

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 2018 appropriation. If any further changes are made to this plan it will be reflected in a revised posting.



**USAID**  
FROM THE AMERICAN PEOPLE

## U.S. PRESIDENT'S MALARIA INITIATIVE



**PRESIDENT'S MALARIA INITIATIVE**

**GUINEA**

**Malaria Operational Plan FY 2018**

## TABLE OF CONTENTS

<b>ABBREVIATIONS and ACRONYMS</b> .....	<b>3</b>
<b>I. EXECUTIVE SUMMARY</b> .....	<b>4</b>
<b>II. STRATEGY</b> .....	<b>8</b>
1. Introduction.....	8
2. Malaria situation in Guinea.....	8
3. Country health system delivery structure and Ministry of Health (MOH) organization.....	10
4. National malaria control strategy.....	12
5. Updates in the strategy section .....	14
6. Integration, collaboration, and coordination .....	14
7. PMI goal, objectives, strategic areas, and key indicators .....	16
8. Progress on coverage/impact indicators to date.....	18
9. Other relevant evidence on progress.....	20
<b>III. OPERATIONAL PLAN</b> .....	<b>22</b>
1. Vector monitoring and control .....	22
2. Malaria in pregnancy.....	27
3. Case management.....	31
4. Health system strengthening and capacity building .....	45
5. Social and behavior change communication .....	50
6. Surveillance, monitoring, and evaluation.....	55
7. Operational research.....	64
8. Pre-elimination [Not applicable].....	65
9. Staffing and administration .....	65
<b>Table 1: Budget Breakdown by Mechanism</b> .....	<b>67</b>
<b>Table 2: Budget Breakdown by Activity</b> .....	<b>68</b>

## ABBREVIATIONS and ACRONYMS

ACT	Artemisinin-based combination therapy
AL	Artemether-lumefantrine
ANC	Antenatal care
AS/AQ	Artesunate-amodiaquine
CDC	Centers for Disease Control and Prevention
CMC	<i>Centre Médical Communal</i> (communal medical center; in urban areas of Conakry)
DNPM	National Directorate of Pharmacies and Medicines
DHIS2	District Health Information System (2)
DHS	Demographic and Health Survey
EPI	Expanded Program on Immunization
EUV	End-use verification survey
FSN	Foreign Service National
FY	Fiscal year
Global Fund	Global Fund to Fight AIDS, Tuberculosis and Malaria
HMIS	Health Management Information System
IPTp	Intermittent preventive treatment for pregnant women
IRS	Indoor residual spraying
ITN	Insecticide-treated mosquito net
LLIN	Long-lasting insecticide-treated mosquito net
LMIS	Logistics Management Information System
MIP	Malaria in pregnancy
MICS	Multiple Indicator Cluster Survey
MOH	Ministry of Health
MOP	Malaria Operational Plan
NGO	Non-governmental organisation
NMCP	National Malaria Control Program
OMVS	<i>Organisation pour la Mise en Valeur du fleuve Sénégal</i>
PCG	<i>Pharmacie Centrale de Guinée</i> (central medical store)
PMI	President's Malaria Initiative
QA/QC	Quality assurance/quality control
RBM	Roll Back Malaria
RDT	Rapid diagnostic test
RMIS	Routine Malaria Information System
SARA	Service Availability and Readiness Assessment
SBCC	Social and behavior change communication
SMC	Seasonal malaria chemoprevention
SM&E	Surveillance, monitoring, and evaluation
SP	Sulfadoxine-pyrimethamine
TWG	Technical Working Group
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
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 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.

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 Roll Back Malaria (RBM) Partnership's second generation global malaria action plan, *Action and Investment to defeat Malaria (AIM) 2016-2030: for a Malaria-Free World* and the World Health Organization's (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.

Guinea began implementation as a PMI focus country in fiscal year (FY) 2011.

Guinea is a highly malaria endemic country. The initial focus has been on expanding coverage with bed nets and appropriate case management. Despite the impacts of the devastating Ebola epidemic of 2013-2016, substantial reductions in malaria parasitemia were realized between 2012 and 2016. This FY 2018 Malaria Operational Plan presents a detailed implementation plan for Guinea, 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 investments made by PMI and 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 Guinea, describes progress to date, identifies challenges and unmet needs to achieving the targets of the NMCP and PMI, and provides a description of activities that are planned with FY 2018 funding.

The proposed FY 2018 PMI budget for Guinea is \$14 million. PMI will support the following intervention areas with these funds:

**Entomologic monitoring and insecticide resistance management:**

The national strategy focuses on protecting current vector control activities through entomological surveillance. PMI supports ongoing entomological monitoring in four sites across the country, including pyrethrum spray catches, human landing catches, and light trap collections. Current PMI support is used to conduct standard entomological surveillance, including species identification and insecticide resistance, and to build capacity of key personnel to conduct and manage an entomological surveillance program. With FY 2018 funds, PMI will continue to support surveillance and skills building within the NMCP and other national structures to conduct entomological surveillance. Additionally, PMI will support the maintenance of the national laboratory and insectary.

**Insecticide-treated nets (ITNs):**

Insecticide-treated nets continue to be the key malaria prevention intervention in Guinea. The current objective is 100% coverage of the population at risk of malaria with ITNs by the end of 2017. The 2016 Multiple Indicator Cluster Survey (MICS) showed remarkable improvement in ITN coverage but also room for improvement in reaching targets. Almost 85% of households surveyed had at least one mosquito net. However, the percentage of households having at least one ITN for every two persons was only 48%. The proportion of children and pregnant women who slept under an ITN the night before the survey was 68% and 83%, respectively. Since late 2014, PMI has supported routine distribution and contributed a total of 1,203,500 nets for distribution to pregnant women and children under the age of one during antenatal care (ANC) and Expanded Program on Immunization (EPI) visits. PMI will procure an additional 385,000 ITNs for routine distribution with FY 2017 funds. Guinea has conducted two mass bed net distributions in 2013-2014 and 2016 to which PMI contributed approximately 1.75 million and 1 million ITNs, respectively. With FY 2018 funds, PMI will procure 250,000 ITNs for the next mass distribution campaign in 2019; this quantity will be combined with the FY 2017 procurement of 1,234,500 ITNs as well as an existing commodity pipeline to contribute to the overall 2019 campaign needs. Approximately 3,261,500 ITNs will be needed to cover PMI zones during the 2019 campaign; PMI will support the distribution cost of these nets regardless of who procures them. PMI will also promote correct and consistent use of ITNs throughout the year and support ITN durability monitoring.

**Indoor residual spraying (IRS):**

PMI does not currently support IRS activities in Guinea.

**Malaria in pregnancy (MIP):**

The national malaria strategy includes the administration of intermittent preventive treatment in pregnancy (IPTp) with sulfadoxine-pyrimethamine (SP) under the direct observation of an ANC attendant, at four-week intervals, starting in the second trimester (from week 13), with at least three treatments given before delivery; the provision of an ITN at the time of the first visit; and prompt diagnosis and treatment of malaria during pregnancy. PMI's support includes procuring and distributing SP and ITNs, training and supervision of health workers, and communication activities to promote IPTp uptake and ITN use among pregnant women. In the past year, PMI procured and distributed 1,863,000 treatments of SP, 788,500 ITNs for routine distribution at ANC, and trained about 1,728 health facility workers and 1,310 CHWs in MIP in PMI-supported zones as part of integrated refresher training courses. With FY 2018 funds PMI will procure and distribute approximately 1,334,700 treatments of SP, support training and supervision of health workers, and promote IPTp uptake and ITN use via communication efforts.

**Case management:**

The NMCP is committed to ensuring universal testing of all suspect malaria cases with RDTs or microscopy and prompt treatment of confirmed malaria cases with efficacious antimalarials, primarily in the form of ACTs or injectable artemisinin derivatives. PMI has supported this through provision of RDTs, ACTs, and injectable artemisinin derivatives, as well as the necessary training and supervision of healthcare workers in health facilities and at the community level to ensure appropriate testing and treatment practices. PMI will continue this support using FY 2018 funds, but will adapt its priorities to match the NMCP strategic shift in focus from training to supervision as the expansion of testing and treatment reaches maturity. PMI will also support the continuation of seasonal malaria chemoprevention (SMC) for children in eight prefectures in northern Guinea, and will continue to support annual therapeutic efficacy monitoring as well as conducting malaria RDT quality assurance. To ensure continuous availability of malaria commodities at health facilities and the community level, PMI will support the NMCP and its supply chain partners in strengthening regulatory capacity and logistics management, focusing on the peripheral levels.

**Health systems strengthening and capacity building:**

Since the country was declared Ebola-free in June of 2016, Guinea continues to make positive advances towards building a strong health system in line with the health recovery plan. The government continues to mobilize internal and external resources for rolling out the health system recovery plan, but much remains to be done if this plan is to yield the intended results. During the past 12-18 months, PMI continued to support NMCP's coordination and management at both central and decentralized levels. With PMI support, regional RBM coordination committees were established, and the Global Fund and PMI have recruited malaria focal points in all 33 health prefectures plus Conakry. PMI has also supported the national Malaria Program Review, the development of the 2018-2022 National Strategic Plan, and participation in the development of the 2018-2020 Global Fund grant application. To further improve malaria control efforts, PMI supported the integration of leadership practices aimed at improving the quality of care and supply chain management in select health facilities. With FY 2018 funding, PMI will continue to support the NMCP to conduct supervisions and provide logistics support including office materials, communication capacity and M&E system strengthening. PMI will continue to support prefecture-level malaria focal points in each of the PMI-supported health prefectures. PMI will also continue its partnership with Peace Corps in supporting malaria interventions in volunteers' communities.

**Social and behavior change communication (SBCC):**

The NMCP's current malaria communication plan emphasizes strategies and channels to reach various target groups with culturally-appropriate messaging on malaria prevention and control. An SBCC Technical Working Group oversees communication and behavior change activities and provides guidance and approval for changes based on current information and data. PMI supported a Multiple Indicator Cluster Survey (MICS-Palu) in 2016 that collected information on key behavior and knowledge indicators, and provided greater clarity on the perceptions, knowledge levels, social and economic barriers, and behavior determinants of target populations, especially pregnant women and young children. A new, updated communication plan will be drafted based on the results of the 2016 MICS-Palu (only the topline data were available at the time of writing) to establish communication objectives in support of the new malaria control strategy and to guide development of supporting interventions.

**Surveillance, monitoring, and evaluation (SM&E):**

The NMCP and malaria partners use the national M&E plan to guide surveillance, monitoring, and evaluation priorities in Guinea. These priorities include data collection activities to inform implementation, such as routine health facility-based surveillance, household surveys, health facility surveys, and antimalarial therapeutic efficacy monitoring. Additional priorities include health information system strengthening and capacity building. With a strong foundation established for reporting routine malaria data, greater emphasis will shift to data quality improvements through intensive supervision and data quality audits, data analysis, interpretation, and use. PMI works with the NMCP and other partners such as the Global Fund and UNICEF, to ensure SM&E activities are coordinated and adequately supported. With FY 2018 funds, PMI will continue to support routine information system strengthening, particularly to ensure a smooth transition from the parallel routine malaria information system to the integrated Health Management Information System (HMIS) on the District Health Information System 2 (DHIS2) platform, which continues to be scaled up in country. Efforts will focus at both the facility level to improve reporting, and district/national level to improve data use. In addition, PMI will support quarterly in-depth supervision visits and data quality audits for malaria epidemiological and commodity data. To further support the NMCP in building capacity for data interpretation and use, PMI will support periodic epidemiological-entomological field investigations in response to reported data that may warrant a more in-depth understanding of data reporting practices, health worker and community behaviors, as well as entomological factors that may influence reported data.

**Operational research (OR):**

No PMI-supported operational research (OR) has been completed to date or is currently ongoing. The updated National Strategic Plan 2018-2022 reiterates the importance of conducting OR as an essential strategy to measure impact of control and prevention activities, and to identify gaps and weaknesses to improve program implementation. The NMCP, with support from PMI FY 2017 funds, is planning an Operational Research Prioritization Workshop in 2018 to set national research priorities in malaria control and continue to strengthen the NMCP Research Committee to move the research agenda forward with other stakeholders.

**Pre-elimination:**

Not applicable

## 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.

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 Roll Back Malaria (RBM) Partnership's second generation global malaria action plan, *Action and Investment to defeat Malaria (AIM) 2016-2030: for a Malaria-Free World* and the World Health Organization's (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.

Guinea began implementation as a PMI focus country in fiscal year (FY) 2011.

This FY 2018 Malaria Operational Plan (MOP) presents a detailed implementation plan for Guinea, based on the strategies of PMI and the National Malaria Control Program (NMCP) strategy. 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 investments made by PMI and 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 Guinea, describes progress to date, identifies challenges and unmet needs to achieving the targets of the NMCP and PMI, and provides a description of activities that are planned with FY 2018 funding.

### 2. Malaria situation in Guinea

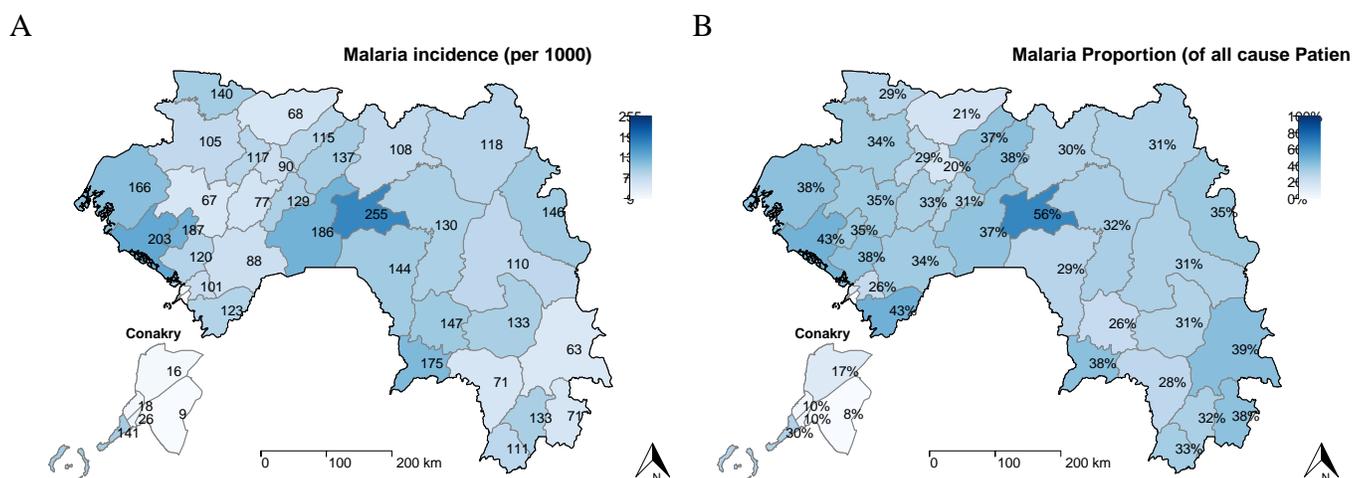
Guinea is a coastal country in West Africa composed of four areas with distinct ecologies: lower Guinea, which includes the coastal lowlands; middle Guinea, the mountainous region running north-south in the middle of the country; the sahelian upper Guinea; and the forested jungle area in the south.

Guinea borders Guinea-Bissau and Senegal to the north, Mali and Côte d'Ivoire to the east, and Liberia and Sierra Leone to the south. Guinea has 33 prefectures (prefectures are the equivalent of health districts) divided into eight administrative regions, one of which is the capital city of Conakry and its five communes. Guinea's entire estimated population of 12,672,510 is at risk of malaria. According to the 2015 Human Development Index, Guinea has among the lowest health and development indicators, ranking 183<sup>rd</sup> out of 188 countries.<sup>1</sup> Poverty has been steadily increasing over the past decade and as of 2012 over half (55%) of Guinea's population lives below the World Bank poverty head count ratio.<sup>2</sup>

The overall literacy rate is 41% for adults over 15 years (52% males, 30% females). Infant and under-five mortality rates are 44 and 88 per 1,000 live births, respectively (2016 Multiple Indicator Cluster Survey [MICS-Palu]). Antenatal care (ANC) coverage of at least one visit is 84%, and the percentage of women who make at least four visits is 51% (2016 MICS-Palu). The lifetime risk of maternal death is one of the worst in the world, at 1 in 34 (2016 MICS-Palu). Total Gross Domestic Product expenditure on health is 4.7% and life expectancy at birth is low at 55 years.

Guinea has year-round malaria transmission with peak transmission from July through October in most areas, although the magnitude of the seasonal swings are generally larger in the north of the country. The three main vectors are *Anopheles gambiae*, *An. coluzzii*, and *An. funestus*. According to the national strategy, malaria remains the number one public health problem in Guinea, with 92% of malaria infections caused by *Plasmodium falciparum* (2012 Demographic and Health Survey [DHS]). The annual incidence rate of confirmed malaria cases in 2016 was 87 per 1,000 according to the NMCP's routine malaria information system (RMIS), although there is significant heterogeneity by district (Figure 1). Confirmed malaria cases accounted for 31% of all-cause patient consultations reported by health facilities through the RMIS.

**Figure 1. Annual malaria incidence for all ages per 1,000 population (A), and proportion of confirmed malaria cases among all-cause patient consultations (B), as reported through the RMIS in 2016**



<sup>1</sup> <http://hdr.undp.org/en/content/table-1-human-development-index-and-its-components>

<sup>2</sup> <http://data.worldbank.org/country/guinea>

<sup>8</sup> <https://www.cia.gov/library/publications/the-world-factbook/geos/gv.html>

The country noted a significant decrease in the national estimate of the prevalence of malaria parasitemia in children 6-59 months of age between 2012 and 2016, with the proportion of children testing positive by microscopy falling from 44% to 15% between the 2012 DHS and the 2016 MICS.<sup>3</sup> However, malaria prevalence varied throughout the country, ranging from 2% in Conakry to 30% in the N'Zerekore Region.

Coverage estimates for key interventions also showed improvement between 2012 and 2016. Household ownership of at least one ITN increased from 47% in 2012 to 84% in 2016, and the proportion of households with at least one ITN for every two people increased from 10% to 48%. The proportion of household members who slept under an ITN the night before the survey increased from 19% to 64%.

Since 2005, prevention of malaria among pregnant women using sulfadoxine-pyrimethamine (SP) was included in the national ANC health package with support to the NMCP from several partners. The proportion of women who reported receiving at least two doses of SP during their last pregnancy increased from 22% in 2012 to 49% in 2016.

Key malaria commodities, including RDTs, ACTs, SP (for IPTp), and treatments for severe malaria are generally widely available in public health facilities.

### **3. Country health system delivery structure and Ministry of Health (MOH) organization**

The health care system in Guinea is managed by the Ministry of Health (MOH) and based on the administrative division of the country into eight regions. Within the eight regions there are 33 health prefectures plus five communes in Conakry, composed of 334 rural municipalities, and 38 urban municipalities. The MOH has three levels in its administrative structure: central, intermediate, and peripheral. The health system is organized around a pyramidal structure on three levels:

1. The central level is responsible for the strategic development plan, policy, monitoring and evaluation, and resource allocation. The Ministry of Health instituted a reorganization of the MOH in November 2015. The reorganization includes many of the previous positions, but also includes restructured directorates. The reorganized MOH includes the cabinet of the Minister of Health (Secretary General, advisers, chief of staff, and support services), as well as National Directorates: the National Directorate of Pharmacy and Medicines, the National Directorate for Hospital Facilities and Hygiene, the National Directorate of Family Health and Nutrition, the National Directorate of Community Health and Traditional Medicine, and the National Directorate of Epidemiology and Disease Control (which includes the NMCP).
2. The intermediate level: includes the seven Regional Directorates of Health (DRS) plus Conakry Directorate of Health. Within each region there are four sections: prevention and disease control, a regional inspection of the pharmacy and laboratories, administration and finances, and hygiene. Each section or unit is filled by one individual. The prevention and disease control officer alone for instance oversees all diseases within the region. The pharmacist inspector alone oversees all pharmaceutical activities within the region.

---

<sup>3</sup> *Institut National de la Statistique (INS)* and ICF International. Guinea Demographic and Health Survey 2012. Conakry, Guinea. *Institut National de la Statistique (INS)*, UNICEF, and ICF International, 2017. Multiple Indicator Cluster Survey (MICS, 2016), Report of key findings. Conakry, Guinea.

3. The peripheral level includes the 38 Prefectural and Municipal Directorates of Health (DPS/DCS). Within each prefecture there is a section of Prevention and Disease Control, as well as laboratory-pharmacy, planning and training, administrative and financial, and hygiene sections.

Health care is provided by the public and private sectors. Public health facilities consist of health posts, health centers, prefectural hospitals, regional hospitals, and national hospitals. There is a rapid growth of the private health sector in Guinea, providing basic to specialized health services, with very limited or no control by the Ministry of Health. When supported by a program, community health workers (CHWs) attached to health centers provide essential basic care at the community level, particularly in the management and prevention of malaria.

Public health facilities are organized into three levels that provide primary, secondary, and tertiary health care. The first level is represented by the health district (or prefecture) which is further divided into three sub-levels:<sup>4</sup>

1. About 963 health posts provide basic primary care and serve several villages (about 3,000 people) each. Health posts are usually staffed by an *agent technique de santé*, a clinical officer with three years of training.
2. About 413 health centers provide preventive and curative care (for about 10,500 people each) and supervise the health posts. Health centers are staffed by several clinicians, including nurses, midwives, and doctors.
3. About 26 district hospitals serve as a reference for health centers and provide care to an average of 286,000 people in the district.

The second level is represented by the regional hospital and serves as a reference for the prefectures. There are 7 regional hospitals plus 9 municipal hospitals providing care to an estimated 1,401,400 people in the region.

The third level consists of the university hospitals at the national level. This is the highest level of reference for specialized care and includes two such hospitals in the country: Donka and Ignace Deen hospitals, both in Conakry. In addition, there is a highly specialized Sino-Guinean hospital built by the Chinese Government.

In addition to public structures, Guinea has a large number of private structures and traditional practitioners as well as health facilities in schools and in the uniform services (e.g., military, police). At the community level, CHWs and hygiene committees have the responsibility of understanding health issues, monitoring health programs, and coordinating with local medical officers to improve access and quality of care in their communities.

