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U.S. PRESIDENT'S MALARIA INITIATIVE

Niger

Malaria Operational Plan FY 2024

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

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ABBREVIATIONS

ACT	Artemisinin-based combination therapy
AL	Artemether-lumefantrine
ANC	Antenatal care
ANRP	*Agence Nigérienne de Régulation Pharmaceutique, [*Niger Agency for Pharmaceutical Regulation]
AS/AQ	Artesunate-amodiaquine
CCN	Cooperating Country National
CDC	Centers for Disease Control and Prevention
CERMES	*Centre de recherche médicale et sanitaire*
CSI	Integrated Health Facilities
DHS	Demographic and Health Survey
EPI	Expanded Program on Immunization
FETP	Field Epidemiology Training Program
FY	Fiscal year
Global Fund	Global Fund to Fight AIDS, Tuberculosis and Malaria
IPTp	Intermittent preventive treatment for pregnant women
IRS	Indoor residual spraying
ITN	Insecticide-treated mosquito net
LMD	Last Mile Distribution
LMIS	Logistics Management Information System
LSM	Larval source management
MIP	Malaria in pregnancy
MIS	Malaria Indicator Survey
MoH	Ministry of Health
MOP	Malaria Operational Plan
NMCP	National Malaria Control Program
NMSP	National Malaria Strategic Plan
PMI	U.S. President's Malaria Initiative
RDT	Rapid diagnostic test
RA	Resident Advisor
SBC	Social and behavior change
SM&E	Surveillance, monitoring, and evaluation
SMC	Seasonal Malaria Chemoprevention
SP	Sulfadoxine-pyrimethamine
SPAQ	Sulfadoxine-pyrimethamine/ Amodiaquine
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WHO	World Health Organization

EXECUTIVE SUMMARY

To review specific country context for Niger, please refer to the country malaria profile, which provides an overview of the country's malaria situation, key indicators, National Malaria Program (NMCP), and the partner landscape.

U.S. President's Malaria Initiative

Launched in 2005, the U.S. President's Malaria Initiative (PMI) supports implementation of malaria prevention and treatment measures as well as cross-cutting interventions. PMI's 2021–2026 strategy, *End Malaria Faster*, envisions a world free of malaria within our generation with the goal of preventing malaria cases, reducing malaria deaths and illness, and eliminating malaria in PMI partner countries. PMI currently supports 27 countries in Sub-Saharan Africa and three programs across the Greater Mekong Subregion in Southeast Asia to control and eliminate malaria. Niger began implementation as a PMI partner country in FY 2018.

Rationale for PMI's Approach in Niger

In Niger, malaria has stable endemicity marked by seasonal resurgence during and after the rainy season. In 2022, the National Malaria Program reported 4,843,949 confirmed malaria cases with a 50.9 percent prevalence of malaria among children under five years of age. For comparison, this is an improvement of the previous year's case number of 4,937,676 and child prevalence of 53 percent. The monitoring of vector resistance to insecticides showed resistance in the populations of *Anopheles gambiae s.l.* at diagnostic doses of the three pyrethroids. The coverage of service delivery is only 53.7 percent. Thus PMI priorities in Niger include ensuring that health facilities correctly implement preventive and curative malaria best practices and ensuring availability of malaria commodities at the central level and in all health facilities in the Dosso and Tahoua regions. PMI's support also aims to improve data quality and data use and strengthen local capacity.

Overview of Planned Interventions

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

1. Vector Monitoring and Control

PMI supports continuous, mass distribution, and use of insecticide-treated mosquito nets (ITN) in collaboration with the Global Fund in Niger. PMI Niger also supports entomological monitoring for insecticide resistance management and vector bionomics in sentinel sites while strengthening the Nigerien government's Health and Medical Research Center - in French *Centre de recherche médicale et sanitaire* (CERMES).

In FY 2024, PMI Niger will procure 152,750 standard Pyrethroid ITNs for routine distribution via antenatal care (ANC) and the expanded program on immunization (EPI) channels and support social behavior change (SBC) interventions to promote the use of ITNs. PMI will continue to support CERMES and the NMCP for entomological surveillance including insecticides resistance monitoring in 15 sentinel sites and vector bionomics in five sites/districts. PMI will also initiate a pilot community-based entomological surveillance in one site (Gaya), Dosso province as part of PMI localization drive and provide training for staff at CERMES and NMCP for sustainability of vector control activities in Niger.

1. Malaria in Pregnancy

PMI Niger supports the Ministry of Health (MoH) for malaria in pregnancy (MIP) case management during pregnancy and strengthening of intermittent preventive treatment for pregnant women (IPTp) by providing commodities, technical assistance, and training at the central level and in the two PMI focus regions. With FY 2024 funding, PMI will continue to support MIP case management strengthening and enhancement of IPTp uptake and will monitor ITN distribution by health care providers during supportive supervision visits. PMI will support SBC activities to encourage early and frequent antenatal care (ANC) attendance. PMI will continue providing technical assistance at the central level and procure drugs for treatment of pregnant women as well as for IPTp.

2. Drug-Based Prevention

The National Malaria Strategic Plan (NMSP) promotes SMC as a malaria prevention intervention in areas with high seasonal malaria transmission. For FY 2024, PMI will procure 7.516 million of Sulfadoxine-pyrimethamine/ Amodiaquine (SPAQ) to cover the needs of the 1.7 million children between 3–59 months of age in the 21 health districts of the two supported regions of Dosso and Tahoua. PMI will also cover the implementation of three cycles of SMC in three Health Districts and four cycles in 18 health districts. PMI also supports the SBC activities to ensure community acceptance and adherence in the two regions.

3. Case Management

PMI supports the NMCP's goal of ensuring that all suspected malaria cases receive confirmatory diagnosis and all confirmed cases receive effective treatment. To achieve this, PMI supports training of health workers, integrated community case management (iCCM) by community health workers (CHWs) and the procurement of malaria tests and drugs. With FY 2024 funding, PMI will support integrated supervision of healthcare workers and CHWs to promote adherence to national case management (CM) guidelines. PMI will fund the expansion of the role of CHWs following MoH guidelines in five PMI supported districts and procure CM commodities to complement partners' procurements to cover national needs.

4. Health Supply Chain and Pharmaceutical Management

In addition to procuring and distributing malaria commodities and ITNs, PMI supports the NMCP, the Niger Agency for Pharmaceutical regulation, Agence Nigerienne de Regulation Pharmaceutique (ANRP), the National Office of Pharmaceutical Products and Chemicals (ONPPC) in the areas of quantification, supply chain governance, warehousing and last mile distribution for malaria commodities in the regions of Dosso and Tahoua. With FY2024 funding, PMI will continue to procure malaria commodities and will support technical assistance for the implementation of the logistics management information system (LMIS), quantification, monitoring of malaria commodities with implementation of dashboard, implement last mile distribution for malaria commodities and other health products in the PMI focus regions (Dosso and Tahoua), strengthen warehouse management capacity of the ONPPC and health districts.

5. Malaria Vaccine

The Niger health authorities applied in 2023 for the malaria vaccine introduction in Nigerith a goal to ensure RTS,S/AS01 vaccine coverage of at least 80 percent among children in targeted areas. In total,12 health districts out of 72 in four regions out of eight in the country will benefit from this program for phase one of introduction in the first quarter of 2024. PMI will not allocate funding to support vaccine introduction until the deployment timeline and specific resource requirements have been determined.

6. Social and Behavior Change

PMI supports the NMCP in strengthening community-based approaches for social and behavioral change with the objective of having at least 80 percent of the population adopt a malaria-friendly behavior by 2026. The behaviors prioritized by PMI with FY 2024 funds include: prompt care-seeking for fever for children under five years of age, especially targeting caregivers who have a lower income and educational background; early and frequent ANC attendance, especially adolescents and women in their first and second pregnancies; and provider adherence to national malaria guidelines.

7. Surveillance, Monitoring, and Evaluation

PMI provides support and technical assistance to ensure that accurate malaria data are collected and analyzed. With FY 2024 funding, PMI will provide technical assistance and formative supervision of health workers at all levels of the health system to ensure accurate data entry and analyses, and integrated coordination meetings at all levels. PMI will provide technical assistance for the preparation of the malaria bulletin.

8. Operational Research and Program Evaluation

PMI will not support operational research with FY 2024 funding but will instead prioritize other programmatic needs. The NMCP did not put forth any OR/PE priorities during the MOP process, and the country does not have an institutional body nor a technical working group defining programmatic operational research priority questions for NMCP.

9. Capacity Strengthening

To strengthen the capacity of the MOH, PMI will resume support of the Frontline Field Epidemiology Training Program (FETP) implemented by the Epidemiology and Surveillance Division (DSRE), to include healthcare workers from regional and district levels.

10. Staffing and Administration

The PMI interagency team led by the USAID Mission Director or their designee consists of a Resident Advisor (RA) representing USAID, an RA representing CDC, and one or more locally hired experts known as Cooperating Country Nationals (CCNs). The PMI interagency team works together to oversee all technical and administrative aspects of PMI.

I. CONTEXT & STRATEGY

1. Introduction

Niger began implementation as a PMI partner country in FY 2018. This FY 2024 Malaria Operational Plan (MOP) presents a detailed implementation plan for Niger, based on the strategies of PMI and the National Malaria Program (NMCP). It was developed in consultation with the NMCP and with the participation of national and international partners. The activities that PMI is proposing build on investments made by partners to improve and expand malaria-related services, including the Global Fund to Fight AIDS, Tuberculosis, and Malaria (Global Fund). This document provides an overview of the strategies and interventions in Niger, describes progress to date, identifies challenges and relevant contextual factors, and provides a description of activities that are planned with FY 2024 funding. For more detailed information on the country's context, please refer to the Niger Malaria Profile, which provides an overview of the country's malaria situation, key indicators, the NMCP strategic plan, and the partner landscape.

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

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

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

1. Reduce malaria mortality by 33 percent from 2015 levels in high-burden PMI partner countries, achieving a greater than 80 percent reduction from 2000.
2. Reduce malaria morbidity by 40 percent from 2015 levels in PMI partner countries with high and moderate malaria burden.
3. Bring at least 10 PMI partner countries toward national or subnational elimination and assist at least one country in the Greater Mekong Subregion to eliminate malaria.

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

1. **Reach the unreached:** Achieve, sustain, and tailor deployment and uptake of high-quality, proven interventions with a focus on hard-to-reach populations.
2. **Strengthen community health systems:** Transform and extend community and frontline health systems to end malaria.
3. **Keep malaria services resilient:** Adapt malaria services to increase resilience against shocks, including COVID-19, 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 Niger

3.1. Malaria Overview for Niger

In 2020, there was an increase in reported cases of malaria, with 6,651,444 suspected cases and 4,336,309 confirmed cases reported. In 2021, the NMCP reported 6,259,794 suspected malaria cases and 4,937,676 confirmed cases. The test positivity rate was 69.5 percent in 2020 and 68.2 percent in 2021, and the number of malaria deaths decreased from 5,845 in 2020 to 4,182 in 2021.[1] The malaria incidence is 204 per 1,000 population at risk,[2] and malaria prevalence among children between 6 and 59 months of age is 28.9 percent.[3] The increase in suspected and confirmed cases is consistent with the annual population growth.

