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Zimbabwe

Malaria Operational Plan FY 2024

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This Fiscal Year (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.

CONTENTS

ABBREVIATIONS

ACT	Artemisinin-based combination therapy
AL	Artemether-lumefantrine
ANC	Antenatal care
API	Annual parasite Index
CAC	Community Action Cycle
CDSC	Community Distribution Services Center
CHW	Community health worker
DHIS2	District Health Information System 2
DHS	Demographic and Health Survey
DPS	Department of Pharmaceutical Services
EHR	Electronic health records
EPI	Expanded Program on Immunization
EPR	Epidemic preparedness and response
EUV	End-user verification
FY	Fiscal year
Global Fund	Global Fund to Fight AIDS, Tuberculosis and Malaria
HMIS	Health Management Information System
IPTp	Intermittent preventive treatment for pregnant women
IRS	Indoor residual spraying
ITN	Insecticide-treated net
LSM	Larval source management
MIP	Malaria in pregnancy
MIS	Malaria Indicator Survey
MoHCC	Ministry of Health and Child Care
MOP	Malaria Operational Plan
MSBCS	Malaria Social Behavioral Change Strategy
NIHR	National Institute for Health Research
NMCESP	National Malaria Control and Elimination Strategic Plan
NMCP	National Malaria Control Program
OR	Operational research
PMI	U.S. President’s Malaria Initiative
RAS	Rectal artesunate suppository
RDT	Rapid diagnostic test
SBC	Social and behavior change
SM&E	Surveillance, monitoring, and evaluation
SP	Sulfadoxine-pyrimethamine
TES	Therapeutic efficacy study

TWG	Technical working group
USAID	U.S. Agency for International Development
VHW	Village health worker
WHO	World Health Organization
ZAPIM II	Zimbabwe Assistance Program in Malaria II

EXECUTIVE SUMMARY

To review specific country context for Zimbabwe, please refer to the country malaria profile located on PMI's country team landing page, which provides an overview of the country malaria situation, key indicators, the NMP strategic plan, and the partner landscape.

U.S. President's Malaria Initiative

Launched in 2005, the U.S. President's Malaria Initiative (PMI) supports implementation of malaria prevention and treatment measures as well as cross-cutting interventions. PMI's 2021–2026 strategy, *End Malaria Faster*, envisions a world free of malaria within our generation with the goal of preventing malaria cases, reducing malaria deaths and illness, and eliminating malaria in PMI partner countries. PMI currently supports 27 countries in Sub-Saharan Africa and 3 programs across the Greater Mekong Subregion (GMS) in Southeast Asia to control and eliminate malaria. Zimbabwe began implementation as a PMI partner country in fiscal year (FY) 2011.

Rationale for PMI's Approach in Zimbabwe

PMI/Zimbabwe supports the full range of priority intervention areas outlined in the PMI 2021–2026 strategy, *End Malaria Faster,* and coordinates closely with the National Malaria Control Program (NMCP) and Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund) to ensure that support complements implementation of Zimbabwe's 2021–2026 National Malaria Control and Elimination Strategic Plan (NMCESP). Taking into consideration NMCP's strategic direction, PMI has shifted in recent years by reducing funding for indoor residual spraying (IRS); increasing funding for insecticide-treated net (ITN) procurement and distribution; targeting additional resources for case management and malaria in pregnancy (MIP) strengthening, particularly at the community level; increasing funding for social and behavior change (SBC), surveillance, monitoring, and evaluation (SM&E), and elimination activities; and working to build in-country capacity through an award to a local private university. This strategic shift, as well as PMI's in-country program implementation approach, align with the objectives of the PMI 2021–2026 strategy as they emphasize the strengthening of community health systems, investment in local capacity strengthening, the protection of hard-to-reach populations, and adaption to keep malaria services resilient to shocks.

Overview of Planned Interventions

The proposed FY 2024 PMI funding for Zimbabwe is $14 million. PMI will support the following intervention areas with these funds:

1. Vector Monitoring and Control

PMI supports NMCP's vector monitoring and control objectives as outlined in the 2021–2026 NMCESP. In recent years, PMI has shifted IRS resources toward ITNs and invested in entomological monitoring through direct support to a local entity. Using FY 2024 funding, PMI

will continue to provide technical assistance for IRS implementation at the central level and in selected districts and will direct substantial resources toward the procurement and distribution of ITNs for both mass campaign and continuous channels. PMI will continue to conduct and strengthen entomological monitoring through a PMI-supported laboratory and insectary, support established longitudinal monitoring sites, and strengthen field collection skills in select provinces with high malaria burdens. Finally, in response to prioritization by NMCP, PMI will support the procurement and distribution of topical repellents to mitigate outdoor biting, particularly of hard-to-reach populations, which is hindering malaria elimination efforts.

2. Malaria in Pregnancy

PMI supports NMCP's MIP service delivery strengthening efforts through procurement and distribution of sulfadoxine-pyrimethamine (SP) as needed; provision of technical assistance and policy support at the central level; and support for training, supervision, and mentoring at the facility and community levels in the 12 districts in Zimbabwe with the highest malaria burdens. Using FY 2024 funding, PMI will continue these activities in the same geographic locations. PMI will also continue to collaborate with NMCP, the Global Fund, the Department of Pharmaceutical Services (DPS), and other partners to coordinate procurement and delivery schedules to ensure appropriate stock levels of SP at service delivery points. Based on the most recent national quantification estimates, the procurement pipeline has adequate SP stocks to cover needs through calendar year 2025. Therefore, PMI does not plan to procure SP with FY 2024 funding but will continue to support SP distribution to facilities in all intermittent preventive treatment for pregnant women (IPTp) target areas. PMI will continue to work with village health workers (VHWs) to promote early antenatal care (ANC) attendance and IPTp uptake.

3. Drug-Based Prevention

PMI does not support seasonal malaria chemoprevention or other drug-based prevention in Zimbabwe.

4. Case Management

PMI supports NMCP's efforts to strengthen case management through the procurement and distribution of commodities as needed; support for national-level policy and programmatic activities; and support for facility- and community-level case management service delivery strengthening in the 12 districts in Zimbabwe with the highest malaria burdens and one elimination district. PMI support includes the provision of technical assistance, training, supportive supervision (supportive supervision), mentoring, death audits, policy and guideline revision, and other activities. Using FY 2024 funding, PMI will continue these activities in the same geographic locations. PMI will also continue to collaborate with NMCP, the Global Fund, DPS, and other partners to coordinate procurement and delivery schedules to ensure appropriate stock levels of case management commodities at service delivery points and with the VHWs. Based on the most recent national quantification estimates, PMI plans to procure 1

million malaria rapid diagnostic tests (RDTs) to fully meet the projected need and 50,000 vials of parenteral artesunate. There are no projected gaps for artemisinin-based combination therapies (ACTs), so PMI will not plan to procure these commodities but will monitor the pipeline and adjust as needed.

5. Health Supply Chain and Pharmaceutical Management

PMI supports NMCP's strategy to ensure that quality-assured malaria commodities are consistently available to contribute toward progress in malaria control and elimination through central- and national-level support. With FY 2024 funding, PMI will continue to work with the Ministry of Health and Child Care (MoHCC) to address the discrepancy between cases and reported consumption of commodities through implementation of monthly data quality reviews and mentorship. PMI also provides technical assistance for improved forecasting and supply planning processes and routine monitoring of stock levels. The semiannual end-user verification (EUV) exercise provides insights to shape specific interventions. PMI strengthens the full supply chain, providing technical assistance for warehousing and distribution and provision of trucks and drivers for the first-party logistics model. Increasing insight into community stock levels is a top priority due to the high percentage of cases identified and treated by community health workers (CHWs). PMI will provide technical assistance and funding to continue the rollout of a revised health commodity community distribution system, designed to provide disaggregated data between health facility and community levels.

6. Social and Behavior Change

PMI's SBC support is fully aligned with the 2021 Malaria Social Behavior Change Strategy (MSBCS) and contributes to the attainment of NMCP's SBC objectives from the national to the community level. At all levels, PMI works to strengthen capacity for evidence-based SBC implementation to increase appropriate behaviors related to key malaria interventions. Using FY 2024 funding, PMI will continue to support NMCP's SBC efforts at the national/ provincial levels and at the district, ward, and community levels in the 12 districts in Zimbabwe with the highest burdens. PMI will also continue to provide support for SBC in the elimination context in Seke district and, given the limited resources for SBC in elimination areas, PMI will provide enhanced central-level support to NMCP for this aspect.

7. Surveillance, Monitoring, and Evaluation

PMI supports NMCP's SM&E strengthening efforts through central-level support for planning and policy, including support for population-based surveys. PMI also supports provincial-, district-, and health-facility–level support to strengthen routine malaria SM&E and epidemic preparedness and response in the 12 highest burden malaria districts, as well as SM&E strengthening for elimination activities at the central level and in one district (Seke) implementing malaria elimination activities. Using FY 2024 funds, PMI will continue these activities in the same geographic areas to ensure that high-quality and timely data are available to inform programmatic decision making.

8. Operational Research and Program Evaluation

Historically, PMI has not provided substantial support for operational research (OR) activities in Zimbabwe. However, PMI has provided financial and technical support for multiple NMCP-led program evaluation activities to provide critical, targeted evidence for programmatic decision making. PMI has continued to engage with NMCP, the National Institute for Health Research (NIHR), and other stakeholders to encourage the development of a structured process for the identification and prioritization of malaria OR activities. PMI does not intend to fund any OR or PE activities using FY 2024 funds. Given the lack of a structured approach for OR activities in Zimbabwe, PMI will provide technical support to in-country program evaluation activities as information needs dictate.

9. Capacity Strengthening

Given the limited overall health resources and the ongoing deterioration of the health system and economic situation in Zimbabwe, PMI strives to support NMCP's efforts to develop strong leadership and an enabling environment at all levels of the health system. Currently PMI leverages this support through its implementing partners due to restrictions regarding direct government-to-government support. PMI capacity strengthening support includes training, supportive supervision, mentoring, small-scale material support, and many other activities covered under other programmatic areas. PMI also supports the secondment of a technical officer to the DPS and the placement of provincial coordinators in PMI-supported provinces. PMI will continue these activities using FY 2024 funds listed under other programmatic areas. However, no dedicated funding will be included under capacity strengthening.

10. Malaria Elimination

In the past, PMI has provided limited technical and financial support for NMCP's malaria elimination agenda at the central level and in selected districts. Zimbabwe has 32 districts currently implementing subnational malaria elimination activities. Elimination activities include case-based surveillance through a separate District Health Information System-2 (DHIS2) module; case, foci, and entomological investigations; and targeted SBC messaging to ensure timely care seeking and consistent use of preventive interventions, and to promote understanding of and participation in active case finding. Due to resource limitations, these activities are not implemented optimally, and additional investments are needed. PMI plans to continue support for elimination activities at the central level and in Seke District in Mashonaland East using FY 2024 funding, with a greater emphasis on strengthening SM&E for elimination.

I. CONTEXT & STRATEGY

1. Introduction

Zimbabwe began implementation as a U.S. President's Malaria Initiative (PMI) partner country in fiscal year (FY) 2011. This FY 2024 Malaria Operational Plan (MOP) presents a detailed implementation plan for Zimbabwe, based on the strategies of PMI and the National Malaria Control Program (NMCP). It was developed in consultation with NMCP and with the participation of national and international partners. PMI is proposing activities that build on partner investments to improve and expand malaria-related services, including investments by the Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund). This document provides an overview of strategies and interventions in Zimbabwe, describes progress to date, identifies challenges and relevant contextual factors, and describes 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, NMCP strategic plan, and the partner landscape.

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

PMI is led by the United States Agency for International Development (USAID) and implemented with the U.S. Centers for Disease Control and Prevention. Launched in 2005, PMI supports the implementation of malaria prevention and treatment measures such as insecticide-treated nets (ITNs), indoor residual spraying (IRS), accurate diagnosis and prompt treatment with artemisinin-based combination therapies (ACTs), intermittent preventive treatment for pregnant women (IPTp), and drug-based prevention, as well as cross-cutting interventions such as surveillance, monitoring, and evaluation (SM&E); social and behavior change (SBC); and capacity strengthening. PMI's 2021–2026 strategy, *End Malaria Faster*, envisions a world free of malaria in our generation, with the goal of preventing malaria cases, reducing malaria deaths and illness, and eliminating malaria in PMI partner countries. PMI currently supports 27 countries in Sub-Saharan Africa and 3 programs in the Greater Mekong Subregion (GMS) in Southeast Asia to control and eliminate malaria. Over the next five years, PMI aims to save lives, reduce health inequities, and improve disease surveillance and global health security.

Under the strategy, and building on progress already made in PMI-supported countries, PMI will work with national malaria control programs and partners to accomplish the following objectives by 2026:

1. Reduce malaria mortality by 33 percent from 2015 levels in high-burden PMI partner countries, achieving a greater than 80 percent reduction from 2000.
2. Reduce malaria morbidity by 40 percent from 2015 levels in PMI partner countries with high and moderate malaria burden.

