

This Malaria Operational Plan has been approved by the U.S. Global Malaria Coordinator and reflects collaborative discussions with the national malaria control programs and partners in country. The final funding available to support the plan outlined here is pending final FY 2019 appropriation. If any further changes are made to this plan it will be reflected in a revised posting.



U.S. PRESIDENT'S MALARIA INITIATIVE



PRESIDENT'S MALARIA INITIATIVE

NIGER

Malaria Operational Plan FY 2018 and FY 2019

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ABBREVIATIONS and ACRONYMS

ACT	Artemisinin-based combination therapy
AL	Artemether-lumefantrine
ANC	Antenatal care
AS/AQ	Artesunate-amodiaquine
BCC	Behavior change communication
CERMES	<i>Centre de Recherche Médical et Sanitaire</i>
CDC	Centers for Disease Control and Prevention
CHW	Community health worker; known as <i>Relais Communautaire</i>
CRS	Catholic Relief Services
CNSS	<i>Caisse Nationale de Sécurité Sociale</i>
CS	Health centers
CSI	Integrated health centers
CY	Calendar year
DHS	Demographic and Health Survey
DPH/MT	<i>Direction de la Pharmacie et de la Médecine Traditionnelle</i>
DRSP	Directorate of Public Health
ECD	<i>Equipe Cadre du District</i>
EPI	<i>Expanded Program on Immunization</i>
EUV	End-user verification survey
FY	Fiscal year
GHI	Global Health Initiative
Global Fund	Global Fund to Fight AIDS, Tuberculosis and Malaria
GoN	Government of Niger
HD	District hospitals
HMIS	Health Management Information System
iCCM	Integrated community case management
IDSR	Integrated Disease Surveillance and Response
IEC	Information, education, communication
IPTp	Intermittent preventive treatment for pregnant women
IRS	Indoor residual spraying
IRN	Islamic Relief Niger
ITN	Insecticide-treated net
LANSPEX	<i>Laboratoire National de Santé Publique et d'Expertise</i>
LMIS	Logistics management information system
MCH	Directorate of Maternal and Child Health
M&E	Monitoring and Evaluation
MIP	Malaria in pregnancy
MIS	Malaria Indicator Survey
MoH	Ministry of Health
MOP	Malaria Operational Plan
MSP	Malaria Strategic Plan
NMCP	National Malaria Control Program
NMSP	National Malaria Strategic Plan
ONPPC	<i>Office National des Produits Pharmaceutiques et Chimiques</i> (National Office of Pharmaceutical Products and Chemicals)

OR	Operational Research
PDS	<i>Plan de Développement Sanitaire</i> (Health Development Plan)
PMI	President's Malaria Initiative
PNLP	<i>Programme National de Lutte contre Le Paludisme</i> (NMCP)
NMCP	<i>Programme National de Lutte contre le Paludisme</i> (referred to as NMCP)
RDT	Rapid diagnostic test
RISE	Resilience in the Sahel Enhanced
SARA	Service Availability and Readiness Assessment
SDI	Service delivery indicators
SDG	Sustainable development goals
SDP	Sahel Development Partnership
SBCC	Social and behavior change communication
SMC	Seasonal malaria chemoprevention
SM&E	Surveillance, monitoring, and evaluation
SNIS	<i>Système National d'Information Sanitaire</i>
SONIPHAR	<i>Société Nigérienne des Industries Pharmaceutiques</i>
SP	Sulfadoxine-pyrimethamine
TES	Therapeutic Efficacy Study
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
UGS	<i>Unite Gestion Sanitaire</i> (Special Management Unit for donor commodities)
WHO	World Health Organization

I. EXECUTIVE SUMMARY

When it was launched in 2005, the goal of the President's Malaria Initiative (PMI) was to reduce malaria-related mortality by 50 percent across 15 high-burden countries in sub-Saharan Africa through a rapid scale-up of four proven and highly effective 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); and intermittent preventive treatment of pregnant women (IPTp). With the passage of the Tom Lantos and Henry J. Hyde Global Leadership against HIV/AIDS, Tuberculosis, and Malaria Act in 2008, PMI developed a U.S. Government Malaria Strategy for 2009–2014. This strategy included a long-term vision for malaria control in which sustained high coverage with malaria prevention and treatment interventions would progressively lead to malaria-free zones in Africa, with the ultimate goal of worldwide malaria eradication by 2040-2050. Consistent with this strategy and the increase in annual appropriations supporting PMI, four new sub-Saharan African countries and one regional program in the Greater Mekong Sub-region of Southeast Asia were added in 2011. The contributions of PMI, together with those of other partners, have led to dramatic improvements in the coverage of malaria control interventions in PMI-supported countries, and all 15 original countries have documented substantial declines in all-cause mortality rates among children less than five years of age.

In 2015, PMI launched the next six-year strategy, setting forth a bold and ambitious goal and objectives. The PMI Strategy for 2015-2020 takes into account the progress over the past decade and the new challenges that have arisen. Malaria prevention and control remains a major U.S. foreign assistance objective and PMI's Strategy fully aligns with the U.S. Government's vision of ending preventable child and maternal deaths and ending extreme poverty. It is also in line with the goals articulated in the RBM Partnership's second generation global malaria action plan, *Action and Investment to defeat Malaria (AIM) 2016-2030: for a Malaria-Free World* and WHO's updated *Global Technical Strategy: 2016-2030*. Under the PMI Strategy 2015-2020, the U.S. Government's goal is to work with PMI-supported countries and partners to further reduce malaria deaths and substantially decrease malaria morbidity, towards the long-term goal of elimination.

Niger was selected as a PMI focus country in FY 2017.

This FY 2018 and FY 2019 Malaria Operational Plan (MOP) presents a detailed implementation plan for Niger, based on the strategies of PMI and the National Malaria Control Program (NMCP). It was developed in consultation with the NMCP and with the participation of national and international partners involved in malaria prevention and control in the country. The activities that PMI is proposing to support fit in well with the National Malaria Control strategy and plan, and build on prior investments by other partners to improve and expand malaria-related services, including the Global Fund to Fight AIDS, Tuberculosis, and Malaria (Global Fund) malaria grants. This document briefly reviews the current status of malaria control policies and interventions in Niger, describes progress to date, identifies challenges and unmet needs to achieving the targets of the NMCP and PMI, and provides a description of activities that are planned with FY 2018 and FY 2019 funding.

The proposed PMI budget for Niger is \$18 million for FY 2018 and FY 2019 respectively. PMI will support the following intervention areas with these funds:

Entomologic monitoring and insecticide resistance management:

Following the RBM/WHO Global Strategic Plan for vector control, Niger has an integrated vector control plan, with insecticide-treated nets, IRS and larval control as the main intervention methods. Insecticide resistance threatens the malaria vector control effort in Niger. To address this problem, the NMCP's Malaria Strategic Plan (MSP) has a national plan for surveillance and management of vector resistance (2016-2020). Key pillars within this plan are to strengthen capacity in entomology surveillance, to conduct insecticide resistance monitoring, and to evaluate vector behavior. Resources to sustain resistance surveillance and associated entomological monitoring activities come from donors. With FY 2018 and FY 2019 funds, PMI will support the plan by strengthening capacity to collect and test malaria vectors, in order to improve the granularity and usefulness of monitoring data to inform vector control strategies; and by supporting an insecticide rotation strategy to mitigate selection pressure for resistance phenotypes.

Insecticide-treated nets:

The NMCP supports universal access to free long-lasting ITNs for all households primarily through rolling mass campaigns conducted every three years and reinforced through routine distribution channels — i.e. at the first antenatal care (ANC) visit to pregnant women, and during the first vaccination of the newborn. In addition, the NMCP seeks to monitor the quality of ITNs through assessing the durability and bioefficacy of nets distributed through campaigns and systematic sampling of nets distributed through routine channels. Key barriers faced in implementing ITN activities include the low rate of net access and especially net use, and the concern that insecticide resistance renders nets ineffective. PMI will complement NMCP, Global Fund and other partner contributions by procuring ITNs for routine distribution, providing technical assistance in the nationwide launch of ITN distribution through child immunization clinics, preparing protocols and training for ITN durability monitoring, and designing and conducting communication efforts to promote consistent ITN use in households.

Indoor residual spraying:

The NMCP's IRS strategy is evidence-based and is a part of their integrated vector management strategy. The strategy recognizes the usefulness of this intervention for managing resistance as well as reducing morbidity and mortality. However, IRS is not funded in this MOP because the NMCP assigns higher priority to other malaria interventions; to date, no IRS has occurred in the country. There is no IRS planned with PMI FY 2018-2019 funds.

Malaria in pregnancy:

According to the malaria strategic plan, the prevention of MIP is the joint responsibility of the Directorate of Maternal and Child Health (MCH) and the NMCP. The Government of Niger (GoN) supports the WHO multi-pronged approach toward MIP with the provision and use of an ITN during pregnancy, intermittent preventive treatment during pregnancy (IPTp) with sulfadoxine-pyrimethamine (SP), and prompt and effective case management of malaria and anemia. Although compliant with the WHO MIP prevention guidelines, coverage of interventions is low. Pregnant women often make ANC visits on a quarterly basis or wait until their final month to seek care, as a result, SP coverage is low. In addition, health care providers sometimes delay handing out ITNs during the first ANC visit, using them as encouragement to get women to come

for more visits. With FY 2018 and FY 2019 funds, PMI will assist the NMCP to train peripheral health workers, including community health workers and private sector staff on the updated MIP guidelines. PMI will also support social behavior change communication (SBCC) messaging and help fill any commodity gap needs of SP for IPTp or ITNs for ANC, both of which are currently supplied by UNICEF and Global Fund respectively.

Seasonal Malaria Chemoprevention (SMC):

The NMCP has implemented seasonal malaria chemoprevention as a key intervention since 2013, targeting children under five years of age during the four month SMC campaign from July to October. In 2018, NMCP implemented this strategy at national scale in all SMC eligible districts. With FY 2018 and FY 2019 funds, PMI will support the implementation in two regions--covering approximately 1 million children under 5 years of age.

Case management and pharmaceutical management:

The NMCP aims for all suspected malaria cases to receive confirmatory diagnosis and all malaria cases to receive effective treatment. 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 rapid diagnostic test (RDT) or microscopy, followed by treatment with an ACT. In 2017, overall confirmation rate was 65 percent, and of confirmed cases approximately 95 percent were confirmed with RDTs. With FY 2018 and FY 2019 funds, PMI will support procurement of case management commodities including RDTs and ACTs. These commodities will complement the GoN, UNICEF, the Global Fund and other donor procurements to contribute to covering national needs. PMI will also support training and supervision of healthcare workers and community health workers to promote adherence to national case management guidelines. With the ongoing nationwide rollout of the integrated community case management program, PMI will support the expansion of diagnosis and treatment to the community level in targeted regions. The Global Fund and World Bank are currently assessing the supply chain system in country with the goal of designing a strategic plan for an improved national pharmaceutical system. Once the results of the assessment are completed, PMI, in collaboration with other donors, will contribute to strengthening the pharmaceutical management system.

Health systems strengthening and capacity building:

The NMCP is focused on strengthening procurement and supply chain management of malaria commodities, improving malaria data collection and reporting through the health management information system (HMIS) and improving coordination and partnerships with all malaria stakeholders. With FY 2018 and FY 2019 funds, PMI plans to continue supporting an embedded long-term technical advisor to assist with coordination with Global Fund grant processes, including for quantification of commodities, and help build overall leadership and capacity at the national level, with a special focus on supply chain strengthening. In addition, PMI will support the NMCP staff participation in trainings focused on malaria related activities including disease surveillance and malaria program monitoring and evaluation at the district level.

Social and behavior change communication:

The NMCP's goal is for at least 80 percent of the population to practice correct malaria prevention and treatment measures by 2021. The NMCP and PMI are aligned in their goals to provide quality

messaging around consistent and correct use of ITNs, ANC attendance and IPTp delivery, prompt care-seeking for fever and for more severe disease symptoms, adherence to prescribed treatment, and overall knowledge about the cause of malaria. With FY 2018 and FY 2019 funds, PMI will support the NMCP in rolling out their new national SBCC strategy that is currently being updated. PMI will assist the NMCP to coordinate SBCC efforts, standardize messages, and improve the quality of the communication and delivery of malaria-focused SBCC.

Surveillance, monitoring and evaluation (SM&E):

The NMCP's Monitoring and Evaluation Plan for Malaria Control 2017-2021 focuses on the following implementation areas: conducting population-based surveys for measuring outcomes and impact; achieving a sound health management information system on the DHIS2 platform; and support of 10 sentinel surveillance sites. The 2017 Demographic and Health Survey (DHS) results have been challenged by international partners and PMI is therefore unable to use them as its program baseline. PMI will support either another DHS or a Malaria Indicator Survey (MIS) in 2019/2020 in order to gather baseline data. PMI will focus its second year of support on assessing and addressing routine HMIS implementation needs on the DHIS2 platform, especially at the district and Integrated Health Centers (CSI) levels, with assistance of a PMI-supported M&E technical advisor. In addition, PMI will provide technical assistance to help the country update its epidemiological profile and stratification of the country to better understand malaria determinants and guide the selection of interventions for various strata. PMI will also fund health worker training and supervision at all levels in high-quality data collection, analysis and use for program needs.

Operational research (OR):

The Niger MSP's goal for operational research is to support the documentation of good practices and successful experiences. The MSP states strategic information on malaria will be obtained from the analysis of routine HMIS data, sentinel surveillance and/or annual or periodic assessments. Studies will be carried out in collaboration with research centers and institutes in the framework of a partnership with the NMCP on priority areas of research related to entomological and epidemiological aspects, case management, use of measures preventive measures (ITNs, IRS, IPTs, and SMC), population behavior and efficacy of insecticides and antimalarials. There is no PMI-supported OR planned with FY 2018 nor FY 2019 funds.

II. STRATEGY

1. Introduction

When it was launched in 2005, the goal of PMI was to reduce malaria-related mortality by 50 percent across 15 high-burden countries in sub-Saharan Africa through a rapid scale-up of four proven and highly effective 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); and intermittent preventive treatment of pregnant women (IPTp). With the passage of the Tom Lantos and Henry J. Hyde Global Leadership against HIV/AIDS, Tuberculosis, and Malaria Act in 2008, PMI developed a U.S. Government Malaria Strategy for 2009–2014. This strategy included a long-term vision for malaria control in which sustained high coverage with malaria prevention and treatment interventions would progressively lead to malaria-free zones in Africa, with the ultimate goal of worldwide malaria eradication by 2040-2050. Consistent with this strategy and the increase in annual appropriations supporting PMI, four new sub-Saharan African countries and one regional program in the Greater Mekong Subregion of Southeast Asia were added in 2011. The contributions of PMI, together with those of other partners, have led to dramatic improvements in the coverage of malaria control interventions in PMI-supported countries, and all 15 original countries have documented substantial declines in all-cause mortality rates among children less than 5 years of age.

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2. General Description of Public Health System and Malaria Control Efforts

The Republic of Niger is a landlocked country located in West Africa with an area of 1.267 million square kilometers. It is bordered in the north by Algeria and Libya, to the east by Chad, on the west by Mali and Burkina Faso, and on the south by Nigeria and Benin. The Libyan conflict, the excursion of extremist organizations in northern Mali into Niger, and the recent ISIS/West Africa and *Boko Haram* attacks in Niger, Cameroon, and Nigeria contribute to regional instability and poses huge development challenges to Niger.

