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Nigeria

Malaria Operational Plan FY 2023

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

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

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ABBREVIATIONS

ACSM	Advocacy, communication, and social mobilization
ACT	Artemisinin-based combination therapy
AFENET	Africa Field Epidemiology Network
AI	Active ingredient
AMF	Against Malaria Foundation
ANC	Antenatal care
AOP	Annual Operational Plan
ASTMH	American Society of Tropical Medicine and Hygiene
BE	Behavioral Economics
BHCPF	Basic Healthcare Provision Fund
BMGF	Bill and Melinda Gates Foundation
BSS	Behavioral Sentinel Survey
CDC	U.S. Centers for Disease Control and Prevention
CHIPS	Community Health Influencers, Promoters and Services
cHMIS	Community Health Management Information System
CHW	Community Health Worker
cIPTp	Community intermittent preventive treatment of malaria in pregnancy
CORP	Community-Oriented Resource Person
CVs	Community Volunteers
CY	Calendar Year
DHIS2	District Health Information System 2
DHS	Demographic Health Survey
DMAs	Drug Management Agencies
DOT	Directly Observed Therapy
DRF	Drug Revolving Fund
DQA	Data Quality Assessment
ECAMM	External Competency Assessment for Malaria Microscopist
eLMIS	Electronic logistics management information system
EPI	Expanded Program on Immunizations
EUV	End-use verification survey
FCT	Federal Capital Territory
FETP	Field Epidemiology Training Program
FSNs	Foreign Service Nationals
FY	Fiscal Year
Global Fund	Global Fund to Fight AIDS, Tuberculosis, and Malaria
GON	Government of Nigeria
HF	Health facility

HMIS	Health Management Information System
HW	Health Worker
IAS	Injectable Artesunate
iCCM	Integrated community case management
IDSR	Integrated Disease Surveillance and Response
Interceptor G2	Interceptor G2 nets
IPC	Interpersonal Communication
IPCC	Interpersonal Counseling and Communication
IPTp	Intermittent preventive treatment for pregnant women
IRS	Indoor residual spraying
ISS	Integrated Supportive Supervisory visits
ITN	Insecticide-treated mosquito net
KOICA	Korea International Cooperation Agency
LGA	Local Government Areas
LMCUs	Logistics Management Coordination Units
LQA	Lot Quality Assurance
LSCW	Leadership in Strategic Communication Workshop
LSM	Larval Source Management
LT	Light Trap
MCH	Maternal Child Health
M-DIVE	Malaria Data Integration and Visualization for Eradication
MIP	Malaria in pregnancy
MIS	Malaria indicator survey
MoH	Ministry of Health
MOP	Malaria Operational Plan
MICS	Multiple Indicator Cluster Survey
N/SMEP	National/State Malaria Elimination Program
NAFDAC	National Agency for Food and Drug Administration and Control
NAIIS	Nigerian HIV/AIDS Indicator and Impact Survey
NCAMM	National Competency Assessment for Malaria Microscopist in Nigeria
NCDC	Nigeria Center for Disease Control
NDHS	Nigeria Demographic and Health Survey
NFELTP	Nigeria Field Epidemiology and Laboratory Training Program
NHMIS	National Health Management Information System
NLNG	Nigeria Liquified Natural Gas Ltd.
NMEP	National Malaria Elimination Program
NMDR	National Malaria Data Repository
NMORA	National Malaria Operations Research Agenda
NMSP	National Malaria Strategic Plan

NPHCDA	National Primary Health Care Development Agency
OIC	Officers-in-Charge
OR	Operations research
PBO	Piperonyl butoxide
PCN	Pharmacists Council of Nigeria
PF	Other Partner Funding
PHC	Primary health care
PMI	U.S. President's Malaria Initiative
QA	Quality assurance
RA	Resident Advisor
RDT	Rapid diagnostic test
RH	Reproductive Health
SARA	Service Availability Readline Assessment
SBC	Social and behavior change
SHFs	Secondary Health Facilities
SM&E	Surveillance, monitoring, and evaluation
SMC	Seasonal malaria chemoprevention
SMoH	State Ministry of Health
SOPs	Standard operating procedures
SP	Sulfadoxine-pyrimethamine
SPA	Service Provision Assessment
SPAQ	Sulfadoxine-pyrimethamine + amodiaquine
TES	Therapeutic Efficacy Studies
TIPTOP	Transforming Intermittent Preventive Treatment for Optimal Pregnancy
TOT	Training of Trainers
TWG	Technical Working Group
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WDCs	Ward Development Committees
WHO	World Health Organization

EXECUTIVE SUMMARY

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

U.S. President's Malaria Initiative

Launched in 2005, the [U.S. President's Malaria Initiative \(PMI\)](#) supports implementation of malaria prevention and treatment measures as well as cross-cutting interventions. PMI's 2021 – 2026 strategy, [End Malaria Faster](#), envisions a world free of malaria within our generation with the goal of preventing malaria cases, reducing malaria deaths and illness, and eliminating malaria in PMI partner countries. PMI currently supports 24 countries in sub-Saharan Africa and three programs across the Greater Mekong Subregion in Southeast Asia to control and eliminate malaria. Nigeria began implementation as a PMI partner country in FY 2011.

Rationale for PMI's Approach in Nigeria

According to the World Malaria Report 2021, Nigeria accounts for a major portion of the global malaria burden, in terms of both global estimated malaria cases and deaths, 27 percent and 32 percent, respectively. Malaria is transmitted throughout Nigeria, with 97 percent of the population at risk, and, although the country has made progress towards achieving malaria control, these efforts are hampered by multiple challenges, particularly widespread insecurity and weak governance structures that result in inadequate host-country funding. The current 2021–2025 National Malaria Strategic Plan (NMSP) aims to reduce malaria morbidity to less than 10 percent parasite prevalence and mortality attributable to malaria to less than 50 deaths per 1,000 by 2025. To support these goals, PMI aligns its funding and technical assistance to implement interventions that reflect the majority of the country's strategies in the NMSP 2021–2025. In doing so, PMI prioritizes the areas of Nigeria with the highest burden of malaria (33-52% prevalence among children age 6-59 months, [2015 Nigeria Malaria Indicator Survey \(NMIS\) Atlas of Key Indicators](#)), focusing efforts in 11 states to achieve the greatest reduction in malaria morbidity and mortality.

Overview of Planned Interventions

The proposed FY 2023 PMI funding for Nigeria is \$68 million. PMI will support the following intervention areas with these funds:

1. Vector Monitoring and Control

PMI Nigeria will support entomological monitoring activities which include insecticide resistance testing in all 11 PMI focus states and five non-PMI focus states (maintaining Enugu and Kaduna, and with a geographic shift to Abia, Ekiti, and Kogi states), and vector bionomics in 6 of the 11 PMI focus states. PMI will continue to conduct enhanced entomological monitoring in Local Government Areas (LGAs) of Kebbi and Sokoto states receiving dual active ingredient (AI) and piperonyl butoxide (PBO) ITNs. PMI will continue to provide technical assistance to strengthen the capacity of local research institutions. In addition, PMI will continue to support the procurement and distribution of ITNs through mass campaigns, providing technical support to the country's CY 2024 mass distributions through participation and supporting social and behavior change (SBC) to improve the use and care of ITNs. PMI will also maintain the support of streamlined durability monitoring of Interceptor G2 nets (Interceptor G2) in Kebbi State. With FY 2023 funds, PMI plans to procure 5.6 million Interceptor G2 for mass campaigns in Oyo State. PMI does not support indoor residual spraying (IRS) in Nigeria.

2. Malaria in Pregnancy

PMI Nigeria will continue to support activities to strengthen malaria in pregnancy (MIP) services and improve uptake of intermittent preventive treatment for pregnant women (IPTp), including: strengthening national and state level MIP coordination structures in collaboration with the Ministry of Health (MoH) Reproductive Health (RH) Division; supporting the revision of MIP guidelines, standard operating procedures (SOPs), training manuals, and job aids to address barriers to uptake of IPTp; and expanding the introduction of the revised guidelines to medical training institutions and other relevant professional associations. PMI will continue to support facility antenatal care (ANC) provider training and mentoring on MIP, fund facility ANC HWs supervision and clinical meetings in targeted health facilities (HF) to strengthen MIP implementation, and intensify advocacy to federal and state health authorities to procure sulfadoxine-pyrimethamine (SP) for IPTp in the ANC facilities through the various existing platforms (Drug Management Agencies (DMAs)/Drug Revolving Fund (DRF), Basic Healthcare Provision Fund (BHCPF)). PMI will also support the uptake of IPTp through the ANC platform, leveraging maternal child health (MCH) funds that support ANC promotion efforts (mainly social behavior change) through Integrated Health Program in the three states that utilize an integrated health mechanism.

3. Drug-Based Prevention

PMI Nigeria will support seasonal malaria chemoprevention (SMC) in two states, Benue and Zamfara, covering more than 2.2 million children aged 3-59 months with four cycles of SMC using sulphadoxine pyrimethamine amodiaquine (SPAQ).

4. Case Management

PMI Nigeria will continue to support key case management activities through technical assistance at the federal and state levels, commodity procurement, and facility and community level activities. Activities will include providing updated guidelines for malaria case management, conducting therapeutic efficacy studies, and continuing efforts to establish a national malaria slide bank. With FY 2023 funds, PMI Nigeria will procure 17 million rapid diagnostic test (RDTs), 15 million artemisinin-based combination therapies (ACTs), 350,000 vials of injectable artesunate (IAS), and assorted microscopy supplies, to be distributed to over 5,000 health facilities in the 11 PMI focus states. At the facility level, PMI will continue to support the training of health workers in primary health care (PHC) and secondary health facilities and conduct clinical meetings to increase the quality of malaria case management. At the community level, PMI will expand integrated community case management (iCCM) to four states through the Community Health Influencers, Promoters and Services (CHIPS) Program, including the payment of CHIPS agents.

5. Health Supply Chain and Pharmaceutical Management

PMI Nigeria FY 2023 funds will support the strengthening of the health supply chain and pharmaceutical management system through various activities. PMI will strengthen the state medicines management agencies and Logistics Management Coordination Units' (LMCUs) capacity to coordinate all supply chain activities at the state and health facilities levels. The support will include medicines management agencies and LMCUs integrated warehousing management, last-mile distribution contracts, and procuring ACTs and SP for the DRF from local, quality-assured suppliers. PMI will also link state medicines management agencies to procure from local pharmaceutical manufacturers supported by PMI through the Promoting the Quality of Medicines Plus activity and will continue to support the enhancement of the national health logistics management information system (NHLMIS), supporting the inclusion of all health facilities in PMI focus states and advocating for the integration of the Logistics Management Information System (LMIS) and (District Health Information System 2) DHIS2 systems. PMI will also support the activities of the national drug regulatory agencies at all levels, including post-marketing surveillance and global standards.

6. Social and Behavior Change

While PMI supports SBC activities that promote the uptake and maintenance of all key malaria interventions, three behaviors will be prioritized with FY 2023 funds: prompt care-seeking for fever for children under five years of age; consistent ITN use, maintenance, and care by all members of households; and adherence to case management guidelines by healthcare providers. Major activities include increasing

reach, exposure to, and recall of PMI-funded national “fever care” campaign via mass, digital, social media, and interpersonal communication (IPC) channels; implementing multi-channel pre-, during, and post-ITN campaign SBC activities in Benue, Oyo, Plateau, and Zamfara states; adapting technical assistance to service delivery partners for the deployment of behavioral prototypes across PMI-supported facilities; and sustaining peer-to-peer engagement and group problem solving through provider cluster and professional association meetings to promote provider behavior change regarding the use of RDTs. Across all behaviors, SBC interventions will continue to deploy enhanced audience segmentation approaches to further prioritize and enhance coverage of sub-populations.

7. Surveillance, Monitoring, and Evaluation

With FY 2023 funds, PMI will build on previous successes to further strengthen the Health Management Information System (HMIS), using the NMEP and State Malaria Elimination Programs (SMEPs) as entry points. In addition, PMI will continue to support the web hosting of the National Malaria Data Repository (NMDR), data-sharing with Malaria Data Integration and Visualization for Eradication (M-DIVE), and capacity-building of data personnel and other health personnel to increase coverage of its use at all levels. PMI will also use the data from Nigeria’s 2021 Malaria Indicator Survey for program planning and for the preliminary planning for the Nigeria Demographic and Health Survey (NDHS) in CY 2024. Support to the NMEP in the operationalisation of community HMIS (cHMIS) tools will be sustained while providing on-the-job capacity building for the Community Health Workers (CHWs) and assessment of quality of service in the states where community interventions are being implemented.

8. Operational Research and Program Evaluation

No OR/PE activities are proposed with PMI Nigeria FY 2023 funding.