3. Bring at least 10 PMI partner countries toward national or subnational elimination and assist at least one country in the Greater Mekong Subregion to eliminate malaria.

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

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

3. Rationale for PMI's Approach in Zimbabwe

3.1. Malaria Overview for Zimbabwe

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

Zimbabwe experiences a wide spectrum of malaria transmission intensity, with seasonal and geographic variation that corresponds closely with rainfall patterns and topography. Although transmission is perennial in malarious areas, seasonal increases occur annually, with the majority of transmission occurring during or just after the November-to-April rainy season. Geographically, Zimbabwe is divided by a central watershed lying higher than 1,200 meters above sea level, which is flanked to the north, east, and south by low-lying areas. This variability in elevation (and therefore temperature), combined with geographic variability in average annual rainfall, results in higher malaria transmission in the northern and eastern border regions, with more limited transmission in the central and southwestern portions of the country. This pattern has remained consistent over recent years, with the three northern and eastern provinces of Mashonaland Central, Mashonaland East, and Manicaland accounting for approximately 75 percent of the reported annual malaria case load (District Health Information System-2 [DHIS2]).

At the national level, annual malaria incidence per 1,000 population has decreased substantially over the last nearly two decades, from 153 in 2004 to 9 in 2022. Much of this progress occurred prior to the initiation of PMI in 2011. In the subsequent years, a pattern of cyclical increases and decreases in malaria incidence has emerged (range: 9–39), with a slight downward trend over time. From 2012 to 2022, the percentage of total reported malaria cases that occurred among children under five years of age ranged from approximately 9 percent to 16 percent. In recent years, a trend toward increased malaria diagnosis and treatment at the community level has been recorded. This trend continued in 2022, with 56 percent of malaria

cases reported by community health workers (CHWs) compared with 44 and 55 percent in 2021 and 2022, respectively (DHIS2).

Despite national-level rainfall patterns consistent with those seen during years of higher transmission, in 2021 and 2022, the annual malaria incidence rates were the lowest ever recorded in Zimbabwe. This decreased transmission was temporally associated with the COVID-19 pandemic, particularly in 2021, and the corresponding restrictions that were enacted for much of the year. PMI has assessed the extent to which various factors affected malaria transmission in 2021, such as the timing and geographic distribution of rainfall, decreased access to care (all-cause outpatient department consultations dropped dramatically during this period), limited or incomplete reporting at the community- and health-facility level, and decreased in-country travel. The results of this assessment suggest that, although some of these factors may have contributed to a decrease in care seeking and reporting, there was likely an actual decrease in malaria incidence compared with previous years.

Plasmodium falciparum accounts for more than 98 percent of all reported malaria cases, with *Plasmodium ovale* and *Plasmodium malariae* accounting for the remainder. PMI-supported entomological monitoring has identified *Anopheles (An.) gambiae s.l.* and *An. funestus s.l.* as the principal malaria vectors, with one or the other predominating, depending on the site monitored. *An. gambiae s.l.* remains susceptible to most insecticides at most sites, but resistance to DDT, alpha-cypermethrin, deltamethrin, and permethrin has been noted at selected sites in recent years. *An. gambiae s.l.* was susceptible to clothianidin and chlorfenapyr. It has proven difficult to collect sufficient *An. funestus* larvae to conduct insecticide resistance assays, and no recent testing has been carried out with *An. funestus*.

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

3.2. Key Challenges and Contextual Factors

Overall progress toward malaria control and elimination in Zimbabwe has been slowed over the past decade by a combination of contextual and programmatic factors. Social, political, and economic hardships have continued in Zimbabwe, creating an extremely challenging operating environment for PMI, NMCP, and partners. This already difficult situation was complicated by the COVID-19 pandemic and associated mitigation measures, including restrictions imposed to limit the spread of the virus that resulted in delays and curtailment of malaria interventions. The pandemic dramatically worsened an already deteriorating human resources situation in the health sector, which has been marked by repeated and prolonged health care worker strikes, low health care worker morale, and loss or expatriation of substantial numbers of qualified health care workers. These human resource issues, combined with substantial resource limitations in the health care sector and the deterioration of physical infrastructure, have decreased access to quality care for many Zimbabweans. Within NMCP, the long-standing malaria program director resigned from his post in late 2021. As of June 2023, a permanent replacement has not been identified, with the deputy director elevated to the acting director role.

PMI, NMCP, and partners have also faced a number of programmatic challenges:

- Persistent hyperinflation and frequently changing economic policies and banking regulations make program implementation increasingly complex and costly, and often result in scarcity of basic resources, particularly fuel.
- Dramatic health care worker attrition has made it more difficult for NMCP and partners to ensure that health care workers are adequately trained to provide high-quality malaria case management.
- Logistical and financial issues continue to affect the quality, timeliness, and coverage of IRS implemented by the Zimbabwe government; IRS is the primary prevention intervention in the districts with the highest malaria burdens.
- The quality and quantity of information required for programmatic decision making remains inadequate, as is the data transparency and sharing of the Ministry of Health and Child Care (MoHCC). Information gaps persist in several key areas, including:
    - Entomological monitoring: Zimbabwe still lacks a national plan, and longitudinal data remain limited to PMI-supported sites;
    - Household-level ITN and SBC indicators: The proposed 2022 Demographic and Health Survey (DHS), originally planned for 2020, was postponed until late 2023 due to factors beyond the control of PMI and NMCP. The last malaria indicator survey was conducted in 2016, and the follow up is now being planned for 2025;
    - Therapeutic efficacy monitoring: Despite PMI advocacy and offers of funding, Zimbabwe has not implemented a quality therapeutic efficacy study (TES) in recent years; and
    - Routine health management information system (HMIS) and logistics management information system data: Despite PMI and NMCP efforts, data quality remains suboptimal, and the capacity for data analysis and use is limited, particularly at the peripheral levels of the health care system.
- Planning and implementation of SBC interventions has stalled in recent years, and enhanced support and effort are needed in this area.
- Resource limitations have hampered efforts to fully implement elimination activities in targeted districts.
- Outdoor lifestyles and livelihoods of special populations in Zimbabwe's higher malaria burden areas (e.g., streambank cultivators, farmers protecting crops, tobacco curers, fishermen/women, artisanal miners, individuals living in border communities and members of certain religious sects) have limited the impact of traditional vector control interventions in some areas.

Despite these challenges, the relationship between PMI and NMCP remains relatively strong, and malaria stakeholders are optimistic that the disease burden can continue to be decreased by building on recent achievements and positive enabling factors. For example, PMI/Zimbabwe has a follow-on agreement for its flagship service delivery mechanism and a new agreement for a local partner to build entomological monitoring capacity, positioning PMI to support a wide range of critical interventions. There are also opportunities to build on novel implementation

approaches developed during the COVID-19 pandemic, such as virtual mentoring, supportive supervision, and improved community-based distribution of ITNs. Finally, the next Global Fund grant application was drafted and submitted in mid 2023, which provided an opportunity for stakeholders to reassess strategic priorities and fill resource gaps.

3.3. PMI's Approach for Zimbabwe

The vision of the Zimbabwe 2021–2026 National Malaria Control and Elimination Strategic Plan (NMCESP) is to achieve a malaria-free Zimbabwe, with the goal of reducing malaria incidence to 15 cases per 1,000 population and malaria deaths by at least 90 percent by 2026. To achieve this, NMCP supports the following major intervention areas: vector control; malaria case management; malaria in pregnancy (MIP), including IPTp; SBC; SM&E; malaria elimination; and malaria program management. These strategies and interventions closely align with those currently prioritized by PMI. Notable exceptions include NMCP's promotion and implementation of larval source management (LSM) outside of the malaria elimination context and the national policy recommending prereferral rectal artesunate for all age groups.

Administratively, Zimbabwe is divided into 10 provinces (administrative level 1), with further division into 62 districts (administrative level 2). NMCP provides two different malaria intervention packages depending on the level of transmission reported at the district level. Those with an incidence of less than 5 cases per 1,000 consistently over a three-year period have been transitioned to a package of elimination activities. This currently applies to 32 districts, primarily located in the higher elevation areas in the central and southwestern parts of the country. The remaining 30 districts receive the standard prevention and control package.

As one of two primary malaria donors in Zimbabwe, PMI coordinates closely with NMCP and Global Fund to ensure complementary support for implementation of the 2021–2026 NMCESP. PMI provides financial and technical assistance for the full range of PMI priority intervention areas. PMI directs portions of this support to the central and national levels (e.g., technical assistance to central-level MoHCC staff and procurement of malaria commodities for nationwide distribution), while targeting other components directly to the provincial, district, and community levels (e.g., aspects of malaria case management, SBC, and SM&E). Despite substantial overlaps in the general intervention areas funded by PMI and Global Fund, each generally targets specific activities by geography, more detailed content areas, or support type (e.g., implementation support versus technical assistance). For instance, PMI and Global Fund both support ITN distribution but in different geographic areas, with PMI providing technical assistance nationwide. Similarly, PMI's support for service delivery strengthening targets the 12 districts with the highest malaria burdens and one elimination district, and Global Fund supports the remaining districts. One notable exception is that both PMI and Global Fund procure and distribute malaria case management commodities through Zimbabwe's national pooled supply chain management and distribution system.

In light of the key challenges detailed above, and considering NMCP's strategic direction to rely more heavily on ITNs for malaria prevention, PMI/Zimbabwe has made a substantial strategic shift over the last three planning cycles. Specifically, PMI reduced funding for IRS and moved from direct implementation support to a technical assistance model; increased funding for ITN procurement and distribution; targeted additional resources for case management strengthening, particularly at the community level; and increased funding for SBC and SM&E strengthening. Although PMI continues to direct resources primarily to areas with high malaria burdens, PMI has also slightly increased the level of support for elimination activities, with a focus on strengthening capacity at the central level and in one district (Seke) that more recently transitioned from control to elimination status. Finally, to build local capacity and increase the quality and quantity of entomological monitoring data, PMI awarded a three-year agreement to a local private university with whom PMI has partnered in recent years.

This strategic shift is well aligned with the objectives of the PMI 2021–2026 strategy as it emphasizes the strengthening of community health systems, particularly for malaria case management and MIP services, and invests additional resources in a local partner. These and other aspects of the PMI 2021–2026 strategy will be further addressed during program implementation, including identifying and targeting interventions to special, hard-to-reach populations; identifying and collaborating with local community and faith-based organizations already working in PMI-supported areas; and adapting programming to keep malaria services resilient to shocks, including COVID-19 and the continued economic issues in Zimbabwe.

3.4. Key Changes in this MOP

PMI Zimbabwe intends to continue the support model and strategic direction outlined above with the addition of small-scale procurement, distribution, and promotion of use of topical repellents to protect special, hard-to-reach populations heavily involved in outdoor activities during peak biting hours. Protecting these populations, who are at increased transmission risk and not easily protected by traditional vector control interventions, is a key priority for NMCP and an important step toward reducing the reservoir of malaria transmission and progressing toward malaria elimination in Zimbabwe. The 2021–2026 NMCESP already includes the provision and use of topical repellents as a possible vector control intervention; however, this intervention has not been systematically implemented thus far due to a lack of resources.

II. OPERATIONAL PLAN FOR FY 2024

1. Vector Monitoring and Control

1.1. PMI Goal and Strategic Approach

As outlined in the 2021–2026 NMCESP, NMCP promotes an integrated vector management strategy, including vector surveillance, insecticide resistance management, continuous and mass distribution of ITNs, geographically targeted IRS, LSM, and distribution and promotion of topical repellent use. NMCP designates IRS and ITN distribution as the core vector control interventions, with the others playing a complementary role.

Zimbabwe currently deploys IRS in wards (administrative level 3) with an annual parasite index (API) of 5 per 1,000 population or greater. Rotation of insecticides is indicated after two years of consecutive use, and insecticides with different modes of action should be alternated, taking into consideration the available vector resistance data and global guidelines. Over the course of the 2021–2023 Global Fund grant cycle, NMCP will continue to reduce the number of districts with wards receiving IRS incrementally, from the 31 districts sprayed in 2021 to 23 districts in 2023. According to the new Global Fund cycle (2024–2026), which is not yet approved, NMCP plans to further reduce the number of IRS districts in 2024 (number of districts still to be negotiated). Districts no longer receiving IRS will be transitioned to ITN distribution. This decision was driven by declining incidence in some areas, the increasing costs of IRS implementation, a decrease in the malaria funding envelope for the 2024–2026 Global Fund grant, and a growing appreciation of the value of ITNs as a vector control intervention in Zimbabwe.

Zimbabwe deploys ITNs in wards with an API of less than 5 per 1,000 population. Theoretically, IRS is scaled back and ITN distribution is introduced as the API reaches this ITN target range; however, in practice, some higher burden wards also receive ITNs and the number will likely increase during the 2024–2026 Global Fund grant period. In some cases, ITNs are also distributed to specific communities in IRS-designated areas. For example, both IRS and ITNs may be used where community members live in an area with a mix of sprayable and unsprayable structures or predominantly sleep outside. NMCP employs a mixed model of ITN distribution, including mass campaigns every three years and occasional mini-mass campaigns. Mass distribution in Zimbabwe is implemented on a rolling basis annually to ensure that each targeted ward receives nets every three years. Continuous distribution is employed to ensure optimal ITN coverage through antenatal care (ANC), the Expanded Program on Immunization (EPI), and community channels. ITNs are also distributed in emergency situations (for example, to survivors of natural disasters) and to control outbreaks. According to the current national distribution policy, ITNs should not be distributed in areas with known pyrethroid resistance.

