U.S. PRESIDENT'S MALARIA INITIATIVE

Zimbabwe

Malaria Operational Plan FY 2023

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This FY 2023 Malaria Operational Plan has been approved by the Acting U.S. Global Malaria Coordinator and reflects collaborative discussions with national malaria control programs and other partners. Funding available to support outlined plans relies on the final FY 2023 appropriation from the U.S. Congress. Any updates will be reflected in revised postings.

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

CONTENTS

ABBREVIATIONS

ACT	Artemisinin-based Combination Therapy
ANC	Antenatal Care
API	Annual Parasite Index
CAC	Community Action Cycle
CCM	Community Case Management
CHW	Community Health Worker
CM	Case Management
DPS	Department of Pharmaceutical Services
DHIS2	District Health Information System 2
DHS	Demographic and Health Survey
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
GOZ	Government of Zimbabwe
HMIS	Health Management Information System
IPTp	Intermittent Preventive Treatment for Pregnant Women
IRS	Indoor Residual Spraying
ITN	Insecticide-treated Mosquito Net
LSM	Larval Source Management
MCS	Malaria Communications Strategy
MIP	Malaria in Pregnancy
MIS	Malaria Indicator Survey
MOHCC	Ministry of Health and Child Care
MOP	Malaria Operational Plan
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

USAID	U.S. Agency for International Development
VHW	Village Health Worker
WHO	World Health Organization

EXECUTIVE SUMMARY

To review the specific country context for Zimbabwe, please refer to the Zimbabwe Country Malaria Profile located on the U.S. President's Malaria Initiative (PMI's) country team landing page, which provides an overview of the country malaria situation, key indicators, the National Malaria Control Program (NMCP) strategic plan, and the partner landscape.

U.S. President's Malaria Initiative

Launched in 2005, PMI supports implementation of malaria prevention and treatment measures as well as cross-cutting interventions. PMI's 2021–2026 strategy, *End Malaria Faster*, envisions a world free of malaria within our generation with the goal of preventing malaria cases, reducing malaria deaths and illness, and eliminating malaria in PMI partner countries. PMI currently supports 24 countries in sub-Saharan Africa and three programs across the Greater Mekong Subregion in Southeast Asia to control and eliminate malaria. 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 NMCP and Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund) to ensure that support complements implementation of Zimbabwe's 2021–2025 National Malaria Control and Elimination Strategic Plan (NMCESP). Taking into consideration the NMCP's strategic direction, PMI has shifted in recent years by reducing funding for indoor residual spraying (IRS); increasing funding for insecticide-treated mosquito net (ITN) procurement and distribution; targeting additional resources for case management (CM) 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, and 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 building, the protection of hard-to-reach populations, and adaption to keep malaria services resilient to shocks.

Overview of Planned Interventions

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

1. Vector Monitoring and Control

PMI has strongly supported the NMCP's vector monitoring and control component since 2011 with emphasis on IRS, ITN procurement and distribution, and entomological monitoring. Beginning in FY 2020, and in line with a new strategic direction outlined in the 2021–2025 NMCESP, PMI shifted IRS resources toward ITNs and invested more in entomological monitoring through direct support to a local entity. This shift of resources has allowed PMI to fill persistent gaps in these two areas and provide vector control interventions to more Zimbabweans. PMI anticipates that the NMCP will shift additional districts and wards from IRS toward ITNs in the coming years, which will further increase the need for ITNs. Using FY 2023 Malaria Operational Plan (MOP) funds, PMI will continue to provide limited technical assistance for IRS implementation at the central level and in select districts. PMI will also continue to direct substantial resources toward the procurement and distribution of ITNs. Finally, PMI will continue to fund a local entity to conduct and strengthen entomological monitoring through a PMI-supported laboratory and insectary, including support for established longitudinal monitoring sites in Mashonaland East Province and the cultivation of field collection skills at additional sites in Manicaland, the province with the highest malaria transmission in the country.

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 12 PMI-supported provinces. Using FY 2023 MOP funds, 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 2024. Therefore, PMI does not plan to procure SP with MOP FY 2023 funding but will continue to support SP distribution to facilities in all intermittent preventive treatment for pregnant women (IPTp) target areas.

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 case management strengthening efforts through the procurement and distribution of the commodities—artemisinin-based combination therapies (ACTs), malaria rapid diagnostic tests (RDTs), and injectable artesunate—as needed; support for national-level policy and programmatic activities; and support for facility- and community-level CM service delivery strengthening in Zimbabwe's 12 highest malaria burden districts and one additional elimination district. This peripheral support includes the provision of technical assistance, as well as support for training, supportive supervision, mentoring, death audits, policy and guideline revision, and other activities. Using FY 2023 MOP funds, 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 CM commodities at service delivery points. Based on the most recent national quantification estimates, PMI plans to procure 1 million malaria RDTs to fully meet the projected need. There are no projected gaps for ACTs or parenteral artesunate, 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 the 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. This support includes technical assistance in biannual quantification processes and supply planning for commodities, as well as routine monitoring of stock levels throughout the national system. A large focus of the support is to improve the visibility of stock levels by providing technical assistance to the roll-out of an electronic Logistics Management Information System and improving commodity distribution forms at the community level to eventually provide disaggregated health facility and village health worker (VHW) commodity data. Biannual end use verification surveys also provide further insights into system challenges. In addition, PMI and other donors provide significant financial support to the overall functioning of the supply chain, including managing a first-party logistics model for the distribution system as well as the secondment of a staff member to the Department of Pharmaceutical Services. The level of support in this area has remained consistent in recent years.

6. Social and Behavior Change

PMI supports SBC from the central to the community level and is guided by the NMCP's Malaria Communication Strategy, which draws from two theoretical models of behavior change: the socio-ecological model and the precede–proceed model. PMI partners work under the leadership of the NMCP SBC Subcommittee to address underlying factors

that influence the adoption and maintenance of malaria prevention and treatment behaviors, such as perceptions of risk or perceived efficacy of ITNs. SBC professionals and volunteers in the country work in an integrated manner to promote the desired malaria behaviors that contribute to control and elimination, such as ITN ownership and consistent and correct use in every sleeping space in targeted areas, acceptance of IRS in targeted areas, early care-seeking for fever, and timely uptake of IPTp. PMI has increased the allocation for SBC in FY 2023, continuing a trend that began in FY 2022 which doubled the malaria SBC investment.

7. Surveillance, Monitoring, and Evaluation

PMI supports the 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 in one additional district (Seke) implementing malaria elimination activities. Using FY 2023 MOP 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 review and prioritization of malaria OR. PMI does not intend to fund any OR activities using MOP FY 2023 funds. Given that Zimbabwe has no structured approach to identifying and prioritizing OR activities, 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 Department of

Pharmaceutical Services, as mentioned in the Health Supply Chain and Pharmaceutical Management section, and the placement of provincial coordinators in PMI-supported provinces. PMI will continue these activities using MOP FY 2023 funds listed under other programmatic areas. However, no dedicated funding will be included under capacity strengthening.

10. Malaria Elimination

PMI has provided limited technical and financial support for the NMCP's malaria elimination agenda at the national level and in a selected district in Matabeleland North Province. Zimbabwe has 30 districts implementing subnational malaria elimination activities with the objective of transitioning to six additional districts by 2025. 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. Following consultation with the NMCP and provincial leadership, PMI plans to introduce support for elimination activities in Seke District in Mashonaland East using FY 2023 MOP funding. PMI support will focus on ensuring a rapid and successful transition from control to elimination activities, with an emphasis on the key activities outlined above.

I. CONTEXT AND STRATEGY

1. Introduction

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

2. U.S. President's Malaria Initiative

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

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

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

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

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

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

3. Rationale for PMI's Approach in Zimbabwe

3.1. Malaria Overview for Zimbabwe

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 80 percent of the reported annual malaria case load (Zimbabwe District Health Information System 2—DHIS2).

At the national level, annual incidence (1,000 population at risk) has decreased substantially over the last decade and a half, from 153 in 2004 to 9 in 2021. However, much of this progress occurred prior to 2011. In the subsequent years, a pattern of

cyclical increases and decreases in malaria incidence has emerged (range: 9–39), with no evident downward trend over time. From 2012 to 2021, 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 2021, with nearly 55 percent of malaria cases reported by community health workers (CHWs), compared to 44 percent in 2020 and 40 percent in 2021 (Zimbabwe DHIS2).

Despite national-level rainfall patterns consistent with those seen during years of higher transmission, in 2021 the annual malaria incidence was the lowest ever recorded in Zimbabwe. This decreased transmission was associated with the COVID-19 pandemic and the corresponding restrictions that were enacted for much of the year. PMI is actively assessing the extent to which various factors, 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 from the community and health facility levels, and decreased in-country travel affected actual or reported malaria transmission in 2021. The results of this assessment are pending.

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 gambiae* s.l. and *Anopheles 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 and alpha-cypermethrin has been intermittently noted at selected sites in recent years. *An.gambiae* s.l. was also susceptible to clothianidin. It has proven difficult to collect sufficient *An. funestus* larvae to conduct insecticide resistance assays. However, testing of offspring of adult females has revealed full susceptibility to DDT, the insecticide currently being used for IRS by the NMCP in the province where *An. funestus* appears to be the predominant vector.

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

3.2. Key Challenges and Contextual Factors

Overall progress toward malaria control and elimination in Zimbabwe has stalled over the past decade due to a combination of contextual and programmatic factors. Social, political, and economic hardships have continued to increase in Zimbabwe, creating an extremely challenging operating environment for PMI, the NMCP, and partners. The already difficult situation has been complicated by the COVID-19 pandemic and associated mitigation measures, including restrictions imposed to limit the spread of the

virus that have resulted in delays and curtailment of malaria interventions. The pandemic has worsened an already deteriorating human resources situation within the health sector, which is 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 within the health care sector and the deterioration of physical infrastructure, have decreased access to quality care for many Zimbabweans. Within the NMCP, the long-standing malaria program director resigned from his post in late 2021. To date, a permanent replacement has not been identified, with the deputy director elevated to the acting director role.

PMI, the 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.
- Logistical and financial issues continue to affect the quality, timeliness, and coverage of Government of Zimbabwe (GOZ)–implemented IRS, which is the primary prevention intervention in the highest burden malaria districts.
- The quality and quantity of information required for programmatic decision-making remains inadequate, as is the Ministry of Health and Child Care's (MOHCC's) transparency with and sharing of data. 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)/Malaria Indicator Survey (MIS), originally planned for 2020, was postponed again due to factors beyond PMI and NMCP control;
    - 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 and Information System (HMIS) and Logistic 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 high malaria burden areas (e.g., riverbank cultivators, artisanal miners, and migrant farmers) have limited the impact of traditional vector control interventions in some areas.