9. Capacity Strengthening

PMI Nigeria supports a mix of long- and short-term interventions aimed at strengthening the capacity of individual malaria program personnel and teams, strengthening the various line systems (e.g HMIS, LMIS), and strengthening institutional capacity of the NMEP and State Ministries of Health (SMoH). With FY 2023 funds, PMI will continue to support Nigeria Center for Disease Control (NCDC) to train eligible NMEP and MoH staff, train two fellows under the advanced Nigeria Field Epidemiology and Laboratory Training Program (NFELTP) course and conduct frontline FETPs which are short-term three-month basic field epidemiology trainings. Participants are drawn from the NMEP or other applicants nominated by the Ministry of Health who have a medical or public health background. PMI will also continue to fund technical experts to be seconded to

selected branches of the NMEP and will additionally fund oral or poster presentations by National/State Malaria Elimination Program (N/SMEP) at conferences and fund the participation of relevant government personnel. In addition, activities to strengthen N/SMEPs capacity for program planning, development of subsequent Annual Operational Plans (AOPs), as well as the review of the implementation of current plans, will continue to be supported.

I. CONTEXT AND STRATEGY

1. Introduction

Nigeria began implementation as a PMI partner country in FY 2011. This FY 2023 Malaria Operational Plan (MOP) presents a detailed implementation plan for Nigeria, based on the strategies of both PMI and the National Malaria Elimination Program (NMEP). It was developed in consultation with the NMEP and with the participation of national and international partners. The activities that PMI is proposing build on investments to improve and expand malaria-related services made by partners, including the Global Fund to Fight AIDS, Tuberculosis, and Malaria (Global Fund). This document provides an overview of the strategies and interventions in Nigeria, describes progress to date, identifies challenges and relevant contextual factors, and provides a description of activities that are planned with FY 2023 funding. For more detailed information on the country context, please refer to the Country Malaria Profile, which provides an overview of the country's malaria situation, key indicators, the NMEP strategic plan, and the partner landscape.

2. U.S. President's Malaria Initiative

PMI is led by the U.S. Agency for International Development (USAID) and implemented together with the U.S. Centers for Disease Control and Prevention (CDC). Launched in 2005, PMI supports implementation of malaria prevention and treatment measures – ITNs, IRS, accurate diagnosis and prompt treatment with ACTs, 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 24 countries in sub-Saharan Africa and three programs in the Greater Mekong Subregion in Southeast Asia to control and eliminate malaria. Over the next five years, PMI aims to save lives, reduce health inequities, and improve disease surveillance and global health security.

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

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

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

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

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

3. Rationale for PMI's Approach in Nigeria

3.1. Malaria Overview for Nigeria

Malaria is transmitted throughout Nigeria, with 97 percent of the population at risk of malaria. Five ecological zones define the intensity and seasonality of transmission and mosquito vector species: mangrove swamp, rainforest, Guinea-savannah, Sudan-savannah, and Sahel-savannah. These various ecological zones and their areas of transition are distinguished by rainfall and other climatic conditions. The rainfall duration ranges from about three months in the Sahel-savannah to nine months in the mangrove swamps and rainforest. These climatic patterns affect vegetation, and most flora and fauna are differentiated across the ecological zones. Nigeria's NMSP 2021 - 2025 recommends at least three entomological sentinel sites in each of the ecological zones, which will generate data on vector bionomics, while insecticide resistance monitoring is recommended to be carried out in each state. The duration of the transmission season ranges from year-round transmission in the south to three months or less in the north. *Plasmodium falciparum* is the predominant malaria species. The primary vectors across most of the country are *An. coluzzii* (59.3 percent) and *Anopheles (An.) gambiae* s.s. (39.0 percent) of all the *An. gambiae* s.l. collected, with *An. funestus* as a secondary vector in some areas of Nigeria ([2021 Nigeria Entomology Report](#)).

According to the World Malaria Report 2021, Nigeria contributed to 27 percent (65 million) of the global malaria cases (241 million) in 2020 and accounts for 32 percent

(169,290) of the global estimated malaria deaths (627,000). The 2018 NDHS reported a fever prevalence of 24 percent in children in the two weeks before the survey. Of those with fever, 73 percent sought advice or treatment. Microscopy data from the 2018 NDHS showed that the prevalence of malaria parasitemia in children under five years of age was 23 percent, with regional differences, ranging from 16 percent in the South South and South East Zones to 34 percent in the North West Zone. Kebbi State (a PMI-focus state in the North West Zone) has the highest malaria prevalence at 52 percent in children under five years. The prevalence of malaria parasitemia in rural populations is 2.4 times that in urban populations (31 percent vs. 13 percent), and, when compared to the highest socioeconomic group, the prevalence among children in the lowest socioeconomic group is nearly seven times higher (38 percent vs. 6 percent). A further molecular analysis of blood samples collected for the Nigerian HIV/AIDS Indicator and Impact Survey (NAIIS), using the multiplex bead-based assay, which provided first time estimates of malaria prevalence across all age groups, showed the highest prevalence of malaria among children aged 5-9 years (49.3%) and 10-14 years (43.9%) .

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

3.2. Key Challenges and Contextual Factors

The country has made progress toward achieving malaria control. However, it also encounters multiple challenges; prominent among them is the lingering widespread insecurity due to criminality and armed conflict which is worsening in the North East, North West, North Central and parts of the South East. This has resulted in internal displacement of people and increased difficulty and delays in program implementation of some malaria interventions, some of which are time sensitive (e.g., SMC). Nigeria is fully fiscally decentralized; each of the 36 State Governors, Parliaments and State level ministries echo the Federal-level set-up, determine the state's budget, and fund the same way as at the national level, despite being dependent on the consolidated income transfers from the Federation account. Therefore, subnational engagement with individual state governments is required to effectively support them and successfully implement malaria programming. Others challenges are a weak governance structure, which often results in inadequate funding allocated and released for the health sector at national and subnational levels.

3.3. PMI's Approach for Nigeria

The current NMSP 2021 - 2025 is based on the vision of achieving a malaria-free Nigeria, with a goal of reducing malaria morbidity to less than 10 percent parasite prevalence and mortality attributable to malaria to less than 50 deaths per 1,000 by 2025. Under the strategic plan, the Government of Nigeria (GON) implements universal

coverage with ITNs, targeted IRS, targeted larval source management (LSM), IPTp, SMC, and diagnosis and treatment of uncomplicated malaria through routine health services and iCCM. The strategy also supports the treatment of severe malaria using injectable artesunate (IAS) and improvement in the generation and use of evidence for decision making, including surveillance, surveys, and operations research (OR). There are two cross-cutting strategies: i) Advocacy, Communication and Social Mobilization (ACSM); and ii) Procurement and Supply Management (PSM) which are listed in the Strategic Framework. The entire strategic plan is built on the bedrock of a strengthened health system. The NMSP 2021 - 2025 is aligned with the 2018 - 2022 National Strategic Health Development Plan and the September 2019 National Health Council theme “Consolidating the Journey towards Achieving Universal Health Coverage” to underscore the global and national goal of achieving Universal Health Coverage by 2030.

PMI contributes to the country’s overall malaria strategy and aligns its funding and technical assistance to implement interventions that reflect the majority of the country’s strategies above, excluding two vector control strategies (IRS and LSM). These strategies are also in alignment with all the five focus areas of the PMI Strategy (2021 - 2026). PMI supports key intervention areas in the national malaria control strategy but prioritizes the areas of Nigeria with the highest burden of malaria (33-52% prevalence among children aged 6-59 months) to achieve the greatest reduction in malaria morbidity and mortality. As such, PMI support is focused in the 11 states of Akwa Ibom, Bauchi, Benue, Cross River, Ebonyi, Kebbi, Nasarawa, Oyo, Plateau, Sokoto, and Zamfara. In other areas of Nigeria, PMI provides support for vector surveillance, insecticide resistance monitoring, surveillance of antimalarial medicines and other technical areas through collaborative efforts led by the NMEP and other partners.

3.4. Key Changes in this MOP

There has been no significant change in strategies, activities, or budget levels compared to the previous MOP. However, there has been a change in PMI’s policy allowing its resources to directly support payment of CHWs for their work in delivering community-based malaria case management services. PMI’s funding support to iCCM in this MOP reflects this.

II. OPERATIONAL PLAN FOR FY 2023

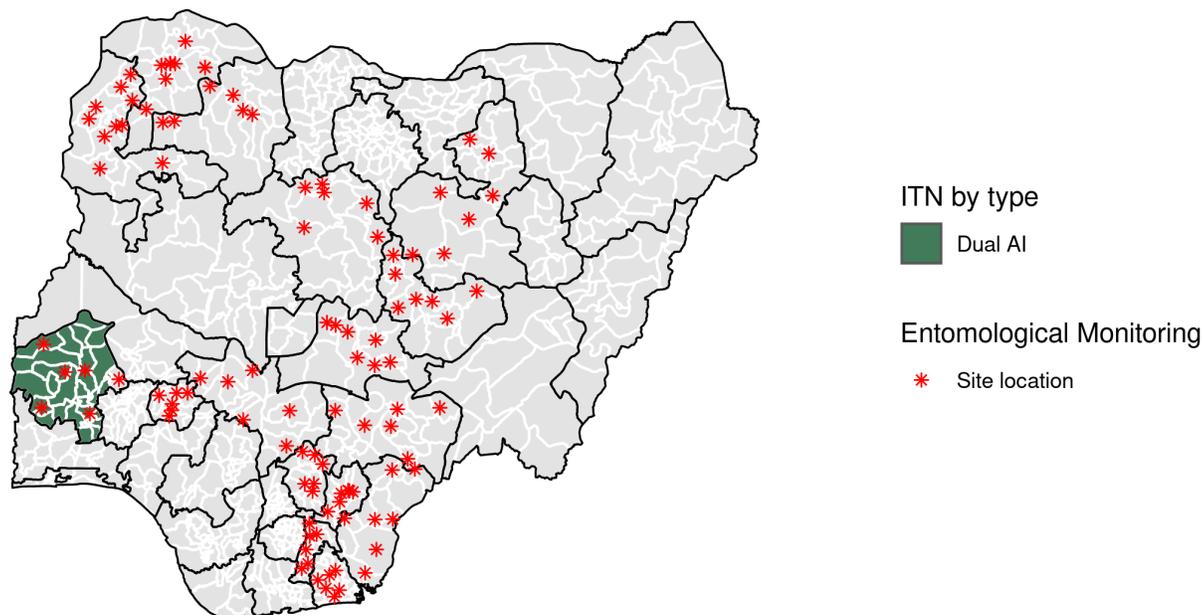
1. Vector Monitoring and Control

1.1. PMI Goal and Strategic Approach

The NMEP Malaria Strategic Plan 2021-2025 promotes an integrated vector management strategy, including vector surveillance, insecticide resistance management, continuous and mass distribution for universal access to ITNs, geographically targeted IRS, and LSM. PMI supports the use of all of these interventions, with the exception of IRS and LSM. Nigeria currently implements entomological monitoring activities across five ecological zones. PMI supports insecticide resistance monitoring in 11 PMI focus states, of which six are also vector bionomics surveillance sites, in addition to supporting some non PMI-focus states. The Global Fund also supports entomological monitoring activities in Nigeria, supporting 12 states as of 2020. Through both PMI and Global Fund support, entomological monitoring activities are conducted in 23 states, in alignment with the national strategy. PMI and the Global Fund support mass ITN campaigns every three years, while Global Fund also supports continuous distribution of ITNs via ANC and Expanded Program on Immunizations (EPI) channels in its focus states.

Figure 1. Map of Vector Control Activities in Nigeria

Vector Control Activities (2024)



1.2. Recent Progress (between January and December 2021)

- Supported entomological monitoring in sentinel sites in 84 local government areas, in collaboration/partnership with the National Institute for Medical Research and universities. Monitoring activities included insecticide resistance monitoring in 11 PMI focus states and three non-PMI focus states (Bayelsa, Enugu, and Federal Capital Territory (FCT)), and vector bionomics monitoring in six PMI focus states. For more information about entomological monitoring, please refer to the [2021 Entomological Report](#).
- Provided technical assistance to National Institute for Medical Research, Nasarawa State University, and NMEP for entomological monitoring and to establish a molecular laboratory.
- Supported the procurement and distribution of 5 million PBO and dual AI ITNs to 9,233,010 people in Oyo State through mass distribution.
- Continued the second year impact evaluation of PBO ITNs distributed in Ebonyi in 2019. An interactive dashboard was developed including trends over time in malaria case incidence and key entomological indicators from 2018 to 2020.
- In collaboration with the NMEP and two local universities (Federal University Birnin Kebbi and Usman Danfodiyo University Sokoto), commenced baseline data collection for enhanced entomological and epidemiological monitoring to

- assess the impact of Interceptor G2 and PBO nets in Kebbi and Sokoto states, respectively.
- Developed a protocol for streamlined durability monitoring of Interceptor G2 to be distributed in Kebbi State.
 - Supported assessment and developed plans for fully transitioning the entomological surveillance activity on Bonny Island to the Nigeria Liquified Natural Gas Ltd. (NLNG) Team. This included the constitution of an entomology team, training on field and lab work, assessment of the molecular lab, and forecasting entomological supplies.
 - Provided technical assistance for planning for the CY 2022 ITN mass distribution campaigns, which will distribute PBO and dual AI ITNs to protect 36.9 million people in Akwa Ibom, Bauchi, Cross River, Ebonyi, Kebbi, Nasarawa, and Sokoto states. The activity was in collaboration with NMEP, Against Malaria Foundation (AMF), NLNG, and SMoH.
 - Supported national, state, and community-level SBC activities 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 2023 Funding

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

1.3.1. Entomological Monitoring

Nigeria will continue to support entomological monitoring activities as described in the Recent Progress section.

