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**U.S. PRESIDENT'S  
MALARIA INITIATIVE**

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# U.S. PRESIDENT'S MALARIA INITIATIVE

Tanzania (Zanzibar)

Malaria Operational Plan FY 2024

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

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## ABBREVIATIONS

ACT	Artemisinin-based combination therapy
AI	Active ingredient
ANC	Antenatal care
ASTMH	American Society of Tropical Medicine and Hygiene
CMSO	Council malaria surveillance officer
DHIS2	District Health Information Software 2
eIDSR	Electronic Integrated Disease Surveillance and Response
EPI	Expanded Program on Immunization
FY	Fiscal year
Global Fund	Global Fund to Fight AIDS, Tuberculosis and Malaria
HMIS	Health management information system
IMPACT	Information Mobilized for Performance Analysis and Continuous Transformation
IRS	Indoor residual spraying
ITN	Insecticide-treated net
LSM	Larval source management
MBS	Malaria Behavior Survey
MCN	Malaria case notification
MIP	Malaria in pregnancy
MOP	Malaria Operational Plan
mRDT	Malaria rapid diagnostic test
MSDQI	Malaria Services and Data Quality Improvement
OR	Operational research
PBO	Piperonyl butoxide
PE	Program evaluation
PMI	U.S. President's Malaria Initiative
RCD	Reactive case detection
RDA	Reactive drug administration
SBC	Social and behavior change
SM&E	Surveillance, monitoring, and evaluation
TES	Therapeutic Efficacy Study
UCS	Unified Community System
USAID	U.S. Agency for International Development
WHO	World Health Organization
ZAMEP	Zanzibar Malaria Elimination Program
ZanPBR	Zanzibar Planning, Budgeting, and Reporting

## EXECUTIVE SUMMARY

To review specific country context for Zanzibar, please refer to the country malaria profile located on [PMI's country team landing page](#), which provides an overview of the country's malaria situation, key indicators, the strategic plan of the Zanzibar Malaria Elimination Program (ZAMEP), and the partner landscape.

### U.S. President's Malaria Initiative

Launched in 2005, the [U.S. President's Malaria Initiative \(PMI\)](#) supports implementation of malaria prevention and treatment measures as well as cross-cutting interventions. PMI's 2021–2026 strategy, [End Malaria Faster](#), envisions a world free of malaria within our generation with the goal of preventing malaria cases, reducing malaria deaths and illness, and eliminating malaria in PMI partner countries. PMI currently supports 27 countries in Sub-Saharan Africa and 3 programs across the Greater Mekong Subregion (GMS) in Southeast Asia to control and eliminate malaria. Tanzania began implementation as a PMI partner country in fiscal year (FY) 2006.

### Rationale for PMI's Approach in Zanzibar

The malaria burden in Zanzibar has remained low over the past several years, with a test positivity rate of less than 1.0 percent among people seeking health services in 2021. PMI continues to support malaria elimination interventions in line with the 2018–2023 Strategic Plan IV of the Zanzibar Malaria Elimination Program (ZAMEP) and the new strategy under development (2024–2028). PMI's approach in Tanzania reflects all five of PMI's strategic focus areas.

Notable changes in the FY 2024 Malaria Operational Plan (MOP) include the procurement of dual active ingredient (AI) insecticide-treated nets (ITNs) for all distribution channels to support the continuing transition from piperonyl butoxide (PBO) to dual AI ITNs, as well as the provision of technical assistance for the implementation of larval source management (LSM) activities.

### Overview of Planned Interventions

The proposed FY 2024 funding for Tanzania (both mainland and Zanzibar) is \$39 million. In Zanzibar, PMI will support the following intervention areas with these funds.

#### 1. Vector Monitoring and Control

- Providing high-quality technical assistance to ZAMEP for the development of policies, strategies, and implementation plans related to vector control.
- Conducting annual rapid assessment surveys to determine ITN coverage across the 10 districts in Zanzibar.

- Procuring and distributing dual AI ITNs for continuous distribution channels via antenatal care (ANC) and Expanded Program on Immunization clinics at health facilities and the community.
- Providing technical support for the targeted ITN replacement campaigns at the *shehia* (ward) level.
- Supporting longitudinal entomological monitoring at 10 sentinel sites, including for *Anopheles stephensi*.
- Providing technical guidance for the implementation of LSM.
- Providing support for and participating in vector-control-related technical working groups.

## **2. Malaria in Pregnancy**

- Providing high-quality technical assistance to ZAMEP for the development of policies, strategies, and implementation plans related to malaria in pregnancy (MIP).
- Supporting the procurement and monitoring of the provision of ITNs to pregnant women through ANC clinics.
- Supporting social and behavior change (SBC) activities to address barriers and promote facilitators associated with ITN use, ANC attendance, and care-seeking behaviors.
- Supporting implementation of the Malaria Services and Data Quality Improvement (MSDQI) supportive supervision, prioritizing lower-performing facilities identified from previous MSDQI data.
- Providing support for and participating in MIP-related technical working groups.

## **3. Drug-Based Prevention**

Zanzibar does not implement seasonal malaria chemoprevention or other drug-based prevention.

## **4. Case Management**

- Providing high-quality technical assistance to ZAMEP for the development of policies, strategies, and implementation plans related to case management.
- Providing technical assistance for the slide bank, including the procurement of slides, malaria microscopy, and malaria rapid diagnostic tests (mRDTs) for ZAMEP.
- Supporting the implementation and monitoring of microscopy proficiency testing for the national external quality assurance at ZAMEP.
- Conducting basic and advanced malaria diagnostic refresher training and external competency assessment malaria microscopy training for laboratory technicians.
- Supporting the implementation of MSDQI at all public health facilities in Zanzibar, and providing technical guidance on the use of MSDQI data to target interventions.

- The government of Zanzibar will procure the full quantities of combination mRDTs, artemisinin-based combination therapy (ACT), parenteral artesunate, and single low-dose primaquine for Zanzibar. PMI will procure ACTs, parenteral artesunate, or single low-dose primaquine if gaps are later identified.
- Supporting the monitoring of the provision of single low-dose primaquine and of the malaria reactive case detection (RCD) system in Zanzibar.
- Providing support for and participating in technical working groups related to case management.

## **5. Health Supply Chain and Pharmaceutical Management**

- Supporting ZAMEP to quantify and develop supply plans to inform the timely procurement of malaria commodities; and conducting a regular review of commodity pipelines by analyzing forecasts, updating supply plans, and sharing with stakeholders.
- Supporting a comprehensive supply-chain assessment to determine financial needs and gaps related to health commodities.

## **6. Social and Behavior Change**

- Increasing uptake of key malaria interventions and care-seeking practices, including ITN use; prompt care seeking for fever; and testing for malaria, including for travelers at entry points.
- Supporting ZAMEP in its efforts to eliminate malaria in alignment with the Zanzibar Malaria Elimination Strategic Plan 2018–2023 and Zanzibar Malaria Elimination SBC Strategy 2018–2023.
- Continuing to be guided by the Malaria Behavior Survey, which was conducted in 2021 with support from PMI.
- Continuing support of SBC interventions addressing the following key behavioral objectives to support malaria elimination in Zanzibar: increased proportion of the population who seek prompt and appropriate care for symptoms of malaria, increased proportion of the population who are tested for malaria before taking ACTs, increased proportion of the population who sleep under an ITN every night, increased proportion of travelers who believe it is important to be tested for malaria at the point of entry, increased knowledge among travelers that ITNs should be used every night in Zanzibar, and increased knowledge among Zanzibaris that they should use ITNs when traveling in malaria endemic areas.
- Supporting the use of multiple, reinforcing channels to reach target audiences in support of the above behavioral and communication objectives, including the use of media, targeted mid-media, and placement of out-of-home and digital messaging at points of entry.

- Supporting capacity strengthening for ZAMEP unit staff on use of data to support decision making, resource allocation, intervention design, and evaluation of SBC activities.

