------------------------|---------------------------------|------------------------------|
| Rumonge | Bugarama, Rumonge | iCCM only | Ongoing |
| Bururi | Bururi, Matana, Rutovu | iCCM only | Ongoing |
| Makamba | Makamba, Nyanza-Lac | PECADOM+iCCM | Ongoing |
| Karusi | Buhiga, Nyabikere | PECADOM+iCCM+ProCCM | Ongoing (ProCCM new FY 2024) |
| Kirundo | Kirundo, Busoni, Mukenke, Vumbi | PECADOM+iCCM+ProCCM | Ongoing (ProCCM new FY 2024) |
| Muyinga | Muyinga, Gashoho, Giteranyi | PECADOM+iCCM+ProCCM | Ongoing (ProCCM new FY 2024) |
| Cibitoke | Bukinanyana, Mabayi, Cibitoke | PECADOM+iCCM* | new, plan for FY 2024 |
| Rutana | Rutana, Gihofi | PECADOM+iCCM* | new, plan for FY 2024 |
| Gitega | Gitega, Kibuye | PECADOM+iCCM* | new, plan for FY 2024 |
| Cankuzo | Murore, Cankuzo | PECADOM+iCCM* | new, plan for FY 2024 |

*iCCM is being supported by UNICEF

iCCM: integrated community case management; PECADOM: *Prise en Charge à Domicile* (malaria community case management for all ages); ProCCM: proactive community case management.

4.2. Recent Progress (October 2021–September 2022)

National Level Case Management Activities

- Developed national malaria diagnostic and treatment guidelines, national malaria microscopy quality assurance manual, national private sector case management strategy.
- Developed/updated national training and supervision plan, including modules for on-site training and supportive supervision materials/checklists to be used by central and district level supervisors.
- Developed/ updated national malaria diagnostic quality assurance/quality control program, designed job aids to be used by central and district level supervisors.
- Strengthened quality assurance of malaria diagnostics in private health facilities and laboratories through training and professional development and laboratory supervision.
- Collaborated and coordinated with other relevant country government officials, partners and stakeholders (maternal and child health, surveillance and data systems, community health).

- Convened and led nine national level coordination meetings (six technical working group meetings and three coordination meetings) with national stakeholders to support NMCP for strategic planning and dissemination of the National Strategic Plan 2021-2027, and to discuss achievements, challenges and next steps.
- Conducted four district-level malaria case management in-service trainings for health staff at district hospitals and health facilities.
- Supported the NMCP and the nine health districts to develop malaria micro plans to coordinate response to malaria peak periods.
- Supported nine districts to organized mobile clinics delivering integrated services.
- Convened two national lessons learned workshops using data analysis from the *Connecting with Sara* mobile application.

Commodities

- Supported the procurement and distribution of 1,692,250 malaria RDTs, accounting for approximately 19.8 percent of nationwide need.
- Supported the procurement and distribution of 727,620 ACTs. In FY2022 overall, procured 1,027,620 ACTs, accounting for about 18.5 percent of nationwide need.

Facility Level

- Conducted formative supervision for 50 laboratory and microscope technicians in basic malaria biological diagnosis quality assurance, and quality control of slides.
- Conducted supervision focused on the implementation of the National Guidelines for the Management of Malaria, with a total of 55 public health facilities.
- Conducted 11 rounds of on-site training and supportive supervision visits to multiple facilities in ten districts. 55 health facilities visited in ten HDs (Bururi, Rutovu, Nyanza-Lac, Giteranyi, Rumonge, Bugarama, Muyinga, Makamba, Mukenke, and Nyabikere)
- Conducted 12 data quality assessments in public health facilities.
- Conducted two audits of deaths due to malaria to ensure accuracy of the high number of deaths related to malaria reported by health facilities.
- Trained 117 laboratory and microscope technicians and from 117 faith-based and private clinics on biological diagnosis of malaria.
- Conducted 12 on-site training and supportive supervision visits in 32 private clinics facilitating collaboration between private sector associations and district health teams.
- Conducted training of 40 providers from private and faith-based clinics on national malaria treatment guidelines.

Community Level

- Conducted 12 on-site training and supportive supervision visits, reaching 1,196 community health workers.
- Trained 43 supervisors in on-site training and supportive supervision for CHWs.

- Supported the expansion of the *Connecting with Sara* mobile application from one HD (Nyabikere HD in Karusi province) to three new districts: Buhiga (Karusi province), Makamba, Nyanza-Lac (Makamba province), a total of four districts.
- Provided monthly transportation fees linked with monthly meetings at facilities
- Set up community dialogues to engage community leaders in malaria response.

Please note that recent progress with monitoring antimalarial efficacy and the 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.

National Level Case Management Activities

PMI/Burundi will continue to support national level case management activities as described in the Recent Progress section. With FY 2024 funding, a specific focus will be placed on promoting using AL to treat malaria cases during pregnancy at both public and private facilities, and improving the quality of community case management, taking into consideration paying incentives to CHW.

- Support the review and update of existing on-site training and supportive supervision materials/checklists.
- Adapt, print, and distribute new job aids for all U.S. government-supported facilities.
- Support the NMCP to develop a joint program implementation plan to mitigate overlaps in donor interventions in the same province.
- Support a national workshop for both public and private sectors to share and discuss lessons learned from the implementation of case management activities.

Commodities

To ensure an uninterrupted supply of malaria commodities in Burundi, PMI will continue to procure malaria case management commodities (ACTs and RDTs), while the Global Fund will continue to procure RAS and injectable Artesunate. PMI will additionally support the country in filling any commodity gaps if the need arises.

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

Facility Level

PMI will continue to strengthen quality of care in six provinces, including 16 out of the 49 health districts and 304 public health facilities through USAID's integrated malaria, FP, and MCH service delivery project.