Three-quarters of the country is the Sahara desert and the remaining quarter consists of a Sahel zone in the southern part. The estimated 2016 population is 19,865,066 people with a national growth rate of 3.9 percent; 15 percent of the population is nomadic and 84 percent of the population lives in rural areas¹. Women represent 50 percent of the population, 50 percent of the population is below the age of 15 years old, and children under the age of 5 years old account for 20 percent of the population².

Niger is one of the poorest countries in the world, with 80 percent of the population living on less than U.S. \$2 a day and the economy is based mainly on the agro-pastoral sector, which is a concern especially with the region's frequent climatic shocks, such as droughts and floods, leading to poor harvests and regular food shortages. Even during plentiful times, 50 percent of Nigerien children under 5 years of age are chronically undernourished. Niger currently ranks 189 out of 189 according to the Human Development Index (Human Development Report 2018, UNDP) and has some of the poorest development indicators in Africa. According to Niger's Demographic Health Survey (DHS), the under-5 mortality rate was 110/1000 in 2006 and 90/1000 in 2012 and its maternal mortality ratio was 709/100,000 (2006) and 535/100,000 (2012). The National Malaria Strategic Plan 2017-2021 (MSP) states that 48 percent of the population has access to health centers within a radius of 0-5 km. There is also an inequitable distribution of services. Although the majority of the population, 84 percent, lives in rural areas, only 24 percent of all health care providers are found in rural areas. The literacy rate is 24 percent (14 percent women); 14 percent of households have electricity coverage mostly in urban areas and 50 percent of the population has access to an "improved drinking water source;"³ all these indicators fair better in urban than rural areas. The fertility rate in Niger is the highest in the world, with an estimated 7.6 children/woman⁴. Weak and ineffective governance and closing spaces for public dialogue and alternative views render it difficult to address the above challenges.

The Ministry of Health's (MOH) overall plan for the health sector is outlined in the Health Development Plan 2017-2021 (le *Plan de Développement Sanitaire* [PDS]). Its objective is to contribute to the promotion of the social well-being of the population in order to achieve health-related sustainable development goals (SDGs). It aims to strengthen the supply and demand of

¹ République du Niger, Plan Stratégique de Lutte Contre le Paludisme 2017-2021

² UNICEF website: https://www.unicef.org/infobycountry/niger_statistics.html

³ UNICEF The State of the World's Children 2015; available at https://www.unicef.org/publications/files/SOWC_2015_Summary_and_Tables.pdf

⁴ Plan Stratégique

quality care and services to the population through the several strategic areas: the extension of health coverage; the provision of qualified and motivated health personnel; the permanent availability of medicines, vaccines, and related therapeutic inputs; intensifying the fight against diseases under integrated surveillance; strengthening governance and ethics at all levels of the health system; development of financing mechanisms for the health sector; promotion of health research; and the promotion of health at the community level.

Malaria remains a major public health issue and is endemic throughout the country. Malaria is still the primary cause of illness in Niger accounting for 28 percent of all illness in country and 50 percent of all recorded deaths. According to Niger’s NMCP statistics, in 2017 (Figures 1 & 2), there were 4,063,304 suspected cases of which 2,638,580 were confirmed malaria cases. Of the confirmed cases 2,469,338 were uncomplicated malaria cases, 169,242 severe malaria cases, and 2,584 malaria deaths. According to the MSP, between 2014 and 2015, children under five years of age accounted for about three-fifths of the burden of disease (62.43 percent) and about three-quarters of malaria-related mortality in the country (74.65 percent). These figures misrepresent the actual situation of the country due to poor access to health facilities.

Figure 1: Number of Malaria Cases by Region, 2017

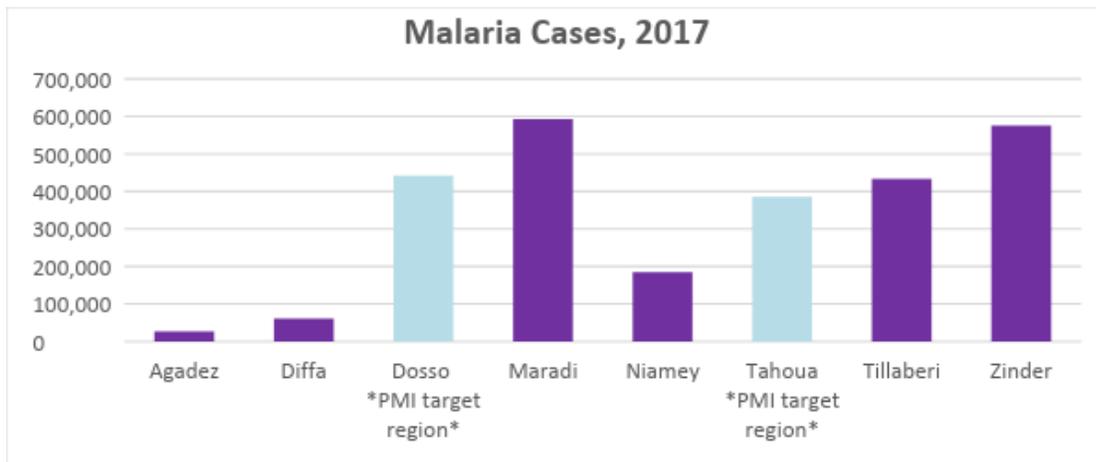
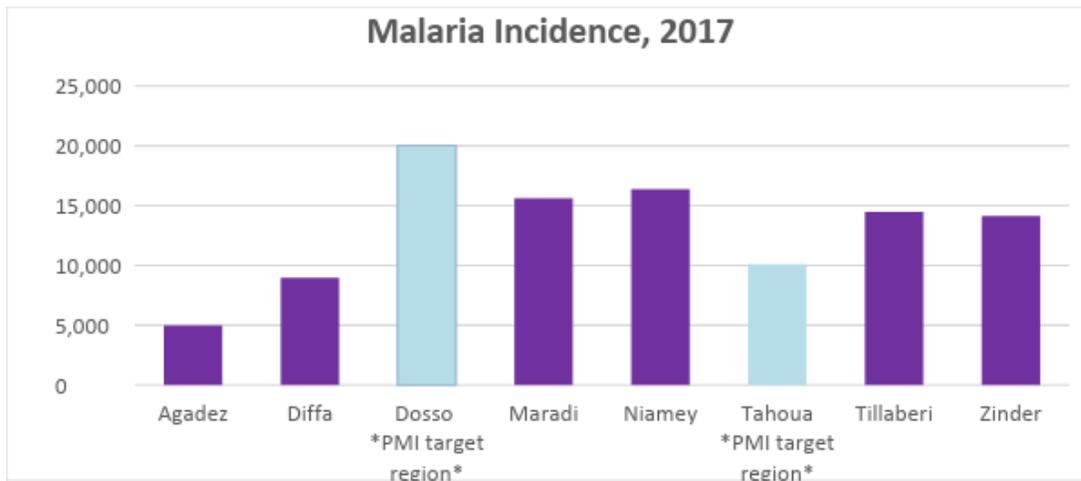


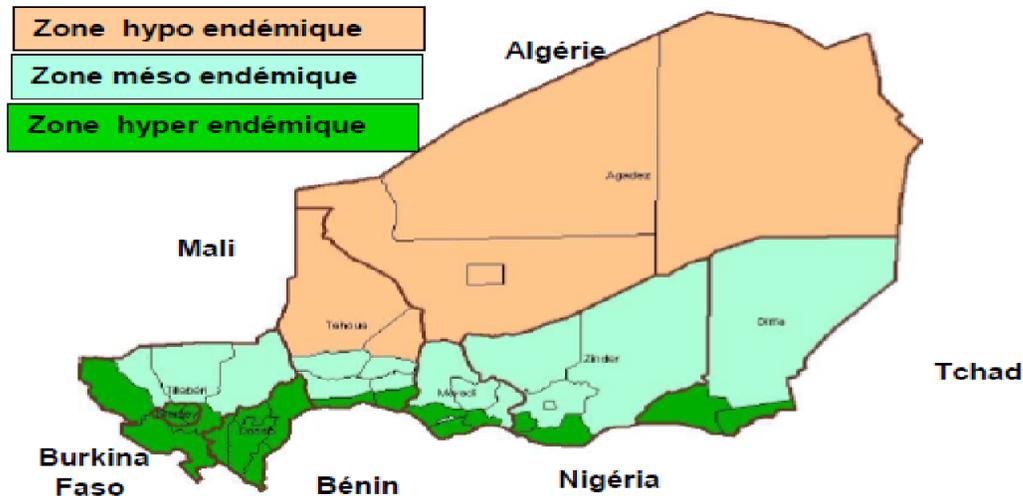
Figure 2: Number of Malaria Cases per 1,000 by Region, 2017⁵



Niger’s climate is characterized by three seasons: hot (March to May), rainy (June to September) and cold (October to February). The country is divided into three malaria strata which are defined by the length of the malaria transmission season as there currently is no data on parasite prevalence (figure 3). The NMCP refers to these zones as hypo-endemic, meso-endemic, and hyper-endemic. Six percent of the population lives in the hypo-endemic zone in the north which covers the Sahara Desert and has episodic malaria transmission and is at risk for epidemics; 41 percent of the population lives in the meso-endemic zones in the Sahelian region where transmission is two to four months; and 53 percent of the population lives in the hyper-endemic zone in the South with malaria transmission longer than six months. The majority of Niger’s population, 94 percent, lives in the two southern zones where malaria prevalence has historically been most prevalent.

⁵ National Malaria Control Program Report, 2017

Figure 3: Niger’s Malaria Transmission Zones



The NMCP has focused its efforts for reducing the burden of malaria morbidity and mortality through systematic use of diagnostic tools for suspected malaria cases and effective use of antimalarial medicines for confirmed cases, along with prevention strategies, such as the prevention of malaria in pregnancy (MIP), seasonal malaria prevention and vector control interventions such as promoting consistent use of ITNs. The NMCP also tracks human illness and parasitic diseases, and promotes the use of behavior change communication interventions. Niger’s National Health Policy is aimed at improving the equity of services and the improvement of the quality of care by increasing access to health services for vulnerable people such as women, children, disabled people, and rural populations. In line with this policy, the NMCP has made an effort to expand coverage to children under five years of age via community malaria interventions.

3. Country health system delivery structure and Ministry of Health (MoH) organization

Administratively, Niger has 8 regions (Agadez, Diffa, Dosso, Maradi, Tillabéri, Tahoua, Zinder, and Niamey—the capital), 63 departments, 266 municipalities, and 72 health districts. The health system is modeled on the administrative division of the country and consists of three levels (Figure 4)

- Central administration: strategic level responsible for defining the strategic interventions. Made up of the Cabinet of the Minister, the General Secretariat, the Directorates General and the National Directorates
- Regional Directorates of Public Health: technical level in charge of supporting the health districts
- Health Districts: operational level responsible for the implementation of health policy. A health district covers approximately 250,000-300,000 people. To better respond to the needs of the population the GoN recently increased the number of health districts from 44 to 72

The technical organization is comprised of three levels including public and private structures (see pyramid below)

- Central level of strategic support consisting of hospitals, maternity centers and national reference centers
- Regional or intermediate level represented by the Regional Hospital Centers (CHR), the Mother and Children's Health Centers (CSME)
- Operational level (District) with District Hospitals (HD) and their networks of Integrated Health Centers (CSI), Health Centers (CS), private practices and treatment room

In addition to the public structures, managed by the Ministry of Health, the health system includes other health care establishments managed by other administrations such as the health services of the armed forces and National Social Security Fund [*Caisse Nationale de Sécurité Sociale* (CNSS)] medical and social centers.

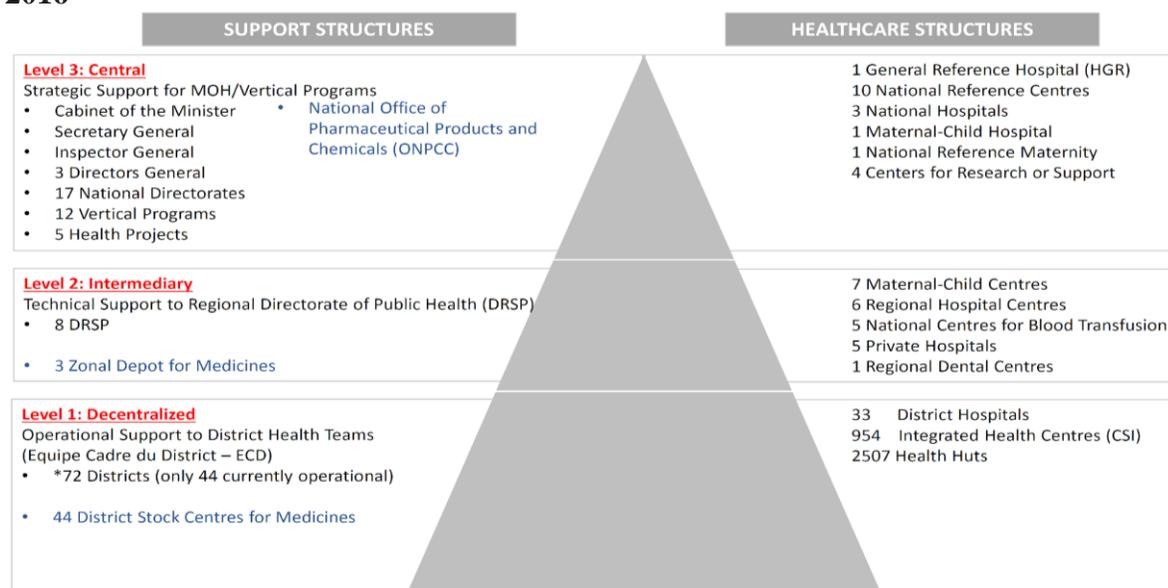
Private facilities are mainly oriented to curative activities and are concentrated in urban centers. There are 318 private facilities in country, including:

- 51 clinics and polyclinics
- 262 medical practices and treatment rooms
- 2 private non-profit hospitals
- 2 private centers specializing in ophthalmology and traumatology
- 1 private religious hospital in Galmi, Tahoua Region

According to Niger's Annual Health Statistic report 2016, there are

- 3 National Hospitals (2 Niamey, 1 Zinder)
- 2 Army hospitals (Niamey, Tahoua)
- 6 Regional Hospitals (Agadez, Diffa, Dosso, Maradi, Tahoua, Niamey)
- 33 District Hospitals
- 669 Health Center Level 1 (CSI1)—health center with no laboratory and no maternity ward
- 285 Health Center level 2 (CSI2)—health center with a laboratory and a maternity ward
- 2,507 Health Posts (*Case de santé*)

Figure 4: Structure of the Health System – adapted from Niger’s Annual Statistic report 2016



Region	Total Population	Children under 5 years old	Women child-bearing age (15-45)	National Hospital	Regional Hospital	District Hospital	CSI1 ¹	CSI2 ²	Health Post
Agadez	543,846	54,429	70,749	-	1	2	45	24	147
Diffa	683,870	145,752	135,033	-	1	2	37	16	144
Dosso	2,206,739	452,364	461,089	-	1	4	95	32	395
Maradi	3,794,379	883,405	737,761	-	1	6	94	54	459
Tahoua	3,821,986	748,029	708,848	-	1	7	122	38	431
Tillaberi	2,992,139	628,487	628,520	-	-	6	148	46	422
Zinder	4,076,544	926,637	812,652	1	-	5	102	44	503
Niamey	1,131,882	186,223	281,052	2	1	1	26	31	6
Total	19,251,385	4,025,326	3,835,704	3	6	33	669	285	2,507

Source of data: Niger 2016 Annual Statistics Report

¹ Health center that has no maternity and no laboratory

² Health facility with a maternity and laboratory

4. National malaria control strategy

The National Malaria Control Program (NMCP) (*Programme National de Lutte contre Le Paludisme [PNLP]*), is under the supervision of the Directorate of Studies and Programming (DEP) and the General Secretariat. The management of the NMCP is under the responsibility of a National Coordinator, assisted by a multidisciplinary team. Implementation of malaria control

activities is coordinated at the regional level by regional coordinators and malaria focal points at the health district level. The role of the NMCP is to

- Define the national malaria control policy
- Develop appropriate strategic and operational plans
- Develop a partnership for financial and social mobilization for malaria control;
- Oversee the program, coordinating activities and monitoring and evaluating implementation
- Carry out operational research in the field of malaria control in collaboration with research institutions, the university and certain technical partners

The National Malaria Strategic Plan 2017-2021 (MSP) [*Plan Stratégique de Lutte Contre le Paludisme*] outlines Niger's overall goals and objective for malaria prevention and control. The vision of the MSP is "A Niger Without Malaria". In addition to the MSP, the NCMP has various documents that guide different technical areas. While malaria activities cover the whole population, the NMCP is targeting vulnerable populations of pregnant women and children under 5 years of age.