Access to care is a major problem in Guinea. The MOH estimates that only 55% of the population has access to public health care services. The MOH and partners are investing in community case management through a trained nationwide cadre of CHWs to expand health care access to communities, especially in remote and inaccessible areas. A comprehensive policy on community health care has been

---

<sup>4</sup>The number of health posts and hospitals are based on 2011 estimates; the number of health centers is based on a 2013 estimate.

elaborated and a mapping of CHWs was conducted in January 2016, which showed that Guinea has a total of 5,871 CHWs. More than 4,100 CHWs have been trained and provide health education and basic curative care to communities. The CHWs have been specifically trained on infection control and diagnosis of malaria using RDTs, and provide ACTs to patients with uncomplicated malaria. Guinea's MOH strongly supports integration of priority national health programs, including malaria, HIV/AIDS, neglected tropical diseases, nutrition, reproductive health and family planning, safe delivery, and epidemic surveillance.

#### **4. National malaria control strategy**

Based on the lessons learned from the review of its current National Strategic Plan (2013-2017), Guinea has just finalized the development of a new five-year strategic plan that will cover the period 2018-2022. The goal of the new national strategic plan is to reduce malaria-related morbidity and mortality by 75% from the 2016 level, bringing the country to pre-elimination by 2022. This goal is in line with the country's vision of a "Guinea without malaria for a sustainable socioeconomic development."

The national strategic plan objectives are:

- Protect at least 90% of the population with effective preventive interventions for malaria;
- Ensure biological confirmation of at least 90% of suspected malaria cases;
- Ensure prompt and effective treatment of at least 90% of malaria cases;
- Strengthen monitoring and evaluation (M&E) at all levels in accordance with the NMCP's monitoring and evaluation plan;
- Strengthen management capacity, partnership, and program coordination at all levels; and
- Increase the population's knowledge about prevention and management of malaria.

Main interventions:

- Ensure universal access to prevention measures for the entire population, including ITNs, IPTp, and chemoprevention for children under five years of age in targeted areas;
- Protect the entire population in areas targeted for IRS;
- Ensure laboratory confirmation by RDT or microscopy for all suspected cases of malaria seen in health facilities (public, confessionnal, and private sectors) and community;
- Ensure proper management of all confirmed malaria cases at all levels of the health pyramid, including the community level;
- Strengthen entomological surveillance in sentinel sites;
- Strengthen epidemiological surveillance of malaria through the Integrated Disease Surveillance and Response system at all levels of the health pyramid;
- Strengthen M&E at all levels for the collection and analysis of high quality data to inform decision-making;
- Strengthen behavior change communication to increase uptake of malaria prevention and treatment interventions;
- Strengthen coordination capacity and program management at all levels;
- Ensure availability of commodities at all levels for malaria prevention, diagnosis and treatment;
- Strengthen the RBM partnership to mobilize funding through the state budget, the private sector, and partners; and
- Strengthen international and sub-regional cooperation in malaria control.

Some of the key findings from the program performance review conducted in December 2016 are outlined below.

Generally, out of 425 planned activities, 308 have been implemented which translates to 72% achievement. Specific achievements include:

- 1) Implementation of two mass campaigns for the free distribution of long-lasting insecticide-treated mosquito nets (LLINs) in 2013 and 2016, which resulted in distribution of over 13.4 million LLINs. Routine distribution via ANC and Expanded Program on Immunization (EPI) from 2015-2016 resulted in an additional 984,389 LLINs distributed to pregnant women and children under one year of age.
- 2) IPTp2 coverage in pregnant women improved from 22% in 2012 to 49% in 2016.
- 3) Two seasonal malaria chemoprevention (SMC) campaigns were organized in 6 health prefectures in 2015 and in 8 health prefectures in 2016, reaching 96-100% of targeted children.
- 4) The scaling up of biological diagnosis by RDTs, use of ACTs and of artemisinin derivatives for management of uncomplicated and severe malaria cases, respectively, have improved case management indicators.
- 5) The program has improved its capacity to generate reliable routine data with the percent of all prefectures submitting monthly reports increasing from 30% in 2012 to about 99% in the first quarter of 2017.
- 6) Improvements have been made in commodities inventory and logistics management as evidenced by a sharp decrease in stockouts (ACTs, RDTs, and SP) from 47% in 2013 to 9% in 2016 reported by the routine data reports.
- 7) Program management performance has improved with the recruitment of qualified staff (technical advisors and district focal points) and the establishment of functional coordination structures (RBM committees, Technical Working Groups [TWGs]) at central and regional levels.

However, the review identified some weaknesses and areas needing improvement:

- 1) Failure to implement IRS and environmental sanitation activities as planned.
- 2) Low IPTp coverage with a large gap between first and third doses.
- 3) Non-compliance with case management protocols by some providers, especially in hospitals.
- 4) Existence of areas not covered by CHWs (remote and hard-to-reach areas, insufficient number of CHWs).
- 5) Low storage capacity of commodities and frequent stockout of LLINs for routine distribution.
- 6) Insufficient data quality and inadequate feedback at all levels.
- 7) Limited capacity of research institutions to conduct malaria activities.
- 8) Lack of coordination of non-traditional actors such as mining and petroleum companies in malaria prevention and control activities.
- 9) Poor coordination of commodity tracking of antimalarial products donated by other development partners directly to health facilities.

To ensure proper oversight and follow-up for planned activities, a series of joint (MOH and partners) supervision visits are planned throughout the year.

## **5. Updates in the strategy section**

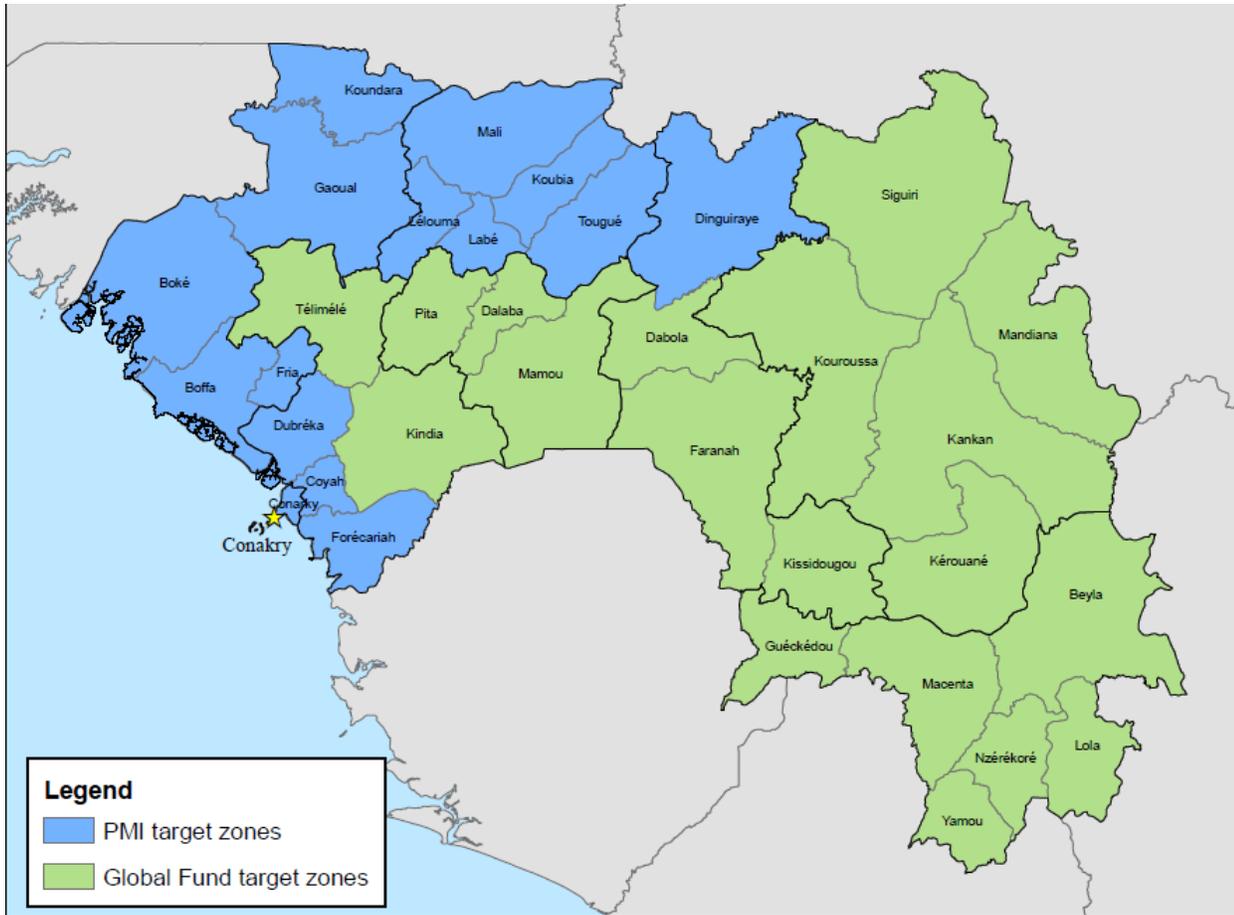
The NMCP has revised its goal to bring the country to pre-elimination by 2022 by reducing mortality and morbidity by 75% as compared with the 2016 level. Updates to the new strategy are summarized below:

- Implement continuous LLIN distribution by exploring new channels including school and community-based distributions;
- Develop environmental interventions in collaboration with municipalities, the Ministry of the Environment, non-governmental organizations (NGOs) / community-based organizations, and mining companies;
- Conduct feasibility studies of IRS and implement pilot projects in collaboration with research institutions and mining companies;
- Develop new malaria prevention and control activities aimed at schools and religious groups.
- Reinforcement of program management at the district level through embedded staff (malaria focal points).
- Establishment of a research committee composed of government representatives from development partners, research, and academic institutions.

## **6. Integration, collaboration, and coordination**

Two main donors (PMI and the Global Fund) support the malaria program in Guinea; see the map below for donor target zones. The two donors divide their support across the eight regions and 33 prefectures of the country. PMI supports 14 prefectures in upper and middle Guinea and the five communes of Conakry, while the Global Fund supports the remaining 19 prefectures in middle Guinea, lower Guinea, and the forest areas. PMI and the Global Fund work collaboratively to address the needs that were identified through the gap analysis by the NMCP and all its stakeholders. Both donors use the same materials and tools, and collaborate on a number of activities which include: 1) contributing to national needs for malaria commodities (i.e., contributing to a “common basket”); 2) support for improvements in logistics and pharmaceutical management; 3) surveillance, monitoring, and evaluation (SM&E) using the same tools (e.g., malaria quarterly reviews, monthly reports, end-use verification (EUV) surveys, and household surveys; 4) integrated supervision activities conducted jointly; 5) development of policies and guidelines, and 6) technical assistance to the NMCP during the preparation of the Global Fund concept note. However, the two donors finance the following activities separately in their own target zones: 1) training and supervision of health care workers and community agents; 2) behavior change communications; and 3) distribution of malaria commodities. As stated above, the Global Fund and PMI use the same materials and guidelines in both health facility-based and community-based interventions to ensure activities are coordinated. These materials are developed under the leadership of the NMCP with support from malaria partners.

**Figure 2. Distribution of PMI and Global Fund Target Zones in Guinea**



The current Global Fund grant, valued at \$62 million, expires in December 2017. The program continuation grant application for \$55 million was submitted in March 2017 and will continue to support activities listed above for 2018-2019. The grant was developed to ensure continued complementarity with PMI-funded activities.

The NMCP has, at various times and to varying degrees, also developed partnerships with other organizations and institutions involved in the fight against malaria, including RBM, Research Triangle Institute (RTI), Plan Guinea, Population Services International (PSI), Catholic Relief Services, Management Sciences for Health (MSH), Johns Hopkins University (JHU), German Development Cooperation, *Médecins sans Frontières*, Helen Keller International, Rio Tinto, Islamic Development Bank (IDB), WHO, United Nations Children’s Fund (UNICEF), World Bank, *Organisation pour la Mise en Valeur du Fleuve Senegal* (OMVS), and Japan International Cooperation Agency (JICA). This partnership, under the leadership of NMCP, reinforces the collaboration and coordination between malaria stakeholders for the benefit of the Guinean population.

PMI and UNICEF activities aimed at protecting children and pregnant women are coordinated through a single mechanism, the Integrated Management of Newborn and Childhood Illnesses (IMNCI) program. Through this coordination the program supported the training of new CHWs, as well as refresher training for existing CHWs, to treat children in their communities for malaria, pneumonia, diarrhea, and malnutrition. Through this integrated program, PMI also supported training for social and behavior

change communication (SBCC) facilitators to conduct community-based group discussions on malaria prevention and treatment, and to supervise CHWs.

The NMCP, in collaboration with the National Institute of Statistics of Guinea and other partners, conducted the 2016 MICS, which included biomarker testing of anemia and malaria parasitemia in children 6-59 months of age (referred to as the MICS-Palu).

The NMCP has integrated private faith-based health structures into the national program's activities, albeit on a limited scale in and around Conakry to increase efficiency and coordinate the participation of partners in order to reduce malaria mortality and morbidity, particularly among children and pregnant women. The Conakry Health Directorate has estimated that 60% of its population seeks care in faith-based facilities. As a result, collaboration between private and faith-based facilities with the national program and its partners has improved; however there are still some challenges related to private sector data reporting and compliance with the national malaria control guidelines. Support is focused on training, supervision, and providing appropriate tools for proper case management and reporting.

The NMCP continues to hold quarterly RBM coordination meetings at national and regional levels aimed at performance review and harmonization of planning and implementation of malaria activities.

Strengthening community participation in the planning and delivery of health services to the people is a challenge requiring active involvement of community networks, structured groups, and opinion leaders in all villages. The MOH, including the NMCP and its partners, continue to work at the community level, building capacity, in order to ensure outreach of key, life-saving activities, both in the community and at the local health facility level.

## **7. 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:

1. 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.
2. Reduce malaria morbidity in PMI-supported countries by 40% from 2015 levels.
3. Assist at least five PMI-supported countries to meet the WHO's criteria for national or sub-national pre-elimination.<sup>5</sup>

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

1. Achieving and sustaining scale of proven interventions
2. Adapting to changing epidemiology and incorporating new tools
3. Improving countries' capacity to collect and use information
4. Mitigating the risk that current gains in malaria control will not be maintained Building capacity and health systems towards full country ownership

---

<sup>5</sup> [http://whqlibdoc.who.int/publications/2007/9789241596084\\_eng.pdf](http://whqlibdoc.who.int/publications/2007/9789241596084_eng.pdf)

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

## 8. Progress on coverage/impact indicators to date

**Table 1. Evolution of Key Malaria Indicators in Guinea from 2005 to 2016**

Indicator	DHS 2005	MICS 2007	DHS 2012	MICS- Palu 2016
% Households with at least one ITN	3.5	8.3	47.4	83.8
% Households with at least one ITN for every two people	0.5	-	9.7	48.1
% Children under five who slept under an ITN the previous night	1.4	4.5	26.1	67.9
% Pregnant women who slept under an ITN the previous night	1.4	3.2	28.3	69.6
% Households in targeted prefectures protected by IRS (national-level indicator; IRS is not a key intervention)	-	-	1.7	1.6
% Children under five years old with fever in the last two weeks for whom advice or treatment was sought	-	-	37.1	42.4
% Children under five with fever in the last two weeks who had a finger or heel stick	-	-	8.5	17.0
% Children receiving an ACT among children under five years old with fever in the last two weeks who received any antimalarial drugs*	-	-	4.8	16.5
% Women who received two or more doses of IPTp during their last pregnancy in the last two years	2.7	-	22.0	49.1
Under-five mortality rate per 1,000 live births	163		123	88
% Children age 6-59 months with severe anemia (Hgb <8g/dl) <sup>6</sup>	14.5	-	15.9	16.4
% Children age 6-59 months with parasitemia according to microscopy	-	-	43.9	15.3
% Children age 6-59 months with parasitemia according to RDT	-	-	46.9	30.1

\* ACTs were not the first-line treatment at the time of the 2005 DHS and 2007 MICS surveys.

<sup>6</sup> A measure of hemoglobin <8g/dl is the value typically used as an indirect indicator of anemia associated with malaria.

**Table 2: Evolution of Key Malaria Indicators reported through routine surveillance systems in Guinea from 2014-2016**

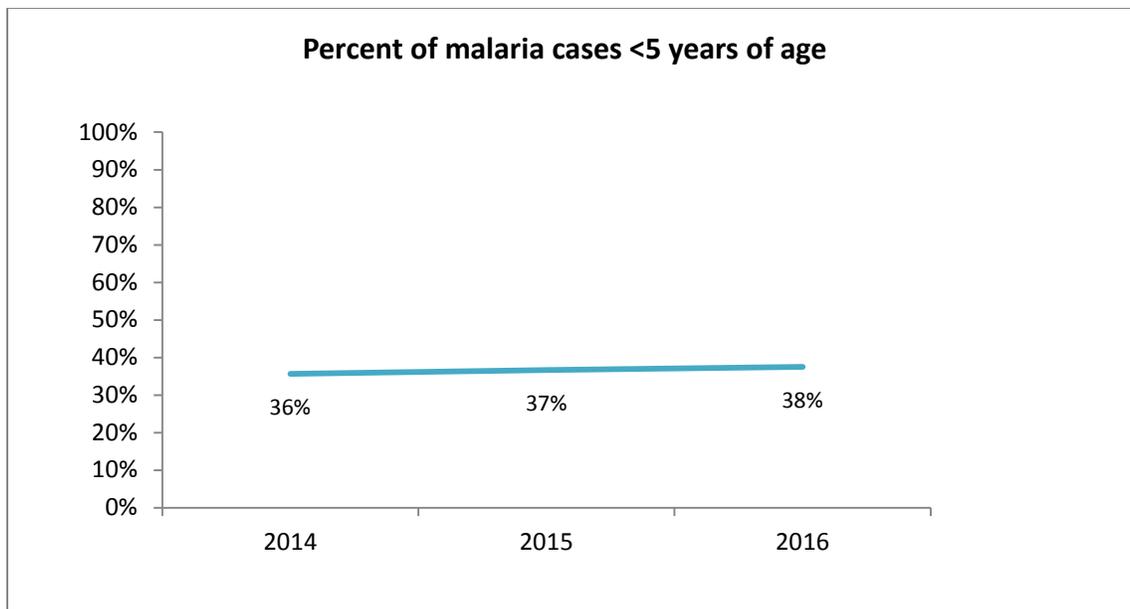
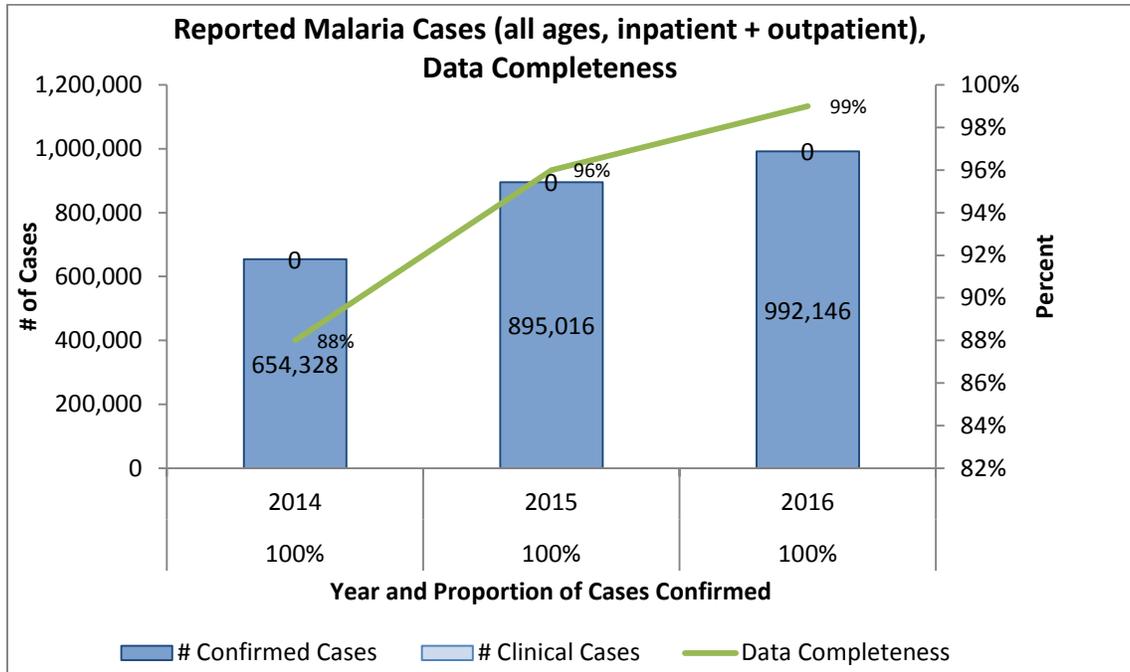
Indicator	2014	2015	2016
Total # cases	654,328	895,016	992,146
Total # confirmed cases	654,328	895,016	992,146
Total # clinical Cases	-	-	-
Total # <5 cases	233,170	328,444	372,116
Total # inpatient malaria deaths	1,066	846	867
Data completeness*	88%	96%	99%
Test positivity rate (TPR)	71%	70%	66%

\* Reflects district-level reporting (i.e., number of district reports received over the year/number of prefectures x 12) rather than health facility-level reporting (see notes below).

Notes on data in Table 2:

- Prior to 2014 the RMIS had not yet been established and the Health Management Information System (HMIS) was largely non-functional.
- In 2014, the RMIS was established in PMI target areas and was gradually expanded throughout the country. Reporting completeness improved over time with more prefectures reporting into the system.
- In 2015, nearly all prefectures were routinely reporting data. Nearly half of the missing health facility reports in 2015 were from hospitals.
- In 2016, generally 100% of prefectures report each month, although within prefectures, some individual facilities (largely hospitals) fail to report into the system.
- There is a challenge in obtaining an accurate estimate of the total number of health facilities that should be reporting each month. Based on informal analyses of routine data (e.g., number of facilities that have ever reported vs. number that typically report each month), the team estimates that health facility-level reporting completeness is closer to 80%.
- At the same time, in 2015 and 2016, the number of community health workers has expanded. This likely has contributed to an increased number of reported cases, although this may not be consistent from district to district.
- The data suggest that 100% of malaria cases are diagnostically confirmed. This high percentage prompts questions about how these routinely reported data elements are operationally defined at the health facility level. Supervision and data quality verification activities will be used to better understand these data (see SM&E section).