Additionally, PMI will continue to expand and strengthen the quality of care in private clinics, reaching 189 health facilities. The support includes capacity strengthening through training and coaching of private health care providers on quality service delivery, printing and distributing related job aids, strengthening the capacity of district teams by updating the supportive supervision materials and checklists, and providing logistic support to districts for quarterly supportive supervisions. PMI will collaborate with NMCP to pilot free malaria commodities in ten private clinics and the results will guide the expansion of this intervention.

PMI will continue to support the quality-of-care improvement plan both for public facilities and for private clinics.

PMI will support the implementation of the newly developed training plan, including refresher training for health providers and laboratory technicians.

PMI will support the improvement of quality assurance of malaria diagnostics in private health facilities and laboratories through training and supervision.

Community Level

PMI is currently supporting six provinces including three that have a very high burden of malaria (Kirundo, Muyinga and Karusi), plus one high-burden province (Makamba). Among these six provinces, two provinces are implementing iCCM and four provinces are implementing both iCCM and PECADOM through PMI support. PMI support includes CHW kits, job aids and communication tool printing and distribution to trained CHW and post-training supervision and quarterly and monthly supervision.

PMI plans to support the extension of the PECADOM intervention to three high-burden provinces in FY 2023 (Cibitoke, Gitega, Rutana) and one very high-burden province (Cankuzo) not covered by any partners to respond to the needs of the NMCP. PMI will be covering eight malaria high-burden provinces. The four other very high and high-burden provinces will be covered by Global Funds with the objectives to intensify iCCM and PECADOM in these provinces and reduce malaria burden. PMI will continue to strengthen the quality of PECADOM, as well as iCCM and pre-referral RAS for severe malaria, with training and supportive supervision of community health workers in these eight malaria high and very high-burden provinces. PMI will work in collaboration with the NMCP and other donors to strengthen community systems and increase CHW performance, including filling the gap in

numbers of CHWs where needed through recruitment, ensuring regular supportive supervision for capacity strengthening, ensuring availability of commodities, reinforcing the collection and validation of data, and strengthening the referral system, especially for the management of severe malaria cases.

PMI funds will be used to support the development of an incentive plan for CHWs, which will be determined in co-creation with stakeholders during the award process for the new Integrated Community Health Activity. These financial incentives will make up approximately 25 percent of USAID’s support for the project, which will be complemented by MCH and FP funds. Concurrently, USAID will support activities to lay the groundwork for alternative compensation schemes for CHWs, including a feasibility assessment of routine salaries or stipends in order to ensure future sustainability of the CHW system.

PMI/Burundi also plans to support the roll-out of proactive community case management (ProCCM). Beginning in FY 2024, PMI plans to support a gradual roll-out of ProCCM. The approach will be implemented in three provinces in northern Burundi (Kirundo, Muyinga, and Karusi) classified as malaria very-high-burden zones. These are also areas where mobile clinics (active testing and treatment by health providers in hard-to-reach zones during peak season) are currently implemented, and the ProCCM approach will enable continuous proactive case management services in these areas.

Monitoring Antimalarial Efficacy

WHO supported the TES in CY 2018 and CY 2021. No TESs are currently ongoing, but WHO is planning for a TES in 2023 and in 2025. PMI will continue to discuss with WHO on the need to co-fund the 2025 TES to support additional sites near the Rwanda and Tanzania borders, if needed.

Table 2. Planned Therapeutic Efficacy Studies

| Planned TESs (WHO-funded) | | | |
|---------------------------|--------------------------------------------------------------------|------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| Year | Site name | Treatment arm(s) | Plan for laboratory testing of samples |
| 2023 | Buhiga (Karusi), Mutoyi (Gitega), and Kigobe (Mairie de Bujumbura) | AL | Measurement of parasitological efficacy by thick drop at the site laboratory PCR analysis at <i>Institut Pasteur</i> (Paris, France). |
| 2025 | Buhiga (Karusi), Mutoyi (Gitega), and | AL and DHA-PPQ | Measurement of parasitological efficacy by thick drop at the site laboratory PCR analysis at <i>Institut Pasteur</i> (Paris, France). |

| | | | |
|--|------------------------------|--|--|
| | Kigobe (Mairie de Bujumbura) | | |
|--|------------------------------|--|--|

AL: artemether-lumefantrine; DDHA-PPQ: dihydroartemisinin–piperaquine; TES: therapeutic efficacy study; WHO: World Health Organization.

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

Other Planned Case Management Activities

Given the identification of partial artemisinin resistance in countries surrounding Burundi, PMI is in early planning stages for a health facility survey that would complement the planned TES, provide information on case management behaviors, and look at markers of antimalarial resistance. This will be funded through reprogrammed funds from earlier MOPs.

5. Health Supply Chain and Pharmaceutical Management

5.1. PMI Goal and Strategic Approach

PMI’s objective is to ensure uninterrupted supply of health commodities in the country (see description of Burundi’s supply chain system and strategy in the Burundi Malaria Country Profile). The support includes procurement and supply chain management support to the Ministry of Health as well as providing related systems strengthening technical assistance for comprehensive supply chain management. PMI/Burundi is pursuing a stockout target of less than 10 percent.

PMI’s principal supply chain investments aimed at improving malaria commodity availability at service delivery include:

- Forecasting and supply planning by supporting the NMCP for malaria commodities quantification, setting realistic timelines for procurement in conjunction with United Nations Development Programme/Global Fund, working closely with ABREMA (Autorité Burundaise de Régulation des Médicaments à usage humain et des Aliments, or Burundian Regulatory Authority for Medicines for Human Use and Food) for product reception and storage at *Central des Achats des Médicaments Essentiels du Burundi* (CAMEBU, Essential Medicines Purchasing Center), and the central storage warehouse.
- Procuring malaria commodities (ITNs, AL, RDTs).
- Improving the stock management at all levels, increasing supervision to strengthen the Logistic Management Information System (LMIS), and providing technical support for the implementation of an electronic LMIS.
- Warehousing and distribution technical assistance by working with CAMEBU to establish and share the quarterly distribution timeline in the districts and providing logistical support to CAMEBU for the distribution.