The epidemiological profile of malaria in Niger is characterized by stable endemicity with seasonal resurgence during and after the rainy season, from July to November, with relatively high lethality, especially in children under five years of age. From a spatial perspective, the intensity, duration of transmission, and associated disease burden vary considerably across the country depending on geo-ecological and climatic conditions. The parasite responsible for malaria is almost exclusively *Plasmodium falciparum* with *An. gambiae* s.l. the main vector species (>96 percent), followed by *An. funestus* (about 2 percent). The NMCP and its partners conducted monitoring of vector resistance to insecticides from 2017 to 2022 which showed resistance in the populations of *An. gambiae* s.l. at diagnostic doses of the three pyrethroids (deltamethrin 0.05 percent, alphacypermethrin .05 percent, and permethrin .75 percent) with a mortality rate of less than 90 percent.[4]

Niger's Malaria Diagnostic and Treatment Guidelines, updated in December 2017, state that any suspected case of malaria must be confirmed by a diagnostic test—either malaria rapid

[1] Ministry of Public Health (Niger). Niger Health Statistical Yearbook 2020. (Niamey, Niger, 2021).
[2] Niger National Malaria Strategic Plan, 2023–2026. (. Nimey, Niger, 2022).
[3] 2021 Niger Malaria Indicator Survey. (Washington, D.C., USA, and Niamey, Niger, 2021).
[4] NIger National Malaria Strategic Plan Evaluation Report, 2017–2023.

diagnostic test (malaria RDT) or microscopy—followed by treatment with an ACT. Microscopy is performed in district hospitals, in the private sector, and in selected integrated health centers while malaria RDTs are mainly used in integrated health centers and at the community level. The results from the 2019 Service Availability Readiness Assessment (SARA) survey showed that the availability of malaria diagnostics in public and private health facilities (HFs) improved slightly compared with the 2015 survey results: 91 percent of HFs offered rapid diagnostic tests (88 percent in 2015) and 24 percent microscopy (20 percent in 2015). The SARA survey showed an increase from 52 percent (2015) to 61 percent of facilities having a health worker trained in malaria diagnostics and treatment. The 2022 End-Use Verification (EUV) survey that PMI supported showed an increase in the malaria diagnosis by malaria RDT (from 82 percent in 2019 to 95 percent in 2022), while the microscopy rate decreased (from 9 percent in 2019 to 2.7 percent in 2022).

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

3.2. Key Challenges and Contextual Factors

Niger's harsh climate and state-dominated economy pose challenges to development. Resources to cope with the world's highest fertility rate (6.7 children per woman) and fastest population growth (3.8 percent per year) are limited.[5] Niger is economically underdeveloped, with little industry and a large agricultural sector (87 percent of the nation's workforce). Niger also faces a series of persistent and growing security threats in different border areas (Nigeria and Lake Chad Basin and in the tri-border region along the Mali–Burkina Faso borders), and in Niger itself. Long-standing farmer-herder conflict cycles, lack of a strong state presence and access to justice in the border regions, and persistent poverty are factors which contribute to the growth of extremist groups. In addition, insecurity in neighboring countries such as Nigeria and Mali result in thousands of refugees coming into Niger. This increased insecurity in the border areas and the recent COVID-19 pandemic resulted in higher operational costs for all partners and the NMCP and increased numbers of internally displaced people.

Some of the main challenges in the fight against malaria are the shortage of and high turnover of health care workers at the *Centre de santé integré* (CSI) [Integrated Health Center] level, who also lack training in malaria treatment and prevention and in health information system (HIS) and Logistics Management Information System (LMIS) data management. Although the country considers the District Health Information Software 2 (DHIS2) system to be the only health information system, data entry at the peripheral level is challenging due to staff shortages and unreliable access to electricity and internet. Another point of weakness is the public sector supply chain, with a lack of staff trained in supply planning processes and the limited availability and poor quality of LMIS data, resulting in multiple stockouts. Commodities are stored at several central-level locations, and the public health system distributes them through zonal and/or regional warehouses to district warehouses. Some HFs use their own

[5] World Population Prospects 2022 revision. United Nations Population Division (New York, New York, 2022).

funds to travel to retrieve their commodities from the district. Other HFs combine commodity collection with meetings at the health district and/or district supervision missions.

3.3. PMI's Approach in Niger

The Niger 2023–2026 NMSP envisions a malaria-free Niger, with the goal by 2026 of reducing malaria morbidity and mortality by 40 percent compared to 2021. To achieve this, the NMCP supports the following major intervention areas: vector control, malaria case management (CM), IPTp for malaria in pregnancy (MIP), social and behavior change (SBC), surveillance, monitoring, and evaluation (SM&E), and seasonal malaria chemoprevention (SMC). These strategies and interventions are closely aligned with those prioritized by PMI. Notable exceptions include the NMCP's promotion and implementation of larval source management and IRS. PMI coordinates closely with the NMCP and Global Fund to ensure a complementarity of support for the implementation of the 2023–2026 NMSP. PMI provides financial and technical assistance for most of the strategies described in the strategic plan with the exception of IRS and larval source management.

PMI/Niger support at the national level focuses on procurement of common malaria commodities, and at the central level focuses on technical assistance to different entities of the Ministry of Health (MOH) for SM&E and commodity management. Other components such as malaria CM, SBC, SMC, and SM&E are targeted to the regional, district, and community levels in the two PMI target regions of Dosso and Tahoua. PMI and Global Fund are trying to cover all the needs of the country to control malaria as much as possible. For service delivery strengthening and SMC, support is divided by region or by the type of support provided (e.g., implementation support vs. technical assistance). For instance, PMI and Global Fund both support routine ITN distribution in different geographical areas, but Global Fund fully supports ITN distributions through campaigns while PMI supports the entomology monitoring.

PMI/Niger is implementing the malaria activities in an environment that limits free movement in several border areas. The NMCP and partners have to adapt the activities (use of cars instead of motorbikes) or change the approach (door-to-door SMC instead of distribution posts), which results in increased cost. To contend with the high turnover of health care workers at the CSI level and their lack of training on malaria treatment and prevention, PMI/Niger, at the request of NMCP, replaced the approach of training and retraining staff by focusing on increased integrated formative supervision visits. This activity also includes data entry and level appropriate analysis to improve the weak health information system. More than half of the PMI/Niger budget is dedicated to commodities and strengthening the supply chain. PMI/Niger implements the last mile distribution as a solution to prevent multiple stockouts in two regions.

3.4. Key Changes in this MOP

This MOP does not include any significant changes in strategies. Some activities such as the FETP that were not implemented in 2023 will resume with this MOP considering the country's need to strengthen epidemiological and surveillance capacity.

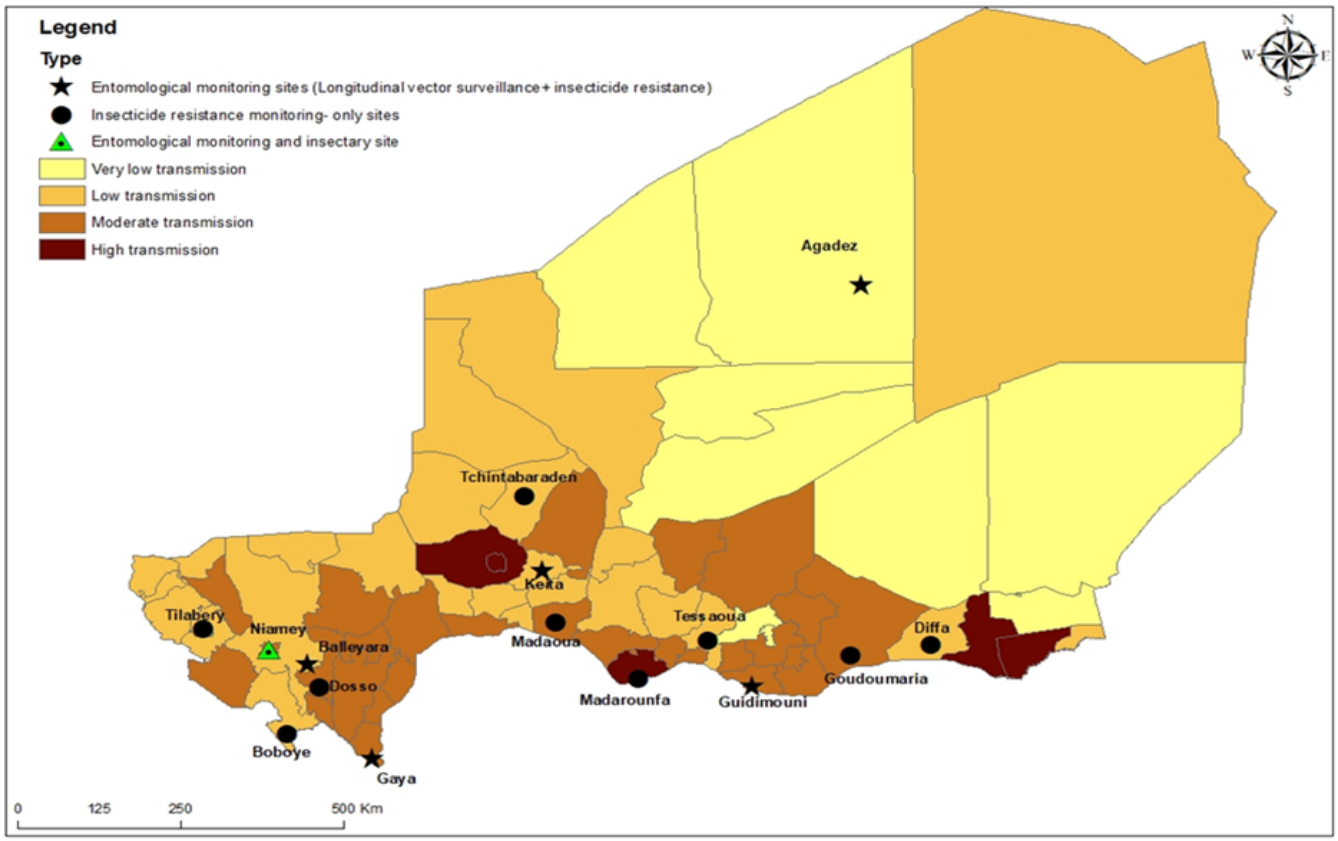
II. OPERATIONAL PLAN FOR FY 2024

1. Vector Monitoring and Control

1.1. PMI Goal and Strategic Approach

The Niger National Malaria Program's (NMCP) Malaria Strategic Plan 2023–2026 promotes an integrated vector management strategy, including vector surveillance, insecticide resistance management, continuous and mass distribution of ITNs, geographically targeted IRS, and larval source management. PMI supports the use of all these interventions in Niger, except for IRS and larval source management. PMI supports entomological monitoring in 15 sites/districts; no other funder is engaged in this activity in Niger. The Global Fund supports mass ITNs campaigns every three years while PMI supports continuous distribution via Antenatal Care (ANC) and Expanded Program on Immunization (EPI) channels nationwide.

Figure 1a. Map of Vector Control Activities in Niger



Based on PMI-supported insecticides resistance data, the NMCP in collaboration with WHO conducted an ITN stratification exercise in 2022 that defined the type of net needed in each of the country's 8 regions (72 districts): a) standard pyrethroid-only ITNs in 27 districts, b) dual active ingredients (AI) ITNs in 15 districts, and pyrethroid-piperonyl butoxide (PBO) based ITNs in 30 districts (Figure 1b).

Figure 1b. Map of Niger Showing the 2022 ITNs Stratification by Insecticide Types for Mass Campaign and Vector Surveillance and Insecticides Resistance Monitoring Sites.

