

NIGERIA

FY 2011 Malaria Operational Plan

October 29, 2010

This Malaria Operational Plan has been endorsed by the U.S. Global Malaria Coordinator and reflects collaborative discussions with national malaria control programs and partners in country. If any further changes are made to this plan, they will be reflected in a revised posting.



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ABBREVIATIONS

ACSM – advocacy, communication and social mobilization
ACT – artemisinin-based combination therapy
AL – artmethers-lumefantrine
AMFm – Affordable Medicines Facility for Malaria
ANC – antenatal care
BCC – behavior change communication
CDC – Centers for Disease Control and Prevention
CQ – chloroquine
DfID – Department for International Development
DHS – Demographic and Health Survey
FMOH – Federal Ministry of Health
Global Fund – Global Fund to Fight AIDS, Tuberculosis, and Malaria
GHI – Global Health Initiative
GON – Government of Nigeria
HIV/AIDS – Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome
IFRC – International Federation of the Red Cross
IPD – Immunization Plus Day
IRS – indoor residual spraying
ITN – insecticide treated net
LGA – Local Government Authority
IEC – information, education and communication
LLIN – long-lasting insecticide treated net
MAPS – Malaria Action Program for States
MIP – malaria in pregnancy
MIS – Malaria Indicator Survey
MOH – Ministry of Health
MOP – Malaria Operational Plan
MDG – Millennium Development Goal
NAFDAC – National Agency for Food and Drug Administration and Control
NGO – nongovernmental organization
NMCP – National Malaria Control Program
PEPFAR – President’s Emergency Plan for AIDS Relief
PHC – primary health care
PLWHA – persons living with HIV/AIDS
PMI – President’s Malaria Initiative
PMTCT – prevention of mother to child transmission
PMV – patent medicine vendor
RBM – Roll Back Malaria
SFH – Society for Family Health
SP – sulfadoxine-pyrimethamine
TSHIP – Targeted State High Impact Project
USAID – United States Agency for International Development
USG – United States Government

EXECUTIVE SUMMARY

Malaria prevention and control are major foreign assistance objectives of the U.S. Government (USG). In May 2009, President Barack Obama announced the Global Health Initiative (GHI), a six-year, comprehensive effort to reduce the burden of disease and promote healthy communities and families around the world. Through the GHI, the United States will invest \$63 billion over the next six years to help partner countries improve health outcomes, with a particular focus on improving the health of women, newborns, and children.

The President's Malaria Initiative (PMI) is a core component of the GHI, along with HIV/AIDS, and tuberculosis. The PMI was launched in June 2005 as a 5-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 has now been extended through FY2014. 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; and promoting research and innovation.

Nigeria became a PMI country in 2010. Malaria is a major public health concern in Nigeria, accounting for 60% of outpatient visits and 30% of hospitalizations among children under five years of age. With a population of about 150 million people, Nigeria has more reported cases of malaria and deaths due to malaria than any other country in the world. The 2008 Demographic and Health Survey (DHS) reported an infant mortality of 75 per 1000 live births and an under five mortality of 157 per 1000 live births in the preceding 5-year period. The proportion of households owning one or more insecticide-treated nets (ITNs) was only 8% in the 2008 DHS, while the proportion of children under five reported to have slept under an ITN the night before the survey was just 6%.

Donor support to malaria control in Nigeria has increased dramatically in recent years. Nigeria was the recipient of a \$500 million Global Fund Round 8 award that was signed in 2008. In 2009, a second phase of the World Bank Malaria Booster Program provided \$100 million in addition to the \$180 million it had provided earlier for support to a broad set of malaria interventions in seven states. The UK Department for International Development (DfID) launched a five-year \$100 million malaria program in 2008.

Nigeria was also selected as one of nine countries to pilot the Affordable Medicines Facility for malaria (AMFm). The AMFm, which receives financial support from UNITAID, DfID, and the Bill and Melinda Gates Foundation, is managed by the Global Fund. The goal of AMFm is to reduce the retail price of artemisinin-based combination therapies (ACTs) to a point that they are as affordable as many of the cheapest antimalarial monotherapies.

Nigeria's large population and decentralized system make it virtually impossible for one donor to provide meaningful assistance to the entire population. The National Malaria Control Program (NMCP) works with donors to ensure that the six geopolitical zones and states receive support proportional to the burden of malaria and the level of donor assistance, and that assistance is spread to reach as many states as possible. USAID has funded malaria activities in Nigeria over the past decade, providing \$18 million in FY 2010. USAID funds have been focused on supporting the scale up of ITN ownership and use in Cross River and Kano States. In all, about 1.3 million ITNs have been purchased and delivered. USAID also developed and distributed prepackaged, socially marketed ACT treatments for children under five for distribution in 18 states. With the significant increase in funds in FY 2011, PMI, in consultation with the NMCP and other donors, is targeting eight states for a comprehensive package of malaria interventions.

The FY 2011 PMI Operational Plan for Nigeria was based on a planning meeting in Nigeria in April 2010 that included representatives from USAID and the Centers for Disease Control and Prevention (CDC). The team obtained input from national and international partners involved in malaria prevention and control in the country. The PMI plan supports the National Malaria Strategic Plan 2009 – 2013 and is coordinated with national and international partners to complement overall funding and resources. The proposed FY 2011 PMI budget for Nigeria is \$48.5 million. With this funding, PMI will focus efforts on a population of approximately 30 million in eight of the 36 states:

Insecticide-Treated Nets (ITNs): The National Malaria Strategic Plan 2009-2013 calls for universal coverage of ITNs, defined as two ITNs per household, by the end of 2010. As a result of support from various donors, including Global Fund, World Bank, UNITAID, UNICEF, DfID, USAID and Canadian Red Cross, funds are now available to procure and distribute more than 60 million ITNs by the end of 2011. To ensure that Nigeria is able to maintain this high coverage, PMI will work in eight states to distribute two million long-lasting insecticide treated nets (LLINs) through routine systems specifically adapted to meet the challenges in each state. PMI will also continue support to an existing program for social marketing of LLINs. As a result of these efforts, PMI should be able to maintain 80% ownership of LLINs in these eight targeted states.

Indoor Residual Spraying (IRS): To date, IRS has only been implemented in Nigeria in a limited fashion. However, according to the National Malaria Strategic Plan 2009-2013, the objective is to gradually scale up spraying to cover 20% of households nationwide (or almost seven million households) by 2013. With FY 2011 funding, PMI will work with the NMCP to refine the national IRS strategy and prepare for a PMI-supported demonstration of a high quality spray operation in two local government authorities (LGAs) reaching approximately 100,000 houses in FY 2012. As a part of this effort, PMI will provide training and education opportunities and build local capacity for IRS operations, as well as entomological and environmental monitoring.

Intermittent Preventive Treatment in pregnancy (IPTp): Scale-up of IPTp continues to be a challenge in Nigeria. According to the 2008 DHS, only 58% of pregnant women had access to antenatal care from a skilled provider, 62% of pregnant women delivered at

home, and only 5% of pregnant women received two or more doses of IPTp. A number of factors contribute to the low uptake of IPTp including sporadic availability of sulfadoxine-pyrimethamine (SP), low antenatal care (ANC) attendance, and poor quality of ANC service delivery. To address these issues, PMI will procure SP for eight targeted states while also providing technical assistance at the federal and state level to update the malaria in pregnancy policy and strategic plan, review and update the malaria in pregnancy (MIP) training manuals, train health workers, and provide job aids on IPTp.

Case Management: Case management in Nigeria is weak, suffering from a lack of availability of diagnostics, a weak supply chain system, and poor delivery of services at the health facility level. The National Antimalarial Treatment Policy states that a parasitological diagnosis is required in all suspected cases of malaria. Presumptive treatment is permissible in areas where either supplies or trained persons are not available. Additionally, the supply chain system is fragmented and disorganized, resulting in regular stockouts of ACTs nationally. To address the ACT availability issue, the Nigerian Federal Ministry of Health will pilot the Affordable Medicines Facility - malaria (AMFm) in Nigeria, a new effort aiming to provide highly-subsidized ACTs to the public and private sector. The NMCP is also working with the states to improve the delivery of malaria case management by developing implementation guidelines and providing supportive supervision.

To improve malaria case management, with FY 2011 funds, PMI will support the procurement of RDTs, microscopes and laboratory supplies, ACTs and severe malaria drugs for use in the eight PMI states. Together with these commodities PMI will continue to strengthen and harmonize the supply chain management system for malaria nationally. At the health facility level, PMI will support training and supervision for lab technicians on the appropriate and accurate use of RDTs and microscopy. At the community and facility level, PMI will provide training, supportive supervision and job aids to ensure that malaria cases are treated appropriately.

Advocacy, Communication and Social Mobilization: Although many of the key malaria prevention and treatment interventions are being scaled up nationally, their success depends on changes in behavior within the community. LLIN ownership and use remains low; ANC attendance and IPTp uptake is weak; and people are still unaware that children should be treated promptly if they have fever. At the national level, PMI will work with the NMCP to develop appropriate behavior change communication (BCC) materials to promote correct malaria prevention and treatment measures. PMI will support adaptation and adoption of the nationally harmonized BCC materials in each state both for mass media and community-based programs. The goal is to ensure that LLINs are used correctly and consistently by all, that IRS is accepted (where implemented), that pregnant women attend ANCs early and often, and that patients with fever seek treatment promptly.

Monitoring and Evaluation: The PMI Nigeria plan includes a strong monitoring and evaluation component to identify and correct problems in program implementation and measure progress against the goal and targets. In the eight PMI-supported states, PMI

will strengthen the routine malaria data system such that accurate and reliable health facility level malaria information is available. PMI will also work at the federal level to build capacity for monitoring and evaluation within the NMCP through participation in the Field Epidemiology and Laboratory Training Program (FELTP).

Integration and Health Systems Strengthening: Consistent with GHI principles, PMI will intensify its efforts to strengthen health systems and integrate activities with other USG programs. The NMCP has sufficient staff at the central level and has strong leadership, but could benefit from additional technical trainings and regular supervision. PMI will support NMCP senior staff training in epidemiologic methods, data analysis, operations research, and strategic information for decision making through the FELTP. At State and LGA levels, PMI will support improved supervision and on-the-job training on various key technical and operational issues.

Within the context of the GHI, PMI will work coordinate with PEPFAR in the distribution and demand creation for LLINs through HIV/AIDS partner organizations and networks as part of the care and treatment package. Other areas of common interest include strengthening supply chain management systems, supporting the Federal Ministry of Health (FMOH) in their efforts to strengthen the Health Management Information System, and support comprehensive antenatal services, including malaria and HIV/AIDS.

INTRODUCTION

Global Health Initiative

Malaria prevention and control is a major foreign assistance objective of the U.S. Government (USG). In May 2009, President Barack Obama announced the Global Health Initiative (GHI), a six-year, comprehensive effort to reduce the burden of disease and promote healthy communities and families around the world. Through the GHI, the United States will invest \$63 billion over six years to help partner countries improve health outcomes, with a particular focus on improving the health of women, newborns and children. The GHI is a global commitment to invest in healthy and productive lives, building upon, and expanding, the USG's successes in addressing specific diseases and issues. Addressing wide-ranging health needs in partnership with host country governments, communities and other partners represents an ambitious agenda that can be met only if we work together, aligned toward common goals, with a commitment to fundamentally improve the way we do business.

