

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 2017 appropriation. If any further changes are made to this plan it will be reflected in a revised posting.



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PRESIDENT'S MALARIA INITIATIVE

NIGER

Malaria Operational Plan FY 2017

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ABBREVIATIONS and ACRONYMS

ACT	Artemisinin-based combination therapy
AL	Artemether-lumefantrine
ANC	Antenatal care
AS/AQ	Artesunate-amodiaquine
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>
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>
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
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
ITN	Insecticide-treated net
LANSPEX	<i>Laboratoire National de Santé Publique et d'Expertise</i>
LLIN	Long-lasting insecticide-treated mosquito net
LMIS	Logistics management information system
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
ONPCC	<i>Office National des Produits Pharmaceutiques et Chimiques</i> (National Office of Pharmaceutical Products and Chemicals)
PMI	President's Malaria Initiative
NMCP	<i>Programme National de Lutte contre le Paludisme</i> (referred to as NMCP)
RDT	Rapid diagnostic test
SBCC	Social and behavior change communication
SMC	Seasonal malaria chemoprevention
SM&E	Surveillance, monitoring, and evaluation
SNIS	<i>Système National d'Information Sanitaire</i>
SP	Sulfadoxine-pyrimethamine
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% 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 first FY 2017 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 2017 funding.

The proposed FY 2017 PMI budget for Niger is \$18 million. 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 (ITNs), IRS and larviciding 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 2017 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 (ITNs):

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 soon to infants receiving their measles vaccination). 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, conducting a comprehensive assessment of ITN distribution through ANC to date, 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 (IRS):

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, at the moment, IRS remains aspirational due to the number of higher malaria intervention priorities; to date, no IRS has occurred in the country. There is no IRS planned with PMI FY 2017 funds.

Malaria in pregnancy (MIP):

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 case management 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 2017 funds, PMI will assist 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. 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.

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 (September 2013) 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. Overall confirmation rate is 62%, but of confirmed cases approximately 90% are confirmed with RDTs.

With FY 2017 funds, PMI will support procurement of case management commodities including RDTs, ACTs, and medications for seasonal malaria chemoprevention (SMC). These commodities will complement the Government of Niger, 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 2017 funds, PMI plans to continue supporting an embedded long-term technical advisor to assist with coordination with Global Fund grant processes and help build overall leadership and capacity at the national level. 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 chiefdom level.

Social and behavior change communication (SBCC):

The NMCP's goal is for at least 80% 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 2017 funds, PMI plans to 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 currently transitioning to the DHIS2 platform; carrying out a notifiable disease surveillance and epidemic response system in the hypo-endemic northern zone; and support of six sentinel surveillance sites. The 2017 Demographic and Health Survey (DHS), with data collection starting in October 2017, will serve as baseline for measuring PMI contributions to malaria programs in Niger going forward. PMI will focus its first 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. 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 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. There is no PMI-supported OR planned with FY 2017 funds.

II. STRATEGY

1. Introduction

When it was launched in 2005, the goal of PMI was to reduce malaria-related mortality by 50% 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 five 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%; 15% of the population is nomadic and 84% of the population lives in rural areas¹. Women represent 50% of the population, 50% of the population is below the age of 15 years old, and children under the age of five years old account for 20% of the population².

Niger is one of the poorest countries in the world, with 80% of the population living on less than US \$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% of Nigerien children under five years of age are chronically undernourished. Niger currently ranks 187 out of 188 according to the Human Development Index (Human Development Report 2016, UNDP) and has some of the poorest development indicators in Africa. According to Niger's DHS, the under-five 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 2017 DHS is currently in progress. The National Malaria Strategic Plan 2017-2021 (MSP) states that 48% 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%, lives in rural areas, only 24% of all health care providers are found in rural areas. The literacy rate is 24% (14% women); 14% of households have electricity coverage mostly in urban areas and 50% 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 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

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

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% of all illness in country and 50% of all recorded deaths. According to Niger’s Annual Health Statistic Report 2016 (Figures 1 & 2), there were 3,374,678 uncomplicated malaria cases, 172,407 severe malaria cases, and 1,561 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%) and about three-quarters of malaria-related mortality in the country (74.65 %). These figures inaccurately reflect the actual situation of the country due to poor access to health facilities.

Figure 1: Number of Malaria Cases by Region, 2016

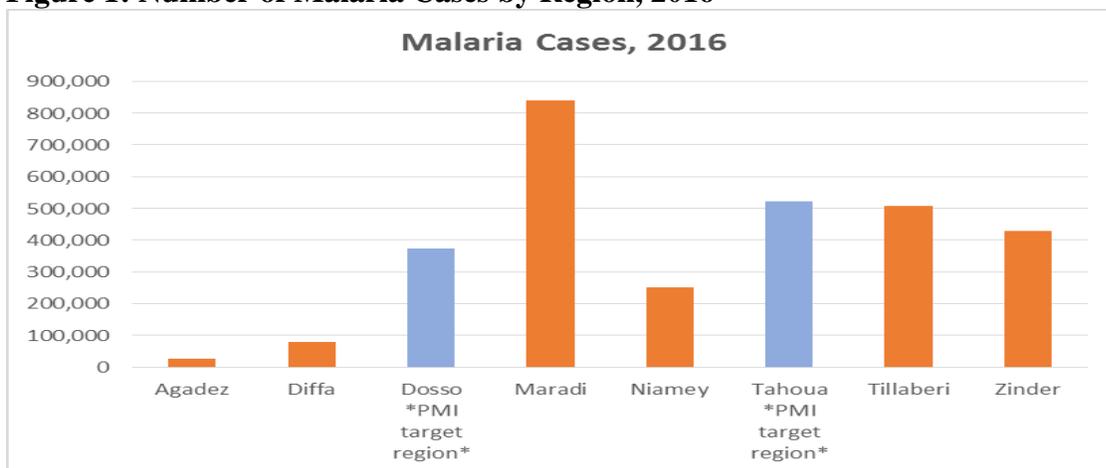
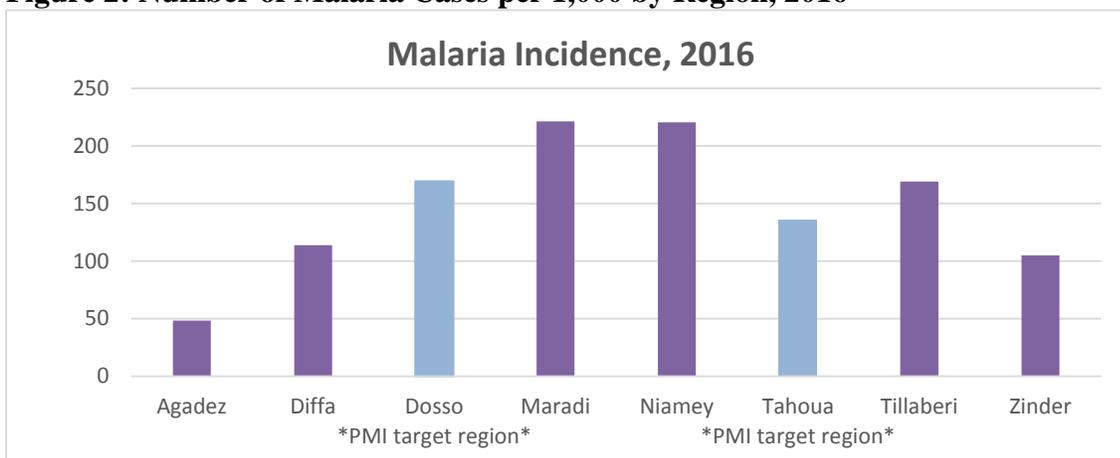


Figure 2: Number of Malaria Cases per 1,000 by Region, 2016⁵

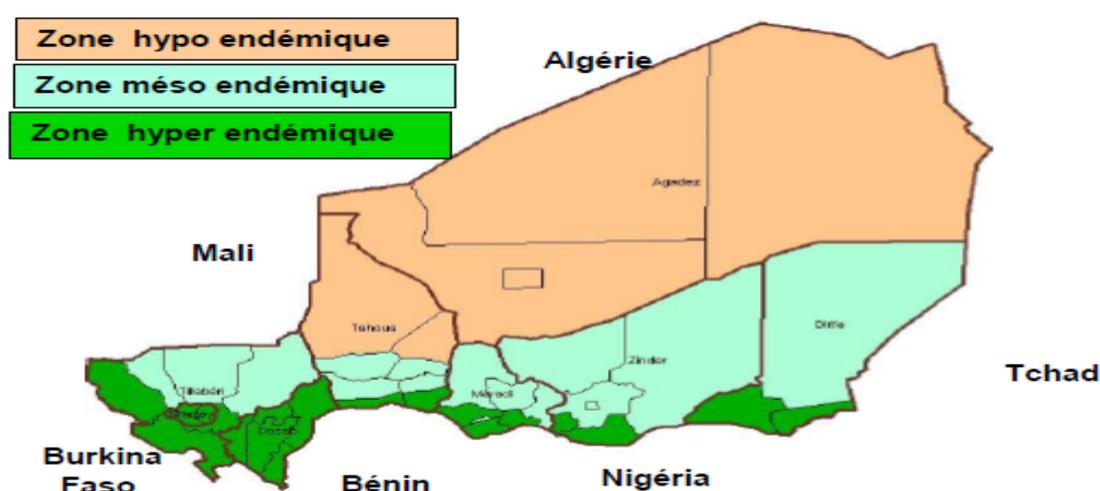


Niger’s climate is characterized by three seasons: hot (March to May), rainy (June to September) and cold (October to February). The country is divided into three malaria strata which are defined

⁵ Annuaire des Statistiques Sanitaire du Niger, Annee 2016 (Niger National Statistics Report)

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% of the population lives in the meso-endemic zones in the Sahelian region where transmission is two to four months; and 53% 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%, lives in the two southern zones where malaria is most prevalent.