Briefly, those activities include insecticide resistance in all 11 PMI focus states and five non-PMI focus states (maintaining Enugu and Kaduna, and with a geographic shift to Abia, Ekiti, and Kogi states to facilitate the collection of baseline insecticide susceptibility data from all states), and vector bionomics in six of the 11 PMI focus states. PMI will continue to conduct enhanced entomological monitoring in LGAs of Kebbi and Sokoto states receiving dual AI and PBO ITNs, respectively. This data will feed into the impact evaluation. Furthermore a parallel streamlined durability monitoring activity will help to inform ITN decision-making. Collectively, these activities will provide key information on new nets for a better understanding of vector-human interactions. Activities for enhanced surveillance of *An. stephensi* will be included in accordance with the PMI *An. stephensi* action plan guidance for low-risk countries. PMI is also continuing

to provide technical assistance and support for equipment and supplies to strengthen the capacity of local research institutions.

Summary of Distribution and Bionomics of Malaria Vectors in Nigeria

As of 2021, the primary vector was *Anopheles gambiae* s.l.; secondary vector(s) were: *An. marshalli* complex, *An. funestus*, *An. rufipes*, and *An. maculipalpis*. Peak transmission season varied from April in Sokoto to July in Plateau. The preferred biting location of the primary vector was indoors (estimated from CDC Light Trap [LT] collections). The preferred resting location was indoors, and the peak biting time was 12-1 a.m. in three states, 3-4 a.m. in two states, and two peaks (8-9 p.m and 2-3 a.m.) in one state. The preferred hosts were human and bovine across most sentinel sites.

Status of Insecticide Resistance in Nigeria

In 2021, insecticide resistance testing was conducted in 11 PMI focus states and three non-PMI focus states, and patterns were similar to those observed in 2020. Pyrethroid resistance patterns varied within and among the states. Generally, widespread resistance to pyrethroids (alphacypermethrin, deltamethrin, and permethrin) was detected, with resistance to all three pyrethroids in all LGAs in Akwa Ibom, Bauchi, Bayelsa, Ebonyi, and Plateau. Full susceptibility to alphacypermethrin continued to be recorded from all LGAs in Benue, Cross River, Oyo and Sokoto; full susceptibility to deltamethrin was recorded from all LGAs in Cross River, FCT, Kebbi, Oyo, and Zamfara; and full susceptibility to permethrin continued to be recorded from three LGAs in Sokoto. Pre-exposure of *An. gambiae* s.l. to PBO synergist increased mortality to varying degrees across sites. Most notably, PBO did not restore alphacypermethrin susceptibility in Akwa Ibom, Plateau, and Bauchi; did not restore deltamethrin susceptibility in Plateau and Bauchi; and did not restore permethrin susceptibility in Akwa Ibom, Bauchi, Benue, Cross River, Enugu, Kebbi, Nasarawa, Oyo and Plateau. *Anopheles gambiae* s.l. populations from all LGAs across all ecozones were susceptible to chlorfenapyr (100 microgram/bottle) with 98-100 percent mortality at 72 hrs, except one LGA each in Enugu and FCT. Mortality rates of *An. gambiae* s.l. to clothianidin 24 hrs post-exposure were 99-100 percent in 12 states, 97-100 percent in Cross River, and 94-98 percent in Akwa Ibom. Lastly, while IRS has not been widely implemented in Nigeria, the susceptibility of *An. gambiae* s.l. to pirimiphos-methyl is still monitored, with resistance observed in Benue, Cross River, Nasarawa, and Plateau.

1.3.2. ITNs

Nigeria will continue to support ITN activities as described in the Recent Progress section.

PMI will continue to support the procurement and distribution of ITNs through mass campaigns. PMI will provide technical support to the country's CY 2024 mass

distributions through participation in a national task force and the funding of a local partner to implement net distribution. PMI also supports SBC to improve the use and care of ITNs. PMI will also maintain the support of streamlined durability monitoring of Interceptor G2 in Kebbi State.

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

ITN Distribution in Nigeria

In Nigeria, ITNs are distributed via mass campaigns every three to four years with a target of universal coverage of one net per two people. ITNs that remain after campaigns are transitioned to continuous distribution channels targeting pregnant women at ANC clinics and children at EPI clinics. The country transitioned from standard nets to PBO nets during its 2019 mass distribution campaign in Ebonyi. In CY 2021, PMI supported the distribution of 5 million PBO and dual AI nets in Oyo State. In CY 2022, PMI plans to support mass campaigns in Akwa Ibom, Bauchi, Cross River, Ebonyi, Kebbi, Nasarawa, and Sokoto states targeting 36.9 million people with 20.5 million nets. Of the total nets required for CY 2022 mass campaigns, PMI is procuring 13.5 million, with 7 million procured by AMF. During the CY 2023 campaigns, there are plans to distribute dual AI nets in Plateau state based on mosquito resistance data. In CY 2023, AMF plans to procure 9 million (PBO and Interceptor G2) for mass campaigns in Benue, Plateau, and Zamfara states. For CY 2024, PMI plans to procure 5.6 million Interceptor G2 for a mass campaign in Oyo State. There are gaps with nets for continuous distributions as PMI does not currently procure routine nets.

Please refer to the **ITN Gap Analysis Table** in the [annex](#) for more detail on planned quantities and distribution channels.

Table 1. Streamlined Durability Monitoring

Campaign Date	Site	Brand	Pre-distribution	12-month	24-month	36-month
2022	Kebbi	Interceptor G2	2022	Planned 2023	Planned 2024	Planned 2025

1.3.3. IRS

PMI does not support IRS in Nigeria.

2. Malaria in Pregnancy

2.1. PMI Goal and Strategic Approach

PMI Nigeria supports MIP activities through the ANC service delivery platform in collaboration with NMEP and Reproductive/Maternal Health Programs. To facilitate this collaboration and to ensure improvement in delivery and uptake of IPTp, PMI supports the establishment of a national technical working group. MIP is included in Objective 2 of the NMSP 2021- 2025 which states: “Ensure provision of chemoprevention, diagnosis and appropriate treatment for 80 percent of the target populations at risk by 2025.” The strategy is to deploy chemopreventive interventions to all pregnant women and align the timing of delivery with the 2016 World Health Organization (WHO) recommended number of ANC contacts.

NMEP’s approach to prevention of MIP is through key interventions that can be provided to all pregnant women at ANC. These include health education on the prevention of malaria, administration of SP for IPTp, provision of ITN at first ANC visit, and prompt and effective diagnosis and treatment of malaria in pregnancy. IPTp will be extended beyond the facility through community intermittent preventive treatment of malaria in pregnancy (cIPTp) and actively linked to ANC services. The national MIP guideline and strategies for malaria prevention and control during pregnancy (2014) recommends at least four doses of SP administered as Directly Observed Therapy (DOT) to all pregnant women attending ANC, with the first dose given at 13-19 weeks gestation, and each dose thereafter given four weeks apart. At ANC pregnant women are provided oral daily doses of elemental iron (30mg - 60mg) and folic acid (0.4mg). The country’s cIPTp strategy aims to address the challenge of poor ANC attendance and allows the use of communities as one of the service delivery points for those who do not attend ANC. It also seeks to create awareness and sensitize pregnant women on the need to attend ANC.

The current National Guideline for Diagnosis and Treatment of Malaria (2020) recommends ACTs for treatment of malaria in all trimesters of pregnancy.

The country has a target of 63 percent of women to receive three or more doses of IPTp (NMSP 2021-2025). The percentage of women who received three or more doses of IPTp for malaria during their last pregnancy in Nigeria was 7 percent in 2013 (NDHS), 21 percent in 2015 (MIS) and 17 percent in 2018 (NDHS). In the 11 PMI focus states, health facility data from DHIS2 showed a 56, 43 and 30 percent uptake for one, two and three or more doses of IPTp respectively in CY 2021.

Barriers to improving IPTp uptake exist individually and collectively and include poor ANC attendance at HFs, a delay in commencement of ANC by pregnant women and SP

not consistently administered as DOT in facilities where SP is not dispensed at the point of ANC, and unavailability of water. In Kebbi, Sokoto and Zamfara states, only 15, 24, and 35 percent respectively of pregnant women received ANC from a skilled provider (NDHS 2018). In addition, there are lingering challenges of poor documentation of IPTp administration in the ANC registers in health facilities particularly when SP is procured through the HF DRF. The National Health Management Information System (NHMIS) tools were updated in 2019 to capture for the first time IPTp3 and IPTp4 and the roll out of the revised tool and capacity building on its use commenced across the country in 2020. Furthermore, there is inconsistent availability of SP and data reporting tools. The August 2021, End Use Verification Survey (EUV) report revealed that 30 percent of HFs were stocked out of SP. As the country has placed SP on the importation restriction list, it can only be procured locally. PMI has stopped procurement of this commodity but supports other efforts targeted at improving national and state government procurement of SP.

PMI supports the management of MIP in all 11 PMI focus states by:

- Supporting the development of MIP policy/guidelines/standard operating procedures (SOPs)/job aids at national level and their dissemination at subnational levels.
- Supporting the training and mentoring of health facility ANC workers on MIP.
- Supporting the strengthening the capacity of health workers on prompt diagnosis and effective treatment of uncomplicated and severe malaria in pregnant women.
- Supporting the sustainable availability of SP at the HFs through engagement with national and state governments to procure SP directly, through its existing/upcoming DRF system operated by the DMAs and the BHCPF.
- Supporting the provision of ITNs for ANC and EPI provided from undistributed ITNs following mass ITN distribution.

2.2. Recent Progress (between January and December 2021)

PMI strengthened IPTp at federal, state, and facility levels in the following ways:

- Supported the revision of MIP guidelines, SOPs, and job aids to address barriers to uptake of IPTp at the federal level.
- Funded the establishment of MIP sub committees made up of a broad stakeholder representation, and tasked with providing technical assistance to the state malaria Technical Working Group (TWG), to address MIP challenges and improve access, uptake, coverage, and quality of ANC services provided to clients at the state level.

- Funded Integrated Supportive Supervisory visits (ISS) by supervisors to ANC facilities and clinical meetings in targeted facilities.
- Funded the training and mentoring of 809 health workers in primary and secondary HFs to correctly administer, document, and report SP doses administered as well as to promptly diagnose and effectively treat uncomplicated malaria in pregnant women.
- Trained 92 Health Workers (HWs) in Secondary Health Facilities (SHFs) on the management of severe malaria including in pregnant women. These facilities serve as referral centers for management of severe malaria.
- Advocated by federal and state authorities to procure SP using domestic resources leveraging the DRF system operated by the DMAs or BHCPF. This has resulted in Sokoto State procuring 190,800 doses of SP for IPTp, 89.5 percent of the 2021 SP forecast (213,195) for the state. Similar results are yet to fully materialize in other states.
- Provided undistributed ITNs from Oyo State campaign to pregnant women at first ANC visit (routine channel for continuous distribution) as part of routine health services.

2.3. Plans and Justification for FY 2023 Funding

The FY 2023 funding tables contain a full list of malaria in pregnancy activities that PMI proposes to support in Nigeria with FY 2023 funding. Please visit www.pmi.gov/resources/malaria-operational-plans-mops for these FY 2023 funding tables.

PMI Nigeria will continue to support the implementation of MIP and IPTp activities to strengthen MIP and improve IPTp uptake by:

- Supporting continuous strengthening of national and state level MIP coordination structures in collaboration with the MoH RH Division.
- Supporting the revision of MIP guidelines, SOPs, training manuals, job aids, and other tools to address barriers to uptake of IPTp.
- Expanding the introduction of the revised guidelines to medical training institutions and other relevant professional associations.
- Continuing to support facility ANC provider training and mentoring on MIP including IPTp and prompt diagnosis and effective treatment of malaria in pregnancy.
- Funding facility ANC HWs supervision and clinical meetings in targeted HFs to strengthen MIP implementation.

- Supporting intensified advocacy to Federal and the state health authorities to procure SP for IPTp in the ANC facilities through the various existing platforms (DMA/DRF, BHC PF).
- Supporting the uptake of IPTp through the ANC platform.
- Leveraging existing Maternal Neonatal and Child Health (MNCH) funds to support ANC promotion efforts via IHP in Bauchi, Kebbi and Sokoto states.