The GHI aims to maximize the impact the United States achieves for every health dollar it invests, in a sustainable way. The GHI's business model is based on: implementing a woman- and girl-centered approach; increasing impact and efficiency through strategic coordination and programmatic integration; strengthening and leveraging key partnerships, multilateral organizations, and private contributions; encouraging country ownership and investing in country-led plans and health systems; improving metrics, monitoring and evaluation; and promoting research and innovation. The GHI will build on the USG's accomplishments in global health, accelerating progress in health delivery and investing in a more lasting and shared approach through the strengthening of health systems.

President's Malaria Initiative

The President's Malaria Initiative (PMI) is a core component of the GHI, along with HIV/AIDS, and tuberculosis. The PMI was launched in June 2005 as a 5-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 has now been extended through FY2014 and, as part of the GHI, the goal of PMI has been adjusted to reduce malaria-related mortality by 70% in the original 15 countries by the end of 2015. This will be achieved by reaching 85% 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 of pregnant women (IPTp), and indoor residual spraying (IRS). Under the Lantos-Hyde Act, PMI will expand in 2011 to two additional countries – Nigeria and the Democratic Republic of Congo.

In implementing this Initiative, the U.S. Government is committed to working closely with host governments and within existing national malaria control plans. Efforts are coordinated with other national and international partners, including the Global Fund to Fight AIDS, Tuberculosis, and Malaria (Global Fund), Roll Back Malaria (RBM), the World Bank Malaria Booster Program, and the non-governmental and private sectors, to ensure that investments are complementary and that RBM and Millennium Development goals are achieved. Country assessment and planning activities for PMI, as well as subsequent evaluations, will be highly consultative and held in collaboration with the national malaria control program and other partners.

The U.S. Agency for International Development (USAID) has been supporting malaria control efforts in Nigeria for more than ten years. The level of USAID malaria funding increased to about \$7 million annually in FY07 and FY08, and then further to \$16 million in FY09 and \$18 million in FY2010. This document presents a detailed one-year implementation plan for FY2011, the first year of the President's Malaria Initiative in Nigeria. It briefly reviews the current status of malaria control and prevention policies and interventions; and identifies challenges and unmet needs to achieve PMI goals. This document was developed during a visit to Nigeria by USAID and Centers for Disease Control and Prevention (CDC) staff in March 2010. The inter-agency team worked in close consultation with the National Malaria Control Program and with participation of national and international partners involved in malaria prevention and control in the country. The total amount of PMI funding requested for Nigeria is \$48.5 million for FY 2011.

MALARIA SITUATION IN NIGERIA

Nigeria is the most populous country in Africa with an annual growth rate of about 3.2% and a total population of approximately 150 million. It is made up of six geopolitical zones, 36 states (plus the Federal Capital Territory of Abuja), and 774 Local Government Authorities (LGAs), each with an average population of about 200,000 residents. Each state has an elected governor, an executive council, and a house of assembly with the power to make state laws. State governments have substantial autonomy and exercise considerable authority over the allocation and utilization of their resources, limiting the influence of the federal government over state and local government affairs.



Nigeria is ranked 158 out of 177 countries in the 2005 United Nations Development Program (UNDP) Human Development Index. Under-five mortality is estimated at 157 per 1000 live births and maternal mortality is estimated at 545 per 100,000 live births (DHS 2008). For nearly all socioeconomic indicators, the south of the country is significantly better off than the north. For example, under-five mortality rates are about one and a half times as high and maternal mortality rates are three times as high in some northern zones as in the rest of the country.

The country's gross domestic product has increased during the past decade, with oil revenues as the main driver of the economy. In spite of a high income from crude oil sales, the economic growth has not improved the welfare of the majority of the population and there is a high incidence of poverty.

Malaria is transmitted throughout Nigeria. Five ecological zones define the intensity and seasonality of transmission and the mosquito vector species: mangrove swamps; rain forest; guinea-savannah; sudan-savannah; and sahel-savannah. The duration of the transmission season decreases from year-round transmission in the south to three months or less in the north. *Plasmodium falciparum* is the predominant species. The major

vectors are *Anopheles gambiae s. l.* and *An. funestus*. Within the *An. gambiae* complex, *An. arabiensis* predominates in the north and *An. melas* in the mangrove coastal zone.

Malaria accounts for about 60% of outpatient visits and 30% of hospitalizations in Nigeria. It is a leading cause of mortality in children under five years of age, responsible for an estimated 300,000 deaths in children under five years of age each year. It also contributes to an estimated 11% of maternal mortality (NMCP Strategic Plan 2009-2013). More than half of patients with suspected malaria first seek treatment in the private sector (*Situational analysis of malaria control in Nigeria*. Abuja: Federal Ministry of Health; 2000).

Health care in Nigeria

The public health care system is divided into three tiers, each associated with one of the administrative levels of government: federal; state; and local government authority (LGA). The 774 LGAs are the constitutionally-designated provider of primary health care. However, they are the weakest arm of the health system. There are more than 13,000 primary health care (PHC) facilities nationwide with a population to health facility ratio of about 5,500 residents to one. In addition to the Federal Ministry of Health, another centrally-funded agency, the National Primary Health Care Development Agency has the mandate to support the promotion and implementation of high quality and sustainable primary health care. This agency is particularly active in development of community-based systems and functional infrastructure as well as ensuring that infants are fully immunized against vaccine preventable diseases.

The federal budget covers tertiary care and disease control programs, including malaria control; state budgets pay for secondary care; and LGA budgets cover primary care. The amount of government spending on health and malaria is difficult to determine, as funding levels vary and actual spending does not always match the original budget. Health accounts have not yet been established, but it is believed that less than 5% of the national budget is spent on health.

The public health system in Nigeria is quite weak. Problems include:

- inadequate decentralization of services where most PHC facilities offer only a limited package of services;
- weak referral linkages between the different levels of health care;
- weak logistics systems for commodities with as many as six separate vertical commodities management systems with little or no coordination between them;
- dilapidated health infrastructure with many buildings and equipment in need of repair and/or maintenance; and
- weak institutional capacity with inadequate supervision of health services.

The private health care system is robust and provides care for a substantial proportion of the Nigerian population. It consists of tertiary, secondary, and primary health care facilities, as well as patent medicine vendors (PMVs) and drug sellers. More than 70% of all secondary facilities and about 35% of PHC facilities in Nigeria are private and an

estimated 60% of all fever cases seek treatment first in the private sector. Services provided by the private sector may be subsidized, as in missionary health facilities, or full-cost, as in privately owned clinics and hospitals. The latter are more common in urban than in rural areas. In rural areas, about two-thirds of the population lives within five kilometers of a PHC clinic. It is estimated that there are more than 36,000 PMVs nationwide, and they are fairly evenly distributed between urban and rural areas.

NATIONAL MALARIA CONTROL PLAN AND STRATEGY

The current updated National Malaria Control Strategic Plan (2009-2013) is based on the Health Sector Development Framework and Strategic Plan and is in line with national health and development priorities. The 2009-2013 Strategic Plan has a goal of reducing malaria-related mortality in Nigeria by 50% by 2013. The 2010 coverage targets for malaria prevention interventions are very ambitious:

- At least 80% of households with two or more ITNs;
- At least 80% of pregnant women and children under five sleep under an ITN;
- 20% of households nationwide covered by indoor residual spraying (IRS);
- At least 80% of pregnant women attend antenatal services and 60% receive two doses of IPTp;

The major treatment coverage targets are:

- At least 80% of patients with fever attending a health facility receive a diagnostic test and are treated according to those results by 2013;
- At least 80% of malaria patients receive timely and adequate treatment according to national treatment guidelines by 2013.

To accomplish these objectives, the NMCP is pursuing a series of core and cross-cutting policies for malaria treatment and prevention. The first of these new policies focuses on increasing access to treatment in both public and private health facilities. The federal government is supporting the provision of free ACTs to children under five through the public sector and non-profit organizations, the use of rapid diagnostic tests (RDTs) to improve diagnosis of uncomplicated malaria, and the use of pre-referral treatment of severe malaria (using applicable medications such as artemisinin rectal suppositories) at peripheral health facilities and community levels to reduce malaria fatalities.

The Nigerian NMCP has about 80 staff members at the central level. At the central level, the NMCP is responsible for establishing policies and norms. Each state and LGA has a malaria officer (local civil service) who is responsible for overseeing malaria activities in his/her area.

CURRENT STATUS OF MALARIA INDICATORS

The most up-to-date information on the status of malaria control efforts in Nigeria comes from the national Demographic and Health Survey (DHS), which was conducted from June to October in 2008. A total of 33,385 women aged 15–49 and 15,486 men aged 15–59 were interviewed. Data from the DHS indicate that the infant mortality is 75 per 1000 live births while the under five mortality is 157 per 1000 live births in the preceding 5 year period. The proportion of households owning one or more ITNs increased from 2% in the 2003 DHS to 8% in the 2008 DHS. The proportion of children under five reported to have slept under an ITN the night before the survey was 1% in the 2003 DHS and 6% in the 2008 DHS. The proportion of pregnant women sleeping under an ITN increased from 1% in 2003 to 5% in 2008. ITN ownership was found to vary by zone, with the highest rate in the Southern zones (median 9.8%) and the lowest in the Northern zones (median 7.4%). ITN ownership increased with wealth quintile; 11% for the highest quintile decreasing to 4% for the lowest wealth quintile.

Indicator	Estimated national coverage (2008 DHS)
Proportion of households with at least one ITN	8.0 %
Proportion of children under five years old who slept under an ITN the previous night.	5.5%
Proportion of pregnant women who slept under an ITN the previous night.	4.8%
Proportion of children under five years old with fever in the last two weeks who received treatment with ACTs within 24 hours.	1.1 %
Proportion of women who received two or more doses of IPTp during their last pregnancy leading to a live birth within the previous two years (IPTp).	6.5%

EXPECTED RESULTS

Goals and targets of the President's Malaria Initiative in Nigeria by 2014

The goal of PMI, in collaboration with partners, is to reduce malaria-associated mortality in Nigeria by 50% by 2014 as compared with the 2010 levels. This will be achieved by reaching the following targets:

- More than 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 will have ACTs available for treatment of uncomplicated malaria; and
- 85% of children under five with suspected malaria will have received treatment with ACTs within 24 hours of onset of their symptoms.

Year-one expected results:

Focusing efforts on a population of approximately 30 million, using FY2011 funding and working closely with partners and through the NMCP, PMI will have achieved the following results by March 2012:

- Procured and delivered 2,000,000 LLINs in eight states through routine channels and improved ITN use by target groups.
- Supported malaria case management in five initial focus states so that 90% of children diagnosed with malaria receive an appropriate antimalarial.
- Increased 2 doses of IPTp to 15% and one dose to 25% of pregnant women using ANC services in five initial focus states.
- Strengthened the capacity of the IRS unit at the NMCP and in selected states.

PMI coverage in Nigeria

PMI will work at all three levels of the Nigerian health system: national, state and LGA. However, at lower levels PMI will focus its resources to achieve maximum impact and provide models for scale up. In Year 1, PMI will focus efforts in 8 states. Two of these will be states covered under the existing USAID Mission bilateral project Two State High Impact Project or TSHIP. TSHIP's goal is to provide comprehensive, statewide interventions focused on building capacity and achieving improved maternal and child health in Sokoto and Bauchi States. Another, malaria focused bilateral, Malaria Action Program for States (MAPS), was begun with USAID funds in FY 2010 and will continue with funding from PMI. With FY 2010 funds MAPS will support malaria activities in the two TSHIP states and rollout in three additional states. With FY 2011 funds, MAPS will expand to three more states, reaching a total of eight states during 2012. The program will expand in the future to other states based on availability of funds.