## **7. Surveillance, Monitoring, and Evaluation**

- Supporting activities to strengthen malaria surveillance and RCD, including the data collection and management systems that enable the identification of new cases of malaria and trigger investigations and other response measures.
- Supporting small-scale implementation and potential scaling up of reactive drug administration using the same platform used for RCD.
- Supporting strengthening and maintaining the electronic Integrated Disease Detection and Response (eIDSR) and routine health management information system (HMIS) surveillance systems for malaria-related data capture and reporting at all public and private health facilities.
- Supporting the integration of data generated from eIDSR and the malaria case notification system called *Shokishoki* with the District Health Information Software 2 (DHIS2) data dashboards while strengthening the capacity among ZAMEP and HMIS unit staff for system maintenance.
- Supporting the refinement and maintenance of an operational data dashboard to visualize entomological monitoring data and foci investigation findings in the Coconut platform for case reporting and DHIS2 malaria dashboards.
- Strengthening ZAMEP's ability to analyze and disseminate information gleaned from surveillance, monitoring, and evaluation for decision making.
- Supporting participants for the Field Epidemiology Training Program's Frontline (basic) course, with an emphasis on selecting participants working in malaria interventions.

## **8. Operational Research and Program Evaluation**

PMI does not plan to support operational research or program evaluation activities with FY 2024 funding.

## **9. Capacity Strengthening**

- Strengthening technical and managerial capacity of ZAMEP staff through short-term training and participation in international meetings.
- Support the implementation of digital health information systems in accordance with global standards to enhance end-to-end tracking of commodities and strengthen the in-country's capacity to collect and use data for decision making.
- Strengthening capacity of local government authorities to implement and oversee malaria interventions in Zanzibar, such as through training on the use of malaria-related data, Zanzibar Planning, Budgeting, and Reporting (ZanPBR), and supportive supervision.



## 10. Staffing and Administration

- A minimum of five health professionals oversee PMI in Tanzania. The single interagency team led by the U.S. Agency for International Development (USAID) Mission Director or their designee consists of a Resident Advisor representing USAID, a Resident Advisor representing CDC, and three locally hired experts known as *foreign service nationals*. The PMI interagency team works together to oversee all technical and administrative aspects of PMI, including finalizing details of the project design, implementing malaria prevention and treatment activities, monitoring and evaluating outcomes and impact, reporting results, and providing guidance and direction to PMI implementing partners.

# I. CONTEXT & STRATEGY

## 1. Introduction

Tanzania began implementation as a U.S. President's Malaria Initiative (PMI) focus country in fiscal year (FY) 2006. This FY 2024 Malaria Operational Plan (MOP) presents a detailed implementation plan for Zanzibar, based on the strategies of PMI and the Zanzibar Malaria Elimination Program (ZAMEP). It was developed in consultation with ZAMEP and with the participation of local and international partners. The activities that PMI is proposing will 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 the strategies and interventions in Zanzibar, describes progress to date, identifies challenges and relevant contextual factors, and provides a description of activities that are planned with FY 2024 funding. For more detailed information on the country context, please refer to the Country Malaria Profile, which provides an overview of the country's malaria situation, stratification, key indicators, ZAMEP's strategic plan, and the partner landscape.

## 2. U.S. President's Malaria Initiative

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

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

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

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

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

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

### 3. Rationale for PMI's Approach in Zanzibar

#### 3.1. Malaria Overview for Zanzibar

The malaria burden in Zanzibar has remained low over the past several years, with a test positivity rate in those seeking care of 1 percent in 2021. The Tanzania Demographic and Health Survey and Malaria Indicator Survey 2022 showed a malaria prevalence in Zanzibar of 0 percent. There was a 10 percent increase in the proportion of children under five years of age who slept under an ITN the previous night, from 56 percent in 2016 to 66 percent in 2022. The survey also showed that no children under five years of age had parasitemia by malaria rapid diagnostic tests (mRDTs), a decrease from 0.2 percent in 2017. The percentage of pregnant women who slept under an ITN the previous night increased by 14 percent to 66 percent between 2017 and 2022.

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

#### 3.2. Key Challenges and Contextual Factors

Key challenges in achieving malaria elimination objectives include:

- **Importation:** There is evidence that a significant proportion (~60 percent) of cases reported in Zanzibar may be imported, largely through informal ports of entry from the mainland.
- **Outdoor transmission:** Outdoor transmission may play a major role in overall transmission, suggesting that alternative vector control strategies are needed to complement ITNs.

- **Insufficient resources:** There are insufficient resources to procure all the quantities of dual active ingredient (AI) ITNs needed as ZAMEP shifts from piperonyl butoxide (PBO) to dual AI ITNs.

### 3.3. PMI's Approach in Zanzibar

PMI continues to support malaria elimination interventions in line with ZAMEP's 2018–2023 Strategic Plan IV and the implementation of the new strategy under development (National Strategic Plan 2024–2028) with a vision of “a healthy population free from malaria in Zanzibar,” a goal to “accelerate elimination of local malaria transmission and preventing re-introduction,” and a mission to “provide universal access to quality malaria elimination interventions through evidence-based strategies and multi-sectoral engagement.” ZAMEP's vision will follow these guiding principles:

- Accountability for results,
- Country ownership and leadership,
- Partnership and multisectoral engagement,
- Community-centered response,
- Equity in access to quality malaria services,
- Sustainability, and
- Evidence-based and adaptive management approach.

PMI provides technical assistance and support for implementation in all districts in Zanzibar. Consistent with PMI technical guidance, PMI's investment strategy focuses on promoting high coverage of a set of high-quality, evidence-based malaria control interventions, including:

- Integrated vector control, including procurement of PBO and dual AI ITNs distributed continuously through health facility and community channels, entomological monitoring, and technical assistance for larval source management;
- Malaria in pregnancy (MIP) interventions, including Malaria Service Delivery Quality Improvement (MSDQI) supportive supervision, and ITN distribution and use;
- Case management of malaria, including prompt diagnosis and treatment, MSDQI supportive supervision, and pharmaceutical supply chain strengthening;
- Data for decision making, gleaned from SM&E, and operational research activities; and
- SBC activities to promote consistent and correct use of malaria prevention, diagnosis, and treatment tools.

PMI currently supports nearly all aspects of ZAMEP's strategic plan across all geographic areas of both islands, Unguja and Pemba, with the exception of implementation of reactive IRS.

### 3.4. Key Changes in this MOP

- Continue transitioning from PBO to dual AI ITNs: PMI will begin procurement of dual AI ITNs for all distribution channels with the FY 2024 MOP.
- PMI will provide technical guidance for the implementation of larval source management (LSM) activities.

## II. OPERATIONAL PLAN FOR FY 2024

### 1. Vector Monitoring and Control

#### 1.1. PMI Goal and Strategic Approach

The Zanzibar Malaria Strategic Plan IV 2018/2019–2022/2023 includes integrated malaria vector control among four major strategies for malaria elimination with a corresponding objective to increase appropriate vector control measures to the population at risk for malaria to 100 percent by 2023. Such interventions include reactive IRS in identified areas or in areas where entomological investigations indicate the need for an IRS intervention; maximization of ITN ownership and use; larval source management; and vector surveillance in hotspot areas.

PMI provides technical support for the use of all four of these interventions, including the implementation of LSM in areas where larval habitats can be efficiently located. PMI supports entomological monitoring in 10 sites for monitoring of insecticide resistance. PMI currently supports one site for enhanced surveillance for *Anopheles stephensi* in Unguja. All mosquito samples collected from all sentinel sites will be morphologically examined for *An. stephensi*, and any suspect specimens will be analyzed by molecular methods. PMI supports the procurement and distribution of ITNs via targeted replacement campaigns and continuous distribution of ITNs via antenatal care (ANC) and EPI and community distribution channels.

PMI does not currently support actual implementation of LSM activities. However, PMI will continue to provide technical support to improve targeting, monitoring, and evaluation of LSM under this MOP.