3. Drug-Based Prevention

3.1 Seasonal Malaria Chemoprevention

PMI Goal and Strategic Approach

The NMEP supports SMC in LGAs with highly seasonal malaria transmission. There are 21 states in Nigeria which contain LGAs that are eligible for SMC (Table 2). In all LGAs, in accordance with WHO guidelines, SMC is distributed in 4-5 monthly cycles to eligible children between 3 and 59 months of age. One eligible state is currently (CY 2022) without SMC support - FCT - as well as the 6 eligible LGA in Oyo.

Table 2. States and LGAs Eligible for SMC

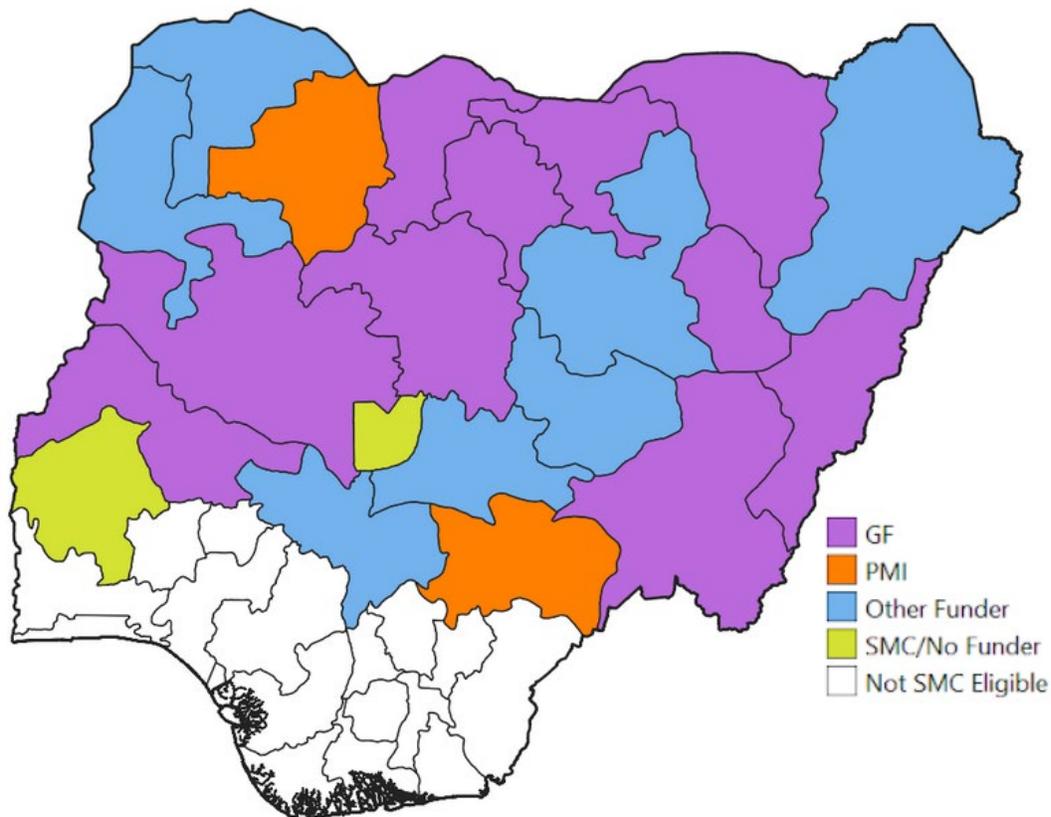
SN	State	Total LGAs	SMC Eligible LGAs	Funder(s)
1	Adamawa	21	19	Global Fund
2	Bauchi*	20	20	PF & KOICA
3	Benue*	23	8	PMI (proposed)
4	Borno	27	27	PMI (2021 only)/PF
5	FCT	6	6	None
6	Gombe	11	11	Global Fund
7	Jigawa	27	27	Global Fund
8	Kaduna	23	23	Global Fund
9	Kano	44	44	Global Fund
10	Katsina	34	34	Global Fund
11	Kebbi*	21	21	PF
12	Kogi	21	9	PF
13	Kwara	16	11	Global Fund
14	Nasarawa*	13	13	PF
15	Niger	25	25	Global Fund
16	Oyo*	33	6	None
17	Plateau*	17	17	PF
18	Sokoto	23	23	PF
19	Taraba	16	9	Global Fund
20	Yobe	17	17	Global Fund
21	Zamfara*	14	14	PMI
	TOTAL	452	384	

*PMI focus states

PF = other Partner Funding

KOICA = Korea International Cooperation Agency

Figure 2. Map of SMC Implementation in Nigeria



3.2. Recent Progress (January to December 2021)

Between July and October 2021, four cycles of SMC were administered in 14 LGAs in Zamfara State targeting 1,273,400 children aged 3-59 months. For cycles 1, 3, and 4, coverage was in excess of 98 percent (>1,247,932 children aged 3-59 months). During cycle 2 (August 2021), security concerns in the state resulted in the State Government implementing strict travel restrictions and communication shutdowns across many LGAs. This resulted in coverage rates dropping to 82 percent (1,046,415 children aged 3-59 months). Related to this campaign the following activities were achieved:

- Procured 11,611,900 doses of SPAQ to meet the need in the PMI-supported 2022 implementation area (Zamfara and Benue).
- Engagement with Zamfara State government resulted in commitment by the state of 56 million Naira (\$138,000 USD) for implementation, last mile distribution to all 599 HFs, and provision of COVID-19 prevention materials (e.g. face masks and hand sanitizers).

- Implementation activities included support for microplanning through data triangulation to address inconsistencies in target population estimates, referral of febrile children for testing and treatment at nearby facilities, and adaptation of activities to respond to security concerns.
- Monitoring activities included daily call in data from SMC hub facilities for real time data capture in cycles 1 and 2, use of daily electronic attendance for Community Directed Distribution which facilitated timely submission of retirement and payment of incentives three days after completion of cycle 1 and 2.
- Supported the SMEP to hold planning and post-implementation validation meetings.
- Supported National level SMC workgroup by reviewing meetings and lessons learned and revising training manuals, Lot Quality Assurance Sampling (LQAS) methodology, and protocols for monitoring and supervision.

3.3. Plans and Justification for FY 2023 Funding

The FY 2023 funding tables contain a full list of SMC activities that PMI proposes to support in Nigeria with FY 2023 funding. Please visit www.pmi.gov/resources/malaria-operational-plans-mops for these FY 2023 funding tables.

Building on the success of supporting SMC in Zamfara State since 2015, PMI will expand to all eligible LGAs in Benue State with FY 2023 funding. The total population of children targeted is over 2.2 million in the two states with total planned PMI procurement and distribution of more than 9.8 million doses of SPAQ. As with Zamfara, PMI Nigeria will engage with the Benue SMEP for leadership of the SMC campaign and financial commitments related to SBC, training of SMC actors, last mile distribution, warehousing and security of commodities, inventory control management, and partial funding of personnel costs.

Please refer to the **SPAQ Gap Analysis Table** in the [annex](#) for more detail on the planned quantities and distribution channels.

3.4. Other Drug-Based Prevention

PMI does not currently support any other drug-based prevention activities in Nigeria.

4. Case Management

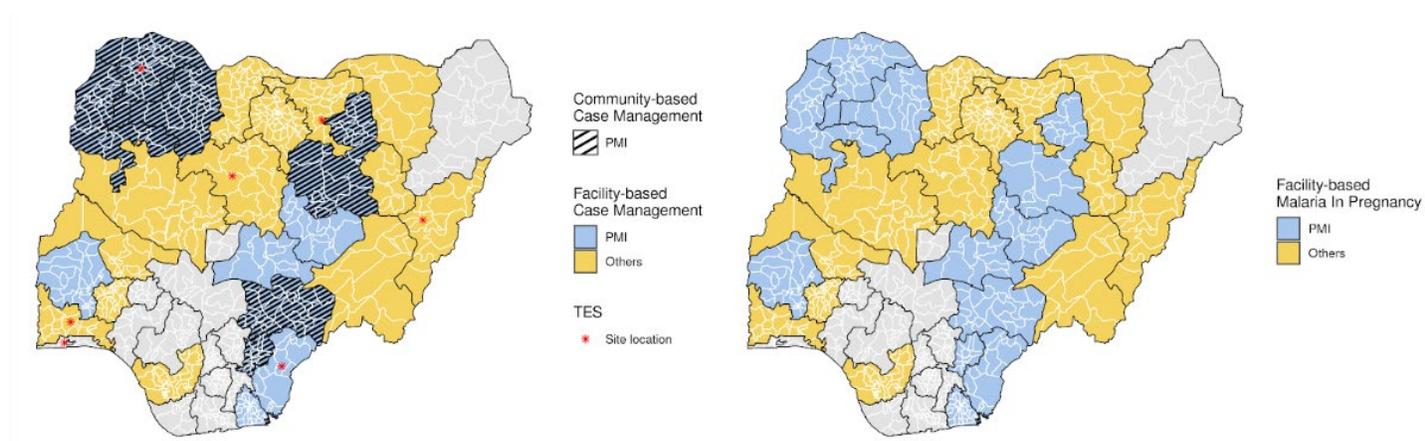
4.1. PMI Goal and Strategic Approach

The NMSP 2021- 2025 and 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 ACT of all cases of parasitologically confirmed uncomplicated malaria, and emergent pre-referral and/or definitive management of severe febrile illness and severe malaria. PMI supports all aspects of this approach through support to national level policy and programmatic activities, commodity procurement, and improvement of facility and community level health worker performance. PMI supports 11 states with procurement of malaria RDTs, ACTs, and IAS, and microscopy supplies; the Global Fund supports procurement of required commodities for its 13 focus states. PMI also supports outreach training and supportive supervision activities in 11 states; the Global Fund supports 13 states. Funding from GON (via loans from the World Bank and Islamic Development bank) is currently supporting the remaining 13 states.

At the community level, PMI supports service delivery aimed to increase access to malaria case management in select states. This includes provision of malaria commodities, training and supervision of CHWs on febrile case management, and reporting. This is implemented with other maternal and child health programs. PMI supports training and provision of job aids to CHWs, provision of malaria commodities and basic equipment, reporting, monitoring, and supervision. PMI also supports advocacy to GON and other Partners (mainly United Nations Children’s Fund (UNICEF)) to provide non-malaria commodities for management of pneumonia and diarrhea as required. With the passage of the CHIPS Program, PMI plans to support the roll out of service delivery in select communities in at least three of the PMI focus states. The biggest challenge for CHW programs in Nigeria is payment of salaries and availability of non-malaria commodities. To address this first issue, PMI is working within USAID Nigeria Health Office to operationalize the recently approved PMI policy on payment of CHWs.

Figure 3. Map of Case Management, Community Case Management and Malaria in Pregnancy Service Delivery Activities in Nigeria for FY 2023



4.2. Recent Progress (between January and December 2021)

PMI supports the NMEP objective in case management through technical assistance at the federal level and in the 11 PMI focus states. PMI's support has been directed at the following key areas: 1) procurement and distribution of diagnostic and treatment commodities; 2) training and supervision of laboratory and clinical care personnel in accurate malaria diagnostics and appropriate treatment; and 3) implementation of quality assurance (QA) systems for malaria diagnostics. Specific activities include:

National Level Case Management Activities

- Supported the revision of national training manuals, job aids, and SOPs for malaria case management for the country. The six documents which were updated include: trainers' and participants' guides for secondary/tertiary facilities; trainers' and participants' guides for PHC facilities; and SOPs and job aids on diagnosis and treatment. The six documents have been approved and are used across the country.
- Supported the finalization and launch of the Malaria Commodity Co-Payment Transition Plan. The plan is aimed at increasing sustainable availability and accessibility of affordable, non-subsidized, quality-assured malaria RDTs and ACTs in both public and private health sectors through government support and tailored interventions to local malaria commodity manufacturers and importers.
- Supported the start-up activities for the establishment of the national slide bank through assessment of four facilities in two states.
- Supported the NMEP to review and update the proposed capacity-building plan for private sector engagement (PSE) activities as well as develop a PSE framework. The PSE framework is a guiding document for malaria private sector implementation across all states.
- Conducted mapping of private sector health initiatives in five PMI focus states to understand the stakeholders, health facilities, funding and quality of care. Findings from the mapping guided development of strategies to engage with private sector players for improving malaria services in two of the states.
- Supported the harmonization of key documents for implementation of the iCCM/CHIPS Programme of the NPHCDA. These include the national guideline, training manuals, and job aids for iCCM/CHIPS implementation.
- Conducted training of different cadres of health care workers on malaria case management including: 179 as national and state case management trainers; 28 health care workers on management of severe malaria in secondary and

- tertiary HFs; and 3,389 PHC workers on management of uncomplicated malaria.
- Conducted training for improving malaria diagnosis as follows: 88 laboratory scientists on basic malaria microscopy; 683 clinicians on conducting malaria RDT; 44 Lab Scientists on external QA system; and 262 clinical supervisors on RDT.
 - Continued supporting the coordination of national malaria diagnostic QA/QC program including revisions of the Operational guidelines and analysis of External QA reports from different states.
 - Strengthened QA of malaria diagnostics in private HFs and laboratories through training and professional development and laboratory supervision.
 - Convened and led 12 national-level coordination meetings (e.g., case management subcommittee, diagnostic working group, and severe malaria expert groups).