- Technical assistance to support the bi-annual inventory at CAMEBU and quarterly inventory at district levels, and logistic support to ABREMA and districts for supportive supervision.

USAID also supports the EUV survey and electronic Logistic Management Information System implementation along with other partners.

5.2. Recent Progress (October 2021–September 2022)

Although stockout of key malaria commodities at the community level remains a concern, recent increases in the availability of commodities at the facility level have been observed mainly due to active distribution of malaria commodities. The active distribution is a push system; by which the national medical store organizes distribution of district commodities to the district level based on their needs to reduce stock outs at service delivery points. As a result, the stockout rate at service delivery points seems to have decreased from 1 percent in Q1 FY 2022 to .8 percent in Q4 FY 2022. The reporting rate varied from 98 percent to 99.9 percent respectively in quarter 1 and quarter 4. The quality of routine data is weak, and always different from survey results. PMI and Global Fund are putting emphasis on this situation through several interventions including a joint ongoing data quality assessment for malaria and HIV programs.

Main achievements include:

- PMI provided technical and financial support to the NMCP to conduct the EUV surveys for evidence-based decision-making related to malaria commodities at service delivery points and district levels.
- PMI provided technical assistance to ABREMA for the development of a comprehensive pharmaceutical traceability compliance, mainly the elaboration of a national pharmaceutical traceability strategy.
- PMI provided technical and financial support to ABREMA data quality assessments at high-volume facilities to evaluate the availability, accuracy, and reporting compliance of logistics data. The results of these assessments revealed a score of 7 (maximum quality score is 9 according to this instrument). The assessment identified improvements to make in logistic data availability in these facilities.
- PMI supported regional training workshops and training of trainers on the use of the new forecasting quantification analytics tool.
- PMI supported four quarterly joint supervisions at district level of logistics data managers in inventory management, data collection and review.
- PMI convened and led four national level coordination meetings (technical working groups) and four provincial level workshops for logistical data quality analysis to identify challenges and corrective actions.

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.

PMI will continue to support all activities as described in the Recent Progress section with decentralization of malaria commodities forecasting and stock review workshops at provincial level, community-level drug availability, improve the monitoring of commodities stocks delivered at facility level for both community and facility consumption, and strengthen the supply chain management at the national level.

The National Supply Chain Assessment started in November 2022. The results will inform future planning to strengthen the supply chain system.

6. Malaria Vaccine

Burundi is among the countries that applied to Gavi in January 2023 to support the introduction of the RTS,S/AS01 (RTS,S) malaria vaccine in 25 health districts across nine provinces and targeting 250,000 children under two years old. The application was approved and the implementation is planned to start in 2024. The malaria vaccine in Burundi will be deployed in health facilities to infants at six, seven, nine, and 18 months as a part of routine EPI service delivery and complemented by periodic intensification of routine immunization activities. The overarching objective of the national vaccine introduction plan is to contribute to the well-being of children under five years of age by reducing morbidity and mortality due to *Plasmodium falciparum* malaria with an estimated vaccine coverage of 90 percent in the 25 targeted health districts.

The vaccine introduction plan's four specific objectives are:

- To ensure malaria vaccine coverage (4 doses) of at least 90 percent among targeted children in the 25 health districts.
- In combination with other ongoing malaria interventions, reduce clinical malaria cases in children under five years of age in the intervention health districts by at least 35 percent over a five-year period after vaccine introduction.
- In combination with other ongoing antimalarial interventions, reduce severe malaria cases by at least 25 percent in children under five years of age in the intervention health districts over a five-year period after vaccine introduction.
- In combination with other ongoing malaria interventions, reduce malaria-related mortality in children under five years of age by at least 73 percent.

6.1. PMI Goal and Strategic Approach

The PMI Burundi goal for the malaria vaccine is to support the Ministry of Health to strategically deploy this intervention as a complementary tool to the existing core interventions. Vaccine introduction will be led by the national EPI, thus PMI Burundi will work with the NMCP

and national immunization colleagues to provide complementary support in the planning, delivery and monitoring of vaccine deployment. This includes support to maximize uptake of the vaccine without adversely affecting coverage of other malaria interventions.

To support the introduction of the malaria vaccine in Burundi, PMI will integrate malaria vaccine SBC activities into existing PMI-supported SBC activities in the areas where the malaria vaccine will be introduced to promote demand for the malaria vaccine. PMI will also provide supportive supervision to health workers for vaccine implementation. PMI’s activities will target the six U.S. government-supported provinces (Cankuzo, Cibitoke, Karusi, Kirundo, Muyinga, Rutana) out of the nine targeted for the vaccine introduction.

6.2. Recent Progress (October 2021–September 2022)

There is no progress to report as PMI did not support malaria vaccine implementation in previous years. Burundi’s submission package was among the 11 applications approved by Gavi in April 2023.