**Figures 3-4: Trends in key routine malaria indicators**



**9. Other relevant evidence on progress**

As PMI begins its eighth year of program implementation, additional recent evidence of progress includes:

- The MICS-Palu 2016 has shown a significant drop in malaria parasitemia prevalence from 44% (2012 DHS) to 15% in the recent survey. In addition, household ownership of at least one ITN increased from 47% in 2012 to 84% in 2016, and the proportion of households with at least one

ITN per 2 people increased from 10% to 48%. The proportion of household members who slept under an ITN the night before the survey increased from 19% to 64%.

- The district malaria focal points prefectures have greatly improved the overall management, reporting, prevention, and case management activities of the program.
- The monthly malaria reporting system has reached near universal reporting from all prefectures, although a challenge remains in ensuring that all health facilities in each prefecture are submitting reports. The monthly bulletins are disseminated widely by the NMCP and the PMI team has observed examples of district and national level data use to inform activity implementation, including epidemiologic investigations resulting in focused training and supervision.
- The MOH developed policies and strategies to improve the functioning of Guinea's national HMIS. Within this context, the District Health Information System 2 (DHIS2) electronic platform was set up to support health program data integration at all levels of the health system. Malaria program data are fully integrated into the platform although the big challenge is to ensure regular reporting, data quality control, and the effective use of these data for decision-making.
- Preliminary results from the PMI-supported therapeutic efficacy study, implemented by the Maferinyah Training and Research Center, have shown greater than 90% uncorrected efficacy of AS/AQ and AL in Forécariah and Labé Prefectures.
- The Service Availability and Readiness Assessment (SARA) conducted in 2015 showed that 79% of facilities had malaria diagnostic capacity and 86% of patients with suspect malaria received a diagnostic test; in addition, 85% of facilities had personnel trained in malaria case management, 67% had ACTs available, and 69% of those confirmed positive were prescribed an ACT.
- Collaboration between the NMCP and the Gamal Abdel Nasser University of Conakry has resulted in the renovation of an insectary and laboratory space, which is fully equipped and functional. The facility is being used for analysis of mosquitoes collected in the entomological sentinel sites.

### III. OPERATIONAL PLAN

PMI contributes to the country's overall malaria strategy and focuses support in strategic areas where it can have the most impact. While some activities are national in scope and coordinated amongst donors, others are focused on roughly half of the country (including Conakry) with the Global Fund targeting the rest of the country (additional information on this division, including a map, is provided in the Strategy section).

With progress in coverage of key interventions, the national program is focused on expanding access to ITNs through routine channels, improving case management through supervision, and strengthening data collection and use through routine malaria reporting and periodic surveys. In particular, with the gains made in the RMIS, the NMCP is able to monitor key interventions at district level, and even specific health facilities, allowing for targeted supervision. A new system of district-level malaria focal points is further strengthening the program's capacity at decentralized levels contributing to improved M&E, commodity management, support for key interventions, and coordination. As the NMCP embarks on the next phase of the national program based on its National Strategic Plan for 2018-2022, the current focus is on maintaining gains in coverage with key interventions, strengthening health service delivery at lower levels (closer to the community), and improving malaria surveillance.

There are two activities included in the national strategy that PMI does not currently support:

1. IRS has been supported on a limited scale, primarily in the mining sector. The NMCP is developing plans to implement it more widely in a limited number of prefectures when funding is secured, but a specific plan, including launch date, is still under discussion.
2. Larval source management is not currently an activity implemented by the program and the national strategy acknowledges that it is only appropriate under certain conditions.

#### 1. Vector monitoring and control

##### NMCP/PMI objectives

The current objective is 100% coverage of the population at risk of malaria with ITNs by the end of 2017. The strategy for reaching this objective includes universal campaigns and routine distribution for pregnant women and children less than one year old through ANC and the EPI, respectively. After a first universal coverage campaign in 2013/2014, the second universal coverage campaign took place in 2016. The definition of universal coverage is one ITN per two persons. While the 2018-2022 National Malaria Control Strategy notes that IRS is an effective vector control method that is not currently supported by the NMCP, a pilot IRS project is to be conducted in collaboration with research institutions and mining companies. IRS is used by some mining companies in limited areas throughout the country.

##### a. Entomologic monitoring and insecticide resistance management

##### Progress since PMI was launched

In July 2012 PMI funded a ten-day training course for 23 entomology personnel including entomologists from the MOH (four at the NMCP, one at the National Public Health Laboratory, one at the National Directorate of Public Hygiene, and three at the center for research in Maferinyah) and two entomological technicians from each of seven prefectures. Mosquito surveys and limited insecticide susceptibility assays were carried out in September 2012 in Boffa. In 2015, three NMCP staff were sent to the *Centre de Recherche Entomologique de Cotonou* (CREC) for training on mosquito collection

and laboratory analysis of specimens. Simultaneously, species and resistance mechanisms of *Anopheles* mosquitoes collected in Guinea in 2014 were determined.

Progress during the last 12-18 months

In the past 12-18 months, entomological monitoring has been conducted in three entomological surveillance sites, which includes pyrethrum spray catches, human landing catches, and light trap collections. Both *An. gambiae* s.s. and *An. coluzzii* had been previously identified from all sites, and generally with a high frequency of the *kdr*-west mutation. In addition, insecticide susceptibility tests were conducted in three sites. Permethrin, deltamethrin, and propoxur resistance were detected in all three sites, with complete susceptibility to pirimiphos-methyl in all sites. Although no IRS activities are currently underway, the resistance status of malaria vectors is important for understanding the role of resistance in relation to the use of ITNs. It will also provide useful information for potential future IRS activities.

**Table 3. WHO insecticide susceptibility tests conducted in sentinel sites with *Anopheles gambiae* s.l. in 2016, showing percentage mortality (and numbers tested)**

	<b>Pirimiphos-methyl (0.1%)</b>	<b>Deltamethrin (0.05%)</b>	<b>Propoxur (0.1%)</b>	<b>Permethrin (0.75%)</b>
<b>Dabola</b>	100 (100)	69 (100)	97 (100)	44 (100)
<b>Faranah</b>	100 (48)	64 (47)	71 (48)	15 (46)
<b>Mamou</b>	100 (100)	94 (100)	96 (200)	80 (100)

An agreement has been reached with the *Université de Conakry Gamal Abdel Nasser* to use rooms in the Biology Department for a laboratory and insectary. The refurbishment of the rooms is complete and the insectary is fully functional.

Plans and justification

The plan for FY 2018 funding is the continued collection of entomological data from sentinel sites. These data will provide information on the species of malaria vectors, infection rates, biting times and other behavior, effectiveness of vector control tools, and resistance status (including resistance intensity bioassays). Seasonal monitoring of mosquitoes in selected sites will provide improved understanding of the seasonality of different species and their roles in malaria transmission. The training of locally based entomological technicians will allow for improved seasonal monitoring of malaria vectors, and will build capacity for future studies. Capacity building for entomological monitoring will be further supported through continued support for the insectary and laboratory where local entomologists and laboratory technicians can apply the skills they develop through training and technical assistance.

Proposed activities with FY 2018 funding: (\$434,000)

1. *Entomological monitoring and capacity building*: Support for vector surveillance and insecticide resistance monitoring in each of the four ecological zones, including transport and analysis of samples; capacity building for entomologists and support for NMCP staff supervision (\$350,000).
2. *Advanced training for entomological technicians*: Four regional technicians based in the sentinel sites will be trained at the *Centre Muraz* in Bobo-Dioulasso, Burkina Faso, to allow collections of mosquitoes and insecticide resistance tests to be done in Guinea with reduced supervision from the NMCP (\$30,000).

3. *Support for the insectary and laboratory*: Operational support for the insectary and associated laboratory to include, electricity, internet, general maintenance, security, and support for the biological specimens (mosquitoes and animal blood sources) (\$25,000).
4. *Technical assistance for entomological capacity building*: Funding for two technical assistance visits from the Centers for Disease Control and Prevention (CDC) to help develop entomological capacity at the national and prefectural level (\$29,000).

## **b. Insecticide-treated nets**

### *Progress since PMI was launched*

Although remarkable improvement in ITN coverage has been registered over the past five years, the 2016 MICS showed room for improvement in reaching targets. Almost 85% of households surveyed had at least one mosquito net, most of them being LLINs (84%). These proportions were higher in rural (89%) than in urban areas (74%). However, the percentage of households having at least one ITN for every two persons who slept in the house the night before the survey was only 48% (33% urban, 56% rural). The proportion of children who slept under an ITN the night before the survey was 68%. This proportion was higher in rural (73%) than in urban areas (58%). In households with an ITN, the proportion of children under five years of age who slept under an ITN the night before the survey was 79%, with a smaller difference between urban and rural households (75% and 81%, respectively). Seventy percent of pregnant women reported sleeping under an ITN the night before the survey. In households with an ITN, the proportion of pregnant women who slept under an ITN the night before the survey was 83%. These data were collected between August and November 2016, a month after the second mass bed net distribution in which about 8 million LLINs were distributed across the country.

Since it began in late 2014, routine distribution of nets for pregnant women attending ANC and children under the age of one coming to health centers for EPI has continued with minimal interruption (see below for additional details on routine distribution).

### *Progress during the last 12-18 months*

ITNs continue to be the key malaria prevention intervention in Guinea. PMI supported the organization of the 2016 ITN mass distribution campaign, coordinated by the NMCP.

The 2016 mass bed net distribution campaign was conducted over a period of three months (May-July) and, like the 2013-2014 mass distribution campaign, it was implemented in three phases using a voucher system: The first phase targeted 19 prefectures supported by the Global Fund in which a total of 4,520,816 ITNs were distributed with a 98% coverage rate. The second phase was conducted in the 14 prefectures supported by PMI where a total of 2,342,154 ITNs were distributed with a 94% coverage rate. The third phase targeted the five communes of Conakry, also supported by PMI, in which 1,028,413 ITNs were distributed with a 91% coverage rate. Overall, of the 8,254,154 ITNs planned for distribution, 7,891,383 were distributed with a 96% overall coverage rate. The ITNs for the campaign were procured by PMI (1,000,000), the Global Fund (6,827,880), and the *Organisation pour la Mise en Valeur du fleuve Sénégal* (OMVS) (600,000). The 351,351 ITNs that remained from the campaign were used for routine distribution.

In addition to the purchase of nets, PMI supported transportation of nets to distribution sites (in PMI zones), as well as planning, training, supervision, and social mobilization for the campaign's second and third phase. PMI trained 14,612 people in ITN distribution, micro-planning, enumeration, distribution,

and post-distribution home visits to promote net use. Following the distribution, PMI trained and equipped home visit agents, who visited 592,822 households, and hung 759,045 ITNs.

Furthermore, PMI supported key communication efforts for the campaign, reaching 2,968,993 people with key messages on correct and regular ITN use. Using the findings from the 2014 Knowledge, Attitudes, and Practices (KAP) Survey, PMI supported the NCMP to revise the social mobilization guide used to train agents on promotion of net use. PMI produced and distributed a total of 20,079 tee-shirts, 7,219 caps, 4,919 bags, 898 banners with the campaign slogan “*Dormons tous sous moustiquaires*” (Let’s all sleep under nets). PMI supported the use of other channels to promote healthy behavior and net use, such as television and radio spots. This involved working with known Guinean musicians and radio stations throughout the 14 PMI prefectures and in Conakry. In total, radio spots were broadcast 3,017 times and the television spots 244 times. With PMI support, 16 roundtables and 21 interactive radio programs were held to promote campaign activities.

PMI also continued to support the country’s routine ITN distribution strategy through ANC and EPI services in both public and private health facilities. The support included training providers, supplying ITNs, communication activities to promote regular use and maintenance of ITNs, and supervision. A total of 292,460 routine ITNs were distributed in 152 public and 27 private health facilities in the PMI-supported zones.

PMI continued to support bioassay tests using the standard WHO protocol to assess the durability of ITNs distributed during the 2016 universal coverage campaign. The tests were conducted in two sub-prefectures, Douprou and Kalinko, located in Boffa and Dinguiraye Prefectures, respectively. The main goal of the monitoring is to evaluate the physical durability and insecticidal effectiveness of ITNs (PermaNet® and Yorkool® brands) distributed during the campaign. The baseline data were collected in December 2016, six months following the distribution with a second data collection at 12 months after the distribution. Two more collections will be conducted at 24 and 36 months post-distribution. Two brands of deltamethrin-treated nets were distributed in the two sites, so the physical durability, insecticidal content, and bioefficacy of each brand will be followed over the three-year period. The data will be presented in annual reports to PMI and the NMCP.

In anticipation of the new NMCP strategic plan (2018-2022), PMI supported an assessment to explore the feasibility of establishing a continuous distribution scheme for bed nets in Guinea. The assessment report summarizes findings and offers the following recommendations: 1) School-based distribution is more feasible for introduction as part of Guinea’s ITN distribution strategy than community-based distribution; and 2) School-based distribution has impressive reach and could significantly improve access to ITNs throughout the country. The NMCP is planning to pilot the school-based distribution in Boffa Prefecture, including micro-planning, training-of-trainers with cascade training reaching down to the teachers who will be distributing nets, and a dissemination meeting/workshop to review lessons learned and inform future distributions.

Commodity gap analysis

**Table 4. ITN Gap Analysis**

Calendar Year	2017	2018	2019
Total targeted population	12,672,510	12,951,305	13,236,234
<b>Continuous Distribution Needs</b>			
Channel #1: ANC	513,237	524,528	536,067
Channel #2: EPI	430,865	466,247	476,504
Channel #3: Community and schools	0	591,846	591,846
<i>Estimated Total Need for Continuous Channels</i>	944,102	1,582,621	1,604,417
<b>Mass Campaign Distribution Needs</b>			
2019 national mass distribution campaign	0	0	7,353,463
<i>Estimated Total Need for Campaigns</i>	0	0	7,353,463
<b>Total ITN Need: Routine and Campaign</b>	<b>944,102</b>	<b>1,582,621</b>	<b>8,957,880</b>
<b>Partner Contributions</b>			
ITNs carried over from previous year	95,510	112,248	0
ITNs from MOH	0	0	0
ITNs from Global Fund	172,340	0 (TBD)	0 (TBD)
ITNs from other donors (specify donor)	0	0	0 (TBD)
ITNs planned with PMI funding	788,500	385,000	1,484,500
<b>Total ITNs Available</b>	<b>1,056,350</b>	<b>497,248</b>	<b>1,484,500</b>
<b>Total ITN Surplus (Gap)</b>	<b>112,248</b>	<b>(1,085,373)</b>	<b>(8,944,073)</b>

*Total population from 2014 census with 2.2% growth rate applied. Pregnant women 4.5% of the total population. Coverage goal for pregnant women by ANC is 90% for all years. Children under 1 are 4% of the total population. Children covered by EPI is 85% in 2017 and 90% in 2018 and 2019. Campaign needs are estimated by dividing total population by 1.8 (no buffer stock; NMCP calculations included buffer stock) ITNs planned with PMI funding in 2019 include: 700,000 purchased with FY 2017 MOP funds+534,000 purchased with pipeline funds +250,000 purchased with FY 2018 funds. School-based needs based on NMCP calculations.*

Plans and justification

Approximately 7.3 million ITNs will be needed to cover national needs for the 2019 mass campaign. PMI works with other donors to pool resources to meet national commodity needs, but as a point of reference, approximately 3,261,500 nets will be needed to cover the PMI target zones. With the available funding, PMI will purchase approximately 1,484,000 ITNs to contribute to the total need for campaign nets. These procurements will be funded as follows:

- 250,000 with FY 2018 funds
- 700,000 with FY 2017 funds (previous MOP)
- 534,500 with existing commodity pipeline funds

While the Global Fund will also contribute to the mass campaign, the NMCP will need to mobilize additional resources to cover projected campaign gaps. If additional funds become available, PMI will procure additional nets for the campaign. PMI will also support the distribution costs for all nets distributed in the PMI target zone, (regardless of who procures them).

SBCC messages for both the campaign and continuous distribution will focus on encouraging everyone in a household to sleep under an ITN every night, all night. Specific messages will be developed or priority groups targeted depending on the distribution channel (e.g., converting rectangular nets during the mass campaign and focusing on pregnant women, children under five, and school children during continuous distribution). The durability of ITNs distributed in the 2019 mass campaign will be monitored prospectively following PMI guidelines and will include bioassays on net samples.

Proposed activities with FY 2018 funding: (\$3,371,500)

1. *Procurement and delivery of ITNs for 2019 mass campaign:* Procure 250,000 ITNs for the mass campaign in 2019. Total PMI contributions for the mass campaign will amount to roughly 1,484,500 ITNs (\$824,500).
2. *Distribution of ITNs for mass campaign:* PMI will be responsible for covering campaign distribution costs for the PMI target zones, which covers approximately half of the country and amounts to roughly 3,261,500 ITNs (\$2,447,000).
3. *SBCC for ITN use:* SBCC for ITN use will be part of an integrated communication package including MIP and case management, following national standards and coordinated with what other donors are doing in their respective target areas. (*Costs covered in SBCC section*).
4. *ITN durability monitoring:* Prospective ITN monitoring to follow ITNs distributed during the 2019 universal coverage campaign, which will provide data on: 1) net survivorship and physical integrity; 2) bio-efficacy of insecticides; and 3) insecticidal content (\$100,000).

**c. Indoor residual spraying**

There is no PMI support for IRS in Guinea at this time.

**2. Malaria in pregnancy**

NMCP/PMI objectives

The new NMCP Strategic Plan 2018-2022 places a particular emphasis on improving the coverage rate of intermittent preventive treatment during pregnancy (IPTp). The updated plan continues to follow standard WHO recommended practices for the prevention of malaria in pregnancy (MIP) including the administration of IPTp with sulfadoxine-pyrimethamine (SP) under the direct observation of an ANC attendant, at four-week intervals, starting in the second trimester (from week 13), with at least three treatments given before delivery, and the provision of an ITN at the time of the first ANC visit. Iron/folate is provided free of charge at ANC, and each pregnant woman receives 30 tablets (60mg/0.25mg per tablet) per month, taking one per day. Regarding case management of MIP, pregnant women who are diagnosed with uncomplicated malaria should receive quinine in the first trimester and an ACT in the second and third trimesters. All cases of severe malaria in pregnant women should be treated with parenteral quinine during the first trimester of pregnancy, and intramuscular injection of artemisinin derivatives or parenteral quinine from the second trimester onward. The strategy also follows WHO guidance regarding pregnant women who are HIV-positive.

Community health workers (CHWs) conduct home visits to encourage pregnant women to attend ANC to receive IPTp (among other things), and to use ITNs every night to protect themselves from malaria. According to the national strategy, pregnant women represent an estimated 4.5% of the population, which is the percentage that the NMCP uses to quantify needs for SP and routine ITN distribution through ANC.

The new national strategic plan articulates a 2022 target of at least 60% of pregnant women receiving at least three SP treatments (IPTp3) throughout their pregnancy. For commodity planning purposes and gap analyses, including the Global Fund proposal, the NMCP uses the ANC visit target as a proxy for IPTp3 coverage. This target is 90% for 2017-2019. The national strategy defines a target of 90% ITN use by the total population at risk for malaria (including pregnant women). In addition, by 2017 and beyond, 100% of pregnant women will receive an ITN during an ANC visit. PMI will work with the NMCP and partners to achieve progress towards IPTp uptake and ITN distribution targets.

Although there has been discussion in Guinea about the new WHO guidelines on ANC contacts within the ministry of health, there is currently no plan to update the ANC guidelines. PMI will monitor this situation and provide support to the NMCP should this situation change.

There is currently no central forum or TWG that brings together the NMCP and MCH. The current collaboration is initiated at the district level mainly on training and program implementation (case management during MIP, IPTp uptake, routine ITN distribution during ANC visit, etc.). Strengthening the national level collaboration through regular meetings is proposed. MCH staff does participate during malaria program review and design of new policies and guidelines.

#### *Progress since PMI was launched*

Since the launch of PMI in Guinea in FY 2011, PMI assisted the NMCP to revise its national strategy to reflect current WHO recommendations for IPTp uptake. Also, PMI procured and distributed nationwide over 1.6 million SP treatments; trained 1,967 health facility workers, and over 1,310 CHWs in MIP in PMI-supported zones as part of integrated refresher training courses; and reached 1,369,198 people via home visits and community-level activities such as group discussions. Communication messages were disseminated throughout PMI target zones promoting IPTp uptake at ANC and sleeping under ITNs every night (see SBCC section for more details).

The data from the 2016 MICS-Palu show that while 84% of pregnant women make at least one ANC visit (almost identical to the 2012 DHS result), 49% receive two or more doses of IPTp (an improvement from the 22% found in the 2012 DHS), and only 30% received 3 or more doses. MICS-Palu data also show that 70% of pregnant women slept under an ITN the previous night, up from 28% in the 2012 DHS. While implementation of IPTp was hampered by stockouts of SP for the first two years of PMI in Guinea, and ITNs only began appearing at ANC in 2014, the availability of SP and ITNs have led to impressive gains in coverage.

#### *Progress during the last 12-18 months*

The last 12-18 months have seen a rebound in health facility attendance following the end of the Ebola epidemic in Guinea. During the last 12-18 months, PMI has supported the NMCP with meeting the objective of increasing IPTp uptake. Approaches included integration of standards-based IPTp policies and protocols into clinical case management guidelines and the standard package of care at each level of the service continuum, coordinated rollout to public- and private-sector service sites, and provision of training materials and job aids for supervision. As part of integrated refresher training courses, PMI

trained about 1,728 health facility workers and 1,310 CHWs in MIP. In addition, PMI procured 1,863,000 SP treatments, provided cups and water buckets to ensure that patients take SP during the ANC visit, and procured 788,500 ITNs for distribution at ANC clinics.