Commodities

- Supported the procurement of 20,010,625 and distribution of 15,041,775 malaria RDTs for 5,172 health facilities in 11 PMI focus states to meet the needs of each facility and prevent stock outs.
- Supported the procurement of various microscopy supplies (microscopes, slides, stains) which will be distributed to about 226 SHFs in the 11 PMI focus states.
- Supported the procurement of 19,266,480 and distribution of 16,112,126 treatment doses of ACTs to 5,172 HFs within 11 PMI focus states.
- Supported the procurement of 546,649 vials and distribution of 262,598 vials of Injectable Artesunate for select secondary and tertiary HFs in 11 PMI focus states.

Facility Level

- Trained 333 supervisors in on-site training and supportive supervision for improving malaria case management.
- Conducted training of 70 private service providers on effective malaria case management from select private health facilities in two PMI focus states.
- Supported strengthening of positive provider attitudes, beliefs and practices through peer-to-peer networks among providers of malaria, antenatal, and child services in supported primary HFs through the Officers-in-Charge (OIC) cluster-facility meetings.
- Conducted four quarterly data quality assessments for health facilities in eight PMI focus states. Key findings include incomplete reporting, unexplained high

test positivity rates and in some facilities, disparities between testing and treatment.

Community Level

- Supported iCCM assessment in three PMI focus states including mapping of community resources, population clusters, communication facilities and proximity to HFs.
- Trained 19 iCCM master trainers and 161 iCCM/CHIPS providers in one LGA in one PMI focus state.

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

4.3. Plans and Justification for FY 2023 Funding

The FY 2023 funding tables contain a full list of case management activities that PMI proposes to support in Nigeria with FY 2023 funding. Please visit www.pmi.gov/resources/malaria-operational-plans-mops for these FY 2023 funding tables.

National and State Level Case Management Activities

Nigeria will continue to support key case management activities including provision of updated guidelines for malaria case management, conduct of therapeutic efficacy studies (TES), and implementation of a national malaria slide bank, as described in the Recent Progress section. In addition, PMI will support establishment of a National Core Group of Expert Malaria Microscopist and Facilitators to lead the WHO External Competency Assessment for Malaria Microscopist (ECAMM) and NMEP National Competency Assessment for Malaria Microscopist in Nigeria (NCAMM).

Commodities

With FY 2023 funding, Nigeria will procure 17 million RDTs, 15 million ACTs, 350,000 vials of IAS, and microscopy supplies as described in the Recent Progress section. The commodities will be distributed to the over 5,000 health facilities in the 11 PMI focus states. PMI procurement leaves a gap of 792,937 RDTs, 10 million ACTs, and 598,785 IAS. These gaps include the required 6-month buffers. The Nigeria team will review the gaps based on actual consumption and consider reprogramming of resources to meet the gaps.

Please refer to the **ACT, RDT, and injectable artesunate (IAS), Gap Analysis Tables** in the [annex](#) for more detail on planned quantities and distribution channels.

Facility Level

Nigeria will continue to support all the activities as described in the Recent Progress section. PMI will support training of health workers in PHCs and SHFs from 11 PMI focus states. Efforts will be intensified to strengthen providers' capacity to test every fever case and adhere to RDT results. Guided by data from supervisory visits, clinical meetings 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 in private sector health facilities to eight states to improve the quality of care and reporting. Its support will include training of selected health workers on malaria case management, post training mentoring and monitoring. It will also continue to support the implementation of state strategies to engage private sector players to improve malaria services.

Community Level

Nigeria will continue to support all the activities as described in the Recent Progress section. Additionally, PMI will expand iCCM to four states through the CHIPS Program. PMI plans to commence implementation of the PMI policy for payment of CHWs in FY 2022.

Nigeria has a Community Health Worker Payment Policy and a minimum amount that states are expected to pay to each CHW as monthly payments. PMI plans to expand iCCM to 40% (46) of LGAs in Bauchi, Benue, Ebonyi, Kebbi, Sokoto and Zamfara States through the CHIPS program. It will support a total of 4,600 CHIPS agents based on the government's implementation strategy of 10 CHIPS agents per ward and the existence of an average of 10 wards per LGA. It will work with other health offices and engage with government and relevant stakeholders on the following areas to plan for how this will be rolled out.

- An enabling policy environment: PMI will engage with government entities, local partners and donors where required to update existing enabling policies, generate political will, and develop a national investment case that prioritizes the implementation of enabling policies.
- Coordination and harmonization with other donors in the space: Will plan for how this will happen when other streams of funding are available, align with other donors and/or ministries who may be financially supporting CHWs, focus on other components of strengthening the CHS where salaries of CHWs are covered by others.
- A progressive costing and financing plan to ensure sustainability in the long term: PMI will plan in conjunction with MOHs and other partners to use its funds and include a clear plan for securing financing, with expectations defined for all parties involved, with annual benchmarks and a list of

- policy/regulatory actions that need to be taken to ensure the successful transition of CHW payment.
- An implementing partner or mechanism with the ability to provide payments (including a determination that the payment of CHWs is within scope) as Government to Government (G2G) agreements with USG does not exist in Nigeria.
 - A detailed plan for ‘how’ CHWs will be paid: PMI will consult with appropriate government partners to plan for how payments will be made, how the system will be designed to ensure timely payments, frequency of payment, criteria for enrolling a CHW in the payment scheme, mechanisms for tracking of CHWs, data sharing protocols/memorandums of understanding between a potential IP facilitating payment and the MoH.
 - A plan and mechanism for tracking payment of CHWs: PMI will be expected to work with the MOH and partners to track the number of CHWs supported financially each year, the logistics around payment, nationally and disaggregated by state, and gender of the CHW.

Monitoring Antimalarial Efficacy

Table 3. Ongoing and Planned Therapeutic Efficacy Studies (TES)

Ongoing TES			
Year	Site name	Treatment arm(s)	Plan for laboratory testing of samples
2020	Adamawa, Cross River, Sokoto	AL, ASAQ, DHP, As-Pyr	In-country at Redeemer’s University
2021	Imo, Kaduna, Kwara, Lagos	AL, ASAQ, DHP, As-Pyr	In-country at Redeemer’s University
Planned TESs (funded with previous or current MOP)			
Year	Site name	Treatment arm(s)	Plan for laboratory testing of samples
2022	Anambra, Bayelsa, Oyo	AL, ASAQ, DHP, As-Pyr	TBD
2023	TBD	AL, ASAQ, DHP, As-Pyr	TBD

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/Nigeria health supply chain and pharmaceutical management objectives align with the eight supply chain key strategies, reflected across the five objectives, in the NMSP 2021-2025:

- Strategy 1.4: Strengthen systems for continuous availability of medicines and health products for the prevention of malaria through vector control.
- Strategy 2.4: Strengthen systems for continuous availability of medicines and health products for the chemoprevention, diagnosis and treatment of malaria.
- Strategy 3.6: Develop a functional Pharmaceutical Management Information System (PMIS) to strengthen evidence-based decision making for malaria programming.
- Strategy 3.7: Collaborate with the National Product Supply Chain Management Program (NPSCMP) and the National Agency for Food and Drug Administration and Control (NAFDAC) for integrated supportive supervision activities and promote QA for malaria medicines/commodities across all facilities (public and private) respectively.
- Strategy 4.4: Strengthen private sector collaboration and participation for delivery of quality malaria services.
- Strategy 5.1: Strengthen capacity for budget tracking, internal controls and financial reporting at national and subnational levels.
- Strategy 5.2: Scale-up domestic resource mobilization (DRM).
- Strategy 5.3: Reinforce policy makers and legislature engagement for increased funding allocation and release for malaria management at all levels.

PMI's support to supply chain coordination activities at all levels of government (national and subnational) aligns with objectives 1 and 2 of the National Malaria Strategic Plan (NMSP) 2021-2025. This includes the National Product Supply Chain Management Program (NPSCMP) at the national level, the LMCUs at the state level, and pharmaceutical supply chain management TWGs at the federal level in all 11 PMI focus states.

PMI's support to procurement, storage, and distribution of malaria commodities also aligns with objectives 1 and 2.

PMI's support to the roll out and enhancements of the NHLMIS, the electronic logistics management information system (eLMIS) platform for all public health supply chain data in Nigeria aligns with objective 3 of the NMSP 2021- 2025

PMI's support to pharmaceutical manufacturers, third party private sector logistics service providers, and improving access to malaria medicines in the community through private sector sales outlets aligns with objective 4.

PMI/Nigeria’s support to the design and implementation of the DRF scheme in focus states, the set up of DMAs, and migration of ACTs to a sustainable funding mechanism aligns with objective 5 of the NMSP 2021-2025.

5.2. Recent Progress (between January and December 2021)

DRF Scheme: PMI supported roll out and activation of DRF schemes in Bauchi, Sokoto and Zamfara states. This included training of trainers (TOT), training of DMA and health facilities teams on operations of DRF, and management of medicines and financial management systems. PMI trained communities’ Ward Development Committees (WDCs) on their roles and responsibilities on the DRF scheme. In Bauchi State, DRF schemes have been activated in 24 secondary and 209 primary HFs. PMI supported the activation of DRF schemes in 20 HFs (12 secondary and eight PHCs) in Sokoto State, while 130 HFs (22 secondary and 108 PHCs) were activated in Zamfara State.

PMI has expanded malaria commodities support to 5,172 HFs (from 3,607 HFs) in CY 2021 with the commencement of the DRF scheme.

Below is a table on the percentage increase in the number of health facilities supported with malaria commodities across PMI focus states.

Table 4. Increase in Number of Health Facilities Supported with Malaria Commodities across PMI Focus States from January 2021–January 2022

States	Total number of health facilities	Number of health facilities supported with commodities in Jan. 2021	Number of health facilities supported with commodities in Jan. 2022	Percentage increase in health facilities supported with commodities
Akwa Ibom	894	515	520	1%
Bauchi	1,439	210	520	75%
Benue	2,242	302	424	40%
Cross River	1,484	384	515	34%
Ebonyi	1,122	352	459	30%
Kebbi	1,104	427	526	23%
Nasarawa	1,134	508	646	27%
Oyo	1,738	182	426	134%
Plateau	1,363	255	406	59%
Sokoto	943	282	575	104%
Zamfara	932	268	307	15%
Total	14,395	3,685	5,172	71%

PMI supported preparatory activities for the implementation of the DRF scheme in four PMI focus states (Ebonyi, Kebbi, Nasarawa, and Plateau).

Storage and distribution: GON- and donor-procured commodities flow from two national pharmaceutical grade warehouses (Abuja and Lagos) to regional/axial stores and then directly to health facilities, bypassing state warehouses.