Figure 3. Map of Malaria Vaccine Plans in Burundi

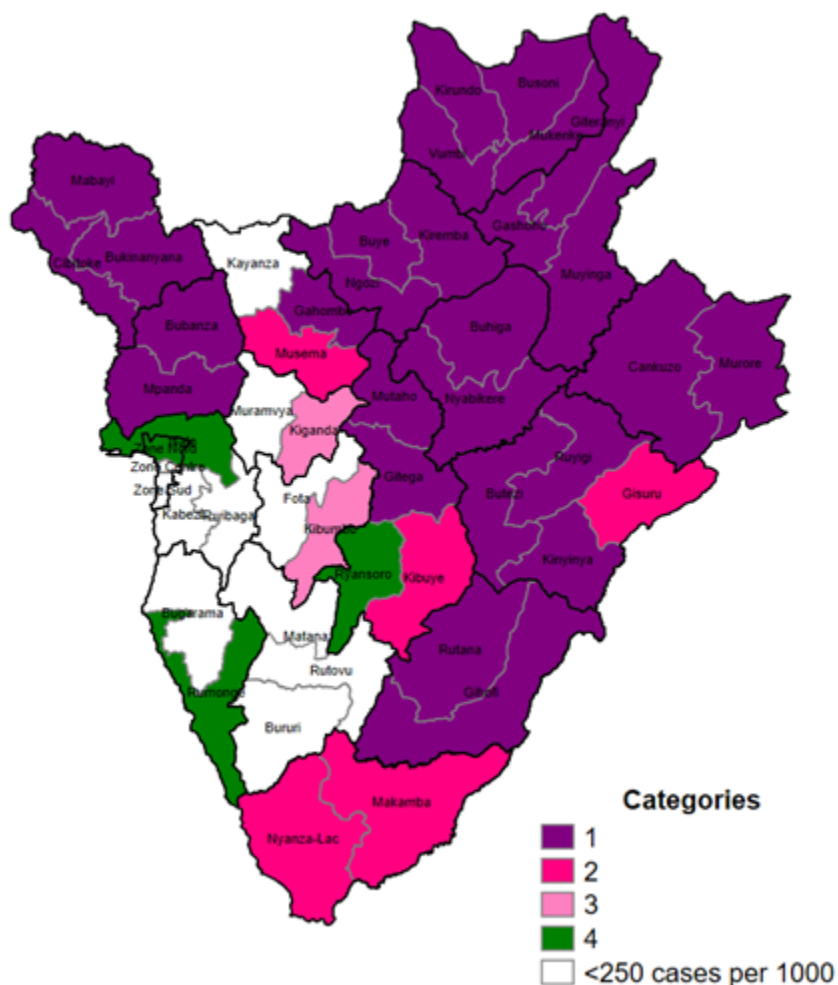


Figure 3: This map shows the priority provinces targeted for the malaria vaccine introduction: Cankuzo, Cibitoke, Karusi, Kirundo, Muyinga, Runata, Ruyigi, Bubanza and Ngozi.

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.

Beginning in FY 2024, PMI funding will be used to provide supportive supervision to health care workers who provide the malaria vaccine in these 25 districts. All malaria vaccine procurement will be supported by UNICEF with Gavi funding. New SBC investments will focus on provider behavior for malaria vaccine delivery for health care workers and demand generation for parents.

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

7. Social and Behavior Change

7.1. PMI Goal and Strategic Approach

PMI's SBC support to the NMCP's 2014 national communication strategy fully aligns with the objectives for all levels of the health system. PMI's support is achieved through coordinated communication and non-communication interventions deployed across PMI geographic focus areas. Through partnerships with local media organizations, community-based organizations, and collaboration with community volunteers, PMI supports the NMCP's efforts to expand mass media and community-level interpersonal communication (IPC) activities aimed at increasing correct and consistent ITN use and care, prompt care-seeking for fever, uptake of IPTp, and provider adherence to diagnostic results for treatment with ACTs. At the national and district levels, PMI provides technical assistance, support for capacity strengthening activities including for coordination, and the development of materials and relevant guidelines.

The 2021-2027 National Malaria Control Strategic Plan aims to strengthen the communication framework with the objective of at least 80 percent of the population adopting behaviors conducive to the prevention of malaria. To support the ongoing efforts and provide the evidence to inform specific interventions and achieve the NMCP objectives, PMI will support a Malaria Behavior Survey and complementary qualitative research in FY 2023. These studies will provide data on the prevalence and determinants of various malaria behavioral outcomes, including the use and care of ITNs, prompt care seeking for children under five years of age with fever, uptake of IPTp, provider compliance to national guidelines, and acceptance of IRS. Data will be used to develop a five-year SBC strategy to improve adoption of desired behaviors and uptake of malaria interventions among individuals, families, health providers, and communities.

7.2. Recent Progress (October 2021–September 2022)

To increase correct and consistent ITN use and care, prompt care-seeking for fever, uptake of IPTp, the following interventions were implemented.

- Mass and print media
 - Reached 391,489 people through social media posts (364,129) and SMS (27,360)
 - Broadcasted 480 radio spots (produced four radio spots and broadcasted during ten days per month). The key messages shared were on the importance of pregnant women's adherence to IPTp, the availability of free care with antimalarial drugs in health facilities, and the correct use of ITNs.
 - Supported the production of communication tools, posters, and leaflets.
- Interpersonal communication
 - Produced and distributed booklets with malaria awareness messages targeting individuals.
- Community mobilization
 - Trained 78 local leaders from Kirundo Province for three days on community dialogue in collaboration with NMCP and local health/administrative authorities.
 - Sensitized the population about opportunities to access health care during mobile clinic sites in nine health districts (Kirundo, Busoni, Vumbi, Mukenke, Bururi, Matana, Nyabikere, Buhiga and Makamba).
 - Supported the national celebration of World Malaria Day in Muyinga Province.
- Communication technology
 - Supported the NMCP to create a [Facebook page](#).
- Capacity strengthening
 - Trained 48 health promotion technicians on the updated malaria health education tools distributed to the CHWs, to ensure effective supervision of CHWs. These health promotion technicians are responsible for the supervision of CHWs in the health center's catchment area.
 - Trained 186 demand creation agents including on their communication and marketing skills to enable them to provide community members with adequate and appropriate information on malaria.
 - Provided 89 tablets to demand-creation agents with monthly internet subscription to collect monthly reporting of demand-creation data (e.g. number of people reached through interpersonal communication disaggregated by sex by sessions).