**Table 5. Status of IPTp policy in Guinea**

Status of training on updated IPTp policy		Number and proportion of HCW trained on new policy in the last year if training on new policy is not yet completed	Are the revised guidelines available at the facility level?	ANC register updated to capture 3 doses of IPTp-SP	HMIS/ DHIS updated to capture 3 doses of IPTp-SP
Completed/Not Completed	Date (If completed, when, if not completed, when expected)				
Completed	2014	1,310*	Yes	Yes	Yes

\* For new health workers as well as refresher training for existing health workers previously trained

Commodity gap analysis

**Table 6. SP Gap Analysis for Malaria in Pregnancy**

Calendar Year	2017	2018	2019
Total Population	12,672,510	12,951,305	13,236,234
<b>SP Needs</b>			
Total number of pregnant women attending ANC	513,237	524,528	536,067
<b>Total SP Need (in treatments)</b>	<b>1,539,710</b>	<b>1,573,584</b>	<b>1,608,202</b>
<b>Partner Contributions</b>			
SP carried over from previous year	269,000	294,290	425,980
SP from MOH	0	0	0
SP from Global Fund	0	0	0
SP from Other Donors	0	0	0
SP planned with PMI funding	1,565,000	1,705,274	1,334,700
<b>Total SP Available</b>	<b>1,834,000</b>	<b>1,999,564</b>	<b>1,760,680</b>
<b>Total SP Surplus (Gap)</b>	<b>294,290</b>	<b>425,980</b>	<b>152,478</b>

*Assumptions: Total population from 2014 census with 2.2% growth rate applied. Pregnant women are approximately 4.5% of the population. Target for ANC attendance is 90% for all years. Needs are based on NMCP targets for ANC attendance and IPTp coverage. PMI is covering 100% of SP need starting in 2017.*

### Plans and justification

In their review of the previous strategy, the NMCP recognized the low coverage of IPTp and the drop off between IPTp1 and IPTp3 as two principal implementation weaknesses, and identified raising IPTp3 coverage as a focus in the new strategy. Therefore, one of the priorities in the new strategy is to ensure universal access to IPTp (as well as ITNs). To reach that goal, the new strategy calls for increasing the number of CHWs from 10 to 20 per health center to improve referral for pregnant women (among other tasks), innovative strategies to find and motivate pregnant women, providing health posts with cups and water buckets for observed treatment, and stronger collaboration with the Reproductive Health Division. Using FY 2018 funding, PMI will continue to support the NMCP to implement activities aimed at enhancing the provision of effective MIP services in public health facilities in Guinea. As per agreement with the NMCP, PMI is procuring enough SP to cover 100% of the estimated need nationwide (based on 90% attendance at ANC). PMI will also procure quinine tablets for malaria treatment for women in their first trimester of pregnancy. Under current funding constraints, PMI will prioritize procurement of ITNs for the 2019 mass distribution campaign and will not be purchasing ITNs for routine distribution during ANC visits (see ITN section). PMI will continue to support refresher training and supervision of IPTp service delivery along with other aspects of effective case management, and promotion of IPTp uptake and use of ITNs among communities throughout Guinea.

### Proposed activities with FY 2018 funding: (\$203,000)

1. *Procurement of SP*: Procure approximately 1,334,700 doses to ensure an adequate supply for pregnant women to receive three doses throughout their pregnancy. PMI will cover the entire estimated national need for SP (based on NMCP targets for ANC attendance and IPTp coverage) (\$161,000).
2. *Procurement of quinine tablets*: Procure quinine tablets to treat pregnant women diagnosed with malaria in their first trimester of pregnancy (\$42,000).
3. *Refresher training for MIP*: Provide refresher training for public and private health facility midwives and nurses to correctly deliver SP and MIP services in the context of the focused ANC approach. Refresher training will be provided as part of overall refresher training for service providers in health centers and health posts (*Costs covered under Case Management section*).
4. *Supervision for health workers providing MIP services, including IPTp*: On-site supervision for public health facility midwives and nurses to provide MIP services in the context of the focused ANC approach. MIP supervision will continue to be part of an integrated approach for supervision at health facilities (*Costs covered under Case Management section*).
5. *SBCC for MIP*: Support SBCC to promote ANC clinic attendance and educate pregnant women and communities on the benefits of IPTp. This activity will include support for community-level approaches, such as training of community-based workers as well as mass media (including local radio stations). This will be part of a larger integrated SBCC activity to satisfy needs for case management, ITNs, and IPTp (*Costs covered under the SBCC section*).

### 3. Case management

#### a. Diagnosis and treatment

##### NMCP/PMI objectives

###### *Diagnosis*

Prior to the scale-up of RDTs, national malaria case management guidelines allowed for clinical diagnosis of malaria. However, with increasing RDT availability, PMI supported the revision of the NMCP guidelines to reflect WHO recommendations on laboratory confirmation of all suspect malaria cases prior to treatment. According to NMCP policy, laboratory confirmation of cases could be done either by RDTs, provided free of charge and widely used at public health facilities and by CHWs, or by microscopy, a paid service at health facilities. The recommendations for universal confirmation apply to both forms of malaria (uncomplicated and severe) and at all levels of the health system, including the community level.

RDTs are the primary tool for malaria diagnosis at all levels of the health care system, and providing a continuous supply of RDTs at hospitals, health centers, health posts and the community level for use by CHWs is an NMCP and PMI priority. It is NMCP policy that malaria microscopy be limited to the hospital and *Centre Médical Communal* (CMC) level. During the 2015 Service Availability and Readiness Assessment (SARA) health facility survey, 71% of national-level hospitals, 93% of provincial and regional hospitals, and 34% of health centers offered microscopy for malaria.

Staff from the NMCP and the National Laboratory, which is part of the National Institute of Public Health, are responsible for supervision of microscopy. The NMCP has procured a slide bank, and has started standardizing a policy of external quality control of microscopy, where hospital microscopists are tested using slides from the slide bank. PMI partners have also supported internal quality control of microscopy, where hospital laboratories set aside a certain number of positive and negative blood slides collected over the course of routine practice, which are then read by a trained microscopy expert during supervisory visits to the hospital. Poor performing laboratories are identified and corrective action plans are developed and implemented through supportive supervisions and mentorship following the National Laboratory Quality Control guideline. In contrast to microscopy, there are no current procedures for external quality control of RDTs, despite the fact that the majority of malaria testing in Guinea is done with RDTs. Quality assurance/quality control (QA/QC) of RDTs is currently limited to supervision of healthcare workers and CHWs that perform RDTs.

###### *Treatment*

In Guinea, two ACTs have historically been used for treatment of uncomplicated malaria: artesunate-amodiaquine (AS/AQ) and artemether-lumefantrine (AL). Until 2016, AS/AQ was the predominant ACT used throughout the country, with use of AL limited to health prefectures in the SMC zone. However, starting in 2016, NMCP decided to prioritize AL throughout the country, and has asked donors to exclusively procure AL. By the end of 2016, stocks of AS/AQ in national and regional depots had dwindled to 500,000 in the entire country, compared to 1.5 million for AL, effectively marking the end of the transition from AS/AQ to AL. Both drugs are known to be efficacious for the treatment of uncomplicated *P. falciparum* malaria. A 2011–2012 therapeutic efficacy study showed 97% efficacy for AS/AQ in children and adults in Forécariah Prefecture. Data from the 2015 round of therapeutic efficacy monitoring in Forécariah and Labé Prefectures show uncorrected 28-day efficacies for AS/AQ and AL above 90%, with PCR correction results pending. Out of 397 samples genotyped from the 2015 TES,

392 (99%) were wildtype for the K13 gene, and 5 (1%) had mutations not previously associated with artemisinin resistance.

**Table 7. PMI-funded TESs**

<b>Completed TESs</b>		
<b>Year</b>	<b>Site name</b>	<b>Treatment arm(s)</b>
2015	Labé Prefecture	AL and AS/AQ
2015	Forécariah Prefecture	AL and AS/AQ
<b>Ongoing TESs</b>		
<b>Year</b>	<b>Site name</b>	<b>Treatment arm(s)</b>
2017	Dabola Prefecture	AL and AS/AQ
2017	N'zérékoré Prefecture	AL and AS/AQ
2018	Labé Prefecture	AL and AS/AQ
2018	Forécariah Prefecture	AL and AS/AQ
<b>Planned TESs FY 2018</b>		
<b>Year</b>	<b>Site name</b>	<b>Treatment arm(s)</b>
2019	Dabola Prefecture	AL and AS/AQ
2019	N'zérékoré Prefecture	AL and AS/AQ

Per national policy, pregnant women in their first trimester with uncomplicated malaria are to be treated with oral quinine; in the second and third trimesters, they are to be treated with an ACT. While RDTs and ACTs are free for adults and children, patients have to pay for other drugs received such as paracetamol (systematically prescribed), as well as for microscopy tests.

According to the national strategy, the first choice for treatment of severe malaria is injectable artesunate. Other acceptable treatments include injectable artemether or injectable quinine. The management of severe malaria should be carried out in health facilities with the capacity required for proper treatment. Typically, injectable artesunate and injectable quinine are restricted to the hospital and CMC level, with intramuscular artemether available at the health center level. All cases of severe malaria in pregnant women should be treated with parenteral quinine during the first trimester of pregnancy, and intramuscular injection of artemisinin derivatives or parenteral quinine from the second trimester onward. The NMCP will prioritize updating their policy of treatment for severe malaria in the first trimester of pregnancy to align with WHO recommendations in the coming year. Per national policy, treatment for severe malaria is free.

The national case management strategy for CHWs includes the use of RDTs, recognition of danger signs of severe malaria, and pre-referral treatment with rectal artesunate of identified severe cases. All cases of severe malaria seen in the community or at health facilities without the capacity to treat severe cases should receive pre-referral treatment with artemisinin derivatives (intramuscularly or suppository) before referral. Pre-referral treatment is a relatively new intervention and prior to its early-2014 adoption as a national policy, the use of rectal artesunate by CHWs was piloted by *Médecins sans Frontières* for three years in Guéckédou Prefecture. Rectal artesunate has been added to the list of drugs that CHWs are permitted to use and it is now part of CHW routine training. With PMI support, Guinea began procurement of rectal artesunate in 2016.

**Table 8. Status of Case Management Policy in Guinea**

<b>Status of Case Management Policy in Guinea according to the National Strategic Plan</b>	
What is the first-line treatment for uncomplicated <i>P. falciparum</i> malaria?	Artemether-lumefantrine
What is the second-line treatment for uncomplicated <i>P. falciparum</i> malaria?	Artesunate-amodiaquine
What is the first-line treatment for severe malaria?	Injectable artesunate (hospital and CMC level) or intramuscular artemether (health center level)
In pregnancy, what is the first-line treatment for uncomplicated <i>P. falciparum</i> malaria in the first trimester?	Oral quinine
In pregnancy, what is the first-line treatment for uncomplicated <i>P. falciparum</i> malaria in the second and third trimesters?	Artemether-lumefantrine or artesunate-amodiaquine
In pregnancy, what is the first-line treatment for severe malaria?	Injectable quinine (1 <sup>st</sup> trimester) and injectable artesunate (after 1 <sup>st</sup> trimester)
Is pre-referral treatment of severe disease recommended at peripheral health facilities? If so, with what drug(s)?	Intramuscular artemether at the health center level
Is pre-referral treatment of severe disease recommended for community health workers? If so, with what drug(s)?	Rectal artesunate
If pre-referral rectal artesunate is recommended, for what age group? (note: current international guidelines do not recommend administering to those $\geq 6$ years)	Children <6 years of age

### *Training*

All health providers are to be trained in the diagnosis and treatment of uncomplicated and severe malaria cases. Nationwide there are about 170 laboratory technicians, 11,530 health facility workers, and 5,870 CHWs (approximately 10 per health center, expanding to 20 per health center by 2019). In addition, the government recently hired 3,800 new staff that were deployed in different parts of the country. These staff include medical doctors, midwives, nurses, laboratory technicians, and pharmacists. The goal is to train all new staff in RDT use and overall malaria case management. Health workers, including CHWs, will be retrained every two years on appropriate case management, including for pre-referral of severe cases, and supervised regularly according to the national supervision strategy.

### *Supervision*

A national supervision plan exists, and is based on a specific guidance document focusing on case management and data quality supervision at three levels:

- Central/National level to regional (DRS) levels – Activities at the national level are led by the NMCP and supported by implementing partners, PMI's malaria bilateral, and Catholic Relief Services (Global Fund principal recipient). Supervision is scheduled to occur in eight DRS every six months.

- Regional (DRS) to district (DPS) levels – Supervision is organized by DRS and is done with implementing partners. Each DRS typically has 3-6 DPS. Supervision is scheduled to occur in 38 DPS every 3 months.
- District (DPS) to health facilities (963 health posts, 413 health centers, 6 commune health centers, 26 prefecture hospitals, 7 regional hospitals, 3 national hospitals) – Supervision of health facilities is done by the DPS and implementing partners. Supervision is scheduled to occur every two months.

#### *Seasonal malaria chemoprevention*

Starting in 2015, Guinea began implementing SMC in six health prefectures in the northern part of the country, representing a total population of 2.2 million. The activity was initially part of the UNITAID-funded ACCESS-SMC project, led by Malaria Consortium in partnership with Catholic Relief Services and national programs in seven countries (Burkina Faso, Chad, Guinea, Mali, Niger, Nigeria, and The Gambia). The number of prefectures was expanded to 8 in 2016, and the plans are to expand to 10 prefectures in 2017, and to 13 prefectures in 2018 and 2019.

The activity comprises four rounds of distribution of amodiaquine and sulfadoxine-pyrimethamine (AQ+SP) to all children 3-59 months old. The distributions last between four and five days and are done on a monthly basis between July and October, representing the highest transmission period in the area. The distributions are carried out door-to-door by the CHWs attached to the health center in the targeted prefectures.

Administrative coverage data and post-campaign household surveys provide monitoring data for campaign coverage. Assessing the impact of the SMC activity will be done through analysis of trends of malaria cases reported by health facilities in target prefectures, compared to previous years and neighboring prefectures. To monitor for declining amodiaquine susceptibility, one of the TES sites was chosen to be in Labé, a non-SMC district that borders four of the SMC prefectures.

#### *Progress since PMI was launched*

When PMI started in 2011 the country was completely stocked out of RDTs and there were almost no functioning microscopes anywhere in the country. Since then, PMI has purchased and distributed over 5.4 million RDTs and purchased 63 microscopes as well as related supplies (reagents, gloves, disposal boxes, and slides).

PMI has also supported supervision of RDT use at both the health facility and community levels. Twenty laboratory master trainers have been trained to serve as supervisors for the Outreach Training and Support Supervision program. Additionally, 82 new laboratory technicians were trained through regional cascade training sessions by the master trainers.

PMI supported the initial update of the national malaria strategy and policy, which included important revisions on the use of diagnostics to confirm suspected malaria cases before treatment, following WHO recommendations. Previously, the strategy and policy did not require biologic confirmation of malaria in order to prescribe treatment for children less than five years of age.

Building on a PMI-supported rapid laboratory assessment in March 2012, PMI supported the evaluation of an additional 19 zonal health facilities and found that some facilities did not have a functional microscope, and of those that did, all the microscopes were in poor condition. The assessment findings were used to inform activities including a nationwide training of 25 trainers of laboratory technicians in

malaria diagnosis, microscopy maintenance, supply management, and RDT use. Additionally, 680 CHWs were trained in RDT use following the assessment.

PMI supported the development of an RDT utilization sheet to help CHWs track RDT use and better determine when they should request stock replenishment. PMI also supported training on quantification in PMI target zones so that health facility personnel and regional warehouse managers understand the process and have the tools for calculating supply needs based on use.

PMI helped support 20 national trainers who were trained on malaria diagnosis. Concurrently, 82 hospital laboratory technicians were trained on malaria diagnosis (RDT and microscopy). A total of 1,967 CHWs (33% of all CHWs nationwide) were trained or received refresher training on community case management, including on ACT use, RDT use, and recording and reporting of malaria cases using data collection tools. At health facilities, including both public and private facilities, 2,413 healthcare staff (33% of all health workers nationwide) were trained on updated case management protocols and training curricula.

Following the outbreak of Ebola, PMI supported the adoption by NMCP of malaria guidelines to conform to the WHO Ebola virus disease-specific guidelines for malaria case management. With the end of the Ebola epidemic in Guinea, these temporary guidelines have been withdrawn, and the guidelines for malaria case management have reverted to universal confirmation of all suspect cases prior to treatment.

With respect to treatment, PMI has provided ACT treatments for all age groups and has procured and distributed injectable quinine and injectable artesunate for the treatment of severe cases to hospitals and urban health centers. To date, PMI has procured and distributed over 9 million doses of ACTs for use at all levels of the health system.

PMI supported the development of a checklist for supervision, to be utilized as part of an integrated supervision visit, ensuring that malaria diagnostics are performed correctly along with other health worker functions. PMI helped sponsor monthly meetings at the DPS and DRS levels, with focus on malaria case management and data quality.

PMI, together with partners including the NMCP, have introduced monthly reporting forms and tools to ensure a more consistent flow of information from the health facility to the district level and up to the central level. (Additional details in the SM&E section.)

**Table 9. Case Management Training Targets and Activities**

<b>Training Summary</b>	<b>Project target (annual)</b>	<b>PMI launch Year 1 (FY 2013)</b>	<b>Year 2 (FY 2014)</b>	<b>Year 3 (FY 2015)</b>	<b>Year 4 (FY 2016)</b>
Health facility workers trained in RDTs and case management	455	20	995	203 (ACTs & RDTs) 1,195 (RDTs)	1,967
CHWs trained in RDTs and case management	680	0	680	1,125*	1,083
Laboratory staff trained in microscopy and RDTs	60	64	25	60	82

*\*256 CHWs trained on comprehensive case management (ACT and RDTs) and 869 trained on new malaria case management guidelines in context of Ebola epidemic (case management without RDTs). The achievements in table look much higher than the initial target but this was revised accordingly over the years.*

#### Progress during the last 12-18 months

In 2016, PMI procured approximately 2.9 million RDTs and 1.3 million ACTs. PMI also trained 1,967 healthcare workers in treatment with ACTs and 1,658 healthcare workers on malaria diagnosis. PMI has continued to support supervision of health workers for case management at the hospital, health center, and health post levels, as well as CHWs at the community level. The past year marked the second full year of implementation of the combined, comprehensive malaria supervision checklist, developed with PMI support. The last EUV, conducted in August 2016, found that 56% of surveyed health facilities in the PMI zones had received supervision on case management or drug management in the previous six months. While there were some challenges at the national level in conducting supervision to the regional level due to competing priorities, the supervision calendar for district and facility-level supervision was successfully implemented. As the RMIS reaches maturity, the NMCP has been able to use routine health facility data to respond to and monitor case management at the health facility level (see SM&E section for more details).

#### Commodity gap analysis

With the support of PMI, the NMCP is moving towards more data-driven quantification forecasts, triangulating stock-level data, health facility consumption data reported through the RMIS, and epidemiological data from the RMIS.

As of the beginning of 2017, Guinea had roughly 4 million RDTs and 2 million ACTs throughout the country, as reported by the national medical stores, regional depots, and health facilities. Data reported by health facilities through the RMIS, adjusted for incomplete reporting, show annual consumption of approximately 2 million RDTs and 2 million ACTs in 2016. With the expansion of the CHW program in Guinea and the continued emphasis on increasing testing rates, we believe that it is reasonable to expect a larger need for RDTs in 2019. However, as always, final procurement decisions are subject to change depending on actual stock levels and consumption rates.

The tables below present RDT and ACT needs and expected partner contributions for 2017, 2018, and 2019.

For severe malaria, the NMCP forecasts that 9.5% of all malaria cases in 2019 will require injectable treatment, based on the ratio of severe to simple malaria cases reported through the RMIS. Assuming

that 18% will be treated at the hospital and CMC level with intravenous artesunate and that on average 6 vials will be needed per treatment, the country will need 307,398 vials of artesunate in 2019. The remaining 82% of severe cases are forecast to be treated at the health center level with intramuscular artemether, and assuming that on average 5 vials will be needed per treatment, the country will need 1,309,371 vials of intramuscular artemether in 2019.

**Table 10: RDT Gap Analysis**

Calendar Year	2017	2018	2019
<b>RDT Needs</b>			
Total country population	12,672,510	12,951,306	13,236,234
Population at risk for malaria	12,672,510	12,951,306	13,236,234
Total number of projected fever cases <sup>1</sup>	10,264,733	9,441,502	8,684,293
Percent of fever cases tested with an RDT <sup>2</sup>	40%	44%	48%
<b>Total RDT Needs</b>	<b>4,105,893</b>	<b>4,154,261</b>	<b>4,168,461</b>
<b>Partner Contributions</b>			
RDTs carried over from previous year	4,068,956	2,962,994	1,272,358
RDTs from Government	0	0	0
RDTs from Global Fund	1,999,931	1,463,625	3,479,625
RDTs from other donors	0	0	0
RDTs planned with PMI funding	1,000,000	1,000,000	1,741,500
<b>Total RDTs Available</b>	<b>7,068,887</b>	<b>5,426,619</b>	<b>6,493,483</b>
<b>Total RDT Surplus (Gap)</b>	<b>2,962,994</b>	<b>1,272,358</b>	<b>2,325,022</b>

<sup>1</sup> Assuming 0.81, 0.73, and 0.66 febrile episodes per year in 2017, 2018, and 2019, respectively.

<sup>2</sup> Assuming 50%, 55%, and 60% of febrile cases will seek care in 2017, 2018, and 2019, respectively and that 80% will be tested by RDT.

**Table 11: ACT Gap Analysis**

Calendar Year	2017	2018	2019
<b>ACT Needs</b>			
Total country population	12,672,510	12,951,306	13,236,234
Population at risk for malaria	12,672,510	12,951,306	13,236,234
Total projected number of malaria cases <sup>1</sup>	3,299,149	3,220,201	3,012,143
<b>Total ACT Needs<sup>2</sup></b>	<b>3,167,183</b>	<b>3,091,393</b>	<b>2,921,778</b>
<b>Partner Contributions</b>			
ACTs carried over from previous year	2,010,167	1,402,032	0
ACTs from Government	0	0	0
ACTs from Global Fund	2,059,048	1,086,960	2,050,890
ACTs planned with PMI funding	500,000	500,000	1,327,680
<b>Total ACTs Available</b>	<b>4,569,215</b>	<b>2,988,992</b>	<b>3,378,570</b>
<b>Total ACT Surplus (Gap)</b>	<b>1,402,032</b>	<b>(102,402)</b>	<b>456,792</b>

<sup>1</sup> Assuming that there will be 0.81, 0.73, and 0.66 febrile episodes per year in 2017, 2018, and 2019, respectively; that 50%, 55%, and 60% of febrile cases will seek care in 2017, 2018, and 2019, respectively; and that the test positivity rate will be 64%, 62%, and 58% in 2017, 2018, and 2019, respectively

<sup>2</sup> Assuming that 96%, 96%, and 97% of cases will be in males and non-pregnant females

### Plans and justification

PMI will continue to support the NMCP's national policy of malaria case management based on diagnostic confirmation by supporting RDT use and strengthening microscopy through provision of commodities, as well as training and supervision at the health facility and community levels. PMI coordinates with other partners to support the entire country with commodity procurement to meet existing needs rather than differentiating between zones. This will reduce stockouts of commodities and increase access to treatment. To facilitate the distribution of commodities, PMI will procure and deliver to the lowest level necessary to ensure they reach beneficiaries.