Figure 3: Niger’s Malaria Transmission Zones



The NMCP has focused its effort 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 insecticide-treated nets (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 (although not all 72 are fully functioning).

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

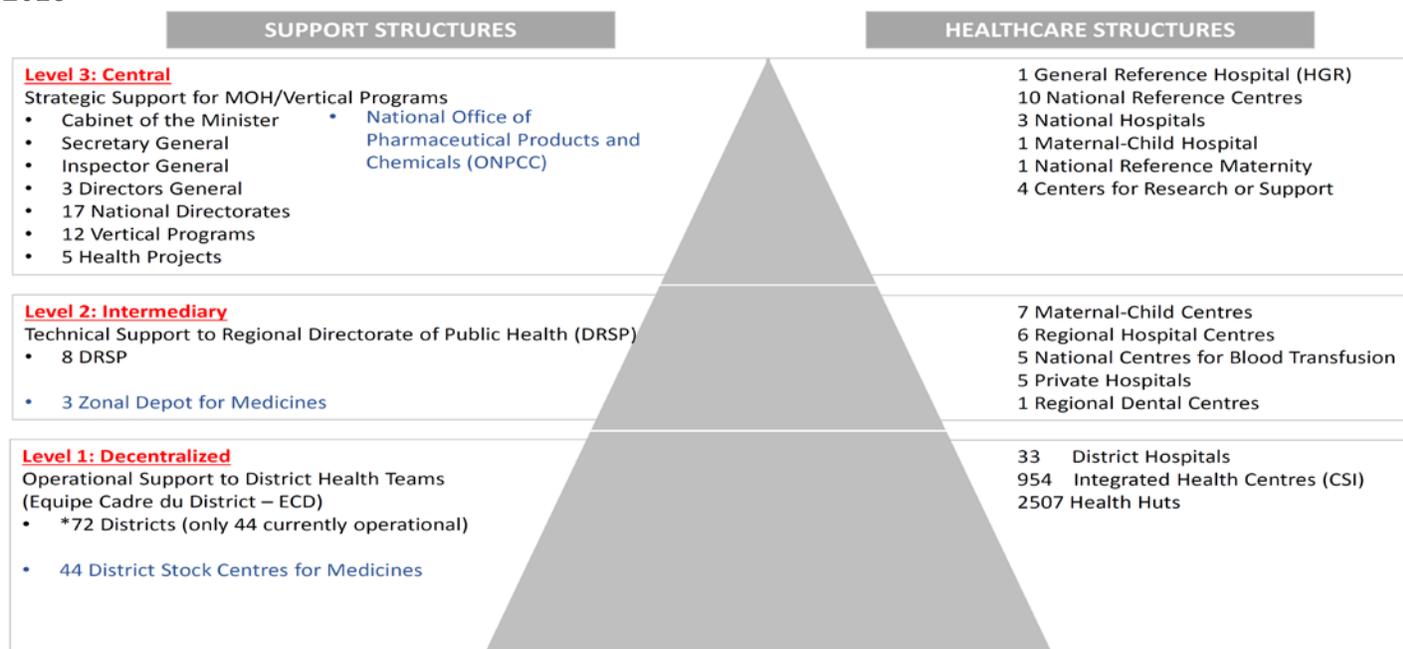
- Central level of strategic support consisting of hospitals, maternity centers and national reference centers;
- Regional or intermediate level represented by the Regional Hospital Centers (CHR), the Mother Children's Health Centers (CSME);
- Operational level (District) with District Hospitals (HD) 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;
-

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



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*)

Table 1: Niger population and distribution of health facilities									
Region	Total Population	Children under 5 years old	Women child-bearing age (15-45)	National Hospital	Regional Hospital	District Hospital	CSI1*	CSI2*	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
Mardi	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

*CSI1- a health center that has no maternity and no laboratory

**CSI2—a 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 woman and children under five years of age.

Objective of the MSP, by 2021:

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

Expected results:

- At least 80% of the population at risk of malaria sleeps under an LLIN;
- At least 80% of children under five years of age at risk of malaria sleep under LLIN;
- At least 80% of pregnant women at risk of malaria sleep under an LLIN;
- At least 80% of the population in eligible areas are protected by indoor residual spraying (IRS) with effective insecticides;
- At least 80% of pregnant women at risk of malaria receive at least three doses of intermittent preventive treatment during ANC
- At least 80% 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% of suspected cases of malaria have undergone a parasitological test (TDR, Microscopy);
- At least 90% of confirmed cases of malaria in health facilities have received adequate antimalarial treatment in accordance with national guidelines;
- At least 90% of cases of confirmed severe malaria in health facilities have received adequate antimalarial treatment in accordance with national guidelines;
- At least 90% of cases of simple malaria confirmed by community relays have received correct antimalarial treatment in accordance with national guidelines;
- At least 80% of the population is aware of the major signs and national malaria prevention measures;
- At least 80% 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 (LLINs, PIDs, IPTs and SPCs), population behavior and efficacy of insecticides and antimalarials.

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.

Coordination with other donors

The Global Fund: The Global Fund has been the primary donor for malaria control activities in Niger since 2005. Currently, the GoN has a Global Fund malaria grant for approximately \$36 million US dollars that runs from May 2016 to December 2017, with Catholic Relief Service (CRS) as 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 team members developed the Niger MOP in September 2017 just weeks before the Global Fund was about to finalize and sign its next malaria grant (2018-2020). The estimated need for malaria resources for this three-year period was 80 million Euros, but only 44 million Euros were available for Niger at the time the Global Fund program was designed. Thus, the NMCP, Global Fund managers, and CRS (the Global Fund principal recipient) made some hard choices, including foregoing a major universal net campaign for three of the most populous and high burden regions. There were also gaps in SMC and other activities (e.g., entomology, SBCC).

The arrival of the PMI funding and the expected U.S. Government resources (\$18 million for FY 2017 and beyond) changed the potential national malaria control landscape. As a result of a series of discussions among the PMI Team, the NMCP, Global Fund managers, and CRS, there was a general agreement to revise the near final Global Fund program to take advantage of PMI resources. While the NMCP/Global Fund/CRS endorsed all components and activities included in this MOP, they specifically highlighted the following items as essential for PMI support:

- Entomology, including entomological monitoring and insecticide resistance technical support;
- Central level support for social behavior change communication, pharmaceutical management, and capacity building for the NMCP;
- \$9 million USD to support commodities, including the drugs to cover approximately 1 million children with seasonal malaria chemoprevention (SMC), plus an additional \$1 million to support SMC operating costs. This component (\$9 million total) would substantially reduce (but not close) the existing commodity gaps while allowing the Global Fund the flexibility to support, in 2018, much needed universal net campaigns in Niger's three most populous and high burden regions.

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. Save the Children is the principal recipient of this grant.

UNICEF is a key partner for procurement and distribution of commodities and supports community health interventions including seasonal malaria chemoprevention (SMC) and the implementation of integrated community case management (iCCM) in 17 districts in the south-east of the country. They also procure 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. RISE also funds the Niger DHS which will provide PMI with a much-needed baseline. 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.

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% reduction from PMI's original 2000 baseline levels;
- Reduce malaria morbidity in PMI-supported countries by 40% 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-elimination.⁶

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 Roll Back Malaria Monitoring and Evaluation Reference Group (RBM MERG) 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 five 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 five years old with fever in the last two weeks for whom advice or treatment was sought
- Proportion of children under five with fever in the last two weeks who had a finger or heel stick
- Proportion receiving an ACT among children under five 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

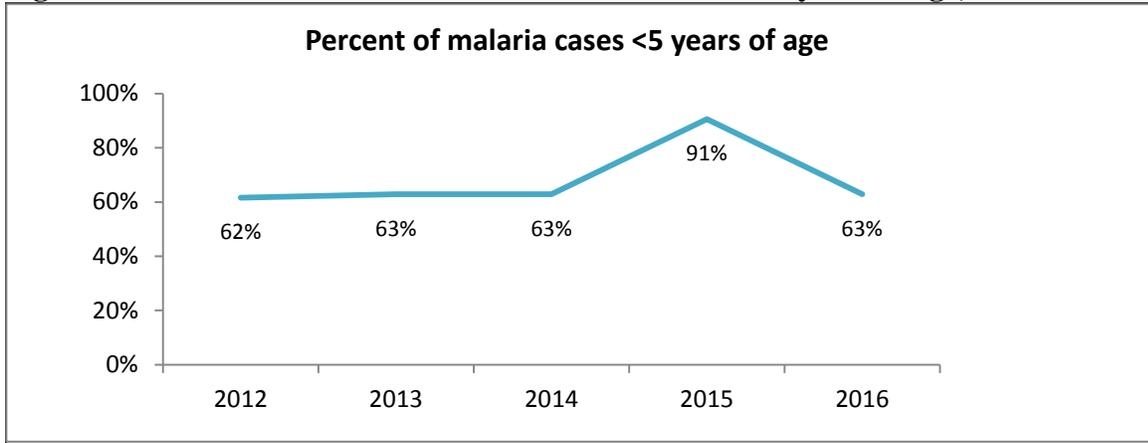
7. Progress on coverage/impact indicators to date

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

Indicator	DHS 2006	DHS 2012
% Households with at least one ITN	46%	61%
% Households with at least one ITN for every two people	N/A	17%
% Children under five 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 five years old with fever in the last two weeks for whom advice or treatment was sought	N/A	64%
% Children under five with fever in the last two weeks who had a finger or heel stick	N/A	14%
% Children receiving an ACT among children under five 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-five 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
The 2017 DHS is currently in progress. Data collection started in October 2017, and preliminary results are expected March 2018. This data will serve as the baseline for helping measure PMI contributions to malaria programs going forward.		