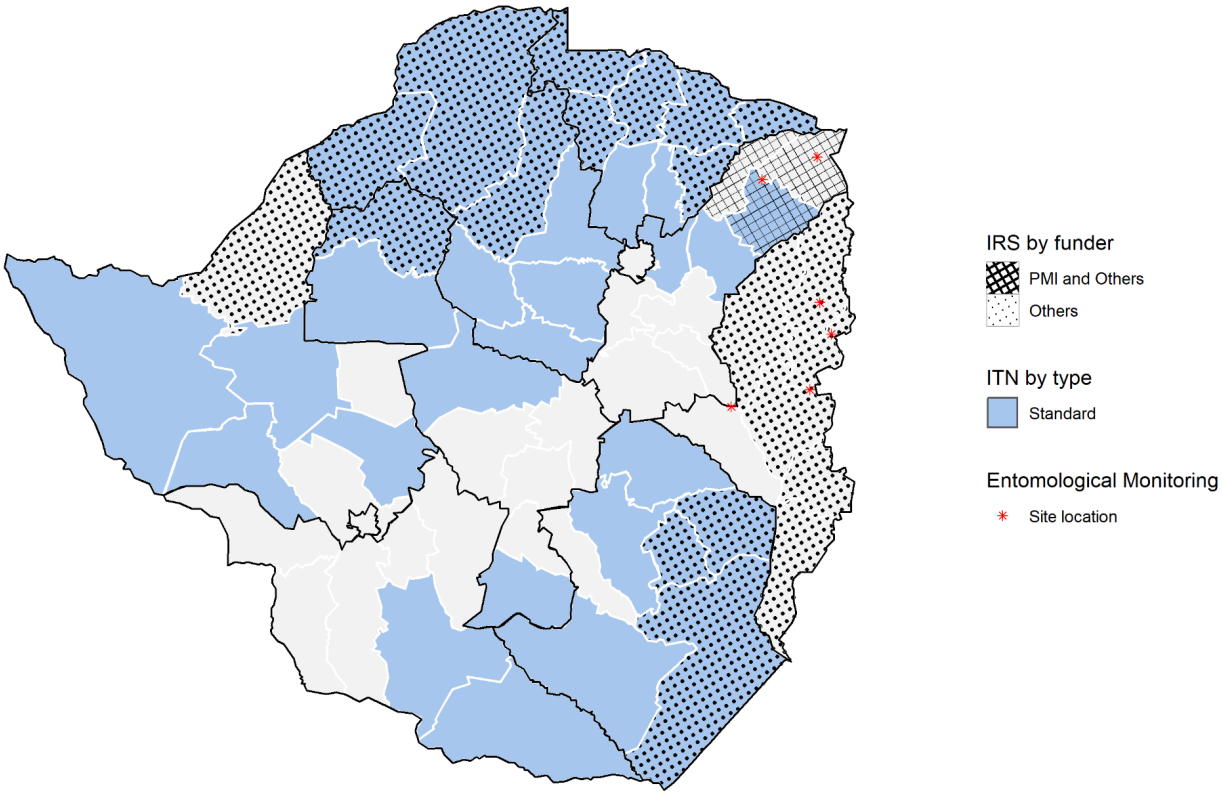
In the 32 districts implementing elimination activities, NMCP conducts reactive case finding and entomological investigations as part of the foci management process. Based on the findings of these investigations, NMCP may choose to implement reactive vector control interventions, which may include LSM, ITN distribution or focalised IRS.

NMCP recommends targeted LSM in districts or wards with an API of less than 1 per 1,000 population, large irrigation schemes, and/or urban areas. LSM is recommended only in circumstances when breeding sites are few, fixed, and findable. In practice, LSM implementation is quite limited. To date, the distribution and use of topical repellents as a complementary intervention has also been extremely limited.

PMI supports the use of all NMCP vector control interventions except LSM. In 2021, PMI shifted from direct IRS implementation support to a technical assistance model that focused on improving planning, environmental compliance, quality of spray operations, and SM&E at the central level and in five districts targeted for Global Fund–supported IRS. In 2023, PMI plans to continue to provide a similar IRS technical assistance package with a focus on the central level. PMI ITN support includes procurement of single-pyrethroid ITNs, ITN distribution, and promotion of net use. To date, entomological surveillance findings do not support procurement of synergist/dual active ingredient ITNs in Zimbabwe. PMI-funded ITN distribution activities are primarily conducted in selected districts covered by PMI implementing partners, with the Global Fund supporting the remaining districts, complemented by PMI-supported technical assistance and ad hoc logistical support.

In September 2021, PMI awarded a direct agreement to Africa University, a local private university whose goal is to develop a hub of entomological excellence to strengthen malaria entomological surveillance, deployment of vector control strategies, and malaria operational research in Zimbabwe. Focus areas include enhanced entomological surveillance in two districts and one metropolitan city in Manicaland Province, insectary rearing and supply of live-reference mosquitoes, and provision of entomological technical data to guide malaria vector control strategies. In 2023, PMI expanded the scope of this agreement to include entomological monitoring in four districts in Mashonaland East Province that were previously supported by a different implementing partner.

Figure 1. Map of Vector Control Activities in Zimbabwe by District, 2022



Note: In Zimbabwe, IRS and ITN distribution are targeted at the ward level (administrative level 3). Wards in districts listed as receiving IRS and ITNs receive only one of these interventions. Only in specific circumstances (detailed above) is there implementation of both IRS and ITNs in the same ward.

1.2. Recent Progress (April 2022–April 2023)

PMI-supported vector control activities continue to recover from challenges with the COVID-19 pandemic and the associated restrictions and mitigation measures implemented by the Zimbabwe government. Additionally, persistent and substantial human resource and economic issues continue to impact the implementation of these interventions. PMI worked with NMCP and partners to adjust to these difficult circumstances and implemented the following activities.

Entomological Monitoring

- Supported entomological monitoring in three districts in Mashonaland East Province and two districts and one metropolitan city in Manicaland Province, in collaboration with provincial and district health officials, NMCP, and the local university partner in Manicaland. Activities included vector bionomics monitoring and insecticide susceptibility testing, with spray quality and insecticide residual efficacy monitoring of NMCP-supported IRS in Mashonaland East and Manicaland.

- Supported community-based entomology activities through engagement of community members at sentinel sites to perform mosquito adult and larval collections for determining insecticide resistance, mosquito species distribution, and host feeding preferences.
- Provided technical assistance to the local university partner for field data and sample collection activities, supportive supervision, insectary management, and to increase laboratory analysis for entomological monitoring and insecticide resistance.

ITNs

- Trained 181 environmental health practitioners from 12 districts of Mashonaland East and Mashonaland Central Provinces on ITNs electronic reporting using DHIS2 tracker.
- Trained 218 new CHWs and 663 village health workers (VHWs) from eight districts of Mashonaland East and Mashonaland Central Provinces on continuous distribution of ITNs.
- Supported distribution of 1,078,747 ITNs (1,012,330 through mass distribution and 66,417 through continuous distribution) in five districts of Mashonaland Central province.
- Established 18 Community Distribution Services Centers (CDSCs) in hard-to-reach areas. This brought the total to 58 CDSCs established to date through expansion of the last-mile approach.
- Supported 38 community-level SBC community dialogues on net use to improve demand for ITNs, increase appropriate use, promote care, and mitigate against misuse. A total of 739 people from five districts were reached in areas that had reported a high level of malaria cases, including areas experiencing malaria outbreaks.

IRS

- Provided broad technical assistance at the central level and more targeted assistance in 3 of the 23 districts targeted for Global Fund-supported IRS implementation. The assistance rendered included ensuring PMI's best practices for campaign planning; quality of spray operations; environmental compliance; and SM&E for IRS implementation, including entomological components. Additional support included co-facilitation of five training sessions in preparation for the IRS campaign. More than 200 participants were trained in various IRS disciplines.
- Conducted pre- and post-IRS environmental compliance assessments at 11 campsites in the three targeted districts, including refurbishment of 12 permanent soak pits in Uzumba Maramba Pfungwe, Mutoko, and Mudzi, refurbishment of existing water systems at seven IRS camps, and proper management of liquid and solid wastes from all IRS campsites in the targeted districts.

- Supported pre-IRS community engagement meetings to promote and facilitate behaviors supportive of IRS among local leaders, household heads, and general community members in areas with high malaria burdens, conducting IRS in 191 wards of Manicaland and Mashonaland Central provinces.

1.3 Plans and Justification for FY 2024 Funding

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

1.3.1. Entomological Monitoring

PMI will continue to support entomological monitoring in four districts in Mashonaland East Province (expanded from three in 2023) and three districts in Manicaland Province. Activities in Mashonaland and Manicaland will include vector bionomics and insecticide resistance testing. The program will continue to provide susceptible *An. arabiensis* from the reference insectary colony for IRS spray quality and insecticide residual efficacy monitoring of NMCP-supported IRS program. PMI will continue to provide technical assistance to the program at a local private university, expanding in-country capacity for laboratory analysis, insecticide residual efficacy, and insecticide resistance monitoring of NMCP's IRS and ITN program. The local university partner will continue to build entomological monitoring capacity and increase insecticide resistance monitoring, focusing on the two provinces, with a plan to expand as resources allow. In 2023, PMI will initiate surveillance for *An. stephensi*, an invasive species that has been detected in Kenya, with the retrospective molecular analysis of mosquito samples that previously could not be identified.

Summary of Distribution and Bionomics of Malaria Vectors in Zimbabwe

As of 2022, in Mashonaland East, the primary vector was *An. funestus s.l.*; *An. gambiae s.l.* and *An. rufipes* were the second most abundant species in Mudzi and Mutoko districts. *An. rufipes* was the predominant Anopheles species collected in Hwedza and has been implicated as a potential vector in other African countries. All species were found in low densities, possibly due to the vector control interventions and erratic rains that Zimbabwe has experienced. Several other Anopheles species were collected, including *An. maculipalpis*, *An. coustani*, *An. squamosus*, and. *An. pretoriensis*. Higher numbers of *An. funestus s.l.* and *An. gambiae s.l.* were collected resting outdoors than indoors. Higher numbers of mosquitoes were also collected outdoors than indoor light traps indicating a tendency for outdoor biting. Mosquito densities from the three districts were low, which did not allow for definitive conclusions about vector behavior like peak biting times.

Molecular analysis of *An funestus s.l.* samples showed that the primary vector was *An. parensis* of the *An. funestus* complex in Mudzi; *An. leesoni*, *An. parensis*, and *An. rivulorum-like* in Mutoko, and *An. funestus s.s.*, *An. leesoni*, *An. parensis*, and *An. rivulorum-like* in Hwedza. *An. arabiensis* and *An. quadriannulatus* were the two *An. gambiae s.l.* sibling species recorded at all three districts. Bovine blood or a mix of bovine with other animal blood were the most common blood sources, with low numbers of human blood-fed mosquitoes, suggesting an opportunistic feeding behavior. One *An. parensis* and one *An. funestes*, both collected from Hwedza sites, were found to be sporozoite-positive.

In Manicaland, entomological monitoring was conducted in Nyanga District, Mutasa District, and Mutare City by the PMI-funded program at the local Africa University. The highest number of mosquitoes collected were from Nyanga District followed by from Mutasa District and Mutare City. In general very low numbers of primary vector species such as *An. arabiensis*, *An. funestus s.s*, and *An. gambiae s.s* were collected from all three areas. Other members of the *An. funestus s.l.* complex collected included *An. leesoni*, *An. parensis*, *An. rivulorum*, and *An. rivulorum-like*. The predominant member of the *An. gambiae s.l.* complex collected was *An. quadriannulatus*, which is not known to be a vector. Higher numbers of other potential secondary Anopheles species were collected, including *An. rufipes*, *An. maculipalpis*, *An. coustani*, and *An. squamosus*. The role of other anophelines collected, such as *An. theileri*, *An. pretoriensis*, and *An. demeilloni* in malaria transmission is not known. Other mosquito samples collected by Manicaland provincial staff similarly showed low numbers of primary vectors and higher numbers of secondary and other Anopheles species. The presence of *An. longipalpus* type C, whose adult stage is morphologically similar to *An. funestus s.l.*, was identified for the first time in Zimbabwe by molecular sequencing, and a retrospective analysis of entomological data from previous years indicate that this species is widely distributed in Zimbabwe. One of the samples was positive for malaria sporozoites, which points to *An. longipalpus* type C as a potential secondary vector in Zimbabwe.

