

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 2015 appropriation. If any further changes are made to this plan it will be reflected in a revised posting.



PRESIDENT'S MALARIA INITIATIVE



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Guinea

Malaria Operational Plan FY 2015

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ABBREVIATIONS AND ACRONYMS

AS-AQ	Artesunate-amodiaquine
ACT	Artemisinin-based combination therapy
ANC	Antenatal care
BCC	Behavior change communication
CDC	Centers for Disease Control and Prevention
CHW	Community health worker
DHS	Demographic Health Survey
DNPL	National Directorate of Pharmacies and Laboratory
EPI	Expanded program on immunization
EU	European Union
EUV	End-use verification
FSN	Foreign service national
FY	Fiscal year
GAVI	Global Alliance for Vaccines and Immunizations
Global Fund	Global Fund to Fight AIDS, Tuberculosis and Malaria
GOG	Government of Guinea
HMIS	Health Management Information System
IDB	Islamic Development Bank
IRS	Indoor residual spraying
IPTp	Intermittent preventive treatment for pregnant women
ITN	Insecticide-treated mosquito net
LLIN	Long lasting insecticide-treated mosquito net
M&E	Monitoring and evaluation
MIP	Malaria in pregnancy
MIS	Malaria Indicator Survey
MOH	Ministry of Health and Public Hygiene
NMCP	National Malaria Control Program
NGO	Non-governmental organization
PCG	Central Pharmacy of Guinea
PMI	President's Malaria Initiative
RA	Resident advisor
RBM	Roll Back Malaria
RDT	Rapid Diagnostic Test
SP	Sulphadoxine-pyrimethamine
USAID	United States Agency for International Development
UNICEF	United Nations Children's Fund
WHO	World Health Organization

EXECUTIVE SUMMARY

Malaria prevention and control are major foreign assistance objectives of the U.S. Government. In May 2009, President Barack Obama announced the Global Health Initiative (GHI) to reduce the burden of disease and promote healthy communities and families around the world. The President's Malaria Initiative (PMI) is a core component of the GHI, along with human immunodeficiency virus/acquired immunodeficiency syndrome, tuberculosis, maternal and child health, family planning and reproductive health, nutrition, and neglected tropical diseases.

PMI was launched in June 2005 as a five-year, \$1.2 billion initiative to rapidly scale up malaria prevention and treatment interventions and reduce malaria-related mortality by 50% in 15 high-burden countries in sub-Saharan Africa. With the passage of the 2008 Lantos-Hyde Act, funding was extended and, as part of the GHI, the goal of PMI was adjusted to reduce malaria-related mortality by 70% in the original 15 countries by the end of 2015. Programming of PMI activities follows the core principles of GHI: encouraging country ownership and investing in country-led plans and health systems; increasing impact and efficiency through strategic coordination and programmatic integration; strengthening and leveraging key partnerships, multilateral organizations, and private contributions; implementing a woman- and girl-centered approach; improving monitoring and evaluation (M&E); and promoting research and innovation.

In June 2011, Guinea was selected to receive funding during the sixth year of PMI. Guinea has year-round malaria transmission with high transmission from July through October in most areas. Malaria is considered the number one public health problem in the country. National statistics in Guinea show that among children less than five years of age, malaria accounts for 31% of consultations, 25% of hospitalizations, and 14% of hospital deaths in public facilities.

A Demographic and Health Survey (DHS) was carried out in mid-2012, and the results provide concrete baseline information for key malaria indicators. The DHS reported a wide range of malaria prevalence across Guinea's regions, ranging from 66% in Faranah to 3% in Conakry, but with a relatively high prevalence of 44% as the national average. Survey estimates show that approximately 47% of households own at least one insecticide-treated mosquito net (ITN), and 26% and 28% of children under five and pregnant women, respectively, slept under an ITN the night before the survey. Roughly 18% of women surveyed had received at least two doses of intermittent preventive treatment during their last pregnancy, and less than 1% of children under five with fever in the two weeks preceding the survey received artemisinin-based combination therapy (ACT) on the same or next day of fever development.

This FY 2015 Malaria Operational Plan (MOP) was developed with the participation of the National Malaria Control Program (NMCP) and other country partners during a planning visit carried out on April 24-May 2, 2014 by staff from the U.S. Agency for International Development (USAID) and the Centers for Disease Control and Prevention (CDC). The activities that PMI is proposing for this Year 5 complement the contributions of other partners and directly support the NMCP's strategic plan. PMI will support activities related to malaria policies, health system strengthening, monitoring and evaluation, and commodity procurement and distribution

on a nation-wide level, with remaining activities targeted to Conakry's 5 communes and 14 of Guinea's prefectures. The NMCP will submit a concept note for the new funding mechanism of Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund) that will procure commodities for nationwide distribution, but will target the remaining 19 prefectures of the country for select activities such as training and supervision. The proposed FY 2015 PMI budget for Guinea is \$12,500,000. The following paragraphs describe current progress to date as well as the FY 2015 plans:

Insecticide-Treated Nets (ITNs): The national malaria strategy is to support free distribution of long lasting insecticide-treated nets (LLINs) through antenatal care (ANC) and vaccination clinics; free distribution through mass campaigns; and the sale of LLINs in the commercial sector. In May 2013, more than 3.2 million LLINs were distributed in the 19 prefectures supported by the Global Fund. In October/November 2013, a total of 2,061,584 nets were distributed in 14 prefectures supported by PMI. The campaign will be completed in 2014 with the distribution of nets in the five communes of Conakry. With FY 2015 funding, PMI will procure 565,000 LLINs: 515,000 for the next mass distribution planned for 2016, and 50,000 for routine distribution. PMI will also provide funds for distribution of both campaign and routine nets. In addition, PMI plans to support behavior change communication (BCC) activities, including mass media and community-level approaches (e.g., local radio stations, women's groups) to increase demand for and promote correct and consistent use of LLINs.

Indoor residual spraying (IRS): The new national malaria strategy includes IRS, but this activity is not currently implemented by the government. Limited spraying in the country is carried out by mining companies which spray work sites and surrounding areas. Current PMI support is being 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 2015 funds, PMI will continue to support surveillance and support skills building within the NMCP and other national structures to conduct entomologic surveillance.

Malaria in Pregnancy (MIP): The national malaria strategy, which was developed and adopted in collaboration with the National Safe Motherhood Program, follows current World Health Organization (WHO) recommendation. It includes the administration of intermittent preventive treatment (IPTp) with sulfadoxine-pyrimethamine (SP) under the direct observation of an ANC attendant, at four-week intervals, starting in the second trimester, with at least three treatments given before delivery, and the provision of an ITN at the time of the first visit. The data from the 2012 DHS show that while 85% of pregnant women make at least one ANC visit, only 18% receive two or more doses of IPTp (up from 3% in the 2005 DHS). During the last 12 months, PMI procured and distributed nationwide 375,000 SP treatments, and has ordered 180,000 ITNs, which will be targeted for distribution through ANC, most likely in late 2014 and into 2015. Using FY 2015 funds, PMI will procure approximately 922,500 treatments of SP to meet approximately 60% of the nationwide need, and purchase 50,000 ITNs for routine distribution. PMI support will train and facilitate supervision in PMI target zones as well as promote IPTp uptake and ITN use among pregnant women as part of an integrated communication package.

Case Management – Diagnosis: The national malaria strategy and policy recommends diagnostic confirmation of all suspected malaria cases, among all patients, with either microscopy (when available) or a rapid diagnostic test (RDT), before they are treated. RDTs are provided free of charge (but microscopy is not free). In addition to ensuring that RDTs are available in health facilities, the NMCP is working toward having a continuous supply of RDTs at the community level for use by community health workers (CHWs). During the last 12 months, PMI procured 5 million RDTs for the entire country. PMI is also in the process of procuring microscopes and related laboratory supplies for select health facilities, which will be combined with previous microscope procurements to make available 100 microscopes: 63 from PMI and 37 from Global Fund. This will ensure that each of the country's 36 hospitals, as well as about 28 health centers will be fully equipped: two microscopes per hospital, and one microscope in each of 28 selected health centers. PMI supported the training of 41 health facility clinicians and 554 CHWs in RDT use, and 25 laboratory technicians in RDT use and microscopy. Using FY 2015 funds, PMI will procure 3,460,000 RDTs and related laboratory supplies, as well as provide support for training and supervision of health facility clinicians and CHWs in RDT use, and laboratory technicians in microscopy and RDT use. Finally, PMI will continue to reinforce the quality control/quality assurance system for laboratories it helped established using FY 2014 funding.

Case Management - Treatment: In Guinea, the first-line ACTs for uncomplicated malaria are artesunate-amodiaquine (AS-AQ) and artemether-lumefantrine (AL). These recommendations apply to facilities in all sectors and at all levels of the health system. In cases of AS-AQ or AL intolerance, side effects, or treatment failure, the patient should be referred to the nearest health facility. 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 AS-AQ. The ACTs are free for adults and children (as are RDTs), but patients have to pay for other drugs received (such as anti-pyretic) as well as for microscopy tests. As stated in the strategy, the first choice for treatment of severe malaria is intravenous or intramuscular injectable artesunate. Other acceptable treatments include injectable artemether or quinine. With FY 2015 funding PMI will procure and distribute approximately 1,735,000 ACTs for treatment of uncomplicated malaria; 76,100 treatments of injectable artesunate and 20,000 treatments of injectable artemether for severe malaria; and 15,500 treatments of rectal artesunate for pre-referral treatment of severe malaria in the community. PMI will also support training and supervision of health workers and CHWs.

Pharmaceutical Management: The national policy is to deliver malaria treatment and prevention commodities through the public system via the *Pharmacie Centrale de Guinée* (PCG). Since PMI's inception in Guinea in FY 2011, efforts to assist this institution and enable it to perform the core functions of supply chain management and distribution of commodities to end users have been slowed down by lack of commitment from PCG leadership. As a result, PMI decided in FY 2014 to ensure that PMI commodities are distributed through a temporary arrangement. In the meantime, efforts to support improvement of the drugs regulatory system have also been very slow. However, with PMI's endorsement of the findings of the audit of the Guinea pharmaceutical system conducted with European Union support in 2012, PMI and its supply chain partners are assisting both PCG and the Directorate of Pharmacies and Laboratories (DNPL) to implement the recommendations, mainly governance-related reforms that will

significantly improve their performance. With FY 2015 funding, PMI will continue its support for the implementation of those reforms as well as strengthening the logistic management information system ensuring that consumption data are collected on a regular basis to quantify needs and ensure effective distribution of all malaria commodities regardless of the source.

Monitoring and Evaluation (M&E): A new national M&E plan has been validated to complement the revised national strategic plan. The M&E plan identifies indicators, targets, and data sources and emphasizes data collection, data quality assurance, and dissemination and use of data. The 2012 DHS report has been finalized providing a baseline for PMI and the country itself, as it works to achieve Roll Back Malaria (RBM) objectives. A malaria indicator survey (MIS), planned for 2014 but postponed to 2015 due to the Ebola outbreak, will provide interim estimates for coverage indicators, as well as malaria prevalence. A new monthly malaria reporting form is currently being used in the PMI target zones with completion rates of 80%. This reporting tool will be rolled out to the remaining districts in the coming year to ensure routine malaria data reflects the entire country. Several new M&E activities are currently being planned for implementation in the next year: a Service Availability and Readiness Assessment (SARA) survey, health facility-based surveillance, LLIN monitoring, and therapeutic efficacy monitoring. With FY 2015 funding, PMI will continue to support the end-use verification survey (EUV), health facility-based surveillance, and routine system strengthening. It will also support a health facility survey to assess progress in case management practices, as well as prospective LLIN durability monitoring starting with the next mass campaign, and therapeutic efficacy monitoring of Guinea's first-line ACT in two of the four monitoring sites.

Behavior Change and Communication (BCC): The NMCP's malaria communication plan was revised in 2012 and emphasizes appropriate strategies and channels to reach various target groups with culturally appropriate messaging on malaria prevention and control. A BCC Technical Working Group has yet to be established but that is a key activity that will be implemented in the coming year. In the last year, BCC activities have focused most intently on the LLIN mass distribution campaign. BCC activities have also focused on training of health workers, including at the community level, to conduct sensitization activities around an integrated package of malaria prevention and treatment messages. Animators from local non-governmental organization (NGOs) have also been trained to implement BCC activities. The PMI implementing partner is also increasing focus on building the evidence base for interventions through formative data collection. With FY 2015 funding, BCC activities will continue to focus on the key malaria prevention and treatment messages developed and agreed upon by the Technical Working Group while strengthening efforts at monitoring and evaluation. A portion of BCC funding will also be devoted to an integrated package of health messaging.

Health Systems Strengthening/Capacity Building: Guinea's health system continues to face important challenges, among which the management capacity of the NMCP and human resource limitations for health are the most critical. During the past year, PMI support to the health system has focused on assessing the organizational and management capabilities of the NMCP in order to support the Government of Guinea (GOG) to reinforce the program. PMI also supported training of health workers at health facility and community levels in RDTs use and case management in order to improve malaria care delivery. PMI will support the health system through implementing recommendations of the NMCP assessment and through training of newly

recruited health workers who will be deployed to PMI-supported prefectures and beyond. PMI will also focus on supporting supervision of the logistic and pharmaceutical management systems as well as monitoring and evaluation through establishing a malaria database that will link up with the national health management information system.