Objective of the MSP, by 2021:

- Reduce the incidence of malaria by at least 40 percent compared to 2015
- Reduce the malaria mortality rate by at least 40 percent compared to 2015

Expected results:

- At least 80 percent of the population at risk of malaria sleeps under an ITN At least 80 percent of children under five years of age at risk of malaria sleep under ITN
- At least 80 percent of pregnant women at risk of malaria sleep under an ITN
- At least 80 percent of the population in eligible areas are protected by indoor residual spraying (IRS) with effective insecticides
- At least 80 percent of pregnant women at risk of malaria receive at least three doses of intermittent preventive treatment during ANC
- At least 80 percent of children aged 3 to 59 months in areas targeted by seasonal malaria chemoprevention benefit from adequate protection with four visits during the period of high malaria transmission each year
- At least 90 percent of suspected cases of malaria have undergone a parasitological test (RDT, microscopy)
- At least 90 percent of confirmed cases of malaria in health facilities have received adequate antimalarial treatment in accordance with national guidelines
- At least 90 percent of cases of confirmed severe malaria in health facilities have received adequate antimalarial treatment in accordance with national guidelines
- At least 90 percent of cases of simple malaria confirmed by community relays have received correct antimalarial treatment in accordance with national guidelines
- At least 80 percent of the population is aware of the major signs and national malaria prevention measures
- At least 80 percent of reports from expected health facilities have been received by the national level

The MSP states that implementation and monitoring of progress will be done in close collaboration with various stakeholders, including service providers, civil society and the private sector.

Supervisions and coordination meetings will be conducted by the different levels of management and coordination of the program in order to strengthen the capacities of the stakeholders and especially, to correct the shortcomings noted in time. Strategic information on malaria will be obtained from the analysis of routine HMIS data, sentinel surveillance and/or annual or periodic assessments. Studies will be carried out in collaboration with research centers/institutes in the framework of a partnership with the NMCP on priority areas of research related to entomological and epidemiological aspects, case management, use of measures preventive measures (ITNs, IRS, IPTps, and SPCs), population behavior and efficacy of insecticides and antimalarials.

The Niger NMCP will be doing a mid-term review of their NSP in 2019 and this will guide an update of the national strategy. PMI will support this process.

5. Integration, collaboration, and coordination

The NMCP is the government’s recognized entity to lead malaria interventions in country and to ensure coordination and quality assurance of the country’s malaria policy and programs which includes actively coordinating both financial and technical collaboration among donors and implementing partners. The NMCP is responsible for establishing and monitoring the progress of the national malaria control strategy, reviewing and updating guidelines and policies on a regularly basis, ensuring the coordination of malaria control interventions and partner, and reporting on all malaria interventions.

The Republic of Niger has demonstrated strong political commitment towards achieving malaria elimination. Niger is part of the Sahel Malaria Elimination Initiative – an eight-country initiative aimed at aligning national policies and strategies to accelerate progress in malaria elimination through a regional approach anchored in existing political and economic cooperation such as Economic Community of West African States (ECOWAS), as well as the RBM Partnership to End Malaria, and in collaboration with WHO.

Niger was also selected by the Heads of State from 54 African countries to lead and chair of the “Zero Paludisme, Je m’engage!” (Zero Malaria Starts with Me!) Pan-African campaign, which seeks to mobilize resources from the private sector for malaria control efforts.

The arrival of the PMI funding in FY 2017 and the expected U.S. Government resources (\$18 million planned for FY 2018 and FY 2019) significantly improves the country’s national malaria control landscape.

Coordination with other donors

The Global Fund: The Global Fund has been the primary donor for malaria control activities in Niger since 2005. Between May 2016 to December 2017, the GoN received a Global Fund Malaria grant for approximately \$36 million U.S. dollars. The current Global Fund Malaria grant is 44.5 million Euros (\$50.7 million USD) and will cover 2018-2020; Catholic Relief Service (CRS) is the principal recipient. The grant supports the procurement of ITNs, ACTs, RDTs, and SP for IPTp as well as support for integrated community case management (iCCM), seasonal malaria chemoprevention (SMC), social behavior change communication (SBCC) and monitoring and evaluation activities.

PMI, the NMCP and the GF continue to coordinate to optimize donor support to cover malaria interventions.

Other Global Fund-funded programs with linkages to malaria control: In addition to its malaria grant, the Global Fund funds a separate health system strengthening initiative that supports the renovation of health facilities, laboratories, and administrative buildings; laboratory and other equipment; and training, supervision and community-based activities. The grant also supports the implementation of Integrated Disease Surveillance and Response (IDSR) and the DHIS2 platform in seven regions.

UNICEF often procures commodities and supports community health interventions including SMC and the implementation of iCCM in 17 districts in the south-east of the country. They have also procured SP for IPTp.

The World Bank funds two major programs: a sector-wide approach to support the National Health Plan and a supply chain/pharmaceutical management improvement initiative. In addition, the Bank supports a regional loan that supports Neglected Tropical Diseases and malaria programming for Niger, Burkina Faso, and Mali. The program will strengthen disease control strategies in cross-border areas where disease prevalence and transmission is highest and access to services lowest. The Niger component (\$37 million 2015-2019) supports SMC, iCCM, and some limited SBCC and management activities.

The World Health Organization (WHO) provides the NMCP with technical assistance on malaria policies and guidelines and has recently assisted the NMCP to update their iCCM guidelines and is currently helping them to update their treatment guidelines. WHO also provides technical assistance in surveillance, M&E, strategic planning, and policy design and financial and technical support for therapeutic efficacy studies for malaria medications.

Coordination within the U.S. Government

USAID Niger has several programs in Niger focusing on education, governance, agriculture and nutrition and USAID currently supports a long-term technical advisor embedded within the NMCP focusing on management and monitoring and evaluation. Through this MOP, PMI Niger aims to forge links with USAID's Resilience in the Sahel Enhanced (RISE) initiative. RISE combines humanitarian and development assistance efforts to strengthen resilience in agro-pastoral and marginal agriculture livelihood zones of the Sahel by increasing economic well-being, strengthening institutions and governance, promoting sustainable natural resource management, and improving health and nutrition status in the region. PMI will benefit from RISE's support for child nutrition and voluntary family planning, especially efforts to promote treatment seeking behavior and the use of community and primary health facilities, as well as the training of health care workers. USAID's Participatory Responsive Governance project supports multi-stakeholder dialogue and action on critical health, education, and security needs at the local, regional, and national level. The health component is currently focused on improving procedures governing the placement and management of health care workers, especially in rural areas. PMI Niger will also continue to work alongside the U.S. malaria technical advisor embedded with the NMCP and will forge links with other U.S. Government programs as appropriate.

In September 2018, USAID launched the Sahel Development Partnership (SDP) for Burkina Faso and Niger, a two-year, integrated development program focused on the areas of Burkina Faso and Niger that have most directly suffered the adverse effects of cross-border instability. This plan focuses efforts and resources in three key areas: 1) countering violent extremism; 2) stabilization and transitional livelihoods; and 3) resilience. PMI contributes to the areas of stabilization and resilience in its day-to-day execution of the PMI activities and PMI will continue to look for opportunities to leverage where and when it makes sense.

6. PMI goal, objectives, strategic areas, and key indicators

Under the PMI Strategy for 2015-2020, the U.S. Government's goal is to work with PMI-supported countries and partners to further reduce malaria deaths and substantially decrease malaria morbidity, towards the long-term goal of elimination. Building upon the progress to date in PMI-supported countries, PMI will work with NMCPs and partners to accomplish the following objectives by 2020:

- Reduce malaria mortality by one-third from 2015 levels in PMI-supported countries, achieving a greater than 80 percent reduction from PMI's original 2000 baseline levels
- Reduce malaria morbidity in PMI-supported countries by 40 percent from 2015 levels
- Assist at least five PMI-supported countries to meet the World Health Organization's (WHO) criteria for national or sub-national pre-elimination⁶

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

- Achieving and sustaining scale of proven interventions
- Adapting to changing epidemiology and incorporating new tools
- Improving countries' capacity to collect and use information
- Mitigating risk against the current malaria control gains
- Building capacity and health systems towards full country ownership

To track progress toward achieving and sustaining scale of proven interventions (area of strategic focus #1), PMI will continue to track the key indicators recommended by the RBM Partnership to End Malaria Monitoring and Evaluation Reference Group as listed below:

- Proportion of households with at least one ITN
- Proportion of households with at least one ITN for every two people
- Proportion of children under 5 years old who slept under an ITN the previous night
- Proportion of pregnant women who slept under an ITN the previous night
- Proportion of households in targeted districts protected by IRS
- Proportion of children under 5 years old with fever in the last two weeks for whom advice or treatment was sought
- Proportion of children under 5 with fever in the last two weeks who had a finger or heel stick
- Proportion receiving an ACT among children under 5 years old with fever in the last two weeks who received any antimalarial drugs
- Proportion of women who received two or more doses of IPTp for malaria during ANC visits during their last pregnancy

⁶ http://whqlibdoc.who.int/publications/2007/9789241596084_eng.pdf

7. Progress on coverage/impact indicators to date

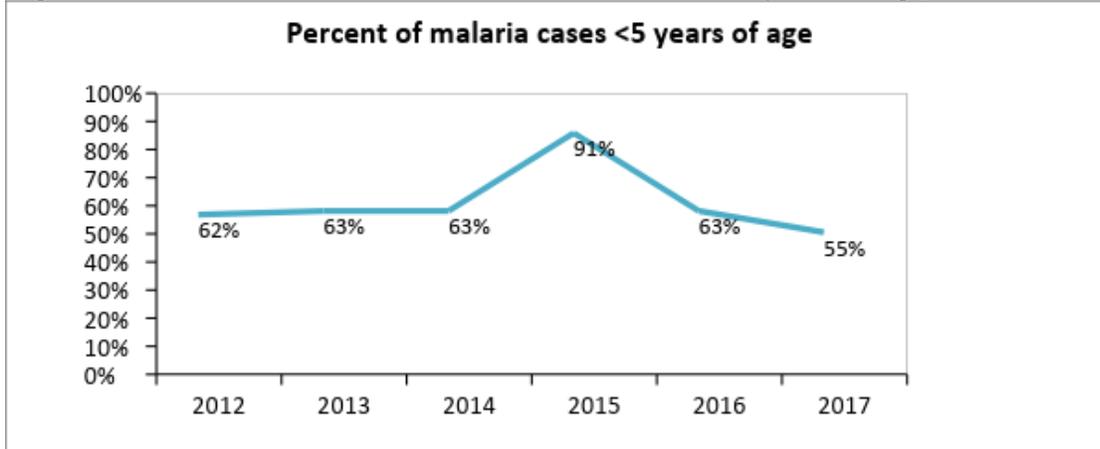
Table 2: Evolution of Key Malaria Indicators in Niger, from 2006 to 2012

Indicator	DHS 2006	DHS 2012 ¹
% Households with at least one ITN	46%	61%
% Households with at least one ITN for every two people	N/A	17%
% Children under 5 who slept under an ITN the previous night	7%	20%
% Pregnant women who slept under an ITN the previous night	6%	20%
% Population in households that could have slept under an ITN if each ITN in the household were used by no more than two persons	N/A	37%
% Households in targeted districts protected by IRS	N/A	0.5%
% Children under 5 years old with fever in the last two weeks for whom advice or treatment was sought	N/A	64%
% Children under 5 with fever in the last two weeks who had a finger or heel stick	N/A	14%
% Children receiving an ACT among children under 5 years old with fever in the last two weeks who received any antimalarial drugs	N/A	15%
% Women who received two or more doses of IPTp during their last pregnancy in the last two years	0.3%	35%
Under-5 mortality rate per 1,000 live births	198	126
% children under five with parasitemia (by microscopy , if done)	N/A	N/A
% children under five with parasitemia (by RDT , if done)	N/A	N/A

¹A DHS was conducted in 2017 but the results were deemed unreliable.

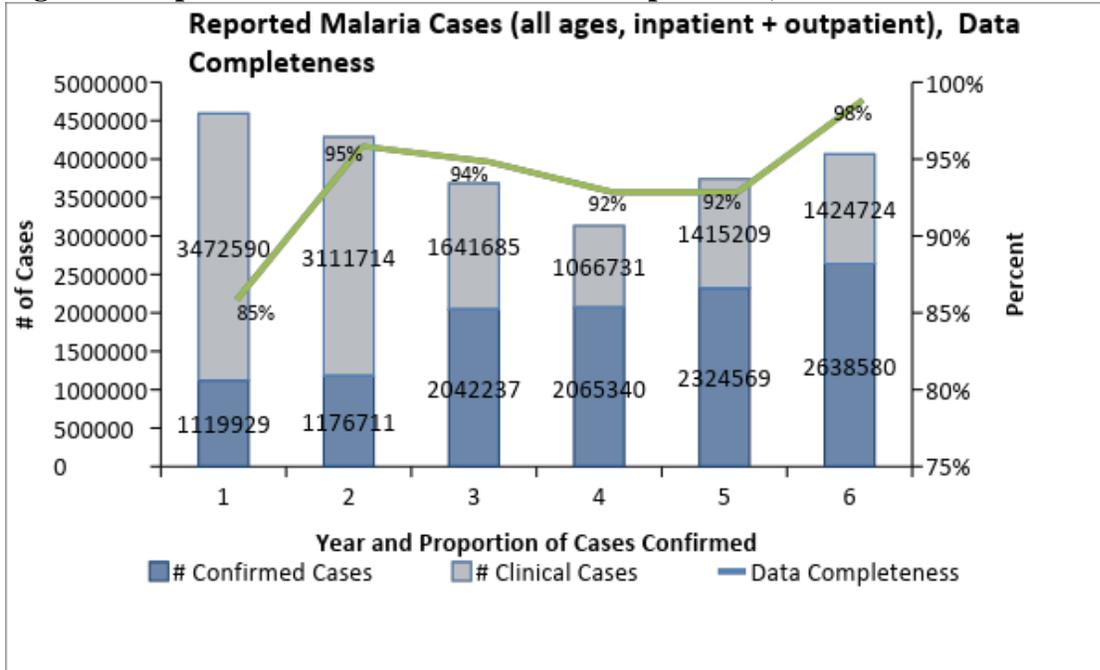
Figures 5 and 6 present an overview of malaria trends in Niger from 2012 to 2017.