Challenges

Greater SBC investment and attention is needed to improve the uptake and maintenance of desired behaviors to prevent malaria and seek appropriate care. This will require the involvement of health care providers, community leaders, and especially CHWs, with the ultimate goal of lifting these stubborn bottlenecks:

- **Insecticide-treated Mosquito Nets:** 2016–2017 Demographic and Health Survey showed that the ratio of ITN access to use in Burundi is very high, ranging between .83 in Bururi to 1.21 in Karusi. It should be noted, however, that this high use to access ratio is calculated in the context of both low access (32 percent) and low use (35 percent). While there is a need to increase access to ITNs, the low overall percentage of household members using an ITN indicates a need for strong SBC activities promoting net use to accompany efforts to increase ITN access.
- **Malaria in Pregnancy:** Burundi is far from the desired national target of 80 percent for early ANC1 and 50 percent for ANC4, set by the Reproductive, Maternal, Neonatal, Child and Adolescent Health National Strategic Plan 2019-2023. The drop-off of pregnant women between the first and fourth ANC visits limits delivery of a comprehensive ANC package, including IPTp. A 2022 NMCP report showed slight progress in increasing IPTp uptake. IPTp3+ was 50.5 percent in 2021 and 58.7 percent in 2022 as a result of active tracing of pregnant women appointments and CHWs, ensuring pregnant women who missed appointments caught up on ANC.
- **Case Management:** DHIS2 data from 2022 revealed that the hospital mortality rate was 1.9 per 100 inpatients and highlighted the number of severe malaria cases at 321,637, of which 57 percent (185,188) cases are among children under five years of age. This suggests the need for an SBC strategy to promote early care-seeking for fever to reduce malaria deaths and be in line with the 2021-2027 National Malaria Control Strategic Plan's goal of zero malaria deaths by 2023.
- **Service Delivery:** Low quality of case management remains a challenge: according to the 2021 EUV survey report, 73 percent of malaria cases in children under five years of age were treated according to the national protocol, indicating a potential issue with provider behavior. The National Malaria Strategic Plan aims to have 100 percent of children treated according to national malaria guidelines.
- **New strategies (Malaria Vaccine and Perennial Malaria Chemoprevention):** SBC will be important to inform caregivers about the new interventions, their benefits, and to provide them with the appropriate information to ensure that their children receive the planned doses.

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.

Priorities

With FY 2024 funding, PMI will contribute to implement the new NMCP’s SBC strategy to be developed and approaches to increase desired behaviors. The forthcoming Malaria Behavior Survey will inform the refinement of SBC strategies and interventions. PMI supports SBC activities that promote the uptake and maintenance of all key malaria interventions, however, the following behaviors will be prioritized with FY 2024 funds:

Table 3. Priority Behaviors to Address

| Behavior | Target Population | Geographic Focus | Programming to Address Behavior |
|----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Prompt care seeking for fever for children under five years of age | Parents of children under five years of age, CHWs, and health providers | 10 provinces | <ul style="list-style-type: none"> • Community and household level IPC • Community radio |
| Improve demand for ITNs, increase appropriate use, promote care, and mitigate against misuse | Health facility based providers and CHWs, Community and religious leaders | 10 provinces | <ul style="list-style-type: none"> • Community and household level IPC • Community radio • Religious leaders |
| Early ANC and IPTp uptake | Pregnant women, CHWs and health facility based providers | 10 provinces | <ul style="list-style-type: none"> • Community and household level IPC • Community radio • Service communication by healthcare providers |
| Demand for and uptake of the malaria vaccine | Health facility based providers and CHWs, Community and religious leaders | 10 provinces | <ul style="list-style-type: none"> • Community radio • Service communication by healthcare providers |

CHW: community health worker; IPC: interpersonal communication; ITN: insecticide-treated mosquito net.

Additional Support Activities

There is a need for continued SBC capacity building at both the national and subnational levels, with increased level of effort at the central level. To bolster the NMCP capacity for the planning, design, implementation, and evaluation of SBC activities, PMI support will include:

- SBC capacity assessment at each level of the health system to determine structural needs.
- Development of a tailored capacity building plan for the NMCP and partners.
- Capacity strengthening of key players and stakeholders at central and community level for effective SBC design, implementation, and evaluation.
- Capacity strengthening for NMCP staff on the use of data from the MBS to inform SBC program priorities and strategies.

- Strengthening of the SBC Technical Working Group.
- Development of a national malaria SBC strategy to establish priorities and guidance for the next five years.
- Quantitative monitoring of malaria SBC activities (e.g. omnibus surveys, behavioral sentinel surveys) to monitoring outputs (i.e. reach, recall, etc.) and intermediate outcomes (i.e. determinants, factors).

8. Surveillance, Monitoring, and Evaluation

8.1. PMI Goal and Strategic Approach

PMI Burundi's support for malaria surveillance, monitoring, and evaluation is fully aligned with the national strategy and aims to strengthen the country's capacity and systems to generate high-quality malaria health information for decision-making at local, national, and global levels, with the ultimate goal of reducing malaria burden.

In support of the NMCP strategy and needs in Burundi, PMI in collaboration with NMCP and other donors, have prioritized interventions such as, support for quarterly data review meetings to increase data use at the peripheral level, and production of quarterly bulletins.

PMI will continue to work on strengthening governance and enabling the environment of Burundi health information systems along with the interoperabilization of HIS and the digitalization of malaria interventions.

8.2. Recent Progress (October 2021–September 2022)

At central level:

- Supported the NMCP to organize the malaria SME-OR technical working group meetings at the national level.
- Supported the development and dissemination of the malaria quarterly bulletin.
- Supported a post-training supervision to monitor participants to the 2022 SME training.
- Supported the development of comprehensive supervision tools and Malaria Rapid Data Quality Assessment tools.

At facility level:

- Supported the training of 131 data managers from private and faith-based clinics on the use of DHIS2.
- Supported supervision and Routine Data Quality Assessment in private and faith-based clinics.

The improvement of data quality at facility and district level including data collection, analysis, and reporting remain key challenges. Each level of the health system needs to strengthen the capacity for data use for decision making.