STRATEGY

INTRODUCTION

The President's Malaria Initiative (PMI) is a core component of the Global Health Initiative (GHI), along with HIV/AIDS, and tuberculosis. PMI was launched in June 2005 as a five-year, \$1.2 billion initiative to rapidly scale up malaria prevention and treatment interventions and reduce malaria-related mortality by 50% in 15 high-burden countries in sub-Saharan Africa. With passage of the 2008 Lantos-Hyde Act, funding for PMI was extended and, as part of the GHI, the goal of PMI was adjusted to reduce malaria-related mortality by 70% in the original 15 countries by the end of 2015. This will be achieved by continuing to scale up coverage of the most vulnerable groups — children under five years of age and pregnant women — with proven preventive and therapeutic interventions, including artemisinin-based combination therapies (ACTs), insecticide-treated nets (ITNs), intermittent preventive treatment for pregnant women (IPTp), and indoor residual spraying (IRS).

Guinea was selected as a PMI country in FY 2011. Large-scale implementation of ACTs and IPTp began in Guinea in 2011 and has progressed rapidly with support from PMI and other partners. Rapid diagnostic tests (RDTs), ACTs, and IPTp are now available across the country in public health facilities. In addition, over 5 million long-lasting ITNs have been distributed through a mass distribution campaign.

This FY 2015 Malaria Operational Plan (MOP) presents a detailed implementation plan for Guinea, based on the United States government malaria strategy and Guinea's national malaria strategy. The MOP was developed in consultation with the National Malaria Control Program (NMCP) and with the participation of national and international partners involved in malaria prevention and control in the country. The activities that PMI proposes to support reflect priorities outlined in the National Malaria Control Strategic Plan for 2013-2017 (national strategy) 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). 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 NMCP and PMI targets, and provides a description of planned FY 2015 activities.

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 (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 11.7 million people is at risk of malaria.¹ According to the 2013 Human Development Index, Guinea has among the lowest health and

¹ According to the NMCP 2014 gap analysis, the population in 2014 is projected to be 11,767,987; 2015 is estimated to be 12,132,795. This reflects a 3.1% population growth rate based on 2009 census figures.

development indicators, ranking 178 out of 187 countries.² Poverty has been steadily increasing over the past decade, and as of 2010 over half (58%) of Guinea's population lives below the Guinean government's poverty line of \$196 USD per person per year.³ The rate of alphabetization is 34%. Infant and under-five mortality rates are 81 and 130 per 1,000 live births, respectively.⁴ Although the antenatal care (ANC) coverage of at least one visit is high (88%), the lifetime risk of maternal death is one of the worst in the world, at 1 in 26.⁵

Guinea has year-round malaria transmission with peak transmission from July through October in most areas. The two main vectors are *Anopheles gambiae* and *Anopheles 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 DHS). The annual incidence rate in 2011 is estimated to be 92/1,000.⁶ Malaria mortality, however, is clearly under-reported in health facilities, as national statistics show only 530 deaths due to malaria from 2009-2011. National statistics in Guinea also show that among children less than five years of age, malaria accounts for 31% of consultations, 25% of hospitalizations, and 14% of hospital deaths.⁷ This estimate does not include malaria cases seen in the community or in private facilities. Among the general population, malaria is also the primary cause of consultations (34%), hospitalizations (31%), and death (14%) according to the Ministry of Health (MOH).⁸ Most malaria cases reported through the national health management information system are clinically diagnosed, and therefore may not accurately reflect the true malaria burden.

According to the 2012 Demographic Health Survey (DHS), the prevalence of malaria ranges between 3% in Conakry and 66% in Faranah with a national prevalence of 44% for children 6-59 months using microscopy, and 47% based on RDT results. Parasitemia prevalence shows strong variations by place of residence with 53% in rural areas compared to 18% in urban areas (strongly influenced by Conakry). The survey results also show that 77% of children 6-59 months have anemia, and 16% have severe anemia (Hgb<8g/dl).⁹

Coverage estimates for key interventions show room for improvement in reaching targets. A little more than half of households surveyed have at least one mosquito net, treated or untreated (53%), while 47% of households own at least one ITN. These proportions are somewhat higher in rural areas (55% and 50%) than in urban (48% and 42%). The proportions of children who slept under any mosquito net and under an ITN the night before the survey are 29% and 26%, respectively. These proportions are higher in rural areas (30% and 27%) than in urban (28% and 24%). 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 51% with no difference between urban and rural households. One in three pregnant women reported sleeping under any mosquito net (33%) while

² UNDP 2013 Human Development Report. Available at: <http://hdr.undp.org/en/reports/global/hdr2013/download/>

³ International Monetary Fund: Guinea: Poverty Reduction Strategy Paper - Annual Progress Report: <http://www.imf.org/external/pubs/ft/scr/2012/cr1261.pdf>.

⁴ UNICEF: The State of the World's Children 2012. Available at: <http://www.unicef.org/sowc2012/statistics.php>.

⁵ Ibid.

⁶ National Malaria Control Strategy 2013-2017.

⁷ Malaria M&E Strategy 2014-2017.

⁸ Plan de Gestion des Achats et des Stocks, May 2011.

⁹ A measure of hemoglobin <8g/dl is the value typically used as an indirect indicator of anemia associated with malaria.

28% reported sleeping under an ITN. In households with an ITN, the proportion of pregnant women who slept under an ITN the night before the survey was 59%. This proportion is higher in urban (62%) than rural (58%) areas. Coverage with IRS remains relatively low as this intervention has not been part of the national malaria control strategy. Therefore, limited IRS activities are happening in the country (1.7% of households per year, 2012 DHS), mainly in the mining sector (BHP Biliton, Global Alumina, Vale and RioTinto).

Malaria treatment indicators reflect low coverage: Among children less than five years old with fever in the two weeks before the DHS survey, 37.1% had sought advice or treatment for the fever, 28% had received any antimalarial treatment, and less than 1% received an ACT on the same or next day. While 17% received any antimalarial treatment (same or next day), many of these (6.1%) received chloroquine. Among children less than five years old with fever in the last two weeks before the survey who received any antimalarial, 4.8% received an ACT, while 35.7% received chloroquine and 30.7% received quinine.

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. PMI will focus on improving prevention of malaria in pregnancy (MIP) as only 18% of women reported receiving two or more doses of SP during their last pregnancy (2012 DHS).

COUNTRY HEALTH SYSTEM DELIVERY STRUCTURE AND MOH ORGANIZATION

The health care system in Guinea is managed by the MOH and based on the administrative division of the country into eight regions. Within the eight regions are 38 health districts composed of 334 rural communities 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:

- The central level includes the cabinet of the Minister of Health (Secretary General, advisers, chief of staff, and support services), National Directorates, and related services.
- The intermediate level includes the Regional Directorates of Health (DRS).
- The peripheral level includes the Prefectural and Municipal Directorates of Health (DPS/DCS).

The provision of care is provided by public and private subsectors. Public health facilities consist of health posts, health centers, prefectural hospitals, regional hospitals, and national hospitals. Community health workers (CHWs) attached to public facilities 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:

1. The first level is represented by the health district and consists of three levels:¹⁰

¹⁰ The number of health posts and hospitals are based on 2011 estimates; the number of health centers is based on a 2013 estimate.

- About 963 health posts provide basic primary care and serve several villages (about 3,000 people) each. Health posts are staffed by an *agent technique de santé*, a clinical officer with three years of training.
 - About 413 health centers provide preventive and curative care and supervise the health posts. Health centers are staffed by several clinicians, including nurses, midwives and doctors.
 - About 33 district hospitals serve as a reference for health centers and provide care to an average of 285,777 people in the district.
2. The second level is represented by the regional hospital and serves as a reference for the districts. There are seven regional hospitals plus nine municipal hospitals providing care to an estimated 1,401,400 people in the region.
 3. 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.

In addition to public structures, Guinea has a large number of private structures and traditional practitioners. At the community level, health 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 is investing heavily 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 elaborated; 3,300 CHWs have been trained and now provide health education and basic curative care to surrounding communities. The cadre of CHWs has been specifically trained to diagnose 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.

COUNTRY MALARIA CONTROL STRATEGY

The national strategic plan covers a period of five years: 2013-2017. The goal is to reduce malaria-related morbidity by 75% compared to 2000, and to reduce malaria mortality to near zero by the end of 2017.

National Strategic Plan objectives:

- Protect at least 80% 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 and IPTp;
- 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, confessional, 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 Integrated Disease Surveillance and Response 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 (BCC) 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 partnership of Roll Back Malaria (RBM) to mobilize funding through the state budget, the private sector, and partners; and
- Strengthen international and sub-regional cooperation in the fight against malaria.

INTEGRATION, COLLABORATION AND COORDINATION

The NMCP has developed partnerships with various organizations and institutions involved in the fight against malaria, including: PMI, Research Triangle Institute, Plan Guinea, Population Services International, Catholic Relief Services, German Development Cooperation, *Medecins sans Frontières*, Helen Keller International, Engender Health, Rio Tinto, Islamic Development Bank, World Health Organization (WHO), United Nations Children’s Fund (UNICEF), World Bank, Japanese International Cooperation Agency, Global Fund, and sub-regional organizations. This partnership reinforces the collaboration and coordination between malaria stakeholders for the benefit of the Guinean population and will be strengthened by the establishment of a Coordinating Committee of functional partners.

The goal of integration is to increase efficiency in the use of available health resources in the country and coordinate the participation of partners in order to reduce malaria mortality and morbidity, particularly among children and pregnant women. According to the new national strategy, dwindling resources, the involvement of various partners, and the need to rapidly scale up interventions highlight the necessity and urgency of developing mechanisms for integration and effective coordination at national, regional, and district levels.

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. Partnership between private and public entities is another challenge that will be achieved through a contractual approach in the implementation of control activities. Integration of the private and religious sectors in Guinea is also a priority. Importantly,

the MOH has established an inter-sectorial collaboration by developing a partnership between the MOH and other non-health sectors such as education, environment, social affairs, the private sector, and other non-governmental structures.

PMI GOALS, TARGETS & INDICATORS

The goal of PMI is to reduce malaria-associated mortality by 70% compared to pre-Initiative levels in the 15 original PMI countries and to reduce malaria-associated mortality by 50% in new countries added to PMI in FY 2010 and later, including Guinea. By the end of 2015, PMI will assist Guinea to achieve the following targets in populations at risk for malaria:

- >90% of households with a pregnant woman and/or children under five will own at least one ITN;
- 85% of children under five will have slept under an ITN the previous night;
- 85% of pregnant women will have slept under an ITN the previous night;
- 85% of houses in geographic areas targeted for IRS will have been sprayed;
- 85% of pregnant women and children under five will have slept under an ITN the previous night or in a house that has been sprayed with IRS in the last 6 months;
- 85% of women who have completed a pregnancy in the last two years will have received two or more doses of IPTp during that pregnancy;
- 85% of government health facilities have ACTs available for treatment of uncomplicated malaria; and
- 85% of children under five with suspected or confirmed malaria will have received treatment with ACTs within 24 hours of onset of their symptoms.

PROGRESS ON COVERAGE/IMPACT INDICATORS TO DATE

Progress in malaria prevention and treatment in Guinea will be assessed by comparing the standardized coverage indicators for ITN ownership and use, IPTp, and prompt and effective treatment across national household surveys. The 2012 DHS provides the first national parasitemia measures. Important progress is shown between the 2005 and 2012 DHS, likely reflecting support from Global Fund Rounds 2 and 6, including a targeted ITN distribution campaign in 2009. In recent years, however, stockouts of ITNs, ACTs, and other commodities have slowed initial gains, as reflected in the 2012 DHS results.

According to the 2005 DHS, only 27% of households owned any mosquito net with less than 4% owning an ITN. Only 1% of children under five and pregnant women reported sleeping under an ITN. Less than 3% of women reported receiving at least two doses of SP during their last pregnancy. The 2007 Multiple Indicator Cluster Survey (MICS) showed slight improvements in ITN ownership and use, but these rates are still quite low.

The 2009 and 2010 national coverage surveys, conducted with Global Fund financing, appear to show substantial improvements in key indicators. After a nationwide targeted ITN distribution campaign in 2009, the 2010 survey predictably shows increases in ITN ownership and use: 79% of households reported owning at least one ITN, and 60% of children under five and 47% of pregnant women reported sleeping under an ITN, respectively. Even more striking are the apparent gains in IPTp coverage in 2009 and 2010 compared to the 2005 DHS. While not even

3% of women received two or more doses of SP during their last pregnancy in 2005, 36% and 41% received it in 2009 and 2010, respectively. Direct comparisons between the DHS and the 2009 and 2010 national coverage surveys should be made with caution due to some apparent methodological differences in how indicators were calculated and reported. The specific differences are noted in the indicator table.

The 2012 DHS provides an important data point for ITN coverage since it was conducted prior to the universal coverage campaign implemented in phases from May 2013 through May 2014. Not surprisingly, since over two years have passed since the last targeted distribution (with no routine distribution in the interim), ITN coverage and use indicators dropped since the 2010 survey, with less than half of all households reportedly owning an ITN, and 26% and 28% of children under five and pregnant women, respectively, reporting sleeping under an ITN. Coverage of IPTp (at least two doses of SP) has also dropped to 18%. The prompt and effective treatment indicator is particularly low with less than 1% of children under five with fever receiving treatment with ACTs within the same or next day of fever onset. Estimates for malaria-associated anemia (cut-off value of Hgb<8g/dl) show 16% prevalence for children 6-59 months. The country's first parasitemia measures (via microscopy) show an estimated prevalence of 44% for the country. Conakry has the lowest prevalence at 3%, while the regions with the highest prevalence estimates are Faranah and N'Zérékoré with 66% and 59%, respectively.

The following table summarizes coverage indicators for malaria control, as well as anemia and parasitemia, from national household surveys since 2005. Due to some variations in survey methodology, not all indicators are directly comparable; please consider the footnotes at the bottom of the table.