#### 1.2. Recent Progress (October 2021–September 2022)

- Supported routine entomological monitoring, including vector bionomics and insecticide-resistance monitoring, at 10 sentinel sites (6 in Unguja and 4 in Pemba) in partnership with ZAMEP. Entomological monitoring is conducted by trained community members from each site.
- Supported entomological monitoring as part of ZAMEP's integrated foci investigations and response. The Global Fund supported reactive foci IRS and LSM activities as part of an integrated response.

- Supported the development of a protocol for surveillance for *An. stephensi* in coordination with ZAMEP, which will be implemented at one site in Unguja in 2023 and expanded to an additional site in Pemba in 2024.
- Strengthened laboratory capacity in ZAMEP for analysis of entomological collections, and provided technical support for procurement of equipment, laboratory supplies, and reagents.
- Supported the development of technical guidance and standard operating procedures for LSM for ZAMEP's efforts toward elimination and response to possible *An. stephensi*.
- Supported the procurement and distribution of 140,884 PBO ITNs to pregnant women and children one year of age at health facilities in all 11 districts in Zanzibar.
- Supported the quantification of ITNs using available data and development of the Zanzibar ITN strategy.
- Provided technical assistance to ZAMEP to implement reactive IRS in selected shehias (i.e., wards) in four districts in Unguja from February 25 to March 9, 2023. The campaign sprayed 41,933 structures, protecting 215,735 people.
- Supported national-level SBC activities to improve demand for ITNs, increase appropriate use, promote care, and mitigate against misuse. For more information, refer to the SBC section.

### 1.3 Plans and Justification for FY 2024 Funding

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

#### 1.3.1. Entomological Monitoring

Malaria transmission in Zanzibar has become more heterogeneous as malaria transmission has declined. Entomological monitoring will be guided by epidemiological data and shift toward foci investigation while entomological monitoring in areas identified with stable higher transmission will be maintained. With plans to start deployment of dual AI ITNs in selected areas, PMI will conduct entomological surveillance in areas receiving PBO and dual AI ITNs. As Tanzania is a high-risk country for the introduction and establishment of *An. stephensi*, PMI is supporting the development and implementation of enhanced surveillance for *An. stephensi* in accordance with the PMI action plan guidance for high-risk countries. Building on this experience, PMI will continue to support ZAMEP in refining its *An. stephensi* surveillance program. Recognizing ZAMEP's plans for LSM to be one of the vector control interventions in elimination areas, PMI will continue to provide technical assistance to improve the targeting, monitoring, and evaluation of LSM activities, as resources allow.

## Summary of Distribution and Bionomics of Malaria Vectors in Zanzibar

Longitudinal entomological monitoring (October 2021–September 2022) was conducted at six sentinel districts in Unguja and four districts in Pemba. In Unguja and Pemba, the primary vector was *An. gambiae s.l.*, and the secondary vector was *An. funestus s.l.* Other Anopheles collected included *An. coustani*, *An. rufipes*, and *An. maclipalpis*. Peak mosquito densities were observed during the wet seasons of March–May 2022 and October–December 2022. In Unguja and Pemba, the biting rate of *An. gambiae s.l.* was higher outdoors than indoors, except for Stonetown in Unguja where there was more indoor biting. The predominant indoor biting time for *An. gambiae s.l.* is before midnight, except Stonetown, where the predominant biting occurred between 12:00 a.m. and 3:00 a.m. The outdoor biting rate appeared to vary depending on the site.

Molecular analysis identified *An. arabiensis* as the main vector and *An. merus* as the second vector of the *An. gambiae* complex in Unguja, followed by *An. rivulorum* and *An. lessoni* of the *An. funestus* complex. In Pemba, the main vector was *An. arabiensis* followed by *An. rivulorum*. All mosquitoes collected from the longitudinal entomological monitoring were tested for malaria parasite infection. The overall sporozoite rate was 0.92 percent in Unguja and 0.57 percent in Pemba.

In 2021–2022, ZAMEP carried out entomological foci investigation, defined as shehias having three indigenous cases per week or reporting new individual cases reported consecutively over three to four weeks. Molecular analysis of the mosquitoes collected in foci investigations indicated that in Pemba, the primary vector was *An. arabiensis*, followed by *An. rivulorum*, *An. merus*, and *An. gambiae s.s.* In Unguja, the primary vector in foci were *An. arabiensis*, followed by *An. lesoni*, *An. gambiae s.s.*, and *An. rivulorum*.

## Status of Insecticide Resistance in Zanzibar

Insecticide resistance testing was conducted (October 2021–September 2022) at the 10 sentinel sites in 10 districts in Pemba and Unguja. *An. gambiae s.l.* was fully susceptible to bendiocarb, pirimphos-methyl, and clothianidin in both Pemba and Unguja. Resistance was detected in *An. gambiae s.l.* to permethrin, deltamethrin, and alphacypermethrin at all sites. Insecticide intensity testing in the four Pemba sites showed that overly high intensity resistance in over 80 percent of the *An. gambiae s.l.* tested, surviving 10 times the diagnostic dose of permethrin, deltamethrin, and alphacypermethrin. In Unguja, resistance-intensity testing indicated over 80 percent resistance to 10 times the diagnostic dose of permethrin at all sites and deltamethrin at two of the six sites. There was medium intensity resistance to 5 times the diagnostic dose of alphacypermethrin at five Unguja sites. PBO fully restored susceptibility to permethrin and deltamethrin in *An. gambiae s.l.* in Pemba. No PBO testing was carried out for alphacypermethrin in Pemba or Unguja due to a shortage of mosquitoes.

### **1.3.2. Insecticide-Treated Nets**

PMI will continue to support procurement and distribution of next-generation ITNs through continuous distribution channels. PMI will provide technical support to the country's 2024 targeted replacement campaign through participation on a national task force. PMI also supports SBC to improve use and care of ITNs and to mitigate against misuse.

#### **ITN Distribution in Zanzibar**

In Zanzibar, ITNs are distributed via targeted replacement campaigns every three years. ANC and EPI clinics serve as continuous distribution channels to reach pregnant women and children under one year of age. ZAMEP revised its ITN strategic plan to also provide ITNs via community distribution. The country has fully transitioned to PBO ITNs and plans to start deploying dual-AI ITNs in calendar year 2024, funding permitting.

There are not currently any anticipated ITN gaps. Please refer to the ITN gap table in the [annex](#) for more detail on planned quantities and distribution channels.

### **1.3.3. Indoor Residual Spraying**

PMI does not fund IRS implementation in Zanzibar.

#### **IRS Insecticide Residual Efficacy in Zanzibar**

In August 2021, ZAMEP conducted focal IRS, with Global Fund support, using Fludora Fusion® at two selected sites in Pemba and one in Unguja following an increase in local malaria cases. Spray quality assessment indicated that the IRS quality was high. Residual efficacy monitoring was conducted post-IRS, which indicated that the insecticide was 100 percent effective after eight months on all surfaces tested in both Pemba and Unguja.

PMI will continue to provide technical support for the implementation or monitoring of larviciding activities if requested by ZAMEP.

## **2. Malaria in Pregnancy**

### **2.1. PMI Goal and Strategic Approach**

PMI supports Zanzibar's national strategy and the recommended approach of the World Health Organization (WHO) to reduce the burden of malaria infection among pregnant women through the provision of ITNs and effective case management of malaria illness and anemia.

ZAMEP no longer implements intermittent preventive treatment of pregnant women, and ended the intermittent screen-and-treat strategy at ANC clinics in August 2016. ZAMEP has revised the diagnostics and treatment guidelines to include a MIP chapter focused on strengthening malaria case management for pregnant women, including screening for symptoms, timely diagnosis and treatment, and effective referral.



## **2.2. Recent Progress (September 2021–October 2022)**

- Supported continuous ITN distribution through ANC and EPI clinics (see vector monitoring and control section).
- Supported ZAMEP to conduct MSDQI supportive supervision visits and training to improve the quality of MIP services at 96 of 101 (95 percent) facilities across Unguja and Pemba. For more information on MSDQI, see the case management section.
- Supported ZAMEP to continue SBC interventions that address provider behaviors in adhering to recommended treatment regimens; increased advocacy on availability of malaria commodities at health facilities; and reinforced the messaging on the importance of pregnant women attending ANC early, early health-seeking behaviors for febrile illness, and ITN use. For more details, see the SBC section.