PMI will continue to support universal confirmation of malaria cases in Guinea through procurement of single-species *Pf* RDTs. With the nationwide switch from AS/AQ to AL in 2016, PMI will procure AL with FY 2018 funding. PMI will procure 1,741,500 RDTs and 1,327,680 ACTs with FY 2018 funding. PMI will also be able to cover the entire injectable artemether need (1,163,361 vials) and 50% of the injectable artesunate need (128,000 vials).

PMI will procure 120,000 rectal artesunate suppositories (15-25 per CHW per year) to ensure full access to this pre-referral treatment at the CHW level. PMI will continue to support CHW training and supervision in referral and pre-referral treatment along with the necessary commodities needed to successfully scale up and implement this intervention.

PMI will support SMC in eight out of the 13 health prefectures targeted for SMC. PMI support for SMC will include procurement of AQ+SP to cover four months of SMC in the eight SMC prefectures, representing a target population of 356,902 children 3-59 months, for a total of 1,427,608 treatments. PMI will also support the transport and storage of the AQ+SP, retraining of distribution agents, supervision of distribution agents, SBCC activities, advocacy, and other costs associated with the SMC campaigns. PMI will also support M&E activities to evaluate the continued impact of SMC. With anticipated further reductions in malaria transmission, it is possible that more prefectures will become eligible for SMC in the coming years. As the quality and completeness of routine data improves in Guinea, the program, with PMI support, will continue to analyze data to assess eligibility for future SMC campaigns (the program is currently analyzing data from three additional prefectures: Faranah, Kankan, and Kouroussa).

PMI will continue to help maintain microscopy capacity in hospitals and CMCs, including procurement of slides, reagents, and repair materials. QA/QC of microscopy will continue to be supported through the process of internal (periodic review of stored slides during supervisory visits) and external validation (routine testing of microscopists using slides from the NMCP slide bank).

PMI plans to conduct malaria RDT QA/QC activities to monitor RDT sensitivity and specificity. In Guinea, the performance of RDTs under various field conditions has not yet been systematically monitored. However, the importance of RDT accuracy in diagnosing malaria makes it essential to guarantee product quality. The confidence of clinicians and patients in test results depends on the use of reliable malaria tests. It can also leave test users uncertain about the reliability of results, which in turn can lead to the over-use of malaria medicines. This QA/QC activity will complement existing QA/QC activities for microscopy.

As Guinea will be entering its eighth year of PMI support, the NMCP strategy foresees a shift in focus from training to supervision, reflected in the change in the relative distribution of funding for these activities from previous years. Training will be limited to training on malaria case management and MIP for newly-hired health facility staff, replacing the large-scale *de novo* trainings of previous years. With the availability of ever more complete and useful routine data, supervision will function as a focused and data-driven intervention to strengthen malaria case management at all levels of the health care system. PMI will support regional and district-level malaria focal persons to carry out supervision activities using the recently revised supervision checklist to observe patient consultations, diagnostic testing procedures, and ensure an effective feedback loop between supervisors and practitioners. Training and supervision for diagnostics and treatment will be integrated with community case management as well as other malaria prevention and care activities, and will focus on PMI intervention zones as the Global Fund provides support for training and supervision in their designated zones.

PMI will continue to support the CHW program in Guinea as a cornerstone intervention to increase the population's access to RDTs and ACTs. PMI will support the recruitment and training of new CHWs to reach the target of 28,000 (20 per health center) in PMI target zones.

To monitor for antimalarial resistance, PMI will fund two TES sites with FY 2018 resources, in accordance with Guinea's strategy of annual TES studies in two sites per year, cycling between a total of four fixed sites.

PMI plans to support integrated SBCC activities to promote appropriate treatment-seeking behavior among community members, with particular attention to increasing healthcare-seeking rates. Human capacity building will continue to be a part of this intervention through clinical and refresher training in malaria case management for all age groups and vulnerable populations, and supervision of health workers and CHWs.

Proposed activities with FY 2018 funding: (\$6,229,000)

1. *Procurement of rapid diagnostic tests (RDTs)*: Procure 1,741,500 single-species RDTs for use in communities and health facilities (\$923,000).
2. *Procurement of artemisinin-based combination therapies (ACTs)*: Procure 1,327,680 treatments of AL for use in communities and health facilities (\$1,235,000).
3. *Procurement of injectable artesunate for treatment of severe malaria*: Procure about 128,000 vials of injectable artesunate to cover 50% of the national need for injectable artesunate, whose use is restricted to the hospital and CMC level (\$323,000).
4. *Procurement of injectable artemether for treatment of severe malaria*: Procure 1,163,361 (544,745 80mg and 618,616 40mg) vials of injectable artemether to cover the entire national need for injectable artemether, targeted for use at the health center level (\$517,000).
5. *Procurement of rectal artesunate*: Procure approximately 120,000 capsules of rectal artesunate for community health workers to administer as pre-referral treatment for severe malaria cases in children (\$50,000).
6. *Procurement of medications for SMC*: Procure 1,427,608 doses of co-blistered AQ+SP, representing monthly doses for approximately 356,902 children (ages 3-59 months), administered by community volunteers for four months during the high transmission season from July to October (\$437,500).
7. *Support implementation of SMC*: Implement SMC in eight health prefectures in northern Guinea including four administrations from July to October, with costs covering planning, training, implementation, supervision, monitoring, SBCC, and advocacy (\$1,393,500).
8. *Microscope consumables*: Procure reagents, slides, and repair materials for previously purchased microscopes (\$50,000).
9. *Strengthen malaria diagnostics*: Work with the NMCP and the National Laboratory to develop and support a comprehensive QA/QC plan for malaria diagnostics, primarily microscopy, at all levels of the health system. This will include refresher training for laboratory technicians (and training on malaria microscopy for new laboratory technicians), training on microscope maintenance, and regular supervision of microscopy performance in health facilities, including systematic review of a predetermined number of positive and negative blood smears collected in the health facility, as well use of the NMCP slide bank. QA/QC for RDTs, based on observation and supportive supervision of health workers and CHWs, will take place during regular supervision (activities 11 and 12) (\$100,000).
10. *Training/refresher training for malaria case management (diagnostics, treatment)*: Training in RDT use and malaria case management for health workers at hospitals, health centers, and health posts. Private health facilities will also be implicated in training. Training of CHWs not yet trained in RDT use, in treatment of uncomplicated malaria and referral for patients with severe malaria, as well as referral of pregnant women to ANCs (\$150,000).
11. *Supervision of health workers and CHWs in case management (diagnostics, treatment, and MIP)*: Enhanced clinical supervision at all levels of the health care system, including hospitals, health centers, health posts, and CHWs using comprehensive malaria-specific supervision tool. District Health Team staff and Regional Health Team staff will be actively involved in

supervision activities, along with Health Center staff for supervision of CHWs. Supervision visits will include observation of patient consultations and feedback to providers (\$600,000).

12. *Community case management*: Support the continued scale-up of community case management in PMI target areas, including expansion of the number of CHWs to 20 per health center by 2019. Support costs including transport, data collection tools, equipment (boots, gloves, flashlights), and supervision (\$300,000).
13. *Therapeutic efficacy monitoring*: Efficacy monitoring of Guinea's first-line ACT will take place in four sites every two years (two sites in one year and the remaining two sites the following year). The activity will follow WHO's standard protocol. Funds are meant to cover monitoring activities in two sites (\$100,000).
14. *Malaria RDT quality assurance monitoring*: Provide QA/QC of malaria RDT use by end-users (\$50,000).
15. *SBCC for case management*: Support integrated SBCC at the community level to improve behaviors related to malaria prevention and treatment, including use of ITNs, IPTp, and care-seeking for fever. SBCC activities will also be targeted to health workers at all levels of the healthcare system, including health centers/hospitals, health posts, and community health agents (*Costs covered under SBCC section*).

## **b. Pharmaceutical management**

### NMCP/PMI objectives

The objective set forth in the national strategic plan for the pharmaceutical system is to provide access to malaria diagnosis and treatment to 100% of patients at health facilities and the community level. This overall objective implies supplying quality drugs to health facilities and community workers nationwide in sufficient quantities and on a regular basis.

As the main institution in charge of implementing the government of Guinea's policy in the pharmaceutical sector, the central medical store (*Pharmacie Centrale de Guinée-PCG*) was created in 1992 to supply health facilities nationwide with quality drugs in appropriate quantities and in a timely manner. PCG operates under the administrative oversight of the National Directorate of Pharmacies and Medicines (DNPM). PCG has established pharmaceutical depots in five of the eight regions in Guinea. This institution was also a sub-recipient of Global Fund grants to store and distribute drugs for the three priority diseases (HIV, tuberculosis, and malaria).

In June 2015, PCG signed an agreement with the government of Guinea articulating the mission for the PCG regarding the procurement of public health needs such as drugs and vaccines, medical and surgical instruments and products, medical consumables, medical equipment, and laboratory reagents. The mission of the PCG aims to improve accessibility to quality health commodities that are affordable to the people while ensuring stable internal revenue. The PCG may make partial or total local imports or purchases on the local market of health products, especially essential generic medicines.

In support of NMCP efforts to assure effective donor coordination, PMI and Global Fund – as the main malaria commodity donors in country – distribute commodities in their respective focus areas of the country regardless of which donor purchased the commodities (the common basket approach). This increases efficiency and ensures the whole country is covered. In practice this means that if a depot located in a designated PMI zone is requesting resupply of ACTs, then the PMI implementing partner would ensure the delivery of these ACTs to the depot. The ACTs would be delivered irrespective of which donor paid for them; so, the PMI implementing partner could deliver Global Fund-procured

ACTs and vice versa but the cost of the delivery is covered by the implementing partner in the focus area. Neither the PMI partner nor the Global Fund partner distribute exclusively the commodities that they purchase.

#### Progress since PMI was launched

Since its launch in FY 2011, PMI has clearly identified the PCG as the main institution to strengthen in order to ensure a smooth distribution of drugs to end users. To assist the pharmaceutical system (mainly PCG and the DNPM) in meeting the challenges of appropriate and timely distribution of quality drugs to the health facilities, PMI efforts aim to reinforce each of the critical functions of these entities (storage, distribution, logistic management information system, and development and enforcement of policies and regulations).

According to the national pharmaceutical policy, the national essential drugs list should be revised every two years. With PMI's support, the DNPM has revised the drugs list systematizing the revision process and allowing the DNPM to take responsibility for this activity on a regular basis.

PMI has supported the development of key regulatory documents to improve transparency of the DNPM; the improvement of governance and transparency of the PCG; training of health workers on pharmaceutical management; design and implementation of a functional Logistics Management Information System (LMIS) for pharmaceutical products; and improvement of the availability and use of malaria commodities in health facilities.

Pharmaceutical management in Guinea has been strongly influenced by the PMI-supported implementation of the RMIS (monthly malaria reporting system), which from its conception has allowed for the simultaneous collection of epidemiological data and commodity data, including consumption and stock levels, at the health facility level. This has allowed the NMCP and its partners to triangulate consumption data, epidemiological data, and data on stock levels to guide quantification and procurement decisions.

#### Progress during the last 12-18 months

PMI's contribution to pharmaceutical management has focused on providing appropriate support to the PCG to fulfil its responsibilities, while improving governance of the supply chain and the pharmaceutical system. PMI worked with its key partners including the DNPM, NMCP, and PCG to continue to implement the planned activities to better support the MOH.

*Support to the DNPM:* Following PMI support for the development and validation of a new National Pharmaceutical Policy with a five-year master plan for its implementation, the DNPM has progressively improved governance and transparency of pharmaceutical management. PMI supported the DNPM to review and update the national essential medicines list and assisted the DNPM in updating the medicines equivalence tables, facilitating the use of generic medicines to help contain drug prescription spending. Furthermore, PMI supported the DNPM to review and adapt its organogram to include key functions for pharmacy inspections as well as the registration system. Notable progress was also made regarding the pharmaceutical law, with the elaboration of a draft law that was amended taking into consideration the minimum standards for drug legislation as recommended by the regional efforts for harmonizing the drug legislation systems in the West Africa region. In September 2016, PMI assessed the Guinea public health supply chain, which showed that the overall capability/maturity levels of the pharmaceutical supply system in Guinea varied by functional area, ranging from 73% (product selection) to 40% (laboratory). This assessment also found few satisfactory supply chain functional areas having capability maturity, including medicine selection, quantification of needs, procurement management, and means of

transport. In addition, the assessment showed that stock cards and logistics management reports are widely available in health facilities. However, the country's supply system reaps little benefit from these capabilities because of limitations attributable to the identified weaknesses. This obviously limits the population's access to medicines, given that regional depots are the principal source of medicines for health facilities. The findings of this assessment will guide 2017-2022 strategic planning for the supply chain system.

As part of the "Medicines for All" program initiated by the MOH to improve access to medicines and provide comprehensive pharmaceutical management training to health workers, PMI contributed to the establishment of a committee responsible for revising the training modules and conducted pharmaceutical management trainings for 104 supply chain personnel at the regional and health facility levels. PMI also provided training in pharmaceutical management to 30 pharmacists from private pharmacies.

In addition, PMI supported NMCP and its stakeholders to review the integrated LMIS reporting tools and their alignment with NMCP data requirements. PMI has also supported the rollout of paper-based LMIS forms (including but not limited to malaria commodities), trained staff from health facilities from all eight regions of Guinea on its use, and contributed to the introduction of the eLMIS. The eventual long-term vision is for the eLMIS to replace the paper-based tools and to be scaled up nationally in parallel with the rollout of HMIS on the DHIS2 platform. While the eLMIS will not be on the DHIS2 platform, simultaneous availability of epidemiological data via the HMIS and commodity data via the eLMIS will help to realize Guinea's goal of having streamlined national routine reporting systems rather than disease-specific ones (e.g., RMIS).

*Support to the NMCP:* PMI has continued to support the collection of epidemiological and consumption data via the RMIS. Accomplishments include substantial improvements in reporting rates (see SM&E section for additional details). Implementation of EUV surveys, and training sessions for the commodities technical working group to perform quantification, consumption management, and development of annual work plans are additional accomplishments. Support also included introducing integrated supervision using a comprehensive, malaria-specific supervision checklist and data verification as well as regional quarterly malaria reviews. Overall, PMI contributed to strengthening coordination capacity of the NMCP with other partners, which resulted in the development of an integrated work plan.

PMI supported training on quantification techniques and tools for supply chain management for twelve participants from the NMCP, DNPM, PCG, and Catholic Relief Services. The training involved the use of the *Quantimed* and *Pipeline* tools to develop accurate national forecasts and supply plans for antimalarial commodities. Building on the training outcomes, PMI supported the NMCP to carry out a multi-year quantification of antimalarial commodities using both consumption and morbidity/service statistics data. To date, the quantification results have been approved and adopted by the NMCP and funding partners. NMCP used the quantification results to mobilize financial resources from different donors to support procurement of projected needed commodities.

PMI supported the decentralization of storage, management, and distribution of malaria commodities in the regional depots of the PCG which allow health centers to easily get commodities at the regional level to refill orders, as the country currently transitions from a push system to a pull system. In the new model, health centers prepare their orders and submit them to the prefectural health authorities (DPS), where they are compiled and submitted to the regional pharmacist. Subsequently, the commodities are

transported from the regional depot to the DPS, and transportation fees are provided to health centers to retrieve the commodities at DPS.

*Support to PCG:*

PMI supported the PCG to review and adapt PCG's Standard Operating Procedures manual to the growing volume of operations. This review covered receipt, storage, and distribution of pharmaceutical products at both the central and all regional depots within the overarching framework of support for a transparent and accountable supply chain management system. PMI also completed the recruitment and orientation of seven regional supply chain technical advisors and one advisor based at the PCG. All seven regional advisors have been deployed to the regions except for the region of Kankan for which a suitable candidate has not yet been identified. They will support the regional inspectors of pharmacies and laboratories to implement supply chain activities at the regional level, including implementing the LMIS, building the capacity of health facilities in pharmaceutical management, and supporting the rational use and supervision of pharmaceutical services. As of May 2017, 1,074 staff were trained in pharmaceutical management.

In addition, PMI has continued to support the development of good pharmaceutical distribution practices, training of staff on these practices, and revision of a standard procedures manual for decentralized levels. PMI completed installation of the SAGE L100 i7 software and trained 40 PCG staff on different modules to support business operations at PCG and regional depots. PMI supported PCG to upgrade and expand its IT infrastructure to support SAGE implementation.

*Plans and justification*

PMI/Guinea has made substantial investments in the supply chain sector in Guinea which have led to a relatively well-managed and functional supply chain for malaria and other health projects. This investment has been complemented by support from other funding sources such as the Global Fund and the European Union, as well as other United States Agency for International Development (USAID) health funding streams.

With FY 2018 funding, PMI will continue its role as a catalyst in creating the conditions necessary to improve the management of Guinea's pharmaceutical system. Given the past level of investment at the national level at DNPM and PCG, PMI will shift its focus to the regional and peripheral levels. PMI support will focus on improving supply chain management at the decentralized levels to ensure that the storage and distribution of commodities from regional depots to health centers is done efficiently. PMI will continue its support for supervision at the regional medical stores as well as supervision of malaria commodity management in health facilities. Based on the level of other donor support, PMI's investments in this area will continue to be reevaluated and adjustments made as necessary in the future.

PMI will continue to support the future integration of the LMIS with the DHIS2 platform. Together with other donors, PMI will capitalize on momentum behind the DHIS2 rollout, and once the LMIS is fully functional, FY 2018 funds will focus more on contributing to general maintenance of the system.

PMI will continue to strengthen the drug regulatory capacity of the DNPM to improve control over the pharmaceutical sector by properly trained staff. In addition, PMI will support the DNPM and the national laboratory to build capacity for in-country monitoring of drug quality.

The PMI implementing partner will support the PCG to store and distribute malaria commodities from the central level to regional depots, and then to health facilities. The budget is based on the estimate

proposed by the NMCP and the PCG, whereby PMI agrees to pay 5% of the commodity cost to cover storage, handling, and distribution on a quarterly basis (3 months). Since most of the health facilities do not have enough or adequate space to store a three-month supply, these health facilities will pick up from the DPS on a monthly basis with a transportation cost reimbursement system supported by the implementing partner in PMI prefectures. PMI will closely monitor the management and distribution costs in conjunction with its implementing partner and NMCP.

Proposed activities with FY 2018 funding: (\$650,000)

1. *Strengthen Logistic Management Information System:* Support to strengthen the LMIS to enable the pharmaceutical system to collect, compile, and process consumption data to improve forecasting, procurement, and distribution of commodities. Includes support for internet connectivity and eLMIS training, supervision, quantifications/data use at the central (PCG, DNPM), regional, and prefectural levels. Support also includes integration of LMIS into the DHIS2 as well as quarterly malaria reviews (\$150,000).
2. *Improve drug regulatory capacity:* Support improvement of the regulatory and oversight capacities of the DNPM, enhanced control of compliance with pharmaceutical policy and regulations by PCG and the private pharmacies network. Support will also include the development of drug quality assurance tools (\$100,000).
3. *Management of pharmaceutical supplies:* Manage the distribution of PMI commodities down to the health facility level, including warehousing, transportation, storage and distribution as well as providing commodities assurance (\$200,000).
4. *Strengthen pharmaceutical storage capacity:* Support the PCG to improve infrastructure necessary to adequately store and manage commodities, focusing on the peripheral (regional and health facility) levels (\$100,000).
5. *Strengthen DNPL and national laboratory for drug quality monitoring:* Support the DNLM and national laboratories to build capacity for in-country drug quality monitoring (\$100,000).

#### **4. Health system strengthening and capacity building**

NMCP/PMI objectives

The goal of the new National Strategic Plan 2018-2022 is to reduce malaria-related morbidity and mortality by 75% from the 2016 level, bringing the country to pre-elimination by 2022. According to the plan, controlling malaria will promote sustainable social and economic development. Hence, the MOH has assigned the NMCP the mission of providing the Guinean population with universal access to quality malaria care in accordance with the national health policy. The national health policy also recommends that universal access to malaria care for the people of Guinea should be supported by values such as social justice, solidarity, equity, ethics, probity, and quality. This goal is in line with the country's vision of a "Guinea without malaria for a sustainable socioeconomic development."

These objectives are in line with core global and national plans and documents, including the 2016-2030 United Nations Sustainable Development Goals, the 2016-2030 WHO Global Technical Strategy, and the 2015-2024 National Health Development Plan, among others. The objectives support efforts to strengthen in-country capacity and systems to promote the health of Guineans, such as:

- Promote the national malaria control policy based on the RBM partnership principles;
- Reinforce the epidemiological surveillance system for malaria control through data collection and analysis for decision-making;
- Strengthen behavior change communication among the population in order to promote extensive use of malaria prevention measures and treatment products;

- Elaborate, monitor, and evaluate implementation of the national malaria strategic plan on an annual basis;
- Mobilize and manage human, financial, and material resources necessary for the implementation of the national malaria strategic plan; and
- Promote and develop partnerships with all stakeholders in the control of malaria.

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

#### *Progress since PMI was launched*

Since the country was declared Ebola-free in June of 2016, Guinea continues to make positive advances towards building a strong health system in line with the health recovery plan that was developed jointly with development partners, including PMI. The government of Guinea also continues to mobilize internal and external resources for rolling out the health system recovery plan, but much remains to be done if this plan is to yield the intended results, the cornerstones of which will be coordinating donor resources, consolidating achievements, and the focus on CHWs as key players in rebuilding the population's confidence in the health system.

PMI has continued its support of the NMCP to build coordination and leadership capacity. In addition to providing support to address operational and technical weaknesses, PMI has supported a Malaria Advisor to the NMCP through the Leadership and Management Grant mechanism since October 2013. The contribution of this expertise has led to the improvement of NMCP's day-to-day and prospective operations, such as activity planning and development of appropriate documents required by the Global Fund. This support has also strengthened the NMCP's leadership in coordinating partners, such as the quarterly RBM coordination meetings.