Malaria Indicator	DHS 2005	MICS 2007	National Coverage Surveys		DHS 2012
			2009	2010	
Percent of households with at least one ITN	3.5%	12.5%	23.4%	78.8%	47.4%
Percent of children under five who slept under an ITN the previous night	1.4%	6.7%	12.0%	60.4%	26.1%
Percent of pregnant who slept under an ITN the previous night	1.4%	5.1%	24.7%*	46.8%*	28.3%
Percent of women who received 2+ doses of IPTp during their last pregnancy in the last 2 years	2.7%	-	35.9%**	41.0%**	17.8%
Percent of children under five years of age with fever in the last 2 weeks who received treatment with ACTs within 24 hours of onset of fever	***	***	1.3%	***	0.5%
Percent of children age 6-59 months with severe anemia (Hgb <8g/dl) ¹¹	14.5%	-	-	-	15.9%
Percent of children age 6-59 months with parasitemia according to microscopy	-	-	-	-	43.9%

* The 2009 survey report specifies use of LLINs by pregnant women while the 2010 survey report does not (i.e., it includes any treated nets).

** The 2009 and 2010 coverage surveys include a five-year look-back period instead of a two-year period and do not specify that at least one dose was taken at an ANC visit.

*** ACTs were not the first-line treatment at the time of the DHS and MICS surveys; the 2010 coverage survey report did not provide adequate data to calculate this indicator in the standard format (i.e., the denominator could not be determined).

OTHER RELEVANT EVIDENCE ON PROGRESS

As PMI begins its fourth year of program implementation and benefits from some continuity of operations, it is evident that the country's malaria program has achieved (or is in the process of achieving) some major milestones: the first universal coverage long lasting insecticide-treated net (LLIN) campaign, decreased stockouts of ACTs, roll out of RDTs, and the first nationally representative parasitemia estimates. In addition, both epidemiological and commodities malaria data in the PMI target zones are now flowing from health facilities to the district level to be compiled and sent to the national level.

There is also evidence of increased capacity at the NMCP to coordinate and guide activities throughout the country. New staff has been hired and important processes such as the Malaria Program Review have helped the program take a critical look at its operations and revise its National Strategic Plan, M&E Plan, and policy guidelines which were signed in early 2014.

¹¹ A measure of hemoglobin <8g/dl is the value typically used as an indirect indicator of anemia associated with malaria.

Local research conducted by the Mafèrinyah Training and Research Center is contributing to the knowledge base of malaria in Guinea:

- A therapeutic efficacy study conducted between 2011 and 2012 in subjects aged six months to 45 years has shown adequate clinical and parasitological response of 97%.¹² This study followed the WHO protocol, including a standard 28-day follow-up period.
- An epidemiological study aimed at examining the seasonal burden of malaria (low and high transmission seasons) in Guinea's four climatic zones is ongoing.
- Recent discussions with the Mafèrinyah researchers have revealed potential areas for PMI collaboration for operational research and M&E.

A new collaboration between the CDC entomology team and the University of Gamal Abdel Nasser of Conakry will be focusing on descriptive entomological monitoring of vectors in the country and supporting a new insectary in Conakry.

CHALLENGES, OPPORTUNITIES & THREATS

Challenges and threats

The NMCP infrastructure is weakened by inadequate material, human, and financial resources:

- Variable electricity supply, no generator, no network internet connectivity, little fuel for vehicles, and a difficult location in the middle of a busy market pose challenges to productivity.
- Challenges related to staff training and capacity (and in some cases with unclear terms of reference) prevent the NMCP from performing at full potential given limited resources.
- Lack of finances precludes the NMCP from procuring needed supplies and commodities and meeting operational expenses. As an illustration, only 2.54% (approximately \$22 million) of the national budget is allocated to the health sector by the Government of Guinea (GOG). Seventy percent of the annual national budget pays for salaries, leaving only \$6 million to purchase vaccines and support management of health facilities.

Limitations to capacity for case management are linked to the following constraints:

- Limited commodities, stockouts and lack of health care providers and supervisors results in non-adherence to the national policy by providers.
- Inadequate M&E and data collection systems (health and logistical information management) limit the NMCP's ability to obtain reliable data on disease burden; service access and utilization; quality and quantity of services provided; and needs, stocks, and consumption of commodities to guide policy and practice especially in the Global Fund zone.
- The supply chain and pharmaceutical system is very weak and under reform based on the European Union (EU) audit report recommendation. This negatively affects the performance of the NMCP and results in frequent stockouts.

Opportunities

¹² Oral communication, *La Société Ivoirienne de Parasitologie et de Mycologie* (SIPAM), conference, Abidjan, 2013.

Active engagement of donors and partners represent opportunities for progress in malaria control in Guinea. In addition to the major donors, other partners such as the Islamic Development Bank, Japanese International Cooperation Agency, WHO, UNICEF, World Bank, and local NGOs will help the program to leverage resources as long as they are fully engaged with the NMCP. The strong potential for collaboration with the Peace Corps includes having volunteers support malaria prevention and education activities. Additionally, improved communications with the Maferinyah Training and Research Center has the potential to support improved training and research in Guinea. Although considered symbolic, the contribution of mining companies to malaria control efforts in Guinea is an opportunity that can be better leveraged with stronger coordination and constant dialogue between the GOG and mining operators.

Discussions amongst the NMCP, PMI, and the Global Fund have resulted in an agreement to pursue a new approach for commodity procurement and distribution throughout the country. Rather than divide the country in “target zones,” each donor will procure commodities to meet national gaps in coverage and distribute commodities as needed without differentiation between zones. This mechanism will hopefully help to mitigate some of the stockout issues that have been a problem in the country.

PMI SUPPORT STRATEGY

In supporting Guinea’s national strategic plan, PMI focuses on the key intervention areas of ITN use, IPTp, and case management, including support for malaria diagnostics and treatment at the health facility and community levels. PMI also supports the cross-cutting areas of commodity management, entomological monitoring, BCC, M&E, operational research, and in-country capacity building. At the request of the NMCP, PMI initially targeted certain intervention activities, such as procurement and distribution of commodities, in 14 prefectures and the five communes of Conakry, while the remaining prefectures were covered by Global Fund. Under the coordination of the NMCP and in accordance with the PMI principle of filling the country gaps wherever they are, PMI is increasingly implementing activities nationwide such as M&E, training, and BCC. In response to a request from the NMCP, in May 2014, PMI will be distributing RDTs and ACTs in the Global Fund zones, which are experiencing stockouts while waiting for commodities ordered by the Global Fund to arrive in the country. To avoid future ad hoc arrangements like this, PMI and Global Fund will support the idea of a “common basket” of commodities with distribution to be coordinated by the NMCP. A guiding principle of PMI’s strategy is to support the population of Guinea through the most efficient and effective use of its resources and this new approach for commodity procurement supports that principle.

PMI is considered a principal and credited partner by the NMCP. In order to achieve results, PMI support will utilize a variety of partners, but will focus efforts on one large, bilateral program that will be charged with building capacity in many of these areas. PMI is providing technical assistance through the presence of two resident advisors (one from USAID and one from CDC) and a national malaria expert (USAID locally employed staff) who will work closely on a day-to-day basis with the NMCP to help build their capacity and improve national program performance, as well as advise and manage PMI implementing partners. Headquarters staff will

provide additional technical assistance in specific technical areas such as M&E, entomology, and diagnostics.

PMI support includes:

- Procurement and delivery of commodities including LLINs, RDTs, ACTs, SP, and injectable and rectal artesunate;
- Support for the pharmaceutical system to strengthen the logistics and information management system, pharmaceutical system reforms, and improvement of drug regulation capacity;
- Support for training of health workers and community health workers on malaria case management and prevention of malaria in pregnancy;
- Capacity building for lab staff to support and improve diagnostic capacity including quality control for microscopy;
- Support for clinical supervision at health centers, health posts, and community levels;
- Support for M&E at the local, district, regional, and national levels, including routine system strengthening, surveillance, data use for decision-making, and periodic household and health facility surveys;
- Entomological support for monitoring and surveillance of vectors and capacity building for entomologists;
- Support for BCC activities to increase knowledge and use of malaria commodities among the general population;
- Support to NMCP to build its technical and leadership capacity to better coordinate malaria activities.

PMI will continue to look for opportunities to support the implementation of the national malaria control strategy, which includes coordination with malaria donors and implementers as well as participating in a national-level coordination council to ensure transparency and synergy with key partners like the Global Fund. Future opportunities will include better communication and coordination with private sector players, as they are the primary means by which Guineans obtain health services. Increasingly, PMI will seek opportunities to engage in a close collaboration with mining sector partners that are active in malaria.

OPERATIONAL PLAN

PREVENTION

Insecticide-Treated Nets

NMCP/PMI objectives

The national strategic plan currently calls for two universal coverage campaigns: one in 2013/2014 and another in 2016. The definition of universal coverage is one ITN per two persons. The current strategy includes universal campaigns and routine distribution for pregnant women and children less than one year old through ANC and the Expanded Program on Immunization (EPI). While the national strategy includes both routine and mass distribution, nets are currently only distributed through mass distribution campaigns. The NMCP plans to develop a specific strategy for routine distribution in the next year. The current goal is 80% coverage of the population at risk of malaria with ITNs by the end of 2017.

Progress since PMI was launched

The first actions in procuring ITNs were conducted in the last year and are described below. The 2012 DHS indicated that 47% of households had at least one ITN. The percentages of those reported as sleeping under an ITN the previous night was 26% for children under the age of five, and 28% for pregnant women. When only those in possession of a net were considered, 51% of children under the age of five and 59% of pregnant women slept under an ITN the previous night. These data were collected between June and October 2012, which was three years after the first distribution of ITNs in 2009 that targeted children under the age of five and pregnant women.

Progress during last the last 12 months

During the last 12 months, the nets for the universal coverage campaign were procured. The universal coverage campaign was planned in two phases. Phase one took place during May 2013 in the Global Fund-targeted prefectures. The second phase was the distribution in PMI-targeted zones, which took place in October-November 2013 (14 prefectures) and mid 2014 (the third phase of the mass distribution is planned for the end of May 2014 in the five communes of Conakry). During the May 2013 campaign over 3.2 million LLINs were distributed in 19 prefectures with over 98% of campaign coupons recovered. The NMCP originally planned to use the 2014 Malaria Indicator Survey (MIS) to get post-campaign coverage estimates, but due to the postponement of the survey, a Global Fund-financed coverage survey, fielded before the end of 2014, will provide the needed estimates. [Update: the status of this survey is uncertain given the ongoing Ebola outbreak.]

With FY 2011 and FY 2012 funds, PMI procured 1,590,000 LLINs for distribution in the 2013-2014 campaign. Approximately 237,000 of the PMI-procured nets were used to cover the gap in nets needed in the first campaign phase, and the remainder was used for distribution in October-November 2013, in which 2,061,584 ITNs were distributed. Other partners (Islamic

Development Bank, Japanese International Cooperation Agency, and UNICEF) have provided nets to help cover the gap in the later phase of the campaign. The final distribution phase will take place in Conakry, which has the lowest malaria prevalence throughout the country (3% based on the 2012 DHS). In addition, reprogrammed FY 2013 funds were used to cover the costs of transporting these LLINs to distribution sites, planning, training, supervision, and social mobilization/communication for the campaign's second phase.

A coordination committee for the national campaign, established in February 2012, included personnel from the MOH, NMCP, and partner organizations including Catholic Relief Services, *Faisons Ensemble*, Maternal and Child Health Integrated Program, WHO, UNICEF, Country Coordinating Mechanism, Plan Guinea, Population Services International, Helen Keller International, *Medecins sans Frontières*, Child Fund, and PMI in-country staff. This committee was established to ensure adequate support for the planning, coordination, implementation, and evaluation of the 2013 national campaign.

Commodity gap analysis

ITN Gap Analysis			
Calendar Year	2014	2015	2016
Total targeted population	11,767,987	12,132,795	12,508,912
Routine Distribution Needs			
ANC	423,648	464,079	534,756
EPI	470,719	485,312	500,356
<i>Estimated Total Need for Routine</i>	894,367	949,391	1,035,112
Mass Distribution Needs			
2016 universal coverage campaign	0	0	6,949,395
<i>Estimated Total Need for Campaigns</i>	0	0	6,949,395
Total Calculated Need: Routine and Campaign	894,397	949,391	7,984,507
Partner Contributions			
PMI	180,000	235,000	565,000
Global Fund	462,450	Unknown	Unknown
<i>Estimated Total Partner Contributions</i>	642,450	235,000	565,000
Total ITNs available in calendar year	642,450	235,000	565,000
Total ITN Surplus* (Gap)	(251,917)	(714,391)	(7,419,507)

**Surpluses are carried over into the next year, but deficits are not. It should be noted that ITNs have not been distributed yet through EPI so all routine ITNs will be made available for ANC. Thus there will be a carry-over from 2014 to 2015, which will be available for ANC until such time that ITNs are given during delivery of EPI services.*

Assumptions: Pregnant women are 4.5% of the total population. Children under 1 are 4% of the total population. Coverage of pregnant women by ANC (i.e., first visit) is 80% in 2014, 85% in 2015, and 95% in 2016. Children included under EPI equal 100%. The universal campaign need is the total population divided by 1.8.

Plan and justification

With FY 2015 funds, PMI proposes to procure and distribute 565,000 LLINs: 515,000 for the universal campaign planned for mid-2016, and 50,000 for routine distribution. Also, using reprogrammed FY 2014 funds, PMI will procure 235,000 LLINs for the 2016 universal campaign. PMI will work with the NMCP and partners to improve the routine system to ensure delivery of LLINs to facilities as they need them, as well as support training around a package of services provided during routine visits. Since the EPI program itself has yet to start, ITNs have not been distributed to this target group. Thus the plan is to continue to distribute all routine ITNs via ANC until a distribution plan through EPI is elaborated. Also, the NMCP is planning to submit a concept note to the Global Fund, which will include enough LLINs to fill the gap for the 2016 universal coverage campaign and for routine distribution.