Despite these challenges, the relationship between PMI and NMCP remains strong, and malaria stakeholders are optimistic that disease burden can be decreased by building on recent achievements and positive enabling factors. For example, PMI/Zimbabwe recently awarded 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 upon novel implementation approaches developed during the COVID-19 pandemic, such as virtual mentoring and supportive supervision and improved community-based distribution of ITNs. Finally, development of the next Global Fund grant application will begin in early calendar year 2023, providing an opportunity for stakeholders to reassess strategic priorities and fill resource gaps.

3.3. PMI's Approach for Zimbabwe

The vision of the Zimbabwe 2021–2025 National Malaria Control and Elimination Strategic Plan (2021–2025 NMCESP) is to achieve a malaria-free Zimbabwe, with the goal of reducing malaria incidence to 17 cases per 1,000 population and malaria deaths by at least 90 percent by 2025.[1] To achieve this, the NMCP supports the following major intervention areas: vector control; malaria case management (CM); 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 the NMCP's promotion and implementation of larval source management (LSM) outside of the malaria elimination context and the national policy recommending pre-referral rectal artesunate for all age groups.

As one of two primary malaria donors in Zimbabwe, PMI coordinates closely with the NMCP and Global Fund to ensure complementary support for implementation of the 2021–2025 NMCESP. PMI provides financial and technical assistance for the full range of PMI priority intervention areas outlined in Section 1.2 above. 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 CM, SBC, and SM&E). Despite substantial overlaps in

[1] The NMCP is reviewing the NMCESP 2021–2025 and may revise these targets, taking into consideration the lower 2021 incidence and deaths.

the general intervention areas funded by PMI and Global Fund, each generally targets specific activities by geography, by more detailed content areas, or by support type (e.g., implementation support versus technical assistance). For instance, PMI and Global Fund both support ITN distribution but in different geographical areas, with PMI providing technical assistance nationwide. Similarly, PMI's support for service delivery strengthening targets the 12 highest malaria burden districts, and Global Fund supports the remaining districts. One notable exception is that both PMI and Global Fund procure and distribute malaria CM commodities through Zimbabwe's national pooled supply chain management and distribution system.

In light of the key challenges detailed above, and considering the NMCP's strategic direction to rely more heavily on ITNs for malaria prevention, PMI/Zimbabwe has made a substantial strategic shift over the last two 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 CM strengthening, particularly at the community level; and increased funding for SBC and SM&E strengthening. Although PMI continues to direct resources primarily to high-burden areas, PMI also slightly increased the level of support for elimination activities. Finally, to build local capacity and increase the quality and quantity of entomological monitoring data, PMI recently 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 CM 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 intends to continue with the support model and strategic direction outlined above.

II. OPERATIONAL PLAN FOR FY 2023

1. Vector Monitoring and Control

1.1. PMI Goal and Strategic Approach

As outlined in the 2021–2025 NMCESP, NMCP promotes an integrated vector management strategy, including vector surveillance, insecticide resistance management, continuous and mass distribution of ITNs, geographically targeted IRS, and LSM. 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 III level) with an Annual Parasite Index (API) of 5 per 1,000 population or greater. Rotation of insecticides is indicated after two years of 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 current Global Fund grant cycle, the NMCP will continue to reduce the number of districts with wards receiving IRS incrementally, from the 31 districts sprayed in 2021 to 24 districts in 2023. 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, 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. 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 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. Antenatal care clinics (ANC), the Expanded Program on Immunization (EPI), and community channels are tapped to ensure continuous distribution. ITNs are also distributed in emergency situations (for example, to survivors of natural disasters), to control outbreaks, and as part of foci response in elimination areas. According to the current national distribution policy, ITNs should not be distributed in areas with known pyrethroid resistance.

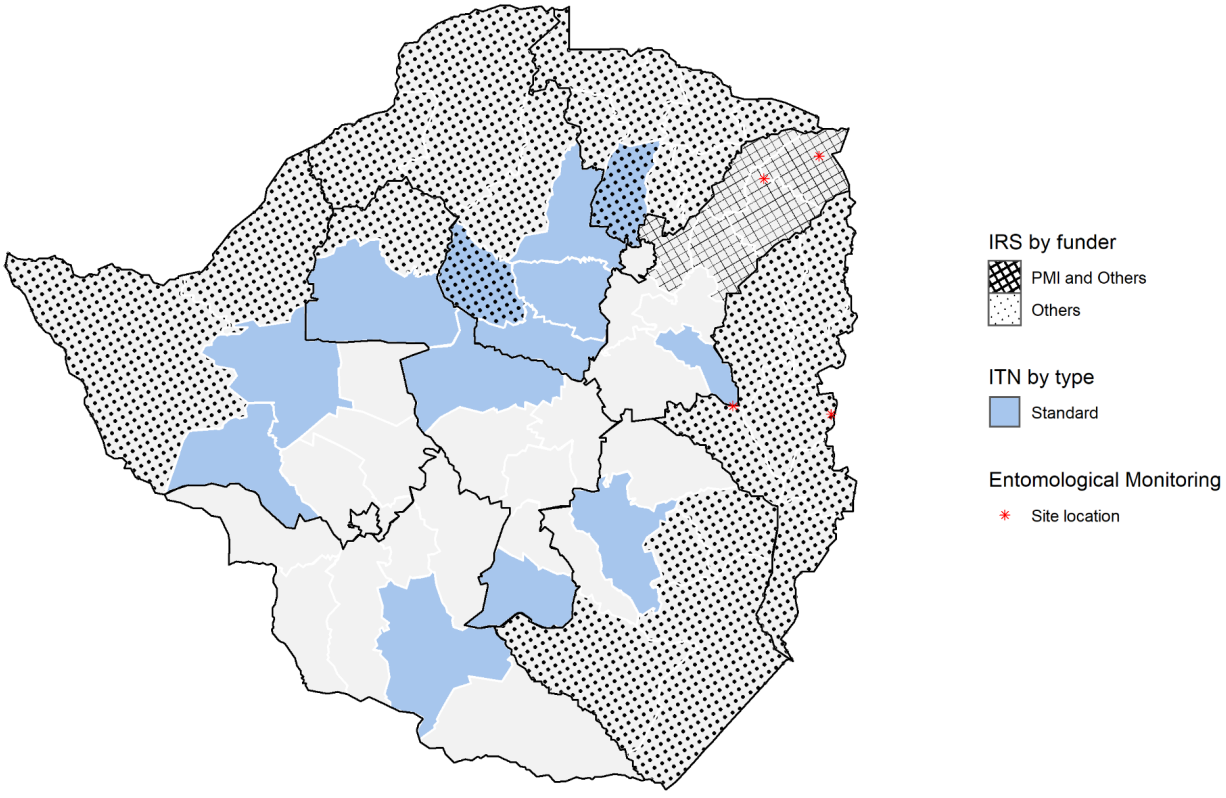
The NMCP recommends targeted LSM in districts or wards with an API of less than 1 per 1,000 population, large irrigation schemes, and/or urban areas. LSM is recommended only in circumstances when breeding sites are few, fixed, and findable. In practice, LSM implementation is quite limited.

PMI supports the use of all NMCP vector control interventions except LSM. Beginning 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. 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 together with PMI technical assistance and ad hoc logistical support.

In September 2021, PMI awarded a direct agreement to 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 will include enhanced entomological surveillance in two districts in Manicaland Province, insectary rearing and supply of live-reference mosquitoes, and provision of entomological technical data to guide malaria vector control strategies. With this local award, PMI is expanding the scope of PMI entomological monitoring from four to six districts and to one metropolitan city.

Figure 1. Map of Vector Control Activities in Zimbabwe by District, 2021*



*In Zimbabwe, IRS and ITN distribution are targeted at the ward (admin III) level. 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 (January 1 to December 31, 2021)

The COVID-19 pandemic and associated GOZ restrictions and mitigation measures, persistent and substantial human resource issues that continue to impact the Zimbabwe health care system, and the continued economic issues in Zimbabwe have impacted PMI-supported vector control activities. PMI worked with the NMCP and partners to adjust to these difficult circumstances and implement the following activities:

Entomological Monitoring

- Supported entomological monitoring in three sentinel sites in Mashonaland East Province and one site in Manicaland Province, in collaboration with provincial and district health officials, the NMCP, and the National Institute for Health Research (NIHR). Activities included vector bionomics monitoring and insecticide susceptibility testing, with spray quality and insecticide residual efficacy monitored in PMI-supported areas implementing IRS. PMI partners provided on-the-job entomology training to 25 environmental health staff during routine monitoring at all four sites.
- Supported community-based entomology activities through engagement of local youth at sentinel sites to independently collect mosquito larvae insecticide for resistance testing and to use several methods to collect adult mosquitoes for determining mosquito species distribution and feeding behaviors, and to determine mosquito host preferences.
- Supported activities collecting data on human-vector behavior in three sites. This monthly activity involved year-round monitoring of biting behavior of malaria vectors from sunset to sunrise, indoor and outdoor, and before and after IRS implementation.
- Initiated consultative meetings with provincial and district staff and agreed on the sampling approach and geographic coverage for two new entomological monitoring districts in Manicaland Province.
- Provided technical assistance for the national entomological baseline assessment led by the NMCP, including support for micro-planning, training of data collectors, supportive supervision, morphological identification, and laboratory analyses.
- Completed construction of a malaria research and reference insectary at a local private university. The facility was officially opened by the U.S. Embassy *Chargé d'Affaires*.

ITNs

- Supported the distribution of 26,500 ITNs through mini-mass distribution campaigns in four wards in two districts that had not benefited from the planned Global Fund-supported IRS campaign primarily due to delayed procurement and delivery of DDT.
- Provided technical assistance for planning of a nationwide ITN mass distribution campaign. PMI conducted planning in collaboration with the key malaria partners that it funds and the Global Fund. Activities included review of the current mass distribution policies, guidelines, and forms, including a VHW reporting form designed to improve recordkeeping and data retrievability/review during SM&E activities such as data quality assessments. The campaign has since been conducted, from April to June 2022.
- Supported the procurement and distribution of 43,420 ITNs in three malaria high burden districts through continuous distribution channels (23,110 by community, 11,824 by ANC, and 8,486 by EPI). A number of ITN beneficiaries (5,211) were special populations in hard-to-reach communities.
- Utilized the Continuous Community Communication Engagement and Participation and Community Action Cycle (CAC) approaches, and supported facility- and community-level SBC activities to improve demand for ITNs, increase appropriate use, promote maintenance, and mitigate against misuse. For more information, please refer to the SBC section.
- Trained 18 health workers and 93 VHWs in four districts to support distribution and promote ITN use.
- Established 20 community delivery service centers in four wards to deliver ITNs closer to the communities.