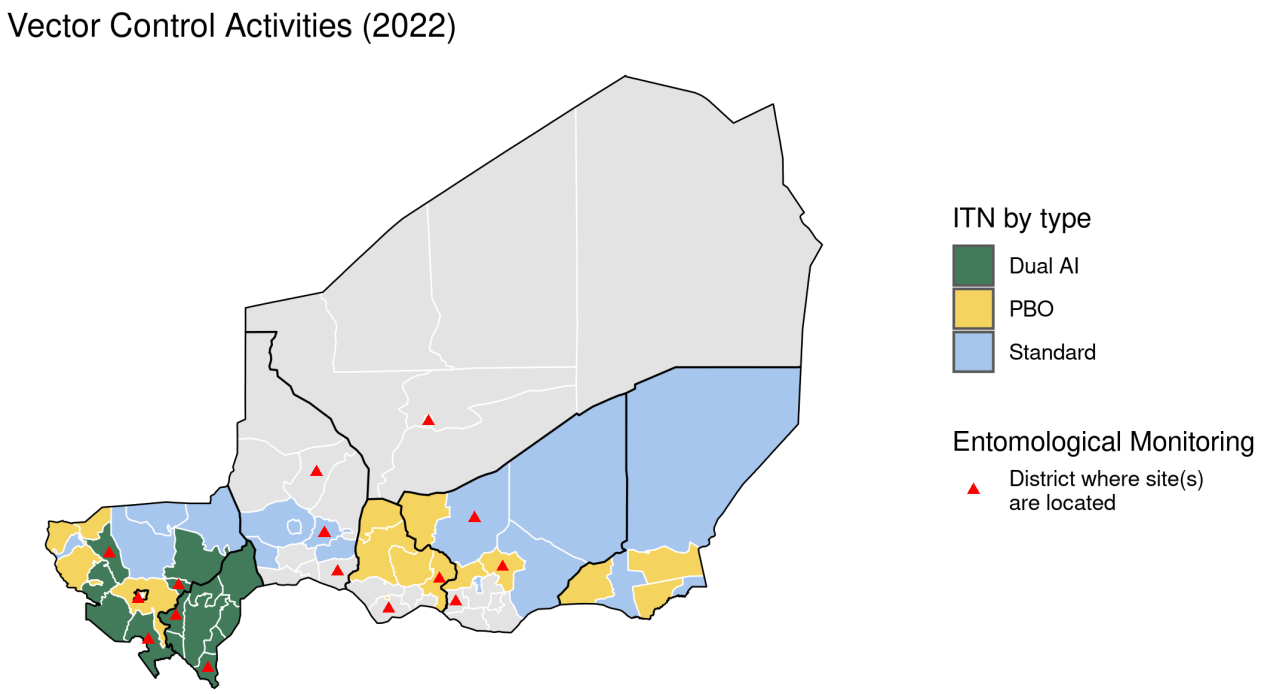


Figure 1c. Map of Niger showing 2023 vector surveillance and insecticides resistance monitoring sites.

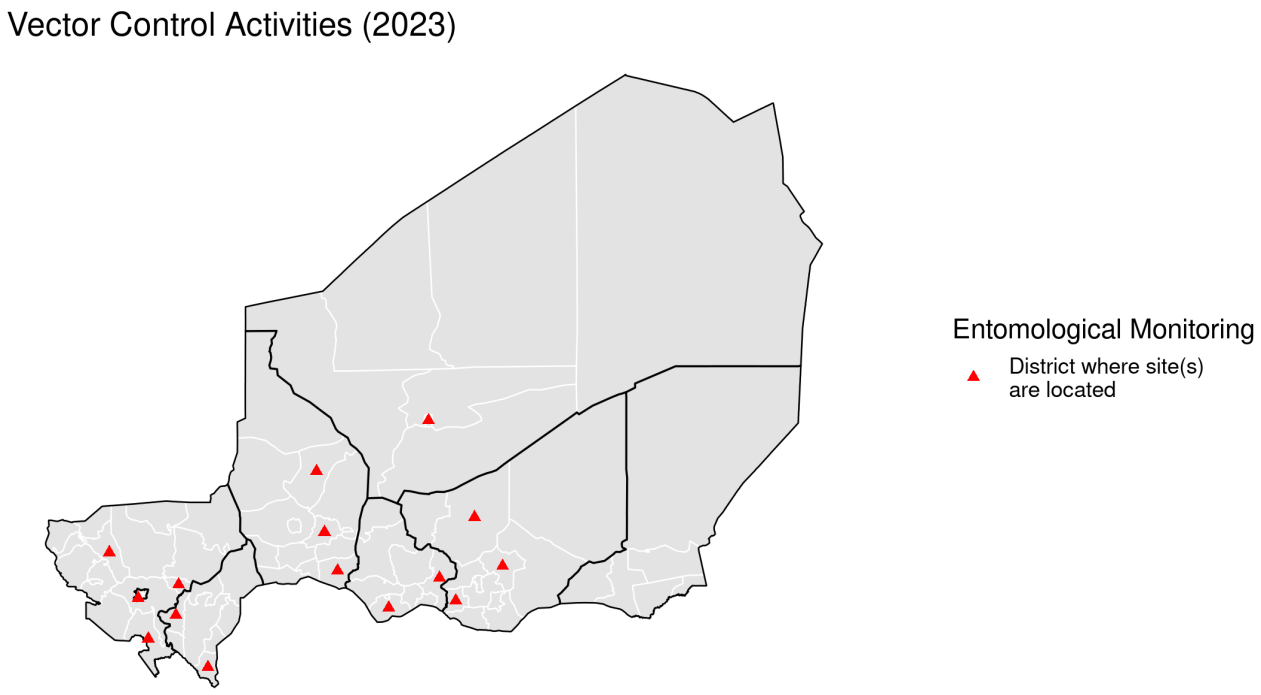
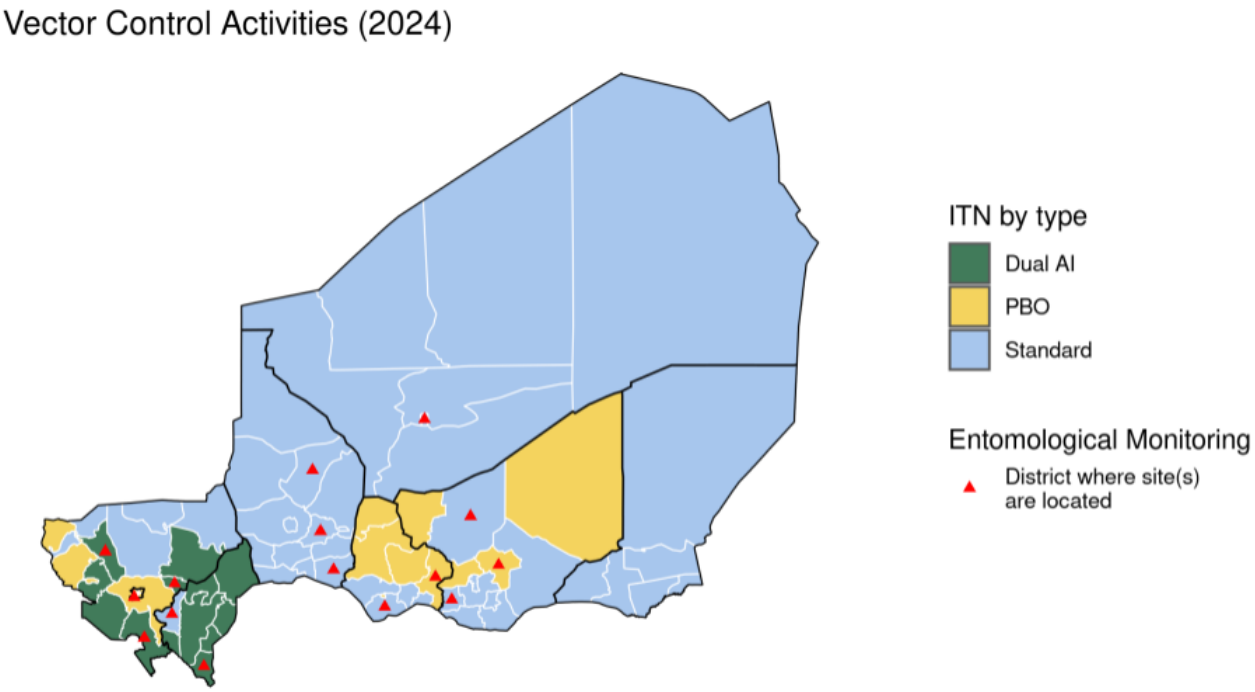


Figure 1d. Map of Niger showing the 2024 ITNs stratification by insecticide types based on country-wide insecticide resistant data, funding availability, and vector surveillance.



1.2. Recent Progress (April 2022–April 2023)

- Supported entomological monitoring in fifteen (15) sentinel sites in 15 districts in collaboration with the NMCP and the Centre Recherche Medical et Sanitaire (CERMES). Monitoring activities included insecticide resistance monitoring in 15 sites and vectorbionomics monitoring in 6 sites. For more information about entomological monitoring,please refer to the 2022 Entomological Report.
- Provided technical assistance to local research institution (CERMES) for laboratory training involving molecular analysis of mosquito samples and training on entomological monitoring, including surveillance and identification of the invasive malaria vector, *Anopheles (An.) stephensi*.
- Supported CERMES in conducting all the entomological surveys. This includes routine entomological surveillance, support to the insectary, and training of regional staff.
- Supported the procurement and distribution of 302,500 PBO ITNs for routine continuous distribution through the routine channels.
- Supported prevention of malaria in pregnancy (MIP) by providing ITNs to women at their first ANC visit.
- Supported national level social and behavior change (SBC) activities to improve demand for ITNs, increase appropriate use, promote care. For more information, please refer to the SBC section.

1.3 Plans and Justification for FY 2024 Funding

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

1.3.1. Entomological Monitoring

PMI Niger will continue to support entomological monitoring activities as described in the Recent Progress section. Entomological monitoring will be conducted by CERMES in collaboration with NMCP in 15 districts (Agadez, Say, Tessaoua, Boboye, Konni, Dakoro, Tchintabaraden, Tillabery, Zinder, Sabon Kafi, Balleyara, Gaya, Guidimouni, Keita, and Niamey V) including the district of Dosso receiving dual AI and four others receiving PBO-based and pyrethroid-only ITNs. Activities will include vector bionomics and insecticide resistance monitoring. This will feed into the country's database and help to monitor the impact of new nets on entomological indices. It will also iluminate vector-human interactions and inform decisions. In addition, PMI will support the surveillance of the invasive malaria vector *(An. stephensi*) in urban Niamey and peri-urban (Gaya) in the region of Dosso and pilot community-based entomological surveillance in Gaya as part of the larger PMI localization effort. PMI will provide technical support to review and update the Niger Plan for Insecticide Resistance Management and continue to provide technical assistance to strengthen the capacity of “Centre de Recherche Medical et Sanitaire” (CERMES), a local research institution in Niamey.

Summary of Distribution and Bionomics of Malaria Vectors in Niger

As of December 2022, the primary malaria vector in Niger remains *An. coluzzii:* a member of the *An. gambiae s.l.* Secondary vectors are *An. funestus* and *An. arabiensis*. Vector species composition are similar among the six sites but indoor density is significantly higher in Gaya (Dosso district) compared to other sites. The overall observed density of the major vectors was lower than that of the same period in 2021. Peak transmission season is from July to October that coincides with the rainy season in different sites. Based on data from human biting rates and endophagic index, the preferred biting location of the primary vector is indoors, with no significant site differences. Humans remain the preferred host at all the sites with peak biting period between 11.00 pm and 06.00 am, both indoors and outdoors.

Status of Insecticide Resistance in Niger

Insecticide resistance data collected from June to December 2022, showed *An. gambiae s.l.* resistant to the three pyrethroids (deltamethrin, permethrin and alphacypermethrin) tested in all 15 sites. There was high pyrethroid resistance intensity in 12 sites. As of 2022, PBO did not fully restore susceptibility to the three pyrethroids in any of the 15 sites. There is emerging resistance to chlorfenapyr in nine sites (Agadez, Boboye, Matameye, Sabon Kafi, Say, Niamey, Niamey V, Madaroufa and Tchintabaraden). There was also emerging resistance to

pirimiphos-methyl in eight out of the 15 sites. There was no resistance for clothianidin at any of the sites.[6]

1.3.2. Insecticide-Treated Nets (ITNs)

The NMCP and partners are conducting mass campaigns targeting to cover the whole country every three years using Global Fund mass ITNs campaigns. PMI will continue to support procurement and distribution of ITNs through continuous distribution as described in the Recent Progress section. PMI will provide technical support to the country's 2024 universal mass distribution through participation on a national task force. PMI will also support SBC to improve use and care of ITNs. PMI will also support SBC on national level and in the two PMI focus regions to promote correct and consistent use.