Proposed activities with FY 2015 funding: (\$3,620,000)

1. *Procurement and delivery of LLINs*: Procure 565,000 LLINs for the 2016 universal campaign and for routine services. This funding will include the cost of the nets and delivery to the district level (\$3,020,000);
2. *Distribution of LLINs*: Distribute approximately 600,000 LLINs for the universal campaign (which may include LLINs provided by other donors) and for routine services(\$600,000); and
3. *BCC for LLIN use*: Continue to promote LLIN use as part of the integrated communication strategy following national guidelines and in collaboration with other partners (*costs covered in BCC section*).

Indoor Residual Spraying

NMCP/PMI objectives

The 2013-2017 National Malaria Control Strategy does not include IRS as a major method of vector control, but notes that it has been used in emergency situations, including use in refugee camps between 2001 and 2005. IRS is also used by some mining companies in limited areas throughout the country. Although IRS is not currently a part of the national strategy, it is under consideration for future use.

Progress since PMI was launched

In July 2012 PMI funded a ten-day training course for 24 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.

Progress during the last 12 months

In the past year, sentinel sites have been identified in all four ecological regions for routine entomological surveillance, which includes pyrethrum spray catches, human landing catches, and light trap collection. In early 2014, entomological collections in Kissidougou and Kankan revealed a predominance of *Anopheles gambiae s.l.* in indoor collections. Both M and S molecular forms of *An. gambiae s.s.* were found in Kankan and analysis of the mosquitoes of Kissidougou is underway. *Anopheles* mosquitoes other than *An. gambiae s.l.* were collected indoors and outdoors, but their importance in malaria transmission is unknown, though probably small. In addition, insecticide susceptibility tests will be conducted to determine the resistance status of *Anopheles gambiae s.s.*, and other vectors if detected. 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 if IRS is undertaken in the future. Discussions are also underway for the establishment of an insectary/laboratory to support these activities and ITN monitoring activities.

Plan and justification

The plan for FY 2015 funding is the continued collection of entomological data from sentinel sites that began in January 2014. These data will provide information on the species of malaria vectors, infection rates, biting times, and resistance status. Furthermore, the collection of data at three times during the year will allow for estimation of seasonal effects.

Proposed activities with FY 2015 funding: (\$215,000)

1. *Entomological monitoring and capacity building*: Support for surveillance of vectors and insecticide resistance in each of the four ecological zones, and establishment of a permanent insectary and laboratory (\$180,000);
2. *Provision of entomological supplies*: Provision of supplies for entomological monitoring and the insectary (\$10,000); and
3. *Technical assistance for entomological capacity building*: Support for two technical assistance visits from CDC to continue assistance to develop entomological capacity (\$25,000).

Malaria in Pregnancy

NMCP/PMI objectives

In 2013, the NMCP presented their new strategy (2013-2017) with a revised version adopted in February 2014. The NMCP and the National Safe Motherhood Program (which oversees ANC services nationwide) worked together to develop the national malaria strategy and protocols. The strategy contains guidance on standard WHO recommended practices for the prevention of malaria in pregnancy including the administration of IPTp with SP under the direct observation of an ANC attendant, at four-week intervals, starting in the second trimester, with at least three treatments given before delivery, and the provision of an ITN at the time of the first visit. Iron/folate is provided free of charge at ANC. 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. Treatment for those diagnosed with severe malaria follow national protocols (see section on Treatment). The strategy also follows WHO guidance regarding pregnant women who are HIV positive.

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 NMCP target is that by the end of 2014, 75% of pregnant women will have received at least three SP treatments (IPTp3). By 2015, this indicator will be 85%, and will increase to 90% by 2016. The national strategy defines a target of 80% ITN use by pregnant women (same target in all years). In addition, by the end of 2014, 60% of pregnant women will receive an ITN during an ANC visit, which increases to 70% in 2015 and 80% by the end of 2016. PMI will work with the NMCP and partners to achieve progress towards IPTp uptake and ITN distribution targets.

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 700,000 SP treatments; trained over 1,530 health facility workers and over 655 CHWs in MIP as part of integrated refresher training courses; trained over 60 supervisors in supportive supervision; and reached over 200,000 people via home visits and community-level activities such as group discussions. The trainers for MIP are from the National Safe Motherhood Program and work with trainers from the NMCP and other MOH units to form the core, integrated training team that PMI has been supporting for all training. Communication messages were disseminated throughout PMI target zones promoting IPTp uptake at ANC and sleeping under ITNs every night (see BCC section for more details).

The data from the 2012 DHS show that while 85% of pregnant women make at least one ANC visit, only 18% receive two or more doses of IPTp (up from 3% in the 2005 DHS). DHS data also show that 28% of pregnant women slept under an ITN the previous night, up from 1.4% in

the 2005 DHS. It should be noted that implementation of IPTp was hampered by stockouts of SP for the first two years of PMI in Guinea, and that no ITNs have been available for routine distribution for several years, so this number may be a reflection of the ITNs that were distributed nationwide for vulnerable groups in 2009, including women of reproductive age and children under five years of age. An MIS is planned for June-July 2015 (delayed from 2014 due to Ebola), so expectations are high that indicators for both IPTp uptake and ITN use among pregnant women will improve given the universal coverage campaign conducted in 2013 and increased availability of SP in ANCs.

Progress during the last 12 months

During the last 12 months PMI procured 375,000 SP treatments. This consignment was distributed nationwide rather than uniquely in PMI zones due to the delay in disbursing Global Fund resources during the consolidation and revision of the 2006 and 2010 grants, which had planned to purchase and distribute SP in their zones. The plan moving forward will be to have PMI procure and distribute SP for the entire country, although there are funds in the consolidated Global Fund grants to purchase SP, most likely in 2014. This gap in previously planned support most likely contributed to stockouts of SP that were recorded in the previous years, which may be one of the factors contributing to the low IPTp2 coverage seen in the 2012 DHS data.

PMI has ordered 180,000 ITNs, which will be targeted for distribution through ANC, most likely in late 2014 and into 2015. This will cover almost 50% of the need for routine nets for pregnant women. ITNs are also on order from the Global Fund and should fill the remaining gap in the country.

PMI provided support for training and supervision of ANC workers in IPTp and for dissemination of communication messages for increasing knowledge and promoting prevention of MIP at the community level. Training materials have been updated and are following the new guidelines for IPTp.

Across the PMI target zones, 400 health facility workers and 554 CHWs were trained on malaria case management, including MIP. Also, 41 health workers from the central, regional, and prefectural levels were trained in case management including MIP. Finally, there were over 50,000 people reached via home visits and community-level activities such as group discussions that included messages on MIP.

Commodity gap analysis

With an estimated national population of approximately 12 million and the proportion of pregnant women being 4.5%, it is estimated that 562,901 pregnancies could occur in 2016. PMI will procure approximately 922,500 treatments of SP to meet approximately 60% of the nationwide need. Although the NMCP has stated that they would like PMI to be responsible for all SP purchases nationwide as of 2013, there is a plan to have the Global Fund purchase approximately 1,368,000 SP treatments in 2014, contributing to 2015 and 2016 needs.

SP Needs and Contributions	2014	2015	2016
Estimated population	11,767,987	12,132,795	12,508,912
Total number of pregnant women targeted at ANC	397,170	464,079	506,611
Total SP needs	1,191,509	1,392,238	1,519,833
SP from MOH	0	0	0
SP from PMI	1,191,509	620,990	922,463
SP from Global Fund	0	771,248	597,370
Gap in SP	0	0	0

Assumptions: Population growth is estimated at 3.1% and based on 2009 population data. Pregnant women are estimated to be approximately 4.5% of the population. Target for ANC attendance (i.e., IPTp 3) is 75% in 2014, 85% in 2015 and 90% in 2016. The NMCP bases SP needs on 3 doses for each pregnant woman attending ANC.

Plan and justification

PMI will continue to support activities aimed at enhancing the provision of effective MIP services in public health facilities in Guinea. To that end, PMI will procure enough SP treatments to cover approximately 60% of the estimated needs nationwide, as well as a portion of the ITN need for routine distribution during ANC visits (see ITN section). Additionally, PMI will continue to support BCC training and messaging to improve the demand for ANC services and understanding of the benefits of IPTp among community members and health workers. PMI will support laboratory diagnosis and appropriate treatment of malaria to reinforce the implementation of MIP services, including training and supervision of IPTp service delivery along with other aspects of effective case management, and promotion of ITN use.

Proposed activities with FY 2015 funding: (\$120,000)

1. *Procure treatments of SP:* Procure approximately 922,463 treatments of SP to cover about 60% of the needs in Guinea for 2016(\$115,000);
2. *Procure supplies to ensure consumption of SP at ANC:* Procure supplies such as cups and water to ensure that SP is taken at the time of ANC visit (\$5,000);
3. *Promote BCC for IPTp:* 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). Immunization outreach sessions will be used as opportunities for educating women. This will be part of a larger integrated BCC activity to satisfy needs for case management, ITNs, and IPTp (*Costs covered in BCC section*);
4. *Provide training/refresher training for MIP:* Provide training and refresher training for public and private health facility midwives and nurses to correctly deliver SP in the context of the focused ANC approach. Training will include benchmark assessments, on-the-job training of the current treatment algorithm, and coaching. Training will be part of an integrated training package (*Costs covered in Case Management/Diagnosis section*); and

5. *Supervise health workers in IPTp to improve quality of service:* Provide on-site supervision for public health facility midwives and nurses to correctly deliver SP in the context of the focused ANC approach, and to ensure that available ITNs are given to women at their first ANC contact. Supervision will continue to be part of an integrated approach for supervision at health facilities (*Costs covered in Case Management/Diagnosis section*).

CASE MANAGEMENT

Diagnosis

NMCP/PMI objectives

The national strategic plan and policy guidelines recommend diagnostic confirmation of all suspected malaria cases, among all patients, with either microscopy (when available) or an RDT, before they are treated. According to the policy, RDTs are provided free of charge and will be widely used at public health facilities and by CHWs, while microscopy services incur a fee.

According to Guinea's health services package, all hospitals and health centers should provide microscopy services; however, a Global Fund-financed health facility survey of hospitals and health centers in 2010 showed that fewer than half the facilities in Guinea had a microscope (approximately 100% of hospitals but only 40% of health centers).¹³ Microscopes often are not functional and health facilities may lack reagents and related laboratory supplies. Data from the health facility survey indicated that only 43% of hospitals and health centers had slides, and 19% had Giemsa stain. Staff from the NMCP and the National Laboratory, which is part of the National Institute of Public Health, are responsible for supervision of microscopy, although no comprehensive quality assurance/quality control program has been developed for malaria. PMI intends to begin working on this in the future, as the scale-up in training and provision of diagnostic materials moves toward nationwide coverage.

The NMCP supports the use of RDTs for malaria diagnosis at all levels of the health care system. In addition to ensuring that RDTs are available in health facilities, the NMCP is working toward having a continuous supply of RDTs at the community level for use by CHWs. Capacity building through training on the use of RDTs and microscopy is part of the NMCP strategy as well as an objective of PMI.

Nationwide, there are about 108 laboratory technicians, all of whom are to be trained in microscopy and RDT use. There are also approximately 4,784 health facility workers: 2,506 in PMI zones and 2,278 in Global Fund zones. There are an estimated 1,895 CHWs (approximately five per health facility with 379 facilities in the country; the 21 facilities in Conakry don't have CHWs). The goal is to train them all in RDT use (and overall case management).

The case management training targets for the PMI bilateral project (per the Performance Management Plan) is 1,536 health facility workers and 680 CHWs. In addition to receiving RDT

¹³ This was a nationally-representative survey with a sample of 129 health facilities.

training, 60 laboratory technicians across the country will be trained in microscopy. The four-year project includes refresher training for these target groups.

A national supervision plan exists, but a resource gap limits the NMCP's (as well as the regional [DRS] and district [DPS] health authorities') ability to conduct effective, comprehensive, and regular supervision. Supervision is planned based on a specific guidance document and focuses on case management and data quality. The following is a description of the national plan (for which resources are not sufficient):

- Central/National level to regional levels (DRS) – Activities at the national level are led by the NMCP and supported by implementing partners –PMI’s malaria bilateral and Catholic Relief Services (GF principal recipient). Supervision is scheduled to be conducted every six months to 8 DRS.
- 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 be conducted every three months to 38 DPS.
- District (DPS) to Health facilities (604 health posts, 412 health centers, 6 commune health centers, 26 prefecture hospitals, 7 regional hospitals, 3 national hospitals) – Supervision of health facilities is done by DPS and implementing partners. Supervision is scheduled to be conducted every two months.

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. Since then, PMI has purchased and distributed over 6 million RDTs and purchased 48 microscopes and related supplies (reagents, gloves, disposal boxes, and slides). Training targets and activities are summarized in the table below.

Training Summary Table:

	Project Target	Trained previously by partners (PMI launch-Apr 2013)	Stop Palu Yr 1 (Remainder of FY13)	Yr 2 (Q1-Q2 of FY14)
Health facility workers trained in RDTs and case management	1,536	<i>Faisons Ensemble:</i> 147	0	Stop Palu: 41
CHWs trained in RDTs and case management	680	<i>Faisons Ensemble:</i> 308	0	Stop Palu: 554
Lab staff trained in microscopy and RDTs	60	IMaD: 64	0	Malaria Care: 25

PMI has also supported supervision in RDT use at both the health facility and community levels (more recently). Eighteen laboratory technicians have been recruited and trained to serve as

supervisors for the Outreach Training and Support Supervision program. Nine health facilities (seven regional hospitals and two national hospitals) have been targeted for Outreach Training and Support Supervision visits, which will occur bimonthly throughout 2014. Training and supervision activities in diagnostics have just started in the Global Fund zones.