IRS

- Provided broad technical assistance at the central level and more targeted assistance in 5 of the 30 districts targeted for Global Fund-supported IRS implementation. Assistance 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 eight training sessions in preparation for the IRS campaign and technical assistance for the design and implementation of COVID-19 mitigation measures for use during the IRS campaign. More than 300 participants were trained in various disciplines with regards to IRS operations.
- Conducted pre- and post-IRS environmental compliance assessments at 18 campsites in the five targeted districts. This included refurbishment of eight IRS campsites in Goromonzi, Murehwa, and Uzumba-Maramba-Pfungwe, and provision of safe water systems at four IRS camps, and proper

management of liquid and solid wastes from all IRS campsites in the targeted districts.

1.3. Plans and Justification for FY 2023 Funding

The FY 2023 funding tables contain a full list of vector monitoring and control activities that PMI proposes to support in Zimbabwe with FY 2023 funding: see www.pmi.gov/resources/malaria-operational-plans-mops.

1.3.1. Entomological Monitoring

PMI will continue to support entomological monitoring in three sites in Mashonaland East and expansion of monitoring through the newly awarded program at a local private university in Manicaland. PMI will continue to provide technical assistance to the latter to expand in-country capacity for laboratory analysis, insecticide residual efficacy, and insecticide resistance monitoring of the NMCP's IRS program and will also support the procurement of insectary supplies and lab equipment. The local university partner will build entomological monitoring capacity in two districts in Manicaland Province, with a plan to expand as resources allow.

Summary of Distribution and Bionomics of Malaria Vectors in Zimbabwe
Longitudinal entomological monitoring was conducted in three sentinel sites in three districts in Mashonaland East Province (Dendera, Mudzi District; Kawere, Mutoko District; and Makarara, Hwedza District). Mudzi and Mutoko are IRS-targeted districts, sprayed with Fludora Fusion 1.1.3in 2020, and Hwedza District was a non-IRS district. COVID-19 lockdowns disrupted monitoring in these three sites in July 2021. Entomological monitoring in a fourth site in Manicaland Province (Burma Valley, Mutare District) was discontinued in March 2021; however insecticide resistance monitoring continued.

In Mashonaland East, the primary vector was *An. funestus* s.l. and the secondary vector was *An. gambiae* s.l., although there were differences between sites. Of the *Anopheles* collected in these three sites, 49 percent were in the non-IRS Hwedza district. In Mutoko and Hwedza districts, higher numbers of *An. funestus* s.l. than *An. gambiae* s.l. were collected, with the highest number of *An. funestus* s.l. collected being in the non-IRS Hwedza district. *An. gambiae* s.l. and *An. funestus* s.l. were collected in about equal numbers in Mudzi district. Other *Anopheles* collected included *An. coustani*, *An. pretoriensis, An. maculipalplis,* and *An. rufipes*. In Burma Valley, *An. gambiae* s.l. was the primary vector followed by *An. funestus* s.l.

Too few *An. funestus* s.l. and *An. gambiae* s.l. were collected to be able to determine peak biting times and preferred resting locations. The biting rate for *An. gambiae* s.l. was estimated as slightly higher outdoors than indoors at the Burma Valley, Manicaland

site. In the Mashonaland East sites, too few mosquitoes were collected to determine preferred biting locations.

Molecular analysis of the samples showed that in Mutoko, the primary vector was *An. parensis* of the *An. funestus* complex, and the secondary vector was *An. arabiensis* of the *An. gambiae* complex. In Dendra, the primary vector was *An. arabiensis* and the secondary vector was *An. parensis*. In the non-IRS district of Wedza, the primary vectors collected were *An. parensis*, An. *leeson*i, and *An. rivulorum*-like (*An. funestus* complex). *An. quadriannulatus* accounted for most of *An. gambiae* s.l. collected. Although thought to be a non-vector, *An. quadriannulatus* is susceptible to *P. falciparum* infections in laboratory vector incrimination tests. However, testing for sporozoites has not found any positive *An. quadriannulatus* to date.

NMCP conducted a National Entomological Baseline Survey from June to July 2021, the winter months when *Anopheles* populations are generally low. Given this timing, the overall quantity of mosquitoes collected was low. *Anopheles* specimens collected at Centenary, Shamva, and Mazowe in Mashonaland Central and Nyanga, Makoni and Chipinge in Manicaland Provinces were analyzed. In Chipinge, the primary vectors were *An. arabiensis*, *An. merus,* and *An. quariannulatus* from the *An. gambiae* complex. In Nyanga and Makoni, the predominant species was *An. quadriannulatus*. At the Mashonaland East sites, *An. parensis* and *An. rivulorum* of the *An. funestus* complex were the predominant vectors. In Shamva and Mazowe, *An. rufipes*, *An. pretoriensis* and *An. coustani* were collected.

Status of Insecticide Resistance in Zimbabwe
Insecticide resistance testing was carried out between March 2021 and January 2022 at three districts in Mashonaland East Province. In Mudzi District, *An. gambiae* s.l. were susceptible to deltamethrin, DDT, pirimiphos-methyl, and clothianidin. In Mutoko District, *An. gambiae* s.l. were susceptible to deltamethrin, DDT, and clothianidin. In Hwedza, *An. gambiae* s.l. were fully susceptible to alpha-cypermethrin. 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 Mosquito Nets (ITNs)

Regarding ITNs, PMI will continue its overall trend, which began in the MOP FY 2020, to prioritize ITNs. With MOP FY 2023 funds, PMI plans to:

- Procure approximately 1.3 million single-pyrethroid ITNs (about 400,000 for campaign distribution and about 900,000 for continuous distribution)
- Support the 2023 National ITN Mass Campaign through the ITN Technical Working Group of the NMCP and malaria partners

- Continue to support the continuous distribution of ITNs in 12 targeted malaria high burden districts
- Continue to support distribution of ITNs to hard-to-reach groups
- Continue to strengthen the planning, logistics, and SBC capacity of Global Fund-funded sub-recipients that distribute ITNs in non-PMI-supported areas via campaigns and continuous distribution
- Maintain strong support for ITN SBC messages using trained community representatives adept at encouraging ITN ownership for every sleeping space, managing ITN configuration and hanging (changing a rectangular ITN to a conical ITN), and relaying messages on consistent ITN use. Please see the **SBC section** for details on challenges and opportunities to improve intervention uptake or maintenance.

ITN Distribution in Zimbabwe

Standard single-pyrethroid ITNs are distributed in Zimbabwe via large and medium-size rolling campaigns each year and via continuous distributions through EPI, ANC, and community channels. There was one school distribution (third and sixth graders) in 2015 in association with the net durability study. 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 2024, there will be a gap of almost 300,000 ITNs, after considering the 1.3 million ITNs planned for PMI's MOP FY 2023. However, the new Global Fund grant covering this period has yet to be written and negotiated. Additional ITNs may be available, depending on grant decisions and the success of the NMCP's application. Furthermore, PMI is committed to covering any remaining gap through reprogramming if U.S. government funds are available.

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

1.3.3. Indoor Residual Spraying (IRS)

Using MOP FY 2023 funds, PMI will continue to provide technical assistance for IRS planning 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 in selected districts. The targeted districts will be chosen under a new implementing mechanism, but likely will be in geographic areas that PMI currently supports. The

overall level of funding planned for IRS support represents a further scaling down of the extent of PMI support compared to past and current levels.

IRS Insecticide Residual Efficacy in Zimbabwe

A residual efficacy assessment of Fludora Fusion following the November 2020 IRS spray campaign at Dendera and Kawere, using cone wall bioassays, showed the clothianidin-deltamethrin mixture had residual efficacy of >80 percent for nine months. Residual efficacy of DDT that the NMCP sprayed in the October 2020 IRS campaign in Burma Valley remained above the 80 percent threshold for at least nine months. In 2021, PMI shifted from conducting direct IRS operations to providing technical assistance to 5 of the 30 IRS districts led by the NMCP (Goromonzi, Mudzi, Murehwa, Mutoko, and Uzumba-Maramba-Pfungwe). Residual efficacy monitoring for these five sites are currently ongoing.

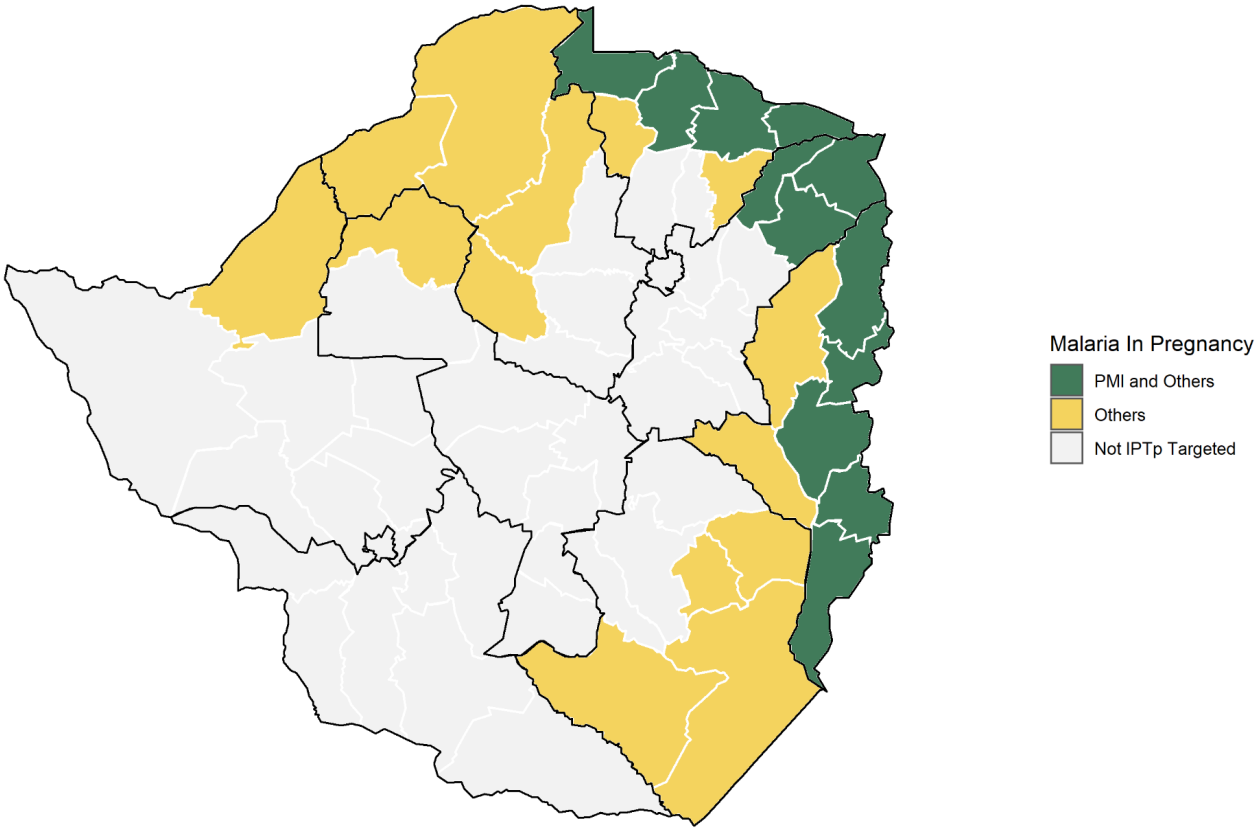
2. Malaria in Pregnancy

2.1. PMI Goal and Strategic Approach

Ensuring prompt and appropriate MIP services, including CM and the provision of IPTp and ITNs to pregnant women, is a key objective of Zimbabwe's 2021–2025 NMCESP. Zimbabwe's policy specifically supports:

- Implementation of IPTp in 26 high-burden districts (see Figure 2), with a target of 85 percent of pregnant women receiving at least three doses of sulfadoxine-pyrimethamine (SP) during pregnancy by 2025
- 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 2025
- 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

Figure 2. Map of IPTp Service Delivery Strengthening by Funder, 2021



PMI supports the NMCP's IPTp delivery strengthening efforts through:

- Procurement and distribution of SP through a pooled commodity warehousing and distribution system. PMI commodities are targeted to all 26 IPTp implementation districts
- Provision of technical assistance at all levels of the health system and support for training, supervision, and mentoring to improve facility and community-based health workers' IPTp service delivery in PMI-supported provinces and districts. PMI's current geographic area of focus covers 12 of the 26 districts that the NMCP is targeting for IPTp
- Provision of SBC to improve acceptance and uptake of IPTp

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 (2016 MIS). 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 substantially underestimation of IPTp coverage. Other data sources suggest that IPTp coverage is considerably higher, with nearly 70 percent

of pregnant women receiving three or more SP doses in Manicaland and Mashonaland East Provinces (2019 Zimbabwe Case Management Audit) and 54 percent receiving three or more SP doses within the 26 targeted IPTp districts (DHIS2 2020).

Key barriers that affect provider delivery of MIP services (e.g., IPTp and ITN distribution at ANC visits) include persistent knowledge gaps of current IPTp guidelines among nurses and VHWs, limited IPTp content during ANC supportive supervision visits, and continued health system deterioration and economic issues. Key barriers to ANC attendance include restricted ANC service availability at health facilities, long distances to health facilities, and cultural beliefs that encourage concealment of pregnancies.

PMI also provides support to improve effective and timely case management of MIP, including diagnosis and management of uncomplicated malaria and severe malaria in the first and second–third trimesters. Specific activities (e.g., training, supervision, and mentoring) are outlined in the next section.

2.2. Recent Progress (January 1 to December 31, 2021)

The COVID-19 pandemic and associated GOZ restrictions and mitigation measures, persistent and substantial human resource issues that continue to impact the Zimbabwe health care system, and continued economic issues in Zimbabwe have impacted PMI-supported MIP activities. In addition, PMI/Zimbabwe awarded a new primary service delivery agreement during this period, requiring the implementing partner to conduct time-consuming close-out and start-up activities. PMI worked with the NMCP and partners to adjust to these difficult circumstances and implement the following:

- Coordinated with the NMCP, Global Fund, the 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 distribution of approximately 300,000 doses of SP
- In targeted high-burden provinces, supported:
    - Two Malaria Technical Working Group Case Management Sub-Committee meetings, which included MIP and IPTp technical discussions and decision-making;
    - Training of 289 facility-based health workers in malaria CM and MIP and 485 VHWs in community case management (CCM) and MIP; and
    - Virtual mentorship for 148 facility-based health workers and virtual support and supervision for 163 VHWs.

See the Case Management Section below for additional activities that also affected MIP programming and implementation.

2.3. Plans and Justification for FY 2023 Funding

The FY 2023 funding tables contain a full list of MIP activities that PMI proposes to support in Zimbabwe with FY 2023 funding: see www.pmi.gov/resources/malaria-operational-plans-mops.

PMI will collaborate with the 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, the procurement pipeline has adequate SP stocks to cover the need through calendar year 2024. As a result, PMI does not plan to procure SP with MOP FY 2023 funding, but will continue to support SP distribution to facilities in all IPTp-targeted areas. Please refer to the **SP Gap Table** in the annex for more detail on planned quantities and distribution channels.

PMI will continue to support MIP CM strengthening and enhancement of IPTp uptake in 12 PMI priority districts through training, mentoring, supportive supervision at the facility and community levels, and technical assistance and policy support at the central level.

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 suspected malaria cases and treatment for all confirmed cases is a key NMCP objective under the 2021–2025 NMCESP. To achieve this objective, the 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 CM commodities;
5. Strengthening CM for special groups (mobile population, artisanal miners, refugees, agriculture workers, gatherings etc.); and
6. Strengthening community-level malaria CM.

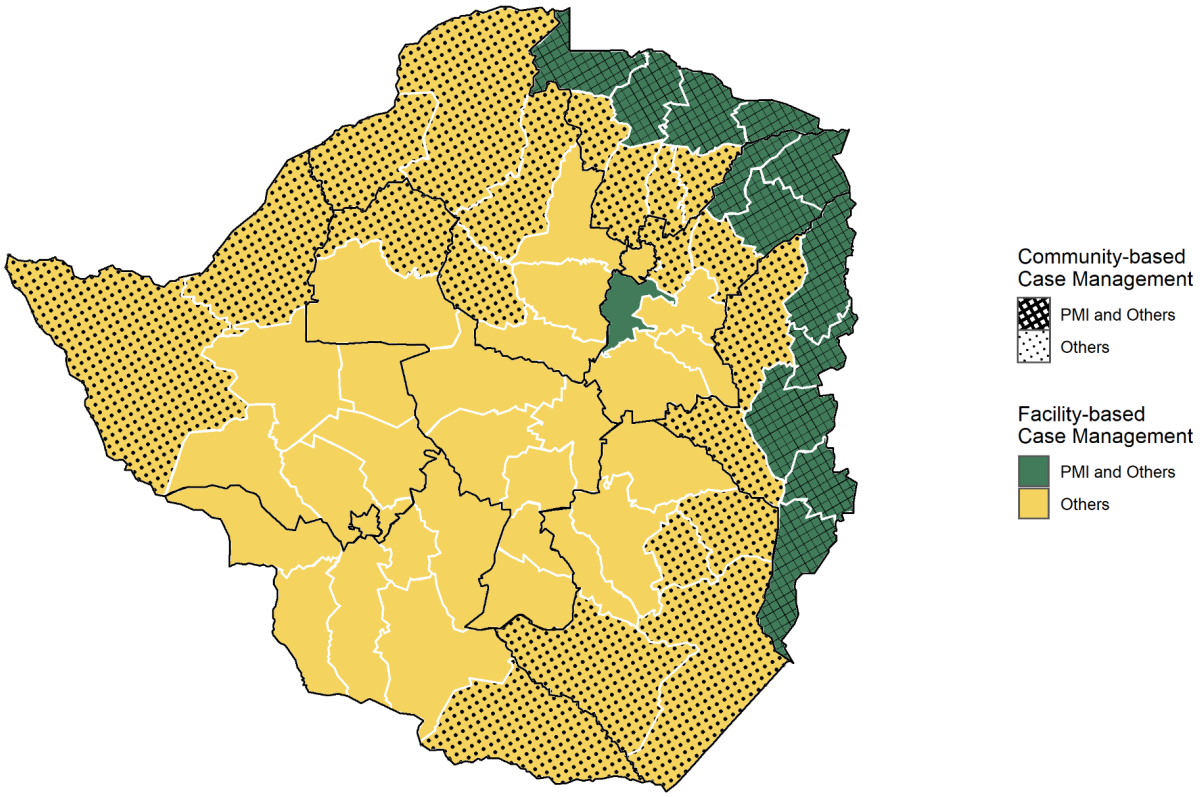
PMI contributes to all aspects of the NMCP approach by supporting national-level policy and programmatic activities as well as facility and community-level CM service delivery strengthening in Zimbabwe's 12 highest malaria burden districts. This includes the provision of technical assistance and support for training, supportive supervision, mentoring, death audits, policy and guideline revision, and other activities (described in more detail in the following sections). The NMCP uses Global Fund resources to implement CM interventions in the remaining districts.

PMI and the Global Fund procure nearly all of Zimbabwe's malaria commodities (e.g., ACTs, RDTs, SP, parenteral artesunate, and primaquine), with limited inputs from the GOZ. PMI works with NMCP, DPS, and Global Fund staff to ensure timely product availability based on current needs. As a result, PMI does not necessarily procure all commodity types each year, and the percentage of the total need that PMI fills for each commodity in a given year varies. PMI-procured commodities are contributed to a pooled commodity management system and distributed nationwide. Of note, primaquine has historically been purchased with Global Fund resources, covering all needs. However, 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 contrast with World Health Organization (WHO) recommendations. RAS is procured using GOZ funding, when resources are available.

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 Zimbabwe's 12 highest malaria burden districts to improve their capacity to deliver community-based CM services, including integrated CCM, malaria CCM to all ages, and the administration of pre-referral RAS. PMI does not provide routine stipends to CHWs; rather, those payments are funded by the Global Fund and the Health Development Group. PMI liaises closely with these entities and the 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, 2021



4.2. Recent Progress (January 1 to December 31, 2021)

The COVID-19 pandemic and associated GOZ restrictions and mitigation measures, persistent and substantial human resource issues that continue to impact the Zimbabwe health care system, and continued economic issues in Zimbabwe have undermined PMI-supported CM strengthening activities. In addition, PMI awarded a new primary service delivery agreement during this period, requiring the implementing partner to conduct time-consuming close-out and start-up activities. PMI worked with the NMCP and partners to adjust to these difficult circumstances and implement the following:

National-level Case Management Activities

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

- Provided financial and technical support for two Malaria Case Management Sub-Committee meetings
- Conducted stakeholder analyses to identify potential local organizations for collaboration in CM, CCM, MIP and other programmatic areas. A total of 41 community-based and faith-based organizations were identified, and assessment of organizational capacity for partnership is currently underway.
- Strongly advocated for the update of the 2015 Guidelines for the Management of Malaria in Zimbabwe. Of note, NMCP plans to initiate the review and revision process in the second quarter of calendar year 2022 using Global Fund resources. PMI and partners plan to provide technical support.