Figures 5: Percent of malaria cases in children under 5 years of age, 2012-2017



Sources: *Annuaire des Statistiques Sanitaires du Niger*, from 2012 to 2016, and NMCP annual report, 2017

Figure 6: Reported malaria cases and data completeness, 2012-2017



Sources: *Annuaire des Statistiques Sanitaires du Niger*, from 2012 to 2016, and NMCP annual report 2017

III. OPERATIONAL PLAN

PMI will contribute to Niger's overall malaria strategy and will support the NMCP to implement their national malaria strategic plan, but will emphasize specific interventions and geographic areas, to maximize impact and complement existing activities. Malaria is a health problem throughout Niger, but the number of malaria cases and malaria deaths recorded in the 2016 national health statistics show that the burden is disproportionately higher in the two southern transmission zones designated by the NMCP as hyper- and meso-endemic (see map, Figure 3). PMI will prioritize investments across key proven interventions including vector control, malaria in pregnancy, and case management with a focus on providing commodities, and will provide support to strengthen key aspects of the health system including supply chain management, surveillance, monitoring and evaluation and social behavior change communication. PMI will work at the national level with the NMCP and malaria partners to provide technical assistance and support across all interventions. PMI's funding will also provide commodities nationwide and direct implementation support in contiguous districts in the southern part of the country where the malaria burden is highest. PMI's contributions will complement support provided by the Global Fund and other donors for similar interventions in other parts of the country.

1. Vector Monitoring and Control

NMCP/PMI objectives

The MSP⁷ calls for three insecticide-based vector control activities: ITNs, IRS, and larval control. The plan also calls for comprehensive entomology monitoring, based on WHO recommended methods, to inform strategy and document impact.

Vector-insecticide resistance, recognized as the major threat to PMI's insecticide-based anti-vector interventions, is addressed in a national plan for monitoring and managing resistance⁸. The plan envisions a national surveillance system, composed of sites in each eco-epidemiological zone, to monitor resistance. Lack of resources and tools to sustain this activity will be addressed with PMI support.

a. Entomological Monitoring and Insecticide Resistance Management

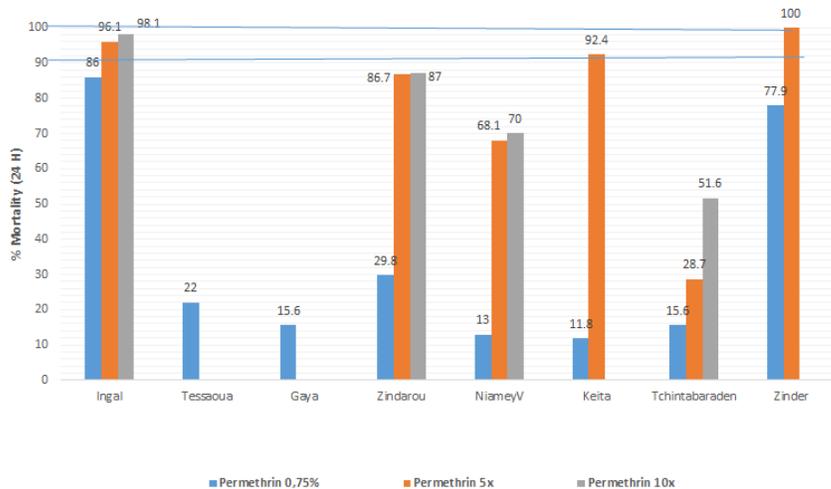
Intervention overview/Current status

Following the RBM/WHO Global Strategic Plan for vector control, Niger has an integrated vector control plan calling for ITN distribution, IRS, and larviciding as the main intervention methods; IRS has yet to be implemented in country. Given additional resources, PMI would support IRS, however, it does not support larviciding as a priority intervention for malaria control.

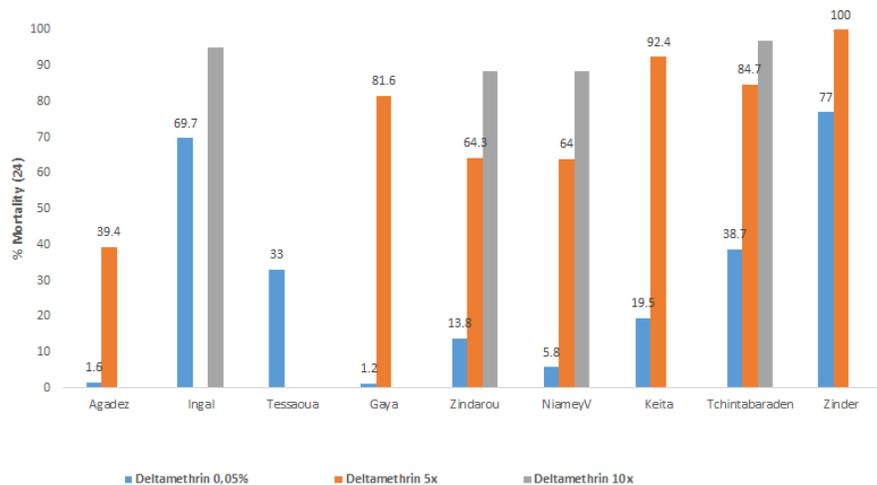
The eco-epidemiological profile of Niger includes three malaria zones: hypo-, meso-, and hyper-endemic. Last defined in 1976, these zones are based on seasonality of malaria transmission rather than incidence or malaria parasitemia. Therefore, it does not necessarily reflect epidemiological conditions that could be used to prioritize areas for control. The NMCP would like to redefine the

⁷ Plan Stratégique de Lutte Contre le Paludisme 2017-2021

⁸ Plan National de Suivi et de Gestion de la Résistance des Vecteurs du Paludisme aux Insecticides 2016-2020



Vector resistance to Permethrin, Niger 2018 (source: PMI VectorLink Niger Entomology Progress Report , August – November 2018)



Vector resistance to Deltamethrin, Niger 2018 (source: PMI VectorLink Niger Entomology Progress Report , August – November 2018)

Biochemical testing of a subsample of the vectors, collected for resistance assessment, detected markers of evolving resistance: elevated esterase, oxidase and glutathione-s-transferase levels. Molecular testing revealed the presence of the knock down resistance mechanism Kdr (approximately 50 percent of all *An. coluzzii*, molecular form M were tested).

Additional entomological indicators assessed include:

- **Taxonomy.** The most common vector group is the *An. gambiae* s.l. complex.
- **Vector density.** Human landing rates range from 1 bite /person/night in the north to 104 bites/person/night further south.
- **Human (vs. animal) biting rate.** The overall level of **anthropophily** was 20 percent of all blood-fed females tested.

- **Peak biting time.** Approximately 50 percent of all biting occurs indoors and late at night (0200-0400hrs peak).
- **Age structure of biting population.** Most (90 percent) biting females were parous (evidence of at least one prior blood meal).
- ***P. falciparum* infection rates.** The infection rate is estimated to be 2.4 percent and the average inoculation rates on the order of 1 infective bite/human/month.

The NMCP and its entomology M&E partner, CERMES, have laboratories and rudimentary insectary facilities at the Ministry of Public Health. Both organizations have experience in entomological monitoring. Entomology staffing and opportunities for advanced entomological training, were limited in the past, but have been expanded with PMI assistance.

The existing entomological monitoring plan reflects WHO and PMI guidance. Resources are needed to fund vector sampling (field mosquito collection) and analysis to estimate entomological indicators.

A vector-insecticide resistance management plan to better inform anti-vector interventions (in response to insecticide resistance) has been created (2016) by the NMCP with support from WHO and Global Fund. Although no IRS is currently taking place, the plan is timely, as new IRS products and G2 ITN, with non-pyrethroid insecticidal compounds plus pyrethroids are now available making it possible to manage resistance.

Based on existing expertise at the NMCP and CERMES, PMI will continue to support a comprehensive package of entomology monitoring activities, including annual collection and testing of vectors at 10 surveillance locations across three epidemiological strata (Table 3). Key indicators such as vector taxonomy, density, and infection rates will be estimated.

Table 3. Proposed PMI Niger entomology monitoring sites for 2018-2019

Region	Department	District	Eco-epidemiological zones	Collections/ year (2019)
Agadez	Agadez	Ingal	Hypoendemic	5
Agadez	Agadez	Agadez		5
Tahouna	Keita	Fararat	Mesoendemic	4
Dosso	Birnin Gaoure	Zindarou		5
Zinder	Miriah	Guidimouni		4
Tillaberi	Filingué	Balleraya		5
Maradi	Tessaoua	Tessaoua		5
Niamey	Niamey	Niamey V	Hyperendemic	8
Dosso	Gaya	Gaya		5
Maradi	Madarounfa	Madarounfa		5

Please see Table 2 for a detailed list of proposed activities with FY 2018 and FY 2019 funding.

b. Insecticide-treated nets

Intervention overview/Current status

Niger prioritizes the distribution and promotion of use of ITNs as a key component of its national malaria prevention strategy. It targets 80 percent of the population sleeping under an ITN during the 2017-2021 period of the strategic plan. To attain universal access of one net for every two persons, the NMCP applies the WHO-recommended quantification of one ITN for every 1.8 persons. The strategy comprises two main components: rolling mass distribution campaigns covering hyper- and meso-endemic malaria zones of regions every three years; and routine distribution nationwide targeting vulnerable populations (antenatal clinic attendees and children under one year of age through vaccination clinics). In addition, the NMCP seeks to measure the quality of ITNs through systematic sampling of nets distributed routinely for bioefficacy, and assessing the durability and bioefficacy of nets distributed through campaigns, this testing is not supported by PMI

The NMCP and partners cite the low rate of net access and especially net use, and the concern that pyrethroid insecticide resistance render nets ineffective as key barriers in implementing the ITN activities. The 2012 DHS found that while 61 percent of households reported having at least one ITN, only 37 percent of people surveyed could have slept under an ITN, if each ITN was used by no more than two persons. Reported net use was low, even in households with at least one net. Among the population of households surveyed, only 14 percent had slept under an ITN, and only 21 percent of households with at least one ITN had used the net. In addition, only 20 percent of children under 5 years of age and 20 percent of pregnant women had reported sleeping under an ITN the previous night.

A secondary analysis of the 2012 DHS demonstrated that the ratio of ITN use to access (measuring population-level use in relation to population-level access to an ITN) is also very low—with variations from 0.23 in Tahoua to 0.66 in Niamey. With the exception of Niamey, this ratio is well below the 0.60 threshold for a “poor” level rating, indicating that further exploration of non-use of available nets is needed. As data collection for the 2006 and 2012 DHS occurred during the dry season when ITN use may be expected to drop, further information is needed to understand net use during malaria transmission seasons.

Mass campaigns

With support from the Global Fund and other partners, the NMCP conducted rolling mass campaigns from 2014 to 2017 in select districts of seven regions (Agadez was excluded), distributing over 11.3 million ITNs. They prioritized high malaria burden districts and regions based on available resources and timing of ITN contributions. Lessons learned during campaigns have led to recommendations for future campaigns on improving the time allocation, staffing and data quality for the census; improving population data to avoid underestimation in certain health zones; monitoring the quality of completed forms; and recruiting independent monitors to complement supervision.

Table 4: ITN distributions 2014-2017

Campaign Activities	2014	2015	2016	2017	2018	Total
ITNs distributed	1,550,000	5,694,548	629,137	3,465,597	3,099,361 ¹	14,438,643
Number of districts covered	6	19	5	26	12	
Regions covered	Tillaberi	Maradi, Zinder, Tahoua	Niamey	Tillaberi, Dosso, Diffa	Maradi, Zinder, Tahoua	

Source: Niger NMCP program overview for PMI, September 2017.

¹ preliminary results for 2018

Routine Distribution

Complementing mass distribution, the NMCP seeks to help maintain ITN coverage among vulnerable populations. The NMCP officially initiated nationwide distribution of ITNs with measles vaccinations in child immunization clinics in 2018, with support from the Global Fund principal recipient CRS. In 2018 PMI conducted an assessment to identify operational gaps and potential improvements for Niger’s continuous distribution. Key findings from this qualitative assessment are as follows:

- *Channels:* Each facility with ITNs distributes differently, including: 1) only for ANC1 or only for ANC4; 2) during the child immunization clinic, with the first dose of varicella vaccine (VAR1), and; 3) during assisted births
- *Incentive:* Health staff seemed to perceive ITN more as an incentive tool to bring mothers to the health facility than as a malaria control tool
- *Transportation:* ITN bales are delivered by Global Fund Principal Recipient CRS to district warehouses, where districts prepare a list of bales to be delivered to each health center. In some cases, districts and local town councils coordinate and the town councils pay for transport of ITNs to health centers. In other cases, when the district ambulance goes to a facility for other services/reasons, it takes ITN bales. In other cases, health center directors were not aware that ITNs were available and should be requested
- *Stock management:* In Dosso, three of the four health centers visited had visible ITNs in storage and available at point of service provision. In Tahoua, all health centers were stocked out whereas the district warehouse had ITN stocks. The district required stock reconciliation reports that the health facility teams were unable to provide. Beneficiary registers and monthly health facility forms are in place to capture key information on numbers of ITNs received, distributed and beneficiaries; however, health facility staff do not conduct data quality checks and reconciliation of stock ins/outs

ITN Durability Monitoring

Substantial investment in ITN distribution as a malaria vector control intervention requires building capacity to monitor net quality on a routine basis. Concerned by confirmed pyrethroid resistance in West Africa, coupled with reports of shorter than expected physical integrity of nets in some African countries, the NMCP seeks to address impressions among health workers and others that ITNs “don’t work.” Therefore, it has prioritized monitoring of ITN durability in its strategic plan. In late 2018, PMI initiated durability monitoring, in collaboration with the NMCP,

to estimate ITN loss rates associated with: survivorship (reduced coverage), net integrity (physical damage) and bio-efficacy (insecticidal effects). The protocol received ethical approval from the local IRB and baseline data collection took place in October 2018 and results should be available in the first quarter of 2019. The information will help inform both net procurement policies along with social and behavioral communication strategies to promote practices to extend the effective life of ITNs in Niger.