Progress during the last 12 months

During the last 12 months, PMI supported the update of the national malaria strategy and policy which includes important revisions on the use of diagnostics to confirm suspected malaria cases before treatment, which now follow WHO recommendations. Specifically, all suspected cases of malaria must first be tested using either microscopy or an RDT before treatment is administered, regardless of the health system level (hospital, health center, health post or community). 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. In support of the new policy, PMI procured 5 million RDTs for the entire country. PMI is also in the process of procuring microscopes and related laboratory supplies for select health facilities, which will be combined with previous PMI and Global Fund microscope procurements to make available 100 microscopes: 63 from PMI and 37 from Global Fund. This will ensure that each of the 36 hospitals, nationwide, as well as about 28 health centers will be fully equipped: two microscopes per hospital, and one microscope in each of 28 selected health centers.

Building on a PMI-supported rapid laboratory assessment in March 2012, PMI supported the evaluation of an additional 19 zonal health facilities (six hospitals, seven health centers and four health posts) and found that some facilities do not have a functional microscope, and of the ones that did, all the microscopes were in poor condition. All facilities were using RDTs. In one facility, the technician did not correctly perform the RDT. The assessment findings were used to inform activities including a nationwide training of 18 trainers of laboratory technicians in malaria diagnosis, including microscopy maintenance, supply management, and RDT use. Additionally, 41 health facility workers were trained in RDT use, and they, in turn, trained 554 CHWs.

PMI has supported supervision of health workers – including diagnostics for case management – at the hospital, health center, and health post levels, as well as CHWs at the community level. PMI supported the development of a checklist for supervision, which should be utilized as part of an integrated supervision visit, ensuring that malaria diagnostics are performed correctly along with other health worker functions. However, the concept of integration has been difficult to adopt below the central level, as regional and district level supervisors tend to utilize supervision support resources based on the source of the funding, so PMI funds have been used to supervise health facility clinicians only on malaria. PMI will try and address this inefficiency in the coming year, working with key stakeholders including donors and the MOH.

Finally, PMI supported the development of an RDT utilization sheet that will help CHWs track RDT use and better determine when they should request stock replenishment. PMI also supported training on quantification in the 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.

Commodity gap analysis

The table below presents RDT needs for 2014, 2015 and 2016, as specified by the gap analysis conducted by the NMCP. PMI plans to procure enough RDTs to cover approximately all of the total nationwide need in 2014, 63% in 2015, and 72% in 2016.

RDT Needs and Contributions	2014	2015	2016
Estimated population	11,767,987	12,132,795	12,508,912
Total RDT targeted needs	8,525,907	8,250,301	8,612,386
RDTs from PMI	5,000,000	5,250,000	3,460,000
RDTs from Global Fund	2,673,316	1,574,154	1,011,933
RDTs from Others	0	0	0
RDTs gap	852,591	1,426,147	4,140,453

Assumptions: Population growth is estimated at 3.1% and based on 2009 population data. Total RDT targeted needs are based on fevers per year per person (1.15 fevers in 2014, 1 fever in 2015, and 0.9 fevers in 2016) and further adjusted for testing rate by RDT.

Plan 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. Commodity procurement will be focused nationwide as PMI support transitions to meeting existing needs throughout the country. The NMCP also requested that PMI procure the majority of the country's diagnostics commodities. Training and supervision will continue to provide long-term, ongoing support to strengthen diagnostic services at all levels of the health care system by identifying areas that require improvement and providing on-site feedback and technical advice and support to the front-line clinicians and laboratory staff in peripheral health facilities. Training and supervision for diagnostics will be integrated with community case management as well as other malaria prevention and care activities, and will focus on PMI intervention zones as Global Fund provides support for training and supervision in their designated zones. One specific component of diagnostic strengthening will be investment in the development of a comprehensive quality assurance and quality control system for microscopy and RDTs. This will ensure sustainable gains and country capacity building in diagnostic practices.

Proposed activities with FY 2015 funding: (\$2,765,000)

1. *Procure rapid diagnostics tests (RDTs):* Procure approximately 3,460,000 RDTs to continue scaling up RDT use in health facilities and in communities via CHWs (\$1,800,000);
2. *Procure microscope supplies:* Procure reagents, slides, and repair materials for existing microscopes in hospitals and health centers (\$15,000);

3. *Improved malaria diagnostics:* Work with the NMCP and National Laboratory to develop and support a comprehensive quality assurance and quality control plan for malaria diagnostics at all levels of the health system. This will include refresher training for lab technicians (and training on malaria microscopy for new laboratory technicians) and regular supervision of microscopy and RDT performance, including systematic review of a predetermined number of positive and negative blood smears (\$150,000);
4. *Provide training/refresher training in RDT use:* Provide refresher training on malaria diagnostics, including correct RDT use at all levels of the health care system, to ensure adherence to the new national policy of testing all suspect cases. With the new policy there is an increased focus on the community level. This will be an integrated RDT/case management training (\$500,000); and
5. *Supervise health workers and CHWs in RDT use:* Provide integrated, regular supervision of health workers and CHWs focusing on microscopy and RDT performance. This will be integrated RDT/case management supervision. As part of this activity, PMI will work with the MOH and other key stakeholders such as the Global Fund, to ensure that resources are used to support integrated supervision, and not just malaria (\$300,000).

Treatment

NMCP/PMI objectives

The National Malaria Control Strategy follows the WHO guidelines for malaria treatment, which requires mandatory confirmation of suspect malaria cases before treatment administration. This requirement applies to both forms of malaria (uncomplicated and severe) and at all levels of the health system including the community level.

Treatment of uncomplicated malaria

In Guinea, the first-line ACTs for treatment of uncomplicated malaria are artesunate-amodiaquine (AS-AQ) and artemether-lumefantrine (AL). In cases of AS-AQ or AL intolerance, side effects, or treatment failure, the patient should be referred to the nearest health facility. 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 AS-AQ (or AL). The ACTs are free for adults and children (as are RDTs), but patients have to pay for other drugs received, as well as for microscopy tests.

Treatment of severe malaria

As stated in the national strategy, the first choice for treatment of severe malaria is injectable artesunate. Other acceptable treatments include injectable artemether or quinine. The management of severe malaria should be carried out in health facilities with the capacity required for proper treatment. All cases of severe malaria in pregnant women should be treated with parenteral quinine during the first trimester of pregnancy, and artemisinin derivatives or parenteral quinine from the second trimester onward. Per national policy, treatment for severe malaria is free.

Pre-referral treatment of severe malaria

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 being referred.

Pre-referral treatment is a relatively new intervention for which national policy and guidance has just recently been developed. The use of rectal artesunate by CHWs has been piloted for three years before its adoption as national policy in early 2014. In 2009 *Medecins sans Frontières* Switzerland initiated a pilot study of rectal artesunate in the forest region in Gueckedou. 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. Rectal artesunate was added to the list of drugs that CHWs are permitted to use and it is now part of CHW routine training. Appropriate case management tools, including algorithms, protocols, IEC material, and necessary commodities will be provided to CHWs and they will be supervised by health facility staff.

Training and supervision of clinical staff

All health providers are to be trained in the diagnosis and treatment of uncomplicated and severe malaria cases. Training will be based on the revised and recently distributed training manuals for health providers on case management and malaria in pregnancy, including new algorithms for 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.

PMI has provided ACT treatments for all age groups in response to stockouts in health facilities in both PMI and Global Fund zones. PMI procured and distributed injectable quinine and injectable artesunate for the treatment of severe cases. PMI also developed a data collection form which allowed for a better quantification of needs at the facility level. Commodity distributions have served as an opportunity to introduce the new monthly malaria reporting template and process. Other key activities supported by PMI have included the introduction of a new medication (injectable artesunate) for the treatment of severe malaria and case management training of 1,329 health workers and CHWs.

In order to improve the population's knowledge on malaria treatment, PMI in collaboration with the NMCP produced and disseminated 20,000 pamphlets in the 151 health centers covered by PMI, and produced and disseminated one malaria prevention TV spot in French and local languages. 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. This activity resulted in 1,884 group discussions and mass sensitizations during which 75,633 people were reached, including 42,891 women. 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.

Progress during the last 12 months

PMI and 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. This approach has begun in the PMI zones and has helped improve completion of monthly reporting to the NMCP from 30% to over 80% in these facilities. In theory, health facilities are re-supplied with malaria products after sending monthly reports detailing the number of medicines given to patients. This approach is still fairly new in the PMI zones and the hope is that the data will allow the NMCP and MOH to plan for appropriate procurement and distribution of products to the local level.

In the last year, PMI has procured approximately 2 million ACTs for uncomplicated malaria and 130,000 treatments of injectable artesunate for severe malaria cases. PMI also trained 727 health providers in case management; the protocols have been updated, validated and disseminated.

Commodity gap analysis

The table below presents ACTs needs for 2014, 2015, and 2016, as specified by the malaria programmatic gap analysis for 2014 conducted by the NMCP.

ACT Needs and Contributions	2014	2015	2016
Estimated population	11,767,987	12,132,795	12,508,912
Total ACT needs	5,886,936	5,047,243	4,401,886
ACTs from PMI	2,000,000	2,000,000	1,735,000
ACTs from GF	1,168,176	1,870,852	461,447
ACTs from Others	0	0	0
Gap in ACTs	2,718,760	1,176,391	2,205,439

Assumptions: Population growth is estimated at 3.1% and based on 2009 population data. The total ACT need is based on the number of expected suspect cases and adjusted for testing rate, test positivity rate, and presumptive treatment of cases (30% in 2014, 20% in 2015, and 10% in 2016). The total is adjusted for access to care and provision of care per the national strategic plan.

The table below presents injectable artesunate needs for 2014, 2015 and 2016, as specified by the malaria programmatic gap analysis for 2014 conducted by the NMCP.

Injectable Artesunate and Artemether Needs and Contributions	2014	2015	2016
Estimated population	11,767,987	12,132,795	12,508,912
Severe malaria cases expected	353,216	252,362	132,057
Total injectable artesunate needs	282,573	201,890	105,645
Total injectable artemether needs	70,643	50,472	26,411
Injectable artesunate from PMI	69,000	106,000	76,100
Injectable artemether from PMI	0	27,200	20,000
Injectable artesunate from others	0	0	0
Injectable artemether from others	0	0	0
Gap in injectable artesunate	213,573	95,890	29,545
Gap in injectable artemether	70,643	23,272	6,411

Assumptions: Population growth is estimated at 3.1% and based on 2009 population data. Of all malaria cases (number confirmed plus presumptively treated), 6% are expected to be severe in 2014, 5% in 2015, and 3% in 2016. The total is adjusted for access to care and provision of care per the national strategic plan. Of severe cases needing treatment, 80% will be treated with injectable artesunate and 20% will be treated with injectable artemether.

The table below presents artesunate suppository needs for 2014, 2015 and 2016, as specified by the malaria programmatic gap analysis for 2014 conducted by the NMCP. PMI plans to cover 100% of need in 2016.

Artesunate Suppository Needs and Contributions	2014	2015	2016
Estimated population	11,767,987	12,132,795	12,508,912
Total artesunate suppository needs	14,129	15,142	15,536
Artesunate suppository from PMI	0	15,142	15,536
Artesunate suppository from others	0	0	0
Gap in artesunate suppository	14,129	0	0

Assumptions: Population growth is estimated at 3.1% and based on 2009 population data. Assumptions for the total artesunate suppository needs are based on the number of suspect malaria cases expected to seek care at the community level (6% in 2014, 8% in 2015, 10% in 2016). Of these, 3% are assumed to be severe cases needing pre-referral treatment and 100% of those in need are expected to get pre-referral treatment.

Plan and justification

PMI will now 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.

PMI will continue to procure ACTs for all age groups to support appropriate treatment based on confirmed diagnosis. To facilitate the distribution of ACTs, PMI will procure and deliver to the lowest level necessary to ensure that ACTs reach beneficiaries. Additionally, PMI will procure injectable artesunate, injectable artemether, and rectal artesunate to help cover needs for severe malaria cases.

PMI plans to support integrated BCC activities to promote appropriate treatment-seeking behavior among community members. 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. The health facility survey planned for later this year will provide an assessment of malaria treatment practices in health facilities.

PMI will work with partners to ensure that data being gathered are analyzed and used for making decisions and to better assess needs for supplies, case detection, and treatment at the community level. Implementation of all case management activities, including scale up of pre-referral treatment with rectal artesunate, will be done in coordination and collaboration with the Global Fund. The NMCP coordinates implementing partners (for PMI and Global Fund) to ensure

harmonized training for case management and CHWs throughout the country. Historically, PMI started the training activities in the country, and now Catholic Relief Services (Global Fund's principal recipient) is using the same national pool of trainers and training material in the rest of the country. There is a general agreement between PMI and Global Fund to ensure that commodities and other technical resources are shared if and wherever gaps may be identified. This was recently put into practice when the need to ensure that both donors were procuring the same RDT (on which case management training had been based) became clear. The need to coordinate donor efforts and implementing partner activities has been a challenge for the national program in the past but as PMI has scaled up its presence, the NMCP has become better organized, and communication between PMI and Global Fund has become more regular, this issue has improved.