Commodities

- Coordinated with NMCP, Global Fund, DPS, and other in-country stakeholders to coordinate procurement and delivery schedules to ensure appropriate stock levels of CM commodities at service delivery points
- Supported the procurement and distribution of 1,408,000 malaria RDTs for nationwide distribution
- Supported the procurement and distribution of 570,320 ACT courses for nationwide distribution
- Supported 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 PMI-supported priority districts:
    - Conducted detailed analysis to determine CM training needs for trainers, supervisors, and facility-based health workers.
    - Supported CM trainings for 289 facility health workers.
    - Supported virtual malaria mentorship, reaching 148 facility health workers.
    - Supported two malaria death audit meetings.

Community Level

- In the PMI-supported priority districts:
    - Conducted detailed analysis to determine CM training needs for VHWs.
    - Supported CCM training and post-training follow-up, as needed, for 485 VHWs.
    - Supported virtual supportive supervision for 163 VHWs.
    - Provided airtime to 172 VHWs for use during CM and SM&E activities.

- Liaised with Global Fund and other partners to identify and address issues resulting in missed and delayed CHW stipend payments. Issues include delayed disbursement of funding, frequent changes in monetary and banking policies in Zimbabwe, and long distances and costly travel for CHWs to obtain payment. It is also important to note that donor funding was intended for a transitional period only, which 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 GOZ or other donor funding.

Elimination

- Worked with the NMCP and provincial leadership in Mashonaland East to identify an appropriate district(s) for PMI CM 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, and planning is underway to begin that support shortly.

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

4.3. Plans and Justification for FY 2023 Funding

The FY 2023 funding tables contain a full list of CM activities that PMI proposes to support in Zimbabwe with FY 2023 funding: see www.pmi.gov/resources/malaria-operational-plans-mops.

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 CM strengthening activities nationwide. Finally, PMI will support Case Management Technical Working Group Sub-Committee 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 CM commodities at service delivery points. Based on the most recent national quantification estimates, additional RDT procurement will be needed to ensure adequate availability in 2024. PMI plans to procure 1 million RDTs to fully meet this projected need. Neither ACTs nor parenteral artesunate have projected gaps, so PMI

will not plan to procure them at this time but will continue to monitor commodity uptake and pipeline. It should be noted that the current Zimbabwe Global Fund grant ends in December 2023, and MOHCC will have an opportunity to use 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 GOZ support for procurement of RAS.

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

Facility Level

PMI will continue to support training, supervision, mentoring, and material support, as needed, to strengthen CM 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 CCM strengthening in the 12 priority PMI control districts, as described in the Recent Progress section above.

Monitoring Antimalarial Efficacy

Table 1. Ongoing and Planned Therapeutic Efficacy Studies (TES)

Ongoing Therapeutic Efficacy Studies (TES)			
Year	**Site name**	**Treatment arm(s)**	**Plan for laboratory testing of samples**
N/A	N/A	N/A	N/A
Planned TESs (funded with previous or current MOP)			
Year	**Site name**	**Treatment arm(s)**	**Plan for laboratory testing of samples**
TBD	TBD	TBD	TBD

Two TESs performed over the last decade suggest no evidence of substantial resistance to the first-line ACT treatment (artemether-lumefantrine) 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 NIHR (normally, the responsible institution for TES in Zimbabwe), the NMCP, WHO and other partners to explore implementation arrangements that will increase the quality and ensure that reliable and accurate ACT resistance data are collected in Zimbabwe. Per the agreement among PMI, Global Fund, and the MOHCC, PMI/Zimbabwe is now the sole donor providing TES funding, which was included in MOP FY2020.

Case Management Elimination Activities

PMI will support CM elimination activities in Seke District. The specific CM activities to be supported will be determined based on an upcoming assessment of current resources and needs within 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 CM in elimination areas.

5. Health Supply Chain and Pharmaceutical Management

5.1. PMI Goal and Strategic Approach

A key strategy under the 2021–2025 NMCESP is to ensure that quality-assured malaria commodities are consistently available to contribute toward progress in malaria control and elimination. 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 to increase end-to-end data visibility from the community and health facility level to the national level.

5.2. Recent Progress (January 1 to December 31, 2021)

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 communities and 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 (1PL).

In 2020 and into early 2021, stockout rates increased drastically from previous years, reaching an average of just over 40 percent across key malaria commodities (i.e., ACTs, RDTs, and SP) by March 2021; the system was unprepared for the high case load in 2020, and it took time to bring stock levels back up. Over 10 percent of facilities also reported stockouts rate of all artemether-lumefantrine presentations. Nonetheless, due to increased availability at the central level, stockouts across malaria commodities remained below 20 percent after the first quarter of 2021, with the June end-user verification (EUV) showing all facilities having at least two artemether-lumefantrine presentations and over 50 percent with all four. The increased central level availability was also reflected in the EUVs, as the October 2020 EUV found 50 percent of facilities reported a stockout because products were not available at the central level, while only 20 percent reported this issue in the June 2021 EUV. To better anticipate these demand fluctuations in the future, PMI supported integrating a seasonality index into the system. At the time of the writing of this MOP, the seasonality index has been designed and under evaluation and, as such, not yet integrated directly into the system.

The impact of stock availability was only measurable at health facilities, with no or limited visibility into community stock levels despite the significant role CHWs play in malaria service delivery. Therefore, as a critical investment in the Zimbabwe supply chain, PMI supported the re-design and pilot of the community health commodity distribution system to increase visibility from the central level all the way to the last mile to better plan for needs at the community level. Due to the high stockouts throughout the country during the initial pilot of the system, PMI faced challenges in properly evaluating how well the system functioned, creating delays in the roll-out after completion of the pilot.

To increase in-country health supply chain capacity, PMI conducts trainings on stock management best practices, including keeping stock cards up to date. Findings in the EUV assist in identifying training gaps to be filled and areas requiring supportive supervision.

As part of a longer-term strategy, PMI supported the MOHCC in developing a roadmap to implement global standards.

5.3. Plans and Justification with FY 2023 Funding

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

A top priority for PMI is to address the significant discrepancy between reported consumption of malaria commodities and malaria cases. Zimbabwe will continue to support the activities listed above in the Recent Progress section, while also rolling out the redesigned CHW commodity distribution system in coordination with Global Fund. The goal is to eventually roll the system out nationally, implementing it in a few districts at a time as funding becomes available. The impact will be monitored continuously to ensure it is functioning as expected by increasing visibility and decreasing stockouts. In addition, if the review of the seasonality index is satisfactory, PMI will support the integration of this index into the current ordering system with consistent monitoring to ensure its accuracy and will make adjustments as needed. As these were two weaknesses identified in the 2016 assessment investigating possible causes for the consumption discrepancy compared to cases, it is hoped that the full implementation of these two activities will begin to close this gap.

Another key PMI focus continues to be improved forecasting and supply planning and determining whether, in addition to the above interventions, additional activities need to be implemented or adjustments made to the current country processes. The semi-annual EUV will continue to be conducted, as it offers key insights into weaknesses in the health supply chain. Finally, PMI will also review current 1PL system support and

evaluate whether other, more effective options are available in the country. Depending on the review, PMI will continue to ensure delivery of commodities by continuing to implement the 1PL system if needed.

6. Social and Behavior Change

6.1. PMI Goal and Strategic Approach

Zimbabwe is guided by a Malaria Communications Strategy (MCS), which was designed to support the National Malaria Strategic Plan 2016–2020. Though it remains a solid, relevant strategy, NMCP intended to update the MCS in 2021 to be more in line with the new NMCESP 2021–2025. However, due to competing priorities, including COVID-19, this MCS review and update has been rescheduled for calendar year 2022 with PMI and malaria partner support. The MCS supports the NMCP's dual strategy for control and elimination interventions and the key behaviors required in those respective areas. Specifically, the MCS recognizes the heterogeneous malaria transmission within the country and distinguishes between SBC needs for both malaria control (high and low) and elimination areas, which are targeted with different approaches and protocols to manage malaria. Another distinguishing factor of the MCS that will be retained during the 2022 revision is NMCP's recognition of special groups at risk for malaria, such as families and workers who live and sleep outdoors for a substantial part of the year for their livelihoods or social practices. The special groups concept was introduced with the launch of the MCS in 2017. Since then, NMCP has worked more and more regularly with special groups and recognized their increasing importance in malaria transmission in different parts of the country. In September 2021, NMCP conducted a knowledge, attitudes, practices, and beliefs assessment of special groups to help inform deeper understanding of their characteristics and the revised MCS.

The current MCS has five guiding principles:

1. Evidence-based information gathering and dissemination
2. Epidemiological evidence
3. Multi-sectoral collaboration
4. Community ownership, empowerment, initiative, involvement, and participation
5. Use of multiple channels to reach target audiences

This last guiding principle has proved to be very effective in SBC. Due to the stratified nature of malaria risk in the country, this is an important component of this strategy. Some of the communication channels used to reach target audiences include interpersonal communication, community mobilization, and mass media.

Two theory-based models of behavior change guide the MCS: the socio-ecological model and the precede–proceed model. During the 2022 MCS revision process, NMCP and partners will review the relevance of these models for the program under the current context. The socio-ecological model highlights how behavior influences (and is influenced by) individual, social, and structural factors. Based on the Ecological Systems Theory, the socio-ecological model is the basis for decisions to focus on advocacy as an important part of this strategy. The precede–proceed model is evidence-based. MIS, HMIS, DHS, and Multiple Indicator Cluster Survey data were used to identify epidemiological, behavioral, predisposing, reinforcing, and enabling factors. Thus, the SBC interventions in this MCS are focused on addressing problems highlighted in nationally representative household survey data.

Though most SBC interventions occur locally, the NMCP SBC officer and SBC Technical Subcommittee play key roles at the national level in organizing events and initiatives, providing technical guidance and oversight, and motivating MOHCC malaria staff and partners throughout the nation. The chair of the SBC Technical Subcommittee is from a PMI-supported partner organization, and the NMCP SBC officer plays the secretariat role. The SBC Subcommittee is the most active subcommittee and acts as a promoter in moving malaria SBC goals and objectives forward. SBC Subcommittee members include provincial and district members of the MOHCC (Health Information Officers) that are tasked to initiate, carry out, and monitor activities at the district, ward, and community levels.