Status of Insecticide Resistance in Zimbabwe

Insecticide resistance testing was carried out between March and December 2022 at three districts in Mashonaland East Province. In Mudzi District, *An. gambiae s.l.* were fully susceptible to deltamethrin and clothianidin, with possible resistance to permethrin. In Mutoko District, *An. gambiae s.l.* were susceptible to alpha-cypermethrin, deltamethrin, chlorfenapyr, and clothianidin. In Hwedza, *An. gambiae s.l.* were susceptible to permethrin. In addition, insecticide resistance testing in Mutare District, Manicaland indicates full susceptibility to permethrin and clothianidin. Deltamethrin tested with *An. gambiae s.l.* collected at two sites showed susceptibility at one site and resistance at the other site. In some of the resistance testing, the numbers of mosquitoes collected were low, making the interpretation of some assays difficult.

1.3.2. Insecticide-Treated Nets

PMI will continue to prioritize procurement and distribution of ITNs, which began in FY 2020. PMI will provide technical support to Zimbabwe's 2025 mass and continuous distribution effort through participation on a national task force and/or working groups. PMI will also support and promote the use, care, and security of ITNs. With FY 2024 funds, PMI plans to:

- Procure just over 1.2 million single-pyrethroid ITNs (~540,650 ITNs for campaign distribution and ~661,000 for continuous distribution).
- Improve the ITN supply chain from the central to the facility level by supporting a warehousing and distribution optimization activity.
- Support the 2025 national ITN mass campaign through the ITN technical working group (TWG).
- Support the continuous distribution of ITNs in 12 targeted districts with high malaria burdens.
- Support the distribution of ITNs to hard-to-reach groups.
- Strengthen the planning, logistics, and SBC capacity of Global Fund-funded subrecipients that distribute ITNs in non-PMI supported areas via campaign and continuous distribution.
- Maintain strong support for ITN SBC messages using trained community representatives who know how to encourage ITN ownership for every sleeping space, manage ITN configuration and hanging (changing a rectangular ITN to a conical ITN), and relay messages on consistent ITN use.

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

ITN Distribution in Zimbabwe

Standard single-pyrethroid ITNs are distributed in Zimbabwe via large and medium-size rolling campaigns each year to ensure that every targeted ward receives nets every three years. Continuous distribution through EPI, ANC, and community channels is employed to sustain optimal ITN coverage in the same targeted wards. ITNs are also distributed in small campaigns in response to a natural disaster (cyclone) or sudden influx of refugees. As mentioned above, NMCP policy now supports mapping and distributing ITNs to special populations at risk for malaria that reside in IRS-targeted areas but do not live in sprayable structures.

In calendar year (CY) 2025, PMI will continue procuring and providing technical assistance for the distribution and promotion of correct and consistent use of ITNs. However, the new Global Fund grant covering this period has yet to be negotiated and finalized. Additional ITNs may be

available, depending on grant decisions and the success of NMCP's application. In addition, PMI is committed to covering any ITN gap that might arise during the Global Fund grant negotiation process by reprogramming U.S. government funds as necessary.

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

Durability Monitoring

PMI Zimbabwe is not currently supporting ITN durability monitoring. The last study was completed in 2019.

1.3.3. Indoor Residual Spraying

Using FY 2024 funds, PMI will continue to provide technical assistance for IRS planning, monitoring, and evaluation at the central level to help ensure timely and quality implementation of the national, Global-Fund-supported IRS campaign. Additionally, PMI will continue to provide strategically targeted technical assistance to ensure adherence to best practices for environmental compliance and quality spray implementation. The environmental compliance support will continue under a bilateral mechanism and will likely be directed toward geographic areas currently supported by PMI. The overall level of funding planned for IRS support represents a further scaling down of the extent of PMI support compared with past and current levels.

IRS Insecticide Residual Efficacy in Zimbabwe

In 2021, PMI shifted from conducting direct IRS operations to providing technical assistance for the NMCP IRS program. The cone wall bioassays conducted by the World Health Organization (WHO) with a susceptible strain of *An. arabiensis* following the 2021 IRS campaign in Mudzi District (Fludora Fusion) and Mutoko District (DDT) indicated an acceptable quality of spray. The residual efficacy of Fludora Fusion at Mudzi for all surface types was above 80 percent 11 months post-IRS and 10 months post-IRS for DDT in Mutoko. In the 2022 IRS campaign, the spray quality of DDT in both Mudzi and Mutoko districts was also acceptable. Residual efficacy monitoring was carried out one month later and then discontinued as the project ended.

1.3.4. Other Vector Control

Using FY 2024 funding, PMI Zimbabwe intends to support the small-scale procurement, distribution, and promotion of the use of topical repellents to protect special populations heavily involved in outdoor activities during peak vector biting hours. PMI will work with NMCP and provincial- and district-level MoHCC staff to identify target populations (e.g., farmers protecting crops at night and streambank cultivators) in one or two selected districts in the 12 higher burden districts supported by PMI's primary service delivery implementing partner.

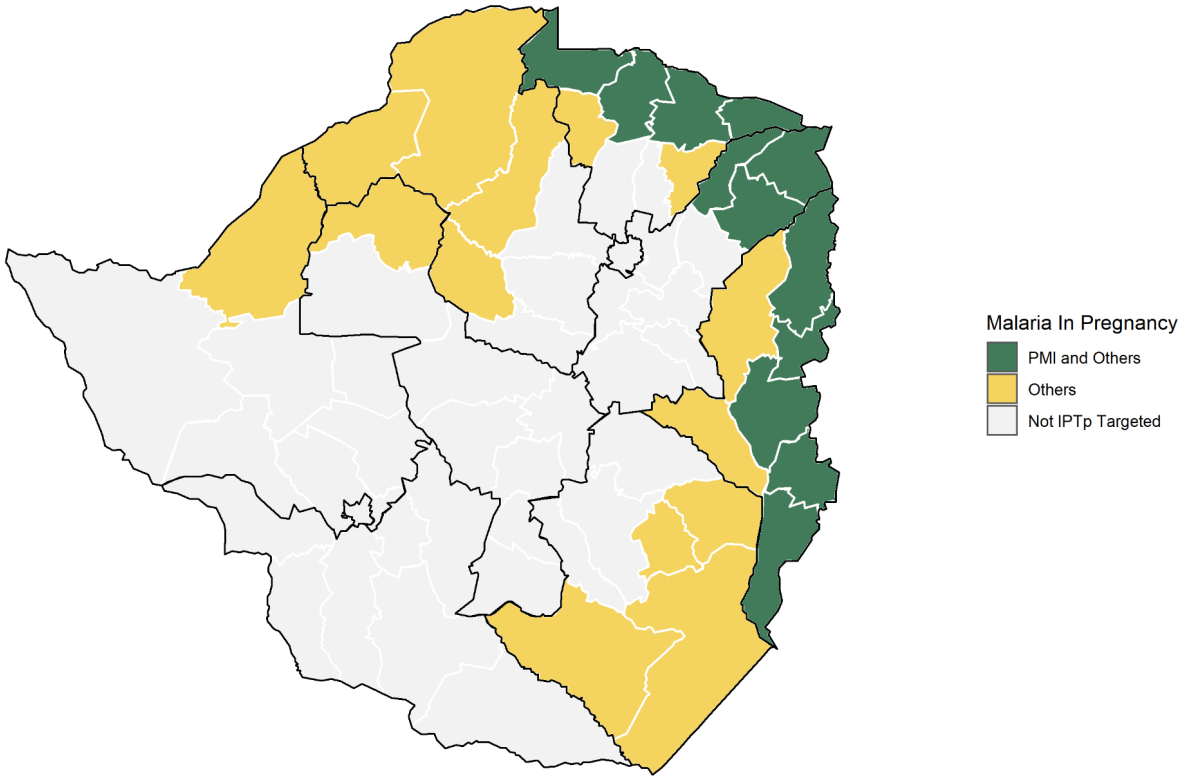
2. Malaria in Pregnancy

2.1. PMI Goal and Strategic Approach

Ensuring prompt and appropriate MIP services, including case management and the provision of IPTp and ITNs to pregnant women, are key objectives of Zimbabwe's 2021–2026 NMCESP. Zimbabwe's policy specifically supports:

- Implementation of IPTp in 26 out of 62 districts (42 percent) with high malaria burdens (see Figure 2), with a target of 85 percent of pregnant women receiving at least three doses of sulfadoxine-pyrimethamine (SP) during pregnancy by 2026.
- Distribution of ITNs to pregnant women as early as possible in pregnancy and promotion of their correct and consistent use, with a target of 85 percent of pregnant women sleeping under ITNs by 2026.
- Early and effective diagnosis and treatment of malaria with the appropriate medications for gestational age, as laid out in the 2015 Guidelines for the Management of Malaria and subsequent amendments. NMCP currently uses artemether-lumefantrine (AL) as the first-line treatment in the second and third trimesters, and is aware of the updated WHO guidance expanding AL treatment to the first trimester. The treatment in pregnancy guidance is expected to be updated at the next TWG case management subcommittee meeting.

Figure 2. Map of IPTp Service Delivery Strengthening in Zimbabwe



PMI supports NMCP's IPTp delivery strengthening efforts through:

1. Procurement and distribution of SP through a pooled commodity warehousing and distribution system. PMI commodities are targeted to all 26 IPTp implementation districts.
2. Provision of technical assistance at all levels of the health system and support for training, supervision, and mentoring to improve IPTp service delivery by facility and community-based health workers in PMI-supported provinces and districts. PMI's current geographic area of focus covers 12 (46 percent) of the 26 districts targeted for IPTp by NMCP.
3. Provision of SBC to improve early ANC attendance and acceptance and uptake of IPTp.
4. Provision of technical support to the MIP lead at NMCP and logistical and technical support for the malaria case management technical working group, which meets biannually to update guidance and respond to case management issues, including MIP.

As measured by national-level household surveys, IPTp coverage appears to be relatively low, with the highest coverage estimate for IPTp2+ at only 36 percent (Malaria Indicator Survey [MIS] 2016). However, PMI believes that the sampling methodologies and data analyses used in these surveys have not correctly accounted for the geographically targeted nature of IPTp interventions, resulting in an underestimation of IPTp coverage. Other data sources suggest that IPTp coverage is likely higher but still under 85 percent. In the 2022 National Malaria Case Management Audit, a record review indicated that 81 percent of 382 eligible pregnant women who attended ANC in IPTp-targeted districts received at least three doses of IPTp with sulphadoxine-pyrimethamine. According to 2022 DHIS2 data, 61 percent of pregnant women attending ANC received IPTp3 in the 26 targeted IPTp districts.

Key barriers that affect provider delivery of MIP services (e.g., IPTp and ITN distribution at ANC) include persistent knowledge gaps of current IPTp guidelines among nurses and VHWs, limited IPTp content during ANC supportive supervision visits, inconsistent supply of SP with stockout rates exceeding 10 percent the first half of 2022, continued health system deterioration, and economic issues. Key barriers to ANC attendance include limited ANC service availability at health facilities (restricted to specific days and intermittent staffing); long distances to health facilities; and cultural beliefs that encourage concealment of pregnancy, resulting in delayed ANC attendance and missed opportunities for IPTp.

PMI also supports improving effective and timely case management of MIP, including diagnosis and management of uncomplicated malaria and severe malaria in the first, second, and third trimesters. As above, adoption of the updated WHO guidelines for AL treatment in pregnancy is pending, and PMI will support the dissemination and the implementation of this change. Specific activities (e.g., training, supervision, and mentoring) are outlined in the next section.

2.2. Recent Progress (October 2021–December 2022)

PMI-supported MIP activities continue to recover from challenges from the COVID-19 pandemic and the associated restrictions and mitigation measures implemented by the Zimbabwe government. Additionally, persistent and substantial human resource and economic issues continue to impact the Zimbabwe health care system and MIP services. PMI, the PMI service delivery partner, NMCP, and other key malaria stakeholders continued to adapt to challenges and implemented the following.

- Coordinated with NMCP, Global Fund, Department of Pharmaceutical Services (DPS), and other in-country stakeholders to coordinate procurement and delivery schedules to ensure appropriate stock levels of SP at service delivery points.
- Supported the procurement and delivery of approximately 471,400 doses of SP from October 2021 to December 2022.
- In select provinces with high malaria burdens, supported:
    - Two malaria TWG case management subcommittee meetings, which included MIP and IPTp technical discussions and decision making;
    - Training of 633 facility-based health workers in malaria case management and MIP and 724 VHWs in community case management and MIP;
    - Virtual mentorship to 218 facility-based health workers and virtual support and supervision to 45 VHWs; and
    - Printing and distribution of sick child registers with IPTp column and referral forms to 4,596 VHWs.

See the case management section for additional activities that also affected MIP programming and implementation.

2.3. Plans and Justification for FY2023 Funding

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

PMI will collaborate with NMCP, Global Fund, DPS, and other in-country partners to coordinate procurement and delivery schedules to ensure appropriate stock levels of SP at service delivery points. Based on the most recent national quantification estimates, PMI will procure 266,400 doses of SP in CY 2024, which will provide adequate stock along with Global Fund procurements through CY 2025. As a result, PMI does not plan to procure SP with FY 2024 funding, but will continue to support SP distribution to facilities in all IPTp-targeted areas.

