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

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# U.S. PRESIDENT'S MALARIA INITIATIVE

Angola

## Malaria Operational Plan FY 2024

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

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## ABBREVIATIONS

ACT	Artemisinin-based combination therapy
ADECOS	Community and Health Development Agents (Portuguese: <i>Agentes de Desenvolvimento Comunitário e Sanitário</i> )
ARU	ADECOS Referral Unit
AL	Artemether-lumefantrine
ANC	Antenatal care
ARMED	Regulatory agency of medicines and health technologies (Portuguese: <i>Agência Reguladora de Medicamentos e Tecnologias de Saúde</i> )
ASAQ	Artesunate-amodiaquine
ASPY	Artesunate-pyronaridine
CDC	Centers for Disease Control and Prevention
CECOMA	Central Procurement Agency for Medicines and Medical Supplies (Portuguese: <i>Central de Compras de Medicamentos e Meios Médicos de Angola</i> )
CME	Continued Medical Education
CY	Calendar Year
DHS	Demographic and Health Survey (Portuguese: <i>Inquérito de Indicadores Múltiplos de Saúde</i> )
DHIS2	District Health Information Software Version 2
eLMIS	electronic Logistics Management Information System
EUV	End-Use Verification (Tool)
EPI	Expanded program on immunization
FETP	Field Epidemiology Training Program
FY	Fiscal year
GEPE	Office of Planning and Statistics (Portuguese: <i>Gabinete de Estudos, Planeamento e Estatística</i> )
Global Fund	Global Fund to Fight AIDS, Tuberculosis and Malaria
GRA	Government of the Republic of Angola
GTICI	Cabinet of Technology and Institutional Communication (Portuguese: <i>Gabinete de Tecnologias de Informação e Comunicação Institucional</i> )
HF	Health Facility
HNQIS	Health Network Quality Improvement System
HW	Health workers
ICCT	Institute to combat and control trypanosomiasis (Portuguese: <i>Instituto de Combate e Controlo das Tripanossomíases</i> )
INIS	National Health Research Institute (Portuguese: <i>Instituto Nacional de Investigação em Saúde</i> )
IPC	Interpersonal Communication
IPTp	Intermittent preventive treatment for pregnant women
IRS	Indoor residual spraying

ITN	Insecticide-treated mosquito net
LMIS	Logistics Information Management System
MIP	Malaria in pregnancy
MOH	Ministry of Health
MOP	Malaria Operational Plan
NMCP	National Malaria Control Program
NMSP	National Malaria Strategic Plan
OR	Operational Research
PBO	Piperonyl butoxide
PE	Program Evaluation
PMI	U.S. President's Malaria Initiative
RDT	Rapid diagnostic test
SADC	Southern African Development Community
SBC	Social and behavior change
SIGLOFA	Angola national health electronic logistics management information system, acronym for Portuguese term <i>Sistema Informática de. Gestão de Logística Farmacêutica de Angola</i>
SM&E	Surveillance, monitoring, and evaluation
SP	Sulfadoxine-pyrimethamine
SRH	Sexual and Reproductive Health
USAID	United States Agency for International Development
WHO	World Health Organization
ZMCC	Zero Malária Começa Comigo

## EXECUTIVE SUMMARY

To review specific country context for Angola, please refer to the [country malaria profile](#), which provides an overview of the country's malaria situation, key indicators, the National Malaria Strategic Plan (NMSP), and the partner landscape.

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

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

### Rationale for PMI's Approach in Angola

According to the World Health Organization World Malaria Report 2022, Angola accounts for 3.4 percent of malaria cases and 2.4 percent of malaria deaths globally, rendering Angola as one of the five countries that account for over half the global malaria burden in terms of both malaria cases and deaths. Malaria is transmitted nationwide, and 100 percent of the population is at risk. Although progress has been made towards achieving key milestones for malaria case management and control, these efforts are hampered by multiple challenges, including insufficient funding, limited qualified human resources, weak government structures, and various logistical constraints.

PMI has focused its support for vector control, case management, supply chain management, malaria in pregnancy (MIP), social and behavior change (SBC), and surveillance, monitoring, and evaluation (SM&E) in the six provinces with the highest malaria burden—Cuanza Norte, Lunda Norte, Lunda Sul, Malanje, Uige, and Zaire, with direct strategic technical assistance at the national level. PMI aligns its funding to implement interventions and provide technical assistance to reduce malaria-related morbidity and mortality by 40 and 50 percent, respectively, by 2025, from 2020 baseline figures. Detailed strategic objectives and targets are described in the [malaria country profile](#).

### Overview of Planned Interventions

The proposed FY 2024 PMI funding for Angola is \$18 million. PMI will support the following intervention areas with these funds:

## 1. Vector Monitoring and Control

With FY 2024 funds, PMI plans to continue support for entomology activities in Angola, including:

- Determining vector bionomics in two provinces (Luanda and Huambo);
- Insecticide resistance monitoring in seven provinces (Cuanza Norte, Luanda, Lunda Norte, Lunda Sul, Malanje, Uíge, and Zaire) during the peak mosquito season (November to April); and
- Conducting enhanced surveillance for *An. stephensi* in two sites.

PMI will continue to engage and provide technical assistance and training opportunities to the National Malaria Control Program (NMCP) and other relevant Ministry of Health (MOH) departments, institutes, and other entomological partners. In addition, PMI will support the distribution of 2.7 million nets infused with piperonyl butoxide for the calendar year 2025 mass campaign.

## 2. Malaria in Pregnancy

Under FY 2024, PMI proposes to further support activities to strengthen MIP health services delivery and improve uptake of Intermittent preventive treatment for pregnant women (IPTp) among pregnant women. Activities prioritized include:

- Strengthening national and provincial level MIP coordination structures in collaboration with the MOH Sexual and Reproductive Health program;
- Supporting revision of MIP guidelines, standard operating procedures (SOP), training manuals, and job aids to address barriers to IPTp uptake; and
- Expanding the introduction of the revised guidelines to technical stakeholders.

Recent evidence, such as the Malaria Behavior Survey (MBS) concluded in 2023, will guide PMI's cross-cutting activity implementation and financing of SBC and health service delivery interventions in targeted antenatal care facilities. Of note, PMI plans to fund the expansion of MIP technical assistance and will not procure sulfadoxine-pyrimethamine for PMI-focus provinces, given the projected coverage of sulfadoxine-pyrimethamine (SP) through 2025 with prior funding already planned.

## 3. Drug-Based Prevention

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

#### **4. Case Management**

PMI procures artemisinin-based combination therapies (ACTs), pre-referral treatment for severe malaria, as well as rapid diagnostic tests and microscopy supplies for diagnosis. With the exception of pre-referral treatment for severe malaria and procurement of sulfadoxine-pyrimethamine (which are anticipated to be fully funded by the Government of the Republic of Angola, [GRA]), PMI proposes to maintain commodity contribution commitments in Angola that are complementary to GRA contributions and are necessary to avoid essential product stock-outs that, would otherwise disrupt the continuity of investments in facility-level and community-level case management. Key planned interventions focus on quality improvement of malaria case management at the health facility level, including:

- Mortality audits;
- Continued focus on targeted training and supportive supervision;
- Providing technical assistance for updating malaria case management guidelines as needed;
- Continuing to support laboratory diagnostics training (basic and advanced) including training of trainers; and
- Continuing efforts to maintain the national malaria slide bank.

An emphasis will be placed on analysis and dissemination of routinely collected data to demonstrate impact of community-level interventions, such as the rollout of rectal artesunate, malaria-related mortality after referral, feasibility of digital training and supervision tools, and evaluating change in quality of care documented in post-training supervisions.

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

The main supply chain functions PMI proposes to continue prioritizing in FY 2024 are:

- Support to strengthening pharmaceutical management related to antimalarial commodities;
- Provide technical assistance to encourage the government to lead in-country distribution of PMI-funded commodities stocked at the Angolan MOH Warehouse;
- Support for the registration of medicines and pharmaceutical management strengthening through the *Agência Reguladora de Medicamentos e Tecnologias de Saúde*;
- Maintain current support of the national health electronic logistics management information system (eLMIS) called SIGLOFA in Angola, while engaging with other stakeholders on its future national roll-out and advocacy for its integration with the District Health Information System 2 (DHIS2) and to m-supply, a warehouse management system.



## 6. Malaria Vaccine

Angola currently does not identify the introduction of the World Health Organization-approved malaria vaccine as a priority strategy for malaria prevention and control in its 2021-2025 NMSP.

## 7. Social and Behavior Change

Given PMI supports cross-cutting SBC activities that promote the uptake and maintenance of multiple key malaria interventions, activities focusing on patient- and health services-levels will be prioritized with FY 2024 funds, including:

- Evidence-based, theory-informed SBC technical assistance that builds on and complements successes, such as the national “*Zero Malaria Starts With Me*” campaign, via multiple modalities;
- Adapting technical assistance to health service delivery partners, targeting care-seeking and adherence behavioral interventions across PMI-focused facilities; and
- Sustaining peer-to-peer engagement and group problem solving through provider cluster and professional meetings to promote provider behavior change regarding the use of rapid diagnostic tests and results from death audits.

Informed by the 2023 MBS results, SBC proposed salient interventions will address correct and consistent insecticide-treated net use, behavioral factors linked to malaria in pregnancy and prompt care seeking for fever, accounting for respondents’ perceptions of malaria severity and susceptibility, health providers, IPTp, and antimalarial efficacy. MBS results will equally guide support of the National SBC Strategy activities through FY 2024 using enhanced communication channels and audience segmentation approaches to further prioritize and enhance coverage of target populations.

## 8. Surveillance, Monitoring, and Evaluation

PMI has invested significantly in SM&E, with an increasing focus on improving the quality and timely availability of routine data on electronic platforms. With FY 2024 funding, PMI will continue to build on successes to further strengthen the data collected through the routine health management information system—i.e., DHIS2—and to monitor and evaluate malaria interventions, with a focus on high malaria burden provinces supported by PMI. Salient planned activities include:

- Implementation of the “*Epidemiological Surveillance in Public Health*” training module through the Kassai digital e-learning platform to strengthen surveillance capacity at district level;

- Continue to support malaria-related data integration and management systems and regular national and district level with SM&E review by technical working groups;
- Ongoing support to NMCP in analyses, reviews, and dissemination of malaria-related data;
- Continued data quality assessments to ensure accurate decision-making through DHIS2, including data-driven NMCP response capacity and crafting of recommendations for control at the municipal level and advocacy for timely and adequate government commodity investment.

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

Operational Research (OR) and program evaluation (PE) capacity has been prioritized as an interest of the NMCP. However, funding limitations have motivated PMI Angola to focus efforts instead on expanded and strengthened analysis and dissemination of routinely collected data, with an intention of preparing Angola to have capacity for implementing future studies. There are no proposed OR studies using FY 2024 funds, but technical assistance for developing an OR/PE prioritized list, potentially partnering with entities such as national and foreign universities, nongovernmental organizations, or private entities that are able to conduct research interventions, has been identified as a potential step for strengthening OR and PE capacity in Angola.

## **10. Capacity Strengthening**

PMI Angola supports interventions which aim to strengthen the institutional and individual capacity of national, subnational, and local level malaria programs and teams to effectively lead, manage, implement, and oversee their own programs to achieve their own objectives. With FY 2024 funding, PMI will continue its support for capacity building of the NMCP via direct technical assistance to NMCP technical staff, conference and workshop attendance, including oral or poster presentations of implementing partners at conferences and the participation of relevant NMCP personnel, where the outcome is beneficial to the country's program.

## **11. Staffing and Administration**

PMI is an interagency initiative led by the U.S. Agency for International Development (USAID) and implemented together with CDC. The in-country interagency team is led by the USAID Country Representative, or their designee, and consists of resident advisors representing USAID and CDC, and two locally hired experts. The PMI interagency team works together to oversee all technical and administrative aspects of PMI, including, but not limited to, general PMI country program management, finalizing details of 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.

# I. CONTEXT & STRATEGY

## 1. Introduction

Angola began implementation as a PMI partner country in fiscal year (FY) 2006. This FY 2024 Malaria Operational Plan (MOP) presents a detailed implementation plan for Angola, based on the strategies of PMI and the National Malaria Control Program (NMCP). It was developed in consultation with the NMCP and with the participation of national and international partners. The activities that PMI is proposing build on investments made by partners to improve and expand malaria-related services, including the Global Fund to Fight AIDS, Tuberculosis, and Malaria (Global Fund). This document provides an overview of the strategies and interventions in Angola, describes progress to date, identifies challenges and relevant contextual factors, and provides a description of activities that are planned with FY 2024 funding.

For more detailed information on the country context, please refer to the [Country Malaria Profile](#), which provides an overview of the country's malaria situation, key indicators, the NMCP strategic plan, and the partner landscape.

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

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

Over the next five years, PMI aims to save lives, reduce health inequities, and improve disease surveillance and global health security. Under the strategy, and building on the progress to date in PMI-supported countries, PMI will work with National Malaria 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 Angola

Since 2016, PMI Angola has prioritized the geographic areas with the highest burden of malaria to complement funding from the Government of the Republic of Angola (GRA), the Global Fund and other development partners to achieve the greatest reduction in malaria morbidity and mortality. The six PMI-focus provinces of Cuanza-Norte, Lunda-Norte, Lunda-Sul, Malanje, Uige and Zaire, with an estimated population of 6.4 million in 2023, form the high endemic zone and have the highest malaria burden. PMI has focused its support for vector control, case management, supply chain management, malaria in pregnancy (MIP), social and behavior change (SBC), and surveillance, monitoring, and evaluation (SM&E) on these six provinces with direct strategic technical assistance at the national level.

#### 3.1. Malaria Overview for Angola

Malaria is transmitted throughout Angola, with 100 percent of the population at risk. It continues to be the primary health burden in Angola and the principal cause of morbidity and mortality. Data from 2022 show that malaria was the leading cause of low birth weight and anemia and was the primary cause of death reported nationwide (44 percent), followed by tuberculosis (9 percent), malnutrition in children under five years of age (7 percent), severe acute respiratory infections (7 percent), HIV/AIDS (6 percent), pneumonia (5 percent), arterial hypertension (4 percent), diabetes mellitus (3 percent), accidental trauma (3 percent), diarrhea with dehydration in children under 5 years (2 percent), typhoid fever (2 percent), and COVID-19 (1 percent).

The ecological diversity found in Angola is among the African continent's most varied ecosystems found in a single country. There are significant geographical heterogeneity and

ecological regions for vector breeding and malaria transmission intensity, with hyperendemicity historically observed, collectively, in the northern provinces of Cabinda, Cuanza Norte, Lunda Norte, Lunda Sul, Malanje, and Uige. In the north, the peak malaria transmission season extends from March to May, with a secondary peak in October to November. The central and coastal provinces (Benguela, Bie, Cuanza Sul, Huambo, Luanda, Moxico, and Zaire) are mesoendemic with stable transmission. The four southern provinces bordering Namibia have highly seasonal transmission and are prone to epidemics. These ecological zones and their areas of transition are distinguished by rainfall, temperature, altitude and other climatic conditions. The rainfall duration ranges from about three months in Cunene Province to up to nine months (October to April or May) in northern and eastern Angola.

According to the World Malaria Report 2022, Angola specifically accounts for 3.4 percent of malaria cases and 2.4 percent of malaria deaths globally. Angola is one of the five countries that collectively account for over half the global malaria burden in terms of both malaria cases and deaths. In 2022, Angola reported 12,474 deaths (a decrease by 9 percent in comparison with 2021), with a decrease in malaria deaths by 15 percent observed over the same time frame in the six PMI-focus provinces (2,546 deaths were reported in 2022 versus 2,987 in 2021).

In 2022, there were 9.2 million malaria cases (85 percent confirmed by microscopy or rapid diagnostic test [RDT]) of which 32.5 percent were in children under five years of age and 3 percent in pregnant women. Of approximately 14.8 million fever cases tested at service delivery sites, 53.2 percent were positive for malaria. 30 percent of all patients seeking healthcare were diagnosed with malaria (5 percent with severe malaria), a decrease by 5 percent from 2020 baseline levels.

For more detailed information on malaria indicators, please refer to the [Country Malaria Profile](#).

### **3.2. Key Challenges and Contextual Factors**

The GRA has not prioritized the necessary health investments to meet the needs of the population. Angola's healthcare system has not adapted to the growth of the population and has limitations in resources: a shortage of medical professionals and skilled practitioners, poor infrastructure, insufficient medical services, and limited budget allocation. The insufficient number of skilled nurses and technical staff are not all working in their fields of expertise. The very few physicians are limited in their capacity to do outreach, resulting in challenges related to the delivery of quality services.

The country has made progress towards increasing access to healthcare services including availability and affordability of malaria preventive and case management interventions towards achieving malaria control. The 2022 National Development Plan reports that the coverage of the population with access to health services is at 80 percent, representing an increase by 36 percent since 2014. In support of the development of the 2021–2025 National Malaria

Strategic Plan (NMSP), the 2022 mid-Malaria Program Review identified multiple challenges that hamper effective implementation, including limited governance structures, which often result in inadequate funding allocated and released for the health sector at national and subnational levels. The NMCP sits within the Ministry of Health (MOH), but is not formally structured as an independent unit, and therefore does not receive direct and consistent funding from the General State Budget. This limits the capacity of NMCP to lead operations and makes the program highly dependent on external partners to fund and implement activities prioritized in the NMSP.

### **3.3. PMI's Approach for Angola**

PMI organizes its investments around the activities below, in line with the Angola NMSP 2021–2025. Building and strengthening the capacity of Angola's people and institutions—from the central level to communities—to effectively lead and implement evidence-based malaria control and elimination activities is paramount to PMI. The majority of PMI's planned support for FY 2024, across the areas of vector control, service delivery, and critical support systems such as supply chain, contains elements of capacity building and system strengthening. PMI Angola will continue to rely on and engage with partners such as national and provincial government departments, and is expanding its local partner base to reach municipal health departments and administrations, community-based organizations (CBOs) and civil society organizations (CSOs).

Finally, PMI Angola will continue to successfully partner with the private sector, with entities such as UNITEL, ExxonMobil Foundation, Banco de Fomento Angola (BFA), and other partners through the National Malaria Partners Forum. To accelerate sustainable development, PMI has worked over the years to assess the strengths and persistent challenges of Angola's malaria program. The activities proposed in this MOP are tailored to draw on these strengths and address weaknesses; activities will be monitored to evaluate the effectiveness of capacity building and strengthening efforts. In addition, while PMI understands it will take time for Angola to fully finance its development priorities, PMI will work with other partners (e.g., the Global Fund) to jointly advocate for Angola's funding commitments across the malaria portfolio.