8.3. Plans and Justification with FY 2024 Funding

The [FY 2024 funding tables](#) contain a full list of surveillance, monitoring, and evaluation activities that PMI proposes to support.

HMIS strengthening activities will be focused at the national level and in the 12 provinces and will consist of increasing supervision and quarterly review meetings at private, public, and community level.

- Support the NMCP to configure a data quality review module and a monthly reporting form for private health facility data in DHIS2.
- Support the DHIS2 malaria epidemic preparedness and response dashboard in eight high-burden provinces.
- Support the NMCP to configure the WHO’s Global Malaria Programme module in DHIS2 to help standardize malaria indicators and streamline data analysis and visualization for data use.
- Support the technical capacity of NMCP and SME focal people at provincial and district levels in collection, quality, and use of health data and information to address health priorities gaps and challenges.
- Provide tools to improve the data validation at supported health facilities.
- Support CHW training in data collection and data validation at supported facility level.
- Strengthen data quality and information systems, interoperability of health data systems.
- Support digital transformation of the health sector in accordance with PMI digitalization guidance and national strategy.

Table 4. Available Malaria Surveillance Sources

| Source | Data Collection Activity | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|-------------------------------------------------|--------------------------------------------------|------|------|------|------|------|------|
| Household Surveys | Demographic Health Survey | | | | | | P |
| Household Surveys | Malaria Indicator Survey | | | | | | |
| Household Surveys | Multiple Indicator Cluster Survey | | | | | | |
| Household Surveys | Expanded Program on Immunization Survey | | | | | | |
| Health Facility Surveys | Service Provision Assessment | | | | | | |
| Health Facility Surveys | Service Availability Readiness Assessment survey | | | | | | |
| Health Facility Surveys | Other Health Facility Survey | | | | | P | |
| Malaria Surveillance and Routine System Support | Therapeutic Efficacy Studies | | X* | | P* | | P* |

| | | | | | | | |
|-------------------------------------------------|--------------------------------------------------------------------|----|----|----|----|----|----|
| Malaria Surveillance and Routine System Support | Support to Parallel Malaria Surveillance System | | | | | | |
| Malaria Surveillance and Routine System Support | Support to Health Management Information System | X | X | P | P | P | P |
| Malaria Surveillance and Routine System Support | Support to Integrated Disease Surveillance and Response | X* | X* | P* | P* | P* | P* |
| Malaria Surveillance and Routine System Support | Electronic Logistics Management Information System | | | | | P | |
| Malaria Surveillance and Routine System Support | Malaria Rapid Reporting System | | | | | | |
| Other | End-use Verification Survey | X | X | X | P | P | P |
| Other | School-based Malaria Survey | | | | | | |
| Other | Knowledge, Attitudes and Practices Survey, Malaria Behavior Survey | | | | | P | |
| Other | Malaria Impact Evaluation | | | | | | |
| Other | Entomologic Monitoring Surveys | X | X | X | P | P | P |

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

9. Operational Research and Program Evaluation

9.1. PMI Goal and Strategic Approach

PMI does not plan any Operational Research and Program Evaluation (OR/PE) in Burundi. Because of budget limitations, no PMI-supported OR/PE is ongoing or recently completed.

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

| Source of Funding | Implementing institution | Research Question/Topic | Current status/ timeline |
|-------------------|--------------------------|-------------------------------------------------------------------------------------------------------------------|---------------------------|
| MSF Belgium | MSF Belgium | Impact of indoor residual spraying on malaria morbidity and mortality in Kinyinya and Ryansoro health districts | Ongoing 2022-June 2023 |
| MSF Belgium | MSF Belgium | Socio-anthropological study of the population of Kinyinya and Ryansoro districts regarding malaria interventions. | Ongoing 2022-June 2023 |
| Global Fund | NMCP | Post 2022- ITNs mass campaign evaluation | In preparation |

MSF: Médecins Sans Frontières (Doctors Without Borders); NMCP: National Malaria Control Program.

9.2. Plans and Justification with FY 2024 Funding

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

10. Capacity Strengthening

10.1. PMI Goal and Strategic Approach

PMI's support for capacity strengthening for the National Malaria Program is described in the relevant technical sections of this MOP.

11. Staffing and Administration

The team overseeing PMI in Burundi is led by the USAID Country Representative, consisting of two resident advisors representing USAID and CDC and three locally hired experts known as Foreign Service Nationals with expertise in malaria, program quality and supply chain, and data. Additionally, the team is supported by cross-cutting staff, including the health team lead, one monitoring and evaluation specialist, one program management specialist in charge of supply chain/laboratory, and one program management assistant. The PMI team works together to oversee all technical and administrative aspects of PMI, including finalizing details of the project design, implementing malaria prevention and treatment activities, monitoring and evaluation of outcomes, reporting of results, and providing guidance and direction to PMI implementing partners.