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

PMI will continue to support MIP case management strengthening and enhancement of early ANC attendance and IPTp uptake in 12 PMI-priority districts through training, mentoring, and supportive supervision at the facility and community levels, and through technical assistance and policy support at the central level. PMI plans to support a TES, including SP biomarker testing, in 2025 in collaboration with NMCP, Global Fund, and other malaria stakeholders.

3. Drug-Based Prevention

PMI does not support seasonal malaria chemoprevention or other drug-based prevention in Zimbabwe.

4. Case Management

4.1. PMI Goal and Strategic Approach

Ensuring access to prompt and quality assured diagnosis for all malaria suspected cases and treatment for all confirmed cases is a key NMCP objective under the 2021–2026 NMCESP. To achieve this objective, NMCP focuses on:

1. Strengthening quality assurance of diagnostics, including rapid diagnostic tests (RDTs) and microscopy;
2. Maintaining quality-assured treatment of all confirmed malaria cases;
3. Strengthening severe malaria management to reduce mortality;
4. Maintaining quality-assured supply chain management of malaria case management commodities;
5. Strengthening case management for select groups (e.g., mobile populations, artisanal miners, refugees, and agriculture workers);
6. Supporting malaria death audits at the district level that compare quality of care, and identifying and mitigating factors that lead to bad prognosis; and
7. Strengthening community-level malaria case management.

PMI supports all aspects of NMCP's approach through its support of national-level policy and programmatic activities and support for facility and community-level case management service-delivery strengthening in the 12 districts in Zimbabwe with the highest malaria burdens. This includes the provision of technical assistance, training, supportive supervision, mentoring, death audits, policy and guideline revisions, and other activities (more details are provided in the following sections). NMCP implements case management interventions in the remaining districts using Global Fund resources.

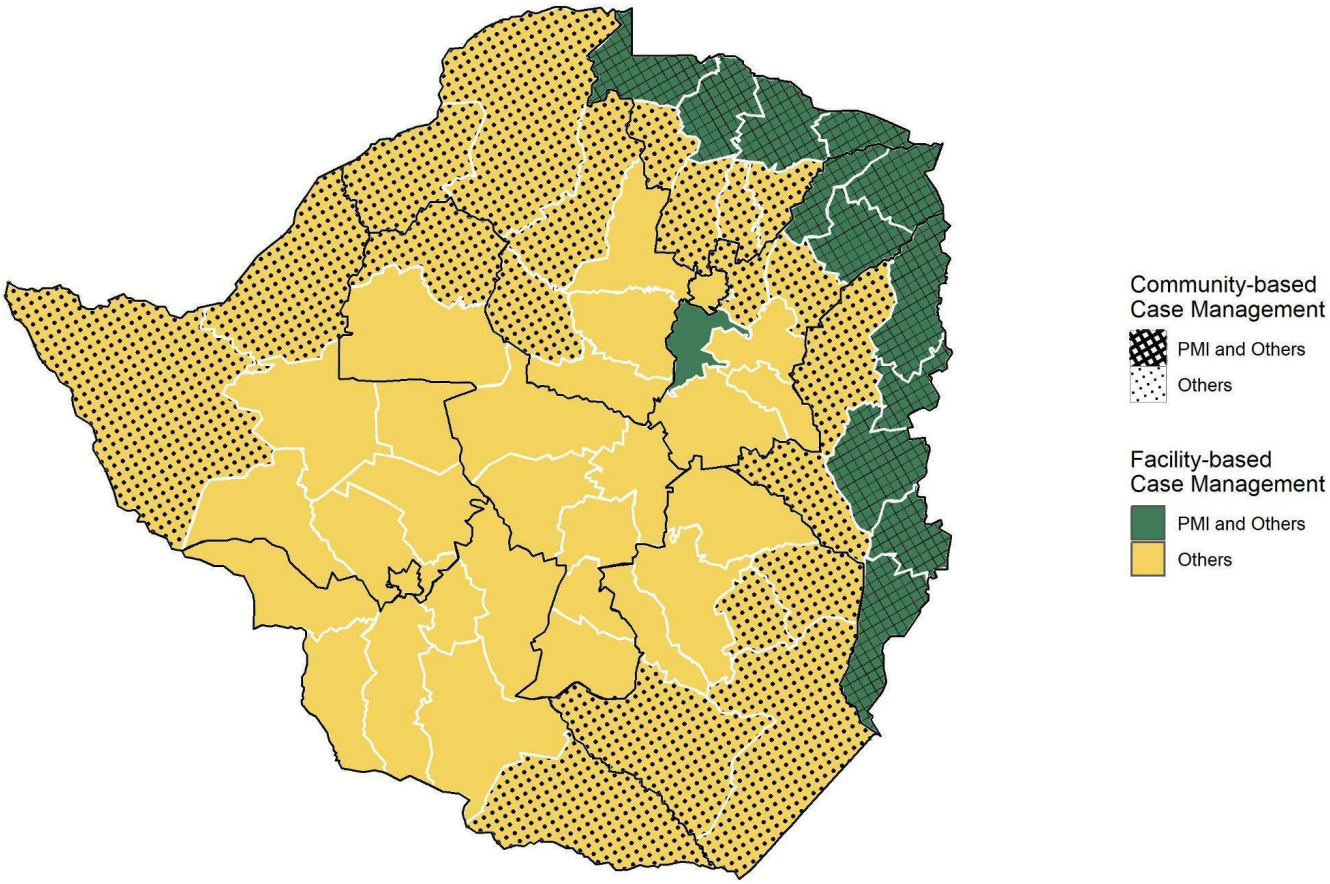
PMI and Global Fund procure nearly all of the malaria commodities (e.g., ACTs, RDTs, SP, parenteral artesunate, and primaquine) used in Zimbabwe, with very limited inputs from the Zimbabwe government. PMI works with NMCP, DPS, and Global Fund staff to ensure timely product availability, according to current needs. As a result, PMI does not procure all commodity types each year and the percentage of the total need filled by PMI for each commodity in a given year varies. PMI contributes procured commodities to a pooled

commodity management system for nationwide distribution. The 2015 Guidelines for the Management of Malaria in Zimbabwe include the provision of single low-dose primaquine for malaria cases diagnosed in districts implementing elimination activities, and this intervention is widely implemented. However, primaquine has historically been purchased with Global Fund resources, covering all needs. PMI is willing and able to support primaquine procurement if additional resources are required.

By policy, PMI and Global Fund do not currently procure rectal artesunate suppositories (RAS), as the Zimbabwe policy includes provision of RAS to all age groups, in contradiction of WHO recommendations. VHWs are trained in RAS use and referral. RAS is procured using Zimbabwe government funding, when resources are available; RAS is therefore not implemented consistently due to frequent product stockouts.

PMI also supports the procurement of equipment and the provision of training and supportive supervision for community health workers (VHWs and school health coordinators) in the 12 districts with the highest malaria burdens in Zimbabwe. This support improves their capacity to deliver community-based case management services, including integrated community case management, and malaria community case management to all ages, as well as the administration of prereferral RAS. PMI is not allowed to procure non-malaria commodities; however, the Global Fund has changed their policy and will allow non-malaria commodity procurement under the new grant if prioritized by Zimbabwe. Currently, VHWs only have malaria commodities. PMI does not provide routine stipend payments to community health workers; rather those payments are funded by the Global Fund and the Health Development Group. However, previously mentioned problems with the economy and inflation have created challenges for VHWs being able to access these important stipends. PMI liaises closely with these entities and NMCP to identify and explore solutions to address a complex set of issues that have resulted in delays and inconsistent deliveries of these payments.

Figure 3. Map of Case Management and Community Health Service Delivery Activities in Zimbabwe, 2022



4.2. Recent Progress (October 2021–December 2022)

Implementation of PMI-supported case management strengthening activities was impacted by the COVID-19 pandemic, the substantial human resource issues that continue to impact the health care system, and continued economic instability. PMI worked with NMCP and partners to adjust to these difficult circumstances and implemented the following actions.

National-Level Case Management Activities

- Improved national supervision capacity through the development of standard checklist tools for case management, community case management, and malaria in pregnancy that will be adopted for use during supportive supervision activities nationwide. These checklists primarily focus on facility and community-level clinical capacity and performance.
- Collaborated and coordinated with NMCP, Global Fund, and other in-country stakeholders to ensure adequate coverage and consistent implementation of case management strengthening activities.

- Provided financial and technical support for one malaria case management subcommittee meeting.
- Conducted stakeholder analyses to identify potential local organizations to collaborate on programmatic areas including case management, community case management, and malaria in pregnancy. Forty-one community-based and faith-based organizations were identified, and the assessment of organizational capacity for partnership is underway.
- Advocated for updating the 2015 Guidelines for the Management of Malaria in Zimbabwe aligned with new WHO guidance, which is now planned for 2023.

Commodities

- Coordinated with NMCP, Global Fund, DPS, and other in-country stakeholders to coordinate procurement and delivery schedules to ensure appropriate stock levels of case management commodities at service delivery points.
- Supported the procurement and delivery of 1,965,000 malaria RDTs for nationwide distribution.
- Supported the procurement and delivery of 879,960 ACT courses for nationwide distribution.
- Supported the procurement and distribution of COVID-19 personal protective equipment (gloves, face masks, soap) for nearly 1,200 VHWs working in PMI-supported districts for use during the 2022 peak malaria season.

Facility Level

- In the 12 PMI-supported priority districts:
    - Trained 633 health workers in districts with high malaria burdens supported by Zimbabwe Assistance Program in Malaria II (ZAPIM II), including 149 trained in Seke—a malaria elimination district.
    - Trained 35 case management and malaria-in-pregnancy mentors from the 7 supported districts in Mashonaland Central and Mashonaland East provinces (5 mentors from each district).
    - Conducted detailed analysis to determine case management training needs for trainers, supervisors, and facility-based health workers.
    - Conducted supportive supervision to 69 health facilities, reaching 267 health workers.
    - Supported virtual malaria mentorship, reaching 218 facility-based health workers.
    - Supported two malaria death audit meetings. Thirteen malaria deaths were audited in Mashonaland Central Province, and 12 were audited in Mashonaland East Province.

Community Level

- In the PMI-supported priority districts:
    - Participated and provided technical input during the development of a paper-based integrated VHW checklist by the MoHCC and other partners.
    - Supported community case management training and post-training follow-up, as needed, for 734 VHWs. Provided technical and financial support for the training of 367 VHWs in community case management, 212 in Manicaland, and 155 in Mashonaland East provinces.
    - Conducted post-training follow-up visits to 56 VHWs from Mashonaland East (32) and Manicaland provinces.
    - Conducted virtual supportive supervision to 38 VHWs from Mashonaland Central Province and 7 from Mashonaland East.
    - Supported the procurement and delivery of personal protective equipment, including gloves, face masks, and soap for 1,077 VHWs across the three provinces supported by ZAPIM II.
    - Supported the procurement and delivery of 555 lockable medicines cupboards for 40 VHWs from Nyanga District, 140 VHWs from Chimanimani District, and 375 VHWs from Uzumba Maramba Pfungwe District.
    - Provided monthly mobile phone airtime to 179 VHWs from Mbire for 5 months (December 2021 and May, July, August, and September 2022) to report weekly disease surveillance data.
    - Conducted 11 district-level VHW review meetings in all four districts from Mashonaland Central Province, in all five districts in Manicaland Province, and in two districts in Mashonaland East Province (Mudzi and Uzumba Maramba Pfungwe).
    - Supported virtual supportive supervision for 218 VHWs in addition to those from Mashonaland Central and Mashonaland East provinces.

- Liaised with the Global Fund and other partners to identify and address issues resulting in missed and delayed CHW stipend payments, including delayed disbursement of funding, frequent changes in monetary and banking policies in Zimbabwe, and long distances and costly travel for CHWs to receive payment. It is also important to note that donor funding was intended to be for a transitional period only, and that period will end in 2023 for one of the funding organizations. It is not yet clear how that gap will be addressed, but PMI is working with the MoHCC, donors, and partners to identify a solution. Current U.S. government policy in Zimbabwe prohibits such direct payments, so PMI will continue to advocate for either Zimbabwe government uptake or other donor funding.

Elimination

- Worked with NMCP and provincial leadership in Mashonaland East to identify appropriate districts for PMI case management support in elimination areas. Stakeholders agreed that Seke District, which is just beginning to transition from control to elimination activities, would most benefit from PMI support (see the SM&E section).
- As above, PMI trained 149 health workers in Seke District on case management, including the use of low-dose primaquine.

Recent progress on 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 in Zimbabwe in FY 2024.

National-Level Case Management Activities

PMI will continue to provide technical and financial support for policy development; updates to guidelines; and revisions to training, supervision, and mentoring materials, as needed. PMI will liaise with NMCP, Global Fund, and other in-country stakeholders to ensure adequate coverage and consistent implementation of case management strengthening activities nationwide. Finally, PMI will support case management TWG subcommittee meetings, as needed.