### **3.4. Key Changes in this Malaria Operational Plan**

There has been no significant change in strategies supported or budget levels compared to the previous MOP. However, a noteworthy activity modification is an adjustment to PMI sulfadoxine-pyrimethamine (SP) commodity contributions. In acknowledgment of GRA-funded SP procurement contributions for IPTp made to PMI-focus provinces, PMI has not budgeted for SP procurement in FY 2024. PMI will continue to leverage its technical assistance to forecast and supplement GRA service delivery and commodity allocations to PMI-focus provinces to appropriately meet supply planning requirements. Another minor activity change is that the end use verification (EUV) tool is not expected to be implemented under FY 2024, as quarterly stock status of malaria commodities will be accessed via alternative sources, with regular review for quality and timely submission.

## II. OPERATIONAL PLAN FOR FY 2024

### 1. Vector Monitoring and Control

#### 1.1. PMI Goal and Strategic Approach

The Angola NMSP 2021-2025 aims to protect at least 80 percent of the population at risk with effective malaria prevention interventions through an integrated vector management strategy. This includes vector surveillance, insecticide resistance management, continuous and mass distribution of ITNs, targeted insecticide spraying (IRS and outdoor fumigation), larviciding, and strengthening entomological capacities. Currently, PMI supports the use of all of these interventions, with the exceptions of IRS, fumigation, and larviciding. PMI supports insecticide susceptibility monitoring in six PMI-focus provinces (Cuanza Norte, Lunda Norte, Lunda Sul, Malanje, Uige, and Zaire) plus Luanda. Entomological monitoring is also carried out in the non-PMI-focus provinces of Luanda and Huambo, and contributes to national level insectary management and maintenance, as well as laboratory sample processing. PMI also supports the implementation of entomological surveillance by other partners working in-country through coordination of activities plans, harmonization of data and results reporting, implementation of standard methods, technical assistance, and supplies.

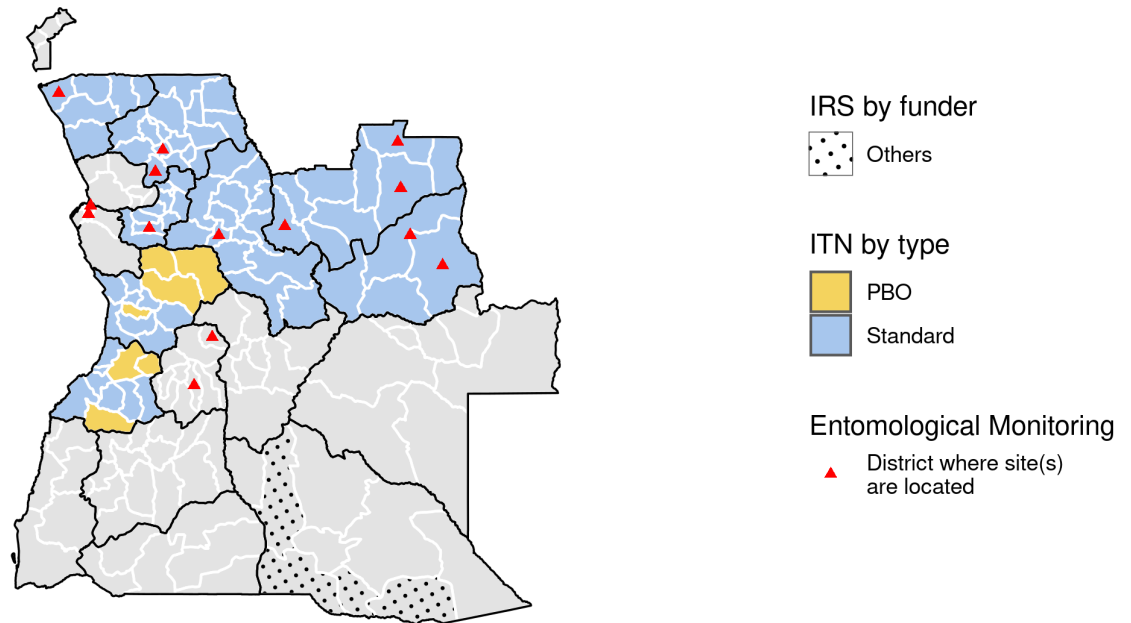
Per the NMSP, PMI supports continuous distribution of ITNs via antenatal care (ANC) and Expanded Program on Immunization (EPI) channels as well as mass campaigns every three years, in PMI-focus provinces. PMI supports ITN procurement, warehousing, transportation, micro-planning, supervision, registration, and other logistical support for ITN distribution in the six PMI-focus provinces of Cuanza Norte, Lunda Norte, Lunda Sul, Malanje, Uige and Zaire.

The Global Fund supports entomological surveillance and mass distribution of ITNs every three years in two provinces (Benguela and Cuanza Sul) and from 2025 to 2027 plans to support a third province (Bié). The Global Fund has been supporting annual IRS campaigns along the Angola-Namibia border (in Cuando Cubango Province) from 2019 to 2022 through a Global Fund regional grant (2021-2024). NMCP expects to resume IRS operations funded by the Global Fund regional grant (2025-2027), but discussions are ongoing.

The GRA was undergoing a public tender process for procurement of 10 million ITNs to be distributed in the calendar year (CY) 2022 mass campaign in the ten provinces not covered by PMI or Global Fund but that process has been delayed. GRA also supports larviciding activities in the provinces of Luanda and Huambo.

**Figure 1. Map of Vector Control Activities in Angola**

Vector Control Activities (2022)



### 1.2. Recent Progress (July 2022–March 2023)

PMI supported the following vector control activities:

- Entomological monitoring, including community-based longitudinal vector bionomics monitoring in two provinces (Huambo and Luanda) and insecticide resistance monitoring in seven provinces (Cuanza Norte, Luanda, Lunda Norte, Lunda Sul, Malanje, Uige, and Zaire) during the peak mosquito season in partnership with NMCP mosquito brigades. For more information about entomological monitoring, please refer to the [2022 Entomological Report](#);
- Discussions and development of enhanced surveillance plan in two sites in Luanda and Zaire provinces located at ports and protocol/reagents for molecular laboratory processing for *Anopheles (An.) stephensi* in coordination with Liverpool School of Hygiene and Tropical Medicine, Ministry of Transportation, and *Instituto de Combate e Controlo das Tripanossomíases/Institute to Combat and Control Trypanosomiasis (ICCT)*;
- Training, technical assistance and provision of supplies to *Instituto Nacional de Investigação em Saúde/National Health Research Institute (INIS)* and NMCP to strengthen laboratory protocols for molecular determination of mosquito species identification and sporozoite detection through ELISA; four NMCP and six INIS staff were training during the reporting period.
- Over 80 INIS and NMCP staff received training and technical assistance on best practices for general laboratory management, including data workflow, supplies inventory, database management, and insectary maintenance;



- Coordination and technical assistance to ICCT to support the establishment of a national insectary;
- Prevention of malaria in pregnancy following the *Malaria in Pregnancy Manual* and supporting routine ITN distribution via ANC services;
- Procurement of 734,050 piperonyl butoxide (PBO) ITNs to finalize the CY 2022-2023 mass campaign and for continuous distribution in the six PMI-focus provinces during FY 2023;
- Transportation of 3,625,552 PMI-funded standard ITNs for distribution in PMI-focus provinces during the CY 2022-2023 mass distribution campaign;
- National quantification of ITNs for use in continuous distribution and for mass campaigns;
- Campaign digitalization through the collection of information on mobile devices from 1,358,901 households during the CY 2022-2023 mass distribution. During the ongoing mass distribution campaign in the remaining 14 districts in PMI-focus provinces with distribution planned for June 2023, PMI will pilot incorporation of ITN distribution digitized data directly into the national DHIS2 platform;
- ITN durability monitoring, by implementing and analyzing baseline data (6 months post-distribution) and preparing for implementation of 12-month data collection, monitoring the standard and PBO ITNs from the 2022 cohort;
- SBC activities for CY 2022-2023 mass campaign distributions to improve demand for ITNs, increase appropriate use, promote care, and mitigate against misuse. For more information, please 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.

#### **1.3.1. Entomological Monitoring**

PMI will continue to support entomological monitoring activities as described in the Recent Progress section above. PMI will maintain support for insecticide resistance monitoring in the seven provinces and will continue community-based longitudinal vector bionomics monitoring in Huambo and Luanda provinces. In addition, the enhanced surveillance plan for *Anopheles stephensi* will be initiated. PMI will continue to collaborate with and provide technical assistance to local research institutions (particularly INIS and ICCT), NMCP, and provincial authorities to support localization and strengthen capacity to conduct entomological activities including technical assistance for entomological monitoring, laboratory testing, and capacity strengthening to the national insectary (now housed at ICCT).

### **Summary of Distribution and Bionomics of Malaria Vectors in Angola**

As of 2022, primary malaria vector species in Angola are members of *An. funestus* s.l. and *An. gambiae* species complex. Other species recorded include *An. coustani*, *An. squamosus*, and

*An. tenebrosus*. *An. funestus* continues to be the species mostly captured, reaching an abundance peak in September and a newly observed second peak in February in Luanda and in January in Huambo (peak in 2021 was in December). Several technical and operational challenges in the piloted expansion of community-based longitudinal vector bionomics monitoring to Lunda Norte lead to the decision to discontinue activities there. While laboratory capacity and workflows were significantly improved, processing of 2022 samples at INIS was ongoing as of the time of writing this MOP.

In 2021, a subset of samples collected from Luanda Province for susceptibility testing were morphologically identified and confirmed through DNA sequence analysis as *An. azevedoi*, a species identified in Angola in the 1960s but not further studied. It is significantly abundant in Luanda and three other provinces. As this species has been mistakenly reported as *An. gambiae* s.l. (or others) in reports, the PMI team and local entomologists continue to bring awareness to others in the field and NMCP for proper morphological identification and future reporting.

Entomological monitoring conducted by CDC light traps from February-December 2022 by the Global Fund's implementing partner in five sentinel sites (Benguela, Gabela, Ganda, Sumbe, and Quibala) in Benguela and Cuanza-Sul provinces showed that *An. funestus* group was the primary vector (peaking September to December), followed by *An. gambiae* complex (peaking February-March and November-December). Other vectors collected included *An. azevedoi*, *An. coustani*, *An. pretoriensis*, *An. rhodesiensis* s.l., and others. These data have been used to make evidence-based vector control decisions, in collaboration with NMCP and other partners, and guide PMI operational and programmatic activities.

### **Status of Insecticide Resistance in Angola**

As of 2022, *An. gambiae* s.l. in all tested sites were resistant to all pyrethroids tested (permethrin, deltamethrin, and alpha-cypermethrin), with the exception of Huambo site showing susceptibility to permethrin and near susceptibility to deltamethrin (97 percent mortality) and alpha-cypermethrin (95 percent mortality). This is in contrast to data from 2021, which showed all sites resistant to all pyrethroids. PBO increased mortality of *An. gambiae* s.l. to the three pyrethroids in all sites, with some absolute mortality levels remaining below the World Health Organization (WHO) threshold of 90 percent mortality. This also was in contrast to 2021 data which showed most absolute mortality levels after PBO pre-treatment remained below the WHO threshold. In alignment with 2021 data, 2022 data showed *An. gambiae* s.l. at all sites were fully susceptible to chlorfenapyr.

Insecticide resistance testing results from 2022, shared by Global Fund, indicate that *An. coluzzii* from Benguela are resistant to alpha-cypermethrin and that *An. melas* from Cuanza-Sul have possible resistance to deltamethrin. These tests were conducted with limited sample sizes, so results should be interpreted with caution.

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

PMI will continue to support ITN activities as described in the Recent Progress section. In line with ongoing insecticide resistance data to pyrethroids, PMI has shifted to procurement of new types of nets. With FY 2024 funds, PMI plans to fund the distribution of the 2.7 million PBO nets to the six PMI-focus provinces in CY 2025. PMI will also support SBC to improve use and care of ITNs and to mitigate against misuse. Given data from other countries that PBO does not last for the full three years of use, in addition to funding limitations, and that ITN attrition, care and use behaviors will be obtained from three time points, PMI with support from the NMCP, plans to support the standard durability monitoring of standard and PBO ITNs from the 2022 cohort up until the 24 month time point.

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

### **Insecticide-treated Net Distribution in Angola**

The national strategy to achieve and maintain ITN coverage in Angola is to complement ongoing continuous distribution via ANC and EPI clinics with nation-wide mass campaigns every three years. Full implementation of this strategy has historically been hampered, nationwide, by large gaps in ITNs contributions towards both distribution channels between CYs 2016-2021. PMI supports ITN procurement, warehousing, transportation, micro-planning, supervision, registration, and other logistical support for ITN distribution in the six PMI-focus provinces of Cuanza Norte, Lunda Norte, Lunda Sul, Malanje, Uíge, and Zaire.

The first previous mass campaign was spread over a three year period from 2016 (Benguela, Huila, and nine municipalities in Uíge) to 2018 (the remaining areas of PMI-focus provinces), and the second took place over a two year period from 2022 (most of PMI-focus provinces) to 2023 (remaining areas of PMI-focus provinces as well as Global Fund-focus provinces of Benguela and Cuanza Sul provinces). For CYs 2022 and 2023, the originally projected ITN needs for the mass campaign and continuous distribution to be conducted in PMI- and Global Fund-focus provinces were able to be met, though gaps in the mass campaigns remain for the remaining provinces. There has been some, but very limited, distribution of ITNs via continuous distribution in MOH-supported provinces since 2018.

The country initially transitioned from standard pyrethroid-based to PBO nets during the 2022-2023 mass distribution campaign in some districts of Benguela and Cuanza Sul provinces with Global Fund funding, and in some districts of Lunda-Norte, Uige and Zaire with PMI funding. Additionally, PMI-procured nets for CY 2023 continuous distribution are PBO nets. PMI plans for the CY 2025 mass campaign to distribute only PBO nets in PMI-focus provinces, based on insecticide resistance data.

As the financial envelope allows, PMI prioritizes and contributes nets to sustain the continuous distribution channels in PMI-focus provinces. In mid-2022, implementing partners encountered a higher-than-forecasted population in PMI-focus provinces which resulted in a higher number of ITNs being distributed where the 2022-2023 mass campaign was under way. To address the resulting gap, the stocks of ITNs that had been held in reserve for use in continuous distribution in CY 2023 in PMI-focus provinces were shifted to complete the mass campaign. This reallocation resulted in a gap of 250,000 ITNs to be used for continuous distribution in PMI-focus provinces in the first half of CY 2023. An additional order of 256,000 PBO ITNs for all continuous distribution channels was created and delivered to the country in May 2023 for use in the remaining months of CY 2023 in PMI-focus provinces.

In consultation with the NMCP on plans for the CY 2025 mass campaign the program asserted that it could not commit to addressing the ITN gap identified in the FY 2023 MOP. Thus, given funding and procurement constraints a decision was made by the program to have PMI prioritize contributions of ITNs to the mass campaign over provision of ITNs for continuous distribution. As such, PMI plans to procure approximately 2.7 million PBO ITNs using FY 2022 and FY 2023 MOP funds to meet the entire needs of the CY 2025 mass campaign to take place in PMI-focus provinces. The projected gaps of ITNs for continuous distribution is not anticipated to be addressed by GRA ITN contributions, and due to funding limitations there are no plans for PMI to procure nor implement continuous distribution of ITNs in PMI-focus provinces during CYs 2024 or 2025. Additionally, a gap remains in continuous distribution needs for CY 2026.

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

**Table 1. Standard Durability Monitoring**

Campaign Date	Site	Brand	Type	Baseline	12-month	24-month	36-month
2022	Cacuso (Malange)	Yahe	Pyrethroid	2022	2023	Planned	Not planned
2022	Mussende (Cuanza Sul)	PermaNet 3.0	PBO	2022	2023	Planned	Not planned

PBO: Piperonyl butoxide.

### 1.3.3. Indoor Residual Spraying

PMI does not support IRS in Angola.

Limited targeted IRS was supported until the end of 2022 by the Global Fund Southern African Development Community (SADC) regional grant in five border municipalities (Calai, Cuangar, Dirico, Menongue, and Rivungo) of Cuando Cubango Province in the context of SADC

Elimination 8 (E8) interventions targeting elimination of malaria transmission in Namibia. A total of 39,691 structures were sprayed, protecting 125,424 people in 2022.

## 2. Malaria in Pregnancy

### 2.1. PMI Goal and Strategic Approach

WHO recommends sulfadoxine-pyrimethamine (SP) administration for intermittent preventive treatment in pregnancy (IPTp) to prevent malaria and its substantial risks to the mother, her fetus, and the newborn. Only about 36 percent of Angola's public health facilities offer ANC services, introducing a challenging scenario under which to implement increased ANC coverage and IPTp uptake. As the NMCP prioritizes SP administration for IPTp in alignment with WHO recommendations, the NMSP 2021-2025 aims, by 2025, for at least 50 percent of pregnant women with access to ANC and eligible for IPTp to receive at least four doses of SP during their pregnancy. This target is over a twofold increase of the 2022 estimate of only 20 percent of pregnant women who enroll in ANC and receive at least four SP doses (see Figure 2).

PMI Angola's objective for MIP interventions supports the country's national malaria strategy through enhanced access to appropriate malaria preventive interventions by 2025. This is planned to be achieved through the provision of ITNs at the first ANC visit, IPTp-SP beginning at 13 weeks in all malaria endemic high burden provinces.

PMI investments in MIP are focused in six endemic provinces of the country. In addition, PMI supports other provinces through the dissemination of preventive promotional materials and policy guidelines on MIP. In the six focus provinces, PMI works in consultation and collaboration with the national and provincial health management teams and other stakeholders to identify critical areas for improvement in service provision at health facilities where pregnant women receive a minimum of four doses of IPTp during their ANC visits and, at community level, where ADECOS (Portuguese acronym for Community and Health Development Agents: *Agentes de Desenvolvimento Comunitário e Sanitário*) raise awareness on the importance of IPTp during pregnancy and refer those who may have missed these services to health facilities.

PMI continues to provide technical assistance in support of the WHO recommended three-pronged approach to reduce the burden of malaria infection among pregnant women:

- Intermittent preventive treatment of malaria during pregnancy (IPTp-SP);
- Insecticide-treated nets, including provision at the first ANC visit; and
- Effective case management of malarial illnesses and anemia.