Proposed activities with FY 2015 Funding: (\$1,697,500)

1. *Procure ACTs*: PMI will procure and distribute approximately 1,735,000 ACTs(\$830,000);
2. *Procure injectable artesunate*: PMI will procure and distribute 76,100 treatments of injectable artesunate for severe malaria (\$679,500);
3. *Procure injectable artemether*: PMI will procure and distribute 20,000 treatments of injectable artemether (\$31,000);
4. *Procure rectal artesunate*: PMI will procure and distribute 15,500 rectal artesunate treatments to be used by CHWs for pre-referral purposes (\$7,000);
5. *Behavior Change Communication for case management*: Integrated BCC and education activities for communities to improve behaviors related to malaria prevention and treatment. Activities will include use of LLINs and IPTp, and appropriate care seeking behaviors, particularly at the community level through use of CHWs. Particular emphasis will be placed on prompt care-seeking for fever and other symptoms of malaria. (*Cost covered under BCC section*);
6. *Clinical training/refresher training in malaria case management*: Training in malaria case management including RDT use, treatment, and malaria in pregnancy for health workers at hospitals, health centers, and health posts who have not been trained using previous years funds. Training of CHWs not yet trained in RDT use, treatment of uncomplicated malaria, and referral for patients with severe malaria, as well as referral of pregnant women to ANC. Continue implementation of a comprehensive refresher training schedule for health workers and CHWs who have already received initial training. (*Cost covered under Case Management/Diagnostics section*);
7. *Supervision of health workers and CHWs*: Enhance clinical supervision at all levels of the health care system, including hospitals, health centers, health posts, and CHWs. District Health Team staff (*Département Préfectoral de Santé*) and regional health team staff (*Département Régional de Santé*) 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. (*Cost covered under Case Management/Diagnostics section*); and
8. *Community case management*: Support the scale-up of community case management in PMI target areas, including management and logistic costs, and support for data management, as well as refresher training of 650 CHWs. (\$150,000).

Pharmaceutical Management

NMCP/PMI objectives

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

As the main institution in charge of implementing the GOG policy in the pharmaceutical sector, the central medical store (*Pharmacie Central de Guinée-PCG*) was created in 1992 by the GOG to supply the 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 Laboratories (DNPL). PCG has established pharmaceutical depots in five of the eight regions in Guinea. This institution has also played a role as sub-recipient of Global Fund grants to procure drugs for the three priority diseases (HIV, tuberculosis, and malaria). Despite its storage capacity of 4,455 square meters across the country, 3,815 of which are available in Conakry, PCG continues to face important challenges in fulfilling its responsibilities as the major supply chain and distribution entity.

The private pharmaceutical sector is growing fast with more than 387 private pharmacies nationwide of which about 70% are located in Conakry. A multitude of non-registered businesses also sell pharmaceutical products, with many of them serving as the only commercial outlet in a particular rural area. Those pharmacies sell a wide range of antimalarial drugs, including both branded and generic drugs.

Progress since the launch of PMI

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 DNPL meeting the challenges of timely distribution of quality drugs to the health facilities), PMI has mandated its main partners in pharmaceutical system strengthening with the objective of reinforcing 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, but that is not being done on a regular basis. PMI is supporting the DNPL to systematize the process of revising the list on a regular basis.

During the past two years, implementation of reforms recommended by PMI partners has been very slow, which continues to negatively reflect on drugs distribution to health service delivery points. The recommendations of the audit of the supply chain conducted in 2012 by the EU, mostly focusing on financial management of the PCG, are yet to be implemented. This has led to recurrent stockouts of malaria commodities, not only in PMI-supported prefectures, but also in Global Fund-supported prefectures.

Progress during the last 12 months

During the past twelve months, PMI, in collaboration with the NMCP, supported the emergency distribution of malaria commodities, mainly ACT drugs in the entire country in March and July 2013. PMI also assisted with establishing a data collection and reporting system from health facilities up to the prefecture and the national level to facilitate decision-making. As a result, health facilities in PMI zones are currently reporting pharmaceutical management and epidemiological and commodities data on a monthly basis. To facilitate information sharing, lessons learned and sharing of experience, PMI's partners launched the first quarterly review meeting in Conakry in March 2013. In health districts supported by PMI, laptop computers and internet access keys were provided to data managers to facilitate data compilation, processing and transmission to the upper level of the health system. To motivate this process and ensure quality of data, a data quality competition has been instituted for outstanding performing districts, enabling them to gain equipment such as laptop computers, printers, and other useful materials.

To assist with alleviating obstacles and to facilitate advocacy for implementing reforms recommended both by the EU audit and PMI assessment, PMI has increased the funding allocated to strengthening the supply chain and the pharmaceutical system. A seasoned supply chain expert has been recruited to lead PMI's efforts to strengthen the supply chain and the pharmaceutical system in Guinea. In the meantime and in order to ensure regular procurement, storage, and timely distribution of commodities, PMI has also increased funding to its partner in charge of commodities procurement to recruit an international expert to manage the temporary distribution of commodities while the two partners (DELIVER and SIAPS) will jointly work to assist PCG and the DNPL to conduct necessary reforms. PMI partners will evaluate the current work plan designed to assist both the PCG and the DNPL at the end of this calendar year to determine future steps towards improving the governance of the pharmaceutical sector and progressively enable PCG to adequately perform its function of storage and distribution of commodities.

PMI currently supports the DNPL in the development of an implementation plan for Guinea's national pharmaceutical policy. This work has been initiated and will continue this year through a series of development and validation meetings.

During the past 12 months, two end-use verification surveys (EUV) were conducted; the results of the first EUV were disseminated during the quarterly data review meetings to major stakeholders (see M&E section for details). The next EUV is scheduled for June 2014 and will cover the entire country, including the 19 prefectures supported by the Global Fund.

PMI and its partners will concentrate on implementing a joint work plan discussed with PCG and the DNPL. Activities will focus on reforming the legal and regulatory frameworks of the pharmaceutical sector, including revising the criteria for drugs registration and updating the essential drugs list. PMI will also work with PCG to conform to WHO and other international norms and standards for storing commodities not only at the central warehouse, but also at regional warehouses in Labe and Boke. PMI will train 400 health workers at the periphery on

good practices of pharmaceutical management. Support will also be provided to strengthen the control functions of the DNPL through the definition of appropriate tools to enable pharmaceutical inspectors to better perform their duties.

PMI will assist the MOH to establish a national commodities quantification committee, building on the current efforts to collect consumption data. Using malaria as an entry point to this effort, PMI will provide steady technical assistance to the MOH to establish a malaria commodities quantification committee. Efforts to quantify these commodities, using data and improved forecasting, will enable sharing and documentation of lessons learned in order to expand the experience to other health commodities.

Plan and justification

With FY 2015 funding, PMI will continue and increase its support to the supply chain and the pharmaceutical sector. PMI support will mainly focus on improving the logistic management information system.

Efforts will also continue, in collaboration with PCG and the DNPL, to strengthen the pharmaceutical sector through supporting reforms to enable the supply chain to perform its core duties of storing and distributing commodities on a regular basis to health facilities and in accordance with international norms and standards. The essential drugs list will be updated with PMI support and will be closely monitored by the DNPL. PMI will also strengthen the drugs regulatory capacity of the DNPL to improve the control over the pharmaceutical sector by well-trained staff. Finally, support to pharmaceutical supplies management will be the centerpiece of PMI support in the coming year to significantly reduce recurrent drugs stockouts at health facility and community levels.

Proposed activities with FY 2015 funding: (\$1,400,000)

1. *Improving logistic management information systems*: Continue support to strengthen the logistic management information systems to enable the pharmaceutical system to collect, compile, and process consumption data throughout the health system in order to improve the forecasting, the procurement, and the distribution of commodities. This activity includes procurement of computers, support for internet connectivity, and capacity building for quantification at the central level (PCG, DNPL), as well as at the regional, prefecture, and district levels (\$100,000);
2. *Pharmaceutical systems reform*: Continue to support the reform of regulations governing the supply chain management and the pharmaceutical system, including the implementation of the recommendations of the audit performed by the EU. Reforms are required not only at the central level but also to the periphery in how stocks are managed. PMI's support of the EU audit findings and recommendations will be linked to this activity (\$250,000);
3. *Improve drug regulatory capacity*: Continue to support improvement of the regulatory and oversight capacities of the DNPL, revision of national list of essential drugs, and enhanced control of compliance to the pharmaceutical policy and regulations by PCG and the private pharmacies network. Capacity building of the pharmaceutical system will

include improving capacity to combat counterfeit drugs and the illicit sale of drugs. (\$250,000);

4. *Management of pharmaceutical supplies*: Manage the distribution of PMI commodities down to the health facility level, including warehousing, transportation, storage and distribution (\$700,000); and,
5. *Strengthening of the DNLP and the national laboratory for drug quality testing and monitoring*: Review and revise the national policy on drug quality and identify priority activities such as the implementation of quality surveillance through support to the PCG and the DNLP to improve sampling strategies with appropriate techniques. This activity will also review registration. In addition to strengthening testing processes, this activity supports the MOH to review importation and registration policies. Malaria funds will supplement MCH and RH/FP funds for a comprehensive laboratory and drug quality strengthening (\$100,000).

MONITORING & EVALUATION

NMCP/PMI objectives

M&E is a key component of Guinea's malaria program, and the NMCP recognizes the importance of having a strong M&E strategy to inform programmatic interventions and measure outcomes and impact. The NMCP finalized its national M&E plan along with the national strategy in February 2014; both documents cover the period 2013-2017.

The new plan identifies indicators, targets, and data sources and emphasizes data collection, data quality assurance, and dissemination and use of data.¹⁴ Specific M&E priorities reflected in the updated plan include revising and maintaining the national malaria database, including the health management and information system (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. A technical committee for M&E does exist at the national level, but has only just begun efforts to convene regularly and consistently. As M&E activities intensify, the NMCP and all key stakeholders, including PMI, will increase efforts to consistently convene the committee and ensure collaboration, coordination, and technical support for data collection activities. PMI's bilateral partner has a key role in supporting the NMCP in this function.

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

- *HMIS*: The NMCP and HMIS have a strong collaboration, as evidenced by the ease with which the NMCP implemented a new monthly reporting tool to collect malaria commodity and epidemiological data on the same form. The MOH unit responsible for the HMIS was an active and supportive participant in this effort. The annual HMIS report is not perceived as a timely or valid data source (the most recent report is from 2011), and the new monthly malaria report is currently providing key malaria data with 80% reporting completion in the zones that have been targeted for training and supervision by

¹⁴ A full indicator table is available in Annex 6 of the National Strategic Plan.

PMI. Revised indicators for the monthly reporting include the number of suspect cases and confirmed cases.

- *Integrated Disease Surveillance and Response system:* While potentially a timelier tool for routine malaria data (reporting weekly on the number of clinical and confirmed malaria cases, among other notifiable diseases), reporting completeness and accuracy are limited. More information is needed on the status and functionality of this system.
- *Household surveys:* Guinea has implemented a DHS in 2005, a MICS in 2007, and Global Fund-supported national coverage surveys conducted in 2009 and 2010 to measure population coverage with basic interventions (ITNs, IPTp, and ACTs), as well as a health facility component assessing commodity availability and case management practices.¹⁵ The 2012 DHS provides follow-up estimates for key malaria indicators, as well as the first national estimates of malaria parasitemia. A MIS is planned for 2015 (postponed from 2014 due to the Ebola outbreak) and the next DHS will be implemented in 2017. The Global Fund is planning to support a post-ITN campaign survey by the end of 2014 to provide coverage estimates for ITN ownership and use since the MIS will be postponed; this survey, however, is now being reconsidered as the Ebola outbreak continues. A Knowledge, Attitudes, and Practices (KAP) survey will be implemented in September 2014 to provide formative data on malaria-related behaviors including net use and treatment-seeking practices. This survey will be complemented by a more in-depth qualitative barrier analysis designed to identify positive deviants contributing to uptake of key malaria behaviors.
- *Health facility surveys:* PMI had planned to support a national malaria health facility survey in August/September 2014 to get nationally representative data on the provision of malaria case management services in Guinea's health facilities. When PMI learned that the Global Fund, the Global Alliance for Vaccines and Immunizations, and WHO were supporting a Service Availability and Readiness Assessment (SARA) survey to be conducted in the same quarter, PMI decided to forgo a potentially duplicative data collection activity in favor of leveraging existing resources and efforts. Though not a malaria-specific survey, the SARA includes indicators on health facility readiness to provide malaria services, including health worker training, supervision, and malaria commodity availability; the SARA also includes a larger sample size (~170 facilities). In order to get some measure of health worker adherence to national malaria case management guidelines, a current information gap for the national program, the survey committee is considering piloting a "Malaria Module," consisting of a patient exit interview, in a subset of the sampled facilities. These data collection activities are being closely coordinated with the EUV implementers to ensure complementary data capture. [Update: Implementation of the SARA has been postponed indefinitely due to the ongoing Ebola outbreak.] To date, three EUV surveys have been implemented. With a shift in coverage from "PMI target zones" to a national scale, the EUV will now be implemented semi-annually rather than quarterly. It continues to provide data on commodity availability and case management based on a convenience sample of health facilities on a regular basis.

¹⁵ The 2005 DHS data are available, but the 2007 MICS results are not maintained by UNICEF headquarters; they may be available in country. The reports from the 2009 and 2010 Global Fund surveys are available.

The table below summarizes malaria data sources in Guinea as well as anticipated data collection activities through 2017.