Commodity gap analysis

Table 5. ITN Gap Analysis

Calendar Year	2018	2019	2020
Total Targeted Population ¹	21,466,862	22,314,742	23,196,000
Total Targeted Population for mass distribution Campaign ²	12,959,376	1,283,888	7,200,422
Continuous Distribution Needs			
Channel #1: ANC ³	930,968	965,242	1,000,976
Channel #2: EPI ⁴	772,703	801,151	830,810
<i>Estimated Total Need for Continuous Channels</i>	<i>1,703,671</i>	<i>1,766,393</i>	<i>1,831,786</i>
Mass Campaign Distribution Needs			
2018/2019/2020 mass distribution campaign(s) ⁵	3,256,542	4,656,383	4,000,234
<i>Estimated Total Need for Campaigns⁶</i>	<i>3,256,542</i>	<i>4,656,383</i>	<i>4,000,234</i>
Total ITN Need: Routine and Campaign	4,960,213	6,422,776	5,832,021
Partner Contributions			
ITNs carried over from previous year	340,000	1,037,889	0
ITNs from MOH		200000	200000
ITNs from Global Fund ⁷	4,667,502	1,222,466	1,262,939
ITNs from other donors			
ITNs planned with PMI funding	990,600	145,714	375,238
Total ITNs Available	5,998,670	2,606,069	1,838,177
Total ITN Surplus (Gap)	1,037,889	-3,816,706	-3,993,843

¹ Total population of Niger.

² Estimated for different regions to benefit from a mass distribution campaign during the given years

³ Targets were calculated based on projections of expected pregnancies per year to which the ANCI coverage rate is applied. The additional hypothesis is that all women seen in ANCI will receive an ITN. The ANCI coverage rate is estimated at 100% in view of data from the 2016 annual statistical report.

⁴ The population of children under one year was estimated in relation to expected pregnancies with the hypothesis, pregnancy = 1 child. The target to receive ITN was calculated by applying the measles vaccination coverage rate to this population. Measles vaccination coverage rate is estimated at 83% for 2018 to 2020

⁵ Since only the 12 hyperendemic districts from Maradi, Tahoua and Zinder were covered in 2018 (due to insufficient funding), the target population for 2019 is the population of the Niamey region + 17 meso-endemic districts of the regions of Maradi, Tahoua and Zinder. In 2020, the target population for mass distribution campaign are the hyper and meso-endemic districts of Tillaberi, Dosso, Diffa regions.

⁶ Mass campaign distribution quantification: population of targeted regions divided by 1.8.

⁷ GF approved an additional grant for ITN to cover the gap of year 2019

Plans and justification

PMI will complement Global Fund and other partner contributions to support the NMCP's priority ITN distribution efforts. The NMCP and partners covered mass campaign needs in districts with the highest malaria burden in the regions of Tahoua, Maradi, and Zinder, and the Global Fund to fill routine ITN distribution needs through ANC and immunization clinics nationally in 2018. The 2019 campaign is planned to take place in April in the Niamey region as well as for the 17 meso-endemic districts of the regions of Maradi, Tahoua and Zinder. Given the NMCP's strategic decision to focus resources on scaling SMC and iCCM, PMI will only procure a limited number of ITNs for use later in CY 2019 and 2020. However, PMI will work with the NMCP to engage the private sector and other development partners to mobilize resources for the procurement of additional nets to fill the current gap.

PMI will support implementation of key recommendations from the 2018 routine distribution assessment through providing technical assistance on national level. PMI will also support intensive communications interventions to promote ITN use, based on findings in the 2012 DHS and on-going qualitative studies funded by the Global Fund. Finally, PMI will continue support for training and equipping the staff of CERMES and NMCP to implement ITN durability monitoring following the 2018 campaigns.

Please see Table 2 for a detailed list of proposed activities with FY 2018 and FY 2019 funding.

c. Indoor Residual Spraying

Intervention overview/Current status

Indoor residual spraying (IRS) is one of the interventions in the National Malaria Strategic Plan 2017-2021. However, financial support for the intervention is not available at this time and to date, no indoor residual spraying has occurred in country.

Plans and justification

The PMI strategy is to prioritize existing funds for insecticide-based malaria vector control for the distribution of ITNs rather than focal IRS. However, in 2018, a comprehensive package of entomology monitoring and evaluation activities will be supported in order to establish baseline epidemiologic (routine health facility data) as well as entomologic indicators, described previously, in anticipation of expanded insecticide-based vector control activities in the future.

The existence of pyrethroid resistance in all malaria vector populations, tested to date, indicates a risk to the future impact of the current ITN intervention, which is based on the same insecticides. While IRS, which offers the possibility of managing this risk through the use of non-pyrethroid insecticides, cannot be supported at this time, PMI and GF will be exploring with the NMCP the possibility of procuring “new” ITN, which incorporate non-pyrethroid “insecticidal” agents, in order to begin to address the problem of resistance.

Proposed activities with FY 2018-19 funding:

No IRS activities proposed.

2. Malaria in pregnancy

The NMCP supports the WHO multi-pronged approach toward MIP with the provision and use of an ITN during pregnancy, IPTp with SP, and prompt and effective case management of malaria and anemia.

NMCP/PMI Objectives

By the end of 2021, the NMCP’s objectives for malaria in pregnancy are:

- At least 80 percent of pregnant women will receive at least three doses of SP
- At least 80 percent of pregnant women will sleep under an ITN

According to the MSP, the prevention of MIP is the joint responsibility of the MCH and the NMCP. Advocacy, communication, and behavior change interventions will be utilized to promote the increased uptake of both IPTp and ITNs among pregnant women. The NMCP and MCH Directorate will also explore ways to increase information and use of these interventions in rural communities, especially those without ready access to health facilities. To ensure effective implementation and coordination of MIP activities, there will be quarterly meetings between the NMCP and MCH Directorate, semi-annual meetings to review and analyze data on MIP prevention, and annual reviews of the program.

The GoN follows WHO guidelines for both IPTp and the case management of malaria in pregnancy. According to the National Diagnosis and Treatment Guidelines of Malaria (Dec. 2017), IPTp dosing begins in the fourth month of pregnancy (after quickening) until delivery with an interval of one month between doses and SP is to be administered as directly observed treatment by qualified health personnel. All uncomplicated malaria cases during the first trimester should receive oral quinine (8mg/kg) in three doses for seven days, since ACTs are contraindicated during this period and during the second and third trimesters, all uncomplicated cases are to be treated orally with ACTs (or with oral quinine for seven days if there are no ACTs available). For severe malaria, pregnant women should receive injectable artesunate or injectable quinine if artesunate is unavailable or not tolerated.

Intervention Overview

Although compliant with the WHO MIP prevention guidelines, the NMCP has not fully adopted the 2012 WHO Policy Recommendations on increased ANC visits. Rather than the monthly ANC consultations called for under the WHO reproductive health guidelines, pregnant women

customarily make ANC visits on a quarterly basis and often wait until their last month of pregnancy before seeking care. The MOH decided to focus on increasing the coverage of women attending ANC before increasing the number of visits. As a result, few women have the opportunity to receive more than three doses of SP during their pregnancy. In addition, neither the WHO guidance related to daily folic acid administration with SP nor the guidance related to SP administration and cotrimoxazole prophylaxis has been disseminated. The NMCP updated their treatment guidelines in December 2017, which includes guidance around malaria medications and ITNs but makes no mention of ANC visits nor folic acid administration. PMI will discuss with the NMCP the best way to make updates to align with global guidance.

Table 6: Key malaria in pregnancy data/indicators

Indicator	Current data
Percent of women having received two or more doses of IPTp during their last pregnancy	35% ¹
Percent of pregnant women sleeping under an ITN	24% ¹
ANC1 attendance	110% ²
ANC4 attendance	40% ²
Number of pregnant women tested for HIV who are seropositive	0.2% ²

¹ (DHS, 2012)

² National statistics, 2016

Table 7: Status of IPTp policy

WHO policy updated to reflect 2012 guidance	Partially: 4 ANC visits not recommended; no disseminated guidance on folic acid or contraindication of cotrimoxazole administration with SP.
Status of training on updated IPTp policy	New policy not fully implemented
Number of health care workers trained on new policy in the last year	None
Are the revised guidelines available at the facility level?	N/A
ANC registers updated to capture 3 doses of IPTp-SP	Yes
HMIS updated to capture 3 doses of IPTp-SP	Yes

According to the MSP and the updated malaria treatment guidelines (Dec. 2017), the official government policy is to provide an ITN at the first ANC visit accompanied by counseling on its use. Niger conducted a Service Availability and Readiness Assessment (SARA) in 2015 which showed that while 74 percent of facilities offer IPTp, only 41 percent have health providers trained in IPTp and only 46 percent of facilities had ITNs in stock for routine distribution. Many service providers reportedly do not provide ITNs during the initial ANC visit, delaying distribution to encourage ANC3 return visits as the NMCP states that most women wait until they're close to giving birth before seeking health care. This has lowered the number of pregnant women receiving ITNs during ANC. In addition, there have been reports of SP stockouts. While IPTp1 is

reportedly delivered as directly-observed therapy, it is unclear whether there are cups and clean water available on site and the directly observed treatment of SP is not reportedly followed for IPTp2 or IPTp3. According to the NMCP, few para-medical providers have been trained on the use of severe malaria drugs and procedures which limit the capability to treat severe malaria in pregnant women in peripheral health facilities. Due to the low health facility coverage in Niger and low utilization of health structures, the NMCP recognizes the need to expand the delivery of ANC, including IPTp, and considers including this in the community health workers tasklist, although this is not a WHO policy and will not be supported by PMI. Other than the fee for the health card (200 FCFA or U.S. 40 cents), all ANC and IPTp services are free of charge.

Table 8: SP Gap Analysis for Malaria in Pregnancy

Calendar Year	2018	2019	2020
Total Population ¹	21,466,862	22,314,742	23,196,000
Total number of pregnant women ²	930,968	965,242	1,000,976
SP Needs			
Total number of ANC ³	837,871	868,718	900,878
Total SP Need (in treatments)⁴	2,312,897	2,779,511	3,277,996
Partner Contributions			
SP carried over from previous years	1,171,610	512,400	768,781
SP from Government	-	-	-
SP from Global Fund	-	1,398,434	2,062,287
SP from Other Donors	-	-	-
SP planned with PMI funding	1,365,000	1,637,458	1,424,700
Total SP Available	2,536,610	3,548,292	4,255,768
Total SP Surplus (Gap)	223,713	768,781	977,772

1. Total population figures are based on the final 2012 census data with annual increase of 3.9%

2. Pregnant women estimated as 4.35% of the total population

3. assuming 90% of pregnant women attend at least 1 ANC

4. Per the 2017-2021 National Health Plan, coverage targets are as follows:

- 2018: IPTp1=100%, IPTp2=60%, IPTp3 = 47%

- 2019: IPTp1=100%, IPTp2=70% IPTp3 = 61%

- 2020: IPTp1=100%, IPTp2=80% IPTp3 = 76%

Niger tracks IPTp3+

Plans and Justification

PMI will help the NMCP to update the national guidelines and training materials to fully reflect the 2012 WHO IPTp policy and work with the national MIP working group to address any

resulting technical issues. In addition, PMI, in its target areas, will help the NMCP train peripheral health workers, including community health workers and private sector staff on the updated MIP guidelines and monitor the quality of its implementation and will support supportive supervision and updating job aides as necessary. PMI will also support SBCC messaging through community radio, television, health facilities staff, and community health workers to promote early initiation of ANC, participation in IPTp, and early and continuous use of ITNs by pregnant women. The Global Fund and UNICEF covered the SP needs for 2017, and PMI started contributing to SP needs in 2018, and will continue its contributions in 2019 and 2020. PMI will contribute to SP and ITN needs as requested by the NMCP, to meet GoN objectives for IPTp as well as fill the gaps for the provision of ITNs during ANC.

Please see Table 2 for a detailed list of proposed activities with FY2018 and FY2019 funding.

3. Drug-based prevention

a. Seasonal malaria chemoprevention

NMCP/PMI objectives

The NMCP's case management objective as outlined in the National Malaria Control Strategy is to at least 80 percent of children aged 3 to 59 months in areas targeted by seasonal malaria chemoprevention benefit from adequate protection with four visits during the period of high malaria transmission each year.

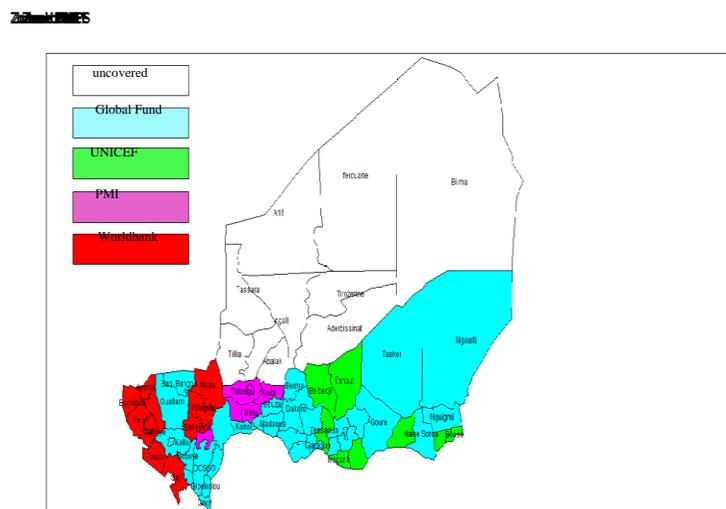
Intervention overview/Current status

Niger initiated SMC in the southern part of the country in 2013 targeting (205,959) children under 5 years of age during the four-month SMC campaign from July to October. The 2017 SMC campaign targeted 2,767,644 children under 5 years of age, with approximately 69 percent of the 39 eligible districts being supported by UNICEF, WHO, World Bank, and Islamic Relief Niger (IRN). The current treatment regime is amodiaquine plus sulfadoxine-pyrimethamine (AQ+SP) for children 3 to 59 months of age in eligible districts, delivered through door-to-door campaigns as well as fixed distribution sites. There is an SMC working group comprised of NMCP staff, Nutrition Directorate and Partners that meets each week to discuss preparation and implementation of these campaigns.

During the 2018 SMC campaign, the NMCP covered 100 percent of the eligible districts, approximately 4 million children, with support from UNICEF, World Bank, and PMI (see figure 8). PMI contributed to increasing coverage of SMC and covered 350,000 children in the Dosso and Tahoua, regions not previously participating in the SMC campaigns. Beginning with the 2016 campaign, children are also screened for malnutrition. Children identified during the campaign as being severely or moderately malnourished, 7 percent of children screened⁹ in the 2018 second round of SMC, are referred to a UNICEF rehabilitation center or a hospital.

⁹ Statistics from the NMCP SMC round 2 meeting on September 13, 2018

Figure 8: Seasonal Malaria Chemoprevention Map, 2018 coverage



Only SMC eligible districts within regions are being supported.