Commodities

PMI will collaborate with NMCP, Global Fund, DPS, and other in-country partners to coordinate procurement and delivery schedules to ensure appropriate stock levels of case management commodities at service delivery points, including at the community level. Based on the most recent national quantification estimates, there is a projected need for additional RDT procurement to ensure adequate commodity availability in 2025. Using FY 2024 funding, PMI plans to procure 1,000,000 RDTs to fully meet this projected need. There are no projected gaps for ACTs, so PMI does not plan to procure any at this time but will continue to monitor commodity uptake and the pipeline. PMI will procure 50,000 vials of injectable artesunate to meet the projected gap for CY 2025.

It should be noted that the current Zimbabwe Global Fund grant ends in December 2023, and there will be an opportunity for the MoHCC to program Global Fund resources to cover commodity gaps, should the situation change. The most recent quantification does identify a gap for RAS; however, PMI is unable to procure this commodity given the lack of alignment of MoHCC's age-targeting policy with WHO guidance. PMI will continue to advocate for Zimbabwe government support for RAS procurement.

Refer to the ACT, RDT, and injectable artesunate gap tables in the annex for more details on planned quantities and distribution channels. PMI does not support the procurement and use of artesunate suppositories due to the country not following WHO guidelines.

Facility Level

PMI will continue to support training, supervision, mentoring, and material support, as needed, to strengthen case management activities in the 12 priority PMI control districts, as described in the recent progress section above.

Community Level

PMI will continue to support training, supervision, and provision of material support for community case management strengthening in the 12 priority PMI control districts, as described in the recent progress section above.

Case Management Elimination Activities

PMI will support case management for elimination at the central level and in Seke District. Further case management activities to be supported in Seke will be determined based on continued assessment of current resources and needs in the district. At a minimum, these activities will likely include training, mentoring, and supervision for facility- and community-based health workers to ensure adherence to guidance and best practices for case management in elimination areas.

Monitoring Antimalarial Efficacy

Table 1. Ongoing and Planned Therapeutic Efficacy Studies

Year	Site Name	Treatment arm(s)	Plan for Laboratory Testing of Samples
Ongoing			
N/A	N/A	N/A	N/A
Planned (funded with previous or current MOP)			
2025	TBD	AL	TBD

AL: Artemether-lumefantrin.

Two therapeutic efficacy studies performed in 2014 and 2018 suggest no evidence of substantial resistance to the first-line ACT treatment (AL) in Zimbabwe. However, there were concerns regarding the methodologies and quality of implementation for these studies. As a result, PMI has actively engaged with the new leadership of the National Institute for Health Research (NIHR), which is typically the responsible institution for TES in Zimbabwe; NMCP; WHO; and other partners to explore implementation arrangements to increase data quality and ensure that reliable and accurate ACT resistance data are collected in Zimbabwe. Per the agreement between PMI, Global Fund, and the MoHCC, PMI Zimbabwe is now the sole donor

providing TES funding. After considerable delays,TES is planned for 2025, and NMCP, PMI, and the Global Fund are aligned and working on moving forward with this critical study (protocol, laboratory capacity, consumables) (Table 1). However, approval through MoHCC is still pending, and PMI will work through NMCP to gain approval to collect updated ACT resistance data.

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

5. Health Supply Chain and Pharmaceutical Management

5.1. PMI Goal and Strategic Approach

A key strategy under the 2021–2026 NMCESP is to ensure that quality-assured malaria commodities are consistently available to contribute to malaria control and elimination progress. PMI supports key country priorities, including ensuring the integration and functionality of distribution systems for streamlining the Zimbabwe supply chain, reducing stockout rates to <10 percent, and improving data availability and quality to increase end-to-end data visibility from the community and health facility levels to the national level.

5.2. Recent Progress (October 2021–December 2022)

PMI's principal supply chain investments to improve malaria commodity availability at service delivery sites included supporting accurate forecasting and supply planning; timely procurement; increasing visibility by supporting management information systems, including a focus on proper tracking of commodities at the community level to better ensure availability in the community and at health facilities; warehousing and distribution technical assistance; and direct warehousing and delivery of commodities to health sites through support for a first-party logistics model.

From October 2021 to December 2022, per quarterly routine reporting, most products remained at or below the 10 percent stockout rate target, except some AL presentations that occasionally experienced stockouts of over 20 percent. However, over 95 percent of facilities reported having at least one AL presentation, indicating that facilities maintain the ability to treat. For most of the country, the impact of stock availability was only measurable at health facilities, and there was limited-to-no visibility into community stock levels despite the significant role CHWs play in malaria service delivery. PMI supported the redesign and piloting of the community health commodity distribution system to increase visibility from the central level down all the way to the last mile to better plan for the needs at the community level. Two districts have been fully trained on this system, and it is now possible to identify stockouts and consumption at the facility level compared with the community level in those areas. Another 12 districts were trained, although follow up is needed to confirm how well the new process is working. PMI will monitor the districts and continue to improve the system as needed while developing a plan on how best to expand it to other locations with high malaria burdens.

To increase in-country capacity for the health supply chain, PMI conducts training and provides mentorship on stock management best practices, including keeping stock cards up to date. Findings in the EUV assist in identifying training gaps and areas requiring supportive supervision. The country is in the process of rolling out an electronic logistics management information system that will increase the frequency of reporting from quarterly to monthly. PMI contributed to the technical requirements and training required to roll out the system, focusing on its functionality in one district. The system is funded by the Global Fund, so PMI's support is mainly limited to technical assistance. There have been delays and quality concerns with the rollout, but PMI coordinates closely with the Global Fund, the National Pharmaceutical Company of Zimbabwe, and other relevant stakeholders.

As part of a longer-term strategy, PMI supported the MoHCC in developing a roadmap to implement global standards. The Zimbabwe National Pharmaceutical Traceability Strategy was formed as a starting point to operationalize the foundational work to support traceability implementation, with a plan to focus on leveraging commodity item identifiers, such as those captured through barcodes, and formalizing master data management.

5.3. Plans and Justification with FY 2024 Funding

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

Similar to the previous MOP, a top priority for PMI is to address the significant discrepancy that persists between reported consumption of malaria commodities and malaria cases. After performing a review of the flow of commodities based on health facility records, PMI currently focuses on five districts showing the largest discrepancies and performs monthly data quality reviews and increased mentorship. Based on lessons learned from this model, PMI will expand to additional districts with FY 2024 funding. Currently, the national average discrepancy is reported at six treatments consumed per one reported case. The goal is to decrease this to four to one by the end of 2025 and three to one by the end of 2026.

Another key PMI focus is to continue to improve forecasting and supply planning and determine if, in addition to the above interventions, additional activities need to be implemented or adjustments made to the current country processes. The semiannual EUV will continue to be conducted, as it offers key insights into weaknesses in the health supply chain. PMI also remains committed to ensuring the functionality of the full supply chain, providing technical assistance for warehousing and distribution and provision of trucks and drivers for the first-party logistics model.

Increasing insight into community-level stock levels is another important priority due to the high percentage of cases identified and treated by CHWs. To ensure commodities reach the community level, the revised health commodity community distribution system will be monitored closely for improvement and continued expansion to additional districts. It is

anticipated that this will also address some of the data quality gaps in commodity consumption reporting based on findings from data quality reviews of health facility records.

PMI supports the warehousing, distribution, and monitoring of the supply chain for the entire country, but there are no specific activities focused in the elimination areas. The EUV uses a stratified sampling process where the majority of sites visited are in the control areas, with a convenience sample used to select 10 facilities in elimination areas so that PMI maintains some oversight in those areas, despite their not being the focus.

6. Social and Behavior Change

6.1. PMI Goal and Strategic Approach

A key objective of the 2021–2026 NMCESP is to increase the use of malaria interventions to at least 85 percent of the targeted population by 2026. To achieve this objective, NMCP focuses on enhancing uptake and utilization of vector control interventions; promoting effective and innovative interventions to increase IPTp uptake and early care seeking; ensuring participation and ownership of elimination activities by communities and other stakeholders; advocating for increased focus on malaria by MoHCC and Zimbabwe government leadership; and mainstreaming gender equity, diversity, and inclusion in the delivery of malaria interventions. These strategies are further described in the 2021–2026 Malaria Social and Behavioral Change Strategy (MSBCS). Both documents highlight the heterogenous malaria epidemiology in Zimbabwe and the importance of tailoring interventions to both the elimination and control settings.

PMI's SBC support is fully aligned with the current MSBCS and contributes to the attainment of NMCP's objective at the national and provincial level, as well as at the district, ward, and community levels in the 12 districts in Zimbabwe with the highest burdens. PMI also provides support for SBC in the elimination context in Seke district. At all levels, PMI supports NMCP's efforts to utilize mass media and community-level interpersonal communication activities designed to increase correct and consistent ITN use and care, prompt care seeking for fever, uptake of RDTs and IPTp, provider adherence to treatment guidelines, and patient adherence to treatment regimes. At the national level, PMI supports the development of SBC policies and guiding documents, including recent support for updating the MSBCS. PMI staff and partners also play a leading role in the planning, implementation, monitoring, and evaluation of SBC interventions through day-to-day work with NMCP and participation in the malaria TWG SBC subcommittee. At the district level, PMI supports the adaptation of the MSBCS to local contexts, the development of work plans and materials, and partner coordination efforts.

PMI has made substantial efforts to support the generation, analysis, and translation of data on the adoption of key malaria-related behaviors over recent years. However, a need for current and adequate evidence persists. To generate this additional evidence, PMI engaged in the following activities:

- PMI planned to support the implementation of a combined DHS/MIS in 2020 using FY 2019 funding. The survey was initially rescheduled for 2022 by the MoHCC, but postponed again due to a combination of factors, including difficulty securing the necessary additional donor funds, timing conflicts with the Zimbabwe census, and—most importantly—the continuing COVID-19 pandemic. Early stages of implementation for a 2023–2024 DHS have been completed, and data collection is planned to begin after the upcoming presidential elections. PMI is working with stakeholders to incorporate the MIS SBC module in the survey instrument and to ensure the data analysis considers the geographic targeting of malaria interventions.
- PMI and partners provided technical support to NMCP for a 2021 assessment of knowledge, attitudes, practices, and beliefs among marginalized populations at higher risk of malaria, using the RBM Partnership Malaria Matchbox Toolkit. This assessment provided useful qualitative data that are being used to tailor SBC interventions to address the specific issues and barriers faced by members of these populations.
- PMI provided technical and financial support for protocol development of a 2022 baseline assessment to inform activity prioritization and targeting for PMI's primary service delivery partner, including evidence needed for SBC implementation. Although NMCP was very supportive, and all appropriate ethical clearances were obtained, the assessment was not approved by the MoHCC and was not implemented. PMI has also investigated the possibility of conducting a malaria behavior survey, however, given the upcoming DHS and challenges securing MoHCC approval, is not planning to move forward at this time.

It is hoped that the DHS key indicators report will provide much needed additional data by mid-2024. In the meantime, PMI will continue to work with NMCP and other stakeholders to find creative solutions for evidence generation, including SBC effectiveness monitoring under ZAPIM II.

6.2. Recent Progress (October 2021–December 2022)

Implementation of PMI-supported SBC activities was impacted by the COVID-19 pandemic, the substantial human resource issues that continue to impact the health care system, and continued economic and political instability. PMI worked with NMCP and partners to adjust to these difficult circumstances and implemented the following:

- Provided technical support to NMCP to review and update the national MSBCS, conducted a national-level malaria TWG SBC subcommittee meeting, and planned for the national Zero Malaria Starts with Me Campaign.
- Adapted, developed, printed, and distributed materials to promote IRS uptake in the three provinces supported by ZAPIM II.
- Facilitated IRS community sensitization meetings in the three PMI-supported districts, reaching 77,500 community members.
- Trained 68 facility-based health workers on the Community Action Cycle (CAC) methodology in the three provinces with the highest burdens.

- Identified and trained 256 community action group members in the adapted CAC methodology.
- Prepared and presented an abstract on a Chidodo (a type of health facility) in Mbire District, a CAC success story, at the RBM SBC Working Group Virtual Forum.
- Conducted 30 community dialogues on ITN use in six districts with high malaria burdens, reaching 581 people.
- Pretested, finalized, and disseminated animated ITN promotional videos in five districts with high malaria burdens, reaching 2,296 people.
- Provided five CDSCs with materials to promote the uptake of malaria-related behaviors.

Zimbabwe still faces substantial challenges in many programmatic areas that would benefit from enhanced SBC attention to improve the uptake and/or maintenance of appropriate behaviors.