The 2021 Niger Malaria Indicator Survey revealed encouraging data around net use. The percentage of households owning at least one ITN has increased from 43 percent in 2006 to 61 percent in 2012 and 96 percent in 2021. ITN use among pregnant women and children under 5 years of age has increased markedly from 7 percent in 2006 to 90 percent in 2021 among pregnant women and 86 percent among children. Overall, 80 percent of the population has access to a net. Among households with at least one ITN, 81 percent slept under an ITN the night before the interview. Please see the SBC section for more details on challenges and opportunities to improve intervention uptake or maintenance.

ITN Distribution in Niger

The NMCP in Niger and partners have historically conducted rolling ITN mass campaigns covering the whole country over the course of three years. The last mass campaign was in 2022, which covered the 45 districts not covered in 2021 and 2020. The country is moving toward nationwide universal coverage campaigns to cover all the 72 health districts of the eight regions every three years, starting in 2024. There will be no 2023 campaign as a result.

PMI will continue providing support to routine ITN distribution through ANC consultations and EPI activities. PMI will continue its support to NMCP to ensure that ITN distribution guidelines are adhered to and communicated on a national level and at all levels of the health pyramid in the two PMI target regions of Dosso and Tahoua. Niger is slowly transitioning away from standard pyrethroid-only ITNs. Based on the 2022 resistance data, the NMCP has distributed dual AI ITNs, PBO ITNs and standard pyrethroid ITNs in the eligible districts for the 2022 mass campaigns. There are plans to distribute dual AI ITNs in PMI focus districts of Dosso for continuous distribution in 2023. There are also plans to continue the distribution of dual AI and PBO ITNs in select districts during the 2024 mass campaign, based on the 2022 resistance data. The Global Fund will cover the total quantity of ITNs needed for this campaign. With FY 2023 funds, PMI will procure both IG2 and standard pyrethroid nets for the routine distribution.

[6] The PMI VectorLink Project. PMI VectorLink Niger Annual Entomology Report April 2021–March 2022. (Rockville, MD: Abt Associates, June 2021): https://d1u4sg1s9ptc4z.cloudfront.net/uploads/2022/11/Entomological-Monitoring-Report-Niger-2022.pdf.

For the 2024 MOP, PMI budgeted only standard pyrethroid only ITNs for routine distribution in 2025. Gaps have been identified to cover the need for routine distribution in 2024 and 2025.

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

PMI Niger conducted durability monitoring of Olyset nets (permethrin) distributed during the June 2018 mass campaign in two districts: Gazaoua (in the Maradi region) and Madaoua (Tahoua region). The final (36th month) report presented in 2022, showed campaign net physical integrity was poorer in Gazaoua (61 percent nets serviceable) compared to Madaoua (78 percent nets serviceable). In both study sites, total campaign ITN attrition was similar (~75 percent) and was driven by both wear and tear and nets being given away to others. The estimated median survival time of Olyset ITNs in Gazaoua and also in Madaoua was 2.4 years (details in country profile).

Table 1. Standard Durability Monitoring

Campaign Date	Site	Brand	Baseline	12-month	24-month	36-month
June 2018	Gazaoua	Olyset	October 2018	July 2019	August 2020	(July 2021)
June 2018	Madaoua	Olyset	October 2018	July 2019	August 2020	(July 2021)

1.3.3. Indoor Residual Spraying (IRS)

PMI does not support IRS in Niger and no other donors are engaged in this intervention.

1.3.4. Other Vector Control

PMI does not support other vector control activities including larval source management in Niger. In calendar year (CY) 2024, PMI will support the planning for surveillance of *An. stephensi* in the two sentinel sites of Gaya in Dosso region in a peri-urban site and Niamey V in an urban area of Niger.

2. Malaria in Pregnancy

2.1. PMI Goal and Strategic Approach

The guidelines for MIP in the Niger NMSP include the provision of ITNs at the first ANC visit, a minimum of three doses of IPTp starting at 13 weeks gestational age, and effective case management of malaria in pregnant women following WHO guidelines.

PMI supports the NMCP to achieve its goal through improving the quality of service and the availability of commodities. The 2022–2026 NMSP aims to have 80 percent of pregnant women receiving at least three doses of IPTp (in 2021, only 25 percent of pregnant women

received at least three doses)[7]. The barriers to IPTp uptake include the late initiation of pregnancy care by pregnant women, the insufficient training in MIP of health providers, and noncompliance with MIP national guidelines. Based on the 2019 SARA, 86 percent of health facilities had IPTp commodities available, while 71 percent had ITNs available; only 47 percent of providers were trained on IPTp; and national guidelines for IPTp were available in 54 percent of health facilities[8]. In the two PMI focus regions, PMI will continue to support MIP case management strengthening and enhancement of IPTp uptake through training, mentoring, and supportive supervision at the facility and community levels, as well as through technical assistance and policy support at the central level. The supportive supervision provides the NMCP and PMI with the opportunity to reinforce the guidelines, ensure that pregnant women are receiving the planned ITN and IPTp, and to ensure health providers are offering malaria diagnosis and treatment of uncomplicated and severe malaria (first and second trimesters).

PMI will collaborate with NMCP, Global Fund, ANRP, and ONPPC to coordinate procurement and delivery schedules to ensure appropriate stock levels of Sulfadoxine-Pyrimethamine (SP) at service delivery points.

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

2.2. Recent Progress (April 2022–April 2023)

PMI-supported malaria in pregnancy activities were influenced by the persistent and substantial human resource issues that continue to affect the Niger healthcare system and continued security issues. Lack of medical equipment for managing complications related to severe malaria in hospitals was also identified as a challenge. PMI worked with the NMCP and partners to adjust to these difficult circumstances and implement the following:

- Collaborated with the NMCP and Global Fund to coordinate procurement and delivery schedules to ensure appropriate stock levels of SP in all the HFs.
- Supported the NMCP and the Direction Générale de la Population et de la Santé de la Reproduction (DGP/SR[General Directorate for Population and Reproductive Health] for quarterly meetings of the national MIP technical working group which consists of a wide range of stakeholders from the MOH (including the General Directorate of reproductive health, the Directorate of Maternal and Child, the Directorate of family planning, the Directorate of care and treatment, the Directorate of health statistics, and the drug regulation authority, along with the NMCP) as well as partners such as UNICEF, WHO, PMI IPs, etc.
- Delivered 1,000,000 doses of SP and 302,500 nets for distribution during ANC visits.

[7] Institut National de la Statistique (INS) et ICF. Enquête sur les Indicateurs du Paludisme au Niger 2021: Rapport final. (Niamey, Niger and Rockville, Maryland, USA, 2023).

[8] World Health Organization. Service availability and readiness assessment (SARA): an annual monitoring system for service delivery reference manual. (Geneva, Switzerland: World Health Organization, 2013).

- In the two PMI focus regions:
    - After six rounds of OTSS+, an overall improvement was noted in the management of MiP. The proportion of competent health workers (with a score ≥ 90 percent) increased from 76 percent to 89 percent for the management of malaria during pregnancy while the proportion of competent health workers (HWs) for the prevention of malaria during pregnancy increased from 27 percent to 78 percent[9].
    - Supported quarterly OTSS+ visits by 15 health district management teams in 144 priority CSIs.
    - Trained 93 facility-based health workers in MIP and CM.
    - Deployed a “champion program” to strengthen the capacity of severe malaria case management in 14 targeted hospitals.
    - Supported NMCP to institute a framework for advocacy with hospital managers on the quality control committees to procure needed equipment.

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

2.3. Plans and Justification for FY 2024 Funding

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

PMI will continue to support MIP case management strengthening and enhancement of IPTp uptake in PMI focus regions through supportive supervision at the facility and community levels, as well as technical assistance and policy support at the central level as described in the Recent Progress section (2.2). PMI will support the functionality of the MIP technical working group at the central level but also will promote MIP coordination activities at the regional and district level.

PMI will collaborate with the NMCP, Global Fund, ANRP, and ONPPC to coordinate the procurement and delivery schedules to ensure appropriate stock levels of SP in the HFs. Based on the most recent national quantification estimates, PMI plans to procure 1,360,000 doses of SP with MOP FY 2024 funding and will continue to fund SP distribution to facilities in the two PMI focus regions. The Global Fund contribution for 2024 is limited to 570,850 doses according to the projection in the Global Fund funding request.

Please refer to the SP Gap Table in annex for more detail on planned quantities and distribution channels. Please see the SBC section for details on challenges and opportunities to improve intervention uptake or maintenance.

[9] PMI Impact Malaria FY23 Q2 Report.

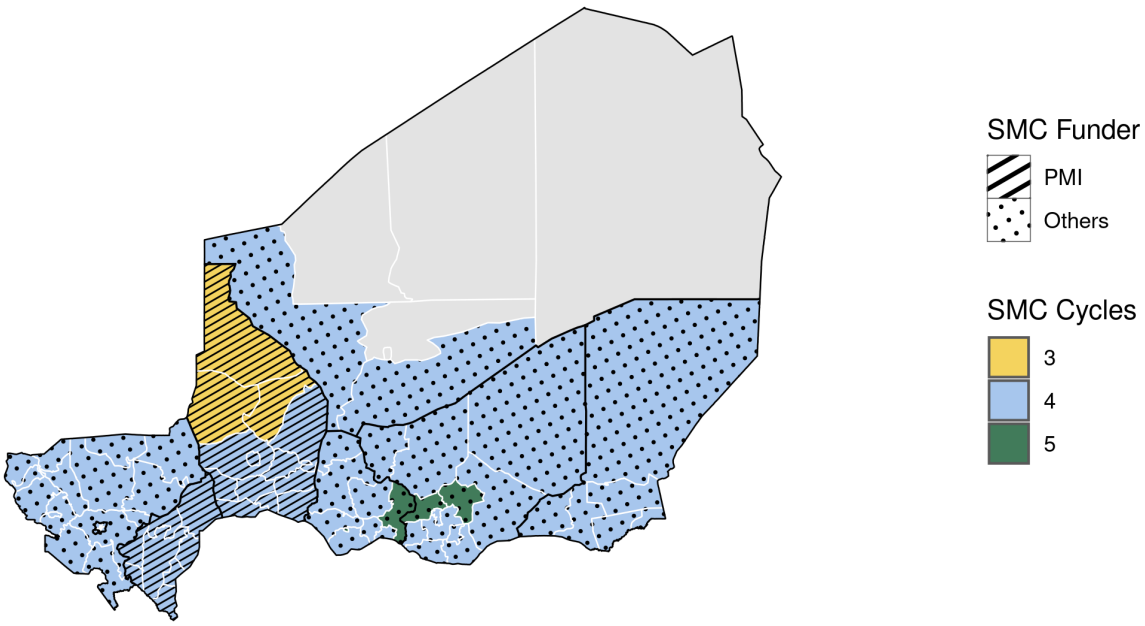
3. Drug-Based Prevention

3.1. Seasonal Malaria Chemoprevention

3.1.1. PMI Goal and Strategic Approach

The NMSP promotes SMC as a malaria prevention intervention in areas with high seasonal malaria transmission. PMI funds this intervention in 21 districts, including procurement of sulfadoxine-pyrimethamine + amodiaquine (SPAQ), to meet the needs of the eligible population and all aspects of implementation (planning, training, paying distributors, SBC and SM&E activities). The Global Fund supports SMC in the other 46 eligible districts. PMI also provides technical support to the NMCP at the central level for SMC planning and development of the SBC messages.