INTERVENTIONS – PREVENTION

Insecticide-treated nets

Background:

The NMCP Strategic Plan 2009 – 2013 sets universal coverage (of all population groups) as its goal, which is a shift from the previous goal to protect vulnerable groups only. The Strategic Plan sets 80% coverage of all households with two or more ITNs/LLINs by 2010 as its overall bednet target. It calls for an initial phase of rapid scale-up of free LLINs through mass campaigns. A second phase will focus on replacement of torn or

worn out nets and ensuring a regular supply to new family members. This distribution will occur through routine services, free or subsidized distribution through community-based organizations, and subsidized or full cost nets distributed through the commercial sector.

Sufficient resources have been identified to procure more than 62 million nets needed to deliver two LLINs, free of charge, to every household in Nigeria. As of August 2010 over 24 million LLINs have been distributed in 14 states and Nigeria is on track to complete distribution in all states by mid-2011. Global Fund Round 8, the Nigerian Millennium Development Goal (MDG) Fund, World Bank, and UNITAID have been the main donors of nets, with DFID, USAID and UNICEF joining those donors to play major roles in planning and support for distribution.

The NMCP and partners have provided technical support for campaign implementation to each state through the LLIN Campaign State Support Teams. The original four State Support Teams were expanded to six teams in April 2010 and these have provided technical support to each state in three key technical areas: campaign management, logistics, and demand creation. The six-person State Support Teams are comprised of three national level health officers (from the NMCP, other divisions of the Ministry of Health (MOH) or other federal agencies) and three technical consultants hired with support from the partners. The technical streams are led at a national level by Technical Expert Teams and the overall lead is the Campaign Coordinator. The teams are supported by USAID, DfID and the World Bank, and have been essential to the success of the state campaigns.

Global Fund Round 8 is the source of all LLINs in 17 states and a major issue has been the absence of support for operational activities. States have been left to fill this gap and considerable disparity has been seen in their willingness and ability to cover those costs. Where gaps were not entirely filled, campaign outcomes were less impressive. UNICEF was responsible for distribution in four states. Those campaigns were linked to child health days, rather than the NMCP adopted approach of free-standing campaigns. Results from surveys to assess this approach are pending.

One consequence of undertaking the nationwide universal LLIN campaign has been the de facto cessation of routine delivery of LLINs. Nevertheless, a significant number of LLINs continue to arrive in Nigeria outside of the campaign stream. In 2009, the Society for Family Health reported selling about one million unsubsidized LLINs in the commercial sector and a review of information provided by manufacturers on procurement and delivery of LLINs to Nigeria shows that about 7.2 million LLINs came into Nigeria through sources other than the major international and bilateral donors. Phase 2 of Global Fund Round 8 calls for procurement of about 9.4 million LLINs over the period of three years, 2011 to 2013 to help maintain high coverage. The gap for keep-up in 2011, relying on routine delivery through health facilities, is estimated to be 5.4 million. Taking Global Fund Round 8 contributions into consideration, the gap for a planned universal coverage campaign beginning in 2012 is currently over 22 million LLINs.

Progress to Date:

Kano State implemented the first universal coverage campaign in Nigeria with support from USAID, DfID, and World Bank, who collectively contributed 4.1 million LLINs and logistic and operational support. The campaign, carried out between June and August 2009, delivered a net voucher to each household using a door-to-door approach. During a predetermined period, the voucher could be redeemed for two nets from a nearby distribution site. A household was defined as a group of people eating together. Thus, polygamous family compounds received more than one voucher.

USAID and DfID supported a post-campaign evaluation in Kano State and DfID supported another survey in Anambra State, the second state to conduct a universal coverage campaign. These surveys were conducted at the end of the rainy season/early dry season when mosquito populations were still high and provided valuable insight on short-comings and successes of the campaigns. The evaluations revealed that the proportion of households not visited during registration was high, 27% and 18% in Kano and Anambra states, respectively. The unregistered households in both states were highly clustered, indicating that most missed households were due to workers skipping entire neighborhoods during registration, which is likely due to workers running out of vouchers. Sixty four percent and 74% of households reported receiving a campaign net in Kano and Anambra, respectively and household ownership of at least one ITN increased dramatically from 12% to 69% in Kano and from 2% to 64% in Anambra. The proportion of campaign nets that were hanging at the time of the survey, two to five months after the campaign, was 81% in Kano and 61% in Anambra. These results support the observation by many health workers that there is a stronger net culture in northern Nigeria (Kano State is in the North-West Zone) than in southern Nigeria (Anambra State is in the South-East Zone). Use of nets by children under 5 was 44% in Kano and 42% in Anambra, indicating the need for intensified and improved communication for behavior change around net use.

In late 2008 and early 2009, shortly before Nigeria adopted a universal coverage campaign approach, USAID and the Canadian Red Cross supported a targeted LLIN campaign that delivered 676,877 LLINs to children under five in Cross River State. An evaluation of that campaign found that 81% of households received a campaign net and 63% of children under five and 60% of pregnant women slept under an ITN the previous night. In October 2010, USAID, working with the International Federation of the Red Cross (IFRC), will conduct a fill-in campaign designed to achieve universal coverage by delivering nets to those households that possessed fewer than two nets. USAID will provide a total of 614,000 nets for that mop-up campaign.

Proposed FY2011 USG activities (\$18,812,000):

With the massive effort being put into the nationwide universal campaign, too little attention has been given to delivery of LLINs as part of keep-up activities that are needed to maintain high levels of coverage. Based on current LLIN quantifications, an additional 1.3 million nets are needed in 2010. PMI proposes to meet and exceed this contribution and will program sufficient funds to cover the operational costs of delivery to all pregnant women, for a population of approximately 32 million. With FY 2011 funding, PMI will support the following activities:

1. Procure approximately two million LLINs for “keep-up” activities to help maintain the high coverage achieved in Nigeria through a nationwide LLIN universal campaign. LLINs will be delivered through ANC clinics, other health facility activities or at community level to reach vulnerable populations. Nets will be distributed in eight states, including six under the PMI-supported MAPS bilateral and two under the USAID TSHIP bilateral. (\$13,000,000)
2. Logistic and operational support for distribution of LLINs to pregnant women in six MAPS and two TSHIP states. PMI will support the distribution of LLINs particularly to pregnant women and children in rural areas with the goal of maintaining high LLIN coverage. This includes the development of the system, regular distribution, storage, supervision, reporting, and associated IEC/ BCC (\$5,650,000)
3. Provide technical assistance to develop innovative, effective “keep-up” strategies for delivery of LLINs to vulnerable populations. Develop and roll out innovative approaches for LLIN distribution in three MAPS states that can be used as appropriate in other MAPS and TSHIP states (\$150,000)
4. Technical assistance from PMI for LLIN distribution and use. One USAID technical expert for a two-week visit (no additional cost)
5. Technical assistance from PMI for LLIN distribution and use. One CDC technical expert for a two-week visit (\$12,000)

Indoor residual spraying

Background:

The 2009-2013 National Malaria Control Strategic Plan calls for vector control in Nigeria as part of an integrated vector management strategy. This includes ensuring universal access to LLINs, increased IRS in selected areas where synergy with ITNs can be achieved or where ITNs alone do not have sufficient impact, environmental management to reduce available mosquito breeding sites in urban and peri-urban areas, and larval control using larvicides, predators, or growth inhibitors. According to the 2009-2013 Plan, spraying would be focused on areas (1) with a short transmission season where the addition of IRS might make local elimination feasible; (2) where ITNs have been shown

to be difficult to implement and usage rates remain low; (3) where IRS may be more efficient, such as in and around more densely populated municipalities. The IRS objective in the Strategic Plan is to gradually scale up spraying to cover 20% of households nationwide (or almost seven million households) by 2013.

In 2006 and 2007, several trials of IRS with various synthetic pyrethroids (lambdacyhalothrin, bifenthrin, alphacypermethrin, deltamethrin) and bendiocarb were conducted in a total of five LGAs in five different states in collaboration with insecticide manufacturing companies. WHO vector control staff evaluated these trials and concluded that IRS is feasible and should be scaled up in Nigeria.

At present, the only IRS being conducted with donor support in Nigeria is World Bank-supported spraying campaigns in seven states (four in the north and three in the south), again carried out in collaboration with insecticide manufacturing companies. A total of 250,000 houses were programmed to be sprayed across the seven states but only about 37,688 houses were sprayed in total. The insecticides used were bifenthrin, lambdacyhalothrin, and deltamethrin. A high level of community acceptance was reported for these trials, but a final report has not been released. Based on these experiences, a draft implementation plan for IRS has been developed and is awaiting finalization. The NMCP is now seeking comprehensive technical and financial support to help them scale up IRS in line with their 2009-2013 Strategy. Several states and LGAs have either begun spraying on their own or expressed interest in supporting IRS. In addition, the Nigerian Millennium Development Goals Program with its \$1 billion in debt relief funds is willing to consider funding IRS if suitable proposals are received.

Proposed FY2011 USG activities (\$2,500,000):

Although IRS has been supported in recent years by the World Bank in seven states and by some states or LGAs using public funds, the quality of those IRS operations is not known. PMI will work with the NMCP to strengthen the national IRS strategy and plan for a demonstration of a high quality spray operation as a broad training and educational opportunity in Year 2, i.e. 2012. The vision is to use the implementation of a state-of-the-art IRS operation to provide impetus for strengthening and adapting the national strategy. PMI will also assist the NMCP and states to identify possible donors to support IRS on a longer term basis. PMI also sees monitoring of insecticide resistance as vital to Nigeria and West Africa in general. With FY 2011 funding, PMI will support the following activities:

- Provide support for a comprehensive IRS program in two LGAs (up to 100,000 houses) in Nasarawa State in 2012. This will include mapping of targeted areas, quantification of commodity and personnel needs, procurement, training of staff, implementation, supervision, entomologic monitoring, and environmental and waste management (\$1,800,000).

- Strengthen capacity at federal and state level on IRS strategy and implementation. Work closely with the NMCP and interested States on developing capacity and appropriate strategies for IRS at the national and specific state levels. (\$445,000)
- Strengthen capacity for entomological monitoring at federal and state levels, to include an insecticide resistance surveillance course for 40 Nigerian IRS staff (\$200,000).
- Technical assistance to PMI IRS activities. This will include three TDYs to provide technical assistance and resistance test kits for 40 Nigerian staff attending training. (\$55,000)

Intermittent preventive treatment of malaria in pregnant women

Background:

Nigeria has an estimated 7.5 million pregnant women annually, almost all of whom are at risk of malaria during their pregnancy. Before 2005, various antimalarial drugs were used to control malaria during pregnancy including chloroquine, proguanil and pyrimethamine; however, use of these drugs was limited by the development of parasite resistance to these drugs. In 2005, the NMCP adopted a new policy on control and prevention of malaria during pregnancy with the objectives to reduce the incidence of maternal anemia, reduce the incidence of low birth weight attributable to malaria and other malaria related complications during pregnancy.. The key interventions to achieve these objectives are:

- promotion of the use of LLINs;
- prompt and effective treatment of clinical malaria episodes; and
- IPTp with two doses of sulfadoxine-pyrimethamine (SP) during the second and third trimesters and at least three doses for HIV+ women.

The implementation of malaria in pregnancy interventions is part of an integrated package of services delivered by the Reproductive Health / Maternal Child Health units through ANCs.