## **2.3. Plans and Justification for FY 2024 Funding**

- Support the procurement and monitoring of the provision of ITNs to pregnant women through the continuous distribution at ANC (see budget and details in the ITN section) and continue support for SBC to increase ITN use and ANC attendance (see SBC section).
- Support the implementation of MSDQI supportive supervision, prioritizing lower performing facilities identified from previous rounds of MSDQI data (see case management section).

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

## **3. Drug-Based Prevention**

PMI does not fund seasonal malaria chemoprevention or other drug-based prevention in Zanzibar.

## **4. Case Management**

### **4.1. PMI Goal and Strategic Approach**

ZAMEP's malaria strategic plan and case management guidelines promote a comprehensive case management strategy, including universal, quality-assured parasitological testing of all cases of suspected uncomplicated malaria, prompt and effective treatment with ACTs of all cases of parasitological confirmed uncomplicated malaria, and emergent referral and/or definitive management of severe febrile illness and severe malaria. PMI supports all aspects of this approach through support to national-level policy and programmatic activities and improvement of facility and community-level health worker performance throughout Zanzibar. Zanzibar procures all required quantities of mRDTs, ACTs, and injectable artesunate. PMI

supports outreach training and supportive supervision activities in public health facilities; the Global Fund supports private facilities.

## **4.2. Recent Progress (October 2021–December 2022)**

### **National-Level Case Management Activities**

- Provided technical assistance to ZAMEP for the development of policies, strategies, and implementation plans related to case management.
- Provided diagnostic technical assistance for the slide bank, malaria microscopy, and mRDT to ZAMEP.
- Provided information technology support to maintain the MSDQI electronic data system.
- Supported ZAMEP to train laboratorians in malaria microscopy quality assurance/control and health care workers in the preparation and management of thick and thin blood smears.
- Supported microscopy proficiency testing for national external quality assurance at ZAMEP.
- Conducted refresher training sessions for laboratory technicians in basic and advanced malaria diagnostics.

### **Commodities**

- The government of Zanzibar procures combination (multispecies) mRDTs, ACTs, parenteral artesunate, and low-dose primaquine. PMI does not provide financial support for the procurement of these commodities.
- Currently, rectal artesunate is not procured by either the government of Zanzibar or its partners, including PMI.

### **Facility Level**

- Supported ZAMEP in the implementation of two rounds of MSDQI supportive supervision visits and data analysis for all public health facilities.
- Supported eight quarterly feedback meetings (four each in Unguja and Pemba) with district and council health management team members to review MSDQI supportive supervision findings and improve performance on malaria case management.
- Trained 138 health care workers on the preparation of thick and thin blood smears, 220 on malaria diagnosis using mRDT, and 60 on using microscopy.
- Trained 200 health care workers (125 Unguja and 75 Pemba) on knowledge and skills for malaria case management.
- Supported the training of six laboratorians for the WHO's External Competency Assessment of Malaria Microscopist.

- Supported ZAMEP in the examination of 35,245 blood slides by microscopy from 96 health facilities, and cross-checked 4,306 slides (3,648 negative and 658 positive on primary reading).
- Supported ZAMEP in microscopy speciation and quantification of 311 positive mRDT cassettes from 52 health facilities in Mjini, Magharibi A, Magharibi B, and Micheweni districts.
- Supported ZAMEP in monitoring mRDT quality control for 172 (100 percent) health facilities.

## **Community Level**

The main community-level activity is SBC to promote malaria awareness and early health-seeking behavior (see SBC section). However, Zanzibar implements a malaria reactive case detection (RCD) system, whereby council malaria surveillance officers (CMSOs) provide diagnosis by mRDT and treatment in households of index cases passively diagnosed at health facilities. The quality of case management by CMSOs is ensured by their assigned health facility. See the SM&E section for a description of and PMI support for the RCD system,.

Zanzibar does not routinely monitor antimalarial efficacy. The therapeutic efficacy study (TES) approach for Tanzania is presented in the plans and justification for FY 2024 funding section in the mainland Tanzania MOP.

### **4.3. Plans and Justification for FY 2024 Funding**

PMI will continue supporting malaria case management (and SM&E and SBC) with an emphasis on technical guidance. This will help ensure quality case management in facilities and the community through performance monitoring and by making recommendations on the use of data to target interventions. PMI expects to continue the same activities described in the recent progress section.

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

### **National-Level Case Management Activities**

- Provide technical assistance to ZAMEP for the development of policies, strategies, and implementation plans related to case management and MIP.
- Provide diagnostic technical assistance for the slide bank, malaria microscopy, and mRDT for ZAMEP.
- Procure microscopy slides for the two slide banks in Pemba and Unguja.
- Support for the implementation and monitoring of microscopy proficiency testing for the national external quality assurance at ZAMEP.

- Basic and advanced malaria diagnostic refresher training and External Competency Assessment of Malaria Microscopist training for laboratory technicians.
- Planning and support for MSDQI supportive supervision visits for ZAMEP, and data analysis of MSDQI across all districts in Zanzibar.
- Support and participation in case-management-related technical working groups.

## **Commodities**

The government of Zanzibar will procure the full quantities of ACT, parenteral artesunate, and single low-dose primaquine for Zanzibar. The Global Fund will procure combination mRDTs.

Refer to the ACT, mRDT, injectable artesunate, and artesunate suppository gap tables in the [annex](#) for more detail on planned quantities and distribution channels.

## **Facility Level**

PMI will continue to support the implementation of MSDQI at all health facilities in Zanzibar and provide technical guidance on the use of MSDQI data for targeted interventions. ZAMEP will implement two rounds of MSDQI at private facilities with support from the Global Fund and two rounds of MSDQI at public facilities with support from PMI.

## **Community Level**

PMI will continue to support SBC on awareness of malaria, early health-seeking behavior, and uptake of malaria interventions (see SBC section), as well as the malaria RCD system (see SM&E section).

## **Case Management Elimination Activities**

PMI will continue to provide financial support to ZAMEP for monitoring the provision of single low-dose primaquine and the malaria RCD system in Zanzibar (see the SM&E section). See the SBC section for details on challenges and opportunities to improve intervention uptake and maintenance.

## **Monitoring Antimalarial Efficacy**

PMI does not fund TES in Zanzibar. PMI will continue to support drug efficacy monitoring following the standard WHO protocol at four sentinel sites in mainland Tanzania and will include molecular testing of antimalarial resistance markers for artesunate-amodiaquine, Zanzibar's first-line ACTs. For details about Tanzania's TES, see the TES section in the mainland Tanzania FY 2024 MOP.

## **5. Health Supply Chain and Pharmaceutical Management**

### **5.1. PMI Goal and Strategic Approach**

PMI supports ZAMEP's supply chain strategy for malaria commodity quantification, timely delivery, and monitoring.

### **5.2. Recent Progress (October 2021–September 2022)**

- Quantified malaria commodities and conducted routine supply plan updates for timely procurement and delivery.
- Supported Information Mobilized for Performance Analysis and Continuous Transformation (IMPACT) by reviewing and standardizing the IMPACT approach manual for use by various levels of supply chain management. The IMPACT approach is people-centered, data-driven, and utilizes quality improvement principles for supply chain performance improvement.
- Supported ZAMEP in monitoring and improving the provision of ITNs through health facilities and, where needed, provided on-the-job training on health commodities management, including redistribution to other health facilities. The availability of key commodities increased, with the overall stock-out rate decreasing from 7.8 percent (October 2021) to 5.2 percent (September 2022).

### **5.3. Plans and Justification with FY 2024 Funding**

The [FY 2024 funding tables](#) contain a full list of health supply chain and pharmaceutical management activities that PMI proposes to support in Zanzibar.