Figure 2. Map of SMC Implementation in Niger (2023)



3.1.2. Recent Progress (April 2022–April 2023)

PMI supported implementation of 2022 SMC targeting 1,236,540 children aged 3–59 months in 21 health districts in Dosso and Tahoua regions. In 2021, only 17 health districts were supported. In 2022 the SMC campaign included the four additional HDs from the Northern Tahoua region , through and three cycles (in three HD) and four cycles (in one HD) of SMC. The number of cycles of SMC administered in each HD depends on the length of the rainy season, which varies in Niger. PMI/Niger achieved an estimated coverage of 93 percent in Dosso region and 83 percent in Tahoua during the 2022 campaign. PMI also helped:

- Procure SPAQ blister-packs to meet the need in the PMI-supported implementation area for the 2022 campaign.

- Support implementation activities including micro planning meetings, and training and support of supervisors, distributors, and social mobilizers to implement the SMC campaign and conduct malnutrition screening in 21 districts.
- Support activities in 21 districts including independent monitoring in select CSIs.
- Support evaluation meetings between each cycle of the SMC campaign.
- Support the NMCP to hold planning and post-implementation evaluation meetings at regional and national level.
- Funded SBC activities focused on demand generation at the community level through support of social mobilizers, women's groups, and diffusion of messages through radio and television spots. For more information, please refer to the SBC section.

3.1.3. Plans and Justification for FY 2024 Funding

Niger will continue to support SMC activities in all 21 districts in the two PMI focus regions as described in the Recent Progress section (3.1.2). The FY 2024 funding tables contain a full list of SMC activities that PMI proposes to support.

In Niger, SMC has been implemented every year since 2015 in eligible districts for a period of four months during the peak malaria transmission season. Since 2015, the number of eligible districts has gradually increased from less than 20 to 67 districts in 2022. Based on results of the 2022 HBHI stratification modeling exercises, the NMCP has requested support to expand the number of cycles to five in 28 districts based on rainfall and malaria case patterns, but also to expand the SMC to children aged 60 to 119 months. In 2022, the Global Fund supported the pilot phase of the implementation of 5 cycles of SMC in 4 districts and they plan to continue this support in 2023, 2024, and 2025.

For FY 2024, PMI will procure 7.516 million doses of SPAQ to cover the needs of the 1.7 million children between 3–59 months of age in the 21 health districts of the two PMI-supported regions of Dosso and Tahoua. The Global Fund will support SMC implementation in the remaining 46 eligible districts.

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

4. Case Management

4.1. PMI Goal and Strategic Approach

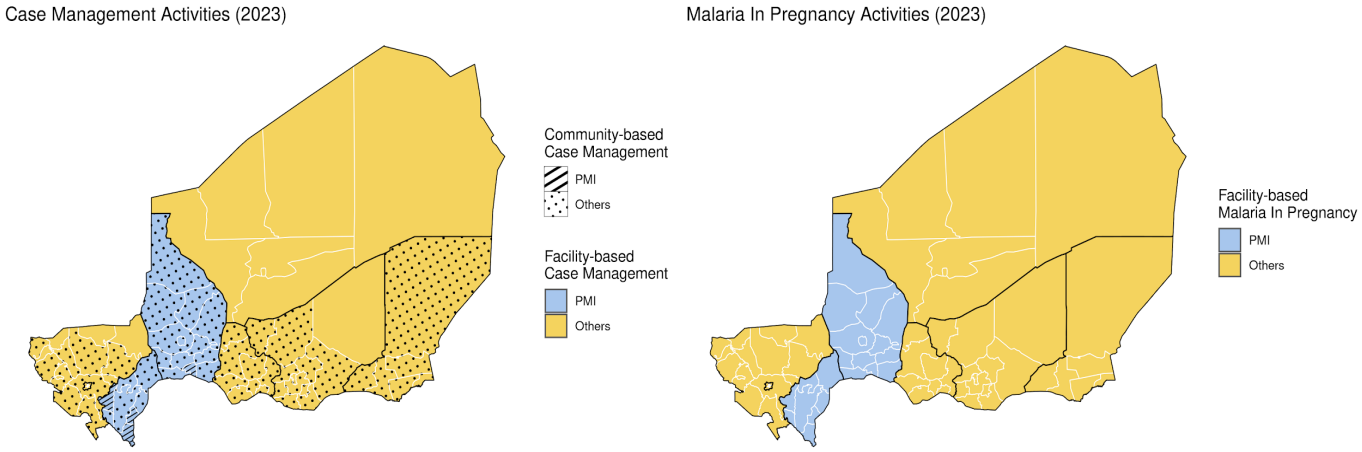
The 2023–2026 NMSP promotes a comprehensive case management strategy including universal, quality-assured parasitological testing of all cases of suspected malaria. It also promotes prompt and effective treatment with ACT of all uncomplicated malaria confirmed cases, and rapid pre-referral and/or definitive management of severe febrile illness and severe malaria. The NMSP focuses on ensuring proper management (diagnosis and treatment) of at least 90 percent of malaria cases and having at least 80 percent of the population aware of the

major malaria symptoms and national malaria prevention measures. 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 nationwide procurement of malaria rapid diagnosis tests (mRDTs), ACTs, and injectable and rectal artesunate, approximately 40 percent of country needs; the Global Fund and the Government of Niger support procurement of the remaining 60 percent.

PMI works with the NMCP, the ANRP, the ONPPC and Global Fund to ensure timely product availability according to current needs. PMI commodities are added to a pooled commodity management system and distributed nationwide.

PMI currently supports (through equipment, training, and supervision) 623 community health workers in five districts to deliver community-based case management services that include iCCM and pre-referral administration of rectal artesunate. The national community health strategy calls for expansion of CHWs by 2023, and with FY2024 funds PMI will support up to a total of 2000 CHWs across the five districts, including the CHWs implementing the integrated health promotion package. The biggest current challenge faced by the community health system is the incomplete CHW mapping and insufficient coordination among all partners (MOH, donors, NGOs), and to address this, PMI is providing technical assistance to the MOH Directorate of Community Health that is responsible for coordinating the CHWs, while other partners are supporting the mapping. To avoid the duplication of efforts, the MOH initiated a partner mapping and made the decision to have only one partner per district supporting the implementation of iCCM (recruitment, training, supervision and payment of the CHWs).
PMI also funds Outreach Training and Supportive Supervision (OTSS+) activities in 144 HF in 14 districts within the two PMI focus regions. PMI is providing assistance to the NMCP to support regional and district level coordination quarterly meetings to improve case management and to adopt an integrated formative supervision instead of a silo approach. PMI does not currently provide routine stipend payments to CHWs, but PMI-supported CHWs are financially supported by the Global Fund and UNICEF; provisions are made to pay CHWs starting in 2024. The national community health strategy recommends the monthly payment of CFA 20,000 for CHWs implementing both promotional and curative packages, with the partners paying CFA 15,000 of the CFA 20,000.

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



Note: Other donors support community-based case management.in all regions with exception of Agadez.

4.2. Recent Progress (April 2022–April 2023)

PMI-supported case management activities were impacted by the persistent and substantial human resource issues faced by the Niger healthcare system, and the continued security issues within the country. PMI worked with the NMCP and partners to adjust to these circumstances and implement the following:

<u>National Level Case Management Activities</u>

- Updated malaria national policy documents and training materials including job aids, particularly those related to MIP (including the 2016 WHO recommendations) and other updates to the malaria case management guidelines.
- Supported a cascade training of 14 national trainers and 42 district trainers on the revised malaria case management guidelines.
- Supported malaria case management through a co-design workshop, capacity building of HWs, and providing OTSS+ in collaboration with the NMCP, *Direction de l'Organisation des Soins* (DOS, of Healthcare Organization Directorate), and private health sector associations.
- Supported the NMCP and the Mother Child Health directorate to organize four MiP technical working group meetings.
- Supported implementation of the therapeutic efficacy study of ACT to monitor their efficacy in the treatment of uncomplicated malaria cases.
- Supported the training of two laboratory technicians in "The PMI-supported Antimalarial Resistance Monitoring in Africa (PARMA)" training in Dakar, Senegal.

Commodities

- Worked with NMCP, Global Fund, ANRP and ONPPC to coordinate the procurement and delivery schedules to ensure appropriate stock levels of CM commodities at service delivery points.
- Delivered 2,919,250 mRDTs for the common basket and distributed 1,737,725 mRDTs in the two PMI focus regions.
- Supported the procurement of 2,066,010 ACTs for the common basket and distributed 1,782,270 ACTs in the two PMI focus regions.
- Supported the procurement and delivery of 300,000 vials of parenteral artesunate for nationwide common basket.

Facility Level

- Supported quality management of severe malaria by implementing a hand-on training program for clinicians, providing OTSS+ and setting up a quality assurance (QA) committee at district hospitals.
- Supported 15 Health Districts in the Dosso and Tahoua regions and organized quarterly OTSS+ visits at the HF level to identify and resolve issues related to malaria case management and MIP prevention. A total of 239 health providers received on-site training following the supervisors' observations.
- Supported the organization of two malaria coordination meetings in the 2 PMI focus regions and to promote data use and improve best practices in malaria diagnosis and treatment.
- Supported the coordination meetings (all malaria activities) in 17 targeted Health Districts.
- Supported five Health Districts in Dosso and Tahoua regions to strengthen iCCM activities through on-site training of CHWs and their supervisors, conducting regular supportive supervision and organizing quarterly coordination meetings with CHWs.
- Developed a checklist for the identification of private health clinics operating in Dosso and Tahoua regions that could benefit from government support.
- Supported a co-design workshop to identify the needs of private health clinics to reinforce malaria case management and the preferred mechanism to fulfill these needs.
- Training of 27 HWs (physicians and nurses) and 16 gynecologists and midwives from 13 private facilities on malaria case management.
- Progress in key case management indicators after conducting two or four rounds of on-site training and supportive supervision visits in 143 HFs within 15 districts.
    - The proportion of HWs demonstrating competency in using mRDTs was 95 percent from new selected HFs; 98 percent from HFs with previous OTSS+ visits.
    - The percentage of supervised providers demonstrating competency in the prevention and the treatment of MIP also increased respectively from 54 percent to 79 percent in the new target facilities (prevention of MIP) and from 35 percent to 51 percent (management of MIP) in these new facilities.

- The proportion of HWs with skills in correct management of uncomplicated malaria increased from 15 percent in Round 1 to 41 percent in Round 2.
- Almost 100 percent of the supervised HWs adhere to negative mRDT results.

Community Level

- Continuous implementation of iCCM in the five health districts covering a total population of 1.6 million people and supported the training of 264 CHWs.
- Supported seven-day initial training of 72 new CHW's supervisors to expand iCCM supervisors.
- Supported the implementation of three rounds of supportive supervision using new iCCM tools, targeting 527 CHW in the first round, 524 in the second round, and 567 in the third round.

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

4.3. Plans and Justification for FY 2024 Funding

The FY 2024 funding tables contain a full list of case management activities that PMI proposes to support.

National Level Case Management Activities

PMI Niger will continue to support the national case management activities as described in the Recent Progress section.

Commodities

PMI Niger will continue to procure ACTs, mRDTs, injectable artesunate, and rectal artesunate as described in the Recent Progress section. Based on the most recent national quantification estimates, there is a projected need for additional mRDT procurement to ensure adequate commodity availability in 2024. PMI plans to procure 3,500,000 mRDTs to contribute to the country's needs and PMI will procure 3,000,060 ACTs, 300,000 vials of injectable Artesunate and 22,700 artesunate suppositories. The next Global Fund grant for the period 2024–2026 will also include an important component of commodities procurement but the anticipated gap for these commodities will not be totally covered. PMI will support the NMCP to advocate for more national resources as well as seek contributions from other donors.