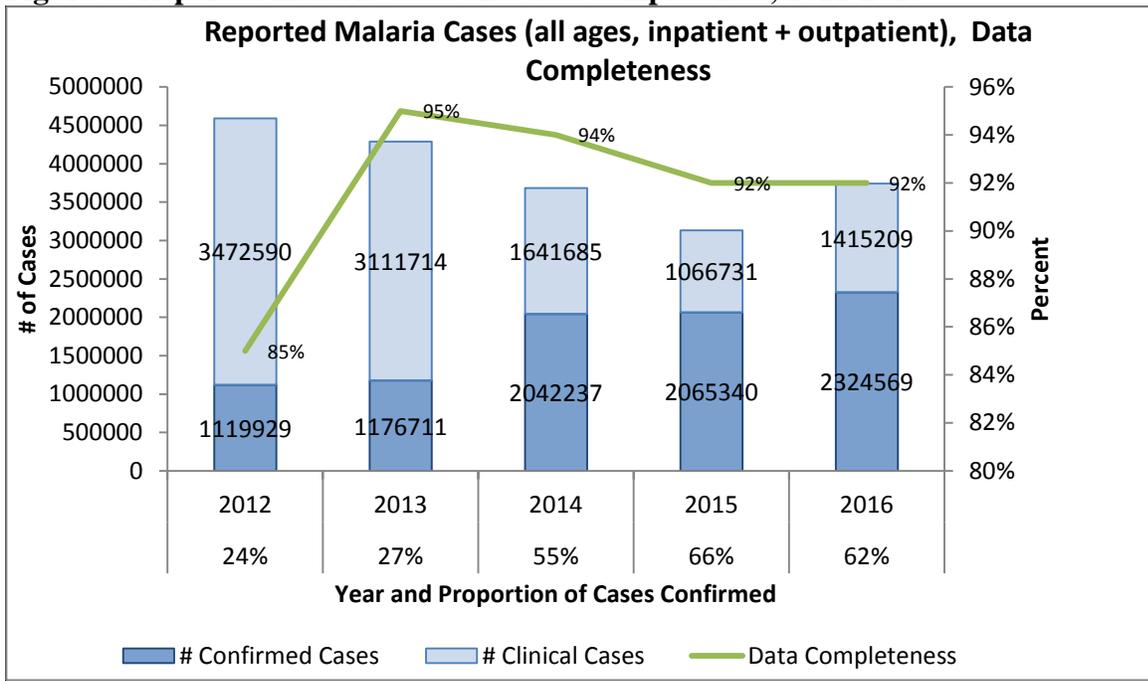
Figures five and six present an overview of malaria trends in Niger from 2012 to 2016.

Figures 5: Percent of malaria cases in children under five years of age, 2012-2016



Sources: *Annuaire des Statistiques Sanitaires du Niger*, from 2012 to 2016

Figure 6: Reported malaria cases and data completeness, 2012-2016



Sources: *Annuaire des Statistiques Sanitaires du Niger*, from 2012 to 2016

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 National Malaria Strategic Plan (MSP)⁷ calls for three insecticide-based vector control activities: insecticide-treated nets (ITNs), indoor residual spraying (IRS), and larval control. Furthermore, it recognizes that these interventions must be informed by comprehensive vector monitoring based on WHO recommended methods.

Vector-insecticide resistance, recognized as the major threat to the anti-vector interventions, is addressed in a separate plan for monitoring and managing resistance⁸. The NMCP envisions a national surveillance system to monitor resistance using the WHO recommended methods and tools. Lack of resources necessary to stand up 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, with LLIN distributions, IRS and larviciding as the main intervention methods although IRS has yet to be implemented in country. PMI will support LLIN distribution and IRS strategies, but does not support larviciding as a priority intervention for malaria control in Niger.

The current eco-epidemiological profile of Niger includes three malaria zones as defined earlier (figure 3): hypo-, meso-, and hyper-endemic. Last defined in 1976, these zones are based on seasonality of malaria transmission rather than incidence or malaria parasitemia. Those parameters may no longer reflect the evolving epidemiological, entomological and climatic conditions that

⁷ Plan Stratégique de Lutte Contre le Paludisme 2017-2021

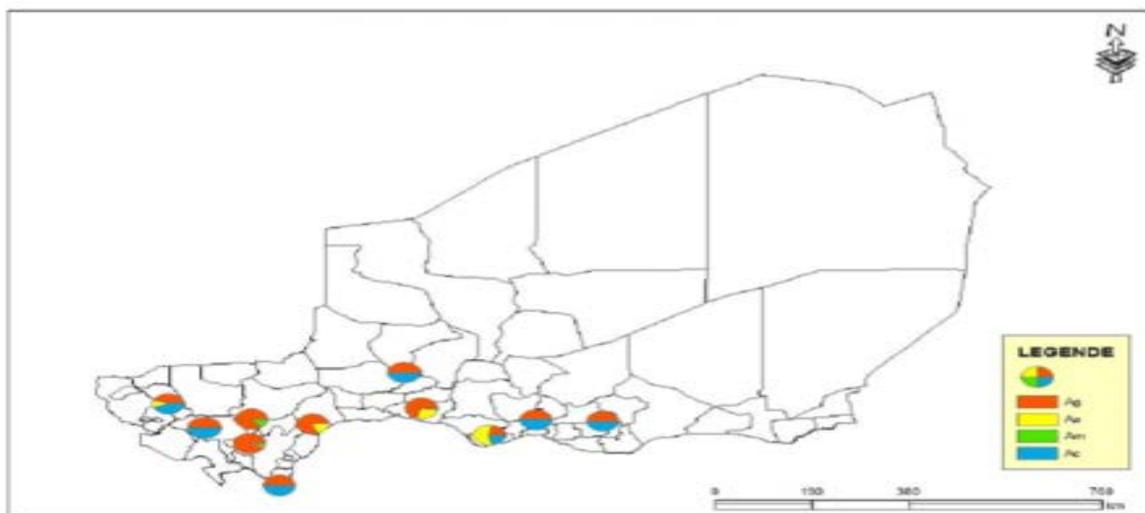
⁸ Plan National de Suivi et de Gestion de la Résistance des Vecteurs du Paludisme aux Insecticides 2016-2020

inform malaria control strategies. The NMCP would like to revisit these zone definitions using entomological and epidemiology data. The NMCP and CERMES have referred to WHO for technical assistance, but they have also requested such expertise from PMI.

The rainy season in Niger last about three to four months from June to September with peak transmission during the second half (August-September) of the rainy season. Pyrethroid resistance has been documented in malaria vectors at 11 entomological monitoring sites (Figure 7). Pyrethroids tested include permethrin, deltamethrin, α -cypermethrin, λ -cyhalothrin and data is collected at sites in the hyper-endemic and meso-endemic zones (see Figure 7). Annual surveillance activities at all sites has been interrupted due to lack of available resources. Results, included in the National Plan for Surveillance and Management of Resistance in Malaria Vectors (2016-2020), are summarized below.

Fig. 7. The 11 most recent (2013-2014) entomological monitoring sites.

(Source: Plan National de Suivi et de Gestion de la Résistance des Vecteurs du Paludisme aux Insecticides 2016-2020). Pie charts indicate vector (*An. gambiae* complex) species composition: color code: red- *An. gambiae* s.s., yellow-*An. arabiensis*, green-*An. melas*, blue- *An. coluzzii*. Pyrethroid resistance data, and other entomological estimates, reported in the text below, were collected at the same time.



The vector resistance profile suggests widespread pyrethroid resistance (observed mortality <90%; n=5400 females tested), but susceptibility to carbamate and organophosphate insecticides.

Biochemical testing of a subpopulation of the same vectors 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% 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 1bite /person/night in the north to 104 bites/person/night further south.

- **Human (vs. animal) biting rate.** The overall level of **anthropophily** was 20% of all blood fed females tested.
- **Peak biting time.** Approximately 50 % of all biting occurs indoors and late at night (0200-0400hrs peak).
- **Age structure of biting population.** Most (90%) 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% and the average inoculation rates on the order of 1 infective bite/human/month.

The NMCP and its entomology M&E partner, CERMES (*Centre de Recherche Medical et Sanitaire*), have laboratories and rudimentary insectary facilities at the Ministry of Public Health. Both organizations have experience in entomological monitoring, although entomology staffing and opportunities for advanced entomological training are limited.