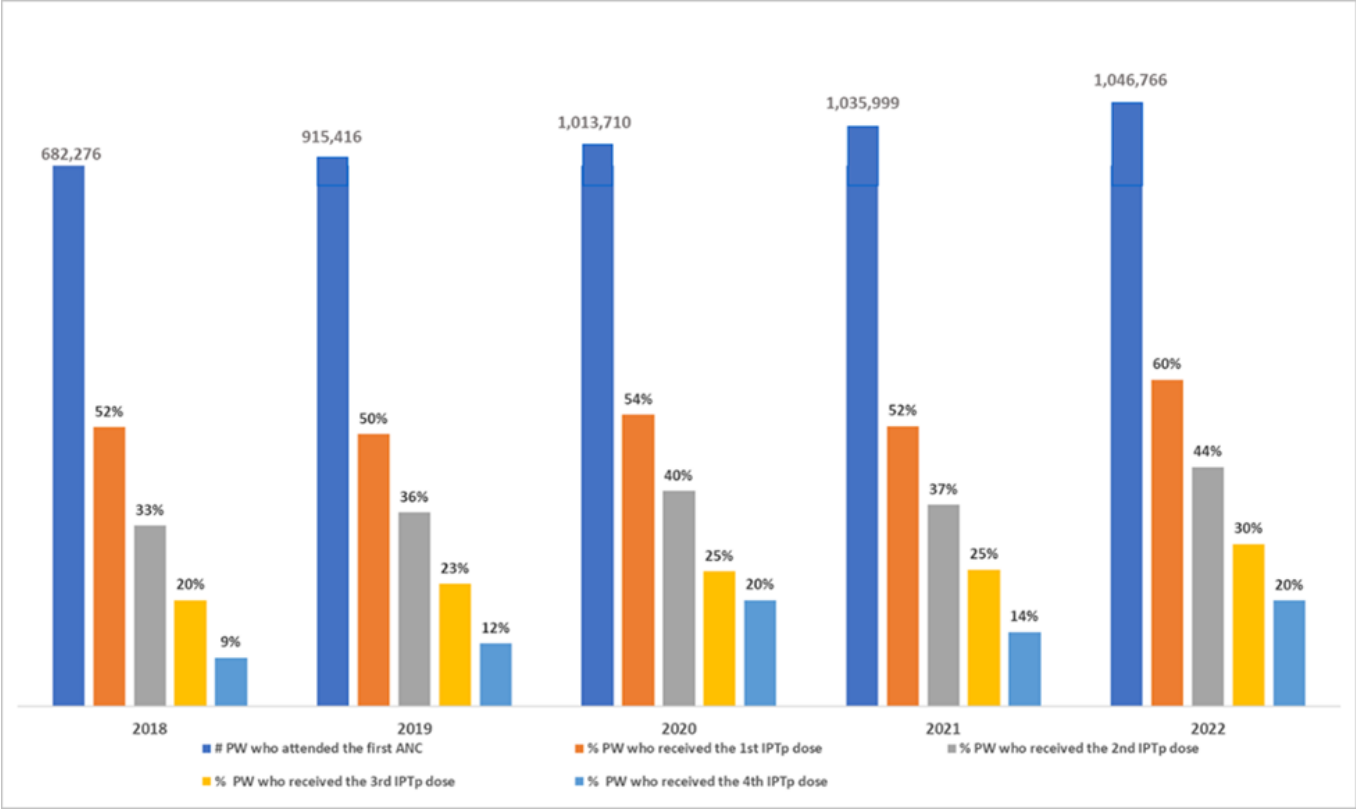
IPTp doses in health facilities are administered as directly observed therapy (DOT) based on the IPTp provision schedule of eight ANC contact visits. In 2020, Angola adopted the WHO's 2016 guidance on starting with the first IPTp dose between 13 and 16 weeks, followed by subsequent doses with an interval of four weeks between doses. MIP training and supervision are integrated with malaria case management. Furthermore, as per national policy, pregnant women receive ITNs at the first ANC visit.

The NMCP has updated its national guidelines based on updated WHO 2022 recommendations for treatment of uncomplicated malaria in the first trimester of pregnancy with artemether lumefantrine (AL). The updated national policy is to administer AL as the ACT option for case management of malaria during the first trimester. If AL is not available or patient contraindications apply, other ACTs (amodiaquine-artesunate, dihydroartemisinin-piperazine) or oral quinine with clindamycin for seven days may be used.

There is a national technical working group that meets on a quarterly basis which has improved coordination between the NMCP and the MOH Sexual and Reproductive Health (SRH) Program directly translating into cohesive national level technical discussion. Topics of discussion include potential programmatic change, such as the expanding ANC services to lower level facilities evenly scattered at hard to reach communities (70 percent of Angola's health units are classified as lower level/health posts). NMCP considers this as a potential programmatic approach to increase IPTp coverage, currently estimated at only 30 percent of pregnant women receiving a third IPTp dose.

These dynamic discussions are being replicated at provincial level (particularly in the PMI focus provinces which aim to meet biannually) resulting in the successful integration of MIP and SRH services. The integrated service package includes an interpersonal awareness component in health facilities (ANC/IPTp services and child care) and communities (prevention and family planning services) in the micro-areas surrounding the reference health facilities. In the remaining provinces, however, provincial technical discussion group meetings are held on an ad hoc basis.

**Figure 2. Number of Pregnant Women Who Initiated Antenatal Care and Proportion Receiving Intermittent Preventive Treatment During Pregnancy, 2018-2022**



NMSP 2021-2025 Mid-term Report, 2023.

Evidently, implementing the cascade of IPTp administration as an intervention to prevent malaria in pregnancy has some limitations in Angola. Despite some improvement in the percentage of pregnant women accessing IPTp services in the past four years, from 2018 to 2022, many pregnant women do not receive any IPTp over the course of their pregnancy, largely due to low attendance at subsequent ANC visits. Countrywide, in 2022, of 1,046,766 pregnant women who attended and initiated their first ANC visit, just 60 percent of those received the first dose of IPTp, and only 20 percent completed the fourth dose of IPTp as per the national guidelines. Low adherence and/or late entry into ANC services by pregnant women translates into low uptake of the minimum of four IPTp recommended doses.

In the six PMI-focus provinces, 22 percent of pregnant women received more than four doses of IPTp-SP in 2022. Despite being above the national average (20 percent) and performing better than other hyperendemic provinces, uptake remains low in spite of uninterrupted availability of supplies and enforced malaria SBC activities.

The 2023 Malaria Behavior Survey (MBS) identified key barriers for ANC attendance at health facilities and efficient delivery of IPTp, as well as financial barriers (i.e., travel distance), cultural issues and the low perception of malaria severity risk. Among documented reasons for

delayed ANC consultation, financial barriers are reported as most frequent, citing distance and high cost of suboptimal transportation to health facilities, in addition to costs associated with ANC laboratory services and treatment. Other health service delivery issues cited are long waiting hours (few ANC specialized clinics are available, coupled with the high patient volume in distant, hard-to-reach ANC centers), perceived judgment from health providers (particularly reported by women aged 35 to 45 years), and lack of knowledge about general IPTp-SP side effects and how to manage them. Additionally, the high turnover of health workers is a challenge to stability in access to prenatal care and, consequently, to the prevention of malaria in pregnancy.

Other reasons cited in anecdotal reports from rural areas reveal the influence of mothers-in-law in determining when the pregnant woman attends her first ANC visit. Furthermore, some women hide their pregnancies in the early months due to fear of being bewitched. Listed barriers lead to women delaying their attendance to health facilities and not getting the recommended ANC and IPTp doses, and/or women delaying attendance and only ever attending for the sole purpose of getting a MOH-issued card, which later enables them to deliver in a health facility.

PMI, NMCP, and other stakeholders are taking measures to address the identified barriers through different approaches. PMI uses SBC approaches like human-centered design to address some of the barriers by involving the community in the design of targeted solutions. Some studies have shown that lack of knowledge of ANC benefits among mothers contributes to low ANC attendance. To address this, PMI facilitates the training of facility-based health workers and ADECOS on MIP. Adherence to MIP protocols is key for neonatal health. To facilitate access to preventive drugs, PMI works collaboratively at the national level to carry out an annual drug quantification exercise to determine the country's need for malaria commodities, including SP for IPTp. Adherence and proper use of ITNs and malaria preventive treatment promotion is done through the mass media dissemination and 360 channels, amplifying key messages and implementation of organized sessions where pregnant women are counseled on the importance of attending ANC early and often.

In addition, a comprehensive multichannel communication campaign raising awareness of the severe malaria risk and prevention of MIP has been implemented in the last three years. MIP prevention messages have consistently been delivered through interpersonal communication (IPC) work, traditional mass media and innovative social media. Regular supportive supervision to poorly performing facilities (and reference units surrounding ADECOS) is often carried out to monitor the quality of services provided and plan for actions to address identified challenges.

## **2.2. Recent Progress (July 2022–March 2023)**

PMI supported the following activities at the national level and in the six PMI-focus provinces, achieving the following:



- Integrated advocacy visits alongside NMCP to provincial governments of all six PMI-focused provinces, presenting opportunities for institutional strengthening of management and programmatic competencies, including training and supervision, community health, SRH, and MIP;
- The final revision and dissemination of the updated treatment guidelines (to health workers and health facilities with ANC services during formative supervision visits) and the National Manual for Prevention and Treatment of Malaria in Pregnancy (2023), commensurate with updated 2022 WHO recommendations;
- Established operational integration of SRH and malaria programs, initially operationalizing training of ANC health workers. The course is fully deployed on a PMI-supported e-learning platform, Kassai, which is available to health workers in all 18 provinces in Angola;
- Improvement of MIP services through ongoing training of health workers, which resulted in 785 health workers being trained in MIP through self-learning and IPTp-specific blended learning modality courses. Among the trainees, 52 percent of the health workers trained through scored over 75 percent on the pre-test, while 67 percent scored over 75 percent on the post-test, denoting enhanced subject matter and case management knowledge following training interventions;
- Consistent delivery of a comprehensive multichannel communication campaign (through IPC and traditional and innovative social media) to raise awareness of the risk and prevention of MIP;
- Improved overall health worker performance through formative supervision visits to health facilities offering ANC services, assessing diagnosis and case management of pregnant women suspected of having first trimester malaria, IPTp, and use of ITNs. Strong performance is evidenced in routine DHIS2 data reported through March 2023, documenting 98 percent of ANC enrollees presenting at least one episode of fever tested for malaria as per national protocol. Further opportunities were identified for reinforcing follow-up visits addressing clinical history competency;
- Cross-cutting communication and youth mobilization activities in coordination with local women's networks offer a forum for prevention of malaria in pregnancy, as well as lectures on sexual and reproductive health and teen pregnancy (see SBC section).

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

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

With FY 2024 funding, PMI will continue to support MIP activities at national and subnational levels, similarly to previous years. However, PMI has not budgeted for SP procurement in FY 2024, as the SP stock is projected to be sufficient to meet consumption requirements through the close of calendar year 2025. PMI will continue to review country needs and funding availability to adjust SP procurement as appropriate, but does not anticipate a need to contribute SP to complement routine GRA-funded SP contributions made to PMI-focus

provinces. PMI will continue to leverage its technical assistance in forecasting and supply planning to refine and maximize future supply of GRA funded SP.

At the national level, PMI will continue with technical assistance to the NMCP in the quantification of SP and planning for procurements, and the development and review of guidelines and other relevant documents pertaining to MIP interventions. Notably, NMCP has updated its national guidelines – with PMI technical support – following updated WHO 2022 recommendations for treatment of uncomplicated malaria in the first trimester of pregnancy with AL.

At the provincial level, PMI will support development of human resource capacities to implement MIP activities through the training and reorientation of health workers on new guidelines and approaches in managing MIP, including: ANC schedules, treatment and management of uncomplicated and severe MIP, DOT administration of SP at the health facility, and patient counseling.

At the community level, PMI will support and broaden cross-cutting SBC activities as outlined in the SBC section, working with ADECOS, religious groups, traditional leaders and other community actors (e.g., women’s groups) to raise awareness on the importance of early ANC enrollment, adherence to recommended doses of IPTp and any other services offered to pregnant women.

In summary, the following activities will be carried out with FY 2024 funding:

- Revision of MIP training and promotion materials;
- Refresher training for health workers previously trained in MIP prevention (diagnosis, treatment, and IPTp) through mentorship of at least two health workers per health facility;
- Formative supervision in health facilities (at least one visit per facility) across the six PMI-focus provinces;
- Refresher training for ADECOS on MIP interventions, including minimizing missed opportunities for ANC attendance;
- Facilitation of registration and referral of pregnant women to health facilities;
- Identify proper dissemination channels and content to reach pregnant women with low educational attainment;
- Dissemination of MIP SBC messages targeting:
  - Women of reproductive age to raise awareness about severe malaria in pregnancy and the effectiveness of IPTp;
  - Improvement of users' perceptions of health professionals in the health unit;
  - Increasing uptake of IPTp4+ doses and the consistent use of ITNs;
  - Enhanced perception of complete self-efficacy regarding ANC.

Please refer to the SP Gap Table in the annex for more detail on planned contributions.

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

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

PMI Angola does not support seasonal malaria chemoprevention, mass drug administration, intermittent preventive treatment during infancy, or other drug-based prevention in Angola apart from the IPTp-SP described in the MIP section above.

### **4. Case Management**

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

The NMCP's goal towards malaria case management is to provide early and effective diagnosis and treatment of 100 percent of malaria cases according to national guidelines. According to the 2021-2025 NMSP:

- By the end of 2025, 100 percent of suspected malaria cases in health facilities and communities should be tested before being treated;
- By the end of 2025, 100 percent of confirmed malaria cases, both uncomplicated and severe, should be treated in accordance with national policy guidelines at all levels of the health pyramid, including the community.

The Angola NMSP 2021-2025 and the National Treatment 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 parasitological confirmed cases of uncomplicated malaria, and emergent pre-referral and/or definitive management of severe febrile illness and severe malaria. The 2023 national treatment guidelines include three PMI-supported first-line ACTs: artesunate-amodiaquine (ASAQ), artemether-lumefantrine (AL), and dihydroartemisinin-piperazine (DP). Of note, the NMCP continues to closely monitor the experience of artesunate-pyronaridine introduction and rollout among other countries in the region for review of evidence and implementation strategies that may inform national treatment guidelines in Angola in the future. National treatment guidelines for severe malaria recommend (in order of preference) parental (IV or IM) artesunate, intramuscular (IM) artemether, and injectable quinine followed by three days of oral ACTs once tolerated. For pre-referral treatment in children under six years of age, rectal artesunate is recommended at a dosage of 10mg/kg. Malaria case management is provided at both the health facility and community level.

PMI supports all aspects of this approach through support to national level policy and programmatic activities, commodity procurement, and improvement of facility and community level health worker (ADECOS) performance. The NMCP has made microscopy diagnosis one of the pillars of its interventions during the past few years, and significant investments have

been made in capacity building through the strengthening of human resources, as well as equipment and supplies. The NMCP recommends RDT and microscopy quality assurance coverage during biannual supervision visits. Since 2013, NMCP has been developing and institutionalizing an external quality assurance system for malaria microscopy in Angola at municipal level, which will provide both a platform for assessment and a way to strengthen microscopy techniques in routine activities.

Since 2019, PMI supports procurement of 100 percent of PMI-focus provinces' needs and has contributed an additional 10 percent of the procurements to cover gaps other provinces for malaria single species RDTs, ACTs, and injectable artesunate; the Global Fund supports 100 percent of commodities procurement needs from Benguela and Cuanza Sul province; the GRA is responsible for procurement of case management commodities in the remaining 10 provinces. PMI also supports training and supportive supervision activities in all the 60 districts of the six PMI-focus provinces; the Global Fund supports training on case management in Benguela and Cuanza Sul and the Global Fund regional grant funded through SADC E8 supports case management training in seven districts in southern Angola along the border with Namibia.

In 2022, in PMI-focus provinces overall, 95 percent of suspected malaria cases were tested by either RDTs or microscopy and 95 percent of confirmed malaria cases were treated with ACTs at both health facility (HF) and community level, compared to 81 percent of confirmed malaria cases treated with ACTs in non-PMI-focus provinces (NMCP DHIS2 2022, reporting rates over 93 percent nationwide and 96.3 percent reporting rates in PMI provinces). There is no available information on the percentage of non-falciparum malaria cases among these reported cases.

To enhance subnational tailoring of case management programming, and in consonance with PMI's approach for comprehensively monitoring the quality of healthcare worker performance and readiness for a health facility to provide quality key diagnostic and treatment services, PMI implemented a health facility survey across PMI-focus provinces in Angola (Oct-Dec 2022). Please see the surveillance, monitoring, and evaluation (SM&E) section for a summary of preliminary results and details on the survey's projected results timeline.

Preliminary health facility survey results lend support to the need for continued investment and reinforcing healthcare worker training, including supportive supervision and innovation in other training interventions for healthcare worker performance improvement. Critical analysis and characterization of factors associated with potential gaps in case management are ongoing at the time of FY 2024 writing. Final results are expected to help inform PMI's case management programming in Angola with respect to healthcare worker training interventions, ongoing technical assistance and procurement support for commodity management and availability, and ADECOS potential roles leading to increased access to correct case management and reporting for malaria.

In 2020, USAID Angola with PMI and other health funding launched the eLearning platform, named Kassai. In July 2021, the Kassai platform was adopted by MOH for national roll out. Kassai is a Moodle-based e-learning platform. The goal of the Kassai platform is to improve the quality of training of healthcare providers and to make quality training resources, protocols and job aids available to healthcare providers and their supervisors. It provides visibility on the training results of the providers, through pre-, during, and post-course evaluation checklists, which also include case studies. Inbuilt analytics, using PowerBI, allows for in-depth and detailed analysis of the providers' training journey, such as time spent on each lesson, individual knowledge gaps, and links to assessments during supervisory visits using Health Network Quality Improvement System (HNQIS) tools also developed with PMI funding in previous years. Kassai is accessible through any digital tool, and the plan is to make that platform available to healthcare providers nationwide. During COVID-19 pandemic, this e-learning training resource became an even more important tool to promote continuous medical education (CME) for the improvement of quality of services. Evaluation of the training impact on healthcare worker performance, including analyses of the multiple components employed for health worker (HW) performance improvement (e.g. blended and self-paced learning modalities, recognition via a certificate of completion, supervision, management job aids for problem prioritization and solving), is under consideration for further evidence on health systems strengthening using the Kassai platform.

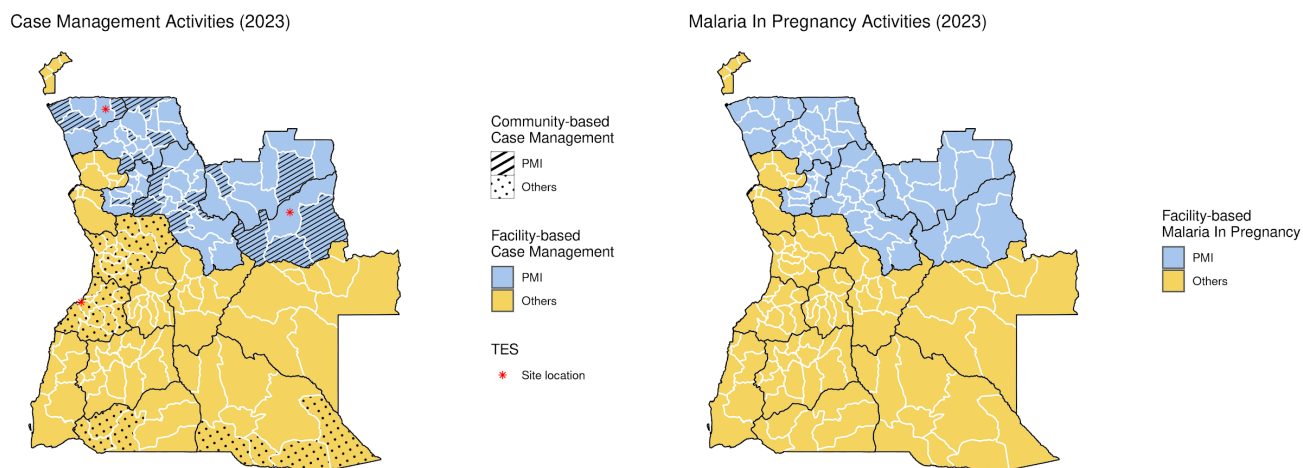
As of June 2023, Kassai has more than 7,561 unique users and 16 courses in Malaria, Family Planning, Maternal and Child Health and COVID-19 Rapid Diagnostic Tests. There are 16 courses available. Three more courses are currently being developed and added to the platform: Nutrition, Medical Semiology, and Epidemiological Surveillance and Public Health.