The NMCP's 2009-2013 Strategic Plan includes IPTp as part of Focused Antenatal Care (FANC). According to the 2008 DHS, only 58% of pregnant women have access to antenatal care from a skilled provider and 62% of pregnant women deliver at home. Eight percent of pregnant women received one dose of IPTp and 5% received two or more doses. On a regional basis, the northern states have lower rates of health indicators than their southern counterparts.

Implementation of IPTp in Nigeria is weak. Sulfadoxine-pyrimethamine is supposed to be administered under direct observation by a health worker, but the absence of clean water and cups at health facilities makes directly observed therapy difficult. In addition, there is inadequate awareness on the part of health workers and pregnant women about IPTp and a need to improve the level of collaboration between the NMCP and the Reproductive Health program in IPTp implementation.

In 2008, MDG funds were used to purchase SP which was distributed to the states and LGAs during the first quarter of 2009, but since then no additional purchases of SP have been made by the central level. States and LGAs can use their own funds to purchase drugs, but there is no system in place to track these purchases of SP or to know if adequate quantities are available at State and LGA levels. The World Bank is purchasing 2.8 million SP doses to be used in its seven supported states and DfID funding has been used to procure 850,000 SP doses, which are yet to be distributed.

Proposed FY2011 USG activities (\$2.4 million):

PMI will fill gaps in SP and provide assistance to shape policy and review the implementation strategy so as to remove barriers to ANC attendance and use of IPTp. PMI will also work at state, LGA and health facility levels to improve the delivery of IPTp as part of the FANC package. PMI will support the following activities:

1. Procure SP for IPTp for eight states, six MAPS states and two TSHIP states. PMI will ensure that adequate quantities of SP are available to meet the need for IPTp in these eight states (\$100,000)
2. Provide support to strengthen policy and implementation of IPTp as an integrated part of FANC in six MAPS and two TSHIP states. This will include support to review and update the NMCP's MIP policy document, implementation guidelines and training materials in collaboration with the Reproductive Health division. PMI will help print the revised training materials for use at all levels of the health system. (\$2,300,000)

INTERVENTIONS — CASE MANAGEMENT

Malaria Diagnosis

Background:

The principle approach to diagnosis and treatment of malaria in Nigeria is to provide prompt and highly effective antimalarial combination therapy (ACT) for confirmed uncomplicated malaria episodes. The Nigeria Strategic Plan describes the general objective of achieving “timely and equitable access to malaria diagnosis and treatment by all sections of the population and as close to the home as possible.”¹ Additionally, the National Antimalarial Treatment Policy states that a parasitological diagnosis is essential in all suspected cases of malaria and that the employment of quality diagnosis is an important step in confirming patients with malaria.²

¹ Strategic Plan 2009-2013: A Road Map for Malaria Control in Nigeria: Federal Ministry of Health, National Malaria Control Programme, Abuja, Nigeria

² National Antimalarial Treatment Policy: Federal Ministry of Health, National Malaria and Vector Control Division; Abuja, Nigeria July 2009

Though the national strategy is promoting biological diagnosis, there is the realization that rapid scale up is going to be difficult. The Nigerian NMCP's planned deployment of diagnostic tools will be gradual. In the initial phase, diagnosis of children under five and those with severe disease will remain based on clinical signs and symptoms in situations where diagnosis is not immediately available; however, the program plans to scale up parasitological diagnosis of malaria in patients above five at health facilities to 80% by 2013.

According to the NMCP, microscopy is the gold standard for the diagnosis of malaria. It should be employed in places where there is a high malaria case load, there is a need for parasite quantification, and/or the facility manages other diseases needing microscopic diagnosis. The NMCP describes these facilities as being hospitals, large health centers that include inpatient beds, and tertiary care facilities. The NMCP plans to use RDTs at all levels where microscopy is either not available or not possible due to lack of personnel, to complement microscopy in secondary facilities, and in certain outpatient facilities of tertiary facilities.

It is recognized that there is a need to develop the appropriate capacity among health personnel, community volunteers, and supervisors in the use of RDTs. This includes not only the routine use of the tests, but also in procurement, distribution, quality control, and advocacy. Regular and systematic supervision will be necessary. With Global Fund Round 8 funding the NMCP will undertake training in the application of RDTs for private and public sector health workers as part of an effort to improve comprehensive delivery of the malaria interventions.

RDT Gap Analysis (in millions)

RDT	2009	2010	2011	2012	2013
Target	2.92	6.03	11.20	15.41	18.55
GoN/other donors	2.38	4.59	3.80	4.07	4.15
Global Fund	0.54	1.44	7.40	11.34	14.40
Gap	0	0	0	0	0

Proposed FY2011 USG activities (\$3,012,000):

In spite of the fact that there will be no apparent gap in RDTs in 2011, PMI will program funds to procure sufficient quantities of RDTs to cover the six MAPS states and two TSHIP states. PMI takes this position based on the very slow roll-out of RDTs to the health facilities. Delivery of RDTs will be carried out in conjunction with the delivery of ACTs in the eight states receiving USG support in 2011. PMI will also include support for training on appropriate use of RDTs as part of the training on use of ACTs. Improving microscopy and the quality assurance of both microscopy and RDTs is another area of interest. With 2011 funding PMI will support the following activities:

1. Procure RDTs and microscopy supplies. PMI will procure additional microscopes and microscopy kits (reagents, slides, lancets, etc) to further improve laboratory capacity in Nigeria. An estimated 60 microscopes and/or microscopy kits will be procured. In conjunction with support from other donors, notably the Global Fund, PMI's emphasis will be on procuring equipment to fill gaps in country. Although Global Fund Round 8 will fill the projected gap in RDTs in 2011, PMI will procure RDTs to support the scale up of malaria laboratory diagnosis in up to six MAPS and two TSHIP states in Nigeria. (\$2,500,000)
2. Strengthen appropriate use of biological diagnosis including QA/QC systems. PMI will work with the NMCP to improve the appropriate use of diagnostics by developing innovative strategies to assist health workers in interpreting laboratory results and managing patients based on results. Support will include in-service training and supervisory visits for both laboratory workers and healthcare providers, as part of a comprehensive program for laboratory diagnostics. This activity is expected to take place in up to three MAPS and two TSHIP states in FY 2011 and expand to others in FY 2012. (\$500,000)
3. Provide technical assistance in malaria diagnostics. CDC will provide technical support for microscopic and RDT diagnosis. (\$12,000)

Pharmaceutical management

Background:

The public sector procurement and supply chain management system in Nigeria is extremely weak and very fragmented. The system is stove-piped by disease with each disease having its own supply chain system. Efforts by past ministers of health to rationalize this system have failed. There is much confusion and disorganization even within the malaria supply chain. Supplies of ACTs, SP and other malaria-related commodities come from a variety of sources, including the World Bank, Global Fund, and others, resulting in considerable confusion. Donors deliver their commodities directly to state-level Medical Stores, which then distribute down to the LGA and health facility level. In addition to those commodities provided via donors and federal government, states and LGAs also have revolving drug funds which allow them to procure supplementary commodities. States and LGAs have developed their own systems to manage malaria commodities---primarily using a push system, but with only limited records at stores and facilities. The result of the diverse sources of commodities and state procurements is a disjointed supply chain management system with little or no data on consumption at any level in the system and frequent stockouts. During a recent assessment only 48% of stores and 44% of service delivery points had ACTs on the day of the visit and only 70% of the facilities felt it was within their mandate to handle ACTs.

At the federal level, the NMCP Procurement and Supply Management Department is tasked with trying to coordinate the procurement and delivery of commodities from these varied sources and develop a rational forecasting for malaria-related commodities.

However, given the confusion in the system, such a task is almost impossible to accomplish.

Nigeria is one of the 11 countries selected for the pilot of the Affordable Medicines Facility for Malaria (AMFm). In anticipation of the launch of the AMFm pilot in mid-2010, the Global Fund recognized the need to strengthen the malaria supply chain and has is funding four work orders (a type of short-term contract): one on logistics management information systems and inventory control systems, one on forecasting and procurement planning, one on warehousing, and one on distribution. John Snow International is responsible for the first two Global Fund work orders and iPlus Solutions is responsible for the last two work orders.

As a result of the activities carried out under these work orders, a new procurement and supply chain management system will be rolled out in late 2010 that is designed to bring coherency to the malaria commodities system and institute a clear chain for quantification, procurement, and distribution between NMCP, state, LGA and facility levels. As part of this effort, a logistics management information system will be developed so that all consumption and stock information is transmitted effectively to all levels to ensure accurate monitoring and quantification. USAID, along with DFID, will in FY10 support the development of this logistics management information system, and train malaria focal persons at the state and LGA levels in supply chain management; however, further support is needed to roll this system out from the LGA to the health facility level.

The quality of the antimalarials available in the private sector is also questionable. In Nigeria, most antimalarials flow through the private sector, particularly to the PMVs. Many of these drugs are WHO-pre qualified ACTs but the market is also flooded with almost 40 registered ACTs that are manufactured in Nigeria and other non prequalified foreign manufacturers, as well as artemisinin monotherapies, SP, and chloroquine. The National Agency for Food and Drug Administration and Control (NAFDAC) has responsibility for the registration of antimalarials and quality control at the point of entry for international or at the factory gate for locally-produced drugs. The NAFDAC and NMCP collaborate to conduct post marketing surveillance of drugs. Given the size and scope of the private sector market in Nigeria, implementing these quality control measures, particularly those charged to the NMCP is very difficult and support is needed to facilitate these activities.

Proposed FY2011 USG activities (\$2,350,000):

The strongly decentralized federal system in Nigeria provides opportunities for USAID and other partners to work with the eight state governments where PMI will be supporting malaria control activities to improve the supply chain management system and monitor the quality of drugs at all levels of the supply chain. With FY 2011 funding, PMI will support the following activities:

1. Strengthen supply chain management for antimalarials at the state level and below. Provide training and technical assistance for the implementation of the new supply chain system with a focus on the facility and LGA level. Continue to provide technical assistance to the NMCP to enhance their coordination role. This includes Sokoto, Zamfara, Bauchi, Cross River, and Nasarawa States, as well as three other states to be determined. (\$2,000,000)
2. Support the NMCP and NAFDAC to monitor the quality of antimalarials at several points in the supply chain. This may be through the provision of and training on minilabs and/or other drug quality monitoring tools. (\$350,000)

Malaria Treatment

Background:

The Nigerian Antimalarial Treatment Policy stipulates that the goal of malaria treatment is to cure the patient of the infection in order to reduce morbidity and mortality. Furthermore, it states that the second purpose is to encourage the rational use of medicines to prevent or delay the development of drug resistance.³

The Nigerian NMCP conducted drug efficacy trials in various regions of the country in 2002 and 2004 and found unacceptably high rates of failure to chloroquine and sulfadoxine-pyrimethamine. The 2004 studies included two artemisinin combination therapies (ACTs): artemether-lumefantrine (AL) and amodiaquine-artesunate. Subsequent to those in vivo studies, the Federal Ministry of Health changed the drug policy in 2004 to discourage the use of monotherapies and AL was selected as the first-line treatment for uncomplicated *Plasmodium falciparum*.