Data Source	M&E Activities	Year								
		2009	2010	2011	2012	2013	2014	2015	2016	2017
Household surveys	Demographic Health Survey (DHS)				X					X
	Malaria Indicator Survey (MIS)							X		
	GF National coverage survey	X*	X*				X*			
Health Facility and Other Surveys	KAP survey						X			
	SARA survey						X?			
	Health facility survey								X	
	EUV survey				X	X	X	X	X	X
Malaria surveillance and routine system support	Health facility-based malaria surveillance							X	X	X
	Support to HMIS					X	X	X	X	X
Therapeutic	Therapeutic efficacy study				X*		X	X	X	X
Entomology	Entomological surveillance and resistance monitoring					X	X	X	X	X
Other Data Sources	LLIN durability monitoring							X	X	X

*Not PMI funded

Progress since PMI was launched

Routine data and HMIS strengthening: The Bureau de Statistiques et de Développement and the NMCP have collaborated, with the support of PMI, to revise monthly malaria reporting to capture key epidemiological and stock management data on one form. The new form includes the following indicators: number of suspect malaria cases, cases tested (microscopy and RDT), cases confirmed positive (microscopy and RDT), cases treated with ACT, severe cases treated with ACT, cases referred, and deceased. Numbers are reported for the health facility, as well as by CHWs. Data are also included from ANC including total women seen in ANC, number receiving first dose of SP, number receiving at least three doses of SP, and number of women sensitized at ANC. Health workers in the PMI target zones have been trained on reporting and

are currently using the form; training and implementation has yet to be completed in the rest of the country.

2012 DHS: The 2012 DHS was implemented from June–October 2012 and provided the first nationally representative estimates of malaria parasitemia. Because it was implemented in the rainy season, these estimates will be comparable to the MIS, which is now planned for June/July 2015. Additionally, the DHS provides important baseline measures for ITN coverage and use because it was implemented prior to the 2013 mass ITN distribution campaign. A Global Fund-financed household coverage survey will provide important post-campaign coverage and use estimates in 2014, but may also be postponed due to the Ebola crisis.

EUV Survey: Four EUV surveys have been conducted to date: January 2013, April 2013, September 2013, and July 2014. The first survey found 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 was 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. The second survey, conducted in April 2013, showed better results for ACT stocks due to additional PMI distributions. However, RDTs were still not widely available in facilities, resulting in clinical diagnosis for cases. The survey conducted in September 2013 showed improvement in stock availability, but suggested that there are still considerable gaps in case management practices (see below for details). [Results of the July 2014 survey are not available at the time of writing.]

Therapeutic Efficacy Studies: Researchers at the Maferinyah Research and Training Center have conducted a therapeutic efficacy study for Guinea’s first-line ACT, AS-AQ, with data collection from 2011-2012. The study followed the WHO protocol, used a 28-day follow-up period, and was funded by the European & Developing Countries Clinical Trials Partnership. Unpublished results show 97% efficacy for AS-AQ. The Maferinyah Research and Training Center is also conducting a three-arm clinical trial of artesunate-pyronaridine, artesunate-piperaquine, and AS-AQ. The Maferinyah researchers have also begun a study aimed at examining the seasonal burden of malaria (in low transmission and high transmission seasons) in the four different climatic zones (low-lying, middle, high, and forested). The data collection will include entomological parameters, as well as individuals’ knowledge, attitudes, and practices related to malaria prevention and treatment.

Progress during the last 12 months

With the introduction of the new monthly malaria reporting form and accompanying health worker training, completion rates for monthly reporting in the areas supported by PMI have reached 80%. Quarterly regional meetings in Conakry, Boke, and Labe have provided an opportunity for key persons from the health facility, district, regional, and national levels to discuss progress and challenges with the new reporting system, common data quality issues, and ideas for data use at lower levels. Practical sessions focused on presentation of epidemiological and pharmaceutical management data. Awards (laptops, printers, and scanners) were presented to the top-performing districts for reporting. These quarterly meetings will continue to support

routine data collection and reporting, encourage data quality improvements, and provide technical assistance for data use.

The MIS was originally planned for 2014 to include data collection during the peak transmission months of June-July. An in-country steering group, with technical assistance from the partner implementing the survey, had worked to develop the timeline, sampling strategy, and questionnaire. The recent Ebola outbreak, identified in March 2014, prompted stakeholders and the NMCP to reconsider the survey timeline. With the main concerns around risk to data collectors and community perceptions of the data collection – particularly for the blood draws required for biomarkers – the potential for abnormally high refusal rates and poor data quality, in addition to safety concerns, were too high to justify continuing with the survey in 2014. The MIS steering committee decided to postpone the survey to high-transmission season in 2015 (June/July).

The EUV surveys continue to provide useful data on commodities and case management that are well-received by the NMCP. The most recent survey, for which results are available, conducted in September 2013, showed improved stock availability due to a recent commodity distribution. This was the first large distribution of RDTs to health facilities and testing rates were improved with 50% of malaria cases tested with an RDT. However, approximately one-third of cases still received a clinical diagnosis and 23% of cases did not receive the appropriate treatment. The first three EUV surveys focused on the PMI target zones, but future surveys, including the one implemented in July 2014, will be national in scope with slightly reduced frequency (twice per year).

Over the past year, there have been important planning discussions for future data collection activities including the health facility-based SARA survey, LLIN monitoring for nets distributed during the mass campaign, and therapeutic efficacy studies for the first-line ACT to be conducted in four sites in the country. It is clear that there is a need to focus on coordination among partners for these activities to ensure resources are maximized and to avoid duplication of efforts.

Plan and justification

In its fifth year of implementation, PMI will continue to collaborate with the NMCP, donors, and other stakeholders to support M&E for Guinea's national strategic plan. With the 2012 DHS, key malaria baseline indicators for intervention coverage and impact (including parasitemia) are available. The 2015 MIS will provide essential interim measures for progress. PMI will consider funding needed for the 2017 DHS in the FY 2016 MOP. The SARA survey that will be implemented in late 2014 (or 2015, depending upon resolution of the Ebola crisis) will provide nationally representative data on health facility readiness to provide needed malaria services, and potentially some data on malaria case management practices as well (this will depend on final decisions regarding piloting the Malaria Module). A malaria health facility survey in 2016 will assess progress in case management and identify if and where gaps remain. PMI will continue data collection on commodity availability through the EUV survey to provide rapidly available and actionable information for decision makers.

To complement the data collected through EUV surveys and the SARA, a health facility-based surveillance system will continue to provide longitudinal data to monitor trends in malaria burden at a selection of health facilities. The surveillance system will be initiated in the coming year, most likely in the same catchment areas as the four existing entomological surveillance sites to triangulate data and maximize opportunities for technical support. To ensure adequate supervision in the first phases, implementation will start with one site in or near Maferinyah (located about 1.5 hours from Conakry) where an enhanced entomological monitoring activity will also be launched this year. New sites (up to four) will be added throughout the year only when existing sites are able to demonstrate and maintain a minimum level of data quality and performance. Assuming successful implementation in the first year, the second year may include expansion to achieve wider geographic coverage with the same resource input. Guinea will look to other control programs that have successfully established malaria surveillance (e.g., Senegal, Uganda, Zanzibar) to inform implementation.

While quality-controlled data are collected at select surveillance sites, PMI will continue to support routine system strengthening. USAID has funded a national assessment of the HMIS which has just been finalized. Results were shared at a stakeholders meeting in June 2014 and the report will be the foundation for the development of a strategic plan for routine system strengthening. PMI will contribute to the cross-cutting United States government efforts to strengthen the HMIS and advocate for malaria needs within this broader stakeholder effort. We will use the action-planning process (which will be MOH-led) to identify the key areas where PMI can have impact for its investment. But we do acknowledge that coordination across MOH disease programs, donors, and implementing partners is a challenge that will take time. Until the action-planning process is in place and a clear strategy begins to emerge, PMI will use existing routine system strengthening funds to meet immediate needs that have been identified by the malaria program; printing registers has emerged as a particular priority based on preliminary results from the most recent EUV (data collected in July 2014) that indicated printed materials were in short supply in the health facilities assessed. Additional areas of focus in the future may include reporting in the private sector and community levels, dissemination of national malaria bulletins, and technical assistance for data use at various levels (from health facility to national level).

PMI will also support standard monitoring activities, including LLIN monitoring, and therapeutic efficacy monitoring. These activities will be initiated in the coming year per PMI guidance and continue in the next fiscal year.

Proposed activities with FY 2015 funding: (\$862,500)

1. *EUV survey*: The EUV survey will continue to be implemented to monitor the availability and use of key malaria control commodities at the health facility level on a national scale. Improved logistics management is directly related to the health system's ability to provide effective case management for malaria (\$150,000);
2. *Health facility survey*: This activity will assess provision of malaria case management services in health facilities. Specific dimensions include health facility readiness to provide services, health worker training and supervision, and health worker performance.

The survey protocol will be identical to the one implemented in 2013 to serve as a follow-up data point and assess progress over a two-year period (\$200,000);

3. *Health facility-based surveillance*: An epidemiological surveillance system will continue to provide longitudinal data on seasonal trends in malaria cases at a selection of health facilities. These sites will be linked to the existing entomological monitoring sites. Ideally, the geographic coverage of the surveillance system will expand as the sites become established (\$200,000);
4. *ITN monitoring*: Prospective ITN monitoring, beginning with the next scheduled mass LLIN campaign distribution in May 2016, will provide data on: 1) net survivorship and physical integrity; 2) bioefficacy of insecticides; and 3) insecticidal content. Funds are meant to cover the first year of data collection (baseline and 6 months) (\$100,000);
5. *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);
6. *Routine system strengthening*: Routine system strengthening activities will continue to build upon progress made in M&E training at the district, regional, and national levels, but will be coordinated with a broader health sector effort to strengthen the HMIS. This effort, based on a USAID-funded HMIS assessment, will begin with development of a strategic plan. PMI will support this strategic plan by identifying priority activities most relevant to the malaria program. Activities will focus on continuing to ensure the quality of malaria data (including completeness, timeliness, and accuracy) while maximizing data use for decision-making and strengthening the system across health sectors. Specific activities with measurable objectives will be identified based on development of the strategic plan for HMIS strengthening (\$87,500); and
7. *Technical assistance for M&E*: Support for two M&E visits will provide technical assistance for ongoing M&E activities including health facility-based surveillance, routine system strengthening, and therapeutic efficacy monitoring. The country team and USAID mission will help define the priority objectives for the TDYs (\$25,000).

OPERATIONAL RESEARCH

PMI has not funded any operational research projects in Guinea to date, and the team does not propose any new projects in FY 2015.

BEHAVIOR CHANGE COMMUNICATION

NMCP/PMI objectives

In the updated national strategic plan, the NMCP highlights the important role of BCC across interventions by specifying an objective related to adoption of target behaviors for malaria control and prevention. The first target for the objective is to develop and disseminate a coordinated communication plan for all relevant partners in Guinea. The strategy also highlights the important role of a partnership to coordinate BCC messages, tools, and processes, including pre-testing, validation, and distribution of support materials.

The NMCP developed a communication plan in 2009, which was revised with PMI support in March 2012 (to cover the period 2012-2015). The new plan emphasizes comprehensive communication activities based on formative research, including interpersonal and mass media approaches, supported through training and educational materials and appropriately monitored and evaluated. It also identifies key behaviors and describes challenges, barriers, and opportunities for adoption of those behaviors.

A technical committee for BCC has not yet been formally convened, but this is part of the PMI bilateral project's work plan for the next quarter. This group will be central to ensuring consistent messaging, harmonizing training approaches, and implementing activities in a complementary way. In addition to PMI, the Global Fund provides support for BCC activities related to malaria prevention and case management. PMI is shifting towards national coverage for many activities (e.g., commodity procurement, pharmaceutical management, M&E), but will continue to focus on the "PMI target zones" for implementation of BCC activities.

Progress since PMI was launched

PMI progress on BCC to date has included revision of the NMCP's national communication plan and training manual used by animators for BCC techniques related to malaria prevention and treatment. Case management training for health workers and CHWs has included a BCC component and CHWs are given job aid posters and story boards to conduct sensitization sessions on malaria prevention and treatment in their communities. The revised national communication plan, training materials, and tools are used not only in the 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 BCC related to malaria prevention, and supported Peace Corps volunteers to work with local NGOs on implementing malaria BCC activities in the region of Boke and Conakry.

Early PMI-supported activities for BCC primarily focused on increasing ANC attendance and IPTp 2 uptake, as well as increasing early care seeking for fever. These PMI activities were part of an integrated mechanism for family and child health in the PMI zones, and included both interpersonal communication through peer discussion groups, as well as mass media through radio, television, and pamphlet distribution. The PMI BCC implementing partner had a relatively short timeframe in which to carry out its activities, and no evaluation was conducted to assess outcomes or impact of the activities beyond the number reached through interpersonal communications. With the new PMI bilateral program, BCC has focused almost exclusively on the LLIN universal coverage campaign and is now expanding its scope to also focus on case management and malaria in pregnancy.

With FY 2015 funding, PMI will continue supporting the NMCP to conduct supervision and provide logistics support including office management, communication capacity through internet connectivity, and M&E system strengthening. Given that the NMCP assessment was conducted in late 2013, no new funding is necessary to implement the recommendations related to capacity building. PMI will use prior year funding to that effect.

PMI will also continue its partnership with Peace Corps Guinea to work on malaria at the community level. 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. Peace Corps' Stomp Out Malaria program is active in Guinea and PMI has benefited from volunteers' activities at the community level with coordination and assistance from the Response Volunteer.

Proposed activities with FY 2015 funding: (\$120,000)

1. *Support to the NMCP* to assist them in team building, logistics and supervision, office management including communication capacity/connectivity, and M&E systems strengthening (\$100,000); and
2. *Support to Peace Corps:* Maintain a Response Volunteer in Conakry and support to supervise volunteers who are supporting PMI activities as well as small grants for which Peace Corps Volunteers can apply to receive assistance to support malaria activities in their communities (\$20,000).