PMI supported the distribution of the following commodities within the period under review:

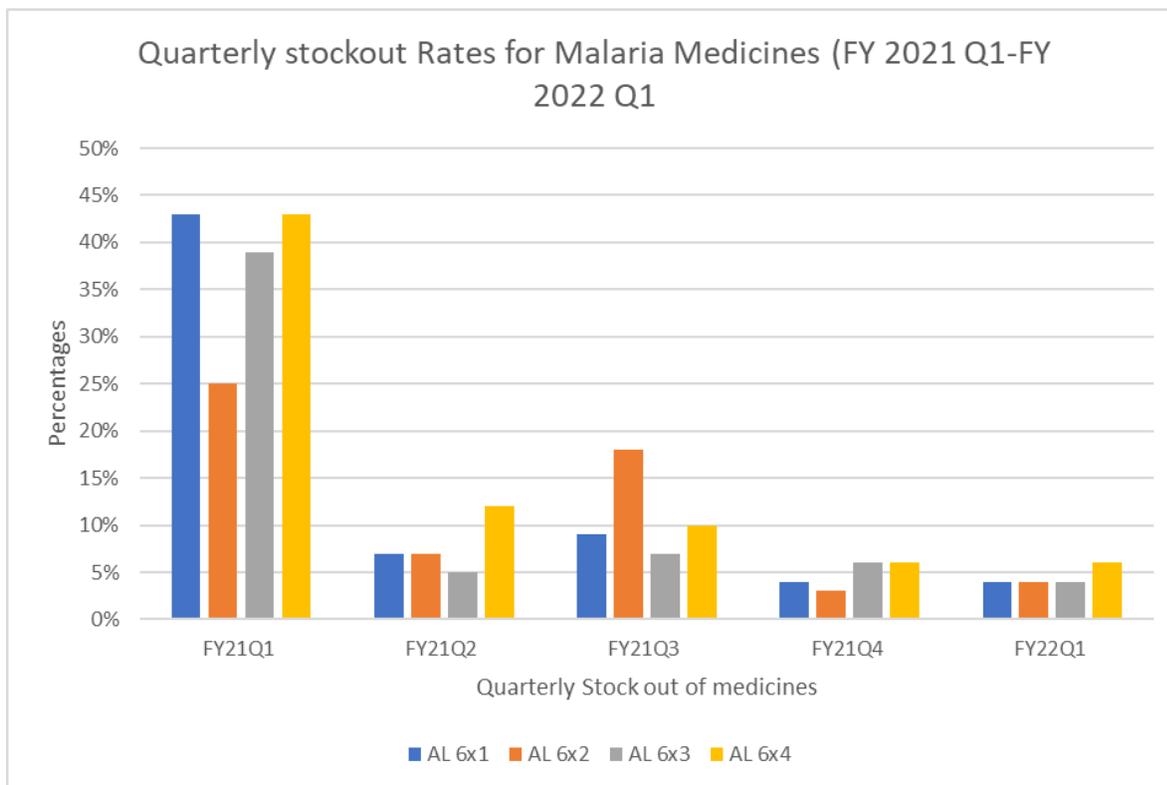
- ACTs – 16,112,126
- RDTs - 15,041,775
- ITNs – 6,747,164
- Injectable Artesunate (IAS) – 262,598
- SP – 440,700

The warehouse management and distribution of commodities are outsourced to private logistics providers. The regional distribution system is a medium-term solution. PMI supported Bauchi State on preparatory activities for a state coordinated last mile distribution. Bauchi, Nasarawa, and Sokoto will start state coordinated last mile distribution in CY 2022.

Data management: PMI supported the enhancements and operations of eLMIS known as the national health logistics management information service (NHLMIS). The NHLMIS is the logistics data reporting platform for all public health programs (malaria, HIV/AIDS, family planning, MNCH, and tuberculosis) in Nigeria.

Stockout of malaria commodities: Below is the stockout trend from first quarter of FY 2021 (October - December 2020) to first quarter of FY 2022 (October - December 2021). Stockout reduction strategies put in place during the COVID-19 pandemic were successfully implemented reducing stockout rate of malaria commodities below ten percent.

Figure 4. Service Delivery Point (SDP) Stockout Trend from First Quarter of FY 2021 (October - December 2020) to First Quarter of FY 2022 (October - December 2021)



PMI supported two rounds of EUV surveys in FY 2021. PMI has been triangulating eLMIS and HMIS data (from NHLMIS and DHIS2 platforms) and following up with facilities that have a high ratio. This has resulted in a decline in ACT use/reported case ratio in the 11 PMI focus states, which suggests an improvement in testing and reporting and resulted in lower ACT consumption. Under reporting of malaria cases through the HMIS is a contributing factor to the discrepancy in consumption versus reported cases.

Medicines quality and regulation: PMI supported medicines regulatory and quality control and assurance activities. Below is a list of activities supported in FY 2021:

- PMI supported NAFDAC systems improvement activities towards WHO Global Benchmark Tool certification.
- ISO 17025 annual re-accreditation of four NAFDAC and one National Institute for Pharmaceutical Research and Development (NIPRD) quality control laboratories.
- PMI supported ISO 9001:2015 quality management system certification for the Pharmacists Council of Nigeria (PCN) to improve regulation and quality of medicines at the state and community levels.

- PMI supported the training of 1,742 personnel on medicines QA processes and distributed 5,840 copies of job aids and pharmaceutical QA posters to communities' retail medicines outlets (pharmacies and proprietary patent medicine vendors) in Bauchi, Ebonyi, and Sokoto states. The posters communicate key messages on steps to assure the quality of medicines.
- PMI supported a round of risk-based post marketing surveillance in the 11 PMI focus states and FCT with 468 antimalarial medicines samples collected for analysis.
- Two Nigeria pharmaceutical manufacturers (Emzor and Swipha) submitted ACTs and SP dossiers for WHO-PQ evaluation team.

5.3. Plans and Justification with FY 2023 Funding

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

PMI Nigeria FY 2023 funds will be used to support the following activities:

DMA and DRF support

- To strengthen the state medicines management agencies and LMCUs' capacity to coordinate all supply chain activities at the state and health facilities levels.
- PMI focus states will be supported to establish medicines management agencies to coordinate all DRF/supply chain activities. This is in line with the NMSP 2021-2025 and National Health Products Supply Chain Strategy and Implementation Plan 2021-2025.
- Continue to migrate ACTs to the DRF scheme and support storage and distribution of malaria commodities from state owned and private sector operated central medical stores.

Warehousing and Distribution

- Support state medicines management agencies and LMCUs to manage integrated warehousing and last mile distribution contracts at the state level.
- Support framework contract for last mile distribution of malaria commodities coordinated by states' medicines management agencies.

Procurement of Malaria Commodities

- Support state medicines management agencies and LMCUs to procure ACTs and SPs for DRF from local, qualified pharmaceutical manufacturers and wholesalers.

- Link state medicines management agencies to procure quality assured malaria medicines from local pharmaceutical manufacturers supported by PMI through the Promoting the Quality of Medicines Plus activity.

Logistics Management Information System (LMIS)

- PMI will continue to support the enhancement (integration of warehouse management system) and use of the NHLMIS for real-time decision-making.
- Inclusion of all health facilities (including non-PMI supported HFs) in each of the PMI focus states will be supported at the state level. PMI will advocate for feasible integration of the eLMIS and DHIS-2 systems for improved data quality for decision-making and forecasting needs.

Medicines Regulation and GS1

- PMI Nigeria will support the QA and regulatory activities of the national drug regulatory agencies at national and sub-national levels. This includes support for post marketing surveillance and global standards for traceability of malaria medicines and additional support to pharmaceutical manufacturers' QA processes to produce quality malaria medicines in Nigeria.
- Support state level medicines QA processes with PPMVs and CPs through the Pharmacists Council of Nigeria's pharmaceutical Inspection Committees. CPs and PPMVs will be linked to manufacturers, wholesalers, and distributors of quality assured malaria medicines.

6. SBC

6.1. PMI Goal and Strategic Approach

PMI's SBC support to the NMEP fully aligns with, and contributes to the attainment of all five objectives of the NMSP 2021-2025 and its affiliated, and recently revised [national malaria ACSM strategy](#) (*in Nigeria, the terminology, or acronym, ACSM is used interchangeably with SBC*). The NMSP 2021-2025 positions ACSM/SBC as a supportive cross-cutting strategy to i) promote the desired change or positive behaviors for the prevention and control of malaria at all levels and ii) keep malaria high on the political agenda through sustained, result-oriented advocacy, at all levels. The revised national malaria ACSM strategy places emphasis on data-driven SBC that's tailored towards localities and beneficiary populations and that influences behavior at four levels or domains: (1) policy (e.g., to promote evidence-based policy development, reviews or adaptations); (2) services or systems (e.g., to improve providers behaviors, service communication); (3) community (e.g., to increase commitment and ownership through community groups and associations, promote positive norms for malaria control); and (4) household and individual (e.g., to increase demand and use for products and

services). Please refer to the country profile for details of how PMI's SBC support advances NMSP 2021- 2025 objectives.

6.2. Recent Progress (between January and December 2021)

Mass Media

- **Expanded access to malaria messages via mass and digital channels through media partnerships:** Malaria radio spots aired over 43,800 times, and at least 44 percent (19,344 times, valued at \$170,577), were aired as complementary spots donated by 53 fully commercial, privately-owned stations. Partnership with Airtel extended the reach of malaria spots via the 3-2-1¹ channel, with callers accessing content over 14,000 times (1.7 times more than other health content).
- **Launched a national “fever care” media campaign:** In collaboration with the NMEP, PMI supported the launch of the “Mama Put²” fever care campaign (with a three-part video series of 120 seconds each on [prompt care-seeking](#), [testing before treatment](#), and [adherence to malaria treatment course](#)). The campaign, which features a prominent [Nigerian actress](#) and deploys humor to promote appropriate behaviors, ran across social media channels, as well as national TV stations.

Community-level Mobilization, Interpersonal Communication

- **Over 2.2 million people reached through interpersonal communication channels:** Over 740,000 and at least 1.5 million individual contacts were made across 368 wards in eight malaria-only SBC states³ and across 579 wards in four integrated SBC states⁴ respectively through a total of 249,037 events⁵, to promote appropriate malaria prevention (ITN use and care), diagnosis (testing before treatment), and treatment (prompt care-seeking for fever). As a result, 47,500 pregnant women and 125,400 fever cases were referred for ANC/IPTp and treatment, with 44 percent and 40 percent completion rates respectively.
- **Teachers engaged over 7,200 children through a school-based malaria SBC activity: Teachers** in three states⁶ used curated materials such as a

1 <https://techvaz.com/airtel-nigeria-3-2-1-free-call-search-service/>

2 A street vendor, typically a woman, selling cooked food at low prices from a handcart or stall

3 Akwa Ibom, Benue, Cross River, Nasarawa, Oyo, Plateau and Zamfara

4 Bauchi, Ebonyi, Kebbi and Sokoto

5 Community dialogues, compound meetings, and household visits

6 Benue, Cross River, and Oyo states

teacher [guide book](#), a Mosquitoes and Ladders [game](#), a malaria [pledge](#), quizzes, and debates.

Provider Behavior

- **Technical assistance for the deployment and scale-up of successful behavioral economics (BE) prototypes for improved fever case management:** PMI supported the refinement and scale-up of five successful BE prototypes across 1,317 facilities in four states, and ongoing adaptive implementation. Post analysis of data from HMIS drawn from a sample of prototype-implementing facilities suggest a general improvement in fever testing rates by an average of nine percentage points from August to December 2021. Also, 3,050 health providers were reached through over 100 peer clusters and professional association meetings to strengthen peer-to-peer networks, and promote shared norms and group problem-solving.
- **Improved differential diagnosis for fever:** PMI supported the NMEP to develop and disseminate instructional [videos](#), in a [four part training module](#), that offered actionable guidance to providers for differential diagnosis of fever, in the context of COVID-19.

ITN Campaigns, Use and Care Messaging

- **Targeted advocacy and SBC support to improve ownership, use and care for ITNs:** PMI supported pre-, during, and post-ITN campaign SBC activities in [Oyo State](#), through capacity strengthening, mass media messaging, and targeted advocacies, contributing to ITN retrieval, average retention, hanging, and use rates of 97.2 percent, 94 percent, 65 percent, and 63 percent, respectively. Using end process assessment data from Oyo, as well as Benue, Plateau, and Zamfara states (ITN campaigns in the previous year), PMI supported post-campaign messaging, targeting areas with low hanging and use rates. Advocacy resulted in state government contributions valued at \$340,000 and \$260,000 in Benue and Oyo states, respectively.

Strategy, Capacity Building/Strengthening

- **Strategy Development:** PMI supported the NMEP to revise the [national ACSM strategy](#) to align approaches with the strategic shifts and thrusts of the NMSP 2021-2025. Additionally, PMI supported the development of the Interpersonal Counseling and Communication (IPCC) Training Manual – [facilitator](#) and [trainee](#) guides – and the training of 61 master trainers.

Despite progress made, there remain challenges for which continued SBC investment is needed to address the determinants of the uptake and/or maintenance of prevention, care-seeking, and treatment behaviors.

- **ITNs:** Nigeria’s use:access ratio varies widely across PMI-supported regions (0.75-0.98) thus requiring tailored SBC interventions to address specific behavioral factors most prominent across regions with low use:access ratios
- **Care-Seeking Behavior:** The 2018 NDHS found a 35-percentage point difference between those individuals who sought care (73 percent) and those who did so promptly (38 percent). Evidence suggests a mix of internal and social factors facilitate and/or create barriers to prompt care-seeking, most of which may be amenable to SBC interventions.
- **Fever Case Management – Provider behavior:** The NDHS 2018 found that only 14 percent of children with fever were tested suggesting low health worker adherence to diagnostic and treatment guidelines at facilities nationally.
- **MIP:** A 2017 assessment of malaria interventions in four PMI focus states concluded that missed opportunities for increasing IPTp coverage are mostly the result of structural factors. Hence, PMI investments will be channeled through service delivery implementing partners to address knowledge deficits on the protocol through retraining and supportive supervision and leverage MNCH funds in four states to address behavioral barriers to ANC uptake, improve pregnancy-related ideations, and increase IPTp uptake. Additionally, community-level activities will, as part of messages to encourage care-seeking for fever, across all other focal states, encourage ANC and IPTp uptake among pregnant women.