Implementation of this new strategy, supported by Global Fund Rounds 2 and 4, targets 18 states. The current strategy, which includes Global Fund Round 8 funding as well, aims to address the potential factors that have negatively affected successful implementation:

- Low coverage of public sector health facilities where ACTs are free of charge;
- Insufficient supply management;
- Low awareness of ACT treatment by health workers and patients; and
- Poor availability and high cost of ACT in the private sector.⁴

The NMCP has focused its attention on improvements in the public sector, developing interventions for private sector providers, and finding ways to target the at-risk populations. Specifically, the NMCP will move towards ensuring a continuous supply of free ACTs to the government and non-profit health facilities through improved pharmaceutical management practices. Additionally, health worker performance will be

³ National Antimalarial Treatment Policy: Federal Ministry of Health, National Malaria and Vector Control Division; Abuja, Nigeria July 2009

⁴ Strategic Plan 2009-2013: A Road Map for Malaria Control in Nigeria: Federal Ministry of Health, National Malaria Control Programme, Abuja, Nigeria

improved through refresher trainings, enhanced supervision, and other materials to improve knowledge and performance.

Community-based treatment focuses on two previously piloted projects in attempts to further reach the malaria at-risk groups via the public sector. Home management of malaria (HMM) fever and the use of role model mothers; accompanied by social mobilization campaigns, aim to focus on the rural communities where malaria transmission is high. Within the private sector, the NMCP plans on introducing subsidized ACTs primarily through PMV. The PMVs provide very good geographical access to rural communities, are open at convenient hours, and are thought to have “positive” attitudes towards patients. Global Fund support will train over 7,000 PMVs to deliver ACTs.

The Nigerian Federal Ministry of Health was successful in obtaining support to procure and implement ACTs through the Affordable Medicines Facility - malaria (AMFm). The objectives of the grant are to strengthen distribution of ACTs using public, private, and non-profit chains, increase behavior change communications supporting rational ACT use, expand public and private health worker training and supervision, strengthen pharmacovigilance, and scale up home-based management.

Nigeria based its policy decision to change to ACTs using data gathered from efficacy studies in 2004 and 2006. Since then, the NMCP established 14 sentinel sites throughout the country to monitor the efficacy of the first line treatment. The sites utilize the WHO standardized protocol and are scheduled to conduct the studies biannually. No efficacy studies have been done since 2004; however, support for the sites will come through the AMFm.

ACT Gap Analysis (in millions)

ACT	2007	2008	2009	2010	2011	2012	2013
Target		13.05	40.39	83.36	97.64	79.29	62.33
GoN/ other donors	6.5	20.25	34.35	30.00	31.70	31.70	31.70
Global Fund Rd 8			6.04	53.36	46.16	23.80	7.66
Gap		0	0	0	19.78	23.79	22.97

Proposed FY2011 USG activities (\$10,374,000):

Large quantities of ACTs have been programmed by other donors for 2011, but there remains a gap. PMI will help fill this gap with a focus on the six MAPS and two TSHIP states. PMI will also invest in improving the capabilities for delivery of appropriate treatment at health facility, private sector and community level, as well as support for surveillance of parasite resistance to ACTs. With 2011 funding, PMI will support the following activities:

1. Procure ACTs, rectal artesunate, and severe malaria drugs in quantities to be determined. The primary aim of the procurements which will be distributed through the public supply chain will be to fill gaps and help prevent stock-outs of antimalarial medications in the public sector. (\$3,000,000)
2. PMI will support training and supportive supervision for case management at facility and community level in six MAPS and two TSHIP states. Improvement of malaria case management in the public sector will focus on increasing training and motivation of the health workers. At community level PMI will work with NMCP and relevant partners to explore the use of innovative strategies to improve the roll out of HMM. (\$7,350,000)
3. Provide technical assistance for strengthening case management from USAID/Washington to work with the NMCP and partners to improve and expand community level delivery of ACTs (no additional cost)
4. Provide technical assistance for strengthening therapeutic efficacy surveillance from CDC/Atlanta to assist the NMCP in revitalizing the country's drug resistance surveillance network. This will be done in collaboration with other donors notably Global Fund and AMFm. (\$24,000)

ADVOCACY, COMMUNICATION AND SOCIAL MOBILIZATION

Background:

The National Malaria Strategic Plan 2009-2013, has a strong focus on advocacy, behavior change and community mobilization, which expands and builds on the NMCP Strategy for Behavior Change Communication 2004-2005. In 2009, the Minister of Health created a Ministerial ATM (AIDS, tuberculosis and malaria) Task Force and within the Malaria Task Force there is an active Advocacy, Communication and Social Mobilization (ACSM) subcommittee that supports the Malaria Technical Working Group. The Dfid supported Support to National Malaria Control Programme (SuNMaP), is playing a leading role with the NMCP to conduct both an extensive review on malaria control communication and formative research with the goal of revising the national communication strategy for malaria. Other organizations are also inputting into this effort, including John Hopkins University Center for Communication Program, UNICEF, WHO, C-Change and others. Information and strategy revision resulting from this effort will inform the numerous ongoing ACSM interventions in Nigeria. The relative independence of states in Nigeria is often a source of problems with consistency and accuracy in moving from approaches that have been well thought out at national level to implementation at state level.

Proposed FY2011 USG activities (\$4,275,000):

PMI will support the coordination among NMCP and key partners to harmonize ACSM approaches, messages and materials. Working at state level is key for cultural and

language adaptations needed at state level, but also to ensure that materials maintain their technical integrity and appropriately present information. With FY 2011 funding, PMI will support the following activities to reach approximately 30 million people:

1. Provide support for implementation of state-level mass media and community focused IEC/BCC campaigns in six states. Support for IEC/BCC for malaria activities in six MAPS and 2 TSHIP states, including promoting ownership and use of LLINs, uptake of IPTp and case management with RDTs and ACTs. (\$3,125,000)
2. Support for national level IEC/BCC for malaria interventions with a focus on LLIN ownership and use, and treatment seeking for febrile illness in children under 5. Mass media will be the principal communication approach (\$1,000,000)
3. Support for radio IEC/BCC to malaria prevention and treatment. PMI will support advocacy for malaria prevention and control through the mass media, including working with journalists to identify and develop appropriate malaria news. (\$150,000)

CAPACITY BUILDING AND HEALTH SYSTEM STRENGTHENING

Background:

The expansion of resources for malaria control in Nigeria through the Global Fund, World Bank, and others has highlighted the need to build the capacity to implement these programs. The NMCP has enough staff at the central level and has strong leadership, but could benefit from additional technical trainings and support in the various interventions and supervision. Currently DfID through the SunMaP Project is providing substantial support to the NMCP to enable them to organize meetings frequently with partners and also conduct training.

Beyond the federal level, it is equally important to build capacity at the state, LGA, and lower levels. As could be expected, technical expertise in malaria varies between states and LGAs as does program management, and monitoring and evaluation (M&E) expertise. In the better-performing states donors are focusing efforts on strengthening state and LGA ability to plan, budget, implement, supervise, monitor and evaluate their malaria control and prevention efforts.

Proposed FY 2011 USG activities (\$200,000):

With FY 2011 funding, PMI will:

1. Work at national, state, and LGA levels to provide needed materials and opportunities to expand coordination around the implementation of malaria control activities. PMI will provide support for training and mentoring to tackle the specific shortfalls at and the different levels. (\$200,000)

2. Provide support through PMI technical staff for project coordination, programming and managing of malaria projects, malaria related policies and guidelines disseminations. (cost covered under Staffing and Administration)

INTEGRATION WITH OTHER GLOBAL HEALTH INITIATIVE PROGRAMS

Background:

Nigeria has an estimated general population HIV prevalence of 3.6% (NARHS, 2007) and ANC prevalence of 4.6% (ANC Survey 2008). In 2008, state ANC HIV prevalence ranged from 1.0% in Ekiti State to 10.6% in Benue State. HIV infection rates are highest in 30- to 39-year-old women (5.7%) and 30- to 39-year old men (5.1%) – (NARHS 2007). Women account for 49.9% of Nigeria’s population (Census 2006), and 51% of the country’s HIV infections occur in women.

The United States Government, through the Department of State, CDC, DOD and USAID, has long provided leadership in fighting the HIV epidemic in Nigeria, especially in programs targeting most-at-risk populations. Under President’s Emergency Plan for AIDS Relief (PEPFAR) II, the USG has greatly increased HIV/AIDS funding to Nigeria. In FY10, the Nigeria PEPFAR program has been approved to receive a total of \$458,000,000. The PEPFAR model is comprised of the Department of State, USAID, CDC, the Department of Defense and other agencies working in coordination under a Partnership Framework. The objectives of the Partnership Framework are to assist the Government of Nigeria to achieve the universal access and health system strengthening goals it has laid out in the National Strategic Framework for HIV/AIDS 2010-2015 and the National Strategic Health Development Plan 2010-20105. This focus offers numerous opportunities for HIV–malaria collaboration across US and Nigerian agencies.

There is presently limited, but growing, attention in Nigeria for strengthening the links between HIV/AIDS and malaria. Pregnant women who are HIV positive have a higher risk of malaria leading to more complications. Malaria contributes to a temporary increase in viral load of HIV-infected individuals which may worsen clinical disease and increase mother-to-child transmission and transmission in adults. National authorities working on malaria and those working on HIV/AIDS are interested in integrating their activities, especially concerning promotion and distribution of LLINs through people living with HIV/AIDS (PLWHA) organizations and networks as part of the care and treatment package. Other areas of common interest include strengthening supply chain management systems, supporting the Federal Ministry of Health (FMOH) in their efforts to strengthen the HMIS, and supporting routine comprehensive antenatal services to include malaria and HIV services.

Planned FY 2011 USG Activities (No additional cost to PMI; included under other areas):

PMI and PEPFAR will work with their national partners to improve access to prompt and effective treatment of malaria among PLWHA by promoting proper preventive measures

and increasing access to prompt and appropriate management of malaria in PLWHA. Anti-retroviral therapy centers will assure access to antimalarial medication and LLINs. Operationally, the plan is to:

- Promote advocacy at all levels;
 - Promote collaboration between malaria and HIV stakeholders at all levels;
 - Integrate malaria prevention strategies into voluntary counseling and testing (VCT), PMTCT, and care and treatment services;
 - Provide BCC on malaria prevention and case management targeting PLWHA; and
 - Strengthen health system response to HIV–malaria co-infection.
1. PMI and PEPFAR will collaborate with the FMOH to better understand integration opportunities to strengthen the supply chain management systems for malaria and HIV commodities. These discussions should outline possible areas of integration in procurement, transportation, and storage of malaria and HIV/AIDS commodities.
 2. PMI and PEPFAR will explore how the FMOH routine HMIS data system can be strengthened to include malaria, HIV/AIDS, and tuberculosis data in an integrated reporting system that would include data from all levels of the system (health facility, LGA, state, and national)
 3. PMI and PEPFAR investments in laboratory systems will be harmonized through coordination of microscope and rapid test procurements and joint planning of laboratory technician training and supervision.
 4. PMI and PEPFAR will strengthen the ANC platform through coordinated investment in pre-natal counseling and services for malaria and HIV/AIDS disease prevention and control. This activity will include increased collaboration and integration between existing PEPFAR prevention of maternal to child transmission (PMTCT) activities and PMI malaria in pregnancy activities most notably IPTp. ANC health worker trainings should be designed to harmonize and integrate these approaches at the health facility level.