ANNEX: GAP ANALYSIS TABLES

Table A-1. ITN Gap Analysis Table

| Calendar Year | 2023 | 2024 | 2025 |
|------------------------------------------------|------------------------------------------------|-------------------------------|-------------------------------|
| Total country population | 13,097,306 | 13,351,953 | 13,615,721 |
| Total population at risk for malaria | 13,097,306 | 13,351,953 | 13,615,721 |
| PMI-targeted at-risk population | 13,097,306 | 13,351,953 | 13,615,721 |
| Population targeted for ITNs | 1,933,261 | 1,970,910 | 2,029,218 |
| Continuous Distribution Needs | | | |
| Channel 1: ANC | 589,379 | 600,838 | 612,707 |
| Channel 1: ANC Type of ITN | Dual AI and Single Pyrethroid | Dual AI and Single Pyrethroid | Dual AI and Single Pyrethroid |
| Channel 2: EPI | 424,353 | 432,603 | 441,149 |
| Channel 2: EPI Type of ITN | | | Dual AI and Single Pyrethroid |
| Channel 3: School | | | 0 |
| Channel 3: School Type of ITN | | | |
| Channel 4: Community | 171,683 | 175,803 | 180,023 |
| Channel 4: Community Type of ITN | | | Single Pyrethroid |
| Channel 5: | | | |
| Channel 5: Type of ITN | | | |
| Estimated total need for continuous channels | 1,185,414 | 1,209,244 | 1,233,880 |
| Mass Campaign Distribution Needs | | | |
| Mass distribution campaigns | | | 7,558,446 |
| Mass distribution ITN type | All three (Dual AI, PBO and Single Pyrethroid) | | Dual AI and Single Pyrethroid |
| Estimated total need for campaigns | | | 7,558,446 |
| Total ITN Need: Continuous and Campaign | 1,185,414 | 1,209,244 | 8,792,326 |
| Partner Contributions | | | |
| ITNs carried over from previous year | 673,152 | 1,313,262 | 1,137,448 |
| ITNs from Government | 0 | 0 | 0 |
| Type of ITNs from Government | | | |
| ITNs from Global Fund | 171,683 | 0 | 0 |
| Type of ITNs from Global Fund | Dual AI and PBO | Dual AI and PBO | Dual AI and Single Pyrethroid |
| ITNs from other donors | 0 | 0 | 0 |
| Type of ITNs from other donors | | | |
| ITNs planned with PMI funding | 1,653,841 | 1,033,431 | 1,053,857 |
| Type of ITNs with PMI funding | All three (Dual AI, PBO and Single Pyrethroid) | Dual AI and PBO | Dual AI and Single Pyrethroid |

| | | | |
|--------------------------------------------------|-------------------|-------------------|-----------------------|
| Total ITNs Contribution Per Calendar Year | 2,498,676 | 2,346,693 | 2,191,305 |
| Total ITN Surplus (Gap) | 1,313,262 | 1,137,448 | (6,601,020.65) |
| Ending balance | 1,313,262 | 1,137,448 | -6,601,021 |
| Desired end of year stock (months of stock) | 6 | 6 | 6 |
| Desired end of year stock (quantities) | 506,866 | 516,721 | 526,928 |
| Total ITN Surplus (Gap) | 806,395.77 | 620,727.77 | (7,127,949.05) |

AI: active ingredient; ANC: antenatal care; EPI: expanded program on immunization; ITN: insecticide-treated mosquito net.

Table A-2. RDT Gap Analysis Table

| Calendar Year | 2023 | 2024 | 2025 |
|--------------------------------------------------|-------------------|--------------------|--------------------|
| Total country population | 13,097,306 | 13,351,953 | 13,615,721 |
| Population at risk for malaria | 13,097,306 | 13,351,953 | 13,615,721 |
| PMI-targeted at-risk population | 13,097,306 | 13,351,953 | 13,615,721 |
| RDT Needs | | | |
| Total # of projected suspected malaria cases | 7,884,290 | 12,631,876 | 12,281,968 |
| % of Suspected malaria cases tested with an RDT | 80% | 80% | 80% |
| RDT Needs (tests) | 6,332,432 | 10,130,501 | 9,852,264 |
| Needs estimated based on HMIS data | | | |
| Partner Contributions (tests) | | | |
| RDTs from Government | 716,875 | 0 | 0 |
| RDTs from Global Fund | 12,721,325 | 0 | 0 |
| RDTs from other donors | 0 | 0 | 0 |
| RDTs planned with PMI funding | 904,075 | 4,026,100 | 1,600,000 |
| Total RDT Contributions per Calendar Year | 14,342,275 | 4,026,100 | 1,600,000 |
| Stock Balance (tests) | | | |
| Beginning balance | 1,314,625 | 9,324,468 | 3,220,067 |
| - Product need | 6,332,432 | 10,130,501 | 9,852,264 |
| + Total contributions (received/expected) | 14,342,275 | 4,026,100 | 1,600,000 |
| Ending Balance | 9,324,468 | 3,220,067 | (5,032,197) |
| Desired end of year stock (months of stock) | 6 | 6 | 6 |
| Desired end of year stock (quantities) | 3,166,216 | 5,065,250 | 4,926,132 |
| Total Surplus (Gap) | 6,158,252 | (1,845,183) | (9,958,329) |

HMIS: health management information system; RDT: rapid diagnostic test.

Table A-3. ACT Gap Analysis Table

| Calendar Year | 2023 New | 2024 New | Reprogram- ing FY2024 | 2025 New |
|---------------------------------------------------|------------------|--------------------|--------------------------|--------------------|
| Total country population | 13,097,306 | 13,351,953 | 13,351,953 | 13,615,721 |
| Population at risk for malaria | 13,097,306 | 13,351,953 | 13,351,953 | 13,615,721 |
| PMI-targeted at-risk population | 13,097,306 | 13,351,953 | 13,351,953 | 13,615,721 |
| ACT Needs | | | | |
| Total projected # of malaria cases | 5,704,847 | 7,312,051 | 7,312,051 | 7,109,504 |
| Total ACT Needs (treatments) | 5,687,162 | 7,289,384 | 7,289,384 | 7,087,465 |
| Needs estimated based on HMIS data | | | | |
| Partner Contributions (treatments) | | | | |
| ACTs from Government | 426,144 | 0 | 0 | 0 |
| ACTs from Global Fund | 6,968,310 | 0 | 0 | 0 |
| ACTs from other donors | 550,800 | 0 | 0 | 0 |
| ACTs planned with PMI funding | 962,730 | 1,002,120 | 1,902,741 | 1,209,551 |
| Total ACTs Contributions per Calendar Year | 8,907,984 | 1,002,120 | 1,902,741 | 1,209,551 |
| Stock Balance (treatments) | | | | |
| Beginning balance | 1,616,780 | 4,837,602 | | 0 |
| - Product need | 5,687,162 | 7,289,384 | | 7,087,465 |
| + Total contributions (received/expected) | 8,907,984 | 1,002,120 | | 1,209,551 |
| Ending Balance | 4,837,602 | (1,449,662) | 0 | (5,877,914) |
| Desired end of year stock (months of stock) | 6 | 6 | | 6 |
| Desired end of year stock (quantities) | 2,843,581 | 3,644,692 | | 3,543,732 |
| Total Surplus (Gap) | 1,994,021 | (5,094,353) | 0 | (9,421,646) |

ACT: artemisinin-based combination therapy; HMIS: health management information system.