To improve commodity availability and contribute to eliminating malaria in Zanzibar, PMI will continue to support ZAMEP to quantify and produce supply plans to inform timely procurement of malaria commodities and conduct regular reviews of commodity pipelines by analyzing forecasts, updating supply plans, and sharing with stakeholders. PMI will train Zanzibar staff on pipeline management (and related tools) and commodity monitoring.

PMI will scale up the IMPACT approach at regional facilities to strengthen the ability of medicine and therapeutic committees to analyze data, identify potential issues related to health commodity management and implement corrective action, and conduct routine monitoring of supply chains.

PMI will support a comprehensive supply chain assessment to determine the financial needs related to health commodities, identify gaps, and assess the ability for the government to cover needs with the disbursed budgeted funds for health commodities in Zanzibar, as well as the transformation of the Central Medical Store to a semiautonomous entity.

## **6. Social and Behavior Change**

### **6.1. PMI Goal and Strategic Approach**

PMI supports activities aligned with the Zanzibar Elimination Communication Strategy to increase the adoption and practice of malaria prevention, diagnosis, and treatment behaviors among individuals, households, and communities in target geographies and among health care providers at all levels of the health system. PMI uses an evidence-based and participatory approach to the design, implementation, monitoring, and evaluation of malaria SBC activities while strengthening the capacity of ZAMEP to plan, manage, and monitor malaria SBC activities. PMI supports ZAMEP efforts to increase correct and consistent ITN use and care, prompt and appropriate care seeking for fever, demand for and acceptance of mRDTs, provider adherence to mRDTs and diagnostic results for treatment with ACTs; and to promote behaviors associated with imported malaria, including testing at ports of entry and ITN use. PMI supports theory-informed, evidence-based activities that address barriers and promote the facilitators of key behaviors. PMI supports the implementation of a range of mass media and community-level interpersonal communication activities to achieve these behavioral objectives. At the national level, PMI provides technical assistance; support for capacity strengthening activities, including coordination; and the development of activities, materials, and relevant guidelines.

### **6.2 Recent Progress (October 2021–September 2022)**

PMI supported the implementation of a comprehensive set of SBC activities by targeting pregnant women and their partners as well as parents and caregivers of children under the age of five by promoting behaviors such as sleeping under an ITN every night and seeking prompt care seeking for children under five years of age with a fever, including the use of mRDTs to confirm malaria. In Zanzibar, activities are implemented through mass media and mid media during the rainy season and ITN-targeted replacement campaigns. Furthermore, PMI supported the placement of billboards and signboards at strategic locations, including point-of-entry to address malaria importation. Mass media activities included broadcasting of malaria spot messages in four radio stations (with high coverage and listenership); airing of 26 live radio programs on six radio stations); airing of 25 live television programs; and printing and dissemination of messages via “animation” at point of departure/entry. The animation videos were broadcasted via three ports (Official Malindi, Mkokotoni, and Official Mkoani); billboards were placed at Mkokotoni, Nungwi, and Malindi seaports; and a travel guide was developed and disseminated at Malindi seaport.

PMI funded mid-media/community mobilization efforts, including 1,005 community mobilization activities (public service announcements and community theater), implemented across 388 shehias as part of an ITN replacement campaign during the rainy season, implementing 957 public service announcements across 49 shehias with the highest cases of malaria and cinema shows in 15 targeted areas.

PMI support was extended for the development of an animation that was used at the point-of-entry to remind travelers to use ITNs when traveling to malaria endemic regions, and for those entering Zanzibar from malaria endemic regions to test for malaria even if they are asymptomatic.

PMI supported interpersonal communication and community dialogue, conducted community meetings in 132 shehias, including areas with high malaria rates in Unguja and Pemba; trained 250 community health volunteers to support malaria interventions, including ITN use; conducted 21 community meetings with fishing campers and frequent travelers; and conducted 28 sensitization meetings for communities in transmission areas.

PMI supported the production and dissemination of ITN-use messaging through social media (ZAMEP web page, YouTube, and Instagram page).

In 2021, PMI supported the implementation of the Malaria Behavior Survey (MBS) in Zanzibar. A summary of the results are presented below. MBS data will be used to inform all future SBC activities in Zanzibar:

## **1. ITN Use**

Based on the MBS findings, ITN utilization is at 85 percent, while only 37 percent of those with ITNs consistently sleep under ITNs. Eighty-one percent have favorable attitudes toward ITNs. More SBC interventions on the consistent use of ITNs should be emphasized, particularly in urban settings and in the higher wealth quintile, where people tend to sleep under ITNs inconsistently. Further analysis indicated that higher perceived self-efficacy on ITNs was associated with a sixfold higher likelihood of ITN use. In addition, favorable attitudes toward ITN use and supportive community norms was associated with a twofold higher likelihood of ITN use. The way people in the community perceive the effectiveness of ITNs, talk about malaria with others, and perceive their susceptibility to malaria was also associated with a higher likelihood of using ITNs.

Based on the above findings, SBC on consistent use and care of ITNs will be intensified, promoting the ideational factors most associated with consistent ITN use: perceived self-efficacy, favorable attitudes toward net use, supportive descriptive community norms, favorable attitudes toward net use, communication about malaria with family and friends, and perceived susceptibility to malaria. More emphasis is needed in Pemba than in Unguja.

## **2. Case management**

Based on the MBS findings; 9 percent of the respondents have comprehensive knowledge regarding malaria care seeking and treatment. More than 51 percent are not worried about malaria because it can be easily treated. PMI support will concentrate on improving people's understanding of their susceptibility to malaria as well as the severe consequences of malaria so they can seek services if they experience symptoms, including fever.

Additionally, 80 percent of respondents have favorable attitudes related to care seeking and treatment for malaria, and 52 percent believe that most people in their community seek prompt care (the same or next day) at a health facility/provider for a child with fever; these rates are significantly lower among those in Unguja, in urban settings, and in higher wealth quintiles.

The MBS showed that 47 percent of respondents believe that malaria testing is effective, and malaria testing rates are significantly lower in Unguja, in urban settings, and among the highest wealth quintile. Fifty-three percent of respondents believe that a person should take malaria medication despite testing negative. Thirty-seven percent believe that malaria treatment is effective, and this rate is significantly lower among those in Unguja, urban settings, and areas at high transmission risk; among males; and in the higher wealth quintiles. Eighty-two percent believe injections are more effective than oral medication in treating malaria; the rate is even higher among those in Unguja.

Greater emphasis on growing trust in the effectiveness of malaria tests and treatment would support improvements in care-seeking and treatment behaviors. Furthermore, much is needed to ensure proper counseling from providers to clients on topics such as the importance of completing a malaria dose even when patients feel better and the inappropriateness of ACT use after a negative mRDT.

MBS data will be used to inform the design of PMI-supported SBC activities in Zanzibar. The Zanzibar MBS report is available [here](#).

### **6.3. Plans and Justification with FY 2024 Funding**

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

In FY 2024, PMI will continue to support SBC interventions addressing the following key behaviors:

- Sleeping under an ITN every night (pregnant women, children under five years of age, and travelers);
- Acquiring an ITN (pregnant women, caregivers of children under five years of age, and travelers);
- Caring for ITNs (pregnant women, caregivers of children under five years of age, and travelers);
- Sharing ITNs (pregnant women and caregivers of children under five years of age);
- Seeking prompt and appropriate care for children under five years of age with fever within 24 hours (caregivers of children under five years of age and travelers);
- Adhering to mRDT test results (providers);
- Seeking an mRDT upon arrival in Zanzibar (travelers); and
- Adhering to malaria treatment (all individuals with a positive test, including travelers).



PMI will support the use of multimedia campaigns to reach target audiences in support of the above behavioral objectives, including:

- **Community-based interventions:** Participatory approaches to address malaria behavioral determinants and social norms, such as community-based interpersonal communication activities and facility-based provider behavior change activities.
- **Mass media:** Complementary channels, including TV, social media, and influencers, will be utilized.
- **Mid-media:** Complementary channels, including strategic and well-placed print materials, will be utilized.