At the community level, PMI supports service delivery aimed to increase access to malaria case management through 365 ADECOS in 14 municipalities in four provinces: Lunda Sul (Cacolo, Dala); Zaire (Soyo, Tomboco, Cuimba), Malanje (Cacuso, Cangandala, Kalandula, Mucari, Quela), and Uige (Maquela do Zombo, Mucaba, Quitexe, Sanza Pombo). The ADECOS program's primary objectives are to (1) increase access to effective community-based diagnosis and treatment of uncomplicated malaria in underserved and hard-to-reach communities, (2) ensure zero stockouts of ACTs, RDTs, and other essential commodities, and (3) routinely capture data provided by ADECOS through DHIS2. PMI works in close partnership with the *Fundo de Apoio Social* (FAS; English: Social Support Fund) of the Ministry of Territorial Administration, the respective municipal administrations, NMCP, the *Gabinete de Estudos, Planeamento e Estatística* (GEPE; English: Office of Planning and Statistics), and the *Gabinete de Tecnologias de Informação e Comunicação Institucional* (GTICI; English: Cabinet of Technology and Institutional Information). PMI support consists of the provision of malaria commodities, basic tool kit and equipment, bicycles, training, and formative supervision on febrile case management. Formative supervision provides both technical support to ADECOS and ADECOS Referral Units (ARUs) designed to strengthen: i)

quality control of malaria case management; ii) referral systems (ADECOS to health facilities, or HFs) and counter-referrals (HFs back to ADECOS); iii) accountability of ACTs and RDTs commodities; and iv) routine collection of ADECOS malaria data in ARUs. PMI started scaling up its approach at community level in 2021 to target all age groups for community case management of malaria. The NMCP, with PMI's support, was planning to pilot the introduction of rectal artesunate suppositories (RAS) in five municipalities in Zaire (three) and Lunda Sul provinces (two) however, the NMCP temporarily paused its implementation in light of cautions expressed in the 2022 WHO Information Note around use of RAS as pre-referral treatment. Following the FY 2024 MOP discussions and the release of an [updated WHO Information Note on July 4, 2023](#), plans for this pilot are moving forward with next steps currently under discussion.

Global Fund supports community case management activities targeting children under five years old in 22 municipalities of Benguela and Cuanza Sul and started to pilot the introduction of RAS at community level in six municipalities: four in Benguela Province (Caimbambo, Catumbela, Chongoroi, Balombo) and two in Cuanza Sul Province (Mussende, Seles). However, this pilot was also temporarily paused at the NMCP's request in light of the 2022 WHO Information Note. In southern Angola, SADC E8 projects support implementation of community case management activities through 194 ADECOS covering seven border municipalities: three in Cunene and four in Cuango Cubango Province.

**Figure 3. Map of Case Management, Community Health and Malaria in Pregnancy Service Delivery Activities in Angola, 2023.**



According to national policy, each ADECOS worker is responsible for a micro-area. A micro-area is a delimited geographical space of households of 50 to 100 households (between 250-500 people) in rural or urban zones where the population is dispersed or concentrated, respectively.

ADECOS are linked to a health facility, where integrated health teams are responsible for performing routine supervision and where they receive their supply of monthly commodities.

Salaries and operational costs should be paid by the local administrations. However, this is not always the case, and this is currently the major challenge for national scale up. For this reason, PMI provides performance-based monthly payments premised exclusively on timely delivery of ADECOS monthly reports to ARUs. Along with malaria commodities, PMI supplies bio-waste containers, thermometers, household notebooks, micro-area registration notebooks, health promotion material such as pamphlets on malaria prevention (adapted to COVID-19 biosafety prevention recommendations), raincoats and bicycles.

While the ADECOS program was initially designed to be a platform for integrated community case management (iCCM) inclusive of diarrhea and pneumonia, currently they are not yet allowed to manage other health events beyond malaria. However, ADECOS remain critical focal points for health promotion activities at community level, including involvement during mass ITN campaign activities, the promotion of malaria health seeking behavior, and they have played an important role during the COVID-19 pandemic through SBC activities.

Scaling up malaria case management activities at community level is critical. Preliminary data from the first quarter of 2023 comparing confirmed malaria cases of children under five years tested at community level and at HF by municipality show that 11 percent of all malaria cases in children under five are confirmed at community level (with the current number of 365 ADECOS in 14 municipalities in four of the six PMI-focus provinces with a total population estimated at 1,215,090 in 2023, and where ADECOS are covering almost 15 percent of this population).

The most onerous challenge faced by the community health system in Angola is related with ADECOS remuneration and the absence of a legal framework within the GRA to provide these payments. An illustration of how PMI assists to fill the gap is the PMI-funded contribution of a monthly performance-based incentive to ADECOS, contingent on monthly report data submission. Similarly, PMI partners, like Global Fund, align with this practice by issuing periodic incentive payment cards as ADECOS performance-based incentives, for use in a designated retail supermarket. However, the latter incentive mechanism reports higher ADECOS dropout, or low community data submission rate, owing mainly to the prohibitive travel distance to the designated retail supermarket for payment card use.

Furthermore, while national treatment guidelines are for both the public and private sectors, the private sector often does not follow the established norms and there is not much reinforcement in terms of regulatory authorities to address this issue. Antimalarials of all kinds—including monotherapies mainly used for severe malaria—are available in private outlets. According to a fever management *Reach and Recall* study conducted by PMI in 2016 in Uige and Huambo, out of 1,068 respondents, 14 percent went to private sector pharmacies, 4.5 percent visited a private health facility, and 24 percent self-medicated after detecting a fever.

## 4.2. Recent Progress (July 2022–May 2023)

PMI has contributed to the following case management activities:

### National Level Case Management Activities

- Supported updating National Treatment Guidelines and training manuals with most recent WHO guidelines;
- Continued to improve malaria training content with both classroom training materials and the Kassai e-learning training platform, and scaled up access to the training platform nationwide. A new course is under development on Medical Semiology funded by EXXON Mobil and is scheduled to be available by July 2023;
- Continued improvement of a Digital Rapid Data Quality Assessment tool built within DHIS2 which allows for a comprehensive and systematic way to conduct data quality supervisions at the level of HFs for malaria indicators (more information described in the SM&E section);
- PMI supported the NMCP's shift from centralized planning to provincial-based planning informed by municipalities' needs in an effort to increase the impact of interventions and optimize locally generated efficiencies and resources. All six PMI-focus provinces are successfully developing quarterly provincial-based planning for malaria case management training and supervision, led by provincial NMCP-accredited trainers;
- PMI supported a series of workshops including NMCP and representatives from the national provincial level to consolidate the high-burden, high-impact strategy using triangulated data from Kassai, HNQIS and DHIS2, as well as findings from the integrated death audits conducted in previous quarters with the aim to agree on strategies to improve the cost-effectiveness of interventions, such as integrated supervision visits to critical nodes of severe malaria cases, training of providers in situ, and who to target for training;
- Convened and led six advocacy meetings with Provincial Governors of the six PMI-focus provinces with the purpose of increasing GRA support and ownership of PMI activities implemented by implementing partners;
- Convened and led twelve advocacy meetings with Municipal Administrators, Deputy Administrators, Municipal Health Directorate, and public health supervisors to promote stronger subnational leadership and involvement in malaria control to increase ownership and sustainability beyond USG support with a focus on increased investments in community malaria case management through ADECOS;
- Supported a national workshop held in Luanda on World Malaria Day to present results from a Death Audit carried in PMI-focus provinces;
- PMI continued to support expansion of the roll-out of the HNQIS:
  - HNQIS is an electronic system to support quality improvement efforts at HFs by standardizing supportive supervision visits and linking to DHIS2 so data and feedback are available countrywide for analysis. HNQIS ensures that interaction and feedback between supervisors and supervisees are standardized across the



- 60 target municipalities by creating a uniform process of data collection, course correction and feedback, real-time generation of dashboards for interpretation, and dissemination of results. This standardization facilitates comparison of results across the 60 municipalities of the PMI-focus provinces;
- It is currently in use in all 60 municipalities of PMI-focus provinces;
  - The tool was adapted at the national level to be used nationwide starting with provinces supported by the Global Fund;
  - Updated on-site training and supportive supervision materials/checklists;
  - Strengthened quality assurance of malaria diagnostics in 936 public health facilities and 109 laboratories through training, professional development and laboratory supervision. Development of a national slide bank is ongoing (over 5,000 slides were selected from the close to 10,000 slides collected, including slides of Plasmodium species in different development stages. INIS is now carrying out polymerase chain reaction (PCR) confirmation).

### Commodities

- Supplied 9,396,000 malaria RDTs. Ninety percent were distributed to the 60 municipal and provincial warehouses of the six PMI- focus provinces and 10 percent were allocated to the central warehouse, Central Procurement Agency for Medicines and Medical Supplies (CECOMA), to contribute towards a small portion of the needs of the rest of the country;
- Supplied and distributed laboratory supplies for microscopy diagnosis;
- Supplied and distributed of biohazards safety containers used by ADECOS on malaria diagnostics;
- Supported the procurement and distribution of 2,480,500 ACTs. Ninety percent were distributed to the 60 municipal and provincial warehouses of the six PMI-focus provinces and 10 percent were allocated to the central warehouse, CECOMA, to contribute to needs of the rest of the country;
- Supplied and distributed 795,725 vials of parenteral artesunate. Ninety percent were distributed to the 60 municipal and provincial warehouses of the six PMI-focus provinces and 10 percent were allocated to the central warehouse, CECOMA, to contribute to the needs of the rest of the country.

### Facility Level:

- Supported a cross-sectional Health Facility Survey to evaluate the quality of malaria outpatient service provision to patients in public (n=88), private (n=13) and military (n=11) health facilities across PMI-focus provinces in Angola (Oct-Dec 2022). A total of 112 health facilities were assessed, with 131 health care workers and 1,200 patients interviewed. The survey serves as an evaluation of the quality of malaria case management at a broader spectrum of health facilities providing a more comprehensive

understanding of malaria care in these six provinces. Understanding how support of ADECOS impacts health care workers at supporting facilities and reporting of data quality were also evaluated. PMI supported protocol and instrument design, training, and field data collection; statistical analysis of the survey instrument was ongoing at the time of FY 2024 MOP writing. Preliminary results (please see the SM&E section) will be further reviewed in June 2023, while validation of malaria field test results in the NMCP laboratory is concluded. Another portion of the samples will be sent to the Manhiça Center for Health Research (CISM) in Mozambique for molecular resistance analysis.

- Developed a course for RDT training in Kassai and successfully enrolled and trained 342 new users over the reporting period;
- PMI trained 1,460 HWs in malaria case management through classroom training and enhanced training of “*hybrid*” Kassai blended learning training;
- PMI provided 794 HWs with enhanced training in severe malaria;
- PMI conducted 1,144 on-site supportive supervision visits with case management and RDT trainings in 60 municipalities;
- PMI strengthened quality assurance of malaria diagnostics in 936 public HFs and 109 laboratories through training, professional development, and laboratory supervision;
- PMI trained 446 laboratory technicians in malaria diagnostics (microscopy) and conducted 269 formative supervision visits that included on-the-job laboratory diagnostic training;
- PMI produced and disseminated nine monthly formative supervision bulletins to all provincial and municipal departments. The primary objectives of these were: 1) to develop evidence-based action plans to inform targeted supervision and training of service providers; and 2) to nurture an appetite among health managers for evidence to drive malaria decisions at institutional and subnational levels;
- PMI comprehensively monitors trends and potential gaps in quality of care through various tools and sources of data, such as periodic health facility surveys. PMI leverages results to optimize HW performance interventions and tailor approaches to specific subnational training trends and needs from various data sources. Specifically drawing on HNQIS supervision data, PMI observed a positive trend in key performance tracking indicators in PMI-focus provinces. For example:
  - The average score of HWs in HFs with more than four supervision visits, who correctly diagnosed malaria (conducted and read the test results) and adhered to the diagnostic test result (if test is positive, prescribe antimalarials; if negative, identify other possible causes of illness and/or refer to appropriate referral unit) increased from 86 percent in quarter two of 2021 (January–March 2021) to 97 percent in quarter two of 2022 (January–March 2022);
  - The average score in malaria counseling of HWs in HFs that received more than four supervision visits increased from 86 percent in quarter two of 2021 (January–March 2021) to 90 percent in quarter two of 2022 (January–March 2022);

- The average score in administering IPTp in HFs that received more than four supervision visits increased from 74 percent in quarter two of 2021 (January–March 2021) to 83 percent in quarter two of 2022 (January–March 2022);
- In some facilities, HNQIS results indicated suboptimal skills, particularly in history taking and physical examination. The upcoming Kassai course on Medical Semiology, funded by ExxonMobil and expected to launch in July 2023, aims to specifically address these low skills areas;
- Information generated from the digital systems currently in use for training, supervision and data quality assessment (see SM&E section below) are demonstrating that performance on training and supervisions received are most likely having an impact on mortality and morbidity rates. Out of 27 health facilities which account for approximately 80 percent of malaria-related deaths in PMI-focus provinces, 16 showed areas of reduction in malaria mortality compared to the baseline period (59 percent). The majority of mortality occurs at hospital level, and the overall mortality at health posts is driven by a few health posts. The facilities that did not show improvement will be prioritized for integrated supervision in the next quarter. Kassai is configuring an alert system to facilitate prioritization of facilities;
- Analysis of the associated Kassai training performance data indicates poor pre-test scores and suboptimal course post-test scores, suggesting service providers in these hospitals need CME to attain and sustain optimal levels of malaria case management performance. In addition, a stock-out indicator is being added to the Kassai dashboard using DHIS2 and integrated supervision data to improve the commodity management system in health facilities to track and inform on availability of antimalarial commodities.
- Convened 16 district-level data driven meetings with municipal health directorates, provincial health directorates, and some health unit directors, to promote data use and improve best practices;
- Conducted 1,284 data quality assessment using a digital tool linked to DHIS2;
- Conducted 27 death audits assessments covering the six PMI-focus provinces;
- Supported sustained and effective competency development of lab technicians through formative supervision and refresher training and provision of job aids, lab manuals, and standard operating procedures in targeted labs;
- Strengthened support to the NMCP to ensure an effective proficiency testing and external quality assessment strategy is put in place in line with WHO standards for a reliable microscopy training program.

### Community Level

- PMI provided technical, logistic, and administrative support to 365 ADECOS that implement malaria community case management in 14 municipalities of four PMI-focus provinces: Zaire (Soyo, Tomboco, and Kuimba), Malanje (Cacuso, Cangandala,

Calandula, Mucari, and Quela), Uíge (Maquela do Zombo, Mucaba, Quitexe, and Sanza Pombo), and Lunda Sul (Cacolo and Dala). An additional 175 were selected, which will bring the total number of ADECOS supported by PMI to 540. The training of the new ADECOS is planned for the first two weeks in June 2023 and will allow expansion to two additional provinces of Cuanza Norte and Lunda Norte;

- 187 ADECOS in the provinces Malanje and Lunda Sul were trained in the integrated approach of malaria and family planning;
- PMI successfully integrated the ADECOS test and treat policy to cover all age groups, in addition to registering high levels of ADECOS data submission to their referral units;
- PMI transitioned from disbursement of a card-based supermarket food-subsidy-plus-mobile-phone credit for communication to a performance-based incentive, in the form of monthly payments premised exclusively on timely delivery of ADECOS monthly reports to the ARUs;
- PMI supported 584 integrated formative supervision visits with host government partners (FAS/GTICI/GEPE/NMCP) to ADECOS in their respective micro-areas to assess the operationalization of ADECOS' new community malaria case management policies;
  - On average a total of 90.5 percent of ADECOS made at least one visit during the last quarter to the referral facility, where they are supervised by the monitoring technicians and the training supervisors;
- Supported the MOH to develop a National Digital Community Health Implementation Roadmap in alignment with their National Digital Health Strategy;
- PMI supported logistics and antimalarial commodity supplies such personal protective equipment to protect ADECOS from COVID-19 and ensure continuity of malaria services, bio-waste containers, 60 thermometers, 76 raincoats, 76 Umbrellas, 76 t-shirts, 76 vests, and 76 caps;
- Started preparations for a delayed pilot of RAS in selected locations where ADECOS have stronger links with the referral health unit with the focus on strengthening referral system and communication between the ADECOS, health unit, and caregiver.

Other key results for community health to highlight include the following (source: PMI Health For All Project, 2023):

- Of the 52,842 suspected malaria cases tested, 38,790 (73 percent) were confirmed with malaria. This RDT positivity rate is indicative of the high malaria burden prevalent in underserved and hard-to-reach communities and further underscores the importance ADECOS plays in early detection and prompt treatment of uncomplicated malaria, preventing progression to severe malaria and death;
- A total of 37,733 (97 percent) of the 38,790 confirmed malaria cases were treated with ACTs (artesunate-amodiaquine [ASAQ]);
- Of the febrile cases tested, 9,019 cases (17 percent) were referred to HFs;

- Results suggest a high adherence to NMCP treatment protocols and guidelines on management of uncomplicated malaria;
- In the municipalities with ADECOS, on average 11 percent of all cases confirmed among children under five years of age reported were tested and treated at community level (with 97.8 percent of positive confirmed cases receiving an ACT).

Please note that recent progress with monitoring antimalarial efficacy and the TES approach is presented in the Plans and Justification for FY 2024 Funding section below.