As mentioned above, the NMCESP 2021–2025 has four strategies under the SBC Objective. These strategies weave together in an effort to fully support the NMCP's malaria prevention and treatment in control and elimination areas. The NMCESP 2021–2025 strategies are as follows:

- **Strategy 1:** Enhance utilization and uptake of vector control interventions
- **Strategy 2:** Promote IPTp uptake and early treatment-seeking behavior
- **Strategy 3:** Promote participation and ownership of elimination activities by communities and other stakeholders
- **Strategy 4:** Conduct advocacy to raise the malaria profile

6.2. PMI Objectives in Support of NMCP and Coordination with Other Donors

PMI's SBC support is fully aligned with the NMCESP 2021–2025 and the MCS. PMI's objective is to support NMCP by extending SBC funds as far as possible, geographically prioritizing the highest burden provinces and currently one elimination district, covering all prioritized behaviors.

NMCP has agreed to designate specific districts to PMI implementing partners to provide a comprehensive package of malaria prevention and treatment support,

including important cross-cutting areas such as SBC and SM&E. PMI partners cover the districts in the three highest-burden provinces (Manicaland, Mashonaland East, and Mashonaland Central), which currently account for over 80 percent of malaria transmission in the country. PMI is also working with NMCP and partners to define and refine the SBC elimination approach and tools. PMI has one partner that is working in Seke District (Mashonaland East Province), a district fairly new to transition to implementation of elimination protocols.

In 2021, PMI's primary ITN distribution partner began providing an intentional package of ITN technical assistance to two Global Fund sub-recipients in other parts of the country (Midlands, Masvingo, Mashonaland West, Matabeleland North, and Matabeleland South). In addition to ITN logistics and supply chain guidance, the PMI partner began providing intensive SBC support to these partners during both campaign and routine distribution. The My Net My Life concepts were disseminated in these areas, including key ITN messages for every sleeping space, every night, all year. In addition, important roles for CHWs and influential community members to act as ITN advocates and promoters were introduced.

At the national level, PMI supports NMCP to articulate SBC policies and themes, produce guiding documents, etc. PMI plays a leading technical role supporting NMCP to coordinate, plan, and engage in technical dialogue, mainly through the NMCP SBC Technical Subcommittee, as mentioned above. One of PMI's partners serves as chair on the subcommittee and frequently supports logistics for the meetings. PMI also supports SBC at the national level by engaging consistently with NMCP and partners, contributing to policy, contributing innovative ideas, and participating on the SBC Technical Subcommittee. PMI is supporting a project baseline and 2023 Malaria Indicator Survey, both which will supply greatly anticipated data for the SBC component of the malaria program, including a recommendation to include the SBC module. Even though PMI SBC funds have increased in the past three MOPS, PMI will not cover every area of need, even with other donor support. Therefore, PMI prioritizes the most urgent SBC priorities.

NMCP coordinates among all donors and partners to ensure adequate SBC coverage as much as possible with no duplication. PMI and Global Fund, as the major malaria donors in the country, each provides a similar package of support to NMCP across all the major malaria implementation areas (IRS, ITNs, IPTp, CM, MIP, and elimination). As stated above, PMI contributes to SBC nationally and covers the three highest-burden provinces and one elimination district. The NMCP Global Fund grant covers the SBC work in the remaining malarious provinces (Midlands, Masvingo, and Mashonaland West, Matabeleland North and Matabeleland South), with a comparatively lower malaria burden, and provides some support to 30 elimination districts. Together, these two

major donors support all geographic areas and are supplemented by smaller yet important donors, including: Isdell:Flowers, Wild4Life, and the United Methodist Church.

6.3. Recent Progress (January 1 to December 31, 2021)

The last 12 months coincided with the close-out and start-up of PMI's main SBC implementing partner project in Zimbabwe. Therefore, despite best efforts, this disrupted the momentum of SBC activities during this period. Nevertheless, the objective throughout this period was maintained: Increased preventive and health-seeking behaviors, including timely care-seeking, acceptance of IRS, consistent nightly use of ITNs for every sleeping space in targeted areas, and uptake of IPTp. Overall, as opposed to Zimbabwe's historical SBC experience, the new implementing partner intends to use more novel approaches and more combinations of outlets and media. Due to an increase in resources, the team has brought on an additional SBC-dedicated staff member as well.

All SBC activities performed during this period eventually aim to benefit community members, but those activities that primarily targeted community members and community public health cadres are separated and labeled as *Community Level*. Activities accomplished in the last year include:

Community Level

- Held 15 Continuous Community Communication Engagement and Participation meetings in four districts aimed at continuously encouraging leaders and VHWs to promote access, ownership, and constant use of ITNs for malaria prevention.
- To bring ITNs closer to users, the PMI partner vector control team established five Community Delivery Service Centers in Mbire District to promote net use and also create a holistic approach to malaria prevention in the surrounding areas. PMI's partner furnished the Mbire centers with SBC materials: 500 IRS brochures, 130 My Net My Life pamphlets, 200 MIP pamphlets, and one copy of the ITNs promotional video. These efforts will ensure that the centers become active hubs for readily available malaria information for the communities.
- As mentioned in the ITN section above, PMI's ITN distribution partner identified and cultivated local indigenous partners to assist with ITN distribution. This is also part of the strategy to bring ITNs closer to the people through a network with more local ITN outlets. Community- and faith-based organizations have been identified through a scoping exercise and assessed with a tool. One of the assessment tool components specifically looks at the local partners' current or potential SBC capability. For example, can the local partners do the following:

    - Identify populations with different SBC needs
    - Conduct community engagement activities (dialogues on creating an enabling environment for malaria SBC activities, edutainment, community score cards)
    - Support CAC activities
    - Support development and pre-testing of edutainment material on malaria at local levels (ITNs, IRS, MIP)
    - Distribute SBC materials
    - Document activities

The next phase is local partner selection.

- Pre-tested and documented an ITN video, produced last year primarily for circulation through social media, in Bindura, Mazowe, Mbire, and Mount Darwin Districts. The data show that 85 percent of interviewed participants indicate that the video communicates the intended messages, as validated by the responses they gave on what they had learned from the video.
- Supported 119 ward-level, pre-IRS sensitization meetings in PMI-supported wards of Manicaland, Mashonaland Central, and Mashonaland East. These events are critical for raising community awareness of the upcoming IRS campaigns, providing information about the process, logistics, insecticide, and key messages for beneficiaries. It is also a time to take questions about important issues like environmental safety, beneficiary safety, and expectations of community members on spray operators' competency and professionalism.
- Updated, printed, and distributed 60,000 IRS information brochures for communities in 12 districts and delivered 230,000 IRS instructional flyers to sprayed households in Manicaland. The leave-behind flyers are important to reinforce key IRS messages after the spray teams have sprayed the homesteads and to answer lingering questions when the campaign has concluded.
- Continued incorporating COVID-19 messaging along with all malaria messaging and outreach as per MOHCC/NMCP guidance. As the pandemic is still affecting Zimbabwe, it remains critical for communities to understand what to do if they have fever and think they may have contracted COVID-19.

Above Community Level

- Supported the NMCP in conceptualizing and developing the protocol and planning for the knowledge, attitudes, practices, and beliefs assessment of special groups at risk for malaria to guide malaria programming interventions.
- Worked on developing a project-level SBC strategy in coordination with NMCP to support the revised MCS. In addition, worked to support NMCP in

planning for the revised MCS. Both these documents will be important guides for malaria partners supporting SBC initiatives.

- Provided support to gather stakeholder perspectives on rebranding the NMCP into a brand that is strategic and considers malaria elimination for the country. Disseminated the rebranding report and convened a virtual forum attended by the NMCP and stakeholders to discuss its findings. A key outcome of the meeting was NMCP's commitment to conduct a brand re-orientation and repositioning based on the report's findings through development of a communication strategy.
- Supported and participated in two virtual SBC sub-committee meetings, which included national- and provincial-level members.
- Supported preparations for the annual Southern Africa Development Community Malaria Day commemorations, normally held around late November. The focus this year was to highlight the importance of malaria prevention for the nation and communities.

SBC Implementation Challenges

Aside from the challenge already mentioned of the project end/start of the main PMI SBC implementing partner, other challenges experienced during implementation include:

- COVID-19 limitations in travel and congregations occurred in varying degrees during the past year. In addition, the COVID-19 agenda necessarily took up a lot of the MOHCC's time to care for the sick and dying, provide vaccines, and monitor programs for COVID-safe protocols. COVID-19 also overworks an already burdened health sector workforce and adversely affects morale.
- The socio-economic hardships in Zimbabwe mentioned in the Country Malaria Profile are daily realities for all malaria partners and NMCP counterparts, and they adversely affect each activity. Malaria activities are delayed and downsized due to issues such as hyperinflation and lack of available inputs in the country (especially fuel). In addition, the deteriorating infrastructure, the health sector's increasing fragility, and thinning of the workforce make activities more difficult.
- The lack of data to help inform Zimbabwe's malaria SBC activities is problematic and has persisted over the past few years. Despite best attempts this past year, PMI was not able to conduct a national-level survey or smaller survey. However, PMI has planned for its main SBC implementing partner to conduct a baseline assessment. That assessment, scheduled for April/May 2022, was intended to provide some targeted SBC data from the 12 highest burdened malaria districts in the country. In addition, PMI has made headway

in mobilizing partners for an MIS, requested and already funded by the NMCP, in March/April/May 2023.

6.4. Plans and Justification with FY 2023 Funding

The FY 2023 funding tables contain a full list of SBC activities that PMI proposes to support in Zimbabwe with FY 2023 funding: see www.pmi.gov/resources/malaria-operational-plans-mops.

In MOP FY 2023, PMI plans to use its increased allocation for SBC to realign partner activity plans and micro plans. The SBC landscape will benefit from a reviewed and revised MCS, and the PMI SBC implementing partner baseline assessment will provide some data. A national census will have been completed in 2022. In addition, preliminary MIS data should be available. All of these new informative pieces of the malaria program will reflect the need for SBC components to realign appropriately.

However, PMI can assume that one of the most important determinants of malaria risk will remain: perception of malaria seasonality. A typical, although misguided, perception, for example, is, “If it’s not the rainy season or I don’t see mosquitoes, I am not at risk for malaria. Therefore, I don’t have to practice malaria prevention in my daily life or make diagnosis and treatment for malaria a priority if I have symptoms.” In fact, current data and program documentation point to malaria seasonality as the most important determinant of risk. PMI activities will plan to continue to address malaria risk and seasonality.