Table 13: Seasonal Malaria Chemoprevention Gap Analysis

Calendar Year	2018	2019	2020
SMC drug (SP+AQ) Needs			
Population targeted for SMC ¹	4,053,689	4,134,385	4,294,382
PMI-targeted population for SMC ²	1,116,046	1,269,593	1,316,710
Total SP+AQ Needs	16,741,023	17,259,050	17,926,750
Partner Contributions (to PMI target population if not entire area at risk)			
SP+AQ carried over from previous year	2,060,717	195,194	190,094
SP+AQ from Government			
SP+AQ from Global Fund	11,534,850	10,009,400	2,587,211
SP+AQ from Other Donors ³	3,340,650	1,929,450	⁵
SP+AQ planned with PMI funding ⁴	-	5,315,100	5,496,850
Total SP+AQ Available	16,936,217	17,449,144	8,274,155
Total SP+AQ Surplus (Gap)	195,194	190,094	-9,652,595

1. Population of the total number of children between 3-59 months in the hyper and meso endemic regions in Niger according to the Statistics Bureau report 2016-2023.
2. Population of the total number of children between 3-59 months in the Dosso and Tahoua regions defined as hyper and meso endemic.
3. 2018 is UNICEF and World Bank contributions. 2019 is World Bank only. No declarations yet for 2020.
4. PMI FY2017 funds for commodities arriving for the 2019 calendar year SMC campaign.
5. CRS plans a fundraising campaign "crush malaria" to cover the needs

Plans and justification

PMI will work with NMCP and other donors to plan expansion of SMC activities in SMC-eligible districts of Dosso and Tahoua regions and will cover approximately 1 million additional children. PMI will participate in planning meetings and support trainings, implementation, supervision, monitoring, community mobilization and advocacy.

Please see Table 2 for a detailed list of proposed activities with FY2018 and FY2019 funding.

4. Case management and pharmaceutical management

A. Diagnosis and Treatment

NMCP/PMI objectives

The NMCP's case management objectives as outlined in the National Malaria Control Strategy are:

- At least 80 percent of children aged 3 to 59 months in areas targeted by seasonal malaria chemoprevention benefit from adequate protection with four visits during the period of high malaria transmission each year
- At least 90 percent of suspected cases of malaria have undergone a parasitological test (RDT or Microscopy)
- At least 90 percent of confirmed malaria cases in health facilities have received adequate antimalarial treatment in accordance with national guidelines
- At least 90 percent of confirmed severe malaria cases in health facilities have received adequate antimalarial treatment in accordance with national guidelines
- At least 90 percent of simple malaria cases confirmed by community relays have received correct antimalarial treatment in accordance with national guidelines

Intervention Overview/Current status

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 RDT or microscopy, followed by treatment with an ACT. Niger conducted a SARA in 2015. The results showed that all health facilities provide malaria diagnostics and treatment services, 91 percent offer rapid diagnostic tests, and 24 percent provide microscopy (of which 90 percent are private sector facilities). Only 52 percent of facilities had a health worker trained in malaria diagnostics and treatment, and 74 percent had a first-line antimalarial drug in stock.

The current guidelines recommend first-line treatment for uncomplicated malaria with one of three ACT combinations: 1) artemether lumefantrine (AL), 2) artesunate- amodiaquine (AS/AQ), or 3) dihydroartemisinin piperaquine; with AL being the preferred medicine throughout the country (85 percent) and used in SMC zones. Dihydroartemisinin piperaquine is only used in the private sector at the moment. The first-line treatment for severe malaria is injectable artesunate or artemether and, in case of non-availability or intolerance of ACTs, parenteral quinine. The guidelines recommend that severe malaria cases identified in peripheral sites need to be referred to a facility with inpatient capacity and recommended pre-referral treatment includes either rectal (not yet operational in country) or parenteral artesunate or intra musculare (IM) quinine at the facility level and rectal artesunate at the community level. Currently only physicians receive training to manage

cases of severe malaria, and access to appropriate treatments is limited. The diagnosis and treatment of malaria for children under five years of age and pregnant women is provided free of charge. Pregnant women in their first trimester receive quinine for uncomplicated malaria and pregnant women in their second trimester and beyond, are treated with an ACT as described above.

According to Niger's 2017 statistics reported by the NMCP, there were 4,063,304 suspected malaria cases; 3,819,436 of those were tested (94 percent testing rate) and 2,638,580 were confirmed malaria cases (65 percent of those tested). Of the confirmed cases, approximately 95 percent were confirmed by RDT, the remainder were confirmed by microscopy. About 68 percent of all confirmed cases were in children under five years of age. There were 2,584 malaria deaths with the majority of those, 77 percent, occurring in children under 5 years of age.

In an effort to increase access to care for children under 5 years of age, the Niger Ministry of Public Health has promoted community health activities for years. The MSP promotes the expansion of iCCM throughout the country. In July 2016, a new community health policy¹⁰ was adopted which details the implementation and management of iCCM. The Maternal and Child Health Division of the GoN is responsible for the oversight of iCCM. The NMCP coordinates with them and the Community Health Team which is also involved.

Niger promotes establishing iCCM sites in villages further than five kilometers from a health facility. The iCCM program, first piloted in 2013 in four districts, will be scaled-up progressively throughout the hyper and meso endemic zones of the country and will include the diagnosis (RDTs) and treatment (ACTs) of malaria, pneumonia, and diarrhea, and provide malnutrition screening with referral for all illnesses as indicated. The new policy states that community health workers (CHW) known as *Relais Prestataire* will be volunteers selected from their village and participate in a 10-day training using national guidelines (adopted from UNICEF training materials). They will be able to test and treat for the three illnesses at iCCM sites. Once in place, the CHWs will be provided with kits containing the necessary supplies (including ACTs and RDTs) to do their work. There are also a set of CHWs called *Relais Communautaire* (RC) who focus on education and receive a six-day training. The RCs may be placed in communities less than five kilometers from a health facility. Although, the CHW is defined as a volunteer, the MOH has determined that CHWs should receive an incentive of 10,000 CFA (\$17 USD) a month and have asked donors and partners to contribute 50 percent of the incentive while the GoN contributes the other 50 percent. It is estimated that 16,000 CHW will be needed to cover targeted districts in country by 2020. The national goal is to have 5,000 CHWs trained by the end of 2017; 12,000 CHWs by the end of 2018; and approximately 15,000 CHWs by the end of 2019. There were approximately 18 districts and 5,000 CHWs trained by September 2018. PMI will support the scale-up of iCCM, although PMI cannot support the payment of incentives.

Niger's Monitoring and Evaluation Plan for Malaria Control, 2017-2021 (*Plan de Suivi et Évaluation de Lutte Contre le Paludisme*) outlines the supervision structure. The plan is for the NMCP, with the participation of technical and financial partners, to conduct field supervision visits at the central level down to the community level, in order to evaluate the implementation of malaria activities. These supervision visits are intended to provide information on the performance of healthcare providers by observing them in the field, and to verify the quality of the data

¹⁰ Directives Nationales de Mise en Oeuvre des Interventions Intégrées à Assise Communautaire en Matière de Santé

collected. However, these supervisions are not always informative and regular. The structure and timing of supervision is:

- From the central level to the regions each semester
- Regions to the districts each quarter
- Districts to integrated health centers each quarter
- Integrated health centers (CSI) to health posts/huts each month
- CSI to the community health workers each month

The NMCP, via its partner CERMES and with funding and technical support from WHO, conducts therapeutic efficacy studies (TES), which are to take place every two years in line with WHO guidance. The last TES was completed in November 2017. The NMCP plans for the next TES to occur in 2020 in 3 districts; PMI will be supporting this TES by sending one person for training in the CDC Malaria laboratory and covering funding gaps.

The MSP outlines the quality assurance system for diagnostic testing which aims to build a strong laboratory network by building the capacity of laboratory technicians (a four-day capacity building training is planned each year—although not always implemented); ensuring laboratories have the necessary equipment and consumables; supervision of public and private structures with a laboratory to assess the performance of technicians; and quality control of the slides and RDTs to assess the quality of the results. However, at present, neither supervision nor quality control of slides or RDTs happens on a regular basis.

Table 9: Status of Case Management National Guidelines for Diagnosis and Treatment of Malaria, December 2017	
What is the first-line treatment for uncomplicated <i>P. falciparum</i> malaria?	1) artemether-lumefantrine (AL), 2) artesunate-amodiaquine (AS/AQ), or 3) dihydroartemisinin-piperaquine; AL is preferred treatment.
What is the second-line treatment for uncomplicated <i>P. falciparum</i> malaria?	Quinine
What is the first-line treatment for severe malaria?	injectable artesunate or artemether
In pregnancy, what is the first-line treatment for uncomplicated <i>P. falciparum</i> malaria in the first trimester?	Oral quinine (8mg/kg not to exceed 500mg) with in two doses/ per day for seven days and if available quinine + clindamycin 10mg/kg
In pregnancy, what is the first-line treatment for uncomplicated <i>P. falciparum</i> malaria in the second and third trimesters?	ACTs (or with oral quinine if there are no ACTs available).
In pregnancy, what is the first-line treatment for severe malaria?	Injectable artesunate for all trimesters
Is pre-referral treatment of severe disease recommended at peripheral health facilities? If so, with what drug(s)?	Yes. Rectal or parenteral artesunate or IM quinine at the facility level
Is pre-referral treatment of severe disease recommended for community health workers? If so, with what drug(s)?	Yes. Rectal artesunate, however this is not currently implemented in practice.
If pre-referral rectal artesunate is recommended, for what age group? (note: current international guidelines do not recommend administering to those ≥ 6 years)	Age group not specified in current treatment guidelines, but age is given in MSP as 3 to 59 months.
Seasonal Malaria Chemoprevention treatment	Amodiaquine and Sulfadoxine-pyrimethamine (AQ+SP)

Commodity gap analysis

Table 10: RDT Gap Analysis

Calendar Year	2018	2019	2020
RDT Needs			
Total country population	21,466,862	22,314,742	23,196,000
Population at risk for malaria ¹	21,466,862	22,314,742	23,196,000
PMI-targeted at-risk population	21,466,862	22,314,742	23,196,000
Total number of projected fever cases at public health facilities ^{2,3}	3,643,395	3,690,919	3,847,860
Total number of projected fever cases at community level	784,531	900,537	1,210,415
Percent of fever cases tested with an RDT at Public health Facilities	89%	89%	89%
Percent of fever cases tested with an RDT at community level	100%	100%	100%
Total RDT Needs	4,031,530	4,189,889	4,639,632
Partner Contributions (to PMI target population if not entire area at risk)			
RDTs carried over from previous year	2,683,125	2,689,370	2,822,956
RDTs from Government	200,000	201,425	201,425
RDTs from Global Fund	1,653,350	609,150	2,597,600
RDTs from other donors	-	431,800	-
RDTs planned with PMI funding	2,183,000	3,082,525	1,250,000
Total RDTs Available⁴	6,719,475	7,012,845	6,871,981
Total RDT Surplus (Gap)	2,687,945	2,822,956	2,232,349

¹Total population figures are based on the final 2012 census data with annual increase of 3.9%

²All estimates are based on suspected fever cases as outlined in the Needs Assessment NMCP/PNLP 2008-2012.

³Suspected malaria cases take into consideration the projected reductions from malaria control efforts (incl. universal ITN and SMC campaigns) and access to health services

⁴NCMP is requesting help to build up stocks for emergencies and to help diminish stockouts in country

Table 11: ACT Gap Analysis

Calendar Year	2018	2019	2020
ACT Needs			
Total country population ¹	21,466,862	22,314,742	23,196,000
Population at risk for malaria	21,466,862	22,314,742	23,196,000
PMI-targeted at-risk population	21,466,862	22,314,742	23,196,000
Total projected number of all malaria cases at public facilities level, Private facilities and community (children < 5 years) ²	3,386,936	3,151,550	3,060,735
Total projected number of malaria cases at public facilities level and community (children < 5 years)	2,584,771	2,425,378	2,391,623
Total ACT Needs³	2,584,771	2,425,378	2,391,623
Partner Contributions (to PMI target population if not entire area at risk)			
ACTs carried over from previous year	1,054,280	2,358,209	1,266,801
ACTs from Government	459,700	260,000	466,930
ACTs from Global Fund	1,964,010	303,510	419,550
ACTs from other donors	-	-	-
ACTs planned with PMI funding	1,464,990	770,460	1,656,420
Total ACTs Available	4,942,980	3,692,179	3,809,701
Total ACT Surplus (Gap)	2,358,209	1,266,801	1,418,078

¹Total population figures are based on the final 2012 census data with a 3.9% annual increase.

² Parasitemia positivity rate (RDTs and microscopy) is projected at 2017= 64%, 2018=58.8%, 2019=53.2%. This reduction in positivity takes into account the increased availability of diagnostic services at the same time as the various preventive interventions

³In line with the 2017-2021 National Health Plan, 100% of confirmed malaria cases should be treated with ACTs

Table 12: Severe Malaria Medicines Gap Analysis

Calendar Year	2018	2019	2020
ACT Needs			
Total country population	21,466,862	22,314,742	23,196,000
Population at risk for malaria	21,466,862	22,314,742	23,196,000
PMI-targeted at-risk population	21,466,862	22,314,742	23,196,000
Total projected number of malaria cases at public facilities level and community level(children < 5 years)	2,584,771	2,425,378	2,391,623
Total projected number of severe malaria cases ¹ at public facilities level, and community level (children < 5 years)	180,934	169,776	167,414
Total AS inj Needs ¹	1,335,734	1,243,980	1,205,608
Partner Contributions (to PMI target population if not entire area at risk)²			
AS Inj carried over from previous year	399,478	4,880	94,225
AS Inj from Government			
AS Inj from Global Fund	350,000	683,321	444,955
AS Inj from other donors			
AS Inj planned with PMI funding	591,136	650,003	760,606
Total ACTs Available	1,340,614	1,338,204	1,299,786
Total ACT Surplus (Gap)	4,880	94,225	94,178

¹The estimated need of artesunate Injection is made by considering 3 days of treatment with 3 injections on D1, then an injection on D2 and an injection on D3. Thus, at the Adult one will use an average of 12 Amp of AS 60 mg, Child <5 years 5 Amp and Children 5-14 years, an average of 10 amp.

²The number of projected cases of severe malaria is calculated on the assumption that 7% of reported malaria cases will be severe malaria. 52% of cases of severe malaria will be observed in children under 5; 23% in children aged 5-14 and 25% in adults.

Plans and justification

One of Niger's biggest needs is that of commodities. Under the direction of the NMCP, PMI is working in close collaboration with the Global Fund and the GoN to procure commodities to fill the needs of the country. PMI will support procurement of case management commodities including RDTs, ACTs, severe malaria treatments, and medications for SMC to complement commodities procured by UNICEF, Global Fund, GoN, and other donors to cover national needs.

In addition, PMI will help support integrated case management and malaria in pregnancy trainings and supervision at facilities and community level as requested by NMCP and in regions not currently supported by other donors (Global Fund, World Bank) for these activities and will work with the NMCP and other donors to plan contributions for 2019 and 2020 SMC campaigns.

PMI will help healthcare providers at public facilities in the PMI targeted areas to effectively deliver diagnostics and treatment including for malaria in pregnancy and management of severe malaria. Activities will include in-service refresher training targeting approximately 400 providers, job aides, supportive supervision and quality assurance/quality control of RDTs. Regions targeted will be Dosso and Tahoua which have approximately 1,126 health facilities: 13 hospitals, 287 health centers, and 826 health posts.