PMI-supported SBC activities will be evidence-based and will utilize a range of innovative approaches, including behavioral science, behavioral economics, artificial intelligence, and human-centered design.

In addition to the aforementioned activities to promote the use of malaria prevention, diagnosis, and treatment interventions, PMI will support advocacy activities to advocate for multisectoral and private sector engagement in malaria elimination interventions through the engagement of influencers, ambassadors, and Shehas (local government officers).

**Table 1. Priority Behaviors to Address**

Behavior	Target Population	Geographic Focus	Programming to Address Behavior
Sleep under an ITN every night	Primary: Pregnant women and caregivers of children under the age of five  Secondary: Head of households, travelers visiting Zanzibar	All districts of Zanzibar	<ul style="list-style-type: none"> <li>● Interventions should focus on emphasizing the need to improve perceptions of ITN effectiveness in malaria prevention.</li> <li>● SBC on consistent use and care of ITNs should be intensified, promoting the ideational factors that are most associated with consistent ITN use: perceived self-efficacy, favorable attitudes toward net use, supportive descriptive community norms, favorable attitudes toward net use, communication about malaria with family or friends, and perceived susceptibility to malaria.</li> <li>● Contextualized mass media content aired during program segments with high listenership trends among the target audience to normalize community perception toward susceptibility to malaria, perceived self-efficacy, and favorable attitude towards net use.</li> </ul>

Prompt care seeking for children under five years of age with fever	Caregivers of children under five years of age, general population	All districts in Zanzibar	<ul style="list-style-type: none"> <li>● Improve people’s understanding of their susceptibility to malaria as well as the severe consequences of malaria.</li> <li>● Develop SBC activities to increase confidence among the population in malaria testing and ACTs as efficacious for detecting and treating malaria, respectively.</li> <li>● Building trust in the effectiveness of malaria tests and treatment would support improvements in care-seeking and treatment behaviors.</li> </ul>
Testing and treatment	Pregnant women, caregivers of children under five years of age, general population, travelers visiting Zanzibar		<ul style="list-style-type: none"> <li>● Develop SBC activities to increase confidence among the population in malaria testing and ACTs as efficacious for detecting and treating malaria, respectively.</li> <li>● Building trust in the effectiveness of malaria tests and treatment would support improvements in care-seeking and treatment behaviors.</li> <li>● Ensure proper counseling from providers to clients on topics such as the importance of completing malaria dose even when patients feel better and the inappropriateness of ACT use after a negative malaria test.</li> <li>● Address the facility-side factors through provider behavior change interventions focused on improving adherence to protocols and strengthening quality of client-centered counseling</li> </ul>

### Additional Support Activities

PMI will support ZAMEP’s response to *An. stephensi*, including identifying opportunities to influence individual, community, and household behaviors associated with *An. stephensi* identification and control. PMI will support the development of activities aligned with the PMI-supported SBC [Guidance for Anopheles stephensi in Africa](#).

PMI will continue to support evidence-based malaria SBC activities using data from the MBS, as well as routine omnibus surveys to track the progress of PMI-support malaria SBC activities and inform programming accordingly. PMI will also support the collection and analysis of qualitative audience insights in priority geographies where uptake of key behaviors is low to better understand barriers to uptake. Results from omnibus surveys and qualitative audience insights will be used to make near-real-time adjustments to PMI-supported malaria SBC activities.

PMI will continue to support SBC capacity strengthening at the national and subnational level, with an increased effort at the national level. To bolster ZAMEP capacity to plan, design, implement, monitor, and evaluate malaria SBC activities, PMI will continue to support:

- Coordination at the national level through targeted support to improve the effectiveness of the SBC task force committee; and
- Capacity strengthening for ZAMEP staff on the use of data for decision making (e.g., from the expanded SBC module in the Malaria Indicators Survey) to inform SBC program priorities and elimination strategies.

## **7. Surveillance, Monitoring, and Evaluation**

### **7.1. PMI Goal and Strategic Approach**

The SM&E priority objective in ZAMEP’s Malaria Strategic Plan IV 2018–2023 is to reinforce malaria surveillance capacity for malaria elimination with the goal of actively investigating and classifying 100 percent of confirmed malaria cases by 2023.

ZAMEP’s approach to SM&E for malaria elimination is to maintain and strengthen malaria case surveillance and RCD, including a data collection and management system that enables the identification of new cases of malaria and triggers investigation and response measures. ZAMEP achieves this through the use of the electronic Integrated Disease Surveillance and Response (eIDSR) system, the malaria case notification (MCN) system called Shokishoki, the Coconut system, and the health management information system (HMIS) through the Zanzibar DHIS2 platform.

### **7.2. Recent Progress (October 2021–October 2022)**

- Supported data reviews and analyses, the development of malaria bulletins, and regular program and stakeholder updates on malaria epidemiology through weekly notifications and monthly dissemination meetings. Data reviews identified:
  - Data inconsistency between MCN and eIDSR in malaria cases, deaths, and provision of antimalarial drugs;
  - Incomplete data transmission from MCN to DHIS2 due to a mismatch of organizational units (health facilities and *shehias*) between the two systems; and
  - The eIDSR system was missing key information (e.g., number of outpatient visits) and functionalities, limiting access to data.
- In 2022, ZAMEP conducted RCD in 23 shehias where 22,454 individuals were tested using mRDT, with 15 (0.06 percent) individuals tested positive.
- Supported feedback meetings to 24 CMSOs and 2 health facilities.
- Conducted supportive supervision for CMSOs resulting in 153 (96 percent) confirmed cases correctly classified by CMSOs.
- Investigated increases in the number of cases in malaria foci; 55 malaria cases were verified from 25 facilities in Unguja and Pemba.

- Supported ZAMEP to develop a protocol for a case-control study to identify high-risk populations and determine targeted interventions for them.
- In an effort to harmonize parallel reporting systems, PMI partners collaborated with ZAMEP to conduct consultation meetings with the information, communication, and technology and epidemiology units of the Ministry of Health to explore changes in the functionality of eIDSR to include MCN and case investigation data.
- Through analysis of the MCN data, identified the shehia to implement small-scale reactive drug administration (RDA) to monitor feasibility and began development of the RDA standard operating procedures.
- Supported ZAMEP in the quantification and procurement of ACT's for the small-scale targeted implementation of RDA.

### **7.3. Plans and Justification with FY 2024 Funding**

PMI will continue to support activities to strengthen malaria surveillance and RCD, including the data collection and management systems that enable the identification of new cases of malaria and that trigger CMSO investigations and other response measures. If ZAMEP adopts RDA using the same mechanism used for RCD, PMI will support implementation. The RDA pilot will commence following the receipt of ACT, which is currently under procurement. In addition, PMI will support activities to review the entire business process of the parallel reporting systems and implement suggested recommendations.

PMI will continue to support the integration of data generated from eIDSR and MCN to the Coconut and DHIS2 data dashboards while strengthening the capacity of ZAMEP and HMIS unit staff to maintain basic information technology systems and troubleshoot issues related to the database system and data server until the Zanzibar national data center maintains them.

PMI will continue to support the refinement and maintenance of an operational data dashboard to visualize entomological monitoring data and foci investigation findings from the Coconut system and DHIS2 malaria dashboards used by ZAMEP.

PMI will continue to strengthen ZAMEP's ability to analyze and disseminate SM&E-related information for decision making, hold regular meetings, attend technical working groups to review and discuss SM&E activities, and make regular SM&E supervisory visits to the field.

PMI will support participants for the frontline (basic) course for the Field Epidemiology Training Program, with an emphasis on selecting participants working in malaria, such as surveillance officers, malaria focal persons, and data quality improvement liaisons. For a description of this program's activities, see the capacity strengthening section.

For a description of PMI support for entomological surveillance and insecticide-resistance monitoring, see the vector control section. For a description of PMI support for TES, see the case management section in the mainland Tanzania MOP 2023. For a description of PMI support for operational research and program evaluation, see the operational research section.