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 spraying is currently taking place, the plan is timely, new IRS products soon to be available will expand the possibility of rotation of insecticides to manage resistance for future IRS efforts.

Based on existing expertise at the NMCP and CERMES, PMI will support a comprehensive package of entomology monitoring activities, including annual collection and testing of vectors at surveillance locations distributed among the three epidemiological strata estimate key indicators such as vector-insecticide resistance, taxonomy and density.

Proposed activities with FY 2018 funding: (\$429,000)

- *Entomology monitoring and insecticide resistance management:* Entomological monitoring will begin in 2018, yielding data that will inform ongoing LLIN activities as well as any future IRS (\$400,000)
 - Operational support for at least nine surveillance sites, covering the three transmission zones. PMI will support current sites in the hyper and meso-endemic zones and will work with the NMCP to establish sites in the hypo-endemic zone, if possible, which does not have a monitoring site. (transportation, fuel, per diem for entomologist field teams (supervisor plus technicians)
 - Purchase of equipment for conducting entomology monitoring of indicators the identified surveillance field sites (vector collection, taxonomic identification, resistance testing, parity dissection) with follow up analysis at central laboratory (sporozoite ELISA).
 - Upgrading of CERMES and National Public Health lab insectary facilities
 - Training (PMI entomology techniques) for up to five staff at an appropriate West-African French speaking lab

- Laboratory equipment: four dissecting and two compound microscopes, and two computers for data entry, storage, analysis, equipment for molecular methods (Kdr, Ace-1) of resistance monitoring.
- Expendable supplies and equipment for ELISA, PCR equipment for characterizing molecular resistance mechanisms, taxonomic speciation and blood meal analysis.
- *CDC technical assistance (TA)*: Support for two CDC visits to Niger to support entomological activities. (\$29,000)

b. Insecticide-treated nets

Intervention overview/Current status

Niger prioritizes the distribution and promotion of use of long-lasting insecticide-treated nets (ITNs) as a key component of its national malaria prevention strategy. It targets 80% of the population sleeping under an LLIN 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.

The NMCP and partners cite several key barriers faced in implementing the ITN activities: the low rate of net access and especially net use, and the concern that insecticide resistance render nets ineffective. The 2012 DHS found that while 61% of households reported having at least one insecticide-treated net (ITN), only 37% 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 all households surveyed, only 14% had slept under an ITN, and only 21% of the population of households with at least one ITN had used the net. In addition, only 20% of children under five years of age and 20% of pregnant women had reported sleeping under an LLIN the previous night.

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 LLINs. They prioritized districts and regions based on available resources and timing of LLIN 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 under-estimation in certain health zones; monitoring the quality of completed forms; and recruiting independent monitors to complement supervision.

Table 3: LLIN distributions 2014-2017

Campaign Activities	2014	2015	2016	2017	Total
LLINs distributed	1,550,000	5,694,548	629,137	3,465,597	11,339,282
Number of districts covered	6 districts	19 districts	5 districts	26 districts	
Regions covered	Tillaberi	Maradi, Zinder, Tahoua	Niamey	Tillaberi, Dosso, Diffa	

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

Routine Distribution

Complementing mass distribution, the NMCP seeks to help maintain vaccination coverage among vulnerable populations. While distribution of ITNs through antenatal clinics has continued for some years, an assessment has not yet been conducted to identify operational gaps and potential improvements. The NMCP will officially initiate nationwide distribution of ITNs with measles vaccinations in child immunization clinics in 2018, with support from the Global Fund principal recipient CRS.

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 shorter than expected physical integrity of nets reported 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. Such monitoring encompasses estimating ITN loss rates associated with: survivorship (reduced coverage), net integrity (physical damage) and bio-efficacy (insecticidal effects). 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 4. ITN Gap Analysis

Calendar Year	2017	2018	2019
Total Targeted Population (Hyper and Meso-Endemic Regions)	20,651,070	21,466,862	22,314,742
Number of pregnant women	898,322	931,662	966,228
Number of children less than 1 years old	898,322	931,662	966,228
Continuous Distribution Needs			
Channel #1: ANC	756,387	821,726	890,863
Channel #2: EPI	733,210	760,422	788,636
Estimated Total Need for Continuous	1,489,597	1,582,148	1,679,498

Mass Distribution Needs			
2017 campaign: Tillaberi, Dosso, Diffa	3,573,056		
2018 campaign: Maradi, Tahoua, Zinder (districts in hyper-endemic zone only)		3,256,542	
2018 campaign: Maradi, Tahoua, Zinder (estimated need for remaining districts)		3,239,519	
2019 campaign: Niamey			713,271
Estimated Total Need for Campaigns	3,573,056	6,496,061	713,271
Total Calculated Need:	5,062,653	8,078,209	2,392,769
Continuous and Campaign			
Partner Contributions			
ITNs carried over from previous year		0	0
ITNs from Government (campaign Dosso & Diffa)	1,896,200		
ITNs from Government (routine)		200,000	200,000
ITNs from Global Fund (routine)	1,097,693	1,040,960	787,795
ITNs from Global Fund (campaign Tillaberi + gaps Dosso and Diffa)	1,766,028		
ITNs from Global Fund (campaign Maradi, Tahoua, Zinder) 2018 & 2019		3,626,542	434,671
UNICEF		340,000	
ITNs planned with PMI funding		990,600	889,950
Total ITNs Available	4,759,921	6,198,102	2,312,416
Total ITN Surplus (Gap)	(302,732)	(1,880,107)	(80,353)
Footnotes:			
1. Routine distribution quantification: infants =4.35%, pregnant women = 4.35% total population.			
2. CPN coverage: 2017= 84.2%, 2018=88.2%, 2019=99.2%. EPI coverage 81.62% for all years			
3. Mass campaign distribution quantification: population of targeted regions divided by 1.8.			

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 will cover mass campaign needs in districts with the highest malaria burden in the regions of Tahoua, Maradi, and Zinder, and the Global Fund will fill routine ITN distribution needs through ANC and immunization clinics nationally in 2018. The campaign is planned to take place in May and June of 2018. PMI will support the procurement of ITNs for use later in CY 2018 and will support a comprehensive assessment of routine distribution to date through ANC clinics, along with technical assistance in the nationwide launch of ITN distribution through immunization clinics. PMI will tentatively commit to procure nets for routine distribution in and work with the NMCP and partners to identify funds to cover the gap in net needs for 2019 and 2020. 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, and on the results of the 2017 DHS. Finally, PMI will initiate support for training and equipping the staff of CERMES and NMCP to implement ITN durability monitoring following the 2018 campaigns. PMI typically does not support durability monitoring in the first year of country funding. However, PMI recognizes the NMCP's concerns about ITN efficacy, and thus will invest in durability monitoring starting in 2018.

Proposed activities with FY 2017 funding: (\$5,453,000)

- *Procurement of ITNs for routine distribution* including warehouse and distribution costs. PMI contribution to nets for routine and mass distributions, complementing inputs from the NMCP, Global Fund and other partners. PMI will procure approximately 990,600 ITNs (\$4,953,000)
- *Routine distribution program support:* Technical assistance and training to the NMCP and implementing partners to ensure routine ITN distribution is strategically planned and executed. This includes an assessment of the routine distribution in country with a workshop to discuss results with NMCP to guide the national strategy for routine distribution. (\$300,000).
- *ITN durability monitoring:* Initiate protocol development and training for monitoring of net physical durability and insecticide retention for nets distributed through campaigns. (\$200,000)
- *SBCC support:* Design and conduct intensive social and behavioral communications change efforts to promote consistent LLIN use in households. (Details and funding included in SBCC section.)

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.

Proposed activities with FY 2017 funding:

No IRS activities proposed with FY 2017 funds

2. Malaria in pregnancy

The NMCP 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.

NMCP/PMI Objectives

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

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

According to the MSP, the prevention of MIP is the joint responsibility of the Directorate of Maternal and Child Health (MCH) and the NMCP. Advocacy, communication, and behavior change interventions will be utilized to promote the increased uptake of both IPT 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 intermittent preventive treatment of pregnant women (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 (DOT) 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 counter-indicated 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 case management 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. 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.

Table 5: 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% (DHS, 2012)
Percent of pregnant women sleeping under an ITN	24% (DHS, 2012)
ANC1 attendance	110% (national statistics, 2016)
ANC4 attendance	40% (national statistics, 2016)
Number of pregnant women tested for HIV who are seropositive	0.2% (national statistics, 2016)

Table 6: 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% of facilities offer IPTp, only 41% have health providers trained in IPTp and only 46% 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 DOT of SP is not reportedly followed for subsequent doses of SP. 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, by community health workers. Other than the fee for the health card (200 FCFA or US 40 cents), all ANC and IPTp services are free of charge.