COMMUNICATION AND COORDINATION WITH OTHER PARTNERS

Background:

Despite the large number of partners and the size of Nigeria, the level of coordination and communication is quite good. The RBM Partnership works closely with the NMCP and is piloting a malaria business plan. This Malaria Business Plan and the Road Map, a database program to track the various malaria activities, have formed a core piece of the program and will in theory help the NMCP manage the various partner activities. Coordination structures exist at both the federal and state level

To further strengthen coordination at the federal level, the Federal Ministry of Health has recently established the Ministerial Task Force on AIDS, Tuberculosis and Malaria (ATM) which includes the Technical Working Group for Malaria (TWG). The TWG is a

technical wing and is comprised of technical persons from all relevant donors and the MOH, is responsible for overseeing the implementation of malaria control activities with the overall objective of “prioritizing actions within the Ministry to strengthen coordination, program management, performance, information flow and the alignment of existing activities.” This TWG also has sub-TWGs that focus on each of the technical areas such as integrated vector management, case management, etc. To complement this TWG structure, there is also a Partners’ Forum which consists of all of the RBM partners and provides a place where partners can share lessons learned and experiences. Lastly, there is a semi-annual State Malaria Programme Managers’ forum where State Managers and the NMCP meet to discuss progress made and determine the technical direction for the coming months.

Coordination is also vital at the state and LGA level. Similar to the federal level, each state has a malaria control program coordinator to coordinate implementation of the program. The coordination structure within the state mirrors that at the federal level. Each state is supposed to have a Malaria Control Advisory Committee, as well as well a Partners’ Forum to help drive and monitor the state’s malaria control activities. The State Malaria Control program also works with the LGAs and their malaria focal persons to ensure that the state malaria control efforts are being implemented appropriately.

While all of these coordination structures are supposed to exist, it is unclear how well they have been functioning in the past. Given the autonomy of each state, their performance is likely related to the political will to control malaria at each level. Further support is needed to ensure that these structures meet regularly and are effective.

Proposed FY 2011 USG activities (no additional cost to PMI):

The PMI Country Team will be an active participant in the TWG for malaria, the Partners’ Forum and the State Coordination Meetings and provide technical and, where needed, operational support to maintain clear and open communication and coordination among the RBM partnership. At the state level, PMI will ensure that its partners are actively engaged in the state level coordination structures and will help to support and strengthen those structures so that they are effective and linked to the federal level.

MONITORING AND EVALUATION

Background:

In 2009, Nigeria’s NMCP developed a National Monitoring and Evaluation Plan for Malaria Control in Nigeria. The process was lead by the NMCP’s M&E Technical Working Group and was supported by a comprehensive group of partners including Global Fund, WHO, World Bank, UNICEF, USAID, DfID, and local NGOs. The plan covers three main areas: strengthening routine data systems; strengthening periodic household surveys; and improving operational research to assure new intervention strategies are evidence-based.

The PMI's M&E approach in Nigeria fits within the framework of the National Malaria Monitoring and Evaluation Plan. Specifically, PMI supports regular population-based surveys such as the Malaria Indicator Survey and the DHS to provide estimates of the status of key malaria indicators, supports strengthening routine data systems at various levels of the health system, and supports operations research needed to guide programmatic decisions.

Routine Systems:

The Health Information Unit of MOH and NMCP have established a dual approach to the collection of routine malaria data. The National Health Management Information System includes a small number of malaria indicators (number of fever/malaria cases and treatment) that are reported monthly from health facilities to the LGA level. The LGA Health Management Information System focus person collates and summarizes these data quarterly and submits reports to their respective states. The State Health Management Information System office is responsible for collating data from the LGAs and reporting to the National Health Management Information System coordinator on a bi-annual basis. This system is currently being revised by the Ministry of Health. The goal of the new system is to integrate data collection and reporting for malaria, HIV/AIDS, and tuberculosis.

In response to inherent limitations in the routine health management information system data (e.g. a limited number of malaria indicators, incomplete data, and lack of timeliness), the NMCP has established a parallel system for routine malaria reporting that includes an expanded set of malaria specific indicators. This system was originally designed to collect indicators as part of the Global Fund Round 4 and was originally implemented in eight states. This system has since been implemented in all 36 states and the Federal Capital Territory with varying degrees of success. The malaria-specific information system requires that ten health facilities per LGA report malaria data on a monthly basis to the LGA, where data from all reporting health facilities are collated and reported to the state on a monthly basis. The state-level malaria office collates data from all LGAs and enters these data into an excel database. The excel files are submitted to the NMCP M&E unit on a monthly basis. The major weakness of the system is reported to be untrained and unmotivated staff at the health facility, LGA, and state levels. In 2009, 11 states did not report any data through the malaria surveillance system. The NMCP M&E unit is currently revising the malaria indicators in response to Global Fund requirements; the new forms and reporting formats are scheduled to be implemented in June 2010.

Population-based surveys:

The most recent national-level population-based survey conducted in Nigeria is the 2008 DHS. The NMCP, the TWG for Malaria, and partners have pretested the instruments of the 2010 Nigeria MIS. The field work for the data collections will be began in mid-September 2010. A preliminary report will be available in January 2011. The 2010 MIS would ideally provide state-level baseline data (malaria indicators and malariometric measurements) for the six PMI-focus states.

In late 2009, USAID, along with other partners, supported a household survey in Kano State to evaluate a free LLIN distribution campaign that distributed more than 4 million nets in May and June 2009 (see ITN section). The goal of the survey was to assess the impact of the campaign on the achievement of the universal coverage target. The NMCP's M&E framework suggests that similar surveys should be conducted in states periodically to assess LLIN ownership and usage patterns and other malaria indicators.

Sentinel Sites:

The NMCP has identified fourteen sentinel sites established to monitor trends in malaria burden and conduct periodic drug therapeutic efficacy testing. Drug therapeutic efficacy testing is expected to occur bi-annually at each site. The sites are also building capacity in entomology and insecticide resistance monitoring and mapping.

Planned FY 2011 USG Activities: (\$2,223,000):

Monitoring and evaluating PMI's activities will rely on a combination of household surveys and routine malaria data collection. With FY2011 funds, PMI will provide support to strengthen routine malaria data collection at the health facility, LGA, and state levels. PMI will also support household surveys in selected states to assess LLIN coverage and use, access to ACTs, and IPTp uptake. The following proposed PMI activities are in accordance with the National M&E plan.

1. Strengthen routine M&E systems in eight states: Support the NMCP to strengthen routine malaria information systems at health facility, LGA, and state levels in six MAPS and two TSHIP states. Implementation activities will include training and supervision of data clerical staff at selected health facilities, LGAs, and states; completion of unified data collection formats; and improving collection and reporting of routine malaria indicators. Activities will include an assessment of malaria core indicators, and an evaluation of reporting systems at all levels to include a review of completeness and timeliness of malaria reporting. Activities will be conducted in collaboration with WHO and other partners to assure harmonized data indicators and reports are used nationally. Emphasis on data use at the state and national levels will also be a priority. (\$1,075,000)
2. Drug therapeutic efficacy studies: Support therapeutic efficacy studies in three sites to evaluate approved antimalarial drugs, using the standard WHO protocol. (\$150,000)
3. LLIN coverage surveys: Conduct LLIN coverage surveys to assess progress towards reaching and maintaining universal coverage targets in three selected PMI-focused states. Data will be used to assess LLIN ownership and use after LLIN distribution campaigns and implementation of continuous LLIN delivery programs. Data on ACT access and use and IPTp uptake will also be collected to monitor progress in these intervention areas. (\$600,000)

4. Field Epidemiology and Laboratory Training Program: Support training of NMCP staff in epidemiologic methods, data analysis techniques, operations research, and strategic information for public health decision-making through CDC's Field Epidemiology Training Program. This program will help build needed expertise and skills in epidemiologic principles and concepts. These improved skills will lead to improvements in data collection and use by NMCP M&E staff for monitoring malaria burden and ultimately measuring the impact of program scale-up on malaria morbidity and mortality (\$200,000)
5. Monitoring and Evaluation Management System: Support the collection and reporting of USAID mission-specific performance data from all PMI implementing partners. Data will be collected and reported on an annual basis. Provide support to strengthen the M&E unit in the eight focus states through intensive supportive supervisions to improve the culture of data collection, organization, and use. Strengthening the data flow system both top down and bottom up (\$186,000).
6. Technical Assistance for M&E strengthening from CDC: (\$12,000)

STAFFING AND ADMINISTRATION

In Nigeria, two health professionals will be hired as Resident Advisors, one representing CDC and one representing USAID. The USAID advisor was identified and began work in May 2010. In addition, one or more FSNs will be hired to support 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 these 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.

These two PMI professional staff work together to oversee all technical and administrative aspects of PMI, including finalizing details of the project design, implementing malaria prevention and treatment activities, monitoring and evaluating outcomes and impact, and reporting results. Both staff members report to the USAID Mission Director or his/her designee. The CDC staff person is supervised by CDC both technically and administratively. All technical activities are undertaken in close coordination with the MOH/NMCP and other national and international partners, including the WHO, UNICEF, the Global Fund, World Bank, and the private sector.

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.

Planned FY 2011 USG Activities (\$2,354,000):

- Hiring of in-country staff and administrative costs for oversight of PMI malaria activities and technical assistance to the NMCP (\$2,354,000)

**President's Malaria Initiative
Planned FY11 Obligations**

Proposed Activity	Mechanism	Total Budget	Geographic area	Description of Activity
ITNs				
Procure approximately two million LLINs for net "keep-up" activities.	DELIVER	\$13,000,000	8 states: 6 states under the MAPS project, 2 under the TSHIP project	Procure and deliver approximately 2 million LLINs to state level in 8 states and to LGA level as required.
Logistic and operational support for distribution of LLINs to vulnerable groups in six MAPS and two TSHIP states.	MAPS	\$5,250,000	6 states under MAPS	PMI will support the distribution of LLINs particularly to pregnant women and children in rural areas with the goal of maintaining high LLIN coverage. (TSHIP cost partially shared with MCH funds.)
	TSHIP	\$400,000	2 states under TSHIP	
Provide technical assistance to develop innovative, effective "keep-up" strategies for delivery of LLINs to vulnerable populations.	NetWorks	\$150,000	Zamfara, Nasarawa and Cross River States: The three initial 3 MAPS states	Develop and roll out innovative approaches for LLIN distribution in three MAPS states that can be used as appropriate in other MAPS and TSHIP states
Technical assistance to PMI ITN activities	USAID	\$0	Federal and State level	1 USAID technical assistance visit for routine distribution of LLINs
Technical assistance to PMI ITN activities	CDC IAA	\$12,000	Federal and State level	1 CDC technical assistance visit for routine distribution of LLINs
Subtotal		\$18,812,000		
IRS				

Provide support for a comprehensive IRS program in two LGAs (up to 100,000 houses) in Nasarawa State.	IRS2 IQC Global Task Order	\$1,800,000	One state in middle central: Nasarawa State	Conduct IRS in two LGAs reaching approximately 100,000 houses. This will include mapping of targeted areas, quantification of commodity and personnel needs, procurement, training of staff, implementation, supervision, entomologic monitoring, and environmental and waste management
Strengthen capacity at federal and state level on IRS strategy and implementation	IRS2 IQC Global Task Order	\$445,000	Federal and State level	Work closely with the NMCP and interested states on developing capacity and appropriate strategies for IRS at the national and specific state levels.
Strengthen capacity for entomological monitoring at federal and state levels	IRS2 IQC Global Task Order	\$200,000	Federal and State level	Strengthen capacity for entomological monitoring at federal and state levels, to include an insecticide resistance surveillance course for 40 Nigerian IRS staff
Technical assistance to PMI IRS activities	CDC IAA	\$55,000	Federal and State level	3 CDC TDYs (\$12,000/each) to provide support for IRS and resistance test kits for 40 Nigerian staff attending training
<i>Subtotal</i>		<i>\$2,500,000</i>		
Malaria in Pregnancy				
Procure SP for IPTp for eight states, six MAPS states and two TSHIP states	DELIVER	\$100,000	8 states: 6 MAPS states and 2 TSHIP states	PMI will ensure that adequate quantities of SP are available to meet the needs for IPTp in eight states