The [FY 2024 funding tables](#) contain a full list of SM&E activities that PMI proposes to support in Zanzibar.

**Table 5. Available Malaria Surveillance Sources**

Source	Data Collection Activity	2020	2021	2022	2023	2024	2025
Household Surveys	Demographic Health Survey			X			
Household Surveys	Malaria Indicator Survey			X			P
Household Surveys	Multiple Indicator Cluster Survey						
Household Surveys	Expanded Program on Immunization Survey						
Health Facility Surveys	Service Provision Assessment						
Health Facility Surveys	Service Availability Readiness Assessment (SARA) Survey						
Health Facility Surveys	Other Health Facility Survey						
Malaria Surveillance and Routine System Support	Therapeutic Efficacy Studies						
Malaria Surveillance and Routine System Support	Support to Parallel Malaria Surveillance System	X	X	X			
Malaria Surveillance and Routine System Support	Support to the health management information system		X	X	P	P	P
Malaria Surveillance and Routine System Support	Support to Integrated Disease Surveillance and Response (IDSR)			X	P	P	P
Malaria Surveillance and Routine System Support	Electronic Logistics Management Information System	X	X	P	P	P	P
Malaria Surveillance and Routine System Support	Malaria Rapid Reporting System	X	X	X	P	P	P
Other	End-User Verification						
Other	School-based Malaria Survey						
Other	Knowledge, Attitudes and Practices Survey, MBS		X				
Other	Malaria Impact Evaluation						
Other	Entomologic Monitoring Surveys	X	X	X	P	P	P

X: Completed activities; P: Planned activities.

## 8. Operational Research and Program Evaluation

### 8.1. PMI Goal and Strategic Approach

The priority objective for operational research (OR) in ZAMEP Malaria Strategic Plan IV 2018–2023 is to evaluate and optimize malaria program management and coordination. ZAMEP addresses potential OR and program evaluation (PE) topics during the program and data reviews conducted during the various thematic technical working groups (e.g., vector control, case management, SM&E, SBC, etc.). They prioritize proposals to evaluate and optimize malaria interventions, update national strategies and guidelines, address new challenges, and guide the scaling of proven strategies in collaboration with research institutions. PMI works jointly with ZAMEP, implementing partners, other donors, and research institutions to identify and support relevant OR and PE.

### 8.2. Recent Progress (October 2021–September 2022)

PMI supported the genetic sequencing of samples collected during the rolling cross-sectional survey in the RCD OR study, “Operational Research to Increase the Effectiveness of the Malaria Surveillance and Response System in Zanzibar (Reactive Case Detection in Zanzibar Effectiveness and Cost study),” to further understand parasite population genetic diversity and the multiplicity of *Plasmodium falciparum* infections in Zanzibar. Initial results indicated that infections in RCD foci are related, that genetic differences could not be discerned between locally acquired and imported cases, and that parasite populations on Pemba appear to be genetically isolated, indicating that importation may be limited and local transmission may be more important in Pemba than Unguja.

**Table 6. PMI-Funded Operational Research/Program Evaluation Studies in Zanzibar**

Recently Completed OR and PE Studies	Status of Dissemination	Start date	End date
Genetic Characterization of <i>Plasmodium falciparum</i> Infections in Zanzibar to Inform Elimination Activities	Results disseminated to ZAMEP and partners; manuscript in progress	June 2020	Sept 2022
Ongoing or Planned OR and PE Studies	Status	Start date	End date
No PMI-supported OR or PE is ongoing or planned.			

OR: operational research; PE: program evaluation.

### 8.3. Plans and Justification with FY 2024 Funding

PMI does not plan to support operational research or program evaluation activities with FY 2024 funding.

## **9. Capacity Strengthening**

### **9.1. PMI Goal and Strategic Approach**

PMI support aligns with ZAMEP’s strategy to develop leadership, design national and subnational health strategy guidelines, and improve workforce capacity to ensure quality of health care services and commodities from health facilities to the community level.

### **9.2. Recent Progress (October 2021–September 2022)**

- Supported ZAMEP staff to participate in international, regional, and national-level training, including meetings, such as the annual American Society of Tropical Medicine and Hygiene (ASTMH) conference, RBM Partnership to End Malaria technical working group meetings (vector control, SBC and MIP), and regional medical and vector-borne disease conferences.
- Coauthored presentations at the ASTMH 2022 conference: “Biting Behavior of Anopheles Mosquitoes in Zanzibar: Implications for the Malaria Elimination Program,” “Spatio-temporal Dynamics of Malaria in Zanzibar,” and “High-Resolution Sub-District Stratification of Malaria Risk in Zanzibar.”
- Supported training for two ZAMEP staff to participate in the malaria surveillance course in Ghana, and orientation 240 health care providers (150 in Unguja and 90 in Pemba) provided orientation on the use of the Zanzibar malaria surveillance systems.
- Trained 138 health facility staff and CMSOs on the preparation of thick and thin blood smears.
- Trained 220 staff on malaria diagnosis using mRDT and 60 staff on microscopy.
- Conducted two feedback meetings with 180 health facility staff (100 in Unguja and 80 in Pemba) covering 109 public and 85 private health facilities to improve completeness, accuracy, and timely reporting of malaria surveillance data.
- In collaboration with the Toward Elimination of Malaria in Tanzania project and ZAMEP, provided technical support to develop the Zanzibar Malaria Profile.
- Supported capacity strengthening of ZAMEP staff to conduct malaria risk stratifications using the multiple correspondence analysis approach in Microsoft Excel and Jamovi with a stratification module using 2019 to 2021 data. The stratification maps and outputs were disseminated to all malaria stakeholders and are expected to inform the development of the new strategic plan and Global Fund grant 2024–2026 application.
- Strengthened the inclusion of malaria interventions in the planning, budgeting, and financing process (Zanzibar Planning, Budgeting, and Reporting, or ZanPBR) to improve the matching of financial resources with malaria interventions from facility, community, and local government authority levels. This system enables Zanzibar to collect and use malaria (and other health program) data for planning and better allocation of resources for implementation.

- Resolved DHIS2 system technical challenges to ensure smooth system operation.
- Periodically reviewed the Human Resources for Health information system and developed a comprehensive vision and requirements for it.
- Reviewed existing data collection methods, tools, and systems for malaria and other health programs and developed a phased plan for establishing an interoperable system in line with the Zanzibar Digital Health Strategy.
- Strengthened health information systems in Zanzibar’s routine monthly and weekly collection, management, and reporting of malaria-related data from health facilities, with a focus on data quality, completeness, and timeliness.
- Supported training of HMIS staff on the use of health information systems data for decision making.

### 9.3. Plans and Justification with FY 2024 Funding

- Support overall strengthening of the HMIS systems, ZanPBR, and Unified Community System (the OpenSRP community system), including the integration of malaria data systems within HMIS in Zanzibar and the ongoing efforts to develop the Zanzibar Health Enterprise Architecture and interoperability layer to ensure seamless data sharing and exchange across different systems in alliance with the new department created under the government of Zanzibar presidency.
- Strengthen the capacity of local government authorities to implement and oversee malaria interventions in Zanzibar, such as through training on the use of malaria-related data, ZanPBR, and supportive supervision.
- Support short-term training opportunities for ZAMEP staff to increase both technical and managerial skills, including participation in international meetings (e.g., ASTMH conference and RBM Partnership to End Malaria technical working groups meetings).
- Support the laboratory information system for PCR and ELISA, and strengthen the capacity for sequencing at ZAMEP for *An. stephensi*.

The [FY 2024 funding tables](#) contain a full list of capacity-strengthening activities that PMI proposes to support in Zanzibar.

## 10. Staffing and Administration

A minimum of five health professionals oversee PMI in Zanzibar. The single interagency team led by the USAID Mission Director or their designee consists of a Resident Advisor representing USAID, a Resident Advisor representing CDC, and three locally hired experts known as foreign service nationals. The PMI interagency team works together to oversee all technical and administrative aspects of PMI, including finalizing details of the project design, implementing malaria prevention and treatment activities, monitoring and evaluation of outcomes, reporting of results, and providing guidance and direction to PMI implementing partners.