Table A-4. Injectable Artesunate Gap Analysis Table

| Calendar Year | 2023 | 2024 | 2025 |
|--------------------------------------------------------------------|----------------|--------------------|--------------------|
| Injectable Artesunate Needs | 2.16% | | |
| Projected # of severe cases | 123,279 | 158,009 | 153,632 |
| Projected # of severe cases among children | 72,241 | 92,593 | 90,028 |
| Average # of vials required for severe cases among children | | 5 | 5 |
| Projected # of severe cases among adults | 51,038 | 65,416 | 63,604 |
| Average # of vials required for severe cases among adults | 12 | 12 | 12 |
| Total Injectable Artesunate Needs (vials) | 612,450 | 1,247,955 | 1,213,386 |
| Needs estimated based on HMIS data | | | |
| Partner Contributions (vials) | | | |
| Injectable artesunate from Government | | | |
| Injectable artesunate from Global Fund | 0 | 0 | 0 |
| Injectable artesunate from other donors | 0 | 0 | 0 |
| Injectable artesunate planned with PMI funding | 0 | 0 | 0 |
| Total Injectable Artesunate Contributions per Calendar Year | 0 | 0 | 0 |
| Stock Balance (vials) | | | |
| Beginning balance | 1,206,192 | 390,024 | 0 |
| - Product need | 612,450 | 1,247,955 | 1,213,386 |
| + Total contributions (received/expected) | 0 | 0 | 0 |
| Ending Balance | 593,742 | (857,931) | (1,213,386) |
| Desired end of year stock(months of stock) | 6 | 6 | 6 |
| Desired end of year stock (quantities) | 306,225 | 623,978 | 606,693 |
| Total Surplus (Gap) | 287,517 | (1,481,909) | (1,820,078) |

HMIS: health management information system.

Table A-5. RAS Gap Analysis Table

| Calendar Year | 2023 | 2024 | 2025 |
|--------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------------|-----------------|
| Artesunate Suppository Needs | 8.00% | 8% | |
| # of severe cases expected to require pre-referral dose (or expected to require pre-referral dose based on # of providers for the service) | 5,779 | 7,407 | 7,202 |
| Total Artesunate Suppository Needs (suppositories) | 5,779 | 7,407 | 7,202 |
| Needs estimated based on HMIS data | | | |
| Partner Contributions (suppositories) | | | |
| Artesunate suppositories from Government | 0 | 0 | 0 |
| Artesunate suppositories from Global Fund | 17,328 | 0 | 0 |
| Artesunate suppositories from other donors | 0 | 0 | 0 |
| Artesunate suppositories planned with PMI funding | 0 | 0 | 0 |
| Total Artesunate Suppositories Available | 17,328 | 0 | 0 |
| Stock Balance (suppositories) | | | |
| Beginning balance | 1,710 | 13,259 | 0 |
| - Product need | 5,779 | 7,407 | 7,202 |
| + Total contributions (received/expected) | 17,328 | 0 | 0 |
| Ending Balance | 13,259 | 5,851 | (7,202) |
| Desired end of year stock (months of stock) | 6 | 6 | 6 |
| Desired end of year stock (quantities) | 2,890 | 3,704 | 3,601 |
| Total Surplus (Gap) | 10,369 | 2,147 | (10,803) |

HMIS: health management information system; RAS: rectal artesunate suppositories.

Table A-6. SP Gap Analysis Table

| Calendar Year | 2023 | 2024 | 2025 |
|-------------------------------------------------|------------------|--------------------|--------------------|
| Total Country Population | 13,097,399 | 13,353,053 | 13,615,721 |
| Total Population at Risk for Malaria | 13,097,399 | 13,353,053 | 13,615,721 |
| PMI Targeted at Risk Population | 13,097,399 | 13,353,053 | 13,615,721 |
| SP Needs | | | |
| Total # of Pregnant women | 654,870 | 667,653 | 680,238 |
| % of Pregnant women expected to receive IPTp1 | 83.50% | 84.50% | 86.50% |
| % of Pregnant women expected to receive IPTp2 | 73.30% | 74.30% | 75.30% |
| % of Pregnant women expected to receive IPTp3 | 60% | 61% | 62% |
| % of Pregnant women expected to receive IPTp4+ | 35% | 45% | 50% |
| Total SP Needs (doses) | 1,646,998 | 1,765,941 | 1,860,452 |
| Needs estimated based on HMIS data | | | |
| Partner Contributions (doses) | | | |
| SP from Government | 0 | 0 | 0 |
| SP from Global Fund | 1,238,367 | 0 | 0 |
| SP from other donors | 0 | 0 | 0 |
| SP planned with PMI funding | 0 | 0 | 0 |
| Total SP Contributions per Calendar Year | 1,238,367 | 0 | 0 |
| Stock Balance (doses) | | | |
| Beginning balance | 838,767 | 430,135 | 0 |
| - Product need | 1,646,998 | 1,765,941 | 1,860,452 |
| + Total contributions (received/expected) | 1,238,367 | 0 | 0 |
| Ending Balance | 430,135 | (1,335,806) | (1,860,452) |
| Desired end of year stock (months of stock) | 6 | 6 | 6 |
| Desired end of year stock (quantities) | 823,499 | 882,971 | 930,226 |
| Total Surplus (Gap) | (393,364) | (2,218,776) | (2,790,678) |

HMIS: health management information system; SP: sulfadoxine-pyrimethamine.