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

Facility Level (may include private sector if relevant)

PMI will continue to support supportive supervision as needed to strengthen CM activities in the PMI focus districts, as described in the Recent Progress section above.

Community Level

PMI/Niger will continue to support training, formative supervision, and payment of compensation (CFA 15,000/month) to approximately 620 currently supported CHWs, 600 promotional CHWs as well as the identified gap of 700 CHWs (for iCCM strengthening in the PMI focus districts, as described in the Recent Progress section above). Following the finalized community health mapping expected by the end of 2023, PMI will continue its support for the implementation of community health activities in the selected districts.

Monitoring Antimalarial Efficacy

Table 1. Ongoing and Planned Therapeutic Efficacy Studies

Ongoing Therapeutic Efficacy Studies			
Year	**Site name**	**Treatment arm(s)**	**Plan for laboratory testing of samples**
2022	Zinder, Boboye, Aderbissenat, Aguie	AL	PARMA Hub in Senegal
Planned TESs (funded with previous or current MOP)			
Year	**Site name**	**Treatment arm(s)**	**Plan for laboratory testing of samples**
2024	TBD	AL, SP resistance markers	In country at CERMES and PARMA* hub in Senegal

*PMI-supported Antimalarial Resistance Monitoring in Africa
AL: Artemether-lumefantrine; SP: Sulfadoxine-pyrimethamine.

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's approach to supply chain management in Niger is to support the implementation of the national strategic plan for the management of medical supplies. The plan's goal is to establish an integrated health product supply chain mechanism called *chaine unique d'approvisionnement* (single supply chain) focused on ONPPC, coordinated by ANRP (formerly DPH/MT), and bringing together the various stakeholders at the central (ANRP, ONPPC and NMCP) and regional levels (DRSP/P/AS) to ensure the continuous availability of quality health products at all levels of the health pyramid and address the strategic objective of reducing malaria commodity stockouts to a target of less than 10 percent of health facilities.

The MOH, through the vision of an integrated supply chain, aims to ensure that all people in Niger can access quality health products for full coverage of health needs, no matter where they are. For this reason, the MOH is committed to the last mile distribution of health products.

Specifically, PMI provides support for:

- On-the-job training, formative supervision, and monitoring of regional, district, and health facility staff on the reporting and use of malaria commodity data to better maintain appropriate stock levels at the facility level, and to improve stock and logistics information for malaria commodities.
- Implementation of last mile distribution of malaria commodities to HFs in the two PMI focus areas.
- Coordination, quantification, warehousing, and distribution efforts (ONPPC, DPH/MT and NMCP), in addition to periodically assessing the use of malaria commodities via End-Use Verification surveys and data quality assessments.
- Coordination of the implementation of the PMI stockout reduction strategy that was developed in 2021 in collaboration with NMCP, DPH/MT, and partners. Through this strategy, PMI prioritizes activities to improve malaria commodity stock management at service delivery points, such as providing more support for a functioning LMIS and for improved data quality, analysis, and stock management in the two PMI focus regions.

5.2. Recent Progress (April 2022–April 2023)

PMI's supply chain investments aimed at improving malaria commodity availability at service delivery points and included improving supply chain operations and strengthening the supply chain system. Areas of support included forecasting and supply planning, logistics management information systems, warehousing and last mile distribution. In the PMI-supported regions of Dosso and Tahoua, stockouts fell to less than 5 percent for most commodities (data from End-Use Verification surveys carried out in May and September 2023).

To improve supply chain operations, PMI:

- Collected data from the call center to adjust the quantities allocated to health facilities in Dosso and Tahoua leading to a reduction in stockouts in these regions.
- Developed customized dashboards with key logistics analytics with malaria data from the call center which are shared monthly during in-person coordination meetings in the two PMI-supported regions of Dosso and Tahoua to Regional and Health District managers. These provided decision-makers with insights into the malaria commodity supply chain at each level - national, regional, district, and facility - and identified areas for improvement. The dashboards are also downloadable and can be emailed on demand by a chatbot.
- Conducted an in-depth root cause analysis on the primary cause of stockouts which identified issue with the allocation strategy which was based on case data reported in DHIS2 from the previous year and population data by strata (both of which are sometimes incomplete or imprecise) leading to Dosso receiving an oversupply and Tahoua receiving only half of the commodities needed.
- Implemented a last-mile distribution strategy through the use of third party logistics (3PLs) in Dosso and Tahoua. The strategy incorporated improved routing and pricing structures and a shift from one 3PL to multiple 3PLs. This increased the

competitiveness of 3PL services and reduced the number of days needed to distribute products to the 461 health facilities.
- In FY22, the MOH conducted an evaluation of the two Last Mile Distribution (LMD) pilots (district-based in Maradi vs. region-based in Dosso and Tahoua). Based on the evaluation, the MOH recommended that the supply chain be managed at the district level, given that this has historically been the operational level in terms of health service delivery. PMI is working with the MOH to explore other options for district empowerment including expanding the regional storage capacity and engaging district decision-makers in the supply planning and approval process.

To strengthen the supply chain system, PMI:

- Provided technical assistance for the development of NMCP's new strategic plan, which included a new quantification approach. PMI is working closely with ANRP to develop national quantification guidelines that will help streamline the quantification approach for all health programs using the Quantification Analytics Tool (QAT) including the use of consumption/service data in addition to morbidity and population-based data.

5.3. Plans and Justification with FY 2024 Funding

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

PMI Niger will continue to support forecasting and supply planning, warehouse and distribution technical assistance including last mile distribution, and LMIS activities, as described in the Recent Progress section (5.2).

6. Malaria Vaccine

6.1 PMI Goal and Strategic Approach

The Niger health authorities applied in 2023 for the malaria vaccine introduction in Niger. With a goal to ensure RTS,S/AS01 vaccine coverage of at least 80 percent among children in targeted areas, the Ministry of Health following the advice of the National Technical Advisory Group on Vaccination have adopted the four-dose schedule for children from 6 months of age. The selection criteria for the target populations were children aged 0 to 11 months living in areas of moderate to high malaria transmission with high all-cause mortality of children under five years of age. A prioritization of these areas has been made in accordance with the classification of "need" within the framework of the allocation of vaccines.

6.2. Recent Progress (April 2022–April 2023)

This is a new intervention planned to start in 2024, however, between April 2022 and April 2023, all efforts were focused on the review of the National Strategic Plan, the subnational stratification and the preparation and submission of the application package to Gavi Secretariat.

6.3. Plans and Justification for FY 2024 Funding

The FY 2024 funding tables contain a full list of activities related to other drug-based prevention that PMI proposes to support.

A total of 12 health districts out of 72 (17 percent) in 4 regions out of 8 (50 percent) in the country will benefit from this program for phase 1 of introduction in the 1st quarter of 2024. The health districts are: Falmey, Gaya, Tibiri, Boboye, Dogondoutchi in the Dosso region; Madarounfa in the Maradi region; Torodi and Gothèye in the Tillabéry region; and Magaria, Mirriah, Dungass and Kantché in the Zinder region. These 12 health districts account for a 0-11 months target of 254,807 children.

Vaccination against malaria will be done through the routine Expanded Program on Immunization (EPI). Three strategies will be used: Fixed service within a radius of 5 km from a health structure; advanced within a radius of 6 to 15 km from a health structure and mobile within a radius of more than 15 km from a health structure.The RTS,S/AS01 vaccine will be given to infants on a 4-dose schedule from 6 months of age. The first 3 doses will be administered 1 month apart (6, 7 and 8 months) and the 4th dose at 18 months of life.

The PMI Niger goal for the malaria vaccine is to support the Ministry of Health to strategically deploy this intervention as a complementary tool to the existing core interventions. This includes technical assistance to the National Malaria Program as it engages with the national EPI to strategically use data to decide on where to introduce the malaria vaccine. Given that the country has not yet elaborated an operational plan of malaria vaccine introduction, PMI will not allocate funding to support vaccine introduction until the deployment timeline and specific resource requirements have been determined.

7. Social and Behavior Change

7.1. PMI Goal and Strategic Approach

The NMCP's 2023–2026 national strategic plan supports strengthening community-based approaches for social and behavioral change in favor of malaria control with the objective of having at least 80 percent of the population adopt a malaria-friendly behavior by 2026. The new SBC strategy in support of this plan has not yet been developed, but PMI will contribute to its creation.

PMI supports coordinated communication interventions deployed across PMI focus areas. Through partnerships with community radios and organizations (including religious and community leaders), and collaboration with promotional CHWs, PMI supports the NMCP's efforts to expand mass media and community-level interpersonal communication (IPC) activities. At the district level, PMI will support the development of work plans and materials, and support partner coordination efforts.

The design of SBC interventions and messages aims to encourage uptake of IPTp, promote distribution of ITNs during first ANC appointments and routine childhood vaccination visits through the Expanded Program on Immunization, promote use of ITNs, encourage communities to participate in SMC, promote early initiation of ANC through community-level activities, and promote care-seeking and provider adherence to national guidelines. However, priorities and approaches in the strategy are based on limited behavioral data.

7.2. Recent Progress (April 2022–December 2022)

Activities cross-cutting behaviors

To address five behaviors—seeking prompt and appropriate care for fever; attending antenatal care early and frequently; using Intermittent Preventive Treatment for malaria in Pregnancy (IPTp); using a mosquito net consistently and correctly; and performing a RDT for malaria before treating clients—PMI/Niger supported the following cross-cutting SBC activities:

- Validated and then broadcast spots on national radio (beginning April 25, 2022) in three languages (French, Hausa and Zarma). Each behavior had a designated day in which the spot aired three times a day in each of the three main languages for a total of nine times. In September and October, community radio stations in the PMI-supported regions of Dosso and Tahoua started airing the spots in Hausa and Zarma.
- Supported community engagement activities in 16 villages. PMI's project accompanied the multisectoral community mobilization team of health services and municipal officials to visit the villages within five kilometers of Mounwadata health center in Konni district and Albarkeizé health center in Gaya district to develop and validate community action plans to fight malaria. The communities decided to provide information on the correct use of mosquito nets, the correct use of antimalarial drugs, and keeping households clean so mosquitoes cannot breed. In Konni, the community also included the topic of IPTp. Based on monthly health center reports, the positive cases from June to September 2022 was about half that of the same span the previous year.
- Trained 25 journalists from public, private, and community media on accurately and effectively communicating about malaria. After rich discussion about the different themes, the participants were divided into three groups including TV, radio, and press. Both the print media and radio groups developed articles and radio spots on the benefits of seasonal malaria chemoprevention and the importance of correct mosquito net use. The radio programs were produced in French, Hausa, and Zarma, and immediately broadcast. Listeners reported appreciating the excellent quality. The television group (TV journalists and camera operators) also produced a report for viewers on the importance of correctly using mosquito nets and taking seasonal malaria chemoprevention medicine as directed.

Cross-cutting behavioral data

While not a behavioral survey, the 2021 Niger Malaria Indicator Survey, supported by PMI and published in February 2023, provides data relevant for SBC programming even though it does not represent all segments of the population (the respondents were all women). The MOP reports on data relevant to specific behaviors relevant sections, but this section presents data which informs PMI's SBC activities.

The survey found that risk perception was high: 93 percent said they consider their families to be at risk for malaria and 67 percent thought that the consequences of malaria are serious. This perception of severity increased with age (from 62 percent at 15-19 years to 70-71 percent at 30 years and older) and was significantly higher in urban areas than in rural areas (79 percent versus 64 percent).

The survey found that 88 percent of the women thought that the majority of the community currently practices malaria-related behaviors. Ninety-three percent of women knew that there are effective ways to prevent malaria and 43 percent have seen or heard a malaria message in the past few months. The most commonly cited primary sources of information were health providers (33 percent), radio (30 percent), and community health workers (18 percent).