6.3. Plans and Justification with FY 2023 Funding

The funding tables contain a full list of SBC activities that PMI proposes to support in Nigeria with FY 2023 funding. Please visit www.pmi.gov/resources/malaria-operational-plans-mops for these. While PMI supports SBC activities that promote the uptake and maintenance of all key malaria interventions, the following three behaviors in Table 5 below will be prioritized.

Table 5. Priority SBC Behaviors to Address

Behavior	Target Population	Geographic Focus	Programming to Address Behavior
Prompt ⁷ Care-Seeking for Fever for Children Under Five Years of Age	Caregivers of Children Under 5 Years of Age	All 11 PMI focus states	<ul style="list-style-type: none"> ● Increase reach, exposure to, and recall of PMI-funded national “fever care” campaign via mass, digital, social media, and IPC channels.

⁷ Within 48 hours of onset of symptoms

Behavior	Target Population	Geographic Focus	Programming to Address Behavior
			<ul style="list-style-type: none"> Channel-mix⁸ will include community-level IPC (primary channel) and mass media.
Consistent ITN Use/Maintenance and Care	All members of a household	Benue, Plateau, Oyo, Zamfara states ⁹	<ul style="list-style-type: none"> Coordinate and implement pre-, during, and post-campaign SBC activities (Oyo and Zamfara states) through multi-communication channels while maintaining post-campaign messaging in Benue and Plateau states. Post-campaign SBC activities in Benue, Plateau, and Zamfara (use: access ratios of 0.93-0.98) will promote maintenance of ITN use and care, all-year-round, deployed mainly through mass media¹⁰, and digital channels. In Oyo (use: access ratio of 0.8), activities will increase the prevalence of ITN use, measured by known predictors, to provide evidence of impact.
Adherence to Case Management Guidelines	Health Facility Based Providers (across cadres)	All 11 PMI focus states	<ul style="list-style-type: none"> Contingent upon assessments that increase understanding of the continued utility of prototypes, adapt SBC technical assistance support to service delivery partners. Sustain peer-to-peer engagement and group problem solving through provider cluster and professional association meetings.

Across all prioritized behaviors, and defined geographies, SBC interventions will continue to deploy enhanced audience segmentation approaches to further prioritize and strengthen coverage of sub-populations. Reductions in overall funding levels for SBC interventions are anticipated to be offset by gains in current PMI investments focused on supporting states to adopt, operationalize, and fund the CHIPS [program](#). CHIPS agents are proposed to be integrated into the national PHC system/human resource database and the cost of remuneration/stipends funded (in part or whole)

⁸ A 2017 PMI-funded end-line evaluation of HC3 Nigeria found that caregivers in community intervention areas were 67 percent more likely to seek care promptly than those in non-intervention wards, exposure to mass media interventions is associated with a significant increase in general malaria ideation and women exposed to media messages were more likely to believe that they should participate in household decisions about child health

⁹ States prioritized will receive PMI support for ITN mass campaigns in calendar year 2023 and 2024.

¹⁰ 2017 PMI-funded end line evaluation of the Health Capacity Communication Collaborative (HC3) activity.

through National and State government Strategic Health Plans and operational budgets. Leveraging CHIPS for the delivery of community-level IPC SBC activities will be a priority, will potentially increase state government cost-share, and expand access to malaria services at the community level. PMI acknowledges there will be variations in readiness and extent of cost-share across states and investments in training, tooling, personnel, and community data management systems will continue.

Additional Support Activities

SBC Research: Through the implementation of the third and final wave of the Behavioral Sentinel Survey in PMI-supported states of Kebbi, Sokoto, and Zamfara (in CY 2023), as well as the NDHS 2023, it is anticipated that existing gaps in evidence (e.g. effects of living in large households with potentially less number of sleeping areas) on ITN use, or shifts in ideational determinants of priority malaria behaviors among specific sub-populations will be determined. No SBC research is proposed with FY 2023 funding.

SBC Capacity Building/Strengthening: There is a need for continued SBC capacity building at both the national and subnational levels, with sustained and increased level of effort at the state level. To bolster the NMEP and SMEP ACSM capacity for the planning, design, implementation, and evaluation of SBC activities, PMI will support:

- Partner coordination to improve the effectiveness of the SBC Technical Working Group.
- Timely development of annual ACSM operational plans (as part of malaria program operational plans), as well as funding and execution rates.
- Capacity building and “upskilling” of NMEP staff (at national and subnational levels) for:
 - Management of social media campaigns (e.g. the national fever care campaign), including content development/analysis, reach optimization, data analytics and reporting, etc.
 - Enhancing skills to build and optimize partnerships for mass media programming.
 - Data use (e.g. applying insights from 2022 BSS/2023 NDHS) to inform SBC priorities and strategies.

7. Surveillance, Monitoring, and Evaluation

7.1. PMI Goal and Strategic Approach

The PMI objectives are to support malaria surveillance system strengthening and monitoring and evaluation (M&E) of malaria interventions as stated in the country’s

National M&E Strategy Plan (2021–2025). Below are key data-related areas that PMI will support in collaboration with other partners like the Global Fund, WHO, World Bank, UNICEF, and local nongovernmental organizations:

- Strengthen the generation and reporting of quality malaria data through routine and non-routine sources; improve data flow from public HFs (primary, secondary, and tertiary) and strengthen data flow from private HFs.
- Strengthen data flow from community health providers (PPMVs, community pharmacists, and CHWs).
- Strengthen Data Quality Assessment (DQA) and broader surveillance systems assessments.
- Strengthen local partnership and collaboration.
- Improve generation of evidence from evaluations, TES, and entomological surveillance studies to guide the strategic deployment of interventions.
- Improve the generation of evidence by conducting program reviews at different levels.
- Improve integration of malaria data and surveillance systems and strengthen the capacity of M&E and malaria program officers at all levels of surveillance, monitoring, and evaluation (SM&E).

7.2. Recent Progress (between January 2021 and December 2021)

At the national level, PMI supported the following activities:

- Development of the NMEP's National Malaria M&E Plan (2021–2025).
- Provision of technical guidance and oversight function over the TES sites to generate local evidence on the efficacy of currently used antimalarial medicines.
- Provision of technical expertise for the collection, analysis and use of entomological surveillance data across the country to improve malaria vector control.
- Upgrade of the NMDR to include climatic data shared by the PMI managed M-DIVE.
- Funding and oversight of the 2021 Nigeria MIS. The results will provide national and state aggregates on key malaria indicators to determine the performance of the malaria control efforts in Nigeria.

At the subnational levels, PMI supported the following activities:

- Strengthened the M&E systems to ensure continuous availability of quality data at the community, health facility, LGA, state, and national level. Supported the capacity building of health workers on data quality

assessment, NHMIS tools quantification to sustain the data reporting tools pipeline and the correct use of the NHMIS tools. More attention will be given to data quality improvement strategies as data quality continues to be a challenge.

- Supported the use of Information Communication Technology (ICT) digital tools at the community level for data generation and reporting. These tools provide more timely data at all levels for informed decision making. This will help address part of the persistently emerging security challenges in the country.
- Strengthened the capacity of data managers and health workers on the use of available data for better planning and timely decision making.
- Conducted private sector mapping in Benue, Cross River, and Plateau states and iCCM mapping in Benue and Zamfara states.

7.3. Plans and Justification with FY 2023 Funding

In FY 2021, PMI focused on strengthening the HMIS at the national and subnational levels by ensuring the capacity of personnel and the availability of tools for enhancing performance in an enabling environment for optimal performance. Personnel (3,709) were trained covering the use of NHMIS data tools, data quality assessment, NMDR and data use.

With FY 2023 funding, building on the successes in the previous years, PMI will support the malaria program to do the following:

- Improve malaria data availability for decision making by continuously mentoring the program on quantification of data reporting tools, expanding the coverage of data reporting by public and private high volume sites (Secondary and Tertiary), and ensure that the use of NMDR in reporting routine and non-routine data is scaled up to all PMI-supported states by supporting the web hosting of the tool, data sharing with M-DIVE and building the capacity of data management personnel and other health personnel on its use.
- Improve data quality using data quality improvement activities including DQA, data validation, data quality control room and digital tools to monitor data quality and provide feedback to stakeholders for follow-up.
- Increase capacity of M&E and data personnel for data analysis and use using state-of-the-art digital tools.
- Utilize 2021 MIS data and data from other sources as shown in Table 6 for program planning and for preliminary planning for the NDHS in CY 2024.

- Sustain the operationalisation of cHMIS tools while providing on-the-job capacity strengthening for the CHWs and assessment of the quality of service in Bauchi, Benue, Ebonyi, Kebbi, Sokoto, and Zamfara where community interventions are either being implemented or plans are in place for implementation.

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

Table 6. Available Malaria Surveillance Sources

Source	Data Collection Activity	2020	2021	2022	2023	2024	2025
Household Surveys	Demographic Health Survey				P		
Household Surveys	Malaria Indicator Survey		X			P	
Household Surveys	Multiple Indicator Cluster Survey		X*				P*
Malaria Surveillance and Routine System Support	Therapeutic Efficacy Studies	X	X	P	P	P	P
Malaria Surveillance and Routine System Support	Support to Health Management Information System	X	X	X	P	P	P
Malaria Surveillance and Routine System Support	Support to Integrated Disease Surveillance and Response	X*	X*	P*	P*	P*	P*
Malaria Surveillance and Routine System Support	Electronic Logistics Management Information System	X	X	P	P	P	P
Other	EUV	X	X	P	P	P	P
Other	Knowledge, Attitudes and Practices Survey, Malaria Behavior Survey		X	P			
Other	Entomologic Monitoring Surveys	X	X	P	P	P	P

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

8. Operational Research and Program Evaluation

8.1. PMI Goal and Strategic Approach

The NMEP objective for OR is included under Objective 3 of the NMSP 2021–2025, which states: “To improve the generation of evidence for decision-making and impact through reporting of quality malaria data and information from at least 80 percent of

health facilities (public and private) and other data sources including surveillance, surveys, and operations research by 2025.” Specifically, strategies 3.3, 3.4, and 3.5 address the important areas ranging from the capacity to conduct OR to data use for decision-making. The goal of the NMSP 2021–2025 is to reduce malaria morbidity to less than 10 percent parasite prevalence and mortality attributable to malaria to less than 50 deaths per 1,000 by 2025. A key element in achieving this goal is the need for well-tailored Malaria Operational Research to implement the most impactful interventions. The NMEP in collaboration with its partners developed a National Malaria Operations Research Agenda (NMORA).

The goal of the NMORA is to provide a situational analysis of the progress in malaria research and guide researchers, academic institutions, program implementers, health development partners, donors, policymakers, nongovernmental organizations, and other stakeholders to identify malaria research priorities by thematic areas for Nigeria. However, implementation of the NMORA has been slow due to the absence of a critical framework to coordinate and communicate the NMORA priorities for improved uptake by research institutions.

The implementation framework for the NMORA includes coordination, resource mobilization, engagement with stakeholders, capacity-building, review, monitoring and evaluation of the NMORA, and dissemination of research findings. To address these challenges, the NMEP included the funding of the OR agenda coordination in the Global Fund request for the 2018–2020 Malaria grant. The grant supported studies on fever surveillance and test positivity rate (TPR) in some states. Subsequently, the OR agenda was updated to incorporate changes brought on by COVID-19.

An OR stakeholder prioritization meeting was held on July 23–24, 2019. The meeting was coordinated by NMEP alongside partners to achieve the following objectives:

- Prioritize areas in the project cycle that may require OR to optimize delivery.
- Promote awareness of OR priorities for malaria among researchers in Nigeria.
- Strengthen mechanisms for establishing linkages and coordination between NMEP and research institutions.
- Explore resource mobilization options to support the malaria OR agenda.
- Establish systems that will enhance the translation of malaria OR into use for decision-making

8.2. Recent Progress

No PMI PE/OR studies were undertaken in FY 2022.

Table 7. PMI-funded Operational Research/Program Evaluation Studies in Nigeria

Recently Completed OR/PE Studies	Status of Dissemination	Start date	End date
PMI/Global Fund/Bill and Melinda Gates Foundation (BMGF)/Nigeria CDC/Institute of Human Virology/Nigeria, CDC Atlanta: Evaluation of strategies for mass distribution of insecticide-treated mosquito nets for malaria control in the context of COVID-19	Completed	June 2021	November 2021
Ongoing or Planned OR/PE Studies	Status	Start date	End date
None planned			

Table 8. Non-PMI funded Operational Research/Program Evaluation Studies Planned/Ongoing in Nigeria

Source of Funding	Implementing institution	Research Question/Topic	Current status/timeline
UNITAID	Jhpiego	Transforming Intermittent Preventive Treatment for Optimal Pregnancy (TIPTOP)	Dissemination Phase
CDC	International Federation of Red Cross and Red Crescent Societies	Evaluation of strategies for mass distribution of insecticide-treated mosquito nets for malaria control in the context of COVID-19	September 2020–December 2022

8.3. Plans and Justification with FY 2023 Funding

No OR/PE activities are proposed with FY 2023 funding.