Provide support to strengthen policy and implementation of IPTp in eight states as an integrated part of Focused Antenatal Care	MAPS	\$2,100,000	6 MAPS states	Support for the review and update of the MIP policy document, implementation guidelines and the training materials of the NMCP in collaboration with the Reproductive Health division. (TSHIP costs are partially shared with MCH funds.)
	TSHIP	200,000	2 TSHIP states	
Subtotal		\$2,400,000		
CASE MANAGEMENT				
Diagnosis				
Procure RDTs and microscopy equipment and supplies	DELIVER	\$2,500,000	8 states: 6 MAPS states and 2 TSHIP states	Procure an estimated 60 microscopes and/or microscopy kits and RDTs to support the scale up of malaria laboratory diagnosis in up to six MAPS and two TSHIP states in Nigeria
Strengthen appropriate use of biological diagnostics and improve the quality assurance and quality control systems	IMaD	\$500,000	Federal and State level	Improve availability and usage of diagnostic testing, improve the link between laboratory services and case management
TA to support to biological diagnostics of malaria	CDC IAA	\$12,000	Nationwide	1 CDC TDY to provide technical support to microscopic and RDT diagnosis of malaria
Subtotal		\$3,012,000		
Pharmaceutical Management				
Support for strengthening pharmaceutical and commodity management system at state level	DELIVER	\$2,000,000	8 states: 6 MAPS states and 2 TSHIP states	Strengthening the pharmaceutical management system, forecasting, management and distribution of pharmaceuticals and RDTs. Prevent stockouts of malaria commodities and

				ensuring that expired drugs are disposed of properly.
Support for improved drug quality control	USP	\$350,000	Nationwide	Ensure publically and privately sold antimalarials in the country are quality controlled. Support minilab testing including purchase of equipment and reagents.
Subtotal		\$2,350,000		
Treatment				
Procure ACTs, rectal artesunate, and severe malaria drugs to supply eight states.	DELIVER	\$3,000,000	8 states: 6 MAPS states and 2 TSHIP states	The primary aim of the procurements will be to fill gaps and help prevent stock-outs of antimalarial medications in the public sector in eight states.
Training and supportive supervision for case management at facility and community level in eight states	MAPS	\$6,650,000	6 MAPS states	Improve malaria case management in the public sector, with a focus on training and motivation of the health workers. At community level work with NMCP and relevant partners to explore the use of innovative strategies to improve the roll out of HMM. (TSHIP costs are partially shared with MCH funds.)
	TSHIP	\$700,000	2 TSHIP states	
TA to support case management of malaria	USAID	\$0	Nationwide	1 USAID TDY to provide technical support for case management of malaria
TA to support case management of malaria	CDC IAA	\$24,000	Nationwide	2 CDC TDYs to assist the NMCP in revitalizing the drug resistance surveillance network
Subtotal		\$10,374,000		
Advocacy, Communication and Social Mobilization (ACSM)				

Provide support for implementation of state-level mass media and community focused IEC/BCC campaigns in eight states	MAPS TSHIP	\$2,625,000 \$500,000	6 MAPS states 2 TSHIP states	IEC/BCC for malaria activities including promoting ownership and use of LLINs, uptake of IPTp and case management with RDTs and ACTs. (TSHIP costs are partially shared with MCH funds.)
Support for IEC/BCC at national level	New RFA - social marketing	\$1,000,000	Nationwide (with a focus in MAPS and TSHIP states)	IEC/BCC for malaria interventions with a focus on LLIN ownership and use, and treatment seeking for febrile illness in children under 5. Mass media will be the principal communication approach
Support for radio IEC/BCC to malaria prevention and treatment	TBD	\$150,000	Nationwide	PMI will support advocacy for malaria prevention and control through the mass media, including working with journalists to identify and develop appropriate malaria news.
<i>Subtotal ACSM</i>		<i>\$4,275,000</i>		
Capacity Building				
Provide support for coordination activities at federal level	MAPS	\$200,000	Federal	PMI will provide support to the NMCP for organization of workshops, training activities, and meetings
<i>Subtotal</i>		<i>\$200,000</i>		
Monitoring and Evaluation				

Strengthen and build capacity for routine malaria data at state and LGA level in eight states	MAPS	\$875,000	6 MAPS states	Support training and supervision of data collection and management at selected health facilities, LGAs, and states. (TSHIP costs are partially shared with MCH funds.)
	TSHIP	\$200,000	2 TSHIP states	
Drug efficacy studies in 3 sites	TBD	\$150,000	3 sites TBD	Drug efficacy studies undertaken annually in three sites to test the efficacy of the two first-line ACTs in Nigeria: artemether-lumefantrine and artesunate-amodiaquine
LLIN coverage surveys to assess progress to achieve and maintain universal coverage.	NetWorks	\$600,000	Three MAPS states	An evaluation of three different approaches for routine distribution of LLINs in areas that differ in ANC and EPI attendance rates.
Field Epidemiology and Laboratory Training Program	CDC IAA	\$200,000	Federal	PMI will support a number (TBD) of NMCP staff to participate in the FELTP program.
Monitoring and evaluation management system	MEMS	\$186,000	National	Assistance to USAID Mission for management of PMI reporting
TA for M&E strengthening	CDC IAA	\$12,000	Federal and State level	1 CDC TDY to provide technical support for monitoring and evaluation
<i>Subtotal</i>		<i>\$2,223,000</i>		
Staffing and Administration				
In Country Staffing and Administration	USAID/CDC	\$2,354,000	Nationwide	
<i>Subtotal</i>		<i>\$2,354,000</i>		
GRAND TOTAL		\$48,500,000		

**President's Malaria Initiative
FY11 Budget Breakdown by Partner**

Partner Organization	Geographic Area	Activity	Budget	% of budget
CDC IAA	Federal and State level	Technical assistance to PMI IRS, ITN, diagnostics, drug efficacy, M&E and FELTP activities	\$315,000	0.6%
DELIVER	8 states: 6 MAPS states and 2 TSHIP states	Procurement of LLINs; RDTs/microscopic equipment and supplies; SP; ACTs; strengthen PSM	\$20,600,000	42.4%
IMAD	Federal and State level	Strengthen appropriate use of biological diagnostics and improve the quality assurance and quality control systems	\$500,000	1.0%
IRS2 IQC Global Task Order	Nasarawa State	Provide support for a comprehensive IRS program in two LGAs (up to 100,000 houses) in Nasarawa State.	\$2,445,000	5.0%
MAPS	6 MAPS states	Strengthen and build capacity for prevention, treatment and monitoring and evaluation of malaria in all LGAs in 6 MAPS states	\$17,700,000	36.4%
MEMS	MEMS	Assistance with management of PMI reporting	\$186,000	0.4%
NetWorks	Three MAPS states	Technical assistance for LLIN keep-up activity and evaluation of keep-up strategies in 3 states	\$750,000	1.5%
New RFA - social marketing	Nationwide (with a focus in MAPS and TSHIP states)	Social marketing approaches used to increase reach of LLINs and ACTs	\$1,000,000	2.1%
VOA	Northern Nigeria	Support for radio IEC/BCC to malaria prevention and treatment	\$150,000	0.3%
TDB	3 sites TBD	Drug efficacy studies in 3 sites	\$150,000	0.3%
TSHIP	2 states	Support and build capacity for key malaria prevention and treatment interventions in two states	\$2,000,000	4.1%
USP	Nationwide	Support for improved drug quality control	\$350,000	0.7%
USAID/CDC	Nationwide	In Country Staffing and Administration	\$2,354,000	4.8%
TOTAL			\$48,500,000	100%

PRESIDENT'S MALARIA INITIATIVE

NIGERIA

FY 2011-FY 2014 STRATEGY

September 2010

ABBREVIATIONS

ACT — artemisinin-based combination therapy
AL — artemether-lumefantrine
ANC — antenatal clinic
CCM – Country Coordinating Mechanism (of the Global Fund)
CRS – Catholic Relief Services
FBO — faith-based organization
Global Fund — Global Fund to Fight AIDS, Tuberculosis, and Malaria
GDRC – Government of the Democratic Republic of Congo
IEC — information, education, communication
IMA – Interchurch Medical Assistance
IMCI — integrated management of childhood illnesses
IPTp — intermittent preventive treatment for pregnant women
IRS — indoor residual spraying
ITN — insecticide-treated net
LLIN — long-lasting insecticide-treated net
MIS — Malaria Indicator Survey
MOH — Ministry of Health
NGO — non-governmental organization
NMCP - National Malaria Control Program
PMTCT — prevention of mother to child transmission
PSI — Population Services International
RBM — Roll Back Malaria
RDT — rapid diagnostic test
SP — sulfadoxine-pyrimethamine
UNDP — United Nations Development Program
UNICEF — United Nations Children’s Fund
USAID — United States Agency for International Development
USG — United States Government
WHO — World Health Organization

BACKGROUND

Nigeria is the most populous country in Africa with an annual growth rate of about 3.2% and a total population of approximately 150 million. It is made up of 36 states (plus the Federal Capital Territory of Abuja), and 774 Local Government Authorities (LGAs), each with a population of about 100,000 to 200,000 residents.



Nigeria's high income from crude oil sales has not improved the welfare of the majority of the population, and it ranks 158 out of 177 countries in the 2005 United Nations Development Program Human Development Index. Access to health care is very low in the north and under five and maternal mortality rates are much higher in the northern states than in the south. Although the Nigerian public health system is quite weak, a robust private health care system provides care for a substantial proportion of the population.

Malaria is transmitted throughout Nigeria and is a high public health priority. The duration of the malaria transmission season decreases from year-round transmission in the south to just three months or less in the north. Malaria accounts for about 60% of outpatient visits and 30% of hospitalizations in Nigeria. It is a leading cause of mortality

in children under five years of age and contributes to an estimated 11% of maternal mortality.

The NMCP's goal is to reduce malaria-related mortality by 50% by 2013 and achieve geographical coverage of all 515 health zones and all health facilities in those zones. At present, only 390 of the 515 health zones have a partner providing malaria services, leaving 125 health zones completely uncovered.

The U.S. Agency for International Development (USAID) has been supporting malaria control efforts in Nigeria for more than ten years, with funding increasing from levels of \$7-\$8 million annually to \$16-18 million during FY2009 and FY2010. USAID support has focused providing a comprehensive package of maternal and child health services, including malaria prevention and treatment, in Bauchi and Sokoto States. With the increased FY2010 malaria funding, activities will be expanded to three new states: Zamfara, Nasarawa, and Cross River.

TARGETS OF THE PRESIDENT'S MALARIA INITIATIVE

As a member of the Roll Back Malaria Partnership, PMI will work together with the National Malaria Control Program (NMCP) and other partners to achieve the following targets in Nigeria within one year after obligation of FY2014 funding:

- >90% of households will own at least one insecticide-treated mosquito net (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 women who have completed a pregnancy in the last six months will have received two or more doses of SP for intermittent preventive treatment during that pregnancy (IPTp); and
- 85% of children under five with suspected malaria will have received treatment with an artemisinin-based combination therapy (ACT) in accordance with national malaria treatment policies within 24 hours of the onset of their symptoms.