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

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

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

Angola will continue to support activities as described in the Recent Progress section. For training and supervision, the overall aim is to continue with a provider-centered, evidence-based, efficient, and effective training program that addresses existing challenges related to severe malaria case management and promotes development of holistic and comprehensive quality of care improvement planning at HF level, for sustainability. PMI will continue to support activities using comprehensive implementation of target activities such as:

- Using evidence to optimize targeting of in-patient clinicians, nurses and HFs with competency gaps, leveraging DHIS2, Kassai analytics and HNQIS;
- In-patient malaria mortality reduction through improved severe malaria case management training targeting hot spots that drive mortality in provincial and municipal hospitals;
- In partnership with MOH, NMCP and provincial health training schools will continue to discuss opportunities of leveraging Kassai as a stepping stone to revitalize a CME program;
- Improving uncomplicated malaria case management targeting health centers, health posts and ADECOS;
- Linking malaria case management trainings to holistic and comprehensive hospital quality of care improvement planning and CME programs for in-patient clinicians and nurses in hot spots;
- Amplify the Kassai/CME concept in strategic meetings with NMCP, PMI, and other key stakeholders. PMI will continue to support NMCP to expand enrollment of HWs onto Kassai in non-PMI-supported provinces. Focus will be in Global Fund-supported provinces of Benguela, Cuanza Sur, Cuando Cubango, Cunene, and Namibe (under SADC E8);
- Continue to advocate for the adoption of a multisectoral approach to mobilization, supporting the NMCP to lead efforts to reach out and engage the National Malaria

Partners Forum, FAS, *Gabinete Provincial de Saúde* (Provincial Health Cabinet), and municipal administration in 14 municipalities of Lunda Sul, Zaire, Malanje, and Uíge to prioritize and invest in ADECOS welfare, sign contracts, pay salaries, and reactivate municipal ADECOS coordination committees. Additionally, support engagement at the highest levels of government involving key stakeholders including USAID, Global Fund, World Bank, WHO, the United Nations Children’s Fund, and the European Union;

- Leveraging research findings for measurement and learning and overall program direction such as the malaria case management health facility survey (2023), Malaria Behavior Survey (MBS, 2023), Demographic Health Survey (DHS, 2023), Therapeutic Efficacy Survey (TES, 2021) and others.

## **Commodities**

Angola will continue to procure ACTs, RDTs, and injectable artesunate as described in the Recent Progress section. The following commodities and associated quantities are planned to be supplied to Angola to meet both the projected consumption-related needs in CY 2025 in PMI-focus provinces and the needs required to maintain the equivalent of 12 months’ worth of consumption throughout the PMI-focus province supply chain through the year. ACTs and RDTs procurements aim to cover health facilities and community needs. All of these quantities will be allocated to, warehoused, and distributed by CECOMA with PMI providing technical assistance to augment, when necessary, the transportation required to move these commodities to the municipal level:

- ACTs: 3.7 million treatments;
- RDTs: 7.6 million tests; and
- Injectable Artesunate: 724,000 vials.

There is a gap for RAS for referral of severe malaria cases. GRA is expected to contribute towards these needs. Global Fund is not expected to contribute toward these needs. No further expected commodity gaps are projected for PMI-focus provinces.

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

## **Facility Level**

PMI Angola will continue to support all activities as described in the Recent Progress section. Efforts will be made in the key hospitals, centers and health posts identified with poor performance and higher morbidity and mortality rates. Guided by data collected from integrated supervision visits, data quality assessments, malaria related audits, and technical meetings (including HF directors and local authorities) will be conducted in facilities to increase quality of malaria case management particularly management of severe malaria at secondary

and tertiary HFs. PMI will expand its support to case management strengthening activities that use evidence from Kassai, HNQIS and DHIS2 to identify common denominators related to gaps in provider competencies and drivers of suboptimal quality of care and inform selection of health providers for training. Data from the 2023 health facility survey on the public facilities that include the private and military sectors, will support the design and implementation of national strategies to engage private sector players to improve malaria services.

## **Community Level**

PMI Angola will continue to support all activities as described in the Recent Progress section. Also, PMI will work with local authorities to find ways of continuing to scale up deployment of ADECOS in PMI-focus provinces where PMI investment can catalyze the deployment of ADECOS and local authorities can increasingly support the program in the longer term.

## **Monitoring Antimalarial Efficacy**

Periodic monitoring of the therapeutic efficacy of antimalarial treatments and molecular markers associated with parasite detection (e.g. *hrp2/hrp3* gene deletions) and antimalarial resistance is a PMI flagship activity supporting comprehensive malaria case management. Therapeutic efficacy studies (TES) aim to evaluate clinical and parasitological responses to antimalarial treatment of uncomplicated malaria, and, as applicable, update national treatment strategies and policies. In Angola, the antimalarials studied under TES 2023, in the provinces of Benguela, Lunda Sul and Zaire, include: artemether-lumefantrine (AL), artesunate-amodiaquine (ASAQ), and dihydroartemisinin-piperaquine (DP). Study design, ethics review and training of field staff was completed by April 2023. Field activities are ongoing at the time of FY 2024 MOP writing and are projected to be completed by early 2024. Of note, the Angola TES 2023 will not assess artesunate-pyronaridine, as this product has no country registration at the time of MOP FY 2024 writing. The planned 2025 TES may consider its inclusion, pending study protocol determination and national ethics approval.

**Table 3. Ongoing and Planned Therapeutic Efficacy Studies**

Ongoing Therapeutic Efficacy Studies (TES)			
Year	Site name	Treatment arm(s)	Plan for laboratory testing of samples
2023-2024	Benguela	<ul style="list-style-type: none"> <li>• Dihydroartemisinin-piperazine</li> <li>• Artemether-lumefantrine</li> </ul>	In-country at <i>Instituto Nacional de Saúde Pública</i>
2023-2024	Lunda Sul	<ul style="list-style-type: none"> <li>• AL</li> <li>• Amodiaquine-artesunate</li> </ul>	In-country at <i>Instituto Nacional de Saúde Pública</i>
2023-2024	Zaire	<ul style="list-style-type: none"> <li>• ASAQ</li> <li>• AL</li> </ul>	In-country at <i>Instituto Nacional de Saúde Pública</i>
Planned TESs (funded with previous or current MOP)			
Year	Site name	Treatment arm(s)	Plan for laboratory testing of samples
2025	TBD	TBD	TBD

AL: artemether-lumefantrine; ASAQ: artesunate-amodiaquine

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

## 5. Health Supply Chain and Pharmaceutical Management

### 5.1. PMI Goal and Strategic Approach

PMI Angola health supply chain and pharmaceutical management objectives align supply chain key strategies reflected across the six objectives of the Angola NMSP 2021-2025. The Angola NMSP 2021-2025 goal is to improve NMCP management capacity and good governance required to achieve the programmatic objectives of the health system. Strengthening MOH capacity for procurement and management of malaria commodities is one of the intermediate objectives of NMSP with the aim to ensure that all malaria case management and prevention commodities are available at all service delivery points is critical for achieving other intermediate objectives and the overall NMSP goal.

USAID Angola with PMI and other health funding is supporting MOH in the following:

- Development of the National Supply Chain Strategy in 2023-2027 which is meant to serve as the principal guiding document for better planning and the effective alignment of financial, technological, and human resources to improve the overall performance of health commodity supply chains, including that of malaria, in Angola;
- Development of the National Strategic Plan for Health Information Technologies 2023-2027 (named PENTIS in Portuguese, or Plano Estratégico Nacional das Tecnologias de Informação para a Saúde) meant to support the country to create a central database to aggregate logistics data to increase access and end-to-end visibility to inform decision-making. Ultimately, the strategy will guide future investment and



promote coordination for digital interventions to ensure effective use of government and donor resources to achieve the desired results within the Angolan health sector;

- Development of a costed plan for deployment of eLMIS that will inform PMI decisions in conjunction with support given to the national eLMIS, SIGLOFA.

Even though the NMCP relies on other GRA entities and donors to manage the physical warehousing and distribution of commodities used in malaria programming in Angola, the NMCP has aligned its interventions with the current existing draft of National Supply Chain Strategy and leading and participating in activities such as:

- Elaboration of the national commodity procurement and distribution plans;
- Strengthening joint planning and coordination of all actors throughout the supply chain;
- Improving the use of antimalarial consumption data to accurately determine future commodity needs for each service delivery point, municipality, province and the central level;
- The generation of timely and accurate data to be used for supply chain decision making;
- Improved storage conditions for pharmaceutical products;
- In conjunction with the Regulatory Agency of Medicines and Health Technologies (ARMED), developing a drug registration, approval, rational use, and quality control system, as well as a surveillance drug network to monitor adverse effects.

The GRA has committed to funding the largest portion of the needs for the procurement, and distribution of malaria program commodities for the ten provinces that receive partial support from PMI or the Global Fund. However, these commitments are often either not fully executed, in terms or quantities, or executed on time, and that often results in commodity gaps in non-PMI-focus provinces.

At the national level PMI supports achievement of the NMCP's own objectives of the national health commodity supply chain through routine and ongoing support. The following are examples of this support:

- In collaboration with other key stakeholders, supply plans are reviewed monthly and updated quarterly via coordinated procurement planning and monitoring of stock reports;
- Provision of technical assistance for the creation of annual malaria quantifications, and informing plans for routine resupply of commodities from the central to provincial level;
- Inventory storage and management technical assistance designed to improve the storage and management conditions for pharmaceutical products (e.g., temperature monitoring, configuration of existing racking layouts to increase storage capacity and improve process flows, implementation of warehouse management software, and planning for integration of logistic software platforms);
- Implementation of improvements to SIGLOFA at the central level and in PMI-focus provinces;

At the provincial level, PMI supports its focus provinces with central level commodity warehousing and sub-national transportation activities (either from the central to provincial levels, central to municipal levels or provincial to municipal levels) to supplement CECOMA operations. To support this activity, PMI has expanded supply chain technical assistance to the provincial level in six PMI-focus provinces via embedded staff to support improved malaria commodity availability (and related data) at the service delivery point (SDP) level. For PMI to effectively follow through on commitments to contribute sufficient case management commodities to keep PMI-focus provinces stocked according to plan it needs to be well informed, through the provision of reliable and actionable data, of what quantity is required and when it is required to be supplied.

Furthermore, after over a decade of systems strengthening support and the experience of already managing a greater volume of USAID funded commodities, including those of malaria, the national medical warehouse is expected to safely and securely assume responsibility for the storage of all PMI-funded commodities and contribute toward distribution to the provincial level through FY 2024.

In sum, while also continuing to support central level warehousing and in-country transport, it will be critical to ensure continual availability of quality products needed for malaria control at health facilities and the community level. This is a priority that was identified through the application of the PMI Stockout Reduction Initiative and will be a focus of PMI supply chain intervention in coming years.

## **5.2. Recent Progress (July 2022–March 2023)**

PMI's principal supply chain investments aimed at improving malaria commodity availability at service delivery sites during the reporting period were the following:

### **Forecasting, Supply Planning and Procurement**

- Provided support to the NMCP in the development of the quantification for antimalarial commodities and updated the forecast for the next four years (from 2023 to 2027) in alignment with the NMSP;
- Elaborated, and executed against, supply plans specific to PMI-focus provinces allowing for better planning with an higher emphasis using accurate consumption data as key source (along with retrospective information, seasonality and other);
- Developed requisition orders based on supply planning and provided supplementary assistance for subsequent order placement and delivery;
- Produced and shared monthly stock reports of malaria commodities. Reports included the stock status of 18 provinces, CECOMA, and Global Fund and PMI implementing partner warehouses to support the NMCP and malaria commodities risk management to mitigate stock disruptions. This PMI support contributed to improvements in facility-level

logistics data from 936 health facilities in PMI-focus provinces being available at the central level approximately 96.5 percent of reporting rate in 2022;

- Completed monthly procurement, planning, and monitoring report for malaria reporting for Global Fund, PMI and GRA-funded commodity contributions;
- Supported data collection for data quality assessments.

## **Warehousing and Distribution**

- Provided regular technical assistance to CECOMA to standardize processes and trained CECOMA staff;
- Supported coordination of in-country receipt, storage and distribution of all PMI-funded shipments from the ports of entrance to municipality and some SDPs;
- Under coordination of the NMCP, carried out 13 supervisions, on-the-job training for 56 technicians and assessments to provincial warehouses and municipal warehouses and supported health facilities; a total of 294 personnel were trained on data collection, record keeping and data reporting;
- Supported the implementation of a warehouse management system at CECOMA. CECOMA now has the ability to account for products under its control at any time. It can also contribute to the end-to-end visibility of stock information from the central-level to provincial depots through SIGLOFA, and to the municipal and HF levels through DHIS2.

## **Data Management**

- Continued support to the use of SIGLOFA;
- Completed two end use verification (EUV) surveys, one July 2022 and one in 2023; the last EUV exercise in 2023 was carried out in ten provinces which included six PMI-focus provinces (Cuanza Norte, Lunda Norte, Lunda Sul, Malange, Uige and Zaire) and four non-PMI-focus provinces (Cuanza Sul, Benguela, Huila and Cabinda) comprising 159 health facilities, 50 municipal depots and ten provincial warehouses. The MOH staff (ARMED) participated in this survey; key results found:
  - In PMI-focus provinces, stockouts of individual ASAQ presentations were around 10 percent for most sampled health facilities. Stockout rates for SP and RDTs were maintained at 7 percent and 15 percent respectively across sampled health facilities;
  - 63 percent of staff working in stock management were trained and 86 percent of staff were trained on malaria case management in PMI-focus provinces;
  - results of the EUV have informed ARMED and program managers about the effectiveness of the supply chain for malaria and other available products. The results also contribute to strengthening the supervisory efforts of the NMCP and the MOH, as well as assisting other program planning and monitoring activities of the provincial authorities.

- Assist Office of Technology and Information (GTICI) leadership by providing technical experience and support liaising with other donors and partners aiming to improve the public health supply chain across the country.

## **Medicines Quality and Regulation**

- Provided technical assistance to ARMED, formerly National Department of Medicines and Equipment (NDME), on health programs aimed to strengthen the national regulatory authority around registration and importation for regulatory, registration and standards outcomes;
- Gave technical assistance to ARMED on activities aiming to standardize the importer database and drug registry;
- USAID Angola with PMI and other health funding provided technical assistance to ARMED to develop a cloud-based web application regulatory management system (termed SIREMA) to automate and provide digital transformation for ARMED's pharmaceutical registration processes. The system functionalities will include entity registration, workflow management, configured dashboards for reporting and analytics to provide improved process visibility for key performance management. This digital system will offer the benefit of digital registration of medicines, importers and provide an optimal platform for efficient management of the pharma-regulatory environment by ARMED;
- Supported ARMED operationalizing the first National Essential Medicines List (launched the year before) that informs procurement of critical medicines but also supports the standardization effort which will contribute significantly to the fight against counterfeit medicines and facilitate in-country capacity building efforts towards end-to-end track and trace.

## **Challenges That Could Affect Progress**

The availability of malaria commodities in PMI-focus provinces has improved from previous years and, except for ITNs for continuous distribution, have been well maintained over the past year. However, even with PMI assistance at the central level, the ability to extend these rates of availability to other non-focus provinces will be difficult because of the following challenges:

- Limited involvement of GEPE (MOH Procurement Department) with the malaria quantification process increases the effort needed to advocate at other levels of government for the GRA-funded procurement needs of antimalarial products.
- Delays in information sharing and the inadequate coordination between the procuring the entity (GEPE), CECOMA, donors, and NMCP. Closely tied to this is the limited visibility into GRA planning, resource allocation, and expenditure tracking of antimalarial commodity procurements between MOH and partners.

- Limited capacity of GRA to lead and coordinate supply chain actors and activities in a transparent and accountable manner; with CECOMA taking a more central and proactive role toward supply chain coordination and with the national strategic plan being developed, improvements in coordination are anticipated in the coming year(s).
- Absence of a defined budget for commodities procurement and in-country supply chain activities which limits ability to implement supply chain activities; for instance, there continues to be inadequate funding for logistics support (transportation of commodities up to the last mile across all provinces).
- Due to limited coordination and information sharing, GRA procurement is also not comprehensively and timely accounted for.
- Product availability does not yet match all the needs.
- Limited commodity visibility across the supply chain.
- Lack of follow through with action points from analyzed stock data from the monthly stock status report at central level to accelerate decision-making.
- Quantifications continue to be morbidity-based due to non-availability of reliable data from non-PMI funded provinces; this also leads to inadequate use of quantification exercise outputs to inform supply planning requirements by MOH and partners.
- The stock card updating rates at SDPs found during EUV were generally low (5-56 percent) especially for non-donor supported sites. ASAQ and RDT were between 41 percent and 52 percent, which shows a slight improvement from 2022 rates (33 percent and 40 percent). It was found that for 65 percent of the SDPs and 20 percent of the warehouse visits, the unavailability of stock cards was one of the main stock management challenges. This issue affects the availability and quality of inventory data, consequently, negatively impacted the quality of logistics data reported at these levels.
- Staff attrition and limited HR capacity, particularly at sub-national levels, requires repetitive capacity building which poses a challenge for monitoring & supportive supervision for continuous performance improvement.

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

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

PMI Angola FY 2024 funds will continue to be used to fund activities to support GRA capacity to increase its ability to be self-reliant in timely procuring malaria commodities to meet service delivery and ITN needs. PMI will continue to support quantification workshops using informed and rational approaches (with demographic and consumption data) to forecasting the quantities expected to be consumed in each province.

PMI will also continue to provide technical assistance to the elaboration of supply plans so that along with determining consumption needs and the quantities required to meet those needs, allocation across funders and timing of shipments to keep the system supplied according to plan are also included and updated on a regular basis.

## **Warehousing and Distribution**

No temporary commodity warehousing support is planned with PMI MOP FY 2024 funding. It is expected that by CY 2024, CECOMA will already safely and securely assume responsibility for the warehousing of 100 percent of PMI-funded commodities. PMI funding will contribute to support the logistics of the distribution led by CECOMA using the CECOMA fleet, from national level to the provincial. PMI will also support distribution to the district level and occasionally to the SDP.

## **Information Management Systems**

Support to health logistics management information systems, particularly at the province warehouses and national/central levels is proposed to be continued, but with a lower intensity than initial years, where the emphasis was put on initial adoption and roll out. When there is a well-defined, fully-costed and a funded implementation plan, PMI will review further support to the expansion of the eLMIS. While the future-state of the eLMIS is elaborated, PMI will continue to support the manual collection and collating of facility level supply chain data available through the existing paper-based LMIS. PMI will advocate for feasible integration of the eLMIS and DHIS2 systems for improved data quality for decision-making and forecasting.

With MOP FY 2024 funds, PMI will not support EUV surveys, because by then it is anticipated that regular (quarterly, possibly monthly) updates on commodity availability at service delivery points for malaria commodities will not only be available but will also be subject to quality reviews.

## **Regulatory and Policy Institutions**

PMI Angola will continue to support the strengthening of institutions involved in regulatory and policy aspects related to supply chain such as the ARMED, GTICI and GEPE.

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

## **6. Malaria Vaccine**

Angola currently does not identify the introduction of the current WHO-approved malaria vaccine as a priority strategy for malaria prevention and control in its 2021-2025 NMSP.