# **ANNEX: GAP ANALYSIS TABLES**

**Table A-1. ITN Gap Analysis Table**

<b>Calendar Year</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>
Total country population	1,959,695	2,032,203	2,107,395
Total population at risk for malaria	1,959,695	2,032,203	2,107,395
PMI-targeted population at risk for malaria	1,959,695	2,032,203	2,107,395
Population targeted for ITNs	1,959,695	2,032,203	2,107,395
<b>Continuous distribution needs</b>			
Channel 1: ANC	61,300	63,513	66,200
Channel 1: ANC type of ITN	PBO	Dual AI	Dual AI
Channel 2: EPI	61,181	63,500	65,512
Channel 2: EPI type of ITN	PBO	Dual AI	Dual AI
Estimated total need for continuous channels	<b>122,481</b>	<b>127,013</b>	<b>131,712</b>
<b>Mass campaign distribution Needs</b>			
Mass distribution campaigns	215,356	905,678	0
Mass distribution ITN type	PBO	PBO	PBO
Estimated total need for campaigns	215,356	905,678	0
<b>Total ITN need: Continuous and campaign</b>	<b>337,837</b>	<b>1,032,691</b>	<b>131,712</b>
<b>Partner contributions</b>			
ITNs carried over from previous year	122,200	177,023	0
ITNs from government	0	0	0
Type of ITNs from government			
ITNs from Global Fund	147,660	0	0
Type of ITNs from Global Fund	PBO	Dual AI and PBO	Dual AI
ITNs from other donors	0	0	0
Type of ITNs from other donors			
ITNs planned with PMI funding	245,000	822,000	165,000
Type of ITNs with PMI funding	PBO	Dual AI and PBO	Dual AI
<b>Total ITNs contribution per calendar year</b>	<b>514,860</b>	<b>999,023</b>	<b>165,000</b>
<b>Total ITN surplus (gap)</b>	17,7023	(33,668)	33,288

**Table A-2. RDT Gap Analysis Table**

<b>Calendar Year</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>
Total country population	1,959,695	2,032,203	2,107,395
Population at risk for malaria	1,959,695	2,032,203	2,107,395
PMI-targeted population at risk for malaria	1,959,695	2,032,203	2,107,395
<b>RDT needs</b>			
Total number of projected suspected malaria cases	617,939	639,720	651,595
Percent of suspected malaria cases tested with an RDT	80%	80%	80%
<b>RDT needs (tests)</b>	<b>494,351</b>	<b>511,776</b>	<b>521,276</b>
Needs estimated based on HMIS data			
<b>Partner contributions (tests)</b>			
RDTs from government	0	0	0
RDTs from Global Fund	659,040	570,810	573,960
RDTs from other donors	0	0	0
RDTs planned with PMI funding	0	0	0
<b>Total RDT contributions per calendar year</b>	<b>659,040</b>	<b>570,810</b>	<b>573,960</b>
<b>Stock balance (tests)</b>			
Beginning balance	190,050	354,739	413,773
- Product need	494,351	511,776	521,276
+ Total contributions (received/expected)	659,040	570,810	573,960
<b>Ending balance</b>	<b>354,739</b>	<b>413,773</b>	<b>466,457</b>
Desired end-of-year stock (months of stock)	9	9	9
Desired end-of-year stock (quantities)	370,763	383,832	390,957
<b>Total surplus (gap)</b>	<b>(16,025)</b>	<b>29,941</b>	<b>75,500</b>

**Table A-3. ACT Gap Analysis Table**

<b>Calendar Year</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>
Total country population	1,959,695	2,032,203	2,107,395
Population at risk for malaria	1,959,695	2,032,203	2,107,395
PMI-targeted population at risk for malaria	1,959,695	2,032,203	2,107,395
<b>ACT Needs</b>			
Total projected number of malaria cases	6,359	5,474	4,589
<b>Total ACT needs (treatments)</b>	<b>6,359</b>	<b>5,474</b>	<b>4,589</b>
Needs estimated based on consumption data			
<b>Partner contributions (treatments)</b>			
ACTs from government	0	2,073	8,005
ACTs from Global Fund	0	0	0
ACTs from other donors	0	0	0
ACTs planned with PMI funding	0	0	0
<b>Total ACTs contributions per calendar year</b>	<b>0</b>	<b>2,073</b>	<b>8,005</b>
<b>Stock balance (treatments)</b>			
Beginning balance	11,200	4,841	1,440
- Product need	6,359	5,474	4,589
+ Total contributions (received/expected)	0	2,073	8,005
<b>Ending balance</b>	<b>4,841</b>	<b>1,440</b>	<b>4,856</b>
Desired end-of-year stock (months of stock)	9	9	9
Desired end-of-year Stock (quantities)	4,769	4,106	3,442
<b>Total surplus (gap)</b>	<b>72</b>	<b>(2,666)</b>	<b>1,414</b>

**Table A-4. Inj. Artesunate Gap Analysis Table**

<b>Calendar Year</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>
<b>Injectable artesunate needs</b>			
Projected number of severe cases	324	292	260
Projected number of severe cases among children	16	15	13
Average number of vials required for severe cases among children	3	3	3
Projected number of severe cases among adults	308	277	247
Average number of vials required for severe cases among adults	9	9	9
<b>Total injectable artesunate needs (vials)</b>	<b>2,819</b>	<b>2,540</b>	<b>2,262</b>
Needs estimated based on HMIS data			
Partner contributions (vials)			
Injectable artesunate from government	3,764	2,792	1,321
Injectable artesunate from Global Fund	0	0	0
Injectable artesunate from other donors	0	0	0
Injectable artesunate planned with PMI funding	0	0	0
<b>Total injectable artesunate contributions per calendar year</b>	<b>3,764</b>	<b>2,792</b>	<b>1,321</b>
Stock balance (vials)			
Beginning balance	1,641	2,586	2,838
- Product need	2,819	2,540	2,262
+ Total contributions (received/expected)	3,764	2,792	1,321
<b>Ending balance</b>	<b>2,586</b>	<b>2,838</b>	<b>1,897</b>
Desired end-of-year stock (months of stock)	9	9	9
Desired end-of-year stock (quantities)	2,114	1,905	1,697
<b>Total surplus (gap)</b>	<b>472</b>	<b>933</b>	<b>200</b>

**Table A-5. Primaquine Gap Analysis Table**

<b>Calendar Year</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>
Total country population	1,959,695	2,032,203	2,107,395
Total population at risk for malaria	1,959,695	2,032,203	2,107,395
PMI-targeted population at risk for malaria	1,959,695	2,032,203	2,107,395
<b>Primaquine needs</b>			
Total projected number of malaria cases	6,359	5,474	4,589
Total projected number of Pf cases	0	0	0
Total projected number of Pv cases	0	0	0
Total projected number of mixed cases (Pf + Pv)	0	0	0
<b>Total primaquine needs (tablets)</b>	<b>5,787</b>	<b>4,981</b>	<b>4,176</b>
Needs estimated based on HMIS data			
<b>Partner contributions (tablets)</b>			
Primaquine from government	9,060	3,248	2,716
Primaquine from Global Fund	0	0	0
Primaquine from other donors	0	0	0
Primaquine planned with PMI funding	0	0	0
<b>Total primaquine contributions per calendar year</b>	<b>9,060</b>	<b>3,248</b>	<b>2,716</b>
<b>Stock balance (tablets)</b>			
Beginning balance	3,008	6,281	4,548
- Product need	5,787	4,981	4,176
+ Total contributions (received/expected)	9,060	3,248	2,716
<b>Ending balance</b>	<b>6,281</b>	<b>4,548</b>	<b>3,088</b>
Desired end-of-year stock (months of stock)	9	9	9
Desired end-of-year stock (quantities)	4,340	3,736	3,132
<b>Total surplus (gap)</b>	<b>1,941</b>	<b>812</b>	<b>(44)</b>