#### *Progress during the last 12-18 months*

During the past 12-18 months, PMI continued to support NMCP's coordination and management at both central and decentralized levels. With support from PMI, the NMCP has undertaken significant steps towards building the capacity of decentralized levels (region and district). In line with this renewed focus, the NMCP has established regional RBM coordination committees, and the Global Fund and PMI have recruited malaria focal persons in all 33 health prefectures, plus the five Conakry communes. The malaria focal persons will be part of the district health technical team and serve as a liaison with the national program. Their primary role will be to build the capacity of district staff and also serve as catalysts for the efficient management and implementation of malaria activities. In addition, the Global Fund, in collaboration with PMI, has continued to pursue capacity building efforts that may eventually facilitate the NMCP to again become a principal recipient of Global Fund grant monies. To that end, the Global Fund is currently funding several key positions within the NMCP, including those related to financial management, accounting, communication, supply chain management, and monitoring and evaluation.

PMI support included the organization of the national Malaria Program Review, the development of the 2018-2022 National Strategic Plan, and participation in the development of the 2018-2020 Global Fund grant application. Furthermore, the NMCP developed the weekly, monthly, quarterly, and annual work plans with the support of the PMI-funded technical advisor with the objective of monitoring the implementation of all interventions. This technical support is followed by regular coaching sessions with

NMCP staff – particularly new hires – to strengthen their capacity and commitment. Internal communication within the NMCP has improved as a result of this support.

Through the embedded technical advisor, PMI has integrated leadership practices that have significantly improved malaria control efforts. With this support, NMCP piloted the Leadership Development Project Plus (LDP+) course in two health centers to improve the quality of care and supply chain management in these health facilities. This particular model is based on a participatory approach that uses situational analyses, coaching, and development of roadmaps or action plans to capacitate beneficiaries to identify barriers to adopting best practices, and to generate their own workable solutions.

At the central level, TWGs have been supported to develop annual workplans that included all partners' activities. In addition, regular coordination meetings have been held to monitor progress in the implementation of these plans and to discuss and find solutions to any bottlenecks.

PMI has built the management capacity of the NMCP in the area of supply chain and pharmaceutical systems and has made considerable contributions to the improvement of PCG's operations including the implementation of the eLMIS and the establishment of a Logistics Management Unit (LMU). Efforts to build a reliable RMIS have continued with support from various partners including PMI. Key steps have also been taken towards integrating this database into the national HMIS such as the development of data collection tools and the inclusion of malaria indicators into the DHIS-2 platform.

In addition, PMI has supported the continued field-based training of local entomologists through mentorship and supervision during routine entomological monitoring. Capacity building for entomological monitoring has been further supported through the new insectary and laboratory where local entomologists and laboratory technicians have begun to apply the skills they develop through training and technical assistance as the facility becomes better equipped.

The NMCP has also benefited from PMI support in infrastructure development including (i) renovation, (ii) internet connectivity to improve communication and the reactivation of the program website, and (iii) purchase and maintenance of office equipment, which has helped to create an improved working environment for the NMCP and its partners.

PMI has continued to support the malaria efforts of Peace Corps Volunteers in Guinea. Eight volunteers have been supported to attend the *Stomp out Malaria* program in the last year and three more are scheduled to attend before the end of 2017.

Through collaborative effort between the MOH and the CDC, Guinea also launched its Field Epidemiology and Training Program (FETP) last year with the initial training of 25 fellows in its three-month frontline training course. The candidates graduated in May 2017 and the second cohort of 30 candidates will commence in June 2017. In the coming year, the program plans to continue frontline training programs and hopes to launch an intermediate (nine-month) cohort of 15 fellows as well. The major objective of this training program is to create a pool of field epidemiologists in the country who can be mobilized to respond to future epidemic outbreaks, or other public health crises. This is an opportunity for PMI to collaborate in epidemiological capacity building for the NMCP staff.

#### Plans and justification

The ongoing institutional restructuring and reinforcement of management and leadership capacities at all levels of the health system, together with the newly developed malaria strategic plan for the next five

years (2018-2022) present a rare opportunity for strategic alignment of resources and interventions to achieve even greater results in malaria prevention and control in Guinea.

PMI will continue to emphasize capacity building at the NMCP in coordination with its partners and other donors, such as the Global Fund. Actions will include advocacy with high-level MOH officials to implement the health system recovery plan that will have a direct impact on increasing access and use of malaria services in health facilities and communities.

With FY 2018 funding, PMI will continue to support the NMCP to conduct supervision and provide logistics support including office materials, communication capacity through internet connectivity, and M&E system strengthening. PMI will also continue its support for the long-term technical advisor embedded within the NMCP. In line with the NMCP's plan to strengthen decentralized levels of the health system, PMI will continue to support district-level malaria focal points in each of the PMI-supported health prefectures, complementing a structure that has already been implemented with Global Fund support in the remaining prefectures. Malaria focal points are embedded in the district health offices and serve as the liaison with the national program. Specifically, they will support commodity supply chain and logistics management, facility and community-level supervision, data collection and reporting, and assist with M&E and implementation of activities such as surveys, net distribution, and SBCC.

PMI will also continue its partnership with Peace Corps Guinea to support malaria interventions in volunteers' communities. Peace Corps Response Volunteers are usually third-year volunteers or volunteers who have previously completed their service and have applied for a Response Volunteer position, generally with an NGO or to coordinate and lead other volunteers' activities related to a specific health project. Given that volunteers are now back in country, with eight of them already having attended the *Stomp out Malaria* program and three more scheduled to attend, PMI will continue support for two malaria response volunteers as well as small project grants available to volunteers through an application process.

*Proposed activities with FY 2018 funding: (\$991,000)*

1. *Management support for NMCP:* Support to the NMCP to assist with team building, logistics and supervision, office management including communication capacity/connectivity (\$16,000).
2. *Training and capacity building of NMCP staff:* Support to the NMCP to build capacity via conference and workshop attendance, both national and international, and to improve program management (e.g., M&E, SBCC) (\$100,000).
3. *Support health district-level malaria focal points:* Support 19 health district-level malaria focal points in each of the PMI-supported health prefectures/communes, complementing a structure that has already been implemented with Global Fund support in the remaining health prefectures. Malaria focal points will be embedded in the DPS and serve as the liaison with the national program. Specifically, they will support commodity/logistics management activities, facility and community-level supervision, data collection and reporting, and assist with M&E and implementation activities (e.g., surveys, net distribution, SBCC) (\$700,000).
4. *Peace Corps Response Volunteer and small projects grants:* Support to maintain two Response Volunteers: one in Conakry and one in a regional hub (Boké, Labé, or Kankan) to coordinate and support volunteers' malaria activities throughout the country; one volunteer may be embedded with a PMI implementing partner at national or regional level (\$20,000). Support small project grants (\$10,000) for which volunteers can submit applications (\$30,000).

5. *NMCP leadership development*: Support the capacity building of the NMCP, the DRS, and the DPS (training new NMCP staff, support to the coordination of DRS, DPS in the framework of the fight against malaria) through support for the continuation of the long-term technical advisor. (\$145,000).

**Table 12. Health Systems Strengthening Activities**

<b>HSS Building Block</b>	<b>Technical Area</b>	<b>Description of Activity</b>
<b>Health Services</b>	Case management	Training in case management for health facility staff and CHWs. Supervision of health facility workers and CHWs to ensure quality health services are provided.
	Health systems strengthening	QA/QC systems to monitor the quality of laboratory diagnostic services. Support to maintain two Peace Corps Response Volunteers to coordinate and support volunteers' malaria activities throughout the country; support small project grants for which volunteers can submit applications.
<b>Health Workforce</b>	Entomological monitoring	Training for entomologists, support to the insectary, and procurement of basic field equipment for routine entomology monitoring.
	Health systems strengthening	Support malaria focal points in each of the 19 PMI-supported health prefectures/communes to serve as the liaison with the national program. They will support commodity/logistics management activities, facility and community-level supervision, data collection and reporting, and assist with M&E and implementation activities.
<b>Health Information</b>	Surveillance, monitoring and evaluation	Strengthen disease surveillance systems to improve decision-making, planning, forecasting, and program management.
	Entomological monitoring	Support for vector surveillance and insecticide resistance monitoring in each of the four ecological zones, including transport and analysis of samples.
	Logistics Management Information System	Support for the design and the implementation of the LMIS, the implementation of e-LMIS and its integration into the national DHIS2 platform.

<b>Essential Medical Products, Vaccines, and Technologies</b>	Pharmaceutical management  ITNs, MIP, case management	Support improved forecasting, procurement, quality control, storage, and distribution of malaria commodities.  Procurement of 250,000 nets in addition to 700,000 procured with FY 2017 funds for the next national mass distribution campaign in 2019. Procurement of 1.7 million RDTs and 1.3 million ACTs. Procurement of 1.3 million doses of SP to ensure an adequate supply for pregnant women to receive three doses throughout their pregnancy.
<b>Health Finance</b>	Health systems strengthening	Provide technical assistance to leverage financial contributions and services from private sector partners (i.e., extractive industries) for malaria prevention and control. Advocacy with the government to increase the health budget. At the time of MOP writing, the health budget was increased at the rate of 8%.
<b>Leadership and Governance</b>	Health systems strengthening  Management support for NMCP	Strengthen national coordinating and regulatory bodies to direct and manage malaria resources, develop guidelines, and improve quality of services. Support to the NMCP in team building, logistics and supervision, office management including communication capacity/connectivity, and M&E systems strengthening. Support to the NMCP to build capacity via conference and workshop attendance, both national and international, and to improve program management in M&E as well as SBCC.

## 5. Social and behavior change communication

### NMCP/PMI objectives

As a part of the new National Malaria Strategic Plan (2018-2022), the NMCP and its partners reviewed the implementation of the current strategic plan. In the area of SBCC, the review noted that the principal results of SBCC activities achieved under the plan included an improvement in community knowledge of malaria and increased use of prevention and care services as well as increased involvement of leaders and communities in malaria control. Among the weaknesses, the review noted insufficient communication activities for certain interventions (sanitation), insufficient communication materials in health facilities in certain zones, and insufficient follow-up on the impact of home visits on the knowledge and behaviors of the population. The review identified as challenges the need to strengthen community communication activities with CHWs and NGOs, to develop new communications activities in schools, and to collaborate more closely with religious leaders and the private sector.

The new strategic plan aims at reaching 90% coverage levels in both prevention and case management interventions. To support these objectives, the strategy calls for increased and strengthened interpersonal communication at the individual and community levels; mass media communication including television, national and local radio, internet, and printed support materials; and social mobilization to increase support from community members and leaders. A new, updated communication plan will be drafted based on the results of the 2016 MICS-Palu to establish communication objectives in support of the new malaria control strategy and to guide the development of the supporting interventions.

The NMCP's communication plan was first developed in 2009 and later revised with PMI support in March 2012 (to cover the period 2012-2015). Again with PMI support, the communication plan was

further revised in May 2015 to cover the period 2015-2017 (to match the national malaria control strategy) and to incorporate the latest findings from the PMI-supported Knowledge, Attitudes, and Practices (KAP) survey (September 2014). The plan emphasizes comprehensive communication activities: for each malaria control strategy the revised plan includes key findings, the desired behaviors, the target population, the proposed activities, and messages. This document will be further updated following the adoption of the new Malaria Strategic Plan, 2018-2022.

The NMCP's SBCC unit oversees and convenes a national SBCC TWG although meetings have been irregular over the past year. The TWG is composed of representatives from other MOH divisions and from technical and financial partners working in malaria control in Guinea. The TWG's role is to assist the SBCC unit to better coordinate and harmonize SBCC tools, approaches, and methodologies. In addition to PMI, the Global Fund provides support for SBCC activities related to malaria prevention and case management. While donor efforts are coordinated at the national level, PMI and the Global Fund each have geographical areas (zones) which they support as part of the distribution of roles and responsibilities between PMI and the Global Fund. PMI supports SBCC activities in PMI zones and the Global Fund supports activities in the remainder of the country. The NMCP's communication plan provides strategic guidance for SBCC activities in all areas.

#### *Progress since PMI was launched*

According to the results of the 2016 MICS-Palu, Guinea has made great strides in improving adoption of malaria prevention behaviors. Access to mosquito nets clearly improved as a result of distribution activities, and with this increased coverage came increased use (these results are described in other sections of MOP; refer to Table 1. Evolution of Key Malaria Indicators in Guinea for use estimates). The 2016 survey showed that 71% of all ITNs were used the night before the survey, a solid indication that most people use the nets that they have. The 2016 MICS-Palu also noted improvements in IPTp uptake with 22% receiving IPTp2 in the 2012 DHS compared to 49% in the 2016 MICS-Palu. Malaria treatment indicators while improving slightly, continue to suggest poor care-seeking behavior with 37% of children under five seeking advice or treatment for fever in 2012 compared to 42% in 2016.

PMI progress on SBCC interventions to date has included revising the NMCP's national communication plan and training manual used by animators for SBCC techniques related to malaria prevention and treatment. The national communication plan, training materials, and tools are used not only in PMI target areas, but also by the Global Fund implementers in the remaining areas of the country. PMI has also supported training of NGO animators on SBCC related to malaria prevention, and supported Peace Corps volunteers to work with local NGOs on implementing malaria SBCC activities in the regions of Boké and Conakry.

Early PMI-supported activities for SBCC focused primarily on increasing ANC attendance and IPTp uptake, as well as increasing early care-seeking for fever. Since PMI was launched in Guinea, over 350,000 home visits and interpersonal communication sessions have been conducted with 2,673,056 people reached (of whom 1,478,018 were women). These PMI activities were part of an integrated mechanism for family and child health in PMI zones, and included both interpersonal communication through peer discussion groups, as well as mass media through radio, television, and pamphlet distribution. At the beginning of the PMI bilateral program, SBCC focused almost exclusively on the ITN universal coverage campaign to ensure ITN hang-up and continuing use post-campaign. Following that, PMI expanded its scope to again focus on case management, MIP, as well as use of ITNs through routine distribution channels.

Case management training for health workers and CHWs included an SBCC component and CHWs were given job aid posters and storyboards to conduct sensitization sessions on malaria prevention and treatment in their communities. In order to improve the population's knowledge on malaria treatment, PMI, in collaboration with the NMCP, produced and disseminated pamphlets and malaria prevention TV and radio spots in French and local languages. PMI also supported interpersonal communication through home visits and group discussions. PMI trained members of health and hygiene committees and facilitators to conduct group discussions and mass awareness talks on the prevention and treatment of malaria. During these discussions, CHW and NGO facilitators emphasized key messages to the population including the importance of seeking health care in case of fever, and the availability of free malaria testing and treatment.

Although the Ebola epidemic forced PMI to revise its SBCC approach to address malaria in the context of the epidemic, this is no longer an issue since the county was declared Ebola-free in December 2015 and regular malaria prevention and control activities could take place throughout the country.

At the strategic level, PMI assisted the NMCP and other partners, including the MOH's Health Promotion Division, to revise the national communication plan based in part on the results of the PMI-supported KAP survey. The National Malaria Control Communication Plan 2015-2017 supported the revised National Malaria Strategy (2013-2017): for each malaria control strategy, the revised plan includes key findings, the desired behaviors, the target population, the proposed activities, and messages.

#### Progress during the last 12-18 months

PMI promoted the use of ITNs through two channels. To support routine distribution, PMI supported radio and television spots promoting correct use and maintenance of ITNs. PMI worked closely with the Global Fund to support all aspects, including SBCC of the mass distribution campaign.

For the other key behaviors of ANC attendance and IPTp uptake, as well as care-seeking for fever, PMI also supported a variety of strategies and activities including interpersonal approaches (e.g., home visits), memory aids for beneficiaries (e.g., reminders to pregnant women for ANC visits), and job aids for health workers. These efforts often included messages on ITN use as well.

PMI developed, pre-tested, and produced communication materials and support materials for all steps of the mass distribution campaign (enumeration and voucher distribution, LLIN distribution, and social mobilization) and, in collaboration with the NMCP, revised the key messages and updated the social mobilization guides to be used for all trainings. PMI also produced 3,000 visual aids on essential actions for proper use and maintenance of nets, to be shown and discussed during household visits. To increase social mobilization, PMI produced radio spots to promote the enumeration and participation in campaign activities.

During the past year, a number of channels were used to promote preventive and health care-seeking behaviors with PMI support:

- 3,107 radio spots and 244 television spots on enumeration and distribution activities.
- 21 interactive radio programs and 16 roundtable discussions to promote campaign activities.
- 2,125 radio spots and 149 television spots on regular and correct net use.
- 2,240 radio spots and 203 television spots on how to transform rectangular nets into circular ones.
- 2,467 radio spots and 251 television spots on the use and availability of free ACTs.

- 1,510 radio spots and 205 television spots on routine LLIN distribution.
- 22 roundtables and 26 interactive radio programs on routine LLIN distribution

The 1,310 trained CHWs conducted 160,612 home visits and were able to reach 1,369,198 people, of whom 776,004 were women. The messages disseminated during these household visits promoted healthy behaviors such as the correct and regular use of ITNs, ANC visits for pregnant women, and early care-seeking in case of fever. During the visits, the CHWs verified whether the nets received by the households were hung and helped hang the nets if they were not. They also encouraged pregnant women and mothers of children less than 12 months old to go to the health center for ANC and EPI visits, during which they would receive a free net. The CHWs explained the signs of malaria and promoted early care-seeking practices as soon as malaria symptoms are noticed.

In addition, PMI worked through NGO and community-based organizations to organize social mobilization activities to promote early care-seeking and attendance at health facilities. During FY 2016, NGOs used mobile caravans that circulated in neighborhoods and villages to inform people about the dates and sites of ITN distribution and encourage people to go to the sites to receive bed nets. These caravans were very helpful; especially in urban areas where people are very busy during the day and do not have time to listen to the radio. These caravans also allowed the facilitators to interact with people and address concerns they had. To increase the level of knowledge about malaria and promote the practice of healthy behaviors related to malaria prevention and treatment, the NGO facilitators conducted group discussions. These discussions took place in health centers and public places such as soccer fields, market places, hairdressing salons, and sewing salons. Additionally, to increase ANC clinic attendance, the NGOs organized social mobilization events targeting women's and young girls' associations to increase their knowledge about malaria and pregnancy and the importance of ANC visits for both mothers and their babies. To further influence community support for malaria control activities, PMI trained 109 members of local Health and Hygiene Committees on health center management and advocacy techniques.

Although there is good information on activities and outputs, it is harder to measure outcomes and the link between outcomes and SBCC interventions. According to the 2015 KAP survey, 60% of the population responded that they have heard a message on malaria prevention and control. A Catholic Relief Services coverage survey conducted in 2015 looking at public exposure to messages on malaria control have shown overall that malaria messages were more likely to affect rural populations and heads of household (57%) than women (47%). Thus, the main messages on the danger of malaria, modes of transmission and means of prevention have reached the populations. Community radios, health workers, and community workers/social mobilizers were the main channels for disseminating messages about malaria. A more in-depth review of the MICS results overlaid on the intensity of SBCC activities may show some correlation which might indicate some association between exposure and behavior change, although this would be tenuous and limited by the lack of granularity of the MICS data. PMI hopes to support the NMCP to address this weakness in M&E of SBCC by providing technical assistance to develop a robust M&E and data collection plan to evaluate the impact of the NMCP's new communications strategy.

### Plans and justification

Using FY 2017 funds, PMI will support the NMCP to develop a communication strategy in support of the new national malaria control strategy based on the MICS-Palu results (note that only the preliminary, key results are available at this time). With FY 2018 funding, PMI will support the implementation of SBCC activities reflecting NMCP priorities and national policies in PMI zones. These include ITN use,

ANC attendance and IPTp uptake, and case management, including RDT and ACT use. Proposed activities will continue to reflect a mix of interpersonal communication approaches, mass media, and social mobilization as called for in the new national malaria control strategy. To overcome the challenges with CHWs, NGOs, religious leaders, and the private sector noted above, the NMCP will implement the following measures: interpersonal communication, mass media, social mobilization and advocacy. Trained CHWs will conduct home visits to convey key messages about malaria prevention in the community to promote the desired behavior changes. NGO partners, including community-based organizations, will facilitate educational talks to convey prevention and malaria care messages in their communities for sustainable behavior change. The strategy for religious leaders and schoolchildren (*La Stratégie Religieuse et Ecoliers*) against malaria will be scaled up and will place particular emphasis on peer education at the school level and places of worship. In addition, the NMCP will strengthen its collaboration with the private sector to better coordinate their malaria prevention and control activities; this will include mobilizing the necessary additional funds and strengthening partnerships with mining companies, communities, civil society organizations, universities, public and private media. The NMCP will ensure the regular participation of private sector representatives in the various meetings of the RBM and thematic groups.

As part of the development and implementation of the new malaria communication strategy, PMI will support the NMCP to put in place a robust M&E and data collection plan to evaluate the impact of the communication interventions. Targeted technical assistance will strengthen the capacity of the NMCP to use survey and routine data to further refine its communication strategy, identify remaining questions, and develop promising new strategies and activities. The actual methodologies used will be defined in the M&E plan but would likely include use of routine data for monitoring, rapid coverage surveys, and media monitoring. Although not yet defined or quantified, it is anticipated that the Global Fund will provide complementary support for the evaluation of communications programs.

As part of PMI's support to SMC implementation in targeted prefectures, SBCC will be a key component to facilitate community acceptance of the intervention for their children, as well as adherence to the preventive treatment regimen. Specific activities will likely include a mix of local radio (in local language) and interpersonal communications including home visits and community discussions. These activities will be part of the household visits to distribute treatments during the four treatment cycles, as well as initial preparations in the community, and post-visit communications to encourage treatment adherence. SMC SBCC activities will also be used to encourage consistent net use, care-seeking for fever, and early ANC attendance.

*Proposed activities with FY 2018 funding: (\$575,000)*

1. *SBCC for ITNs, IPTp, and case management:* SBCC will be part of a communication package including ITN use, IPTp uptake, and case management at the health facility and community levels. Activities will be focused in PMI target zones but will be consistent with the NMCP's national communication plan and national policies, and coordinated with SBCC activities in the rest of the country (\$500,000).
2. *Support for the implementation and evaluation of the new communications strategy:* PMI will provide technical assistance to the NMCP and the SBCC TWG to monitor and evaluate the new communications strategy derived from the new national malaria strategy and based on the results of the MICS-Palu (\$75,000).
3. *SBCC for SMC:* Implement a focused SBCC campaign to prepare targeted communities for SMC implementation to encourage acceptance of and adherence to treatment on the part of the

community. Specific activities which will include a mix of local radio and interpersonal communications (*Costs covered under Case Management [Other costs for SMC]*).