Several donors including the Global Fund, World Bank, and UNICEF support iCCM programs in Niger. PMI recognizes the critical role that CHWs play, particularly in settings such as Niger where access to public health facilities is limited and care seeking is often delayed. While PMI does not support formalized payments of CHWs, PMI will seek to support the CHW programs in Niger to the extent possible, through training of 500 CHW, supervisor, and procurement of commodities.

PMI plans to support integrated SBCC activities to promote appropriate treatment-seeking behavior among community members, with particular attention to increasing healthcare-seeking rates and utilization of treatment for children. In addition, SBCC activities will also be targeted to health service providers to address any behavioral barriers to service provision identified through formative research.

Please see Table 2 for a detailed list of proposed activities with FY2018 and FY2019 funding.

B. Pharmaceutical management

NMCP/PMI Objectives

According to the NMSP, the NMCP's objective for pharmaceutical management by 2021 is to assure the continuous availability of all malaria-related commodities in all health facilities, at the community level. To strengthen the supply chain and pharmaceutical management, the plan calls for:

- Increased availability of products, including through improved quantification and procurement practices
- Strengthening of the distribution and stock management of malaria commodities
- Strengthening of the logistics management information system
- Improvements in the quality control of malaria medicines and combating the sale of illegal drugs

Current Status:

In addition to the NMCP, there are four agencies involved in the supply chain management system.

- The *Direction de la Pharmacie et de la Médecine Traditionnelle* (DPH/MT) is in charge of the formulation and monitoring of the pharmaceutical policy which includes the

administration of the pharmaceutical sector, regulation, pharmacovigilance, the setting of norms and standards, supervision, and the promotion of traditional medicine.

- The *Office National des Produits Pharmaceutiques et Chimiques* (ONPPC) is responsible for the supply, storage and distribution of essential medicines and supply.
- The *Société Nigérienne des Industries Pharmaceutiques* (SONIPHAR) mission is to ensure the local production and distribution of medicines.
- The *Laboratoire National de Santé Publique et d'Expertise* (LANSPEX) mission is quality control of medicines. Niger's MSP states that all antimalarial drugs delivered must have a Nigerian marketing authorization and must comply with WHO standards and will be tested for quality upon arrival in country and six months afterwards.

The ONPPC is in charge of procurement and distribution of medical supplies as well as curtailing the sale of illegal drugs. A parastatal, ONPPC operates on a charter from the GoN. ONPPC has two drug distribution systems: one for donor-funded commodities for high priority programs (e.g., TB, malaria, HIV/AIDS, family planning) called the Special Management Unit [*Unite Gestion Sanitaire (UGS)*]; and the second for other drug donations and the products purchased by the GoN. Supplies are distributed through three zonal warehouses to district depots (or directly to regional hospitals) and on to health facilities and eventually to health posts and CHWs, utilizing a "pull" system based on requests by end users. ONPCC delivers to the health district level and then health facilities go to district depots to pick up their supplies. The UGS has a separate distribution system. Due to their bulk, ITNs have their own distribution system which is managed by Global Fund principal recipient CRS. All medical products, including malaria drugs and commodities, are to be provided free to children under-5 years of age and to pregnant women. Other adults and older children are charged fixed prices set by ONPPC. Health facilities can bill the government for the cost of medications for these special groups (e.g., paracetamol, antibiotics) not provided through donor-funded programs although it takes upward of nine months for reimbursement. These delayed payments result in health facilities charging fees to patients for ACTs. The NMCP helps to pay for the storage and distribution of malaria commodities they receive from donors. The major problems of the system include:

- Lack of reliable stock and consumption data at all levels of the system
- Inadequate commodity quantification due to lack of data and analysis
- Lack of a functioning logistics management information system
- Poor stock and inventory management at health facilities and periodic stockouts of commodities
- The inability to regulate the pharmaceutical activities of the private sector
- Lack of storage space and vehicles to transport supplies
- Lack of regular collection and disposal of expired or damaged products

The Global Fund supported a 2017 audit of the organization of ONPPC and the pharmaceutical management system. The audit revealed key bottlenecks, to include: 1) uncoordinated parallel supply chains adding unnecessary, time-consuming responsibilities to logisticians at all levels and limiting traceability of products; 2) lack of qualified logisticians; 3) inefficient supervision systems; and 4) management issues at ONPCC generating mistrust from partners. The audit also identified strengths of Niger's supply chain, including: 1) a network of well-performing private transportation companies (called 3PL) and more than 5000 kilometers of paved roads allowing access to all regional capitals in less than 20 hours from Niamey; 2) strong mobilization of

technical and financial partners supporting Niger's health sector; and 3) widespread, significant involvement of community-led management committees (COGES) volunteering their time to improve access to health services. In addition, the World Bank funded a medical supply stock survey. Based on these studies, Global Fund supported, in collaboration with ONPPC and DPH, the development of a national strategic plan for an improved national pharmaceutical management system.

In May 2015, a technical Committee for Supply Management of Malaria, chaired by DPH/MT, was set up to meet quarterly to discuss coordination and management at all levels. In 2018, this coordination committee met three times during which time they discussed SMC commodities and reviewed the malaria commodity distribution plans. The MoH's goal is to have only one supply chain committee for all health commodities, and thus, the malaria committee will be a part of this broader committee but will also continue to meet and discuss malaria specific issues such as quantification and supply planning. At the time of writing, the first meeting of this committee had not yet been planned.

Plans and Justifications:

PMI, other donors, and the NMCP agree on the need for an integrated pharmaceutical management system and to support the implementation of the national strategic plan for the management of medical supplies. With FY2018 and FY2019 funds, PMI will support the Ministry of Health by providing on-the-job training and supervision of regional, district, and health facility staff on the reporting and use of malaria commodity data to better maintain appropriate stock levels at health facilities. PMI will strengthen district-level capacity to store and distribute malaria commodities, including outfitting district warehouses, and training district health staff. At the national level, PMI will support ONPPC, DPH and NMCP in the areas of coordination, quantification, warehousing and distribution planning efforts, in addition to periodically assessing the use of malaria commodities via end-use verification exercises.

Please see Table 2 for a detailed list of proposed activities with FY 2018 and FY 2019 funding.

5. Health system strengthening and capacity building

PMI supports a broad array of activities that strengthen health systems that cut across intervention areas, such as training of health workers, supply chain management, health information systems strengthening, and drug quality monitoring.

PMI will fund an array of activities that strengthens the overall health system, focused on pharmaceutical management, health management information, health worker training, and support for integrated community health care. These activities are described elsewhere in this MOP. In addition, PMI will support a capacity building program for the NMCP focusing on improving partner coordination, management and program oversight.

NMCP/PMI Objectives

The MOH calls for the universal and equitable access of quality health services by the population, including an integrated community health system. The GoN has endorsed a compact with development partners, which outlines a process for working collaboratively in the health sector. In

addition, the MOH has designed a National Health Development Plan supported by a sector-wide approach to harmonize and align donor funds with national budget allocations.

The National Malaria Strategy calls for case management of malaria at the household level delivered by community health volunteers. Ideally, this approach would be part of an integrated iCCM intervention package focused on malaria, pneumonia, diarrhea, and malnutrition, and supported by social and behavior change communication (SBCC) interventions. The community health approach is a key strategy to reach the 50 percent of the population without ready access to health facilities in the country. The MOH's emphasis on SBCC will also help address the low perceived demand for MCH services.

Since 2015, USAID has supported a long-term technical advisor embedded in the NMCP to help build capacity in management, leadership and governance. The advisor has helped the NMCP improve its capability across a range of areas, including program management, training, quantification, monitoring and evaluation, and donor coordination.

In late 2018, PMI assessed the organizational capacity of the NMCP to coordinate the implementation, oversight, and monitoring of their strategic plan to achieve set objectives and goals for malaria control. Once available, the action plan generated based on findings from the assessment will establish clear institutional strengthening milestones aimed at making the NMCP a stronger candidate to be Principal Recipient when applying for Global Fund grants.

Plans and Justifications

PMI plans to support the implementation of prioritized recommendations from the September 2018 capacity strengthening external assessment of NMCP management and operations, with a **special focus on supply chain strengthening**. PMI will also support the NMCP activities aimed at coordinating technical and implementation partners (e.g. organizing and following up on technical working group meetings, including the meetings of the national logistics committee), disseminating malaria information, performing supportive supervision visits, and attending key trainings and conferences as needed. This support includes continued support for a full-time senior technical advisor specializing in supply chain/logistics embedded at the NMCP to provide technical, management and leadership assistance as well as coordination with the Global Fund grant. In the upcoming year, the advisor will help the NMCP to plan and coordinate logistics and commodities supported by the PMI as well as help quantify and plan distribution of commodities the 2019 ITN and SMC campaigns.

Table 14: Health systems strengthening activities

HSS Building Block	Technical Area	Description of Activity
Health Services	Case management	Training in case management for health facility staff. Supervision of health facility workers and <i>relais</i> to ensure quality health services are provided.
	Health systems strengthening	Quality assurance systems to monitor the effectiveness of laboratory diagnostic services.
Health Workforce	Health systems strengthening	PMI will help support the expansion and standardization of the iCCM program and SMC in its focus geographic area.
Health Information	Surveillance, monitoring and evaluation	Strengthen disease surveillance systems to improve decision-making, planning, and program management. Support implementation of the DHIS2 platform.
	Operational research	Support efforts of CERMES and the NMCP to study the impact of insecticide resistance on insecticide-based intervention measures and to update the epidemiological profile of malaria in the country.
	Entomological monitoring	
Essential Medical Products, Vaccines, and Technologies	Pharmaceutical management	PMI will support improved forecasting, procurement, quality control, storage and distribution of malaria commodities, and strengthen the logistic management information system, thereby helping to implement the national pharmaceutical management strengthening plan now under development.
Leadership and Governance	Health systems strengthening	PMI will continue to support a long-term advisor to strengthen the leadership, management, and governance of the NMCP.

Please see Table 2 for a detailed list of proposed activities with FY 2018 and FY 2019 funding.

6. Social and behavior change communication

PMI supports a range of social and behavior change communication (SBCC) activities on central level to increase the uptake of malaria interventions and contribute to reductions in malaria morbidity and mortality. Key areas of PMI support for SBCC include: developing or revising national malaria SBCC strategies; capacity building and strengthening for SBCC for national and regional trainers in Dosso and Tahoua Region ; and monitoring and evaluating SBCC including needed assessments of interventions at baseline, midpoint and end-line points. The implementation

of SBCC to target improvement in intervention uptake is supported by Global Fund and other partners.

NMCP/PMI Objectives:

Niger's 2017-2021 MSP goals for SBCC are:

- At least 80 percent of the population are aware of the major signs and interventions to prevent malaria
- At least 80 percent practicing correct malaria prevention and treatment measures

The strategy also includes some important communication objectives, including:

- The harmonization and coordination of information, education, and communication (IEC) and behavior change communication (BCC) activities at all levels
- The financing of communication activities
- The development and execution of an integrated communication plan

To achieve these objectives, the strategy calls for:

- Formative research on the determinants of health behaviors, the profile of target groups, and the most important channels of communication
- Integrated communication campaigns which combine promotion, social mobilization, interpersonal messaging, and behavior change
- Special events especially during the high transmission seasons (e.g., World Malaria Day, The National Week for Malaria Social Mobilization, National Independence Day, and traditional holidays)
- National and rural radio programs, television spots, and print materials that are adapted to the local situation
- Community participation and leadership of communication activities, the training of community health agents in BCC/IEC, and the sensitization of local leaders
- Sensitization of school children about malaria and using them to disseminate key messages

Under the present Global Fund grant, the NMCP's Communication Unit supported advocacy, individual and community-focused behavior change, partner coordination, research and capacity building. Key activities included conducting Malaria Control Weeks in selected localities and National Malaria Control Day activities; rural radio messaging including promotion spots and information bands; research on the barriers to ITN use; information dissemination by community health workers, women's and youth groups, traditional and religious leaders; and sensitization surrounding ITN and SMC campaigns. The major focus was on the use of rural radio to disseminate messages in local languages.

The existing Malaria SBCC strategy is outdated, has no budget attached, nor any dedicated financing. The Global Fund technical review panel recommended that the SBCC strategy be evaluated, and the findings used to develop an enhanced and updated SBCC strategy prior to producing any more SBCC materials. Work on the new strategy has begun and will be accelerated with a planned national workshop to identify messages, SBCC interventions, and communication channels. The Global Fund has asked that the strategy specifically address all identified barriers to health care service access (especially gender-based barriers), as well as low ITN use. Based on its experience to date, the NMCP Communication Unit believes that the new strategy should promote:

- Continuous use of ITNs
 - The 2015 administrative data indicated that 60 percent of households possessed at least one ITN but that only about 24 percent of children and pregnant women slept under an ITN the night preceding the interview. Staff at the NMCP believe this gap between net possession and use has continued despite the distribution of millions of ITNs.
- Prompt treatment seeking for fevers
 - Health coverage is estimated at 48 percent for persons living within five kilometers of a health facility which has contributed to delayed treatment seeking for fevers, as well as other conditions.
- Early and regular attendance by pregnant women of ANC services
 - Administrative data indicate that only 19 percent of pregnant women received three or more doses of IPTp. Late attendance at first ANC visit is seen as an important contributing factor to this low use rate.
- Compliance with the second and third doses for all four rounds of SMC.
 - While preliminary results of first round SMC campaign indicate 98 percent coverage of eligible children (aged 3-59 months), there are concerns that some of the second and third (take home) doses are diverted to older children and other family members.

Plans and justification

Under the guidance of the NMCP and in coordination with the Global Fund and other donors, PMI will provide technical assistance and other targeted support at the central level for the national rollout of the new Malaria SBCC strategy. The design of SBCC interventions and messages will be informed by data, the PMI proposed assessment of routine LLIN distribution, and the recently completed SMC study, and will include messages on uptake of IPTp, promoting distribution of ITNs during first ANC and EPI visits, encouraging communities to participate in SMC, targeting community level to promote early initiation of ANC, and consistent use of ITNs. PMI will also support the NMCP to coordinate a national SBCC stakeholder committee, to engage globally with the RBM SBCC working group, and will support Niger's National Week for Malaria Social Mobilization, and World Malaria Day.

Please see Table 2 for a detailed list of proposed activities with FY 2018 and FY 2019 funding.