PMI also assumes that ITN ownership, access, and consistent use for every sleeping space will continue to grow as a priority as more districts reduce their malaria incidence and transition from targeted IRS to ITNs in line with NMCP vector control policy. In addition, NMCP is targeting special groups that have additional risk for malaria because they sleep or work outside or live in unsprayable structures with ITNs. Now that NMCP is stepping up its mapping and outreach to these special groups, PMI expects the need for ITNs and SBC for ITNs to grow.

PMI expects to continue working on other key malaria SBC areas as identified in Table 2. What will change will be the emphasis and approach after malaria partners benefit from a revised MCS and additional survey data.

Priorities

Table 2. Priority Behaviors to Address

Behavior	Target Population	Geographic Focus	Programming to Address Behavior
Consistent use of ITNs for every sleeping space	Zimbabweans residing in districts with malaria transmission indicated for ITN receipt Groups at special risk due to outdoor exposure	35 targeted ITN districts; all districts with malaria transmission and special groups at risk	• Continue My Net My Life program via small group and individual interactions • Continue CDCS 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 Global Fund-funded districts • Create novel materials/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 and especially pregnant women and mothers of children under five years of age; groups at special risk due to outdoor exposure	47 districts	• Use PMI partner tool to measure quality of care and encourage improvement over time • Continue to advocate for prompt care for fever at community meetings at CAC or HCC events • Continue to use radio outreach to encourage prompt care-seeking, especially prior to malaria peak season
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 PMI partner tool to measure quality of care during ANC encounters and encourage improvement over time • Use CAC or HCC events to raise awareness of the importance of early ANC, IPTp, and ITN use for pregnant women • Use radio spots to encourage pregnant women and those who support them (partners, mothers-in-law, friends) to embrace the importance of prevention of malaria during pregnancy

Additional Support Activities

As mentioned above, PMI increased the SBC FY 2023 allocation, continuing a trend begun in FY 2022 that doubled the malaria SBC investment. NMCP and malaria partners welcomed the increase in funds to help bolster and realign SBC activities with completion of the revised MCS and the PMI implementing partner SBC strategy. The PMI implementing partner baseline assessment in the 12 highest burden malaria districts in April/May 2022 was intended to help steer SBC efforts as well as the long-awaited MIS in 2023, including the expanded SBC module. PMI expects to conduct secondary analyses of the MIS data to answer some SBC questions regarding priority malaria behaviors listed in Table 3. In addition, because Zimbabwe has experienced a

long hiatus between large- and small-scale data collection, PMI and partners will work with NMCP to plan in advance for small-scale, targeted SBC data collection events in FY 2024 and FY 2025.

Though the majority of SBC funds will be focused on malaria control districts, a modest amount of funds will continue to support SBC in elimination areas, specifically Seke District. PMI's implementing partner will use existing elimination SBC materials which focus on how facility and community members can work together to eliminate malaria. The materials educate and raise awareness about the roles of the MOHCC staff in health facilities and VHWs in elimination districts. In addition, there are materials created specifically for community members which explain how they can assist in elimination by continuing efforts to prevent malaria and cooperating with investigations of cases identified.

NMCP and partners will continue their strong initiative to support malaria prevention and treatment options for special populations at risk for malaria. PMI partners have built specific support for these groups into their work plans under NMCP coordination. The September 2021 NMCP knowledge, attitudes, practices, and beliefs study conducted using MatchBox produced some findings that will help guide partners in this effort. For example, groups that engage in nocturnal activities (sex workers, long distance truck drivers, tobacco curing workers, artisanal miners) face barriers to obtaining malaria services. Some groups may be difficult to reach with information because their livelihoods are clandestine. Other groups (migrant agricultural large farm workers, small-scale stream bank agriculturalists) often lack access to services because of the seasonal, migratory nature of their movements; informal, unprotective housing and sleeping arrangements; and remote rural locations. PMI partners support districts that include these populations and will target them with tailored support for better access to prevention and treatment.

7. Surveillance, Monitoring, and Evaluation

7.1. PMI Goal and Strategic Approach

Strengthening surveillance, monitoring, and evaluation is a key objective of the 2021–2025 NMCESP. NMCP objectives are further outlined in the Surveillance Monitoring and Evaluation Plan for the Zimbabwe Malaria Control Strategic Plan 2016–2020, which is due for review and revision to align with the 2021–2025 NMCESP. The overall objective of this plan is to provide a comprehensive tracking system that enables transparent and effective management of information on malaria prevention and control activities.

The 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 sub-committee, 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 for monthly routine HMIS data, but weekly malaria data are included in the weekly Rapid Disease Notification System reports, which include information on malaria and other reportable diseases. The SM&E Plan 2016–2020 also includes a performance indicator matrix, which the NMCP uses to track progress toward the achievement of the malaria prevention and control objectives outlined in the strategic plan.

PMI supports multiple aspects of the 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 also described in other sections of this document.) At the central level, PMI supports the NMCP and the broader 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 highest burden malaria districts. PMI also supports quality implementation of SM&E strengthening in one additional district (Seke) implementing malaria elimination activities. NMCP, with support from Global Fund, implements interventions targeting the remaining provinces, though PMI efforts at the central level help to improve SM&E systems and implementation nationwide.

7.2. Recent Progress (January 1 to December 31, 2021)

The COVID-19 pandemic and associated GOZ restrictions and mitigation measures, persistent and substantial human resource issues that continue to impact the Zimbabwe health care system, and continued economic issues in Zimbabwe have impacted PMI-supported SM&E strengthening activities. In addition, PMI awarded a new primary service delivery agreement during this period, requiring the implementing partner to conduct time-consuming close-out and start-up activities. PMI worked with the NMCP and partners to adjust to these difficult circumstances and implement the following:

Central Level

- Convened a dissemination meeting for the national EPR guidelines
- Finalized the national malaria EPR training materials
- Finalized phases 1 and 2 of an assessment of the digital landscape at the community level in Zimbabwe, including a stakeholder-driven process for

identifying appropriate technologies and approaches suitable for the Zimbabwe context
- Developed a draft protocol for a baseline assessment to inform the activities of the recently awarded PMI primary service delivery partner

Provincial, District, and Facility Levels

- Supported training of trainers for SM&E for central- and provincial-level staff from seven provinces. These trainers will subsequently cascade SM&E training to the district and facility levels.
- Supported the training of Rapid Response Team members in malaria EPR from seven provinces. Trained provincial staff will cascade additional district-level trainings.
- Supported weekly mobile phone reporting by VHWs in selected health facilities in a targeted high-burden malaria district
- Supported institutionalization of quarterly DHIS2 data quality assessments in three outbreak-prone districts, reaching 65 health facilities. The activity was implemented remotely, working with District Health Information Officers.

Elimination

- Provided technical support for a national malaria elimination and review meeting to review progress by provinces and districts toward malaria elimination, and identified challenges and lessons learned
- Worked with NMCP and provincial leadership in Mashonaland East to identify an appropriate district(s) for PMI SM&E 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. Planning is underway to begin that support shortly.

SM&E Challenges

- PMI intended to support the implementation of a combined Zimbabwe DHS/MIS in 2020 using 2019 MOP 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. The current plan is to implement an MIS during the peak malaria season in 2023.
- PMI had also intended to support the NMCP to conduct three SM&E Technical Working Group Sub-Committee meetings; however, these were not held due to COVID-19 restrictions and competing virtual activities.
- Data availability and appropriate analysis and use of quality data still remain a challenge, particularly at the subnational levels.

- 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 pilot phase and the currently deployed HMIS systems (mixed paper and electronic) remain under-resourced, with multiple gaps in critical programmatic areas. Additionally, issues with system duplication, limited standards, and lack of interoperability persist.
- The community health system SM&E capacity remains low despite continued service delivery investments and expectation for data visibility.

7.3. Plans and Justification with FY 2023 Funding

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

PMI will continue to provide central-level support for policy review, planning, coordination, and activity implementation. PMI will also continue support for SM&E and malaria EPR strengthening in the 12 highest malaria burden districts through training, mentoring, supervision, data quality audits, review meetings, logistical support, and other activities as needed. Learning from the recently completed assessment of the community landscape, PMI will focus additional efforts toward strengthening community-level reporting for HMIS in coordination with the logistic management information system data strengthening mentioned in the Health Supply Chain and Pharmaceutical Management section.

PMI will support SM&E strengthening activities in the elimination context in Seke District to improve surveillance for reporting, investigation, and response activities and to inform programmatic decision-making. The specific case activities to be supported will be determined based on an upcoming assessment of current resources and needs.

Table 3. Available Malaria Surveillance Sources

Source	Data Collection Activity	2020	2021	2022	2023	2024	2025
Household Surveys	Demographic Health Survey (DHS)[2]				P		

2 A combined Zimbabwe DHS/MIS, with an expanded malaria module, was planned for 2020 with partial funding (FY 2019 MOP) from PMI. The survey was postponed due to a combination of factors, including difficulty securing the necessary additional donor funds, timing conflicts with the Zimbabwe Census and, most importantly, the COVID-19 pandemic. The current plan is to implement either a combined DHS/MIS or, if that is not possible, a standalone MIS, during the peak malaria season in 2023.

Source	Data Collection Activity	2020	2021	2022	2023	2024	2025
Household Surveys	Malaria Indicator Survey (MIS)[1]				P		
Household Surveys	Multiple Indicator Cluster Survey*					P	
Household Surveys	EPI survey						
Health Facility Surveys	Service Provision Assessment (SPA)						
Health Facility Surveys	Service Availability Readiness Assessment (SARA) survey						
Health Facility Surveys	Case Management Audit*			P			
Malaria Surveillance and Routine System Support	Therapeutic Efficacy Studies (TES)						
Malaria Surveillance and Routine System Support	Support to Parallel Malaria Surveillance System						
Malaria Surveillance and Routine System Support	Support to HMIS	X	X	X	P		
Malaria Surveillance and Routine System Support	Support to Integrated Disease Surveillance and Response*	X	X	X	P	P	
Malaria Surveillance and Routine System Support	Electronic Logistics Management Information System	X	X	X	P		
Malaria Surveillance and Routine System Support	Malaria Rapid Reporting System*	X	X	X	P		
Other	EUV	X	X	X	P	P	
Other	School-based Malaria Survey						
Other	Knowledge, Attitudes, and Practices Survey, Malaria Behavior Survey		X				
Other	Malaria Impact Evaluation						
Other	Entomologic Monitoring Surveys	X	X	X	P	P	

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

8. Operational Research and Program Evaluation

8.1. PMI Goal and Strategic Approach

The 2021–2025 NMCESP highlights the importance of creating and disseminating a national malaria OR agenda and conducting OR to generate and maintain evidence for informed malaria programming, as part of a broader objective to strengthen surveillance, monitoring, and evaluation. The SM&E Plan 2016–2020 reiterated the

importance of developing a structured review process and agenda. However, to date, no process has been defined and no agenda has been developed, despite advocacy and interest among malaria stakeholders in the country.