## 7. Social and Behavior Change

### 7.1. PMI Goal and Strategic Approach

Fully aligned with the country's national malaria control communication strategy, PMI contributes to the attainment of targeted SBC interventions that support the adoption and maintenance of selected key malaria prevention and treatment seeking behaviors, thereby improving the overall quality of malaria control efforts that will contribute to reductions in malaria morbidity and mortality.

PMI Angola's SBC strategy focuses on improving behavior change promotion and communication skills at provincial and municipal levels of the six hyperendemic PMI-focus provinces. This includes support for implementation of four key strategies:

- 1) Strengthening the delivery of evidence-based communication and social mobilization interventions aimed at supporting the practice of malaria prevention and control behaviors, including building capacity and providing mentorship and technical assistance at provincial and municipal levels;
- 2) Strengthening program communication for increased utilization of malaria interventions at the household level through the use of multi-channel approaches that combine mass media, interpersonal communication;
- 3) Increasing inter-sector engagement and collaboration for malaria interventions by strengthening coordination of malaria advocacy activities, aiming to foster strong links between the national and subnational levels across health and non health sectors; and
- 4) Strengthening community-based SBC communication activities for all malaria interventions and ensuring the participation of local communities in malaria control initiatives through existing local networks such as religious and civil society institutions.

PMI also ensures coordination with Global Fund and other stakeholders conducting activities linked in the National Malaria Partners Forum.

The endorsed "*Zero Malaria Starts with Me*" (ZMSWM, known in Portuguese as *Zero Malária Começa Comigo* or ZMCC) advocacy campaign still is a core component of the larger, more comprehensive National Malaria SBC Strategy. The integrated implementation of ZMCC with evidence-based implementation of SBC includes a 360 degree communication strategy that targets three key behaviors of malaria prevention and care-seeking at the community, municipal, regional and national levels. The theory-driven implementation is branded and integrates multiple communication channels and approaches, from interpersonal communication (IPC) to digital and mass media, while contextualizing the need for malaria prevention and care-seeking behaviors complementary to ongoing cross-cutting SBC activities across USAID portfolios.

Based on the current NMSP 2021–2025 mid-term review results and key findings from the 2023 MBS, PMI, in coordination with other partners, will provide technical assistance and

support for the update of the 2017–2020 National Social and Behavior Change Communication Strategy which outlines NMCP’s priorities, guidelines, and goals (communication strategies, materials and implementation plans) related to SBC for malaria which will then orient activities, coordination and development of mass media materials and relevant tools for dissemination at the community and health facility level.

## **7.2. Recent Progress (July 2022–March 2023)**

### **Capacity Building**

- Engaged in a participatory approach for capacity strengthening on social behavior studies through the MBS design, methodologic application, data collection, analysis, interpretation and results dissemination;
- Aided the drafting and dissemination of meeting agendas and materials to strengthen coordination and harmonization of malaria SBC activities at national and provincial (six PMI-focused provinces) levels through synergy within different activities and forums, such as outreach training supervision visits, technical meetings;
- Multi-channel, multimedia communication-based approaches aimed at disseminating and catalyzing expanding partnerships with NMCP and the private sector, with NMCP-led engagement for greater partner contribution to malaria control/elimination actions;
- Supported the regular convening of the national SBC technical working group meetings with representatives from the Ministry of Communications and Angola Public Television;
- PMI has provided mentorship to the NMCP to better catalyze commemorative awareness dates on the fight against malaria, such as World Malaria Day and SADC Malaria Day, involving multi-bilateral partners, holding advocacy meetings for domestic resource mobilization and attracting private sector actors for a fierce engagement;
- Continued support for capacity strengthening in management and coordination at the National Malaria Partners Forum, which brings together most partners in malaria control. This continues to be crucial for the solidification of the group of social actors in malaria control in Angola.

### **Formative Assessments, Study Research, and Monitoring and Evaluation**

- Assisted the full implementation of the Angola MBS including advisory group coordination, data collection, report finalization, and preliminary results dissemination workshops targeted to technical stakeholder partners, civil society organizations and the private sector, aiming for a cohesive, collaborative engagement.

Village and neighborhood-level data collection occurred from March–April 2023 in 20 municipalities of three of the six PMI-focus provinces (Cuanza-Norte, Lunda-Sul and Zaire), representative of PMI’s geographic prioritization in the northern, central and eastern high malaria endemic areas. A total of 3,148 households were visited, 5,680 family members (3,476 women and 785 men) were interviewed and 4,828 mosquito



nets were assessed.

*Preliminary findings from the MBS are presented below:*

- **Use and Care of Mosquito Nets**

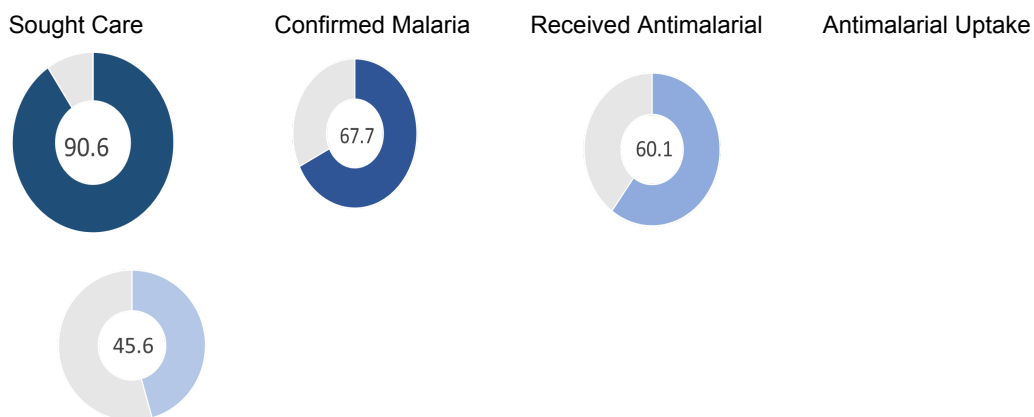
Preliminary results showed that use, knowledge, attitudes and beliefs about ITNs are high, as 89 percent of the sample listed mosquito nets as a malaria prevention measure. Consistent net use (using an ITN every night) was around 68 percent. This was higher in Cuanza Norte (75 percent) and among men (73 percent) and lower in Lunda Sul (62 percent) and the highest wealth quintile (62 percent). Participants often had negative attitudes towards ITNs in regards to heat, 50 percent, and net smell (insecticide) at 42 percent. Another 58 percent expressed that it is an inconvenience for couples who wish to conceive to sleep together under a mosquito net. Economically stable families with better living conditions are less likely to use a mosquito net. The same pattern applies to age groups between 15-34 who are less likely to sleep under a mosquito net in comparison to age groups between 35-44, male or female. In summary, there is a positive association of ITN-related ideation and ITN use, namely, the higher the ITN-related ideation score reported by respondents, the higher the likelihood of ITN use.

Gender norms were a very interesting indication, with only 60 percent of the sample having positive gender norms, where they indicated they would not show preference to the gender of their child if there were not enough nets. Male children were favored, as only 63 percent of the sample disagreed that they should prioritize their male children when there aren't enough nets compared to 79 percent who disagreed that they should prioritize their female children.

- **Seeking Prompt and Appropriate Care for Fever in Children Under Five**

Approximately one third (302 among 1,105) of children under 5 were reported by their caregivers as having had a fever in the two weeks before the interview date. While 90.6 percent of caregivers reported having sought care for the index fever episode, among these respondents, 67.7 percent had a confirmed malaria diagnosis, 60.1 percent were prescribed an antimalarial, yet only 45.6 percent administered the antimalarial to children as prescribed (denoted as uptake).

**Figure 4. Summary of Care-seeking Behavior in Response to Fever episodes**



Malaria Behavior Survey-MBS, 2023

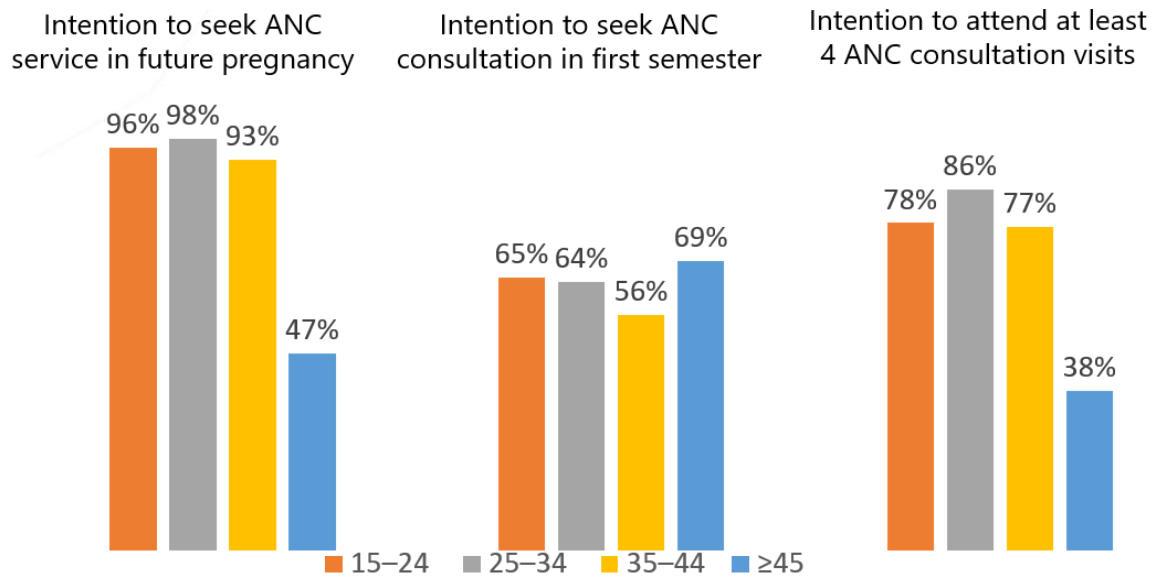
In spite of the delayed uptake, preliminary results show that in comparison to other countries where a similar survey has been conducted, perceptions towards health workers for case management and scoring indicators are positive. With regards to related factors, 77 and 69 percent of respondents have favorable perceptions about health facilities and attitudes towards seeking care respectively; 42 percent have comprehensive knowledge of seeking care and treatment for malaria and 67 percent have a perception of descriptive community norms in regarding the test and treatment while 44 percent have a perception of the effectiveness of the antimalarials.

- **Seeking ANC and Uptake of IPTp During Pregnancy**

In general, women trust IPTp and ANC but do not have good perceptions of health workers. Women do not know that they should go to the ANC early because they have the perception that health workers will send them home if they show up “too early.” Preliminary data also show that women with higher education are more likely to obtain a mosquito net at the ANC compared to women with lower education. Less than two-thirds of women with lower education get their mosquito nets from ANC.

Salient issues reported for the late demand for ANC services included: cost, including transportation and expenses associated with the purchase of SP, in cases of facility level stock-outs and the provider's guidance is to acquire SP from the nearest pharmacy (25 percent); distance from the health unit (16 percent); perception that facilities will only provide service from second trimester onwards (17 percent); and lack of time (20 percent).

**Figure 5. Cascade of Intention to Seek ANC Services in Future Pregnancies**



Malaria Behavior Survey-MBS, 2023

Among the women interviewed with the intention of having (more) children whose intention to attend ANC consultation was measured, the age group between 35 to 45 years showed a lower trend to seek ANC services compared to the 15 to 24 age group (higher trend) and 25 to 34 years which exhibited an average tendency. This demonstrates that women of a certain age who intend to become pregnant, have greater resistance to seeking ANC services.

### ZMCC General Campaign

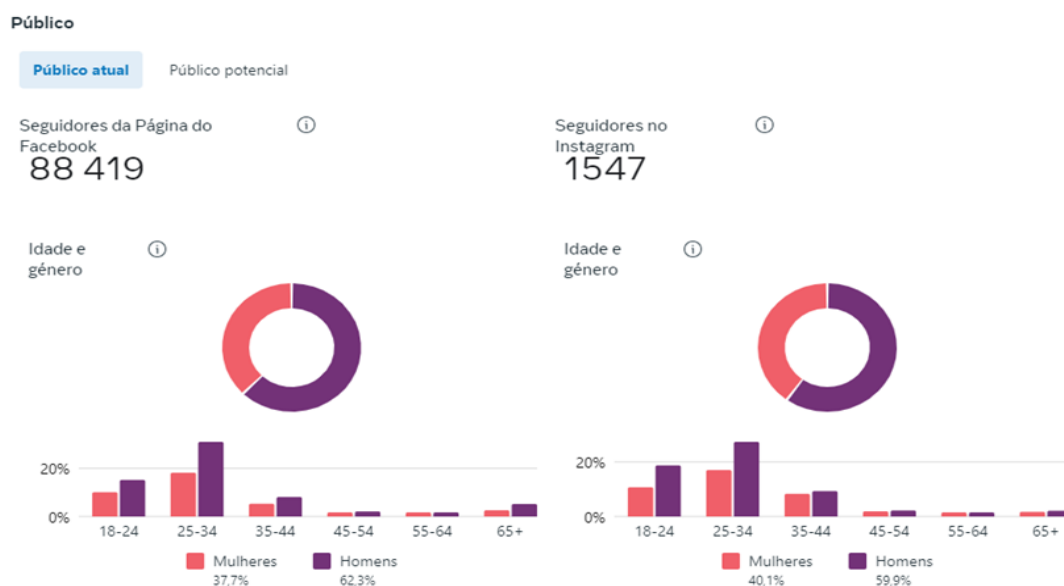
- The “Zero Malaria Starts with Me” (ZMSWM, known in Portuguese as *Zero Malária Começa Comigo* or ZMCC) is a multi-channel and multi-behavior advocacy and theory-informed SBC campaign. It continues to be the flagship tool through which main determinants of behavior are addressed and presented – knowledge, perceived susceptibility, and perceived severity – through a combination of innovative and evidence-based approaches that are amplified through strategic implementation. PMI continues to work closely with the NMCP for content creation and webpage management to offer users a wide range of useful and interesting information for better care of family and self. The average number of ZMCC webpage interactions per post between July 2022–March 2023 was 511,889 with 52,742 average interactions per month.

### Mass Media

- PMI financed the adaptation of radio spots developed by NMCP for local context

and supported the broadcasting of two TV spots. PMI also supported the amplification of social media platforms resulting in almost 89,000 Facebook page followers (38 percent women and 62 percent men) plus more than 1,500 on Instagram (40 percent women and 60 percent men).

**Figure 6. Trend of ZMCC Social Media Page Followers by Age and Gender**



*Number of followers on the ZMCC Facebook and Instagram pages by age and gender*

- On social media platforms, MIP has consistently been the most engaging topic since the launch of the 2020 campaign. An average of 1,540 interactions are captured and analyzed daily, allowing the overall campaign to be shaped and adjusted to ensure that concerns and challenges receive accurate, high-quality and reliable responses.

## Printed Media

- Challenges regarding the prevention of malaria in pregnancy, ITNs use, and care, as well prompt care seeking behaviors where SBC interventions are needed to improve service delivery (including provider behavior) practices at the health facility and/or at the community level have been addressed through the periodic distribution of three provider-oriented newsletters to health care workers and one to ADECOS. The content tackles adherence to case management guidelines, improved service communication and counseling of patients, consequences on delayed care-seeking behaviors, ITNs use, male involvement in support of ANC attendance, and importance of early ANC attendance.

## Interpersonal Communication

- 259 community leaders volunteers conducted more than 600 IPC activities to support interventions through community and religious leaders, reaching more than 70,000 people. The six-PMI supported provinces conducted SBC training, including faith leaders, health promotion professionals and social communications/press provincial staff. These activities consistently counted with the participation of representatives from the main religious cadres in Angola, such as the Council of Christian Churches (CICA).
- Representatives from the Municipal Administrations responsible for the largest popular local markets were also engaged in community-based training to facilitate message dissemination and larger catchment in these vital crowded community settings. Captivating these distinct actors/ opinion makers (from the press and local markets) represents an innovative approach in hopes that interactions with the faith-based organizations leaders and health promotion supervisors will be solidified.
- Post mass campaign activities for proper net use and care, including social media consistent reinforcement of net use, and prompt care-seeking and MIP prevention.
- More than 3,000 activists (including ADECOS) who participated in mass distribution were trained on key messages and equipped with credential/job aid with images/messages on how to handle and use the nets. Daily amplifying social media activities includes getting local engagement and wide visibility for the work carried at community-level as well as awareness on the complexity of the process, its challenges and needed participatory response from all.
- ADECOS also contribute to IPC activities with messaging aimed at increasing ITN care and consistent use, as well as contributing to integrated health promotion communication promoting prompt care-seeking, encouraging pregnant women to attend antenatal care appointments earlier and more often, increased uptake of IPTp-SP to prevent malaria, and access to comprehensive health services for a safe pregnancy and family planning and reproductive health services.

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

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

With FY 2024 funds, PMI will support the NMCP to develop the Malaria SBC Strategy 2023–2028 that will emphasize community engagement and will aim to strengthen both health provider and community capacity, using human-centered design and community action cycles to empower communities to identify solutions and design interventions to promote the adoption and maintenance of key behaviors.

FY 2024 prioritized activities will be guided by recent data collection efforts, such as the 2023 MBS, for PMI cross-cutting activity implementation and financing of SBC and health service delivery interventions, including improving users' perceptions of health professionals and health service delivery for key populations (e.g., pregnant women), supporting expanded

access to ANC providers on MIP training and quality of respectful care interventions, advocate for group problem-solving and other interventions in targeted HFs.

In addition, at the national level, PMI will continue strengthening the capacity of the SBC program personnel with skills to design, implement, and evaluate SBC activities undertaken in each intervention area and the coordination of the SBC technical working group. At the provincial level, PMI will enhance the capacity of the malaria ADECOS and community activists/ health promotion actors to continue cascading their activities to community members and within health units. Complementarily, through partnerships with local community-based organizations and collaboration with local leaders, PMI will:

- Support multi-channel approaches that combine mass media, interpersonal communication, and structural interventions to increase adoption and maintenance of key malaria interventions, prevention and treatment behaviors;
- Continued implementation of mass and mid-media, including radio spots and programs promoting ITN proper and consistent use, behaviors to prevent malaria in pregnancy, and prompt healthcare seeking
- Continued implementation support for interpersonal communication activities, including those targeting community based influencers/opinion makers and male partners of pregnant women;
- Innovate engagement with different social and governmental actors through the inclusion of the ministry of education and specifically primary and secondary school institutions to disseminate key messages that promote the uptake and maintenance of all key malaria interventions;
- Update messages to be disseminated in a tailored and specific way for the identified challenges, relevant age and prominent actors target group, as well as directed to specific behaviors intended to be improved or corrected;
- Strengthen community-level SBC activity data collection and use.