- **ITNs:** As Zimbabwe continues to strategically shift from IRS to ITNs due to the increased cost of IRS implementation, there is a need to actively build a culture of ITN use in areas that have already transitioned to ITNs and those that are slated to do so. Despite PMI's efforts, systematically collected evidence on current ITN access and use is limited. However, anecdotal evidence suggests that continued and substantial efforts to promote ITN use are needed. It is hoped that the upcoming 2023 DHS will provide additional insights.
- **MIP**: As outlined in the MIP section above and in previous Zimbabwe MOPs, there is evidence to suggest that IPTp uptake is higher than past national-level household surveys would suggest. However, it is clear that additional SBC is needed to reach NMCP's objective of 85 percent IPTp uptake in the 26 targeted districts. Persistent barriers include cultural practices that encourage concealment of pregnancies, long distances to health facilities, and inadequate ANC service quality at health facilities. ANC service quality is likely to have considerably worsened in recent years given the loss of health workers from Zimbabwe as described earlier.
- **Case management and service delivery:** In addition to national-level household survey data suggesting suboptimal malaria care seeking, provincial- and district-level malaria death audits routinely identify primary delays as a key factor driving malaria mortality in Zimbabwe. This is clearly an area that would benefit from additional SBC efforts and continued efforts to strengthen the case management capacity of VHWs and school health coordinators, who attend over half of all suspected malaria cases nationwide. Additionally, findings from supportive supervision exercises and other assessments suggest that provider adherence to case management guidelines needs to be strengthened. Given the ongoing loss of qualified health workers in the Zimbabwean health system, this is a difficult issue to address. In addition to the training, supportive supervision, and mentoring activities described in the case management section above, additional SBC interventions are required.

- **Elimination:** Given the limited resource envelope for elimination activities and SBC in Zimbabwe, SBC efforts targeting elimination areas are insufficient. As risk perception drops with decreasing malaria transmission, enhanced efforts are needed to ensure prompt care seeking, acceptance of interventions such as reactive case investigations, and provider adherence to case management guidelines. Although materials have been created to address these issues, anecdotal evidence suggests that saturation of these messages is limited.

N.B.: Unfortunately, the limited PMI and Global Fund resources are the sole source of funding for malaria SBC activities in Zimbabwe. Given the reduction in funding allocated for the next Global Fund grant cycle, NMCP has further reduced the SBC and elimination resource envelopes in the draft grant application for the 2024–2026 period. Despite recent increases in PMI investments in SBC, resources are insufficient to dramatically increase the level of SBC implementation in the near future unless additional Zimbabwe government resources are made available. PMI will continue to work with NMCP and partners to improve the quality and targeting of SBC interventions to maximize impact.

6.3. Plans and Justification with FY 2024 Funding

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

Using FY 2024 funding, PMI will continue to support NMCP's SBC efforts at the national/ provincial levels and at the district, ward, and community levels in the 12 districts in Zimbabwe with the highest burdens. PMI will also continue to provide support for considerable SBC in the elimination context in Seke District, and given the limited resources for SBC in elimination areas, PMI will provide enhanced central-level support to NMCP for this aspect.

Priorities

Table 2. Priority Behaviors to Address

Behavior	Target Population	Geographic Focus	Programming to Address Behavior
Consistent use of ITNs for every sleeping space	● Persons residing in wards targeted for ITN distribution ● Groups at special risk due to outdoor exposure, for which ITNs are an acceptable intervention	Targeted ITN wards (TBD depending on outcome of Global Fund grant writing) and wards with groups at special risk	● Continue My Net My Life program via small group and individual interactions. ● Continue the Centers for Disease Control and Prevention's program to distribute ITNs and create hubs for ITN materials for community members to have open access. ● Continue continuous distribution awareness campaigns in PMI-supported districts, and facilitate the same actions in districts supported by the Global Fund. ● Create novel materials and products to encourage consistent ITN use even outside of the rainy season or when mosquitoes are not noticeable.
Prompt care seeking for fever	All persons with fever, especially pregnant women and mothers of children under five years of age; groups at special risk due to outdoor exposure	Nationwide	● Continue to advocate for prompt care seeking for fever at community meetings with CAC groups and at health and child care events. ● Continue to use radio outreach to encourage prompt care seeking, especially prior to malaria peak season. ● Use the recently developed case management assessment tool to measure quality of care; and target training, supportive supervision, and mentoring to improve quality of care. Increased quality of care will incentivize care seeking.
Uptake of IPTp among eligible pregnant women	Pregnant women residing in districts with malaria transmission indicated for IPTp; groups at special risk due to outdoor exposure	26 targeted IPTp districts	● Use the recently developed ANC assessment tool to measure quality of care during ANC visits; target training, supportive supervision, and mentoring to improve quality of care. ● Use CAC and health and child care events to raise awareness of the importance of early ANC, IPTp, and ITN use for pregnant women. ● Use radio spots and other mass media to encourage pregnant women and those who support them (e.g., partners, mothers-in-law, and friends) to embrace the importance of prevention of malaria during pregnancy

ANC: antenatal care; CAC: Community Action Cycle; ITN: insecticide-treated net; IPTp: intermittent preventive treatment for pregnant women.

Additional Support Activities

As described above, additional data are needed on the specific behavioral factors for ITN use, IPTp uptake, prompt care seeking, and factors associated with provider behavior for diagnosis and treatment of malaria. These data will be collected through implementation of the 2023–2024 DHS (using prior year funding) and programmatic monitoring through ongoing case management assessments, supportive supervision, and mentoring activities described in the case management section.

There is a need for continued SBC capacity strengthening at both the national and subnational levels. To enhance NMCP and MoHCC capacity for the planning, design, implementation, and evaluation of SBC activities, PMI will support:

- Coordination at the national level through targeted support to improve the effectiveness of the TWG SBC subcommittee;
- Increased emphasis by implementing partner staff, particularly provincial coordinators, on enhancing the capacity of provincial- and district-level health promotion officers to increase coordination and ensure the impact of SBC investments;
- Collaboration with Isdell:Flowers, the United Methodist Church, and other actors engaged in cross-border SBC efforts;
- Capacity strengthening for NMCP staff on the use of data (e.g., from the expanded SBC module in the 2023 DHS) to inform SBC program priorities and strategies.

7. Surveillance, Monitoring, and Evaluation

7.1. PMI Goal and Strategic Approach

Strengthening SM&E is a key objective of the 2021–2026 NMCESP. These objectives are further described in the Surveillance Monitoring and Evaluation Plan for the Zimbabwe Malaria Control Strategic Plan 2016–2020 (SM&E Plan 2016–2020), which has yet to be updated. The overall objective of this plan is to outline a comprehensive tracking system that enables transparent and effective management of information on malaria prevention and control activities.

NMCP works with PMI, the Global Fund, Clinton Health Access Initiative, and other partners to design and implement SM&E activities. Stakeholder coordination occurs through the malaria SM&E subcommittee, bilateral interactions, standing meetings between NMCP and partners, the Global Fund Country Coordinating Mechanism Malaria Committee, and joint implementation of activities. There is no formal, widely distributed malaria bulletin, but select data elements are part of the weekly Rapid Disease Notification System reports compiled and distributed by the National Health Information Unit.

PMI supports multiple aspects of NMCP's SM&E efforts, spanning all levels of the health system and all malaria prevention and control intervention areas. (Note: Some aspects of PMI SM&E support, such as entomological monitoring and tracking of vector control interventions, are described in other sections of this MOP.) At the central level, PMI supports NMCP and the MoHCC to review and adjust policies, as well as to plan, coordinate, and implement broader SM&E strengthening initiatives. This includes support for population-based surveys to measure progress on key malaria indicators. At the provincial, district, and health facility levels, PMI-supported SM&E activities focus on strengthening routine malaria surveillance and epidemic preparedness and response (EPR) in the 12 districts with the highest malaria burdens. PMI also supports quality implementation of SM&E strengthening in one additional district (Seke), which is implementing malaria elimination activities. NMCP, with support from the Global Fund, implements interventions targeting the remaining provinces, though PMI efforts at the central level improve SM&E systems and implementation nationwide.

7.2. Recent Progress (September 2022–December 2023)

PMI-supported SM&E strengthening activities were impacted by the COVID-19 pandemic and the associated restrictions and mitigation measures implemented by the Zimbabwe government. Additionally, persistent and substantial human resource, economic, and political issues continue to affect the Zimbabwe health care system. PMI worked with NMCP and partners to adjust to these difficult circumstances and implemented the following activities.

Central Level

- Supported the training of 28 national facilitators on malaria EPR to ensure quality cascade of EPR trainings to district and health facility rapid response team members, including:
    - Dissemination of revised malaria EPR training materials to the provinces;
    - Equipping provincial teams of trainers to cascade these trainings to the districts and lower levels; and
    - Development of draft schedules for the dissemination of the EPR trainings at the district level.
- Finalized activity prioritization and the work plan for the third phase of the digital landscape at the community level in Zimbabwe. The current Digital Health Strategy (2021–2025) does not have a specific section on community-level activities. Among the key priorities for phase-3 activities was to hold a stakeholder workshop to develop an addendum to the Digital Health Strategy (2021–2025) to include specific elements covering VHWs (planned to be conducted in FY 2023, fourth quarter).
- Provided technical assistance during two TWG SM&E subcommittee meetings.

Provincial, District, and Facility Levels

- Supported SM&E training of 35 central- and provincial-level trainers from 7 PMI-supported provinces. These trainers cascaded SM&E training to the district and facility levels, covering 191 district- and health facility-level personnel.
- Supported the training of 48 rapid response team members in geographic information systems (GIS) mapping.
- Supported the training of 119 health workers on malaria EPR.
- Supported weekly mobile phone reporting by VHWs in select health facilities in a district with a high malaria burden.
- Supported the institutionalization of quarterly DHIS2 data quality assessments in six outbreak-prone districts, reaching 52 health facilities.

Elimination

- Provided technical support during the malaria elimination foci review and planning meetings. The meeting provided opportunities to identify challenges and documentation of best practices.
- Supported adherence to NMCP's 1-3-7 strategy to ensure that all case finding activities, entomological investigations, and foci management protocols are adhered to in Seke District.

SM&E Challenges

- PMI intended to support the implementation of a combined DHS/MIS in 2020 using 2019 funds. The survey was initially rescheduled until 2022, but postponed again due to a combination of factors, including difficulty securing the necessary additional donor funds, timing conflicts with the Zimbabwe census and, most importantly, the continuing COVID-19 pandemic. Early stages of implementation for a 2023 DHS have been completed, but the survey is again on hold until after the upcoming presidential elections. PMI is providing partial support for this DHS and working with stakeholders to ensure data analysis that takes into consideration the geographic targeting of malaria interventions.
- The primary HMIS data collection tools are not uniformly available, and versions at some health facilities differ or are adapted from other registers or recreated by hand. This results in missing and inconsistent collection of data elements, which affect the quality and integrity of data.
- PMI had also intended to support NMCP to conduct three TWG SM&E committee meetings; however, only two were held due to prioritization of other activities by NMCP.
- Data availability and appropriate data analysis and use still remain a challenge, particularly at the subnational level.

- The MoHCC's strategic direction includes a strong desire to shift to electronic reporting systems, including the introduction of an electronic health records (EHR) system at the facility level. Resources have been prioritized for the scale up of the EHR and other proposed digital systems but are not sufficient. As a result, the EHR remains at the early stages of implementation and the currently deployed HMIS systems (mixed paper and electronic) remain under-resourced, with multiple gaps in critical program areas. Additionally, issues persist with system duplication, data visibility, limited standards, poor data interchange between systems, and lack of interoperability.
- The community health system's SM&E capacity remains low despite continued service delivery investments and the expectation of data visibility.

7.3. Plans and Justification with FY 2024 Funding

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

PMI will continue to provide central-level support for policy review, planning, coordination, and activity implementation. Given that Zimbabwe is one of the PMI countries implementing elimination activities, the FY 2024 MOP includes increased investment in SM&E for elimination. PMI will use this funding to continue to support SM&E strengthening activities in the elimination context at the central level and in Seke District to improve surveillance for reporting, investigation, and response activities and to inform programmatic decision making.

Learning from the 2021 assessment of the community landscape, PMI will focus additional efforts toward strengthening community-level reporting for HMIS in coordination with the logistics management information system data strengthening mentioned in the health supply chain and pharmaceutical management section. PMI will also continue support for SM&E and malaria EPR strengthening in the 12 districts with the highest malaria burdens through training, mentoring, supervision, data quality audits, review meetings, logistical support, and other activities, as needed. Additional considerations around technical support include designing and printing of standard registers and tools to support routine data collection processes.

Table 3. 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						P
Household surveys	Multiple Indicator Cluster Survey					P	
Household surveys	EPI survey						
Health facility surveys	Service Provision Assessment						
Health facility surveys	Service Availability Readiness Assessment Survey						
Health facility surveys	Case Management Audit			X			
Malaria surveillance and routine system support	Therapeutic Efficacy Studies						P
Malaria surveillance and routine system support	Support to Parallel Malaria Surveillance System						
Malaria surveillance and routine system support	Support to Health Management Information System	X	X	X	P	P	P
Malaria surveillance and routine system support	Support to Integrated Disease Surveillance and Response (IDSR)	X	X	X	P	P	P
Malaria surveillance and routine system support	Electronic Logistics Management Information System	X	X	X	P	P	P
Malaria surveillance and routine system support	Malaria Rapid Reporting System*	X	X	X	P	P	P
Other	End-User Verification	X	X	X	P	P	P
Other	School-based Malaria Survey						
Other	Knowledge, Attitudes and Practices Survey, Malaria Behavior Survey[1]		X				
Other	Malaria Impact Evaluation						
Other	Entomologic Monitoring Surveys	X	X	X	P	P	P

[1] Non-PMI funded activities; X: completed activities; P: planned activities. EPI: Expanded Program on Immunization.