It should be noted that NIHR is the primary agency responsible for the development and implementation of operational research 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 process for the review and prioritization 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. The 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 (January 1 to December 31, 2021)

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. Data collection was planned for April and May 2022, pending protocol finalization and necessary ethical approvals.

Table 5. PMI-funded Operational Research/Program Evaluation (PE) Studies in Zimbabwe

Recently Completed OR/PE Studies	Status of Dissemination	Start Date	End Date
Endline Assessment of the Zimbabwe Assistance Program in Malaria 1	Report has been published and the results have been disseminated to malaria stakeholders.	2019	2020
Ongoing or Planned OR/PE Studies	**Status**	**Start Date**	**End Date**
Baseline assessment of the Zimbabwe Assistance Program in Malaria 11	A protocol and data collection tools have been developed with a plan to seek IRB approvals soon. Data collection was planned for April and May 2022.	2021	2022
Conduct DHS/MIS	Preliminary engagement with NMCP, ZIMSTAT, and DHS implementing partner on the roadmap for the surveys. Work on sampling frame and questionnaire development initiated.	2022	2023

Table 6. 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, Manicaland Province. Cross-border malaria transmission. Entomological monitoring and evaluation.	• Ongoing
Global Environment Facility through the United Nations Environment Program	WHO	Evaluation of house screening and other non-insecticide-driven interventions	• Parasitological monitoring is ongoing • Vector surveillance is ongoing • Await the start of the house screening activity once material ordered has been received
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 2023 Funding

No OR/PE activities are proposed with FY 2023 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 2021–2025 NMCESP, which outlines the following specific strategies:

- Promoting accountability and governance of the program
- Promoting efficient and effective supply and utilization of resources
- Advocating for additional resources for malaria prevention and control
- Strengthening cross-border collaboration
- Strengthening 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, PMI is leveraging this support through its implementing partners due to the restrictions regarding direct government-to-government support. PMI support includes planning support, training, supportive supervision, mentoring, small-scale material support, 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 (January 1 to December 31, 2021)

The majority of PMI/Zimbabwe's capacity strengthening efforts are listed in the previous sections, and 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 service delivery strengthening and IRS activities were successfully implemented and coordinated with Global Fund and other donor-funded activities. These officers also supported strategic planning by the provinces and districts.

9.3. Plans and Justification with FY 2023 Funding

The FY 2023 funding tables contain a full list of capacity strengthening activities that PMI proposes to support in Zimbabwe with FY 2023 funding: see www.pmi.gov/resources/malaria-operational-plans-mops.

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 MOP FY 2023 implementation and will be addressed through reprogramming.

10. Staffing and Administration

Four health professionals oversee PMI in Zimbabwe. The USAID Mission Director or their designee leads the single interagency team, which includes a resident advisor representing USAID, a resident advisor representing the Centers for Disease Control and Prevention, and two locally hired experts who are Foreign Service Nationals. The PMI interagency team members work 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	2022	2023	2024
Total country population	14,456,320	14,615,340	14,776,109
Total population at risk for malaria	9,758,016	9,865,355	9,973,873
PMI-targeted at-risk population	9,758,016	9,865,355	9,973,873
Population targeted for ITNs	5,833,844	6,096,848	6,163,914
Continuous Distribution Needs			
Channel 1: ANC	223,145	233,204	235,770
Channel 1: ANC Type of ITN	Single Pyrethroid	Single Pyrethroid	Single Pyrethroid
Channel 2: EPI	186,683	195,099	197,245
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	467,250	627,957	627,957
Channel 4: Community Type of ITN	Single Pyrethroid	Single Pyrethroid	Single Pyrethroid
Channel 5:			
Channel 5: Type of ITN			
Estimated Total Need for Continuous Channels	964,785	1,161,887	1,167,069
Mass Campaign Distribution Needs			
Mass distribution campaigns	1,769,258	281,686	1,119,520
Mass distribution ITN type	Single Pyrethroid	Single Pyrethroid	Single Pyrethroid
Estimated Total Need for Campaigns	1,769,258	281,686	1,119,520
Total ITN Need: Continuous and Campaign	**2,734,043**	**1,443,573**	**2,286,589**
Partner Contributions			
ITNs carried over from previous year	557,550	107,515	695,127
ITNs from Government	0	0	0
Type of ITNs from Government			
ITNs from Global Fund	1,146,558	281,150	0
Type of ITNs from Global Fund	Single Pyrethroid	Single Pyrethroid	Single Pyrethroid
ITNs from other donors	0	0	0
Type of ITNs from other donors			
ITNs planned with PMI funding	1,695,000	1,300,000	1,300,000
Type of ITNs with PMI funding	Single Pyrethroid	Single Pyrethroid	Single Pyrethroid
Total ITNs Contribution Per Calendar Year	**2,841,558**	**2,138,700**	**1,995,127**
Total ITN Surplus (Gap)	**107,515**	**695,127**	**(291,462)**

Table A-2. RDT Gap Analysis Table

Calendar Year	2022	2023	2024
Total country population	14,456,320	14,615,340	14,776,109
Population at risk for malaria	9,758,016	9,865,355	9,973,873
PMI-targeted at-risk population	9,758,016	9,865,355	9,973,873
RDT Needs			
Total number of projected suspected malaria cases	1,333,975	1,248,967	1,248,967
Percent of suspected malaria cases tested with an RDT	100%	100%	100%
RDT Needs (tests)	**2,544,921**	**2,544,921**	**2,544,921**
Needs Estimated based on Consumption Data			
Partner Contributions (tests)			
RDTs from Government	0	0	0
RDTs from Global Fund	1,530,550	1,581,075	0
RDTs from other donors	0	0	0
RDTs planned with PMI funding	1,965,000	1,000,000	1,000,000
Total RDT Contributions per Calendar Year	**3,495,550**	**2,581,075**	**1,000,000**
Stock Balance (tests)			
Beginning Balance	1,885,925	2,836,554	2,872,708
- Product Need	2,544,921	2,544,921	2,544,921
+ Total Contributions (received/expected)	3,495,550	2,581,075	1,000,000
Ending Balance	**2,836,554**	**2,872,708**	**1,327,787**
Desired End of Year Stock (months of stock)	6	6	6
Desired End of Year Stock (quantities)	1,272,461	1,272,461	1,272,461
Total Surplus (Gap)	**1,564,094**	**1,600,248**	**55,327**

Table A-3. ACT Gap Analysis Table

Calendar Year	2022	2023	2024
Total country population	14,456,320	14,615,340	14,776,109
Population at risk for malaria	9,758,016	9,865,355	9,973,873
PMI-targeted at-risk population	9,758,016	9,865,355	9,973,873
ACT Needs			
Total projected number of malaria cases	320,154	299,752	265,970
Total ACT Needs (treatments)	**834,898**	**781,694**	**693,597**
Needs Estimated based on a Combination of HMIS and Consumption Data			
Partner Contributions (treatments)			
ACTs from Government			
ACTs from Global Fund	615,780	830,670	0
ACTs from other donors	0	0	0
ACTs planned with PMI funding	1,343,605	0	0
Total ACTs Contributions per Calendar Year	**1,959,385**	**830,670**	**0**
Stock Balance (treatments)			
Beginning Balance	1,486,175	2,610,662	2,659,638
- Product Need	834,898	781,694	693,597
+ Total Contributions (received/expected)	1,959,385	830,670	0
Ending Balance	**2,610,662**	**2,659,638**	**1,966,042**
Desired End of Year Stock (months of stock)	6	6	6
Desired End of Year Stock (quantities)	417,449	390,847	346,798
Total Surplus (Gap)	**2,193,213**	**2,268,792**	**1,619,243**

Table A-4. Inj. Artesunate Gap Analysis Table

Calendar Year	2022	2023	2024
Injectable Artesunate Needs			
Projected number of severe cases	9,605	8,993	7,979
Projected number of severe cases among children	3,842	3,597	3,192
Average number of vials required for severe cases among children	5	5	5
Projected number of severe cases among adults	5,763	5,396	4,787
Average number of vials required for severe cases among adults	16	16	16
Total Injectable Artesunate Needs (vials)	**93,890**	**87,907**	**78,000**
Needs Estimated based on a Combination of HMIS and Consumption Data			
Partner Contributions (vials)			
Injectable artesunate from Government	0	0	0
Injectable artesunate from Global Fund	105,638	176,280	0
Injectable artesunate from other donors	0	0	0
Injectable artesunate planned with PMI funding	0	0	0
Total Injectable Artesunate Contributions per Calendar Year	**105,638**	**176,280**	**0**
Stock Balance (vials)			
Beginning Balance	194,570	206,318	294,691
- Product Need	93,890	87,907	78,000
+ Total Contributions (received/expected)	105,638	176,280	0
Ending Balance	**206,318**	**294,691**	**216,691**
Desired End of Year Stock (months of stock)	6	6	6
Desired End of Year Stock (quantities)	46,945	43,953	39,000
Total Surplus (Gap)	**159,373**	**250,738**	**177,692**

Table A-5. SP Gap Analysis Table

Calendar Year	2022	2023	2024
Total Country Population	14,456,320	14,615,340	14,776,109
Total Population at Risk for Malaria	9,758,016	9,865,355	9,973,873
PMI Targeted at Risk Population	9,758,016	9,865,355	9,973,873
SP Needs			
Total Number of Pregnant Women	439,111	443,941	448,824
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%	85%
Percent of pregnant women expected to receive IPTp4	0%	0%	0%
Total SP Needs (doses)	**679,022**	**679,022**	**679,022**
Needs Estimated based on Consumption Data			
Partner Contributions (doses)			
SP from Government	0	0	0
SP from Global Fund	393,467	624,367	0
SP from other donors	0	0	0
SP planned with PMI funding	171,367	800,000	0
Total SP Contributions per Calendar Year	**564,834**	**1,424,367**	**0**
Stock Balance (doses)			
Beginning balance	606,600	492,412	1,237,756
- Product Need	679,022	679,022	679,022
+ Total Contributions (Received/expected)	564,834	1,424,367	0
Ending Balance	**492,412**	**1,237,756**	**558,734**
Desired End of Year Stock (months of stock)	6	6	6
Desired End of Year Stock (quantities)	339,511	339,511	339,511
Total Surplus (Gap)	**152,901**	**898,245**	**219,223**