Through partnerships with local community-based organizations and collaboration with local leaders and ADECOS, PMI will support the NMP's efforts to expand the use of multi-channel approaches that combine mass media, interpersonal communication, and structural interventions to increase adoption and maintenance of key malaria prevention and treatment behaviors. These priority behaviors include correct and consistent ITN use, early and frequent ANC attendance, and prompt and appropriate care-seeking. PMI will also support efforts to understand and address providers' attitudes, norms, and beliefs that may impact the delivery or quality of malaria services received at health facilities; and strengthen service communication among health care workers and community actors.

## **Priorities**

While PMI supports SBC activities that promote the uptake and maintenance of all key malaria

interventions, FY 2024 funds will continue prioritizing the promotion of care-seeking behaviors for young children and ANC attendance. See Table 2 below.

**Table 2. Priority Behaviors to Address**

Behavior	Target Population	Geographic Focus	Programming to Address Behavior
<p>Prompt care-seeking for fever for children under five years of age</p>	<p>Mothers/ caregivers of children under 5 years of age; healthcare providers</p>	<p>All six PMI-focus provinces</p>	<ul style="list-style-type: none"> <li>• Continue training and mentorship of community leaderships and ADECOS to implement IPC activities and give presentations encouraging care-seeking for fever among the community.</li> <li>• Conduct community and household-level IPC. Messages:               <ul style="list-style-type: none"> <li>• At the first signs of a child’s fever, go to the nearest health facility as soon as possible to be seen by a health professional.</li> <li>• Timely medical care and drug-uptake is very important for proper treatment.</li> <li>• Realize that assertive diagnosis and antimalarials are only available in health units.</li> <li>• Draw attention to malaria susceptibility and negative impacts on individual's well-being.</li> </ul> </li> <li>• Main determinants: Knowledge, Perceived severity, Perceived action efficacy, Social norms.</li> </ul>
<p>Malaria prevention during pregnancy (ANC attendance, use of an ITN, and use of IPTp)</p>	<p>Healthcare workers/ANC Providers  Pregnant women; male partners</p>	<p>All six PMI-focus provinces</p>	<ul style="list-style-type: none"> <li>• Emphasize provider-focused training on the importance of early ANC attendance and humanization of pregnancy care to promote adherence to antenatal consultations.</li> <li>• Reinforce integration of IPC in on the job training and supportive supervision (OTSS) module at health facilities.</li> <li>• Conduct health talks during ANC to encourage consistent uptake of IPTp.</li> <li>• Organize women’s groups and promote community based influencers/opinion makers engagement in malaria in pregnancy activities to enforce early ANC attendance and uptake of IPTp.</li> <li>• Utilize ADECOS to deliver health promotion messages to increase early ANC access, and to increase IPTp delivery and demand, and decrease missed opportunities for pregnant women.</li> <li>• Dissemination of MIP SBC:               <ul style="list-style-type: none"> <li>• Promoting early ANC consultation in any doubt or sign of pregnancy.</li> </ul> </li> </ul>

			<ul style="list-style-type: none"> <li>• Targeting women to raise awareness about the severity of malaria in pregnancy and the effectiveness of the IPTp and ITNs.</li> <li>• Improving users' perceptions of health professionals in the health unit.</li> <li>• Targeting pregnant women to increase uptake of IPTp to four or more doses and consistent ITN use.</li> <li>• Main determinants: Knowledge, Negative consequences (side effects), Access – psychological, Perceived susceptibility.</li> </ul>
Correct and consistent ITN use	General population	All six PMI-focus provinces	<ul style="list-style-type: none"> <li>• Promote effective engagement and empowerment of community based influencers/opinion makers especially during mass ITN distribution campaigns.</li> <li>• Conduct individual, household, and community IPC through ADECOS to encourage nightly net use and proper net care.</li> <li>• Strengthen awareness on environmental sanitation with a view to eliminating mosquito breeding sites at domiciles' and health units' surroundings.</li> <li>• Strengthen awareness on net use and care engaging with primary and secondary education institutions, targeting young age groups for behavior change.</li> <li>• Dissemination nets SBC: <ul style="list-style-type: none"> <li>• Applaud positive attitudes towards ITNs and the perceived self-efficacy use.</li> <li>• Targeted to 15-24 and 45+ age groups encouraging appropriate, daily and continuous use of ITNs despite perceived discomfort.</li> <li>• Encouraging gender-equity and other positive norms related to the use of ITNs.</li> <li>• Sowing descriptive community norms in relation to ITNs aimed at promoting the use and scope of herd immunity.</li> </ul> </li> <li>• Main determinants: access, knowledge, perceived susceptibility, perceived action efficacy.</li> </ul>

ADECOS: Portuguese acronym for Community and Health Development Agents: Agentes de Desenvolvimento Comunitário e Sanitário; ANC: antenatal care; IPC: interpersonal communication; SBC: social and behavior change.

## Additional Support Activities



PMI will use the 2023 MBS results and other partners' qualitative assessment studies findings (i.e. KAP) to inform programmatic implementation both at health care worker and community levels. SBC capacity building at both the national and subnational levels is paramount, with an increased level of effort cascading to health facilities to bolster capacity for the planning, design, implementation, and evaluation of SBC activities.

As such, PMI will support:

- Supporting expanded access to ANC providers on MIP training and quality maternal care and service communication interventions;
- Communication campaigns that impact evaluation and user perception to obtain evidence of behavior change;
- Coordination at the national level through targeted support to improve the effectiveness of the national and provincial SBC technical working group;
- Strengthening capacity of key players and stakeholders for effective SBC design, implementation, and evaluation;
- Capacity building for NMCP staff on the use of data, particularly from the CY 2023 data collection activities, to inform SBC program priorities and strategies;
- Strengthening partnerships with the private sector, civil society influencing groups, primary and secondary education institutions, international NGOs, local and regional initiatives;
- Adapting and promoting radio and animated television messaging campaigns addressing priority behaviors to reach both the higher education and socioeconomic audiences as well as the low income and academic level audiences.

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

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

In Angola, PMI collaborates with the NMCP's other partners, such as WHO and Global Fund, among others, in providing technical assistance and resources for SM&E activities. PMI supports the NMSP 2021-2025 objective to strengthen the epidemiological and entomological surveillance, monitoring and evaluation system so that 100 percent of municipalities contribute to achieving the targets for controlling and eliminating malaria. Furthermore, PMI supports NMCP for a more robust decision-making capacity and performance through critical use of data to achieve malaria control goals by 2025.

PMI and the NMCP have prioritized interventions fostering the principle of "*The Three Ones*" – one national malaria coordination body, one national malaria control strategy, and one national malaria SM&E plan. PMI-supported technical priorities are strategically aligned and include strengthened routine health information systems, surveillance data quality assessments, technical support and investment in community-level linkages to information systems,

subnational tailoring exercises, and service availability and readiness assessment through household and health facility surveys, in addition to other monitoring and evaluation activities.

Given SM&E is defined as a core intervention in the 2021-2025 NMSP, key PMI-supported strategies include:

- Strengthening malaria surveillance by mapping malaria risk areas per municipality and developing a malaria surveillance framework to guide decision-making at all levels.
- Strengthening surveillance, monitoring, and evaluation capacity and building a culture of data driven decision-making. PMI promotes a broad integrated vision that ensures timely data collection, analysis, visualization, and reporting of malaria-related information, and the development of a culture of data-driven decision-making.
- Strengthening of routine data collection and reporting through electronic DHIS2 in the six PMI-focus provinces, as well as at the national level (including both timeliness and completeness). PMI provides training, supervision, data quality checks, and reporting tools to HFs at the municipal and provincial levels. PMI also supports strengthening monthly malaria surveillance data reporting through electronic DHIS2 in the six PMI-focus provinces, as well as at the central level. Currently, only data from the public sector is inserted into DHIS2 platform, but the MOH is interested in including the HFs from the private sector once all the requirements are met.
- Conducting malaria death data quality assessments, among other surveillance data quality assessments.
- Preparing standardized guides for implementation of periodic audits by the NMCP technical team, clinical partners, and key stakeholders.
- Collecting critical health indicators by supporting population-based surveys (such as the ongoing DHS 2023). PMI also aims to strengthen the institutional capacity of the NMCP in SM&E through the development and update of SM&E tools (e.g., Monitoring and Evaluation Plan 2022–2025), training in SM&E, and data quality analysis.

Angola is part of the SADC E8 Elimination efforts (Angola, Mozambique, Zimbabwe, Zambia, Botswana, Namibia, Eswatini and South Africa) and developed two cross-border initiatives for malaria control: Trans–Cunene between Angola and Namibia, and Trans–Zambeze between Angola, Namibia, Zambia, Zimbabwe and Botswana. Of note, the selected provinces are not PMI-focus provinces. The NMCP is advocating with the MOH authorities for the creation of technical and financial conditions to start the process of eliminating malaria in the selected provinces. The E8 Elimination plan sets out a package of interventions aimed at rapidly reducing malaria transmission in southern Angola. A plan will be drawn up with guidelines for its implementation, with a multisectoral commission to be created to ensure planning, resource mobilization, implementation of interventions and plan monitoring and evaluation.

## **8.2. Recent Progress (July 2022–March 2023)**

PMI supported the following surveillance and monitoring activities during the reporting period:

- Funding and providing technical assistance and operational support to the ongoing

2023–24 Angola DHS being implemented by the National Institute of Statistics (INE). The DHS implementation will provide current estimates (the most recent DHS is 2015-16) of basic demographic and health indicators including measurement of malaria and anemia prevalence, malaria awareness and behavior complemented by maternal and child health, adult and childhood mortality, HIV/AIDS, Hepatitis B, stunting and malnutrition, and other development indicators. The DHS preliminary results are scheduled to be available in May 2024 with the final report dissemination planned for September 2024.

- Improvement and additional software development of the DHIS2 as the national platform for health information systems, in coordination with other MOH partners and stakeholders. In doing so, PMI led contributions to strengthening capacity at the municipal, provincial, and central levels in data entry, data analysis, and data use for decision-making. For the first time, the malaria report completeness rate reached 92.1 percent countrywide and 96.3 percent in the six PMI-focus provinces in 2022. Nationwide, 81 percent of all epidemiologic surveillance reports met the official reporting timeliness criterion (i.e., reporting within 15 days of the closing of the monthly epidemiologic reporting period). Among the six PMI-focus provinces, 85 percent of all such reports met the reporting timeliness criterion.
- PMI supported the Digital Community Health Survey to generate a country profile of community health data digital reporting tools. The key recommendations emerging from the report led to the development of the Digital Community Health Information System Roadmap and Budget, building strategic programmatic synergy given that the MOH is also drafting Angola’s first ever Community Health Strategy.
- PMI also supported the NMCP to conduct the 27 malaria deaths assessments in the six PMI-focus provinces with key findings showing: (i) 30 percent of reported deaths attributed to malaria were suspect malaria infection cases not confirmed; (ii) 37 percent of hospitalized malaria case-patients died within the first 24 hours of admission, of which 62 percent were children under five years of age; (iii) 14 percent of reported deaths were among referred patients; (iv); only 10 percent of these patients presented for health facility admission within 24 hours after symptom onset as per the NMP’s guidelines; (v) 64 percent of reported malaria deaths were among case-patients who resided within a radius of five kilometers or less from the admitting health facility.
- Support the interoperability between HNQIS to DHIS2 for institutional access to supportive supervision data.
- As a component of the National Community Health Strategy and its framework development, PMI supported the crafting of a costed roadmap for the implementation of the Digital Community Health Strategy towards the use of malaria data reporting digital tools at community level.
- PMI-supported NMCP visits to conduct on-site data verifications at the health facility level using a newly developed digital tool, which allows for rapid data quality assessment and corrective measures. The tool has three main components:

- Module 1: Data Verification – focusing on whether data collected in health facilities meet the criteria of availability, completeness, timeliness, integrity, confidentiality, precision, and accuracy;
- Module 2: Data Management System – focusing on whether the health facility has systems in place to properly collect, manage, and secure information;
- Module 3: Action Plan – which allows supervisors to document key problems identified during the visit to the health facility, the solution(s), staff assigned, and the due date.

The table below summarizes aggregated quarterly results pertaining to data verification from 206 health units visited between January and March 2023. Among facilities visited, 98.5 percent had accuracy in digital data reporting of clinical and epidemiologic indicators as recorded in patient log books and medical records. Coupled with high performance in data availability, completeness, timeliness and integrity indicators, health facility digital data reporting has attained unequivocal quality for use in local decision-making. The rapid data quality assessment visits also serve as a vehicle for continuous quality improvement in all data performance indicators.

**Table 3. Results from Digital Rapid Data Quality Assessment Improvement Visits in Six PMI-Focus Provinces, Module 1: Data Verification by Data Category, January to March 2023.**

Province	# HUs visited	# visits	Availability	Completeness	Timeliness	Integrity	Confidentiality	Precision	Accuracy	Total
Cuanza Norte	56	103	100	95.4	99.1	96.7	85.1	88.2	97.7	<b>93.5</b>
Lunda Norte	37	76	95.5	93.3	99.3	92.3	71.5	82.7	97.8	<b>89.6</b>
Lunda Sul	22	48	95.5	84.4	100	88.2	98.8	87.6	100	<b>92.4</b>
Malange	27	47	99.6	99.6	100	96.8	80.1	75.1	99.3	<b>92.1</b>
Uige	35	37	97.7	98.8	100	100	91.5	92.7	96.5	<b>94.6</b>
Zaire	29	41	100	100	100	99.5	100	100	100	<b>99.9</b>
<b>Total</b>	<b>206</b>	<b>352</b>	<b>98.7</b>	<b>95.3</b>	<b>99.7</b>	<b>95.6</b>	<b>87.8</b>	<b>87.7</b>	<b>98.5</b>	<b>93.7</b>

Source: DHIS2 dashboard

Furthermore, PMI supported the design and implementation of the following standardized evaluation activities:

**Health Facility Survey.** Administered in an intermittent cycle, the cross-sectional health facility survey serves as a comprehensive evaluation of health system function. In Angola, a cross-sectional survey was done in Cuanza Norte, Lunda Norte, Lunda Sul, Malanje, Uige, and Zaire provinces in 2022. Stratified by level of care, 122 public and private facilities were randomly chosen including all 13 military facilities. Surveyors assessed malaria product stocks and interviewed and re-examined a random selection of outpatients of all ages irrespective of

symptoms (n=1,200) after routine consult. Facility-readiness and case management indicators were calculated adjusting for cluster sampling design and use; 131 clinicians were interviewed. A total of 112 facilities were included: 88 public, 13 private, and 11 military facilities. Malaria testing availability the day of the survey was 74 percent (95 percent Confidence Interval (CI)) (64–82)) in public, 39 percent (13–72) in private, and 64 percent (43–80) in military facilities. Antimalarial availability the day of survey was 77 percent (67–84) in public, 29 percent (6–71) in private, and 64 percent (43–80) in military facilities. The proportion of febrile patients tested for malaria was 67 percent (52–79) in public, 67 percent (23–94) in private, and 59 percent (31–82) in military facilities. In public facilities, 61 percent (49–71) of suspect cases were correctly managed, defined as tested and treated in line with the test result. In private and military facilities, 57 percent (36–75) and 45 percent (23–68) of suspect cases testing positive were correctly treated, respectively. In public, private, and military facilities, 9 percent (6–13), 40 percent (0.9–97.9), and 12 percent (4–33) of suspect cases that tested negative were given an antimalarial, respectively. The rate of correct case management of suspect malaria cases was below 75 percent across all health facility levels. Presumptive treatment was low in public and military health facilities, but higher in private ones. The results show the gap in correct malaria case management in health facilities, especially private facilities.

PMI supported protocol and instrument design, training, and field data collection; additional statistical analysis of the survey instrument was ongoing at the time of FY 2024 MOP writing. Review of results is ongoing as of June 2023, while validation of malaria field test results in the NMCP laboratory is concluded. Another portion of the samples will be sent to the Manhica Center for Health Research (CISM) in Mozambique for molecular resistance analysis.

**Net Durability Evaluation.** PMI promotes ITN use as a core, evidence-based intervention for malaria control. Due to net deterioration, loss, or external factors like population growth, ITN durability monitoring is designed to generate programmatic information to optimize procurement, delivery, and effectiveness of mass distribution campaign interventions. As such, the ITN durability evaluation in Angola assesses the effect of ITN normal daily use on attrition, physical durability, and insecticide effectiveness linked to the MOH mass ITN distribution campaign deployed in 2022 (see the Vector Monitoring and Control Section). Standardized multistage cluster household sampling methodology for mosquito net observation and labeling fieldwork has been spearheaded by NMCP and implemented through March 2023. At the time of MOP FY 2024 writing, data cleaning and analyses are ongoing for preliminary results presentation.

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

The [FY 2024 funding tables](#) contain a full list of SM&E activities that PMI proposes to support. PMI will continue to support the NMCP to build its capacity to implement all the SM&E activities as well as to conduct surveillance as a core malaria intervention using high quality data from both surveys and routine health information. However, a change in activity support from recent years is the current pause in planning for an EUV with FY 2024 funding. At a

minimum, quarterly stock status of malaria commodities will be accessed via multiple sources such as the DHIS2 and Monthly Malaria Commodity Reports. The data from these sources will be regularly analyzed for quality and the results will be used to reinforce timely and quality submissions of future reports. As the quality of information systems for health continues to be strengthened, PMI will continue to review country needs and funding availability (see Health Supply Chain and Pharmaceutical Management section for more details on EUVs).

Salient planned activities include:

- Implementation of the “*Epidemiological Surveillance in Public Health*” training module through the Kassai digital e-learning platform to strengthen surveillance capacity at the district level;
- Supporting malaria-related data integration and management systems and regular national and district level with SM&E review by technical working groups;
- Ongoing support to NMCP in analyses, reviews, and dissemination of malaria-related data;
- Continued data quality assessments to ensure accurate DHIS2-supported decision-making, including quarterly DHIS2 data analysis meetings held at the provincial level and data-driven NMCP response capacity and crafting of recommendations for control at the municipal level and advocacy for timely and adequate government commodity investment;
- Provide technical support to the NMCP in order to implement a strong malaria SM&E strategic plan at community, health facility and municipality levels as per the current National Surveillance, Monitoring, and Evaluation Plan 2022-2025 and NMSP 2021-2025;
- Support the NMCP in data validation processes and in the implementation of routine data quality assessments at facility/municipal/national levels and conducting DHIS2 data analysis meetings;
- Strengthen data quality through routine supervision;
- Consolidate the capacity of municipal malaria supervisors and statisticians in the use of tools to conduct on-site data verification supervision;
- Train HFs and municipal staff (including director level positions) in the interpretation of monthly malaria routine reports and decision-making process;
- Continue results-driven quality improvement during the quarterly data analyses meetings, with statisticians, malaria supervisors, and directors of municipal health directorates, while updating dashboards as needed by MOH staff, donor, and partners;
- Advocate for increased engagement with the private and military sectors for the consistent use and reporting on malaria monthly reports through DHIS2 to increase participation in DHIS2 for a more holistic description of malaria in Angola;
- Exploring potential to expand MIP tracking in DHIS2, which would require changes to data collection at HFs, to be able to track adherence to IPTp at the individual level;
- Increase number of private health facilities reporting into the DHIS2;

- Support the production of monthly stock status reports in the six PMI-focus provinces, and their subsequent analysis;
- Continue with implementation of HNQIS throughout PMI-supported provincial health facilities to ensure routine supportive supervision to improve data management quality;
- Advocate for local administrations to increase printing of patient register books and other tools for data reporting;
- Advocate with UNITEL to provide free internet to use the “*Central de Atendimento de Sistemas de Saúde*” platform (a free electronic platform administered by MOH to improve the DHIS2 Support System developed with PMI support) to encourage its use among provincial staff needing DHIS2 technical support;
- Technical assistance and financing of the 2025 TES periodic monitoring of the therapeutic efficacy of antimalarial treatments and molecular markers associated with parasite detection (e.g., hrp2/hrp3 gene deletions) and antimalarial resistance (see Case Management section for more information).