Women with more education were more likely to have favorable views of malaria related behaviors and to have been more exposed to malaria messaging. They did not think that only fragile children die from malaria; and did not think that malaria is only transmitted during the rainy season. Wealthier women were also more likely to have received a malaria message in the last six months. This indicates a need to better target outreach and messaging to poorer and less educated families, particularly given that they are more likely to be affected by malaria.

Other findings on beliefs in the MIS: 44 percent of women still thought that only fragile children can die from malaria and 56 percent thought that malaria is not a problem because it can be easily treated. These perceptions imply that perception of risk and severity is low and more work is needed to address prevailing attitudes that have the potential to lead to delayed care or poor preventive behaviors.

Sleeping Under Insecticide-treated Mosquito Nets

To specifically increase regular and correct use of ITNs among families, PMI:

- Monitored 41 billboards in eight regions in order to repair or replace them as needed.
- Supported SBC for the 2022 mass distribution campaign.

Findings from the 2021 MIS relevant to ITNs:

- Self-efficacy for net use is high with 89 percent of women saying that they could sleep under a net for a whole night when there are many mosquitoes and 81 percent reported that they could sleep under a net for a whole night even when there are few mosquitoes.
- The community norm around net use is relatively strong with 79 percent of respondents agreeing that community members who have a net usually sleep under one every night.
- Ninety-three percent of respondents cited "sleeping under a net or insecticide-treated net" as an effective way to prevent malaria.
- For the nets found to not be in use the night before the interview, in 66 percent of cases it was because the household considered them to be extra nets or to be saved for later. In 14 percent of cases, the net was not used because the usual user had not slept in the household the night before the interview.

Seasonal Malaria Chemoprevention

To specifically increase SMC uptake, PMI/Niger:

- Adapted and validated the job aid for SMC distributors
- Adapted the audiovisual SMC spots for this year's campaign. In addition, the project produced one additional spot in Hausa, Zarma, Tamasheq, and Arabic, shared it with the NMCP and its partners, and published it on Facebook.

Findings from the 2021 MIS relevant to SMC:

- Community norms and attitudes supportive of SMC were high, with nine out of ten women saying they knew a child who had received it, the treatment was beneficial for children, and they would recommend it to parents.
- There are indications in the data that perceptions of SMC are generally positive among respondents, though perhaps with room for improvement. For example, 80 percent agreed that fewer children suffer from malaria since SMC has been implemented. When asked about side effects that might prevent parents from adhering to drug regimens, 65 percent of respondents did not believe this was an issue, indicating a potential need to further understand trust issues among some segments of the population.
- The data indicate that caregiver understanding of SMC is poor. Half the women saw it as curative rather than preventive, thinking it should be given to a child with malaria. With respect to the second and third doses, which are administered by caregivers rather than health providers or campaign staff, 38 percent incorrectly believed that there were no specific days required to take the tablets, though they correctly believed it was essential that the child take all the tablets provided.

Intermittent Preventive Treatment During Pregnancy

Other than the cross-cutting interventions described above, PMI did not support additional specific SBC interventions targeted at increasing ANC attendance or IPTp uptake. While the 2021 MIS showed marked improvement of behaviors from 2006 to 2021, the following data warrant a continued need to explore behavioral factors and support interventions:

- Of the women aged 15-49 who had a live birth in the two years prior to the MIS, 94 percent received antenatal care from skilled health personnel. Only 43 percent, however, had at least four prenatal visits, as recommended by WHO. Data also indicate a gap between those attending at least one ANC visit (94 percent) and those getting at least one dose of SP (82 percent).
- Only 25 percent of women received three doses of SP, per the 2021 MIS, though this was an improvement from 1 percent in 2006. One factor affecting IPTp3 is starting ANC early enough; the MIS found that only 24 percent of women made their first prenatal visit in the first trimester of pregnancy. Overall, for women who received prenatal care, the median number of months of pregnancy at the first prenatal visit is estimated at five months.
- All the indicators above were better in urban areas and higher wealth quintiles in comparison to rural areas and lower wealth quintiles.

Case Management

Other than the cross-cutting interventions described above, PMI did not support additional specific SBC interventions targeted at increasing case management behaviors. A continued focus on increasing prompt care seeking for fever is warranted given that advice or treatment was sought for 67 percent of children under 5 years of age who had a fever in the two weeks before the 2021 MIS interview. In 39 percent of cases, advice or treatment was sought on the same day or the day after the fever occurred.

More data is needed to determine exact factors for this poor behavioral outcome and thus inform more effective interventions. Unfortunately, the MIS indicated weak community norms with only 66 percent of respondents agreeing that people in their community take their children to a health provider the same day or the day after fever develops. Distance to health facilities may be a barrier to prompt care seeking, given the urban/rural discrepancy between percentage of children with fever for whom advice or treatment was sought (74 percent urban vs. 66 percent rural) as well as timely care seeking (51 percent urban vs. 37 percent rural). Cost could be a barrier, given that the percentage of children with fever for whom care was sought increased from 55 percent in the lowest quintile of economic well-being to 73 percent in the highest.

On the provider side, PMI has not yet supported specific SBC interventions to increase provider adherence to case management guidelines. Future activities will be informed by relevant findings from the 2021 MIS, including the following:

- Only 32 percent of children with fever had a finger or heel blood sample taken for testing. The contributing factors for this low adherence to protocol is unknown and in need of further study.
- Among children under 5 years of age with fever in the two weeks prior to the interview who took any antimalarial drug, 77 percent took an ACT. This was higher in rural areas than in urban areas (79 percent versus 64 percent). Exploration of factors related to the lower levels of ACT use in urban areas needs further study.
- The percentage of children whose fever was treated with an ACT decreased as the mothers education level increased: 79 percent of children whose mothers had no education were treated with an ACT compared to 67 percent of children whose mothers had secondary education.
- Results by economic well-being quintile show that the use of injectable quinine to treat fever in children increases from the lowest to the highest quintile, from 8 percent to 18 percent. It is necessary to break open whether these findings are caused by provider factors, patient factors, facility factors, or a combination. It is possible that these wealthier women are taking their children to private providers who are more likely to comply with the request for an injectable treatment.

7.3. Plans and Justification with FY 2024 Funding

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

Priorities

While PMI supports SBC activities that promote the uptake and maintenance of all key malaria interventions, the following three behaviors will be prioritized with FY 2024 funds:

Table 4. Priority Behaviors to Address

Behavior	Target Population	Geographic Focus	Programming to Address Behavior
Prompt care-seeking for fever for children under five years of age	Caregivers of children under 5 years of age, specifically targeting those with lower income and educational background	Tahoua and Dosso	• Dissemination of key messages in the local language, emphasizing that there is no cost for the malaria services Engagement of schools to utilize children as messengers/change agents in the community (and opportunity to work with education sector) • Formative supervision for HWs to incorporate appropriate IPC about

			malaria prevention during their patient consultations ● Training and supervision of CHWs who provide health education and promotion
Early and frequent ANC attendance	Women of reproductive age (with a focus on adolescents and women in their first and second pregnancies)	Tahoua and Dosso	● Dissemination of key messages in the local language, with a particular emphasis on free malaria services for pregnant women ● Engagement of female leaders ● Formative supervision for HWs to incorporate appropriate IPC about malaria prevention during consultations ● Training and supervision of CHWs who provide health education and promotion

Additional Support Activities:

PMI would like to collect more data on specific behavioral factors surrounding prompt care-seeking for fever in children under five years of age. As proposed in the 2023–2026 National Strategic Plan, PMI will use FY 2024 funding to conduct a formative assessment at the community level to better understand barriers to access and uptake. The NMCP is particularly keen to explore and ultimately reduce inequalities in those areas.

Other needs for formative assessment such as factors contributing to low IPTp3 are expected to be covered by other funding sources. PMI will look to those findings to shape our supported interventions.

There is a need for continued SBC capacity building at both the national and subnational levels, with increased level of effort at the state level. To bolster the NMCP capacity for the planning, design, implementation, and evaluation of SBC activities, PMI will continue to support coordination at the national level through targeted support to improve the effectiveness of the SBC Technical Working Group.

8. Surveillance, Monitoring, and Evaluation

8.1. PMI Goal and Strategic Approach

In Niger, PMI collaborates with the NMCP and Global Fund to provide technical assistance and resources for SM&E activities. In support of the NMCP's 2023–2026 NMSP, which seeks to strengthen the system of monitoring and evaluation and strengthen the surveillance system, PMI and the NMCP have prioritized interventions such as technical assistance for data analyses and use of data at all levels (national, regional, and HF) to produce bulletins, data quality assessments, and to strengthen use of the DHIS2 platform.

In line with the 2023–2026 NMSP aim to strengthen the malaria epidemiological surveillance system; and in collaboration with the MOH's epidemiology and surveillance division (*Direction*

de la Surveillance et de la Riposte aux Epidemie, DSRE), PMI will resume support of frontline FETP training of regional and health staff with FY 2024 fund.

8.2. Recent Progress (April 2022–April 2023)

PMI supported the following activities at the central level:

- Supported drafting of the malaria proposal to be submitted to the Global Fund (New Funding Model 4).
- Supported monitoring of SMC.
- Trained 25 people (central, regional and district levels) in malaria surveillance, monitoring and evaluation and in the use of the mRDQA tool.
- Support for the introduction of the DQR (data quality review) module in DHIS2.

PMI supported the following activities at the regional, district and facility levels in the two PMI focus regions, Dosso and Tahoua:

- Strengthened capacity to collect, analyze and use routine malaria data,
- Technical support of two regional Data Managers in Dosso and Tahoua, and
- Supported review of the quality of malaria data at 28 sites using the MRDQA tool in Dosso and Tahoua.

8.3. Plans and Justification with FY 2024 Funding

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

PMI Niger will continue to support routine activities at regional, district, and HF levels in the two PMI focus regions (Dosso and Tahoua) to improve data collection tools availability, data quality and analyses by supporting technical advisors in these regions as well as quarterly district coordination meetings to ensure compliance and data quality for health center data, technical assistance to district and regional data officers, strengthen data analyses and use, and ensure integrated CSI supervision visits.

PMI Niger will support the strengthening of data systems by advocating for increased partner access to and technical assistance for malaria data through DHIS2. The support may include providing technical assistance to NMCP to update the DHIS2 malaria indicators, if needed.

In collaboration with DSRE, with FY 2024 funds, PMI will resume its support to frontline FETP through the training of 50 regional and health (e.g. data managers, district medical doctors) staff across two cohorts from Dosso and Tahoua regions. PMI will support the development of chronograms, adaptation of the training materials, training of trainers and the implementation of the new cohorts.

Table 5. Available Malaria Surveillance Sources

Source	Data Collection Activity	2021	2022	2023	2024	2025	2026
Household Surveys	Demographic Health Survey						
Household Surveys	Malaria Indicator Survey	X				P	
Household Surveys	Multiple Indicator Cluster Survey						
Household Surveys	Expanded Program on Immunization survey						
Health Facility Surveys	Service Provision Assessment						
Health Facility Surveys	Service Availability Readiness Assessment survey						
Health Facility Surveys	Other Health Facility Survey						
Malaria Surveillance and Routine System Support	Therapeutic Efficacy Studies		X		P		P
Malaria Surveillance and Routine System Support	Support to Parallel Malaria Surveillance System						
Malaria Surveillance and Routine System Support	Support to Health Management Information System	X	X	P	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			P	P	P	P
Malaria Surveillance and Routine System Support	Malaria Rapid Reporting System						
Other	End-Use Verification survey	X	X	P	P	P	P
Other	School-based Malaria Survey						
Other	Knowledge, Attitudes and Practices Survey, Malaria Behavior Survey				P		
Other	Malaria Impact Evaluation						
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.