## 6. Surveillance, monitoring, and evaluation

### NMCP/PMI objectives

Surveillance, monitoring, and evaluation are key components of Guinea's malaria program. The NMCP is currently working on developing a revised national M&E plan to complement the national strategy, 2018-2022. The current plan identifies indicators, targets, and data sources and emphasizes data collection, data quality assurance, and dissemination and use of data.<sup>7</sup> Specific M&E priorities reflected in the plan include revising and maintaining the national malaria database, including the HMIS and supervision data; creating and disseminating malaria bulletins; building M&E capacity at regional and district levels; and strengthening relationships with partners collecting malaria data, including HMIS and the Integrated Disease Surveillance and Response system. The revised M&E plan will have similar content. A technical committee for M&E at the national level is led by the NMCP and made up of donor and partner representatives including PMI and its partners, Catholic Relief Services (Global Fund principal recipient), and WHO, among others. A national Malaria Program Review was conducted in late 2016 and the findings were used to update the new National Strategic Plan, 2018-2022.

Currently, the following data sources collect malaria data in Guinea:

*Monthly malaria reporting system:* Starting in late 2013 the NMCP, with the support of the MOH unit responsible for the HMIS, implemented a monthly reporting tool to collect malaria data on commodity availability, commodity consumption, case management (e.g., suspect cases tested, cases treated), and epidemiology (e.g., confirmed cases, deaths) all on the same form. First rolled out in PMI zones, the monthly reporting tool was expanded to the Global Fund zones starting in mid-2014. Since the annual HMIS report was not perceived as a timely or valid data source when PMI was first launched, and the HMIS was nonfunctional during the Ebola crisis, the monthly malaria reporting system has served as the primary source of data for the NMCP and malaria partners. Currently, all 33 prefectures and five urban communes are consistently reporting data, with district-level completeness nearing 100% each month. The reporting tools are filled out at health facilities and sent up to the district health offices for aggregation and electronic data entry before the electronic files are sent to the NMCP. Since late 2014, the NMCP has regularly been producing and disseminating a monthly malaria bulletin summarizing the data. The malaria reporting system captures data from public health facilities (including hospitals and health centers), their affiliated health posts, and community health workers. The NMCP is also working to expand the reporting system to private non-profit service providers, primarily in Conakry.

*Health Management Information System:* In the past year, the MOH has prioritized the revitalization of the national HMIS on the DHIS2 platform. The system has been rapidly rolled out with regional-level trainings completed in December 2016. This process was led by the MOH *Bureau de Stratégie et Développement (BSD)* with operational support by donors such as USAID and the Global Fund. The MOH vision is that parallel reporting systems by the various health programs (e.g., malaria) should be phased out as soon as the DHIS2 platform is operational. The NMCP and partners have worked hard to build and support the malaria reporting system so the current NMCP focus is on how to ensure a smooth transition from the parallel malaria reporting system to the HMIS without losing gains in completeness

---

<sup>7</sup>A full indicator table is available in Annex 6 of the National Strategic Plan.

and quality of malaria data.

*Integrated Disease Surveillance and Response system:* Supported by WHO, Guinea's weekly Integrated Disease Surveillance and Response system is based at the Division of Prevention and Disease Control at the MOH. It consists of weekly, telephone-based reporting on ten diseases, including malaria. While a timely tool for routine malaria data, it lacks key indicators, does not stratify by age, does not include data on completeness, and does not generally include data from health posts and community health workers.

*Household surveys:* Guinea has implemented a DHS in 2005 and 2012, and a MICS in 2007<sup>8</sup> and 2016. The 2012 DHS provided the first national estimates of malaria parasitemia and the 2016 MICS-Palu included malaria biomarkers to provide a second parasitemia data point. The next DHS is planned for 2018. In addition to the DHS and MICS, the Global Fund has supported national coverage surveys in 2009, 2010, and 2015 to measure population coverage with basic malaria interventions (ITNs, IPTp, and ACTs). PMI supported a national Knowledge, Attitudes, and Practices (KAP) survey in August 2014 to provide formative data on malaria-related behaviors including ITN use and treatment-seeking practices.

*Health facility surveys:* Various types of health facility surveys have provided complementary data on different aspects of malaria service provision in Guinea. PMI-funded, semi-annual EUV surveys have been implemented since 2013 to provide data on malaria commodity availability and basic case management practices based on a convenience sample of health facilities across the country. In December 2014, a health facility survey provided detailed, representative, national-level data on healthcare worker performance regarding malaria case management in the context of Ebola. Results were used to guide national healthcare worker training strategies. The Service Availability and Readiness Assessment (SARA) survey is a standardized health facility survey that covers a broad range of healthcare delivery services. In Guinea, a SARA survey was implemented in September 2015 with support from the Global Fund, the Global Alliance for Vaccines and Immunizations, WHO, and PMI. Though not a malaria-specific survey, the standard module includes indicators on health facility readiness to provide malaria services, including health worker training, supervision, and malaria commodity availability. In Guinea, the SARA included a "Malaria Module," consisting of a patient exit interview to assess the quality of malaria case management services. PMI plans to support another health facility-based data collection activity in 2017 to better understand how case management and data recording practices at facilities may influence reported indicators and trends in the national routine reporting system. More a data verification exercise than a traditional survey, this activity will help contribute to a deeper understanding of what contributes to routine indicators such as reporting completeness and case confirmation rates that generally hover at 100%.

#### *Progress since PMI was launched*

*Routine data and HMIS strengthening:* The routine monthly malaria reporting system, initiated in 2013 and fully scaled up by the end of 2014, captures key epidemiological and stock management data on one form, including: number of all-cause consultations, number of suspect malaria cases (stratified by uncomplicated and severe), cases tested (stratified by microscopy and RDT), cases confirmed positive (stratified by microscopy and RDT), cases treated with ACT, severe cases treated, cases referred, and deaths among severe cases. Data are reported for the health facility and for CHWs, as well as by age groups (under five years, five and older, and pregnant women). Data are also included from ANC including total women seen in ANC, number receiving first dose of SP, second dose of SP, at least three

---

<sup>8</sup> The 2007 MICS results are not maintained by UNICEF headquarters.

doses of SP, number of women sensitized at ANC, and number of ITNs distributed at ANC and EPI. In addition to epidemiological and case management data elements, the forms also collect commodity management data for RDTs, ACTs, SP, treatments for severe malaria, quinine, and ITNs. Data elements include beginning-of-month stock, quantities received, quantities delivered to CHWs and health posts, quantities consumed, quantities expired, quantities near expiry, stockouts, and end-of-month stock. The monthly malaria report forms are sent to the district health office where the data manager enters them electronically and sends on to the NMCP. The NMCP has been using the routine data to produce and disseminate a national monthly malaria bulletin since October 2014.

Recent MOH efforts to revitalize the integrated HMIS on the DHIS2 platform have been supported by a coordinated donor effort (e.g., USAID, CDC, European Union, GAVI, World Bank, Global Fund and UNICEF), including a transition to the open source DHIS2 platform. The vision for the Guinea HMIS on the DHIS2 platform is the integration of not only epidemiological data across health programs, but also the inclusion of related health information systems for personnel management, inventory control, procurement, accounting, and finances. USAID has been spearheading these efforts with the MOH and partners, including a needs assessment, stakeholders meeting, and strategic planning process initiated in 2014.

*Household surveys:* The 2012 DHS was implemented from June-October 2012 and provided the first nationally representative estimates of malaria parasitemia, as well as standard malaria intervention coverage indicators, including baseline estimates for ITN coverage prior to the 2013 mass ITN distribution campaign. The 2016 MICS-Palu (i.e., standard MICS survey with the addition of malaria biomarkers) provided a follow-up data point to the 2012 baseline survey estimates. [These results are summarized in the next section.]

*Health facility surveys:* Initial PMI plans to conduct a health facility survey to assess case management practices after the rollout of RDTs were delayed due to the Ebola crisis. Instead, in December 2014, a survey was implemented to assess the impact of the Ebola epidemic on malaria case management in Guinea. It found substantial disruptions in malaria care delivery, including decreases in health facility attendance and in the number of patients treated with antimalarials, and reduced community malaria case management. Since then, health facility attendance has rebounded. Comparing the number of reported all-cause consultations in 2015 and 2016 provides an indication that health facility attendance (including CHW consults) has continued to rise: adjusting for non-completeness, the routine monthly malaria system reported 2,973,161 all-cause consultations in 2015 and 3,283,801 in 2016.

The Service Availability and Readiness Assessment (SARA) was implemented in 2015 in 154 facilities, including reference hospitals, district hospitals, and health centers (primarily public facilities) across the country. The survey found the following with respect to malaria service provision:

- 85% of facilities had personnel trained in malaria case management, but only 43% had national malaria case management guidelines available in the facility.
- 79% of facilities had the capacity to perform diagnostics (RDT or microscopy) for malaria.
- 67% of facilities had first-line ACTs available on the day of the survey.
- 59% of facilities had personnel trained in IPTp, and 76% had SP available on the day of the survey.
- 62% of facilities had ITNs available on the day of the survey.

A malaria case management module of the SARA assessed health worker adherence to national malaria case management guidelines through patient exit interviews conducted with patients that fit the inclusion criteria of being a suspect malaria case. Among those 1,320 suspect malaria cases:

- 86% received a diagnostic test (54% with RDT and 48% with microscopy)
- 69% of those confirmed positive were prescribed an ACT
- 33% of those with a negative test result were prescribed an ACT

Overall, 46% of suspect malaria cases assessed were treated according to national case management guidelines. This proportion was higher in those aged five years and older (54%) compared to children under five (31%). These results highlight the need for continued training and supportive supervision for health workers, particularly for antimalarial treatment practices.

There is a general observation that results for the various treatment-related indicators seem to vary widely across the SARA, EUV, and household surveys (DHS, MICS-Palu). These differences are most likely a function of the different indicator definitions and data collection methods for each of these tools and the different biases associated with each. The SARA is arguably the most direct and complete measure of treatment practices in health facilities because it uses a patient exit interview immediately after consultation to determine if a suspect malaria case was appropriately diagnosed and treated; it verifies the responses with patient cards and thus minimizes recall bias. The EUV is a retrospective data review and is subject to the quality of reported data (e.g., completeness, consistency), as well as the reporting practices of health workers. The household survey indicator measures the proportion of all children under five with fever in the last two weeks who were treated with an ACT among those children treated with any antimalarial; this is a measure of the use of the recommended antimalarials but is not a measure of appropriate case management. The metric being measured by this indicator is therefore different from that of the SARA and the EUV. The household survey indicator is nationally representative, with its sample derived from the community instead of being limited to those attending health facilities. The most recent household survey estimate for this indicator is surprisingly low at 16.5%. Similar low levels of ACT use have been reported in other household surveys and the global malaria community is currently investigating the possibility of misreporting the type of antimalarials used. The SARA and the EUV likely produce better indicators for assessment of appropriate case management compared to the household survey indicator, but are only representative of the subset of the population that attend health facilities.

*EUV survey:* Regular EUV surveys have been conducted since January 2013. While the first three EUV surveys were carried out exclusively in PMI zones, subsequent surveys were expanded to include health facilities in Global Fund zones. The first survey reflected relatively high levels of ACT stockouts in the previous three months (50-100% of facilities sampled), but showed better results for ACT stocks on the day of the survey due to a recent PMI emergency procurement and distribution. Additional results showed that only 36% of staff were trained in case management; roughly half of all malaria cases were diagnosed based on clinical symptoms alone; and one-third of these cases did not receive an appropriate antimalarial. Subsequent surveys showed improvements in stock availability but suggested that there were still gaps in case management practices (supported by findings from the SARA malaria module).

*Other logistics/commodity monitoring:* Currently, commodity reporting data come from multiple complementary (but not duplicative) reporting systems. As described above, the monthly malaria reporting tool provides regular data from health facility registers. The EUV survey provides more in-depth cross-sectional commodity availability data for a convenience sample of health facilities in the country at two points during the year. The PCG complements these two data collection efforts with

quarterly commodity inventories to assess commodity ordering and distribution practices in regional warehouses.

A recent analysis comparing data from the monthly malaria reporting system and the EUV suggests that the routine system data may be an adequate data source for monitoring malaria commodity availability to avoid stockouts and oversupply. [See section below.]

#### Progress during the last 12-18 months

*Routine data and HMIS strengthening:* The monthly malaria reporting system has substantially improved its reporting completeness since it was scaled up in 2014. Completeness of data entered at the district level increased from 66% in November 2014, to 82% by March 2015, to 97% in January 2016. For the 2016 calendar year, district-level reporting completeness (defined as number of prefectures reports received/number of reports expected) was 99%. These improvements reflect intense efforts by the NMCP, district and regional health authorities, and implementing partners in both the PMI and Global Fund target areas. An integral part of these efforts are regular regional and district-level meetings to review data, discuss challenges, and promote best practices for data collection and management.

In addition to reporting, the NMCP with PMI support has made gains in data analysis, interpretation, and use. The consistent availability of routine data has allowed the NMCP to identify high malaria transmission “hotspots”, or areas of concern that warrant some level of investigation. For example, in Boffa District, annualized malaria incidence in certain areas was as high as 425 cases per 1,000 population in January 2016. These surveillance data as seen through the monthly reports prompted field visits in specific health centers and communities revealing environmental and behavioral factors likely contributing to the high number of cases (agriculture, fishing, and associated barriers to mosquito net use). This investigation resulted in increased behavior change communication activities targeted to these populations. Several months later, persistently high reported cases in Dabola and Dalaba Prefectures prompted another field visit. Annualized malaria incidence in certain areas was as high as 1,029 and 849 cases per 1,000 population, respectively, in these prefectures. A formal investigation was launched to assess data quality, case management practices, commodity availability, and mosquito net use and resulted in different findings in each district:

- In Dabola, the investigation validated the quality of reported data, confirming elevated incidence compared to 2015, and identified contributing factors including non-use of mosquito nets, proliferation of mosquito breeding sites, and gaps in community case management. Programmatic actions included net hang-up campaigns, sanitation campaigns, and revitalization of community case management.
- In Dalaba, data validation exercises revealed reporting issues that likely explain the apparent increase in incidence. Non-adherence to malaria case management policies was also noted. Programmatic actions included reinforcing health worker training and supervision for case management and reporting.

The NMCP now has a field investigation protocol that they can continue to refine and apply for future epidemiologic investigations prompted by regular review of routine data.

The country has also seen progress in the rollout of the national HMIS on the DHIS2 platform. In the last year, the national indicators list has been revised, data collection tools designed, DHIS2 software updated and regional-level trainings completed. The coming year will focus on supervision to ensure that trainings have been effective and to understand other barriers to reporting. The major challenges currently are related to national-level coordination efforts and connectivity issues at peripheral levels to

access the reporting platform. In addition, because the platform is still new, disease programs like the NMCP are not willing or able to relinquish their own vertical reporting systems. Because the NMCP has been involved in indicator selection, the HMIS malaria indicators are identical to those captured by the monthly malaria reporting system. Unfortunately, this means that at the facilities and DPS, the same malaria data need to be reported into two separate data collection systems (at least during the period when both systems are operational). There is a concern that reporting completeness for malaria indicators in the HMIS/DHIS2 may be lower than the monthly malaria reporting because of duplication of effort required and/or an assumption on the part of data managers that the monthly malaria reporting system automatically feeds into the DHIS2 (it does not).

The NMCP is concerned that much of the progress they have made in scaling up routine malaria surveillance will be lost in the transition to DHIS2. In addition to achieving high reporting completeness, regular malaria data review meetings held at the district level have contributed to the normalization of reviewing, discussing, and using malaria data for action. The monthly malaria bulletins take this even further to develop a tangible data use product that can be shared more widely. As part of ongoing activities, PMI partners will work with the NMCP and district malaria focal points to train them on DHIS2 including data use and analysis (e.g., creation of malaria dashboards), create a standard operating procedure for HMIS data management, and develop an HMIS supervision checklist. In addition, PMI will support development of a strategic plan to guide decisions about when and how these two routine systems (HMIS and the malaria system) should interface, including concrete criteria to signal when and how the monthly malaria reporting system can ultimately be rolled back in favor of the HMIS.

*Household surveys:* Results from the 2016 MICS-Palu were finalized in May 2017, including malaria biomarkers for children under five years old. Comparison of the 2012 DHS and the 2016 MICS-Palu show impressive gains in the last several years of program implementation. Data collection periods for the two surveys overlapped sufficiently during peak malaria transmission season to facilitate comparability of data points. National parasitemia prevalence measured by microscopy decreased from 44% in 2012 to 15% in 2016. At regional levels, parasitemia in 2016 was highest in N’Zérékoré (30%) and Faranah (25%) and lowest in Conakry (2%). Regional-level parasitemia estimates for both 2012 and 2016 are summarized below:

**Table 13. Parasitemia prevalence by microscopy in children 6-59 months old in 2012 and 2016**

Region	2012 DHS	2016 MICS-Palu
Boké	23.5	8.0
Conakry	3.2	1.9
Faranah	66.3	24.9
Kankan	50.1	19.4
Kindia	54.6	10.3
Labé	36.8	7.9
Mamou	46.7	18.4
N’Zérékoré	59.2	30.2
<b>National</b>	<b>43.9</b>	<b>15.3</b>

Intervention coverage estimates also showed improvement between the two data points. For ITNs, household ownership of at least one ITN increased from 47% in 2012 to 84% in 2016, and the proportion of household members who slept under an ITN the night before the survey increased from

19% to 64%. For IPTp, the percent of pregnant women receiving two or more doses of IPTp increased from 18% to 49%. Case management indicators also improved but highlight gaps in ACT treatment: in 2012, 5% of children receiving any antimalarial for treatment of fever received an ACT; this only increased to 17% in 2016.

*Health facility surveys:* The seventh and eighth EUVs, conducted in August 2016 and April 2017 continued to include both PMI and Global Fund target zones with the Global Fund financing the data collection in its own target zones. Data from the August 2016 survey are summarized below (the April 2017 survey results were not available at the time of MOP writing).

- 74% of facility staff received training on drug management (67% for PMI zones).
- Individual ACT presentation stockouts on the day of the survey ranged from 3-15% of facilities.
- RDT stockouts for 3 days or longer (in the past 3 months) were observed in 12% of facilities.
- SP stockouts for 3 days or longer (in the past 3 months) were observed in 4% of facilities.
- Treatment practices show need for improvement with 24% of malaria cases under age five not treated with an ACT.

The scale-up and completeness of the monthly malaria reporting system, which captures malaria commodity availability and consumption data, has prompted questions within the PMI team about the need to continue conducting EUV surveys, which were designed as a rapid data collection tool to ensure malaria commodities are reaching patients at health service delivery points. In 2017, PMI supported a comparative analysis of the NMCP's monthly malaria reporting data with EUV data to assess: 1) completeness of NMCP data; 2) sensitivity and specificity of NMCP data to detect stockouts; and 3) accuracy of NMCP-reported stock quantity. Findings are as follows:

- 75% of facilities included in the EUV also reported into the NMCP's malaria reporting system.
- The NMCP system detected 73% of stockouts identified with the EUV (sensitivity); in addition, 87% of health facilities without stockouts also reported no stockouts via the NMCP system (specificity).
- The average quantity of nearly all commodities was roughly equal between the two systems.

The 2015 SARA provided additional data on availability and provision of key malaria services to patients. The results from the pilot malaria module suggest a continued need to assess provision of malaria services, but perhaps equally important, to assess reporting practices. Recent analyses of routine data have prompted questions about how certain data elements are being captured in registers and the effect this may have on indicators reported in the routine bulletins (e.g., testing rate, test positivity rate). These questions will be assessed in a health facility survey in late 2017 (approved in FY 2015).

*Therapeutic efficacy monitoring:* See case management section.

*ITN durability monitoring:* See ITN section.

**Table 14. Surveillance, Monitoring and Evaluation Data Sources**

Data Source	SM&E Activity	Year								
		2011	2012	2013	2014	2015	2016	2017	2018	2019
Household surveys	Demographic Health Survey (DHS)		X						(X)	
	MICS-Palu (with parasitemia)						X			
	Global Fund National Coverage Survey					X*				
	KAP survey				X					
Health facility surveys	Health facility survey				X			(X)		(X)
	SARA survey					X				
	EUV survey			3X	2X	2X	2X	(2X)		
Malaria surveillance and routine system support	Support to malaria surveillance system			X	X	X	X	(X)	(X)	
	Support to HMIS							(X)	(X)	(X)
Therapeutic efficacy	<i>In vivo</i> efficacy testing		X*			X		(X)	(X)	(X)
Entomology	Entomological surveillance and resistance monitoring			X	X	X	X	(X)	(X)	(X)
Other	Long-lasting ITN durability monitoring					X	X	(X)	(X)	(X)

\* Not PMI funded

Plans and justification

PMI will continue to collaborate with the NMCP, implementing partners, donors, and other stakeholders to support surveillance, monitoring, and evaluation for Guinea's national strategic plan. With a solid

foundation in functionality of the RMIS, current and future focus is on improving the quality of those data and using them to ensure feedback to lower levels and focus interventions accordingly.

PMI will continue to support the routine information system at multiple levels. In 2019, the team anticipates that this support can shift from the RMIS to the integrated HMIS. Support at the community, facility, and district health office level will focus on collection and reporting of routine data. This will include ensuring an adequate supply of materials needed (e.g., registers) and support to develop standard operating procedures for data collection and reporting. These efforts will take into account the gradual transition from the RMIS to the HMIS and will build on activities currently supported under HMIS/DHIS2 activities. In terms of integrating support for the two systems, the plan is to support the RMIS until 1) the HMIS is collecting the key malaria data needed by the program, 2) those data are of adequate quality (completeness, timeliness, validity, etc.), and 3) those data are accessible by the program at national, regional, and district levels. PMI has proposed to the NMCP that decisions on when and how the RMIS will be withdrawn should be guided by concrete, objective data that can be captured through standardized data quality monitoring. A PMI partner will be developing a plan for this by the end of 2017. Included in this plan will be some assessment of the functionality of the LMIS to ensure the commodity data currently captured by the RMIS will continue to be available through a routine reporting system. At the district and national levels, PMI will focus support for routine information systems on data use, including data review and analysis, through the continuation of quarterly review meetings and production and dissemination of malaria bulletins. While the quarterly review meetings and bulletins are ongoing activities, the NMCP has recognized the need for more systematic and regular monitoring of data quality, particularly with the rollout of the HMIS and the pressure to eventually roll back the parallel malaria reporting system. This will be accomplished through development of standard operating procedures for district-level data quality checks on monthly data and periodic health facility supervision visits (see next paragraph).