Table 15. Behavioral and Communication Objectives for Key Malaria-Related Behaviors

<u>Behavioral Objective</u>	<u>Baseline</u>	<u>Target</u>
Proportion of children under 5 that slept under an ITN the previous night.	20% ¹	TBD
Proportion of pregnant women that slept under an ITN the previous night.	20% ¹	TBD
<u>Communication Objective</u>	<u>Baseline</u>	<u>Target</u>
Proportion of the population who know sleeping under LLIN/ITN can prevent malaria.	TBD ²	TBD
Proportion of people who feel able to use and maintain /ITNs correctly and consistently.	TBD ²	TBD
<u>Behavioral Objective</u>	<u>Baseline</u>	<u>Target</u>
Proportion of the population that are practicing correct malaria prevention and treatment measures.	TBD ²	80% ³
<u>Communication Objective</u>	<u>Baseline</u>	<u>Target</u>
Proportion of the population that is aware of the major signs and interventions to prevent malaria.	TBD ²	80% ³
Proportion of the population that know environmental sanitation is a means of preventing malaria	TBD ²	80% ³

¹DHS 2012

²MIS will be conducted in 2019 to determine baseline

7. Surveillance, monitoring, and evaluation

Background and NMCP Objectives

The NMCP's costed Monitoring and Evaluation (M&E) Plan for Malaria Control 2017-2021 which aligns with the National Malaria Control Strategic Plan 2017-2021. A review of M&E systems identified key challenges the plan seeks to address:

- Health staff not trained in using data collection tools
- Multiplicity of collection tools burdening staff
- Lack of a coordinated data management system
- Insufficient coverage surveys conducted
- Little follow-up of health workers following training
- Inadequate completion of forms and analysis of findings

- Inconsistencies and poor timeliness in reporting; and lack of financing to support some M&E activities
- Outdated epidemiological reference strata used by NMCP and partners

The NMCP's M&E Unit comprises two sections: epidemiology and biostatistics, and monitoring and evaluation of activities. Three full-time personnel staff the unit, along with three epidemiology interns who graduated from the National Public Health Institute in Niamey. An M&E working group, comprised of the NMCP's M&E Unit, regional focal persons and representatives of the Global Fund, develops annual work-plans and meets twice a year to review progress.

The overall objective of the M&E Plan is to improve in the malaria-related information system to monitor outcomes and make decisions. Specific objectives targeting all levels are:

- Build M&E capacity of entities that implement malaria control and prevention activities
- Establish high-quality, integrated tools for data collection and monitoring and evaluation of malaria control interventions
- Establish a quality assurance system for malaria-related data
- Create a sound framework for strategic information on malaria
- Evaluate program performance at the end of the 2017-2021 Strategic Plan

The plan focuses on the implementation areas summarized below.

Population-based surveys: The M&E Plan prioritizes a number of population-based surveys for measuring outcomes and impact, including national surveys with the standard malaria module (Malaria Indicator Survey, MIS), the Demographic and Health Survey (DHS), and multiple indicator cluster survey (MICS), along with other focused surveys addressing coverage and health facility performance. The last DHS in Niger, conducted from February to June 2012, was Niger's most recent national population-based health survey. Previous DHS surveys were conducted in 1992, 1998, and 2006. The 2012 DHS measured prevalence of fever, along with posing standard questions on prevention and treatment of malaria. The malaria module of the 2017 DHS incorporated new questions on seasonal malaria chemoprevention and IPTp, along with performing RDTs and thick blood smears to measure parasite prevalence. Anemia was also measured. The survey started in mid-October 2017 and data collection was completed in mid-January 2018. Preliminary results were shared with PMI in May 2018, however the results have been challenged by international partners and PMI is therefore unable to use them as its program baseline. PMI will support either another DHS or an MIS in 2019/2020 in order to gather baseline data.

Health facility surveys: Niger conducted a SARA in 2015. The results showed that all health facilities provide malaria diagnostics and treatment services, 91 percent offer rapid diagnostic tests, and 24 percent provide microscopy (of which 90 percent are private sector facilities). Only 52 percent of facilities had a health worker trained in malaria diagnostics and treatment, and 74 percent had a first-line antimalarial drug in stock. In addition, only 46 percent of facilities had ITNs in stock for routine distribution. For malaria in pregnancy, 74 percent of facilities offer IPTp, but only 41 percent have health providers trained in IPTp. Overall, the mean service readiness score for malaria services in facilities was 68 percent. Niger also conducted a Service Delivery Indicators (SDI) survey in 2015, with support from the World Bank, Consortium for Economic Research in Africa, and the African Development Bank. The survey looked at overall health

delivery performance in terms of human resources, diagnostics and treatment according to guidelines, and supplies and equipment. Diagnosis and treatment specifically of malaria and anemia were assessed along with four other non-malaria diseases typically seen by front-line health workers. Neither the SARA nor SDI assessed the quality of malaria service provision by health workers in enough detail to inform training and supervision (e.g., diagnosis and treatment of uncomplicated versus severe malaria, referral practices and the like).

Health management information system (HMIS): The NMCP is committed to contributing to the development and implementation of a sound HMIS to measure both process and outcome indicators and to use the results to inform program strategy. In implementing the HMIS, the NMCP collaborates closely with the Directorates for Health Statistics and Surveillance and Epidemic Response. As envisioned in the 2013-2022 National HMIS Strategic Plan, the HMIS collects data starting from the operational levels—community, health huts, CSI, and district—to the national level, transmitted through the regions. District health teams compile and analyze the data and submit them to the regional public health directorate. Data can be desegregated by CSI. Reports are submitted electronically from the CSI to district level, and reports are submitted electronically from the district to region and up to central level. The region in turn reviews the reports for accuracy before submitting to the NMCP and the collaborating directorates. The reporting schedule is weekly for notifiable disease reporting and monthly for routine surveillance. The NMCP also aims to have quarterly data reviews at the district and national levels, and data audits during supportive supervision visits in two sampled districts per region.

The NMCP has faced multiple challenges in implementing the HMIS (known as SNIS or *Système National d'Information Sanitaire* in Niger) as designed. The Global Fund and other partners requested the NMCP implement a parallel malaria data reporting requirement. They modified routine surveillance reporting by CSI's from quarterly to monthly in 2013¹¹, with the goal of improving data availability for decision making. In addition, the NMCP incorporated specific indicators required for Global Fund grants. Despite modifications, supervisory reports from the NMCP and partners revealed discrepancies between the HMIS and malaria reports. NMCP malaria reporting timeliness from the district and regional levels improved from 71 percent in 2016 to 76 percent in 2017. NMCP malaria data reporting completeness improved from 92 percent in 2016 to 98 percent in 2017. Data reviews occur irregularly and the reports reaching the national level show significant inconsistencies. For example, the 2016 case management indicators based on quarterly NMCP reports (data is pulled from the HMIS¹²) show 117 percent of confirmed cases nationwide were treated with an ACT, ranging from 80 percent in Agadez Region to 136 percent in Tillabéri Region. The 2017 case management indicators based on quarterly NMCP show 92 percent of confirmed cases nationwide were treated with an ACT, ranging from 84 percent in Agadez Region to 94 percent in Maradi Region. The revised malaria module of the Niger DHIS2 instance is expected to be completed and rolled-out in 2019.

¹¹ Only health posts/huts are reported monthly (Case de santé to CSI and CSI to District). Districts and Regions report quarterly to the central level.

¹² NMCP quarterly reports previously pulled its data from a parallel system to respond to Global Fund requirement (PUDR = Progress Update and Disbursement Request). From 2018, NMCP data will be integrated into the DHIS2 and NMCP expects to discontinue this parallel system by 2020.

As is the case in many other countries in the region, GoN has officially adopted the DHIS2 platform for collection and reporting of HMIS data. With this shift to the DHIS2 platform, the NMCP will discontinue the parallel reporting system by 2020. Technical preparations, development of revised reporting forms, and training of dedicated staff on DHIS2 began in mid-2016. Official implementation was launched in November-December 2016, starting with Niamey. The MOH recruited 67 new district-level data entry staff to enter historical data currently on in parallel systems into DHIS2, and all the districts and CSIs will receive computers and software soon. As of September 2018, all regional, district and CSI level staff participated in the DHIS2 training, in all regions except for Maradi and Zinder. A range of partners are funding the bulk of technical, training and implementation needs including the Global Fund, UNICEF, UNFPA, the World Bank and the European Union. To scale up DHIS2, Ministry and partner staff prioritized assistance in securing internet connectivity in all CSIs and helping stabilize those where connection is problematic in district offices. Other requests include additional DHIS2 technical team training and certification, post-training supervision in regions and districts, and funding DHIS2 server hosting subscription after September 2018.

While existing partners have supported short-term technical assistance needs, the NMCP and Health Statistics Directorate recognize the need for ongoing, focused in-country technical assistance to strengthen monitoring and evaluation strategies and implementation generally, and to scale-up DHIS2 specifically. To that end, each have requested partner support to place dedicated M&E and DHIS2 advisors to be assigned to their respective units on national level.

Disease surveillance and epidemic response: Niger participates in the WHO-led notifiable disease surveillance and epidemic response system implemented in a number of West Africa countries with epidemic malaria. Currently all health facilities must complete weekly IDSR reporting. Training is needed in data use, understanding the epidemic threshold, and implementing effective response to potential malaria outbreaks. A national epidemic response committee meets monthly to review reports. The latest Strategic Plan envisions updating current national surveillance guidelines and training district, regional and public hospital staff. The geographic focus will continue to be the hypo-endemic northern zone of Niger. The European Union, WHO, UNICEF, and the West Africa Health Organization fund training and supervision. Niger's IDSR leadership identifies needs for partner support with program coordination, trans-national meetings and satellite telephone communication. The PMI team and implementing partner will further examine the inter-connectivity of the systems.

One concern expressed widely by the NMCP and partners is the need to update and redefine the three epidemiological strata that the NMCP and partners reference to focus malaria control strategies. The hyper-, meso- and hypo-endemic areas previously described were last defined in 1976, and are based on seasonality of malaria transmission rather than incidence or malaria parasitemia. Those parameters may no longer reflect epidemiological, entomological and climatic conditions. The NMCP and CERMES have referred to WHO for technical assistance, but they have also requested such expertise from PMI.

Sentinel surveillance sites: The NMCP currently oversees three sentinel surveillance sites in each of the three strata: Agadez (hypo), Tessaoua (Maradi Region-meso) and Gaya, (Dosso Region-hyper), with three more planned with World Bank funding. These sites are designed to address a

wide range of program needs: documenting malaria incidence and mortality, therapeutic efficacy of antimalarials, case management practice, surveillance of insecticide resistance and other entomological parameters, monitoring of the quality of RDTs, and monitoring pharmacovigilance. The sites are currently not functional and the NMCP seeks partner support to improve the sites with additional equipment (computers and furnishings), training, and technical assistance for data collection and analysis.

Table 16: Surveillance, Monitoring, and Evaluation Data Sources

Data source	Survey Activity	Year								
		2012	2013	2014	2015	2016	2017	2018	2019	2020
Household Surveys	Demographic Health Survey (DHS)*	x*					x*			
	Malaria Indicator Survey (MIS)								x	
Health Facility and Other Surveys	Health facility survey (SARA)				x*					
	End-user verification (EUV) survey								x	x
	Service Delivery Indicators (SDI) Survey				x					
Malaria Surveillance and Routine System Support	Support to malaria surveillance system							x	x	x
	Support to HMIS							x	x	x
Entomology	Entomological surveillance and resistance monitoring						x	x	x	x
Therapeutic Efficacy Monitoring	<i>in vivo</i> efficacy testing						x ¹			x
Other Data Sources	ITN Durability Monitoring							x	x	x

¹Non-PMI funded

Table 17: Routine Surveillance Indicators in Niger from 2013 to 2017

Indicator	2013	2014	2015	2016	2017
Total # Malaria Cases	4,288,425	3,683,922	3,132,071	3,739,778	4,063,304
Total # Confirmed Malaria Cases	1,176,711	2,042,237	2,065,340	2,324,569	2,638,580
Total # Clinical Malaria Cases	3,111,714	1,641,685	1,066,731	1,415,209	1,424,724
Total # <5 Malaria Cases	2,695,722	2,315,771	2,836,653	2,350,883	2,384,052
Total # Inpatient Malaria deaths	2,209	2,691	1,650	3,506	2,584
Data Completeness ¹ (%)	95%	94%	92%	92%	98%
Test Positivity Rate (TPR)	65%	60%	70%	64%	69%

¹Percentage of health facilities reporting each month

Sources: *Annuaire des Statistiques Sanitaires du Niger*, from 2012 to 2016, and the NMCP Annual Report 2017

Plans and justifications

PMI will focus its FY 2019 funds on supporting either a new DHS or an MIS to take place in 2020 as well as assessing and addressing routine HMIS implementation needs especially at the district levels. This will include addressing challenges related to the roll out of the DHIS2 platform. Through its country team and implementing partners, PMI will assist the NMCP and country partners to target training and supervision of health workers at the national, regional, district levels in high-quality data collection, analysis and use for program needs. PMI will support quarterly data reviews and audits to improve data quality. A technical advisor on M&E will be placed in the NMCP M&E Unit to assist with transitioning malaria reporting from the parallel system to a strengthened HMIS and with the scale-up of the DHIS2. PMI will also help the NMCP and partners reassess the long-held criteria used to define Niger's epidemiological strata, and to advise on how best to use them for strategic planning. In addition, PMI will provide technical assistance to help the country update its epidemiological profile and stratification of the country to better understand malaria determinants and guide the selection of interventions for various strata.

Please see Table 2 for a detailed list of proposed activities with FY 2018 and FY 2019 funding.

8. Operational research

NMCP/PMI objectives

The MSP's goal for operational research (OR) is to support the documentation of good practices and successful experiences. The MSP states strategic information on malaria will be obtained from the analysis of routine HMIS data, sentinel surveillance and/or annual or periodic assessments. Studies will be carried out in collaboration with research centers and institutes in the framework of a partnership with the NMCP on priority areas of research related to entomological and epidemiological aspects, case management, use of measures preventive measures (ITNs, IRS, IPTs and SMC), population behavior and efficacy of insecticides and antimalarials.

Current status

There are no OR studies in progress in Niger.

Plans and justification

There are no PMI-supported OR activities planned with FY 2018 or FY2019 funding.

9. Staffing and administration

Two health professionals serve as Resident Advisors (RAs) to oversee PMI in Niger, one representing CDC and another representing USAID. In addition, one or more Foreign Service Nationals (FSNs) work as part of the PMI team. All PMI staff members are part of a single interagency team led by the USAID Mission or Office Director or his/her designee in country. The PMI team shares responsibility for development and implementation of PMI strategies and work plans, coordination with national authorities, managing collaborating agencies, and supervising day-to-day activities. Candidates for RA positions (whether initial hires or replacements) will be evaluated and/or interviewed jointly by USAID and CDC, and both agencies will be involved in hiring decisions, with the final decision made by the individual agency.

The PMI interagency professional staff work together to oversee all technical and administrative aspects of PMI, including finalizing details of the project design, implementing malaria prevention and treatment activities, monitoring and evaluation of outcomes and impact, reporting of results, and providing guidance and direction to PMI implementing partners.

The PMI lead in country is the USAID representative to Niger. The day-to-day lead for PMI is delegated to the USAID Health Office Director/Lead and thus, the two PMI RAs, one from USAID and one from CDC, report to the USAID Health Office Director/Lead for day-to-day leadership, and work together as a part of a single interagency team. Technical expertise housed in Atlanta and Washington complements PMI programmatic efforts.

The two PMI RAs are physically based within the USAID health office but are expected to spend approximately half of their time with and providing technical assistance to the NMCPs and implementing partners, including time in the field monitoring program implementation and impact.

The number of locally-hired staff and necessary qualifications to successfully support PMI activities either in Ministries or in USAID will be approved by the USAID Niger Representative and the Mission Director in USAID/Senegal. Because of the need to adhere to specific country policies and USAID accounting regulations, any transfer of PMI funds directly to Ministries or host governments will need to be approved by the USAID Mission/Director and Controller, in addition to the U.S. Global Malaria Coordinator.

Please see Table 2 for a detailed FY 2018 and FY 2019 funding.