Table 7: SP Gap Analysis for Malaria in Pregnancy

Calendar Year	2017	2018	2019
Total Population	20,651,070	21,466,862	22,314,742
SP Needs			
Total number of pregnant women attending ANC	898,322	933,808	970,691
Total SP Need (in treatments)	1,528,623	2,023,553	2,544,910
Partner Contributions			
SP carried over from previous year	0	832,807	674,254
SP from Government	0	0	0
SP from Global Fund	2,361,430	0	1,398,473
SP from Other Donors (UNICEF)	0	500,000	0
SP planned with PMI funding		1,365,000	1,150,000
Total SP Available	2,361,430	2,697,807	3,222,727
Total SP Surplus (Gap)	832,807	674,254	677,817
Footnotes:			
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. Per the 2017-2021 National Health Plan, coverage targets are as follows:			
<ul style="list-style-type: none"> • 2017: IPTp1=76%, IPTp2=60%, IPTp3 & 4= 33% • 2018: IPTp1=82%, IPTp2=70%, IPTp3 & 4= 47% • 2019: IPTp1=88%, IPTp2=75% IPTp3 & 4= 61% 			
4. For calendar year 2017 the GF and UNICEF will procure SP to fill country needs			

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. PMI will also support SBCC messaging through community radio, TV, 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 will cover the SP needs for 2017 and 2018, and PMI will

start contributing to SP coverage in 2019. PMI will help fill any commodity gap needs of SP if requested by the NMCP, to meet GoN objectives for IPTp as well as fill the gaps for the provision of ITNs during ANC.

Proposed activities with FY 2017 funding: (\$1,200,000)

- *Procurement and distribution of SP as needed:* PMI, in collaboration with UNICEF and Global Fund will fill commodity needs and support the procurement and nationwide distribution of SP treatments, and related DOT supplies, for pregnant women to contribute to covering nationwide needs for 2018 and 2019. PMI will procure approximately 1.4 million SP treatments with FY 2017 funds. (\$700,000)
- *Procurement and distribution of ITNs for ANC as needed:* PMI will fill any commodity gaps and support procurement and nationwide distribution of ITNs for pregnant women during ANC services to contribute to covering nationwide needs for 2018 and 2019. PMI, in collaboration with Global Fund, will procurement ITNs for CY 2018 to fill in needs (see ITN section above).
- *Technical assistance in MIP at national level:* PMI will help the NMCP and national MIP working group to update its MIP guidelines and training materials to reflect the 2012 WHO IPTp policy recommendations. (\$50,000)
- *Training and supervision for MIP services provided at health facilities and through outreach activities:* PMI will help ANC providers at public (and selected private) facilities in the PMI targeted areas to deliver IPTp and ITNs effectively as part of routine ANC services. Activities will include in-service refresher training, job aides, and supportive supervision. (\$450,000)
- *SBCC targeted to health workers, CHWs, and families with women of reproductive age in the PMI targeted areas:* PMI will support SBCC activities targeting health workers and CHWs, including the provision of SBCC materials to address barriers to IPTp service uptake and quality service delivery. SBCC will also be implemented at the community level to promote early initiation of ANC, uptake of IPTp services, and continuous use of ITNs throughout the year.

3. 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% 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% of suspected cases of malaria have undergone a parasitological test (RDT or Microscopy);

- At least 90% of confirmed malaria cases in health facilities have received adequate antimalarial treatment in accordance with national guidelines;
- At least 90% of confirmed severe malaria cases in health facilities have received adequate antimalarial treatment in accordance with national guidelines;
- At least 90% 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 (September 2013) state that any suspected case of malaria must be confirmed by a diagnostic test: either RDT or microscopy, followed by treatment with an ACT. Workshops to update these guidelines are being held in December and should be finalized by January 2018. Niger conducted a Service Availability and Readiness Assessment (SARA) in 2015. The results showed that all health facilities provide malaria diagnostics and treatment services, 91% offer rapid diagnostic tests, and 24% provide microscopy (of which 90% are private sector facilities). Only 52% of facilities had a health worker trained in malaria diagnostics and treatment, and 74% had a first-line antimalarial drug in stock.

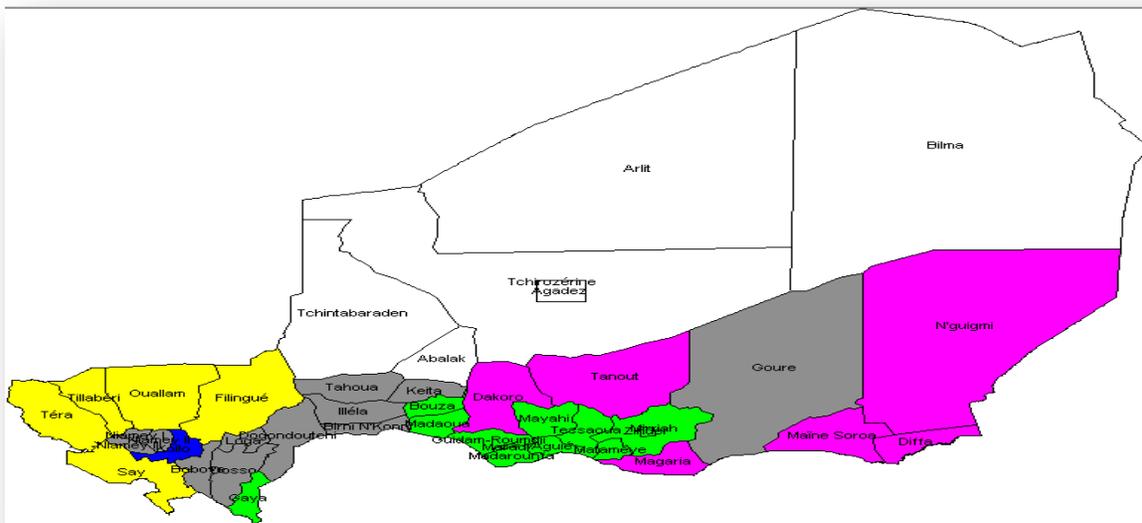
The current guidelines recommend first-line treatment for uncomplicated malaria with one of three ACT combinations: 1) artemether lumefantrine (AL), 2) artesunate- amodiaquine (ASAQ), or 3) dihydro artemisinin piperazine; with AL being the preferred medicine throughout the country (85%) and used in SMC zones. Dihydro artemisinin piperazine 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 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 2016 Annual Statistics Report, 3,739,778 malaria cases were diagnosed: 2,324,569 were confirmed malaria cases with approximately 90% confirmed by RDT. There were 3,506 malaria deaths with the majority of those, 64%, occurring in children under five years of age.

Niger initiated seasonal malaria chemoprevention (SMC) in the southern part of the country in 2013 targeting children under five years of age during the four-month SMC campaign from July to October. In the 2017 SMC campaign, approximately 69% of the 39 eligible districts are being supported by UNICEF, WHO, World Bank (WB), and Islamic Relief Niger (IRN) (see map below). 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 that meets each week to discuss preparation and implementation of these campaigns. PMI will contribute to increasing coverage of

SMC starting in 2019, and will help to cover areas not currently receiving support (grey areas) from other donors (see figure 8, SMC map below).

Figure 8: Seasonal Malaria Chemoprevention Map, 2017 coverage



Legend: Yellow=World Bank, Blue=Islamic Relief Niger, Green=Global Fund, Pink=UNICEF, Grey=uncovered (potential PMI sites). Only SMC eligible districts within regions are being supported.

In an effort to increase access to care for children under five years of age, the Niger Ministry of Public Health has promoted community health activities for years. The MSP promotes the expansion of integrated community case management (iCCM) throughout the country. In July 2016, a new community health policy⁹ 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 zone 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 ten-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 10,000CFA (\$17 USD) a month and have asked donors and partners

⁹ Directives Nationales de Mise en Oeuvre des Interventions Intégrées à Assise Communautaire en Matière de Sante

to contribute 50% of the incentive while the GoN contributes the other 50%. It is estimated that 13,000 CHW will be needed to cover targeted districts in country. 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. In 2017, there were approximately 18 districts and 3,500 CHWs trained by September 2017. 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 Evaluation 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 visits from the central level on down to the community, in order to evaluate the implementation of malaria activities. These supervisions are to provide information on the performance of health care providers by observing them in the field, and to verify the quality of the data 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 every quarter;
- Integrated health centers (CSI) to health posts/huts every month;
- CSI to the community health workers every month.

The NMCP via its partner CERMES and with funding and technical support from WHO, conducts therapeutic efficacy studies, which are to take place every two years in line with WHO guidance. The last TES was completed in November 2017 and WHO plans to continue supporting TES for the near future.