As mentioned above, the analysis comparing Guinea's EUV data with the data from the RMIS provided adequate evidence to suggest that the added value of the EUV may have diminished as the routine malaria system has matured. The RMIS demonstrated a capacity to detect stockouts and reflect current facility stock levels. The PMI team, therefore, proposes to suspend the EUVs in Guinea. The NMCP is reluctant, however, to lose the opportunity for in-depth supervision that the EUV provided. To continue to meet those needs, the PMI team proposes to replace the formal EUV with quarterly on-site supervision missions that would be built on a standardized data quality audit (DQA) tool for reported epidemiological, case management, and commodity data. These missions would include a team of supervisors with representation from the NMCP, PMI implementing partners, and district health offices, including the malaria focal point. Selection of health facilities each quarter would be limited to one district and could be random or purposeful if there was an indication that a particular facility or district would benefit from such an exercise.

In addition to in-depth supervision at facilities, the PMI team also proposes to support periodic epidemiological investigations in response to trends detected through routine data. These investigations would be similar to those already conducted in Dabola and Dalaba (described above), where teams investigated quality of reported data, health service provision, and community behaviors to understand apparent malaria trends. Future investigations could also include basic entomological parameters to ensure a complete picture of contextual factors driving the data. The NMCP demonstrated great enthusiasm and leadership in conducting these investigations and PMI proposes to further encourage such proactive program management and hopefully expand those capacities to district levels as well.

As the malaria program in Guinea matures, local capacity continues to increase, and important malaria research is carried out, the NMCP has recognized the need to ensure that research efforts are well-coordinated and has established a national malaria research committee housed within the NMCP. This committee serves to strengthen coordination of research activities by various individuals and institutions, promote collaboration, identify research priorities, and facilitate dissemination of research findings. PMI proposes to support these efforts through logistical support and technical engagement.

Proposed activities with FY 2018 funding: (\$524,000)

1. *Support routine data collection for malaria:* Provide support at community, health facility, and district levels to facilitate collection and reporting of routine malaria data, including provision of supplies (e.g., registers) and development of standard procedures for data capture and reporting (\$100,000).
2. *Support data quality improvement and data use:* Provide support at district and national levels for routine information systems on data use, including data review and analysis, through the continuation of quarterly review meetings and production and dissemination of malaria bulletins (\$200,000).
3. *Health facility supervision and DQA:* Conduct quarterly on-site supervision missions to select health facilities, including a standardized data quality audit (DQA) tool for reported epidemiological, case management, and commodity data. These missions would include a team of supervisors with representation from the NMCP, PMI implementing partners, and district health offices (\$150,000).
4. *Epidemiological investigations:* Conduct quarterly epidemiologic investigations in response to trends detected through routine data. Teams will investigate quality of reported data, health service provision, entomological parameters, and community behaviors to understand apparent trends (\$50,000).
5. *ITN durability monitoring:* Prospective ITN monitoring will continue to follow ITNs distributed during the 2016 universal coverage campaign, and will provide data on: 1) net survivorship and physical integrity, 2) bioefficacy of insecticides, and 3) insecticidal content (*see ITN section for description and budget*).
6. *Therapeutic efficacy monitoring:* Efficacy monitoring of Guinea's first-line ACT will take place in four sites every two years (two sites in one year and the remaining two sites the following year). The activity will follow WHO's standard protocol. Funds are meant to cover monitoring activities in two sites (*see Case Management section for description and budget*).
7. *Support NMCP research committee:* Support a national malaria research committee housed within the NMCP to strengthen coordination of research activities by various individuals and institutions, promote collaboration, identify research priorities, and facilitate dissemination of research findings (\$4,000).
8. *Technical assistance for SM&E:* Support for two SM&E visits to provide technical assistance for ongoing SM&E activities including routine system strengthening, the health facility survey, and therapeutic efficacy monitoring. The country team and USAID Mission will help define the priority objectives for these visits (\$20,000).

## 7. Operational research

NMCP/PMI objectives

No PMI-supported operational research (OR) has been completed to date or is currently ongoing. The Guinea 2017 Malaria Program Review identified a lack of OR activities to inform both scientific and communications-related strategy development as a weakness. The updated National Strategic Plan

(2018-2022) reiterates the importance of conducting OR as an essential strategy to measure impact of control and prevention activities, and to identify gaps and weaknesses to improve program implementation. The NMCP, with support from PMI FY 2017 funds, is considering convening an Operational Research Prioritization Workshop in 2018 to set national research priorities in malaria control and continue to strengthening the NMCP research committee to follow up on moving the research agenda forward with other stakeholders.

Progress since PMI was launched and progress during the last 12-18 months

Not applicable

**8. Pre-elimination [Not applicable]**

**9. Staffing and administration**

Two health professionals serve as Resident Advisors (RAs) to oversee PMI in Guinea, one representing CDC and one 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 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 Mission Director. The day-to-day lead for PMI is delegated to the USAID Health Office Director and thus the two PMI RAs, one from USAID and one from CDC, report to the USAID Health Office Director for day-to-day leadership, and work together as a part of a single interagency team. Technical expertise housed in Atlanta and Washington complements PMI programmatic efforts.

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

The number of locally-hired staff and necessary qualifications to successfully support PMI activities either in Ministries or in USAID will be approved by the USAID Mission Director. 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 2018 funding: (\$1,022,500)

1. *CDC technical staff*: Support one Resident Advisor to support malaria activities and administration costs (\$260,000).

2. *USAID technical staff*: Support one Resident Advisor and one Foreign Service National to support malaria activities and administration costs (\$762,500).

**Table 1: Budget Breakdown by Mechanism****President's Malaria Initiative – GUINEA  
Planned Malaria Obligations for FY 2018**

<b>Mechanism</b>	<b>Geographic Area</b>	<b>Activity</b>	<b>Budget (\$)</b>	<b>%</b>
GHSC-PSM	National/PMI target zones	Commodity procurement of ITNs, SP, RDTs, ACTs, severe malaria treatments, SMC drugs, supply chain TA	5,113,000	37%
New bilateral	National/PMI target zones	Training, supervision, SBCC, capacity building, SMC, CCM, Malaria Focal points, diagnostics, ITN distribution	7,465,500	53%
USP	National	TA for pharmaceutical quality assurance	100,000	1%
Peace Corps IAA	National	Malaria volunteers and SPA projects	30,000	0%
HRH 2030	National	Leadership development	145,000	1%
Breakthrough - Research	PMI target zones	SBCC evaluation	75,000	1%
CDC IAA	National	TA and staff	309,000	2%
USAID	National	Staff	762,500	5%
<b>Total</b>			<b>14,000,000</b>	<b>100%</b>

**Table 2: Budget Breakdown by Activity**

**President's Malaria Initiative – GUINEA  
Planned Malaria Obligations for FY 2018**

Proposed Activity	Mechanism	Budget		Geographic Area	Description
		Total \$	Commodity \$		
<b>PREVENTIVE ACTIVITIES</b>					
<b>VECTOR MONITORING AND CONTROL</b>					
<b>Entomologic monitoring and insecticide resistance management</b>					
Entomological monitoring and capacity building	New bilateral	350,000		National	Support for vector surveillance and insecticide resistance monitoring in each of the four ecological zones, including transport and analysis of samples; capacity building for entomologists and support for NMCP staff supervision.
Advanced training for entomological technicians	New bilateral	30,000		National	Four regional technicians based in the sentinel sites will be trained at the Centre Muraz in Bobo-Dioulasso, Burkina Faso, to allow collections of mosquitoes and insecticide resistance tests to be done in Guinea with reduced supervision from the NMCP.
Support for the insectary and laboratory	New bilateral	25,000		National	Operational support for the insectary and associated laboratory to include, electricity, internet, general maintenance, security, and support for the biological specimens (mosquitoes and animal blood sources).
Technical assistance for entomological capacity building	CDC-IAA	29,000		National	Funding for two technical assistance visits from CDC to help develop entomological capacity at the national and prefectural level.
<b>Subtotal Entomonitoring</b>		434,000	0		
<b>Insecticide-treated Nets</b>					

Procurement and delivery of ITNs	GHSC-PSM	824,500	824,500	National	Procure 250,000 ITNs for the mass campaign distribution in 2019. Total PMI contributions for the mass campaign will amount to roughly 1,484,500 ITNs.
Distribution of ITNs for mass campaign	New bilateral	2,447,000		PMI target zones	PMI will be responsible for covering campaign distribution costs for the PMI target zones, which covers approximately half of the country and amounts to roughly 3,261,500 ITNs.
ITN durability monitoring	New bilateral	100,000		National	Prospective ITN monitoring to follow ITNs distributed during the 2019 universal coverage campaign, and will provide data on: 1) net survivorship and physical integrity; 2) bio-efficacy of insecticides; and 3) insecticidal content.
SBCC for ITN use	New bilateral	0 (Costs covered in SBCC section)		PMI target zones	SBCC for ITN use will be part of an integrated communication package including MIP and case management, following national standards and coordinated with what other donors are doing in their respective target areas.
<b>Subtotal ITNs</b>		3,371,500	824,500		
<b>Indoor Residual Spraying</b>					
N/A		0			
<b>Subtotal IRS</b>		0	0		
<b>SUBTOTAL VECTOR MONITORING AND CONTROL</b>		3,805,500	824,500		
<b>Malaria in Pregnancy</b>					
Procurement of SP	GHSC-PSM	161,000	161,000	National	Procure approximately 1,334,700 SP doses to ensure an adequate supply for pregnant women to receive three doses throughout their pregnancy. PMI will cover the entire estimated national need for SP (based on NMCP targets for ANC attendance and IPTp coverage).
Procurement of quinine tablets	GHSC-PSM	42,000	42,000	National	Procure quinine tablets to treat pregnant women diagnosed with malaria in their first trimester of pregnancy

Training/refresher training for malaria in pregnancy	New bilateral	0 (Costs covered under Case Management section)		PMI target zones	Provide refresher training for public and private health facility midwives and nurses to correctly deliver SP and MIP services in the context of the focused ANC approach. Refresher training will be provided as part of overall refresher training for service providers in health centers and health posts.
Supervision for health workers providing IPTp and other MIP services	New bilateral	0 (Costs covered under Case Management section)		PMI target zones	On-site supervision for public health facility midwives and nurses to provide MIP services in the context of the focused ANC approach. MIP supervision will continue to be part of an integrated approach for supervision at health facilities.
SBCC for MIP	New bilateral	0 (Costs covered under SBCC section)		PMI target zones	Support SBCC to promote ANC clinic attendance and educate pregnant women and communities on the benefits of IPTp. This activity will include support for community-level approaches, such as training of community-based workers as well as mass media (including local radio stations). This will be part of a larger integrated SBCC activity to satisfy needs for case management, ITNs, and IPTp.
<b>Subtotal Malaria in Pregnancy</b>		203,000	203,000		
<b>SUBTOTAL PREVENTIVE</b>		4,008,500	1,027,500		
<b>CASE MANAGEMENT</b>					
<b>Diagnosis and Treatment</b>					
Procurement of RDTs	GHSC-PSM	923,000	923,000	National	Procure 1,741,500 single-species RDTs for use in communities and health facilities.
Procurement of ACTs	GHSC-PSM	1,235,000	1,235,000	National	Procure 1,327,680 treatments of AL for use in communities and health facilities.
Procurement of injectable artesunate for treatment of severe malaria	GHSC-PSM	323,000	323,000	National	Procure about 128,000 vials of injectable artesunate to cover the entire national need for injectable artesunate, whose use is restricted to the hospital and CMC level.
Procurement of injectable artemether for treatment of severe malaria	GHSC-PSM	517,000	517,000	National	Procure 1,163,361 (544,745 80mg and 618,616 40mg) vials of injectable artemether to cover 50% of the national need for injectable artemether, targeted for use at the health center level

Procurement of rectal artesunate	GHSC-PSM	50,000	50,000	National	Procure approximately 120,000 capsules of rectal artesunate for community health workers to administer as pre-referral treatment for severe malaria cases in children.
Procurement of medications for SMC	GHSC-PSM	437,500	437,500	8 prefectures	Procure 1,427,608 doses of co-blistered AQ+SP, representing monthly doses for approximately 356,902 children (ages 3-59 months), administered by community volunteers for four months during the high transmission season from July to October.
Other costs for SMC	New bilateral	1,393,500		8 prefectures	Implement SMC in eight health districts in northern Guinea including four administrations from July to October, with costs covering planning, training, implementation, supervision, monitoring, SBCC, and advocacy.
Microscope consumables	GHSC-PSM	50,000	50,000	National	Procure reagents, slides, and repair materials for previously purchased microscopes.
Strengthen malaria diagnostics	New bilateral	100,000		National	Work with the NMCP and National Laboratory to develop and support a comprehensive quality assurance and quality control plan for malaria diagnostics, primarily microscopy, at all levels of the health system. This will include refresher training for laboratory technicians (and training on malaria microscopy for new laboratory technicians), training on microscope maintenance, and regular supervision of microscopy performance in health facilities, including systematic review of a predetermined number of positive and negative blood smears collected in the health facility, as well use of the NMCP slide bank. QA/QC for RDTs, based on observation and supportive supervision of health workers and CHWs, will take place during regular supervision.
Training/refresher training for malaria case management (diagnostics, treatment) and MIP	New bilateral	150,000		PMI target zones	Training in RDT use and malaria case management for health workers at hospitals, health centers, and health posts. Private health facilities will also be implicated in training. Training of CHWs not yet trained in RDT use, in treatment of uncomplicated malaria and referral for patients with severe malaria, as well as referral of pregnant women to ANCs.

Supervision of health workers and CHWs in case management (diagnostics, treatment, MIP)	New bilateral	600,000		PMI target zones	Enhanced clinical supervision at all levels of the health care system, including hospitals, health centers, health posts, and CHWs using comprehensive malaria-specific supervision tool. District Health Team staff and Regional Health Team staff will be actively involved in supervision activities, along with Health Center staff for supervision of CHWs. Supervision visits will include observation of patient consultations and feedback to providers.
Community case management	New bilateral	300,000		PMI target zones	Support the continued scale-up of community case management in PMI target areas, including expansion of the number of CHWs to 20 per health center by 2019. Support costs including transport, data collection tools, equipment (boots, gloves, flashlights), and supervision.
Therapeutic efficacy monitoring	New bilateral	100,000		National	Efficacy monitoring of Guinea's first-line ACT will take place in four sites every two years (two sites in one year and the remaining two sites the following year). The activity will follow WHO's standard protocol. Funds are meant to cover monitoring activities in two sites.
Malaria RDT QA/QC	New bilateral	50,000		National	Quality assurance/quality control to monitor RDT product quality and performance under field conditions.
SBCC for case management	New bilateral	0 (Costs covered under SBCC section)		PMI target zones	Support integrated SBCC at the community level to improve behaviors related to malaria prevention and treatment, including use of ITNs, IPTp, and care-seeking for fever. SBCC activities will also be targeted to health workers at all levels of the healthcare system, including health centers/hospitals, health posts, and community health agents.
<b>Subtotal Diagnosis and Treatment</b>		6,229,000	3,485,500		
<b>Pharmaceutical Management</b>					

Strengthen Logistic Management	GHSC-PSM	150,000		National	Support to strengthen the LMIS to enable the pharmaceutical system to collect, compile, and process consumption data to improve forecasting, procurement, and distribution of commodities. Includes support for internet connectivity and eLMIS training, supervision, quantifications/data use at the central (PCG, DNPM), regional, and prefectural levels. Support also includes integration of LMIS into the DHIS2 as well as quarterly malaria reviews.
Improve drug regulatory capacity	GHSC-PSM	100,000		National	Support improvement of the regulatory and oversight capacities of the DNPM, enhanced control of compliance to the pharmaceutical policy and regulations by PCG and the private pharmacies network. Support will also include the development of drug quality assurance tools.
Management of pharmaceutical supplies	GHSC-PSM	200,000		PMI target zones	Manage the distribution of PMI commodities down to the health facility level, including warehousing, transportation, storage and distribution as well as providing commodities assurance.
Strengthen pharmaceutical storage capacity	GHSC-PSM	100,000		PMI target zones	Support the PCG to improve infrastructure necessary to adequately store and manage commodities, focusing on the peripheral (regional and health facility) levels.
Strengthen DNPL and national laboratory for drug quality monitoring	USP	100,000		National	Support the DNLM and national laboratories to build capacity for in-country drug quality monitoring.
<b>Subtotal Pharmaceutical Management</b>		650,000	0		
<b>SUBTOTAL CASE MANAGEMENT</b>		6,879,000	3,485,500		
<b>HEALTH SYSTEM STRENGTHENING / CAPACITY BUILDING</b>					
Management support for NMCP	New bilateral	16,000		National	Support to the NMCP to assist them with team building, logistics and supervision, office management including communication capacity/connectivity.

Training and capacity building of NMCP staff	New bilateral	100,000		National	Support to the NMCP to build capacity via conference and workshop attendance, both national and international, and to improve program management (e.g., M&E, SBCC).
Support health district-level Malaria Focal Points	New bilateral	700,000		PMI target zones	Support 19 health district-level malaria focal points in each of the PMI-supported health districts, complementing a structure that has already been implemented with Global Fund support in the remaining health districts. Malaria focal points will be embedded in the DPS and serve as the liaison with the national program. Specifically, they will support commodity/logistics management activities, facility and community-level supervision, data collection and reporting, and assist with M&E and implementation activities (e.g., surveys, net distribution, SBCC).
Peace Corps Response Volunteer and Small Projects grants	PC-IAA	30,000		National	Support to maintain two Response Volunteers: one in Conakry and one in a regional hub (Boké, Labé, or Kankan) to coordinate and support volunteers' malaria activities throughout the country; one volunteer may be embedded with a PMI implementing partner at national or regional level (\$20,000). Support small project grants (\$10,000) for which volunteers can submit applications.
NMCP leadership development	HRH 2030	145,000		National	Support the capacity building of the NMCP, the DRS, and the DPS (training new NMCP staff, support to the coordination of DRS, DPS in the framework of the fight against malaria) through support for the continuation of the long-term technical advisor.
<b>SUBTOTAL HSS &amp; CAPACITY BUILDING</b>		991,000	0		
<b>SOCIAL AND BEHAVIOR CHANGE COMMUNICATION</b>					

SBCC for ITNs, MIP, and case management	New bilateral	500,000		PMI target zones	SBCC will be part of a communication package including ITN use, IPTp uptake, and case management at the health facility and community levels. Activities will be focused in PMI target zones but will be consistent with the NMCP's national communication plan and national policies, and coordinated with SBCC activities in the rest of the country.
SBCC evaluation	Breakthrough-Research	75,000		PMI target zones	PMI will provide technical assistance to the NMCP and the SBCC TWG to monitor and evaluate the new communications strategy derived from the new national malaria strategy and based on the results of the MICS-Palu.
SBCC for SMC	New bilateral	0 (Costs covered under Case Management [Other costs for SMC])		8 prefectures	Implement a focused SBCC campaign to prepare targeted communities for SMC implementation to encourage acceptance of and adherence to treatment on the part of the community. Specific activities which will include a mix of local radio and interpersonal communications.
<b>SUBTOTAL SBCC</b>		575,000	0		
<b>SURVEILLANCE, MONITORING, AND EVALUATION</b>					
Support routine data collection for malaria	New bilateral	100,000		PMI target zones	Provide support at community, health facility, and district levels to facilitate collection and reporting of routine malaria data, including provision of supplies (e.g., registers) and development of standard procedures for data capture and reporting.
Support data quality improvement and data use	New bilateral	200,000		PMI target zones	Provide support at district and national levels for routine information systems on data use, including data review and analysis, through the continuation of quarterly review meetings and production and dissemination of malaria bulletins.

Health facility supervision and DQA	New bilateral	150,000		PMI target zones	Conduct quarterly on-site supervision missions to select health facilities, including a standardized data quality audit (DQA) tool for reported epidemiological, case management, and commodity data. These missions would include a team of supervisors with representation from the NMCP, PMI implementing partners, and district health offices.
Epidemiological investigations	New bilateral	50,000		National	Conduct quarterly epidemiologic investigations in response to trends detected through routine data. Teams will investigate quality of reported data, health service provision, entomological parameters, and community behaviors to understand apparent trends.
ITN durability monitoring	New bilateral	0 (Costs covered under ITN section)		National	Prospective ITN monitoring will continue to follow ITNs distributed during the 2016 universal coverage campaign, and will provide data on: 1) net survivorship and physical integrity, 2) bioefficacy of insecticides, and 3) insecticidal content.
Therapeutic efficacy monitoring	New bilateral	0 (Costs covered under Case Management section)		National	Efficacy monitoring of Guinea's first-line ACT will take place in four sites every two years (two sites in one year and the remaining two sites the following year). The activity will follow WHO's standard protocol. Funds are meant to cover monitoring activities in two sites.
Support NMCP Research Committee	New bilateral	4,000		National	Support a national malaria research committee housed within the NMCP to strengthen coordination of research activities by various individuals and institutions, promote collaboration, identify research priorities, and facilitate dissemination of research findings.
Technical assistance for SM&E	CDC-IAA	20,000			Support for two SM&E visits to provide technical assistance for ongoing SM&E activities including routine system strengthening, the health facility survey, and therapeutic efficacy monitoring. The country team and USAID Mission will help define the priority objectives for these visits.
<b>SUBTOTAL SM&amp;E</b>		524,000	0		
<b>OPERATIONAL RESEARCH</b>					

<b>SUBTOTAL OR</b>		0	0		
<b>IN-COUNTRY STAFFING AND ADMINISTRATION</b>					
CDC	CDC-IAA	260,000			Support one Resident Advisor to support malaria activities and administration costs.
USAID	USAID	762,500			Support one Resident Advisor and one Foreign Service National to support malaria activities and administration costs.
<b>SUBTOTAL IN-COUNTRY STAFFING</b>		1,022,500	0		
<b>GRAND TOTAL</b>		<b>14,000,000</b>	<b>4,513,000</b>		