9. Capacity Strengthening

9.1. PMI Goal and Strategic Approach

PMI Nigeria 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. It 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 line systems, and strengthening the institutional capacity of the N/SMEP and SMoH.

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. While supporting a functional organizational structure, benchmarking of malaria planning and review processes, effective internal coordination activities, and performance tracking are utilized to enhance institutional capacity.

Capacity strengthening activities for national malaria control programs 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. It also supports the provision of technical experts seconded to selected branches of the NMEP as integral members of these teams to transfer knowledge, skills, and strengthen capacity. In addition, it funds oral or poster presentations by N/SMEP at conferences where the outcome is beneficial to the country program. PMI utilizes the approach of funding training through the CDC Field Epidemiology Training Program (FETP) national level two-year training to support MOHs efforts to initiate and strengthen local epidemiologic and laboratory data collection, management, analysis, and dissemination capacity. This aims to support MOHs to build sustainable capacity for local detection and response to health threats, including sudden increases in malaria transmission. It is expected that over time, PMI investments in FETP will produce a cadre of public health workers that use science and data to identify, respond to, and manage acute health problems with appropriate strategies and policies and that this cadre will have a positive impact on malaria program efforts following completion of training.

9.2. Recent Progress (between January and December 2021)

PMI supported the training of eligible fellows nominated by the NMEP in the advanced Nigeria Field Epidemiology and Laboratory Training Program (NFELTP). The responsibility of implementing this program is transitioning from Africa Field Epidemiology Network (AFENET) to NCDC which resulted in some delays in the completion of the ongoing course.

Supported the NMEP to develop and present as poster sessions, relevant malaria abstracts, at the 2021 American Society of Tropical Medicine and Hygiene (ASTMH) conference. Similarly, it funded the participation of selected N/SMEP staff at the conference.

PMI funded activities to strengthen N/SMEPs capacity for program planning by supporting the development of the N/SMEPs' 2022 Annual Malaria Operational Plans and the review of the implementation of current plans.

Supported the mentoring of NMEP personnel of case management, SM&E, and program management branches, as one of the activities within the NMEP institutional capacity strengthening plan.

PMI funded PSM and SM&E technical experts seconded to the PSM branch of the NMEP and WHO to provide strategic embedment support. Also, to support the development and institutionalization of relevant systems and strengthen individual and organizational capacity. In addition, it funded a technical expert embedded in the NMEP to build its capacity to manage the NMDR, produce periodic technical bulletins, and link the NMDR to the PMI M-DIVE platform.

9.3. Plans and Justification with FY 2023 Funding

The FY 2023 funding tables contain a full list of capacity strengthening activities that PMI proposes to support in Nigeria with FY 2023 funding. Please visit www.pmi.gov/resources/malaria-operational-plans-mops for these FY 2023 funding tables.

PMI will continue to support NCDC to train eligible NMEP and MoH staff. It will train two fellows under the two-year, full-time, advanced NFELTP course (\$62,500/year/trainee) and conduct a short-term three-month course. Funds will support two new fellows and two existing fellows. Technical experts will be seconded to selected branches of the NMEP as integral members of these teams, to transfer knowledge and skills, strengthen individual and organizational capacity, and support the institutionalization of relevant systems. In addition, PMI will fund oral or poster presentations by N/SMEP at conferences and the participation of relevant government personnel, where the outcome is beneficial to the country's program. In addition, it will continue to support activities to strengthen N/SMEPs capacity for program planning, development of subsequent AOPs as well as the review of the implementation of current plans.

10. Staffing and Administration

A minimum of seven health professionals oversee PMI in Nigeria. The single interagency team led by the USAID Mission Director or their designee consists of a Resident Advisor (RA) representing USAID, an RA representing CDC, and five locally hired experts known as Foreign Service Nationals (FSNs). The PMI interagency team works together to oversee all technical and administrative aspects of PMI, including finalizing details of the project design, implementing malaria prevention and treatment activities, monitoring and evaluation of outcomes and impact, reporting of results, and providing guidance and direction to PMI implementing partners.

ANNEX: GAP ANALYSIS TABLES

Table A-1. ITN Gap Analysis Table

Calendar Year	2022	2023	2024
Total country population	234,099,717	241,590,908	249,321,817
Total population at risk for malaria	234,099,717	241,590,908	249,321,817
PMI-targeted at-risk population	63,721,083	65,760,158	67,864,483
Population targeted for ITNs	63,721,083	65,760,158	67,864,483
Continuous Distribution Needs			
Channel 1: ANC			
Channel 1: ANC Type of ITN			
Channel 2: EPI			
Channel 2: EPI Type of ITN			
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	0	0	0
Mass Campaign Distribution Needs			
Mass distribution campaigns	20,484,553	9,958,904	5,610,737
Mass distribution ITN type	Dual AI and PBO	Dual AI and PBO	Dual AI and PBO
Estimated Total Need for Campaigns	20,484,553	9,958,904	5,610,737
Total ITN Need: Continuous and Campaign	22,533,008	10,954,794	6,171,811
Partner Contributions			
ITNs carried over from previous year	0	0	4,645,206
ITNs from Government	0	0	0
Type of ITNs from Government			
ITNs from Global Fund	0	0	0
Type of ITNs from Global Fund			
ITNs from other donors (AMF)	6,978,400	9,000,000	0
Type of ITNs from other donors	PBO	Dual AI and PBO	PBO
ITNs planned with PMI funding	14,065,024	6,600,000	5,670,644
Type of ITNs with PMI funding	Dual AI and PBO	Dual AI and PBO	Dual AI
Total ITNs Contribution Per Calendar Year	21,043,424	15,600,000	10,315,850
Total ITN Surplus (Gap)	(1,489,584)	4,645,206	4,144,039

Table A-2. RDT Gap Analysis Table

Calendar Year	2022	2023	2024
Total country population	234,099,717	241,590,908	249,321,817
Population at risk for malaria	234,099,717	241,590,908	249,321,817
PMI-targeted at-risk population	63,721,083	65,760,158	67,864,483
RDT Needs			
Total number of projected suspected malaria cases (PMI focus States)	22,706,065	23,432,659	24,182,504
Percent of suspected malaria cases tested with an RDT	88%	88%	88%
RDT Needs (tests)	20,060,808	20,702,754	21,365,242
Needs Estimated based on a Combination of HMIS and Consumption Data			
Partner Contributions (tests)			
RDTs from Government	0	0	0
RDTs from Global Fund	0	0	0
RDTs from other donors	0	0	0
RDTs planned with PMI funding	27,335,750	10,000,000	17,000,000
Total RDT Contributions per Calendar Year	27,335,750	10,000,000	17,000,000
Stock Balance (tests)			
Beginning Balance	17,682,739	24,957,681	14,254,927
- Product Need	20,060,808	20,702,754	21,365,242
+ Total Contributions (received/expected)	27,335,750	10,000,000	17,000,000
Ending Balance	24,957,681	14,254,927	9,889,684
Desired End of Year Stock (months of stock)	6	6	6
Desired End of Year Stock (quantities)	10,030,404	10,351,377	10,682,621
Total Surplus (Gap)	14,927,277	3,903,549	(792,937)

Table A-3. ACT Gap Analysis Table

Calendar Year	2022	2023	2024
Total country population	234,099,717	241,590,908	249,321,817
Population at risk for malaria	234,099,717	241,590,908	249,321,817
PMI-targeted at-risk population	63,721,083	65,760,158	67,864,483
ACT Needs			
Total projected number of malaria cases	15,837,480	16,344,280	16,867,297
Total number non-compliant to negative result	2,043,546	2,108,939	2,176,425
Undiagnosed cases receiving ACT	2,747,434	2,835,352	2,926,083
Total ACT Needs (treatments)	20,628,460	21,288,571	21,969,805
Needs Estimated based on a Combination of HMIS and Consumption Data	HMIS data		
Partner Contributions (treatments)			
ACTs from Government	0	0	0
ACTs from Global Fund	0	0	0
ACTs from other donors	0	0	0
ACTs planned with PMI funding	17,000,000	12,000,000	15,000,000
Total ACTs Contributions per Calendar Year	17,000,000	12,000,000	15,000,000
Stock Balance (treatments)			
Beginning Balance	20,617,148	16,988,688	7,700,117
- Product Need	20,628,460	21,288,571	21,969,805
+ Total Contributions (received/expected)	17,000,000	12,000,000	15,000,000
Ending Balance	16,988,688	7,700,117	730,313
Desired End of Year Stock (months of stock)	6	6	6
Desired End of Year Stock (quantities)	10,314,230	10,644,285	10,984,902
Total Surplus (Gap)	6,674,458	(2,944,168)	(10,254,590)

Table A-4. Inj. Artesunate Gap Analysis Table

Calendar Year	2022	2023	2024
Injectable Artesunate Needs			
Projected number of severe cases	190,050	196,131	202,408
Projected number of severe cases among children	38,010	39,226	40,482
Average number of vials required for severe cases among children	3	3	3
Projected number of severe cases among adults	152,040	156,905	161,926
Average number of vials required for severe cases among adults	3	3	3
Total Injectable Artesunate Needs (vials)	593,906	612,910	632,524
Needs Estimated based on a Combination of HMIS and Consumption Data			
Partner Contributions (vials)			
Injectable artesunate from Government	0	0	0
Injectable artesunate from Global Fund	0	0	0
Injectable artesunate from other donors	0	0	0
Injectable artesunate planned with PMI funding	552,661	350,000	350,000
Total Injectable Artesunate Contributions per Calendar Year	552,661	350,000	350,000
Stock Balance (vials)			
Beginning Balance	90,180	48,935	0
- Product Need	593,906	612,910	632,524
+ Total Contributions (received/expected)	552,661	350,000	350,000
Ending Balance	48,935	(213,975)	(282,524)
Desired End of Year Stock (months of stock)	6	6	6
Desired End of Year Stock (quantities)	296,953	306,455	316,262
Total Surplus (Gap)	(248,017)	(520,430)	(598,785)

Table A-5. SP Gap Analysis Table

Calendar Year	2022	2023	2024
Total Country Population	234,099,717	241,590,908	249,321,817
Total Population at Risk for Malaria	234,099,717	241,590,908	249,321,817
PMI Targeted at Risk Population	63,721,083	65,760,158	67,864,483
SP Needs			
Total Number of Pregnant Women	3,186,054	3,288,008	3,393,224
Percent of pregnant women expected to receive IPTp1	64%	64%	64%
Percent of pregnant women expected to receive IPTp2	40%	40%	40%
Percent of pregnant women expected to receive IPTp3	17%	17%	17%
Percent of pregnant women expected to receive IPTp4	15%	15%	15%
Total SP Needs (doses)	4,333,034	4,471,691	4,614,785
Needs Estimated based on Household Survey Data (e.g. DHS)			
Partner Contributions (doses)			
SP from Government	0	0	0
SP from Global Fund	0	0	0
SP from other donors	0	0	0
SP planned with PMI funding	0	0	0
Total SP Contributions per Calendar Year	0	0	0
Stock Balance (doses)			
Beginning balance	0	0	0
- Product Need	4,333,034	4,471,691	4,614,785
+ Total Contributions (Received/expected)	0	0	0
Ending Balance	(4,333,034)	(4,471,691)	(4,614,785)
Desired End of Year Stock (months of stock)	6	6	6
Desired End of Year Stock (quantities)	2,166,517	2,235,845	2,307,392
Total Surplus (Gap)	(6,499,550)	(6,707,536)	(6,922,177)

Table A-6. SMC Gap Analysis Table

Calendar Year	2022	2023	2024
Total population in the SMC targeted age range	24,625,048	25,413,050	26,226,267
Population in SMC targeted age range in Benue and Zamfara states	2,213,259	2,284,083	2,357,174
SMC Drug (SP+AQ) Needs			
National population 3-11 months targeted for SMC	4,432,509	4,574,349	4,720,728
National population 12-59 months targeted for SMC	18,961,287	19,568,048	20,194,226
Total national population targeted for SMC	23,393,796	24,142,397	24,914,954
PMI population 3-11 months targeted for SMC	398,387	411,135	424,291
PMI population 12-59 months targeted for SMC	1,704,209	1,758,744	1,815,024
Total PMI population targeted for SMC	2,102,596	2,169,879	2,239,315
Total SP+AQ Needs (co-blisters)	9,251,421	9,547,466	9,852,985
Partner Contributions (co-blisters, national)			
SP+AQ carried over from previous year	0	1,548,579	0
SP+AQ from Government	0	0	0
SP+AQ from Global Fund	0	0	0
SP+AQ from other donors	0	0	0
SP+AQ planned with PMI funding	10,800,000	4,256,896	9,852,985
Total SP+AQ Contributions per Calendar Year	10,800,000	5,805,475	9,852,985
Total SP+AQ Surplus (Gap)	1,548,579	(3,741,991)	(0)