8. Operational Research and Program Evaluation

8.1. PMI Goal and Strategic Approach

The 2021–2026 NMCESP highlights the importance of creating and disseminating a national malaria operational research (OR) agenda and conducting OR to generate and maintain evidence for informed malaria programming as part of a broader objective to strengthen SM&E. The SM&E plan for 2016–2020 (yet to be updated) reiterates the importance of developing a structured review process and OR agenda. However, to date, no process has been defined and no agenda has been developed despite advocacy and interest from malaria stakeholders in the country.

It should be noted that NIHR is the primary agency responsible for the development and implementation of OR for the MoHCC, including the malaria program. However, in recent years, restricted resources and other challenges have hampered NIHR's ability to effectively drive the development of a research agenda and implement malaria-specific research. This has persisted despite a change in NIHR leadership.

Historically, PMI has not provided substantial support for PMI-funded OR activities in Zimbabwe. However, PMI has provided financial and technical support for multiple NMCP-led program evaluation activities to provide critical, targeted evidence for programmatic decision making.

PMI has continued to engage with NMCP, NIHR, and other stakeholders to encourage the development of a structured and workable process for the prioritization and implementation of malaria OR. The new leadership at NIHR has expressed an intention to develop a malaria OR agenda as part of a broader health research agenda. NMCP and key malaria stakeholders are supportive and plan to engage in this effort. However, the process has not moved forward to date.

8.2. Recent Progress (September 2021–December 2022)

PMI provided technical and financial support for protocol development for a baseline assessment to inform activity prioritization and targeting for PMI's recently awarded primary service delivery partner. Although all appropriate ethical clearances were obtained, the assessment was not approved by MoHCC leadership and was not implemented.

Table 4. PMI-Funded Operational Research/Program Evaluation Studies in Zimbabwe

Recently Completed OR/PE Studies	Status of Dissemination	Start date	End date
None			
Ongoing or Planned OR/PE Studies	**Status**	**Start Date**	**End Date**
DHS	Preliminary engagement with NMCP, ZIMSTAT, and DHS implementing partner on the roadmap for the surveys. Work on sampling frame and questionnaire development initiated.	2023	2024

Table 5. Non-PMI-Funded Operational Research/Program Evaluation Studies Planned/Ongoing in Zimbabwe

Source of Funding	Implementing institution	Research Question/Topic	Current Status/Timeline
ICEMR	Johns Hopkins University, Zimbabwe Biomedical Research and Training Institute, Zimbabwe National Institute of Health Research, Africa University	Malaria risk factors, transmission, and the impact of control efforts in Southern and Central Africa, Mutasa District, and Manicaland Province; cross-border malaria transmission; entomological monitoring and evaluation.	Ongoing
U.S. National Institutes of Health (NIH): Emerging Global Leader Award	Africa University, BRTI, Brown University, Johns Hopkins University	Epidemiology of Malaria Invasion in Mutare City and Targets for Elimination, Zimbabwe	Data collection ongoing

8.3. Plans and Justification with FY 2024 Funding

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

9. Capacity Strengthening

9.1. PMI Goal and Strategic Approach

Providing effective leadership and an enabling environment for optimal program management and coordination at all levels of the health system is a key objective of the 2021–2026 NMCESP, which outlines the following specific strategies:

- Promote accountability and governance of the program.
- Promote efficient and effective supply and utilization of resources.
- Advocate for additional resources for malaria prevention and control.
- Strengthen cross-border collaboration.
- Strengthen risk management.

Given the substantial needs and the ongoing deterioration of the health system and economic situation in Zimbabwe, PMI strives to support NMCP's efforts to develop strong leadership and

an enabling environment at all levels of the health system. Currently, this support is leveraged through PMI implementing partners and other donors due to the restrictions regarding direct government-to-government support. PMI support includes planning, training, supportive supervision, mentoring, small-scale material support, support for TWG subcommittee meetings, and many other activities already described in the previous sections. Additional activities not already mentioned are described in the next section.

9.2. Recent Progress (September 2021–December 2022)

The vast majority of PMI's capacity strengthening efforts in Zimbabwe have already been listed in the previous sections, and the funding is included under the relevant line items for those areas. Additional efforts that were not previously listed (but funded under other technical area line items) include:

- Secondment of a technical officer to DPS to ensure strong coordination and effective implementation of the pooled malaria commodity warehousing and distribution system.
- Placement of malaria provincial coordinators (PMI implementing partner staff) in PMI-supported provinces to ensure the strengthening of service delivery and that IRS activities were successfully implemented and coordinated with Global Fund and other donor-funded activities. These officers also provided support for strategic planning by the provinces and districts.
- Identification of key MoHCC staff for participation in a leadership, management, and governance training program funded by the Bill & Melinda Gates Foundation.

9.3. Plans and Justification with FY 2024 Funding

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

PMI will continue to support capacity strengthening activities as described in the recent progress section. Given the continued deterioration of the Zimbabwean health system, other critical activities may be identified prior to FY 2024 implementation and will be addressed through reprogramming.

10. Staffing and Administration

A minimum of three health professionals oversee PMI in Zimbabwe. The single interagency team led by the USAID Mission Director or their designee consists of a resident advisor representing USAID, an resident advisor representing the Centers for Disease Control and Prevention, and one or more locally hired experts known as foreign service nationals. The PMI interagency team works together to oversee all technical and administrative aspects of PMI, including finalizing details of the project design, implementing malaria prevention and treatment activities, monitoring and evaluation of outcomes and impact, reporting of results, and providing guidance and direction to PMI implementing partners.

ANNEX: GAP ANALYSIS TABLES

Table A-1. ITN Gap Analysis Table

Calendar Year	2023	2024	2025
Total country population	15,406,664	15,637,764	15,872,330
Total population at risk for malaria	10,399,498	10,555,490	10,713,823
PMI-targeted at-risk population	10,399,498	10,555,490	10,713,823
Population targeted for ITNs	5,311,566	5,391,240	5,472,624
Continuous distribution needs			
Channel 1: ANC	227,069	230,476	233,955
Channel 1: ANC type of ITN	Single Pyrethroid	Single Pyrethroid	Single Pyrethroid
Channel 2: EPI	180,593	194,085	207,960
Channel 2: EPI type of ITN	Single Pyrethroid	Single Pyrethroid	Single Pyrethroid
Channel 3: School	0	0	0
Channel 3: School type of ITN			
Channel 4: Community	212,463	215,650	218,905
Channel 4: Community type of ITN	Single Pyrethroid	Single Pyrethroid	Single Pyrethroid
Channel 5: Type of ITN			
Estimated total need for continuous channels	620,125	640,210	660,819
Mass campaign distribution needs			
Mass distribution campaigns	402,837	987,348	2,619,488
Mass distribution ITN type	Single Pyrethroid	Single Pyrethroid	Single Pyrethroid
Estimated total need for campaigns	402,837	987,348	2,619,488
Total ITN need: Continuous and campaign	**1,022,962**	**1,627,558**	**3,280,307**
Partner contributions			
ITNs carried over from previous year	410,000	295,038	467,480
ITNs from government	0	0	0
Type of ITNs from government			
ITNs from Global Fund	0	500,000	2,100,000
Type of ITNs from Global Fund	Single Pyrethroid	Single Pyrethroid	Single Pyrethroid
ITNs from other donors	8,000	0	0

Type of ITNs from other donors	Single Pyrethroid		
ITNs planned with PMI funding	900,000	1,300,000	1,201,650
Type of ITNs with PMI funding	Single Pyrethroid	Single Pyrethroid	Single Pyrethroid
Total ITNs contribution per calendar year	**1,318,000**	**2,095,038**	**3,769,130**
Total ITN surplus (gap)	**295,038**	**467,480**	**488,823**

Table A-2. RDT Gap Analysis Table

Calendar Year	2023	2024	2025
Total country population	15,406,664	15,637,764	15,872,330
Population at risk for malaria	10,399,498	10,555,490	10,713,823
PMI-targeted at-risk population	10,399,498	10,555,490	10,713,823
RDT needs			
Total number of projected suspected malaria cases	1,242,473	1,513,332	1,450,697
Percent of suspected malaria cases tested with an RDT	100%	100%	100%
RDT needs (tests)	2,011,291	2,011,291	2,011,291
Needs estimated based on consumption data			
Partner contributions (tests)			
RDTs from government	0	0	0
RDTs from Global Fund	2,759,000	0	1,668,525
RDTs from other donors	0	0	0
RDTs planned with PMI funding	0	1,000,000	1,000,000
Total RDT contributions per calendar year	**2,759,000**	**1,000,000**	**2,668,525**
Stock balance (tests)			
Beginning balance	2,022,525	2,770,234	1,758,943
- Product need	2,011,291	2,011,291	2,011,291
+ Total contributions (received/expected)	2,759,000	1,000,000	2,668,525
Ending balance	**2,770,234**	**1,758,943**	**2,416,177**
Desired end of year stock (months of stock)	12	12	12
Desired end of year stock (quantities)	2,011,291	2,011,291	2,011,291
Total surplus (gap)	**758,943**	**(252,348)**	**404,886**

Table A-3. ACT Gap Analysis Table

Calendar Year	2023	2024	2025
Total country population	15,406,664	15,637,764	15,872,330
Population at risk for malaria	10,399,498	10,555,490	10,713,823
PMI-targeted at-risk population	10,399,498	10,555,490	10,713,823
ACT Needs			
Total projected number of malaria cases	231,100	281,480	269,830
Total ACT needs (treatments)	857,186	1,407,399	1,079,318
Needs estimated based on a combination of HMIS and consumption data			
Partner contributions (treatments)			
ACTs from government	0	0	0
ACTs from Global Fund	0	653,130	608,940
ACTs from other donors	0	0	0
ACTs planned with PMI funding	593,130	1,259,040	0
Total ACTs contributions per calendar year	**593,130**	**1,912,170**	**608,940**
Stock balance (treatments)			
Beginning balance	1,877,670	1,613,614	2,118,386
- Product need	857,186	1,407,399	1,079,318
+ Total contributions (received/expected)	593,130	1,912,170	608,940
Ending balance	**1,613,614**	**2,118,386**	**1,648,007**
Desired end of year stock (months of stock)	12	12	12
Desired end of year stock (quantities)	857,186	1,407,399	1,079,318
Total surplus (gap)	**756,428**	**710,987**	**568,689**

Table A-4. Inj. Artesunate Gap Analysis Table

Calendar Year	2023	2024	2025
Injectable artesunate needs			
Projected number of severe cases	6,933	8,444	8,095
Projected number of severe cases among children	2,635	3,209	3,076
Average number of vials required for severe cases among children	5	5	5
Projected number of severe cases among adults	4,298	5,236	5,019
Average number of vials required for severe cases among adults	16	16	16
Total injectable artesunate needs (vials)	**81,948**	**99,813**	**95,682**
Needs estimated based on HMIS data			
Partner contributions (vials)			
Injectable artesunate from government	0	0	0
Injectable artesunate from Global Fund	66,281	0	51,906
Injectable artesunate from other donors	0	0	0
Injectable artesunate planned with PMI funding	36,281	92,595	50,000
Total injectable artesunate contributions per calendar year	**102,562**	**92,595**	**101,906**
Stock balance (vials)			
Beginning balance	84,733	105,347	98,129
- Product need	81,948	99,813	95,682
+ Total contributions (received/expected)	102,562	92,595	101,906
Ending balance	**105,347**	**98,129**	**104,354**
Desired end of year stock (months of stock)	12	12	12
Desired end of year stock (quantities)	81,948	99,813	95,682
Total surplus (gap)	**23,399**	**(1,683)**	**8,672**

Table A-5. SP Gap Analysis Table

Calendar Year	2023	2024	2025
Total country population	15,406,664	15,637,764	15,872,330
Total population at risk for malaria	10,399,498	10,555,490	10,713,823
PMI-targeted at-risk population	10,399,498	10,555,490	10,713,823
SP needs			
Total number of pregnant women	467,977	474,997	482,122
Percent of pregnant women expected to receive IPTp1	0%	0%	0%
Percent of pregnant women expected to receive IPTp2	0%	0%	0%
Percent of pregnant women expected to receive IPTp3	80%	80%	80%
Percent of pregnant women expected to receive IPTp4	0%	0%	0%
Total SP needs (doses)	**620,890**	**620,890**	**620,890**
Needs estimated based on consumption data			
Partner contributions (doses)			
SP from government	0	0	0
SP from Global Fund	846,767	238,033	438,533
SP from other donors	0	0	0
SP planned with PMI funding	0	266,400	0
Total SP contributions per calendar year	**846,767**	**504,433**	**438,533**
Stock balance (doses)			
Beginning balance	644,300	870,176	753,719
- Product need	620,890	620,890	620,890
+ Total contributions (received/expected)	846,767	504,433	438,533
Ending balance	**870,176**	**753,719**	**571,362**
Desired end of year stock (months of stock)	12	12	12
Desired end of year stock (quantities)	620,890	620,890	620,890
Total surplus (gap)	**249,286**	**132,829**	**(49,529)**