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; supervisions 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 8: 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 (ASAQ), 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 nor will it be for some time.
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 9: RDT Gap Analysis

Calendar Year	2017	2018	2019
Total population	20,651,070	21,466,862	22,314,742
Population at risk for malaria	20,651,070	21,466,862	22,314,742
Total number of fever cases expected in the population	20,208,505	18,598,865	18,499,490
Total number of fever cases expected in children under 5 at the community level	3,856,928	3,432,181	3,310,491
Percent utilization of services			
Percent utilization of services at public facilities	20.59%	20.96%	21.33%
Percent utilization of services at private facilities	7.36%	7.4%	7.4%
Percent utilization of services at community level	14.9%	22.77%	27.06%
Expected RDT diagnosis in public facilities	72.00%	76%	81%
Diagnosis by microscopy in public facilities	10%	10%	10%
Expected RDT diagnosis in private facilities	20%	20%	20%
Diagnosis by microscopy in private facilities	80%	80%	80%
Number RDTs needed (100% expected coverage)			
Number of cases tested with RDT in public sector	2,995,330	2,962,576	3,196,259
Number of cases tested with RDT at community level	297,368	275,356	275,494
Number of cases tested with RDT in private sector	576,608	781,345	895,812
Number cases tested with microscopy in public sector	416,018	389,813	394,600
Number cases tested with microscopy in private	1,189,473	1,101,425	1,101,978
RDT buffer stock-8 months	-	2,495,947	
Total RDTs needed	3,869,306	6,515,224	4,367,565
Partner Contributions			

RDTs remaining from previous year		2,232,944	358,721
RDTs from Government		201,425	201,425
RDT from Global Fund	6,034,750	1,653,350	609,150
RDT from other donors (World Bank, UNICEF)	67,500	603,225	
RDTs planned with PMI funding		2,183,000	3,100,275
Total RDTs available	6,102,250	6,873,944	4,269,571
Total RDT Surplus (Gap)	2,232,944	358,721	(97,994)
Footnotes:			
(1) Total population figures are based on the final 2012 census data with annual increase of 3.9%			
(2) All estimates are based on suspected fever cases as outlined in the Needs Assessment NMCP/PNLP 2008-2012.			
(3) Suspected malaria cases take into consideration the projected reductions from malaria control efforts (incl. universal LLIN and SMC campaigns) and access to health services			
(4) NCMP is requesting help to build up stocks for emergencies and to help diminish stockouts in country			

Table 10: ACT Gap Analysis

Calendar Year	2017	2018	2019
ACT Needs			
Total country population ¹	20,651,070	21,466,862	22,314,742
Population at risk for malaria	20,651,070	21,466,862	22,314,742
PMI-targeted at-risk population	20,651,070	21,466,862	22,314,742
Number of suspected malaria cases tested	5,474,796	5,510,513	5,864,142
Total projected number of malaria cases ²	3,503,870	3,240,182	3,119,724
Total ACT Needs³	3,503,870	3,240,182	3,119,724
Partner Contributions			
ACTs carried over from previous year			691,601
ACTs from Government		488,463	488,463
ACTs from Global Fund	3,314,030	1,345,950	303,510

ACTs from World Bank		239,070	
ACTs from UNICEF		393,300	
ACTs from Other Donors			
ACTs planned with PMI funding		1,465,000	2,140,050
Total ACTs Available	3,314,030	5,078,793	4,770,634
Total ACT Surplus (Gap)	(189,840)	691,601	503,900

Footnotes:

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

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 SMC campaigns.

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 trainings, 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.

Proposed activities with FY 2017 funding: (\$7,510,000)

- *Procurement and distribution of RDTs/ACTs:* Along with Global Fund and UNICEF, PMI will fill commodity needs and support the procurement and nationwide distribution of RDTs and ACTs, including severe malaria medications to contribute to covering nationwide needs for 2018 and 2019. With FY 2017 funding, PMI will

procure approximately 2 million RDTs (\$1,160,000) and 1.5 million ACTs (\$1,000,000)

- *Seasonal Malaria Chemoprevention (SMC)*: PMI will work with NMCP and other donors to plan expansion of SMC activities in districts identified as meeting SMC eligibility. After discussion with the NMCP, it was determined that eligible districts in 2018 were sufficiently covered by other donors, however by 2019 PMI support will be needed. Exact districts will be determined during planning meetings, but PMI support will cover approximately 1 million children. PMI will participate in planning meetings and support trainings, supervision, community mobilization and distribution of drugs. (\$2,000,000 for SMC commodities procurement and \$1,000,000 operational costs)
- *Integrated community case management (iCCM)*: PMI will support rolling expansion of iCCM implementation in the regions of Dosso and Tahoua, covering approximately 1 million children, while other donors, including UNICEF, the Global Fund, World Bank and the GoN will provide support for iCCM activities in the other target regions. PMI support for iCCM includes selection, training, and supervision of CHWs as well as providing needed commodities and supplies such as data collection tools. Expansion will be rolled out in the two regions in a phased approach to ensure new CHWs are properly supported. The districts for the phased scale-up will be decided in collaboration with the NMCP and the Global Fund in initial planning meetings. (\$950,000-operational costs; ACT/RDTs included in commodities line)
- *Training and supervision for case management*: PMI will help health care providers at public facilities in the PMI targeted areas to effectively deliver diagnostics and treatment including management of severe malaria. Activities will include in-service refresher training, job aides, and supportive supervision including QA/QC of RDTs. This includes training for MIP and targets a population of approximately 6 million people. Regions targeted will be Dosso and Tahoua which have approximately 1,126 health facilities: 13 hospitals, 287 health centers, and 826 health posts. (\$1,400,000)
- *SBCC targeted to health workers, CHWs, and families*: PMI will support SBCC activities targeting health workers, CHWs, and families, including the provision of SBCC materials, to address barriers to service uptake and quality service delivery such as seeking prompt treatment for fever, encouraging communities to participate in SMC, and completing treatment regimes.

B. Pharmaceutical management

NMCP/PMI Objectives

According to the National Malaria Strategic Plan, 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 combatting 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 National Office of Pharmaceutical Products and Chemicals (ONPPC) [*Office National des Produits Pharmaceutiques et Chimiques*] 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 [*Unité 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. ONPPC 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 UNICEF. All medical products, including malaria drugs and commodities, are provided free to children under-five 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 stock-outs 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 km 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 is funding a medical supply stock survey. Based on these studies, the GF has engaged a management firm to lead the design a 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. However, in 2017, this committee was only able to meet once. 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 development of a national strategic plan for the management of medical supplies which will likely be in place by late 2018. In the interim, PMI will help provide support at the national level for the activities outlined below.

Proposed activities with FY 2017 funding: (\$600,000)

At the national level: (\$200,000)

- Development of a logistic management information system (LMIS) to improve the availability and use of consumption and inventory data for malaria commodities, especially at the district and health facility level.
- Development of standard operating procedures for the management of malaria commodities.
- Improvements in the national quantification and forecasting of malaria commodities

In the PMI designated geographic area: (\$400,000)

- Technical assistance and training to improve supply chain management to address the many challenges identified above and to introduce the LMIS when available. The focus area will cover approximately 13 hospitals, 287 health centers and 826 health posts.

4. Health system strengthening and capacity building

PMI supports a broad array of activities that strengthen health systems which cut across intervention areas, such as training of health workers, supply chain management and 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 outline a process for working collaboratively in the health sector. In addition, the MOH has designed a 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% 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 training, monitoring and evaluation, and donor coordination. In the upcoming year, the advisor will help the NMCP to mobilize and coordinate the new activities supported by the PMI as well as help organize the 2018 net campaigns that will now be possible.

Plans and Justifications

PMI plans to fund an assessment of NMCP operations to identify technical and operational deficiencies to target for improvement. USAID will continue to support a technical advisor 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 mobilize and coordinate the new activities supported by the PMI as well as help organize the 2018 net campaigns that will now be possible. Funding for this position is coming from other USAID resources. Finally, the PMI in-country team will explore potential future collaboration with the

Public Health Institute and the National School of Public Health to integrate or strengthen malaria prevention and control content into their curricula, training and research activities. Such collaboration could help nurture future malaria program leaders and technical experts in Niger.

Proposed activities with FY 2017 funding: (\$200,000)

- *Capacity building activities for the NMCP:* PMI will support an external management assessment of the NMCP and its operations to determine the major areas for improvement and to design an overall management improvement plan and will work with the NMCP to begin implementation of at least one action item from the assessment during the period covered by this MOP. Support is also included for NMCP to coordinate technical and implementation partners which includes holding routine technical working group meetings, dissemination of information such as updates on new guidance (i.e. MIP or diagnosis and treatment guidance); and conducting supportive supervision, etc. Support to NMCP's staff for training needs is included such as attendance at international conferences (such as ASMTH) and/or regional workshops (RBM, SBCC) if not already covered by the Global Fund. (\$200,000)

Table 11: 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 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.
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5. Social and behavior change communication

PMI supports a range of social and behavior change communication (SBCC) activities 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; implementing SBCC to target improvement in intervention uptake; monitoring and evaluating SBCC including needed assessments of interventions at baseline, midpoint and end-line points; and SBCC operational research.

NMCP/PMI Objectives:

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

- At least 80% of the population are aware of the major signs and interventions to prevent malaria,
- At least 80% 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; and
- 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, TV 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; and
- 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 will have 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% of households possessed at least one ITN but that only about 24% 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% for persons living within five km 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% 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.
 - There are concerns that some of these 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 for the national rollout of the new Malaria SBCC strategy. In addition, PMI will ensure the uptake of the strategy in the PMI geographic focus area. Both the NMCP and the Global Fund has identified SBCC as a key area of focus for PMI. The design of SBCC interventions and messages will be informed by data, the PMI proposed assessment of routine LLIN distribution, the recently completed SMC study, and the results of the 2017 Niger DHS (preliminary results expected in March 2018).

Proposed activities with FY 2017 Funding: (\$400,000)

- *Support for the development or revision of national malaria SBCC strategy:* PMI will provide technical assistance to the NMCP to develop or revise a new communications

strategy derived from the new national malaria strategy and based on the results of the 2017 DHS as well as input from other partners.