With the increased funding expected for FY2011 and beyond under the U.S. Government's Global Health Initiative, PMI will support the expansion of malaria prevention and treatment measures beyond the five states being supported with FY2010 funds. The rapidity of expansion to new states will depend on the amount of funding available and the capabilities of new or existing partners in the additional health zones to scale up. While PMI support will be focused on malaria and malaria-related activities, such as strengthening antenatal services, monitoring and evaluation, supply chain management, and laboratory diagnostic testing, opportunities will be sought to integrate malaria prevention and treatment services into a larger package of maternal and child health interventions.

PREVENTION ACTIVITIES

Intermittent preventive treatment in pregnant women (IPTp): According to the 2008 Demographic and Health survey (DHS), more than 55% of pregnant women attended an antenatal clinic (ANC) at least once during their pregnancy. Intermittent preventive treatment for pregnant women was approved as a national policy in Nigeria in 2006. In the 2008 DHS, only 8% of pregnant women had received one or more doses of sulfadoxine-pyrimethamine (SP) and 5% received the recommended two doses for IPTp.

As a means of promoting ANC attendance early in pregnancy and increasing the total number of ANC visits each pregnant woman makes, PMI will support the routine distribution of free ITNs through ANCs. The PMI will fund training and supportive supervision of health care workers in the diagnosis and treatment of malaria in pregnancy and the use of IPTp. Support will also be provided for development and dissemination of IEC/BCC messages to ensure that women and their families are aware of the risks of malaria during pregnancy and understand the need for beginning IPTp early in the second trimester of pregnancy and completing the recommended three doses.

There are an estimated 7.5 million pregnant women in Nigeria each year. If each pregnant woman is to receive at least two treatments with SP during her pregnancy, a total of approximately 15 million treatments will be required annually. For the period FY2011-2014, PMI will fill all unmet needs for SP in the states being supported by the Initiative.

Insecticide-treated nets (ITNs): Increasing coverage with ITNs is a high priority for the Ministry of Health and its partners, and Nigeria expects to reach its goal of universal coverage (2 nets per household) by mid- 2011. The 2008 DHS survey indicated that only 8% of households owned one or more ITNs and that but only 5% of pregnant women and 6% of children under five had slept under an ITN the night before the survey.

The PMI will support the distribution of free long-lasting ITNs (LLINs) to sustain universal coverage. Given the weak health infrastructure and the fact that only about 25% of the population accesses health facilities in the northern states, several approaches will be used to distribute nets including through antenatal and child health clinics and community health workers. Efforts will also be made to improve antenatal clinic attendance rates, as these clinics offer the most attractive way to reach newly pregnant women and sustain high ITN coverage rates of the most vulnerable groups between campaigns. Given the challenges of trying to ensure regular net re-treatment in widely-scattered and difficult to reach populations, PMI will only procure LLINs, which do not require re-treatment.

To sustain universal ITN coverage after the mass campaign finishes in mid-2011, it is estimated that 7.5 million additional nets will be needed annually for two to three years to ensure that all newly pregnant women receive a LLIN. After that, it is likely that another series of rolling mass campaigns will be needed to replace those nets distributed in the 2009-11 campaign. PMI plans to procure two to three million LLINs annually over the next three years to cover needs in the states being supported with USG funding. If other

partners maintain their current level of support, it should be possible to sustain universal coverage in the remaining states until the next mass campaign.

Indoor residual spraying (IRS):

Nigeria has only limited experience with IRS in the recent past. Between 2006 and 2009, a series of trials were carried out using various synthetic pyrethroids and bendiocarb. Based on these experiences, IRS was included in the 2009-2013 National Malaria Control Strategic Plan and the NMCP wants to gradually scale up spraying to cover 20% of households nationwide (or almost seven million households) by 2013. Several states and LGAs have either begun spraying on their own or expressed interest in supporting IRS. In addition, the Nigerian Millennium Development Goal Program with its \$1 billion in debt relief funds is willing to consider funding IRS if suitable proposals are received.

Since Nigeria expects to achieve universal coverage with ITNs (two nets per household) by mid-2011, the added value of IRS to the country's malaria control effort is unclear. Furthermore, the 7-12 month transmission season in the southern half to two-thirds of the country means that at least two rounds of spraying per year will be required, doubling the cost of this intervention. Beginning with FY2011 funding, PMI will support a comprehensive IRS program covering about 100,000 houses in two LGAs in Nasarawa State. The purpose will be to build capacity at the state and LGA levels so that local governments can gradually take over responsibility for the IRS program. At the same time, this will provide opportunities to train staff from other states which have an interest in implementing spraying.

CASE MANAGEMENT ACTIVITIES

Malaria diagnosis: Only a small proportion of all malaria diagnoses in Nigeria are based on microscopic examination of blood smears and the quality of those diagnoses is unknown. The NMCP is interested in strengthening microscopic diagnosis where it already exists, while introducing RDTs in health facilities where microscopy is not feasible. In the 2009-2013 National Strategic Plan for Malaria, children less than 5 years of age with symptoms suggestive of malaria are to be treated presumptively, while it is recommended that older children and adults undergo a diagnostic test before treatment, but this policy may be changing to one recommending diagnostic testing for all age groups.

With the increased cost of the new first-line treatment, accurate diagnosis will be critical to target treatment to infected patients and reduce the overuse of antimalarial drugs. In addition, accurate information on the geographic and seasonal distribution of malaria will be needed for planning and evaluation of malaria control activities. The PMI views malaria laboratory diagnosis as a key component of good case management and will support strengthening of malaria diagnosis in health facilities in the PMI-supported states. The PMI will work with the NMCP and other partners to develop a strategy and plan for the use of microscopy and RDTs at different levels of the health system and in different

clinical and epidemiological settings. The PMI will support strengthening of in-service training for laboratory technicians in malaria diagnosis through state-level research groups. The PMI also recognizes the benefits of combining malaria laboratory training with training for other diseases, such as tuberculosis, and will work with PEPFAR and other groups to strengthen laboratory facilities. It will be particularly important to ensure that health workers are trained in the proper interpretation of laboratory tests for malaria, as some clinical officers ignore the results of laboratory tests when their results do not agree with their clinical judgment.

Decisions on PMI procurement of microscopes, microscopy supplies, and RDTs will be based on an FY2009 USAID-supported evaluation of the existing malaria diagnostic network and expected funding from the Global Fund and other partners.

Treatment: In 2006 Nigeria adopted artemether-lumefantrine (AL) as its first-line therapy for uncomplicated malaria. Quinine is recommended for the treatment of severe malaria. Although not included in the written guidelines, the NMCP has expressed interest in the use of artesunate rectal suppositories for the emergency treatment of severe malaria in children in settings where intramuscular or intravenous quinine cannot be administered. Scale up of AL has been slow and varies from one state to the next. The 2008 DHS showed that only 1% of children under five with fever were treated with artemisinin-based combination therapy (ACT) within 24 hours of the onset of illness.

According to the NMCP 2009-2013 Strategic Plan for Malaria Control, 80% of children under five with fever are expected to receive ACTs by 2013. If it is assumed that there are about 30 million under fives in Nigeria and each one has 2-4 episodes of fever annually, this age group alone would require 60 to 120 million treatments. Nigeria is an AMFm country and will have many of its needs for AL met through that initiative; however, even if improved diagnosis and expanded ITN coverage results in lower transmission, the nationwide requirements for ACTs are expected to be considerably higher than the AMFm proposal estimates. The pharmaceutical management system in Nigeria is also quite weak and is unlikely to be able to meet all of the needs of the health care system.

Ensuring prompt, effective, and safe ACT treatment to 80% of patients with confirmed or suspected malaria will represent one of the greatest challenges for the NMCP, given the country's weak pharmaceutical management system and health infrastructure, the poor road system, and the high cost and short shelf life of AL. PMI will support training and supportive supervision of health workers to ensure good ACT prescribing and dispensing practices in coordination with the MOH Integrated Management of Childhood Illness program and development and implementation of a health education plan for ACT implementation. Decisions on procurement of supplies of AL by PMI will be based on improved forecasting of drug needs in the health zones to be supported by PMI, discussions with the MOH, and the availability of financing from the Global Fund, World Bank, and other donors.

MONITORING AND EVALUATION

Although the NMCP has a written malaria monitoring and evaluation (M&E) strategy, it needs to be updated and strengthened. PMI will work with the NMCP and other partners to revise the strategy and develop a costed plan for M&E. PMI support to M&E in Nigeria will be coordinated with that of the NMCP, the Global Fund, and other partners, and it is hoped that all partners will contribute funding to a single national monitoring and evaluation plan. The 2008 DHS will be used as the baseline for PMI in Nigeria since U.S. Government malaria funding to Nigeria increased significantly in 2009. PMI will also fund more state-level surveys before and after mass distribution of ITNs to document changes in malaria burden. A nationwide Malaria Indicator Survey will be supported with FY2010 funding to assess progress towards scale up of coverage of ITNs, IPTp, and ACTs. Another DHS is likely to take place in 2014, and this will help assess progress towards PMI's 5-year targets. Information on other indicators of interest, including the number of children and pregnant women attending child health and ANC clinics, the number of health facilities delivering IPTp and ACTs, the number of ITNs distributed, stockouts of drugs, and the quality of health services will be collected through routine monitoring by the partners overseeing delivery of health services in the targeted health zones.

SUSTAINABILITY

The five-year strategic plan for Nigeria is designed to begin to address the complex issues of long-term sustainability and national capacity building over time. The PMI's framework for sustainability addresses three major components: management capacity; technical knowledge and skills; and financial sustainability.

Strengthening management capacity: The PMI plans to place two full-time malaria advisors in country to increase the ability of the MOH and USAID to manage the implementation of malaria prevention and treatment activities. It is hoped that these two individuals will be located in the NMCP offices and will work closely with NMCP counterparts on day-to-day management and implementation of PMI-supported activities. In addition, special attention will be given to identifying weaknesses in managerial systems, building capacity in areas such as planning, budgeting, human resources management, and financial management systems and working in collaboration with other MOH departments and sections as well as with implementing partners. Strengthening these systems will be integral to the NMCP's effective use of resources and ability to attract further resources through the national budget and other donors, such as the Global Fund.

Training and regular supervision are needed. In addition, basic management systems such as financial management, planning, budgeting, human resources and operations need strengthening.

Technical knowledge and skills: The implementation of PMI will result in the transfer of technical knowledge and skills to local partners including staff of the NMCP and other MOH departments, NGOs, community- and faith-based organizations, health workers, and private sector partners. The PMI will also focus on IEC/BCC activities directed at increasing residents' understanding of the risks of malaria, encouraging the adoption of prevention measures, and seeking appropriate treatment in a timely manner.

Financial sustainability: Financial sustainability will be one of the most challenging areas to address within PMI. There are legitimate concerns that 85% coverage levels for key interventions such as ITN and IRS coverage and access to ACTs are unlikely to be sustained over time without adequate future financing. However, improved local managerial and technical capacity, in addition to reductions in the cost of key malaria commodities should make it easier for the NMCP to take on increased responsibility to fund key interventions. Other financing sources available to the NMCP will include an increased portion of the national budget, resources from other donors including the Global Fund, and a greater private sector market share for malaria commodities, such as ITNs. Over time, shifting those beneficiaries that can afford to pay to the private sector will enhance sustainability and enable the government to more effectively target resources. Strategies to prime the local market will include working with private sector pharmacies, shops, and social marketing networks on training, IEC, and distribution.