**Table 4. 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						
Household Surveys	Multiple Indicator Cluster Survey						
Household Surveys	Expanded Program on Immunization survey						
Health Facility Surveys	Service Provision Assessment						
Health Facility Surveys	Service Availability Readiness Assessment survey						
Health Facility Surveys	Other Health Facility Survey			X			
Malaria Surveillance and Routine System Support	Therapeutic Efficacy Studies				X		P
Malaria Surveillance and Routine System Support	Support to Parallel Malaria Surveillance System						
Malaria Surveillance and Routine System Support	Support to Health Management Information System	X	X	X	X	P	P
Malaria Surveillance and Routine System Support	Support to Integrated Disease Surveillance and Response						
Malaria Surveillance and Routine System Support	Electronic Logistics Management Information System						
Malaria Surveillance and Routine System Support	Malaria Rapid Reporting System						

Other	End-Use Verification Survey	X	X	X	X	P	
Other	School-based Malaria Survey						
Other	Knowledge, Attitudes and Practices Survey, Malaria Behavior Survey				X		
Other	Malaria Impact Evaluation						
Other	Entomologic Monitoring Surveys						

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

## 9. Operational Research and Program Evaluation

### 9.1. PMI Goal and Strategic Approach

Angola's NMSP 2021-2025 aims to grow operational research (OR) and program evaluation (PE) capacity through collaboration with multiple partners and stakeholders. The agenda for OR/PE in collaboration with the different sectors of the MOH, partners and other stakeholders prioritizes crafting a cross-cutting malaria research plan.

A potential step for strengthening capacity to investigate OR/PE questions in Angola is the development of a prioritized OR/PE list. Potential stakeholders and NMCP partners may include entities such as national medical schools, national and international universities, nongovernmental organizations (NGOs), or private entities that are able to conduct research interventions, as well as government officials, both domestic and international.

Developing NMCP staff capacity for OR/PE is an NMCP priority in Angola. In line with the NMCP's vision for a research agenda, PMI Angola focuses efforts at this juncture on expanding analysis and dissemination of routinely collected data with an intention of preparing Angola to have capacity for implementing future OR studies.

Commensurate with PMI's approach for technical assistance and funding support aligned with national and NMSP 2021-2025 priorities, strategic PMI actions may include technical assistance for study protocol design, fieldwork training support for implementation, data analysis, and results dissemination in multiple scientific journals and forums. A key PMI focus is continued technical capacity strengthening for interpretation of decision-focused results to inform programs and policies.

Notably, the PMI-supported NMCP OR/PE proposed agenda for future development includes the crafting of a list of entomology and social and behavioral change (i.e., SBC-related operational research) key research questions, protocol development and implementation of studies, as well as ITN campaign impact evaluation, community health facility surveys assessing health worker malaria case management performance and adherence to national treatment guidelines.



## **9.2. Recent Progress (July 2022–March 2023)**

No PMI-funded OR/PE activities were conducted during the reporting period. No OR/PE is being supported by other donors.

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

No OR/PE studies are proposed with FY 2024 funding. However, opportunities for discrete PMI-supported activities for future development with technical assistance exist. For instance, secondary analysis of extant data to estimate the ratio of use to access – i.e., trends in ITN access and use over time by various sociodemographic characteristics – to provide insights into potential behavioral gaps for net use or repurposing, requiring shifts in behavioral interventions in lieu of covering gaps with additional procurement owing to interpretations of insufficient net availability.

## **10. Capacity Strengthening**

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

The NMCP continues to work with donors and stakeholders to identify opportunities and approaches to strengthen other health system needs not already described.

PMI supports interventions which aim to strengthen the institutional and individual capacity of national, subnational, and local level malaria programs and teams to effectively lead, manage, implement, and oversee their own programs to achieve their own objectives. PMI provides this support through a multipronged approach consisting of a mix of long- and short-term interventions aimed at building the capacity of individual malaria program personnel and teams, strengthening reporting systems, and strengthening the institutional capacity of the NMCP and other MOH offices such as GTICI, CECOMA, provincial warehouses, and ARMED. To build staffing capacity, PMI has historically embedded technical staff within the NMCP and other departments such as CECOMA and GTICI. This investment is intended to be temporary to transfer technical skills. For example, PMI currently supports two embedded staff at CECOMA for supply chain strengthening with the goal that technical assistance can help strengthen the government's national distribution system to the point where it could assume the management of the warehousing and transportation of both government- and donor-supplied malaria commodities, and one at GTICI to support with SIGLOFA management at the MOH server.

Training, coaching, mentoring, supportive supervision, and on-the-job capacity strengthening are some of the interventions utilized to strengthen individuals and teams' capacity to deliver malaria services and manage programs at all levels. PMI staff also works closely with the NMCP staff providing technical assistance in person and virtually for capacity building and transfer.

Capacity strengthening activities for NMCP and other local government entities to strengthen malaria diagnosis and treatment practices (which include training and on-site supervision) have been described in the relevant intervention sections of the MOP. This section covers other PMI capacity strengthening support to malaria control programs and other local government entities not covered.

PMI funds short-term training of permanent government staff in the technical aspects of malaria, management and leadership, and pedagogical skills for trainers. In addition, it funds oral or poster presentations by NMCP at conferences where the outcome is beneficial to the country's program.

Through FY 2021, PMI contributed to FETP program funding, supporting both advanced, and, in a pilot phase, frontline curricula. FETP students participated in didactic courses through the National School of Public Health, while others also worked with MOH in developing implementation and analysis skill sets by participating in field evaluations of malaria control interventions and services. The evolution of the FETP and institutions that foster the program in Angola, coupled with the recent shift in virtual training needs prompted by the COVID-19 pandemic, contributed to the development of complementary training resources such as the e-training platform, Kassai. Its high acceptance and combination of blended and exclusively online learning modalities in turn offer the opportunity for a complementary tool for surveillance training. With PMI technical support, a basic surveillance course has been adapted from the frontline FETP curriculum for the Kassai platform, and the modules are in development for forthcoming deployment. PMI will continue leveraging technical assistance for FETP frontline activities commensurate with MOH priorities and requests for training assistance.

## **10.2. Recent Progress (July 2022–March 2023)**

During the reporting period, PMI supported:

- Embedding of two staff at CECOMA that provided technical assistance for supply chain strengthening and one at GTICI;
- Participation of NMCP central staff in international scientific and professional workshops to provide opportunities to learn best practices, share experiences, and develop networks such as the American Society of Tropical Medicine and Hygiene (ASTMH);
- Crafting of an approved abstract submitted by NMCP/PMI to the ASTMH Conference 2022, presented as a poster entitled: *“Cost effectiveness analyses of three methods to train HWs in Angola: in-classroom training, self-learning, and blended learning”* (control number 22-A-1953-ASTMH), authored by Axelson, H., et al.;
- Drafting of the Epidemiological Surveillance on Public Health Course for the Kassai platform. Through this platform, PMI/Angola will be able to reach a greater number of health officers and complete training on the supervision and data quality platforms described above. Training will be launched in the next quarter;

- The National Malaria Partners Forum aiming to encourage engagement of private sector and other in-country technical partners to leverage resources for malaria prevention and control activities;
- The design of the Malaria Strategic Plan (2021-2025) mid term review;
- The development of a costed roadmap to improve the integration of community health data into Angola’s health information system, DHIS2. A workshop was carried out with more than 70 representatives from relevant stakeholders, including MOH departments, the Social Support Fund, the Armed Forces, private-sector firms, national and international nongovernmental organizations, donor organizations, and international bodies. The preliminary roadmap developed during the workshop outlines the activities and timelines for integrating current systems with DHIS2.

A salient challenge identified is the absence of an annual strategy and workplan for the National Malaria Partners Forum. However, NMCP and partners consider the National Malaria Partners Forum a potential platform that would allow the sharing of new research related to malaria prevention and control, allow activities to be presented and discussed, share best practices, and allow better coordination among the NMCP and partners.

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

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

With FY 2024 funds, PMI will continue to support capacity strengthening activities as described in the Recent Progress section, with no major shifts. PMI will fund oral or poster presentations of implementing partners at conferences and the participation of relevant NMCP personnel, where the outcome is beneficial to the country’s program.

## **11. Staffing and Administration**

USAID/Angola is an office and not a full USAID mission. USAID/Angola is led by the USAID Country Representative. The PMI Angola interagency team receives guidance and support from the in-country Supervisory General Development Officer, delegated by the USAID/Angola Country Representative. Day-to-day management and implementation of activities is carried out by a PMI Angola Country team consisting of resident advisors representing USAID and CDC, and two more locally hired experts known as foreign service nationals. The PMI interagency team works together to oversee all technical and administrative aspects of PMI, including finalizing details of the project design, implementing malaria prevention and treatment activities, monitoring and evaluation of outcomes and impact, reporting of results, and providing guidance and direction to PMI implementing partners.

# **ANNEX: GAP ANALYSIS TABLES**

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

Calendar Year	2023	2024	2025
Total country population	34,094,077	35,121,734	36,170,961
Total population at risk for malaria	34,094,077	35,121,734	36,170,961
PMI-targeted at-risk population	6,440,371	6,634,496	6,832,695
Population targeted for ITNs	6,440,371	6,634,496	6,832,695
<b>Continuous Distribution Needs</b>			
Channel 1: ANC	274,617	282,895	291,346
Channel 1: ANC Type of ITN	PBO	PBO	PBO
Channel 2: EPI	213,241	219,668	226,230
Channel 2: EPI Type of ITN	PBO	PBO	PBO
Channel 3: School			
Channel 3: School Type of ITN			
Channel 4: Community			
Channel 4: Community Type of ITN			
Channel 5:			
Channel 5: Type of ITN			
Estimated total need for continuous channels	512,251	527,691	543,455
<b>Mass Campaign Distribution Needs</b>			
Mass distribution campaigns	530,750		2,769,802
Mass distribution ITN type	PBO		PBO
Estimated Total Need for Campaigns	530,750		2,769,802
<b>Total ITN Need: Continuous and Campaign</b>	<b>1,043,001</b>	<b>527,691</b>	<b>3,313,257</b>
<b>Partner Contributions</b>			
ITNs carried over from previous year	25,034	0	0
ITNs from Government			
Type of ITNs from Government			
ITNs from Global Fund			
Type of ITNs from Global Fund			
ITNs from other donors			
Type of ITNs from other donors			
ITNs planned with PMI funding	734,050		2,769,802
Type of ITNs with PMI funding	PBO		PBO
<b>Total ITNs Contribution Per Calendar Year</b>	<b>759,084</b>	<b>0</b>	<b>2,769,802</b>
<b>Total ITN Surplus (Gap)</b>	<b>(283,917)</b>	<b>(527,691)</b>	<b>(543,455)</b>

ANC: antenatal care; EPI: expanded program on immunization; ITN: insecticide-treated mosquito net; PBO: piperonyl butoxide.

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

<b>Calendar Year</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>
Total country population	34,094,077	35,121,734	36,170,961
Population at risk for malaria	34,094,077	35,121,734	36,170,961
PMI-targeted at-risk population	6,440,371	6,634,496	6,832,695
<b>RDT Needs</b>			
Total # of projected suspected malaria cases	5,885,565	6,800,355	7,762,925
% of suspected malaria cases tested with an RDT	85%	90%	90%
<b>RDT Needs (tests)</b>	<b>5,002,730</b>	<b>6,120,319</b>	<b>6,986,632</b>
Needs estimated based on a combination of HMIS and consumption data			
<b>Partner Contributions (tests)</b>			
RDTs from Government			
RDTs from Global Fund			
RDTs from other donors			
RDTs planned with PMI funding	9,396,000	4,452,700	7,636,168
<b>Total RDT Contributions per Calendar Year</b>	<b>9,396,000</b>	<b>4,452,700</b>	<b>7,636,168</b>
Allocation to CECOMA for use in non-PMI-focus provinces	<b>939,600</b>	<b>356,216</b>	<b>0</b>
<b>Stock Balance (tests)</b>			
Beginning balance	3,160,604	6,614,274	4,590,439
- Product need	5,002,730	6,120,319	6,986,632
+ Total contributions (received/expected)	8,456,400	4,096,484	7,636,168
<b>Ending Balance</b>	<b>6,614,274</b>	<b>4,590,439</b>	<b>5,239,974</b>
Desired end of year stock (months of stock)	12	9	9
Desired end of year stock (quantities)	5,002,730	4,590,239	5,239,974
<b>Total Surplus (Gap)</b>	<b>1,611,543</b>	<b>199</b>	<b>(0)</b>

CECOMA: Central Procurement Agency for Medicines and Medical Supplies; HMIS: health management information system; RDT: rapid diagnostic test.

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

<b>Calendar Year</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>
Total country population	34,094,077	35,121,734	36,170,961
Population at risk for malaria	34,094,077	35,121,734	36,170,961
PMI-targeted at-risk population	6,440,371	6,634,496	6,832,695
<b>ACT Needs</b>			
Total projected # of malaria cases	2,825,071	3,083,791	3,444,992
<b>Total ACT Needs (treatments)</b>	<b>2,825,071</b>	<b>3,083,791</b>	<b>3,444,992</b>
Needs estimated based on a combination of HMIS and consumption data			
<b>Partner Contributions (treatments)</b>			
ACTs from Government			
ACTs from Global Fund			
ACTs from other donors			
ACTs planned with PMI funding	4,047,686	2,490,170	3,715,892
<b>Total ACTs Contributions per Calendar Year</b>	<b>4,047,686</b>	<b>2,490,170</b>	<b>3,715,892</b>
Allocation to CECOMA for use in non-PMI-focus provinces	<b>404,769</b>	<b>0</b>	<b>0</b>
<b>Stock Balance (treatments)</b>			
Beginning balance	2,088,618	2,906,464	2,312,843
- Product need	2,825,071	3,083,791	3,444,992
+ Total contributions (received/expected)	3,642,917	2,490,170	3,715,892
<b>Ending Balance</b>	<b>2,906,464</b>	<b>2,312,843</b>	<b>2,583,743</b>
Desired end of year stock (months of stock)	12	9	9
Desired end of year stock (quantities)	2,825,071	2,312,843	2,583,744
<b>Total Surplus (Gap)</b>	<b>81,393</b>	<b>0</b>	<b>(0)</b>

ACT: artemisinin-based combination therapy; CECOMA: Central Procurement Agency for Medicines and Medical Supplies; HMIS: health management information system.

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

<b>Calendar Year</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>
<b>Injectable Artesunate Needs</b>			
Projected # of severe cases	123,597	100,144	111,874
Projected # of severe cases among children	90,720	73,505	82,115
Average # of vials required for severe cases among children	6	6	6
Projected # of severe cases among adults	32,877	26,638	29,758
Average # of vials required for severe cases among adults	6	6	6
<b>Total Injectable Artesunate Needs (vials)</b>	<b>741,581</b>	<b>600,862</b>	<b>671,242</b>
Needs estimated based on a combination of HMIS and consumption data			
<b>Partner Contributions (vials)</b>			
Injectable artesunate from Government			
Injectable artesunate from Global Fund			
Injectable artesunate from other donors			
Injectable artesunate planned with PMI funding (Pipeline)	795,725	310,000	724,000
<b>Total Injectable Artesunate Contributions per Calendar Year</b>	<b>795,725</b>	<b>310,000</b>	<b>724,000</b>
Allocation to CECOMA for use in non-PMI-focus provinces	<b>79,573</b>	<b>0</b>	<b>0</b>
<b>Stock Balance (vials)</b>			
Beginning balance	767,009	741,581	450,719
- Product need	741,581	600,862	671,242
+ Total contributions (received/expected) for PMI-focus provinces	716,153	310,000	724,000
<b>Ending Balance</b>	<b>741,581</b>	<b>450,719</b>	<b>503,477</b>
Desired end of year stock (months of stock)	12	9	9
Desired end of year stock (quantities)	741,581	450,647	503,431
<b>Total Surplus (Gap)</b>	<b>(0)</b>	<b>72</b>	<b>46</b>

CECOMA: Central Procurement Agency for Medicines and Medical Supplies; HMIS: health management information system.



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

Calendar Year	2023	2024	2025
Total country population	34,094,077	35,121,734	36,170,961
Total population at risk for malaria	34,094,077	35,121,734	36,170,961
PMI targeted at risk population	6,440,371	6,634,496	6,832,695
<b>SP Needs</b>			
Total # of pregnant women	247,825	286,345	326,876
% of pregnant women expected to receive IPTp1	65%	70%	75%
% of pregnant women expected to receive IPTp2	60%	65%	70%
% of pregnant women expected to receive IPTp3	45%	50%	55%
% of pregnant women expected to receive IPTp4	40%	45%	50%
<b>Total SP Needs (doses)</b>	<b>520,434</b>	<b>658,593</b>	<b>817,190</b>
Needs estimated based on a combination of HMIS and consumption data			
<b>Partner Contributions (doses)</b>			
SP from Government			
SP from Global Fund			
SP from other donors			
SP planned with PMI funding	636,000	853,300	
<b>Total SP Contributions per Calendar Year</b>	<b>636,000</b>	<b>853,300</b>	<b>0</b>
Allocation to CECOMA for non-PMI-focus provinces	<b>636,000</b>	<b>28,000</b>	<b>0</b>
<b>Stock Balance (doses)</b>			
Beginning balance	1,170,975	650,541	817,248
- Product need	520,434	658,593	817,190
+ Total contributions (received/expected)	0	825,300	0
<b>Ending Balance</b>	<b>650,541</b>	<b>817,248</b>	<b>58</b>
Desired end of year stock (months of stock)	15	15	6
Desired end of year stock (quantities)	650,542	823,241	408,595
<b>Total Surplus (Gap)</b>	<b>(0)</b>	<b>(5,993)</b>	<b>(408,537)</b>

CECOMA: Central Procurement Agency for Medicines and Medical Supplies; HMIS: health management information system; IPTp: intermittent preventive treatment for pregnant women; SP: sulfadoxine-pyrimethamine.