- *Support to NMCP for the implementation of social mobilization events*, such as National Week for Malaria Social Mobilization, and World Malaria Day.
- *SBCC support for ITNs, MIP, CM and SMC which will include*: Technical support to design and disseminate key messages to communities, including continuous use of ITNs, prompt treatment seeking of fevers, early and regular attendance by pregnant women of ANC services, and compliance with all three days of SMC dosing. Dissemination of key messages will include support for SBCC materials including mass media, audio-visual, and radio messages in local languages as well as sensitization of local leaders and school children on key malaria messages. Activities will be focused in PMI regions but will be consistent with the NMCP's communication plan and in coordination with SBCC activities throughout the country.
- *SBCC support to targeting health workers and CHW*: Training of frontline health workers and CHWs on SBCC to address barriers to quality services such as the uptake of IPTp, promoting distribution of ITNs during first ANC and EPI visits, encouraging communities to participate in SMC, and targeting community level to promote early initiation of ANC, consistent use of LLINs.

6. Surveillance, monitoring, and evaluation

Background and NMCP Objectives

In April 2017, the NMCP finalized its costed Monitoring and Evaluation Plan for Malaria Control 2017-2021 with technical assistance from WHO. The plan was developed to coincide 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. A monitoring and evaluation working group, comprised of the NMCP's M&E Unit, regional focal persons and representatives of the Global Fund, develop annual work-plans and meet twice a year to review progress.

The overall objective of the 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 will incorporate new questions on seasonal malaria chemoprevention and IPTp, along with performing RDTs and thick blood smears to measure parasite prevalence. Anemia will also be measured. The survey started in mid-October 2017 and data collection will continue through mid-January 2018, with the key indicators report available in March 2018. PMI will use the 2017 DHS results as its program baseline. Niger's first MIS is scheduled for 2020.

Health facility surveys: Niger conducted a Service Availability and Readiness Assessment (SARA) in 2015. The results showed that all health facilities provide malaria diagnostics and treatment services, 91% offer rapid diagnostic tests, and 24% provide microscopy (of which 90% are private sector facilities). Only 52% of facilities had a health worker trained in malaria diagnostics and treatment, and 74% had a first-line antimalarial drug in stock. In addition, only 46% of facilities had ITNs in stock for routine distribution. For malaria in pregnancy, 74% of facilities offer IPTp, but only 41% have health providers trained in IPTp. Overall, the mean service readiness score for malaria services in facilities was 68%. 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. Reports are submitted electronically or by hard copy 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, monthly for health huts, and quarterly 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. Supervisory reports from the NMCP and partners revealed discrepancies between the HMIS and malaria reports. Reporting timeliness from the district and regional levels was 73% and 71% in 2015 and 2016 respectively. Data reporting completeness was 92% in both 2015 and 2016, with Niamey Region consistently the lowest performer (66% and 67% respectively). 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 HMIS¹⁰) show 117% of confirmed cases nationwide were treated with an ACT, ranging from 80% in Agadez Region to 136% in Tillabéri Region. Reflecting these challenges and as requested by the Global Fund and other partners, the NMCP implemented 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.

As is the case in many other countries in the region, GoN has decided to use the DHIS2 platform for collection and dissemination 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. Recruitment of 67 new district-level data entry staff is nearly complete, and the district and CSI levels will receive computers and software soon. Of 3,585 health staff targeted for DHIS2 training, about 300 were trained as of September 2017. A range of partners are funding the bulk of technical, training and implementation needs including the Global Fund (through the TB/RSS), 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 problematic in district offices. Other requests include additional DHIS2 technical team training and certification, post-training supervision in regions and districts, funding DHIS2 server hosting subscription after September 2018.

¹⁰ 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.

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.

While existing partners have supported short-term technical assistance needs, the NMCP and Health Statistics Directorate recognize the need for on-going, 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.

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 NMCP seeks partner support to improve the sites with additional equipment (computers and furnishings), training, and technical assistance for analysis.

Table 12: 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*			
Other Data Sources	ITN Durability Monitoring							x	x	x

*Non-PMI funded

Table 13: Routine Surveillance Indicators in Niger from 2012 to 2016

Indicator	2012	2013	2014	2015	2016
Total # Malaria Cases	4,592,519	4,288,425	3,683,922	3,132,071	3,739,778
Total # Confirmed Malaria Cases	1,119,929	1,176,711	2,042,237	2,065,340	2,324,569
Total # Clinical Malaria Cases	3,472,590	3,111,714	1,641,685	1,066,731	1,415,209
Total # <5 Malaria Cases	2,830,605	2,695,722	2,315,771	2,836,653	2,350,883
Total # Inpatient Malaria deaths	3,223	2,209	2,691	1,650	3,506
Data Completeness* (%)	85%	95%	94%	92%	92%
Test Positivity Rate (TPR)	63%	65%	60%	70%	64%

*Percentage of health facilities reporting each month

Sources: *Annuaire des Statistiques Sanitaires du Niger*, from 2012 to 2016

Plans and justifications

With the new strategic plans in place and DHS 2017 in progress, PMI will focus its first year of support on assessing and addressing routine HMIS implementation needs especially at the district and CSI 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 and CSI 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. Finally, PMI will support the analysis and use of the DHS 2017 results to refine prevention and control strategies.

Proposed activities with FY 2017 funding: (\$430,000)

- *Analysis of HMIS and DHS data:* PMI will support a malaria specific analysis of the HMIS and a secondary analysis of the DHS data as needed (i.e. ITN ownership/use by region) and use it along with other data to help update Niger's epidemiological profile (including malaria endemicity map) (\$20,000)
- *Long-term technical assistance in surveillance, monitoring and evaluation:* PMI will provide technical assistance to NMCP and collaborating Ministry of Public Health directorates on strengthening SM&E related to malaria. This will include assignment of a full-time M&E Advisor to NMCP's M&E Unit focusing on routine HMIS and surveillance guidance, DHIS2 rollout, and improving data quality, analysis and use. (\$400,000)
- *CDC Short-term technical assistance in SM&E.* To assist NMCP and the PMI implementing partners with data analysis and review of SM&E systems. (\$10,000)

7. 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 2017 funding.

Proposed activities with FY 2017 funding: (\$0)

There are no PMI-supported OR activities planned with FY 2017 funding.

8. 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 TA 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.

Proposed activities with FY 2017 funding: (\$1,778,000)

- *USAID staff and other in-country administrative expenses:* Support for one USAID PMI resident advisor, foreign national malaria dedicated and cross-cutting staff, temporary staff for program start up until permanent staff are in place, in-country costs for the CDC-PMI Resident Advisor, and other administrative local costs to USAID/Niger including International Cooperative Administrative Support Services costs. (\$1,373,000)
- *CDC technical staff:* Support one resident advisor (*except for in-country costs*). (\$405,000)

**Table 1: Budget Breakdown by Mechanism
President’s Malaria Initiative – NIGER
Planned Malaria Obligations for FY 2017**

Mechanism	Geographic Area	Activity	Budget (\$)	%
VectorLink	Nationwide	Entomologic monitoring and insecticide resistance management	400,000	2%
VectorLink	Central & Nationwide	TA, support, and training for routine ITN distribution	300,000	2%
VectorLink	Central & Nationwide	Net durability monitoring	200,000	1%
Global Health Supply Chain (GHSC)- Procurement and Supply Management (PSM)	Nationwide	Procurement of ITNs, including warehouse and distribution costs	4,953,000	28%
Global Health Supply Chain (GHSC)- Procurement and Supply Management (PSM)	Nationwide	Procurement of SP for IPTp including warehouse and distribution costs	700,000	4%
Global Health Supply Chain (GHSC)- Procurement and Supply Management (PSM)	Central level	Supply chain strengthening	200,000	1%
Global Health Supply Chain (GHSC)- Procurement and Supply Management (PSM)	Dosso and Tahoua regions	Supply chain strengthening	400,000	2%

Global Health Supply Chain (GHSC)- Procurement and Supply Management (PSM)	Nationwide	Procurement of RDTs, including warehouse and distribution costs	1,160,000	6%
Global Health Supply Chain (GHSC)- Procurement and Supply Management (PSM)	Nationwide	Procurement of ACTs, including warehouse and distribution costs	1,000,000	6%
Global Health Supply Chain (GHSC)- Procurement and Supply Management (PSM)	Dosso and Tahoua regions-estimated coverage 1 million children	Procurement of AQ-SP for SMC, including warehouse and distribution costs	2,000,000	11%
Advancing Progress in Malaria Service Delivery Award (APMSD)	Central level	Technical assistance in MIP at national level	50,000	0.28%
Advancing Progress in Malaria Service Delivery Award (APMSD)	Dosso and Tahoua regions, estimated coverage 6 million people	Training, TA, supervision support for MIP services at health facilities and limited TA at central level	450,000	3%
Advancing Progress in Malaria Service Delivery Award (APMSD)	Dosso and Tahoua regions-estimated coverage 1 million children	Operational Costs of SMC	1,000,000	6%
Advancing Progress in Malaria Service Delivery Award (APMSD)	Dosso and Tahoua regions-estimated coverage 1 million children	iCCM	950,000	5%

Advancing Progress in Malaria Service Delivery Award (APMSD)	Dosso and Tahoua regions, estimated coverage 6 million people	Training in malaria case management and malaria in pregnancy at health facilities	1,400,000	8%
TBD	Nationwide	Capacity building of NMCP	200,000	1%
Breakthrough-Action	Nationwide	SBCC	400,000	2%
Measure Evaluation	Nationwide	Analysis of HMIS and DHS data	20,000	0%
Measure Evaluation	Nationwide	Technical assistance in surveillance, monitoring and evaluation.	400,000	2%
CDC-IAA	Nationwide	CDC Ento TA	29,000	0%
CDC-IAA	Nationwide	CDC M&E TA	10,000	0.06%
CDC-IAA	Nationwide	CDC RA	405,000	2%
USAID	Nationwide	USAID staffing and administration costs	1,373,000	8%
TOTAL			18,000,000	100%

**Table 2: Budget Breakdown by Activity
President's Malaria Initiative – NIGER
Planned Malaria Obligations for FY 2017**

Proposed Activity	Mechanism	Budget		Geographic Area	Description
		Total \$	Commodity \$		
PREVENTIVE ACTIVITIES					
VECTOR MONITORING AND CONTROL					
Entomologic monitoring and insecticide resistance management					
Entomologic monitoring and insecticide resistance management	VectorLink	400,000	0	Nationwide	Support for vector surveillance and insecticide resistance monitoring including mosquito collections, vector-insecticide susceptibility, resistance intensity, vector density, vector population taxonomic status (microscopic, molecular), and vector biting behavior in 9 entomological sites throughout the country. Also includes support to the NMCP/CERMES for redefining their malaria stratification, training for national staff to go to regional training, and upgrading insectary facilities.