9. Operational Research and Program Evaluation

9.1. PMI Goal and Strategic Approach

The Niger new 2023–2026 NMSP goal for operational research is to promote the use of evidence and research findings by implementing at least 80 percent of planned research activities by 2026. The NMSP does not provide focused operational issues, but mentions the need to carry out socio-anthropological studies and the need to update the epidemiological profile of the country. The NMCP does not have an institutional body that can help define programmatic operational research priority questions. Given the lack of clearly defined operational research questions by the NMCP, the NMCP did not put forth any OR/PE priorities during the MOP process and thus PMI will not support operational research with FY 2024 funding but will instead prioritize other programmatic needs for the country.

9.2. Recent Progress (April 2022–April 2023)

No OR/PE supported with FY2022 funds.

9.3. Plans and Justification with FY 2024 Funding

No OR/PE activities are proposed with FY2024 funding.

10. Capacity Strengthening

10.1. PMI Goal and Strategic Approach

PMI Niger has two main objectives for capacity strengthening interventions. PMI supports the governance of the NMCP program by mentoring and coaching the leadership in order to strengthen the management and oversight of malaria program implementation. PMI Niger supports workforce development and strengthening of the surveillance system through support of the field FETP and also strengthening the supply chain workforce.

10.2. Recent Progress (April 2022–April 2023)

The frontline FETP, implemented by the MOH epidemiology and surveillance division, became operational in FY 2018. Following the development of a strategic plan and adaptation of the training materials developed by CDC Atlanta through south-to-south technical assistance and training of trainers, PMI supported implementation of two cohorts of 43 staff in total for Dosso and Tahoua regions and trained an additional 11 trainers during this period. With these resources, the Global Fund supported the implementation of two cohorts in Maradi and Zinder. The FETP resident advisor, supported by CDC Atlanta, coordinates all FETP programs.

PMI continued to support the capacity building of the NMCP with a focus on one of the recommendations of the 2018 NMCP capacity building audit relating to human resources. With the support of a specialized human resource company, a human resources and competencies management plan has been developed and proposed to the NMCP.

10.3. Plans and Justification with FY 2024 Funding

The FY 2024 funding tables contain a full list of OR/PE activities that PMI proposes to support.

With FY2024 funding, PMI plans to resume its direct support to the FETP. PMI Niger will support two cohorts of 25 staff each in Dosso and Tahoua regions and will continue to support capacity building of NMCP leadership in planning, coordination, and reporting.

11. Staffing and Administration

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

ANNEX: GAP ANALYSIS TABLES

Table A-1. ITN Gap Analysis Table

Calendar Year	2023	2024	2025
Total country population	25,363,503	26,312,032	28,184,998
Total population at risk for malaria	25,363,503	26,312,032	28,184,998
PMI-targeted at-risk population	8,009,925	8,311,196	8,902,811
Population targeted for ITNs	25,363,503	26,312,032	28,184,998
Continuous Distribution Needs			
Channel 1: ANC	1,069,078	943,034	981,888
Channel 1: ANC Type of ITN	All three (Dual AI, PBO and Single Pyrethroid)	All three (Dual AI, PBO and Single Pyrethroid)	All three (Dual AI, PBO and Single Pyrethroid)
Channel 2: EPI	1,057,658	926,856	1,034,698
Channel 2: EPI Type of ITN	All three (Dual AI, PBO and Single Pyrethroid)	All three (Dual AI, PBO and Single Pyrethroid)	All three (Dual AI, PBO and Single Pyrethroid)
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	2,126,736	1,869,890	2,016,586
Mass Campaign Distribution Needs			
Mass distribution campaigns		15,809,146	
Mass distribution ITN type		All three (Dual AI, PBO and Single Pyrethroid)	
Estimated Total Need for Campaigns		15,809,146	
Total ITN Need: Continuous and Campaign	**2,126,736**	**17,679,036**	**2,016,586**
Partner Contributions			
ITNs carried over from previous year	551,800	0	0
ITNs from Government		249,750	249,750
Type of ITNs from Government		Unknown	Unknown
ITNs from Global Fund	1,216,498	15,741,201	355,779
Type of ITNs from Global Fund	All three (Dual AI, PBO and Single Pyrethroid)	All three (Dual AI, PBO and Single Pyrethroid)	PBO and Single Pyrethroid
ITNs from other donors			
Type of ITNs from other donors			
ITNs planned with PMI funding	100,000	100,000	152,750

Type of ITNs with PMI funding	Single Pyrethroid	Dual AI	Single Pyrethroid
Total ITNs Contribution Per Calendar Year	**1,868,298**	**16,090,951**	**758,279**
Total ITN Surplus (Gap)	**(258,438)**	**(1,588,085)**	**(1,258,307)**

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

Table A-2. RDT Gap Analysis Table

Calendar Year	2023	2024	2025
Total country population	25,363,503	26,312,032	28,184,998
Population at risk for malaria	25,363,503	26,312,032	28,184,998
PMI-targeted at-risk population	8,009,925	8,311,196	8,902,811
RDT Needs			
Total # of projected suspected malaria cases	9,018,356	9,396,974	10,256,582
% of suspected malaria cases tested with an RDT	91.07%	91.02%	91.17%
RDT Needs (tests)	**8,212,632**	**8,552,664**	**9,351,128**
Select Data Source			
Partner Contributions (tests)			
RDTs from Government	0	375,000	375,000
RDTs from Global Fund	2,452,575	5,483,900	5,338,650
RDTs from other donors		137,500	137,500
RDTs planned with PMI funding	4,831,200	3,500,000	3,500,000
Total RDT Contributions per Calendar Year	**7,283,775**	**9,496,400**	**9,351,150**
Stock Balance (tests)			
Beginning balance	2,208,275	1,279,418	2,223,155
- Product need	8,212,632	8,552,664	9,351,128
+ Total contributions (received/expected)	7,283,775	9,496,400	9,351,150
Ending Balance	**1,279,418**	**2,223,155**	**2,223,177**
Desired end of year stock (months of stock)	6	6	6
Desired end of year stock (quantities)	4,106,316	4,276,332	4,675,564
Total Surplus (Gap)	**(2,826,898)**	**(2,053,177)**	**(2,452,388)**

RDT: rapid diagnostic test.

Table A-3. ACT Gap Analysis Table

Calendar Year	2023	2024	2025
Total country population	25,363,503	26,312,032	28,184,998
Population at risk for malaria	25,363,503	26,312,032	28,184,998
PMI-targeted at-risk population	8,009,925	8,311,196	8,902,811
ACT Needs			
Total projected number of malaria cases	5,874,557	5,985,872	6,385,748
Total ACT Needs (treatments)	**5,874,557**	**5,985,872**	**6,385,748**
Needs Estimated based on Other (specify in comments)			
Partner Contributions (treatments)			
ACTs from Government		570,000	570,000
ACTs from Global Fund	1,165,680	2,856,450	2,725,800
ACTs from other donors		90,000	90,000
ACTs planned with PMI funding	3,513,450	3,000,060	3,000,060
Total ACTs Contributions per Calendar Year	**4,679,130**	**6,516,510**	**6,385,860**
Stock Balance (treatments)			
Beginning balance	294,480	0	530,638
- Product need	5,874,557	5,985,872	6,385,748
+ Total contributions (received/expected)	4,679,130	6,516,510	6,385,860
Ending Balance	**(900,947)**	**530,638**	**530,750**
Desired end of year stock (months of stock)	6	6	6
Desired end of year stock (quantities)	2,937,279	2,992,936	3,192,874
Total Surplus (Gap)	**(3,838,226)**	**(2,462,298)**	**(2,662,124)**

ACT: artemisinin-based combination therapy.

Table A-4. Injectable Artesunate Gap Analysis Table

Calendar Year	2023	2024	2025
Injectable Artesunate Needs			
Projected # of severe cases	339,549	286,125	241,381
Projected # of severe cases among children	169,048	141,226	122,361
Average # of vials required for severe cases among children	9	9	9
Projected # of severe cases among adults	170,501	144,899	119,020
Average # of vials required for severe cases among adults	9	9	9
Total Injectable Artesunate Needs (vials)	**3,055,945**	**2,575,122**	**2,172,431**
Needs Estimated based on Other			
Partner Contributions (vials)			
Injectable artesunate from Government	0	0	0
Injectable artesunate from Global Fund	701,662	1,556,343	1,028,737
Injectable artesunate from other donors	0	0	0
Injectable artesunate planned with PMI funding	927,958	300,000	300,000
Total Injectable Artesunate Contributions per Calendar Year	**1,629,620**	**1,856,343**	**1,328,737**
Stock Balance (vials)			
Beginning balance	349,627	0	0
- Product need	3,055,945	2,575,122	2,172,431
+ Total contributions (received/expected)	1,629,620	1,856,343	1,328,737
Ending Balance	**(1,076,698)**	**(718,779)**	**(843,694)**
Desired end of year stock (months of stock)	6	6	6
Desired end of year stock (quantities)	1,527,972	1,287,561	1,086,216
Total Surplus (Gap)	**(2,604,670)**	**(2,006,340)**	**(1,929,910)**

Table A-5. RAS Gap Analysis Table

Calendar Year	2023	2024	2025
Artesunate Suppository Needs			
# of severe cases expected to require pre-referral dose (or expected to require pre-referral dose based on # of providers for the service)	36,187	29,044	28,289
Total Artesunate Suppository Needs (suppositories)	**52,407**	**42,062**	**40,968**
Needs Estimated based on Other			
Partner Contributions (suppositories)			
Artesunate suppositories from Government	0	0	0
Artesunate suppositories from Global Fund	0	0	0
Artesunate suppositories from other donors	0	0	0
Artesunate suppositories planned with PMI funding	20,416	74,300	22,700
Total Artesunate Suppositories Available	**20,416**	**74,300**	**22,700**
Stock Balance (suppositories)			
Beginning balance	38,500	6,509	38,747
- Product need	52,407	42,062	40,968
+ Total contributions (received/expected)	20,416	74,300	22,700
Ending Balance	**6,509**	**38,747**	**20,479**
Desired end of year stock (months of stock)	6	6	6
Desired end of year stock (quantities)	26,204	21,031	20,484
Total Surplus (Gap)	**(19,695)**	**17,716**	**(5)**

RAS: rectal artesunate suppository.

Table A-6. SP Gap Analysis Table

Calendar Year	2023	2024	2025
Total Country Population	25,363,503	26,312,032	28,184,998
Total Population at Risk for Malaria	25,363,503	26,312,032	28,184,998
PMI Targeted at Risk Population	8,009,925	8,311,196	8,902,811
SP Needs			
Total # of Pregnant Women	1,322,626	1,363,016	1,409,250
% of pregnant women expected to receive IPTp1	74%	76%	78%
% of pregnant women expected to receive IPTp2	63%	64%	66%
% of pregnant women expected to receive IPTp3	46%	47%	47%
% of pregnant women expected to receive IPTp4			
Total SP Needs (doses)	**2,423,182**	**2,548,840**	**2,691,667**
Needs Estimated based on Other			
Partner Contributions (doses)			
SP from Government	0	0	0
SP from Global Fund	0	170,100	570,850
SP from other donors			
SP planned with PMI funding	1,360,000	1,360,000	1,360,000
Total SP Contributions per Calendar Year	**1,360,000**	**1,530,100**	**1,930,850**
Stock Balance (doses)			
Beginning balance	2,054,524	991,342	0
- Product need	2,423,182	2,548,840	2,691,667
+ Total contributions (Received/expected)	1,360,000	1,530,100	1,930,850
Ending Balance	**991,342**	**(27,398)**	**(760,817)**
Desired end of year stock (months of stock)	6	6	6
Desired end of year stock (quantities)	1,211,591	1,274,420	1,345,834
Total Surplus (Gap)	**(220,249)**	**(1,301,818)**	**(2,106,651)**

SP: sulfadoxine-pyrimethamine.