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 inter-agency 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 resident advisor 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.

PMI professional staff work together to oversee all technical and administrative aspects of the 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 to PMI partners.

The PMI lead in country is the USAID Mission Director. The two PMI resident advisors (RA), one from USAID and one from CDC, report to the Senior USAID Health Officer for day-to-day leadership, and work together as a part of a single interagency team. The technical expertise housed in Atlanta and Washington guides PMI programmatic efforts and thus overall technical

guidance for both RAs falls to the PMI staff in Atlanta and Washington. Since CDC RAs are CDC employees (CDC USDD—38), responsibility for completing official performance reviews lies with the CDC PMI Regional Coordinator who is expected to rely upon input from PMI staff across the two agencies that work closely day in and day out with the CDC RA and thus best positioned to comment on the RA's performance.

The two PMI RAs are based within the USAID health office and are expected to spend approximately half their time sitting with and providing technical assistance to the national malaria control programs and partners.

Locally-hired staff to 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 United States government Global Malaria Coordinator.

Proposed activities with FY 2015 funding: (\$1,100,000)

1. *USAID technical staff:* Support one Resident Advisor and one foreign service national to support malaria activities and administration costs(\$700,000); and
2. *CDC technical staff:* Support one Resident Advisor to support malaria activities and administration costs (\$400,000).

TABLE 1
President's Malaria Initiative – Guinea
FY 2015 Budget Breakdown by Partner (\$12,500,000)

Partner Organization	Geographic Area	Activity	Budget
TBD	Nationwide	Procure LLINs, SP, RDTs, microscopes, and injectable artesunate	7,197,500
Stop Palu	Nationwide and PMI target zones	Entomological monitoring, LLIN distribution, BCC, training, supervision, diagnostics, capacity building, EUV survey, strengthening HMIS	3,085,000
Systems for Improved Access to Pharmaceuticals and Services	National Level	Capacity development in logistics management, pharmaceutical systems reform, and improving drug regulatory capacity	750,000
New Mission Bilateral Program	Nationwide	BCC for integrated health service delivery	100,000
Measure Evaluation	National Level	Routine systems strengthening for health information	87,500
Peace Corps	Nationwide	Support Response Volunteer and small grants	20,000
USP/PQM	National Level	Support for pharmaceutical quality control	100,000
CDC Interagency Agreement	National	Technical Assistance for entomology and M&E, and entomological supplies	60,000
	Conakry	One Resident Advisor	400,000
USAID/Guinea	Conakry	One Resident Advisor and one locally-engaged staff and support costs for mission malaria team	700,000
	TOTAL		12,500,000

TABLE 2
President's Malaria Initiative – Guinea
Planned Obligations for FY 2015 (\$12,500,000)

Proposed Activity	Mechanism	Budget	Geographic Area	Description of Activity
PREVENTION				
Insecticide-Treated Nets				
1. Procurement and delivery of LLINs	TBD	3,020,000	National	Procure and deliver 565,000 LLINs of which 50,000 will be used for routine distribution via ANC and the remaining 515,000 will be used for the 2016 universal coverage campaign.
2. Distribution of LLINs	Stop Palu	600,000	National	Pay for distribution costs of routine and campaign nets.
3. BCC for LLIN use	Stop Palu	Cost covered under BCC section	PMI Target Areas	BCC for ITN use will be part of an integrated communication package including MIP and case management, following national standards and in conjunction with what other donors are doing in their respective target areas.
	Subtotal: ITNs	\$3,620,000		
Indoor Residual Spraying				
1. Entomological monitoring and capacity building	Stop Palu	180,000	National	Entomological monitoring and surveillance of vectors for insecticide resistance, and capacity building for entomologists and insectary development and management.
2. Entomological equipment	CDC IAA	10,000	National	Procure equipment and replacement supplies for insectary, traps, spray and landing catches, storage of specimens and related lab supplies.

Proposed Activity	Mechanism	Budget	Geographic Area	Description of Activity
3. Technical assistance for entomological capacity building	CDC IAA	25,000	National	Funding for two technical assistance visits from CDC to help develop entomological capacity at the national and prefectural level.
Subtotal: IRS		\$215,000		
Malaria in Pregnancy				
1. Procure treatments of SP	TBD	115,000	National	Procure approximately 922,500 treatments (\$0.12 per treatment) of SP to contribute to covering the majority of nationwide needs (506,611 estimated potential pregnancies receiving 3 doses of SP during pregnancy).
2. Supplies to ensure consumption of SP at ANC	Stop Palu	5,000	National	Supplies such as cups and water to ensure that SP is taken at the time of ANC visit.
3. BCC for IPTp	Stop Palu	Cost covered under BCC section	PMI Target Areas	Support BCC 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). Immunization outreach sessions will be used as opportunities for educating women. This will be part of a larger integrated BCC activity to satisfy needs for case management, LLINs, and IPTp.
4. Training/Refresher training for malaria in pregnancy	Stop Palu	Cost covered under Case Management/Diagnostics section	PMI Target Areas	Provide training and refresher training for public and private health facility midwives and nurses to correctly deliver SP in the context of the focused antenatal care approach. Training will include benchmark assessments, on-the-job training of the new treatment algorithm, and coaching. Training will be part of an integrated training package.

Proposed Activity	Mechanism	Budget	Geographic Area	Description of Activity
5. Supervise health workers in IPTp to improve quality of service	Stop Palu	Cost covered under Case Management/Diagnostics section	PMI Target Areas	On-site supervision for public health facility midwives and nurses to correctly deliver SP in the context of the focused antenatal care approach. Supervision will continue to be part of an integrated approach for supervision at health facilities.
Subtotal: Malaria in Pregnancy		\$120,000		
CASE MANAGEMENT				
Diagnosis				
1. Procure rapid diagnostics tests (RDTs)	TBD	1,800,000	National	Procure approximately 3,460,000 RDTs for use in health facilities and in communities via CHWs.
2. Procure microscope consumables	TBD	15,000	National	Procure reagents, slides and repair materials for hospitals as well as reagents, slides and repair materials for previously purchased microscopes.
3. Improved malaria diagnostics	Stop Palu	150,000	National	Work with the NMCP and National Laboratory to develop and support a comprehensive quality assurance and quality control plan for malaria diagnostics at all levels of the health system. This will include refresher training for lab technicians (and training on malaria microscopy for new laboratory technicians) and regular supervision of microscopy and RDT performance, including systematic review of a predetermined number of positive and negative blood smears and simultaneous use of both tests to assess the quality of RDTs in diagnosing malaria.

Proposed Activity	Mechanism	Budget	Geographic Area	Description of Activity
4. Training/refreshers training in RDT use	Stop Palu	500,000	PMI Target Areas	Refresher training on malaria diagnostics, including correct RDT use at all levels of the health care system. This will be an integrated RDT/case management training. (See Treatment section for detailed description of case management training component.)
5. Supervision of health workers and CHWs in RDT use	Stop Palu	300,000	PMI Target Areas	Integrated, regular supervision of health workers and CHWs focusing on microscopy and RDT performance. This will be integrated RDT/case management supervision. (See Treatment section for detailed description of case management supervision component.)
Subtotal: Diagnosis		\$2,765,000		
Treatment				
1. Procure ACTs	TBD	830,000	National	Procure approximately 1,735,000 ACTs.
2. Procure injectable artesunate	TBD	679,500	National	Procure approximately 76,100 (\$8.58 per treatment) treatments of injectable artesunate for severe malaria.
3. Procure injectable artemether	TBD	31,000	National	Procure approximately 20,000 (\$1.50 per treatment) treatments of injectable artemether for severe malaria.
4. Procure rectal artesunate	TBD	7,000	National	Procure 15,500 (\$0.44 per treatment) treatments of rectal artesunate for pre-referral of cases of severe malaria

Proposed Activity	Mechanism	Budget	Geographic Area	Description of Activity
5. BCC for case management	Stop Palu	Cost covered under BCC section	PMI Target Areas	Funds will be used to support integrated behavior change communication and education activities for communities to improve behaviors related to malaria prevention and treatment. The BCC supported will target prevention activities, including use of LLINs and IPTp. BCC activities will also support appropriate care seeking behaviors, particularly at the community level through use of CHWs. Emphasis will be placed on prompt care-seeking for fever and other symptoms of malaria.
6. Clinical training/refresher training in malaria case management	Stop Palu	Cost covered under Case Management/Diagnostics section	PMI Target Areas	Training in RDT use, malaria case management, and malaria in pregnancy for health workers at hospitals, health centers, and health posts who have not been trained using previous years funds. Also, M&E training for district and regional level officials. 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. Continue implementation of a comprehensive refresher training schedule for health workers and CHWs who have already received initial training.

Proposed Activity	Mechanism	Budget	Geographic Area	Description of Activity
7. Supervision of health workers and CHWs	Stop Palu	Cost covered under Case Management/Diagnostics section	PMI Target Areas	Enhance clinical supervision at all levels of the health care system, including hospitals, health centers, health posts, and CHWs. District Health Team staff (<i>Département Préfectoral de Santé</i>) and regional health team staff (<i>Département Régional de Santé</i>) 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.
8. Community case management	Stop Palu	150,000	PMI Target Areas	Support the scale-up of community case management in PMI target areas, including management and logistic costs, and support for data management, as well as training of 650 CHWs.
Subtotal: Treatment		\$1,697,500		
Pharmaceutical Management				
1. Improving logistic management information systems	Systems for Improved Access to Pharmaceuticals and Services	100,000	National and Regional Level	Continued support to strengthen the Logistics Management Information System to enable the pharmaceutical system collect, compile and process consumption data throughout the health system in order to improve the forecasting, the procurement and the distribution of commodities. Includes procurement of computers, support for Internet connectivity, capacity building for quantification at the central level (PCG, DNPL) as well as at the regional, prefectures and district levels.

Proposed Activity	Mechanism	Budget	Geographic Area	Description of Activity
2. Pharmaceutical systems reform	Systems for Improved Access to Pharmaceuticals and Services	250,000	National	Continue to support the reform of regulations governing the supply chain management system, including advocacy for signing a convention between the Government and PCG and improvement of the governance of PCG (renewal and functioning of the board, information sharing, civil society and private sector's participation, etc.).
3. Improve drug regulatory capacity	Systems for Improved Access to Pharmaceuticals and Services	250,000	National	Continue to support improvement of the regulatory and oversight capacities of the DNPL, revision of national list of essential drugs and enhanced control of compliance to the pharmaceutical policy and regulations by PCG and the private pharmacies network.
4. Management of pharmaceutical supplies	TBD	700,000	National	Manage the distribution of PMI commodities down to the health facility level, including warehousing, transportation, storage and distribution.
5. Strengthening of the DNLP and the national laboratory for drug quality testing and monitoring	USP/PQM	100,000	National	Review and revise the national policy on drug quality; implementation of quality surveillance through support to the PCG and the DNLP to improve sampling strategies with appropriate techniques; review registration and importation/registration policies; and strengthen national reference lab.
Subtotal: Pharmaceutical Management		\$1,400,000		

Proposed Activity	Mechanism	Budget	Geographic Area	Description of Activity
MONITORING AND EVALUATION/OPERATIONAL RESEARCH				
1. End-use Verification	Systems for Improved Access to Pharmaceuticals and Services	150,000	National	Provide support to monitor the availability and utilization of key antimalarial commodities at the health facility level.
2. Health facility survey	Stop Palu	200,000	National	This will be the second HFS to assess progress in case management after two years
3. Health facility-based surveillance	Stop Palu	200,000	National	Continuing support to sentinel sites in order to provide longitudinal data on trends in malaria cases throughout the country.
4. ITN monitoring	Stop Palu	100,000	National	Continuing support to monitoring of ITN durability and efficacy
5. Therapeutic efficacy study	Stop Palu	100,000	National	Evaluate the efficacy of first and second-line ACTs in two of the four monitoring sites in the country using the standard WHO protocol.
6. Routine system strengthening	Measure Evaluation	87,500	National	Implement activities to strengthen routine data quality (including completeness, timeliness, and accuracy) and data use for decision making. Activities will be prioritized based on identified gaps and weaknesses. This is a cross-cutting issue for the health portfolio and includes a strong component for malaria
7. Technical assistance for M&E	CDC IAA	25,000	National	Technical support to the NMCP and partners for ongoing M&E activities including routine system strengthening/surveillance and monitoring activities (e.g., TES).
Subtotal: M&E		\$862,500		

Proposed Activity	Mechanism	Budget	Geographic Area
1. BCC for ITN and IPT use as well as for use of case management (RDT and ACT use)	Stop Palu	500,000	PMI Target Areas
2. BCC for integrated health service delivery	New RFA for Service Delivery Bilateral	100,000	National
Subtotal: BCC		\$600,000	
1. Management support for NMCP	Stop Palu	100,000	National and Prefectural Levels
2. Peace Corps Response Volunteer and Small Project Grants	Peace Corps/SPA	20,000	NA
Subtotal: Capacity Building		\$120,000	

Proposed Activity	Mechanism	Budget	Geographic Area	Description of Activity
STAFFING AND ADMINISTRATION				
1. USAID Resident Advisor and Locally Engaged Senior Malaria Advisor	USAID	700,000	Conakry	Support for one USAID PMI Advisor and one USAID locally-engaged senior malaria specialist as well as one CDC PMI Advisor, and all related local costs to sitting in USAID Mission.
2. CDC Resident Advisor	CDC IAA	400,000	Conakry	
Subtotal: In-country Management and Administration		\$1,100,000		
GRAND TOTAL		\$12,500,000		