CDC Ento TA	CDC-IAA	29,000	0	Nationwide	Two technical assistance visits by CDC staff for entomologic monitoring.
Subtotal Ento monitoring		429,000	0		
Insecticide-treated Nets					
Procurement of ITNs, including warehouse and distribution costs	Global Health Supply Chain (GHSC)- Procurement and Supply Management (PSM)	4,953,000	4,953,000	Nationwide	These funds will complement GF commodity procurements and address the highest priority needs as identified by the NMCP, GF, and PMI. FY17 money will purchase about 990,600 ITNs which will support expansion of routine distribution and contribute towards mass coverage campaigns in districts not yet covered by GF nets.
TA, support, and training for routine ITN distribution	VectorLink	300,000	0	Central & Nationwide	Technical assistance and training to the NMCP and implementing partners to ensure routine ITN distribution (ANC, EPI) is strategically planned and executed. This includes an assessment of the routine distribution in country with a workshop to discuss results with NMCP to guide the national strategy for routine distribution.
Net durability monitoring	VectorLink	200,000	0	Central & Nationwide	Support to set up and monitor efficacy and durability of LLINs in-country.
Subtotal ITNs		5,453,000	4,953,000		
Indoor Residual Spraying					

N/A	N/A	0	0		No IRS planned with FY2017 funds
Subtotal IRS		0	0		
SUBTOTAL VECTOR MONITORING AND CONTROL		5,882,000	4,953,000		
Malaria in Pregnancy					
Procurement of SP for IPTp including warehouse and distribution costs	Global Health Supply Chain (GHSC)- Procurement and Supply Management (PSM)	700,000	700,000	Nationwide	PMI, in collaboration with UNICEF and the GF, will contribute to covering the SP needs throughout the country. Approximately 1,400,000 treatments will be procured.
Technical assistance in MIP at national level	Advancing Progress in Malaria Service Delivery Award (APMSD)	50,000	0	Central level	PMI will help the NMCP and national MIP working group to update its MIP guidelines and training materials to reflect the 2012 WHO IPTp policy recommendations.
Training, TA, supervision support for MIP services at health facilities and limited TA at central level	Advancing Progress in Malaria Service Delivery Award (APMSD)	450,000	0	Dosso and Tahoua regions, estimated coverage 6 million people	PMI will help ANC providers at public (and selected private) facilities in the PMI targeted areas to deliver IPTp and LLINs effectively as part of routine ANC services. Activities will include in-service refresher training, job aides, and supportive supervision.
Subtotal Malaria in Pregnancy		1,200,000	700,000		

SUBTOTAL PREVENTIVE		7,082,000	5,653,000		
CASE MANAGEMENT					
Diagnosis and Treatment					
Procurement of RDTs, including warehouse and distribution costs	Global Health Supply Chain (GHSC)- Procurement and Supply Management (PSM)	1,160,000	1,160,000	Nationwide	These funds will complement GF commodity procurements and address the highest priority needs as identified by the NMCP, GF, and PMI. This includes commodities, as prioritized, for all levels of the health system (community to hospital): RDTs. Approximately 2 million RDTs.
Procurement of ACTs, including warehouse and distribution costs	Global Health Supply Chain (GHSC)- Procurement and Supply Management (PSM)	1,000,000	1,000,000	Nationwide	These funds will complement GF commodity procurements and address the highest priority needs as identified by the NMCP, GF, and PMI. This includes commodities, as prioritized, for all levels of the health system (community to hospital): ACTs. Approximately 1,500,000 treatments.
Procurement of AQ-SP for SMC, including warehouse and distribution costs	Global Health Supply Chain (GHSC)- Procurement and Supply Management (PSM)	2,000,000	2,000,000	Dosso and Tahoua regions-estimated coverage 1 million children	Procure AQ-SP for SMC in eligible districts supported by PMI in 2 regions for 2019 season.

Operational Costs of SMC	Advancing Progress in Malaria Service Delivery Award (APMSD)	1,000,000	0	Dosso and Tahoua regions-estimated coverage 1 million children	Implementation of SMC in eligible health districts supported by PMI covering four monthly doses from August-November using both fixed site and door-to-door distribution approach for the first dose. Costs include planning, training, implementation, supervision, monitoring, SBCC, and advocacy.
iCCM	Advancing Progress in Malaria Service Delivery Award (APMSD)	950,000	0	Dosso and Tahoua regions-estimated coverage 1 million children	Implementation of iCCM in supported districts to include training, supervision, tools and supplies (e.g., timers, flipcharts).
Training in malaria case management and malaria in pregnancy at health facilities	Advancing Progress in Malaria Service Delivery Award (APMSD)	1,400,000	0	Dosso and Tahoua regions, estimated coverage 6 million people	Comprehensive support for case management and malaria in pregnancy training in both diagnostics and clinical care, severe malaria training, and supervision/OTSS.
Subtotal Diagnosis and Treatment		7,510,000	4,160,000		
Pharmaceutical Management					

Supply chain strengthening	Global Health Supply Chain (GHSC)- Procurement and Supply Management (PSM)	200,000	0	Central level	TA to support design and implementation of the national pharmacy strengthening plan with focus on management of malaria commodities, including strengthening the LMIS; commodity monitoring, forecasting and quantification; and developing SOPs for management of malaria products.
Supply chain strengthening	Global Health Supply Chain (GHSC)- Procurement and Supply Management (PSM)	400,000	0	Dosso and Tahoua regions	Support implementation of the national pharmacy strengthening plan including strengthening the LMIS; commodity monitoring, forecasting and quantification; and rolling out SOPs to facilities as needed
Subtotal Pharmaceutical Management		600,000	0		
SUBTOTAL CASE MANAGEMENT		8,110,000	4,160,000		
HEALTH SYSTEM STRENGTHENING / CAPACITY BUILDING					

Capacity building of NMCP	TBD	200,000	0	Nationwide	Conducting external review of NMCP management and operations to inform the design of a capacity building plan. Support to NMCP to coordinate technical and implementation partners which includes holding technical working group meetings, dissemination of information, (such as new MIP guidelines); routine analysis of HMIS data; supportive supervision and attendance at trainings/conferences as needed.
SUBTOTAL HSS & CAPACITY BUILDING		200,000	0		
SOCIAL AND BEHAVIOR CHANGE COMMUNICATION					
SBCC	Breakthrough-Action	400,000	0	Nationwide	Support to NMCP to implement new malaria SBCC strategy now in design. Key messages will be on continuous use of ITNs, prompt treatment seeking of fevers; early attendance at ANC; and compliance with 2nd and 3rd SMC doses. Channels will include rural radio in local languages, social mobilization, IPC and will also support NMCP's World Malaria Day and intensive malaria week education campaigns.

SUBTOTAL SBCC		400,000	0		
SURVEILLANCE, MONITORING, AND EVALUATION					
Analysis of HMIS and DHS data	Measure Evaluation	20,000	0	Nationwide	PMI will support a malaria specific analysis of the HMIS and secondary analysis of the DHS data as needed (i.e. ITN ownership/use by region) and use it along with other data to update Niger's epidemiological profile (including malaria endemicity map).
Technical assistance in surveillance, monitoring and evaluation.	Measure Evaluation	400,000	0	Nationwide	Technical assistance to NMCP and collaborating Ministry of Public Health directorates on strengthening surveillance, monitoring and evaluation related to malaria. Includes assignment of a full-time M&E Advisor to NMCP's M&E Unit focusing on HMIS, DHIS2 rollout and data quality, analysis and use.
CDC M&E TA	CDC-IAA	10,000	0	Nationwide	To assist NMCP with analysis of data and review of M&E systems.
SUBTOTAL SM&E		430,000	0		

OPERATIONAL RESEARCH					
N/A		0	0		No OR planned with FY2017 funds
SUBTOTAL OR		0	0		
IN-COUNTRY STAFFING AND ADMINISTRATION					
USAID staffing and administration costs	USAID	1,373,000	0	Nationwide	To cover USAID and CDC staffing and administrative costs for 2 resident advisors and a PMI FSN. Also supports mission cross-cutting needs.
CDC RA	CDC-IAA	405,000	0	Nationwide	CDC RA costs in country
SUBTOTAL IN-COUNTRY STAFFING		1,778,000	0		
GRAND TOTAL		18,000,000	9,813,000		