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NIGERIA

FY 2012 Malaria Operational Plan

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PRESIDENT'S MALARIA INITIATIVE



TABLE OF CONTENTS

ABBREVIATIONS	3
EXECUTIVE SUMMARY	4
INTRODUCTION	8
MALARIA SITUATION IN NIGERIA.....	9
CURRENT STATUS OF MALARIA INDICATORS.....	11
NATIONAL MALARIA CONTROL PLAN AND STRATEGY	12
GOALS AND TARGETS OF THE PRESIDENT’S MALARIA INITIATIVE.....	13
YEAR TWO EXPECTED RESULTS	14
INTERVENTIONS – PREVENTION.....	14
Insecticide-treated nets.....	14
Indoor residual spraying (IRS).....	18
INTERVENTIONS - CASE MANAGEMENT	22
Malaria Diagnosis	22
Pharmaceutical management	24
Malaria Treatment.....	27
CAPACITY BUILDING AND HEALTH SYSTEM STRENGTHENING	30
INTEGRATION WITH OTHER GLOBAL HEALTH INITIATIVE PROGRAMS	31
COMMUNICATION AND COORDINATION WITH OTHER PARTNERS	33
MONITORING AND EVALUATION	34
STAFFING AND ADMINISTRATION	37
TABLE 1.....	38
TABLE 2.....	41

ABBREVIATIONS

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
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
HIV/AIDS – Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome
IRS – indoor residual spraying
ITN – insecticide treated net
LGA – Local Government Authority
iCCM – Integrated Community Case Management
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
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
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 multi-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 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 FY 2014. 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.

In 2010, Nigeria, with a population of about 150 million and reporting more deaths due to malaria than any country in the world, became the seventeenth PMI country. Malaria accounts for 60% of outpatient visits and 30% of hospitalizations among children under five years of age in Nigeria. 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. Impressive progress has been made in malaria control efforts in recent years. The proportion of households owning one or more insecticide-treated nets (ITNs) increased from only 8% in the 2008 DHS to 42% in the 2010 MIS, and the proportion of children under five reported to have slept under an ITN the night before the survey increased from 6% in the 2008 DHS to 29% in the 2010 MIS.

Donor support to malaria control in Nigeria has increased dramatically in recent years. Nigeria was the recipient of a \$600 million Global Fund to Fight AIDS, Tuberculosis, and Malaria (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 original commitment of \$180 million to support 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-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 37 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, and PMI in its initial year, FY 2011 provided \$43.6 million. Early funds from FY 2010 focused on launching a comprehensive package of malaria interventions in five states (Bauchi, Cross River, Nasarawa, Sokoto and Zamfara) and that will be expanded with FY 2011 funds to three new states (Benue, Ebonyi, and Oyo).

The FY 2012 PMI Operational Plan for Nigeria was based on planning meetings in Nigeria in June 2011, which 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 2012 PMI budget for Nigeria is \$43.2 million. With this funding, PMI will support a comprehensive package of malaria interventions to reach an estimated population of 32.6 million in eight of Nigeria's 37 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 of May 2011 a total of 35.6 million LLINs had been distributed across 22 states, with a balance of 27.3 million to complete the remaining 15 states. Major contributors to this national effort include Global Fund, World Bank, UNITAID, UNICEF, DfID, USAID and Canadian Red Cross. To ensure that Nigeria is able to maintain this high coverage, with FY 2012 funding PMI will work in the eight focus states to distribute two million long-lasting insecticide treated nets (LLINs) through routine systems, including antenatal and vaccination clinics, and additional channels such as schools or community-based distribution. The approaches used will be specifically adapted to meet the challenges in each state. PMI will also continue support to an existing program for social marketing of LLINs. PMI's goal is to maintain 80% ownership of LLINs in these eight targeted states.

Indoor Residual Spraying (IRS): IRS has 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 2012 funding, PMI will work with the NMCP to refine the national IRS strategy and continue with a PMI-supported demonstration of a high quality spray operation in two local government authorities (LGAs) reaching approximately 100,000 houses for a second year in 2013. As a part of this effort, PMI will continue to provide training and build local capacity for IRS operations in Nasarawa State, with a focus on entomological monitoring and management of insecticide resistance. Our objective is to transfer the IRS program over to Nasarawa State after 2-3 years of assistance, move the PMI training and capacity building to new a

new State, and repeat the process. With this approach, the States will assume responsible for the IRS programs, with PMI staff available for technical consultation and assistance, as needed.

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 and 62% of pregnant women delivered at home. The 2008 DHS reported that 5% of pregnant women received two or more doses of IPTp, with an increase to 13% in the 2010 MIS. 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, with FY 2012 funding PMI will procure SP for eight focus 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: Malaria case management in Nigeria is weak, suffering from a general absence of diagnostics, a weak supply chain system, and poor delivery of services at the health facility level. The 2010 MIS revealed that only 3.2% of children under-five with a fever received an artemisinin-based combination therapy (ACT) the same or next day, slightly higher than 1.1% reported in the 2008 DHS. The NMCP has updated the National Guidelines for Diagnosis and Treatment of Malaria with support from partners. This guideline is aligned with the revised (2010) WHO recommendations on universal diagnostic testing for malaria. The public sector procurement and supply chain management of essential medicines is extremely fragmented and chaotic leading to stock outs of commodities including the first-line ACTs, artemether-lumafantrine. As a result of an on-going Global Fund Office of the Inspector General investigation, one of the Principal Recipients had to put all procurement on hold, exacerbating ACT stock outs in public health facilities. AMFm was launched this year and AMFm ACTs are now available in the private sector. Mechanisms that will allow States and/or LGAs to procure AMFm ACTs at the discounted price are being explored. The NMCP is working with the states to improve the delivery of malaria case management by implementing the new guidelines and providing supportive supervision. In addition, a new malaria commodity logistics system (MCLS) is being rolled out, and a logistics management information system is in development.

With FY 2012 funds, PMI will support procurement of approximately 1.3 million each of RDTs and ACTs, as well as drugs for severe malaria. PMI will continue to strengthen and harmonize the supply chain management system for malaria, with a focus at the State level. At the State, LGA, and health facility level, PMI will support training and supervision for lab technicians on the appropriate and accurate use of RDTs and microscopy. At the health facility and community level, PMI will support training, supervision and job aids to ensure that malaria cases are treated appropriately.

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 focus states, PMI will strengthen the routine malaria data system such that more accurate and reliable health facility-level malaria information is available. PMI will support the national Demographic Health Survey (DHS) scheduled to occur in 2013 and will work at the federal and state level to build capacity for monitoring and evaluation within the NMCP and the State malaria program through participation in the CDC's 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 training and more 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 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 to 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 multi-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 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 expanded 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

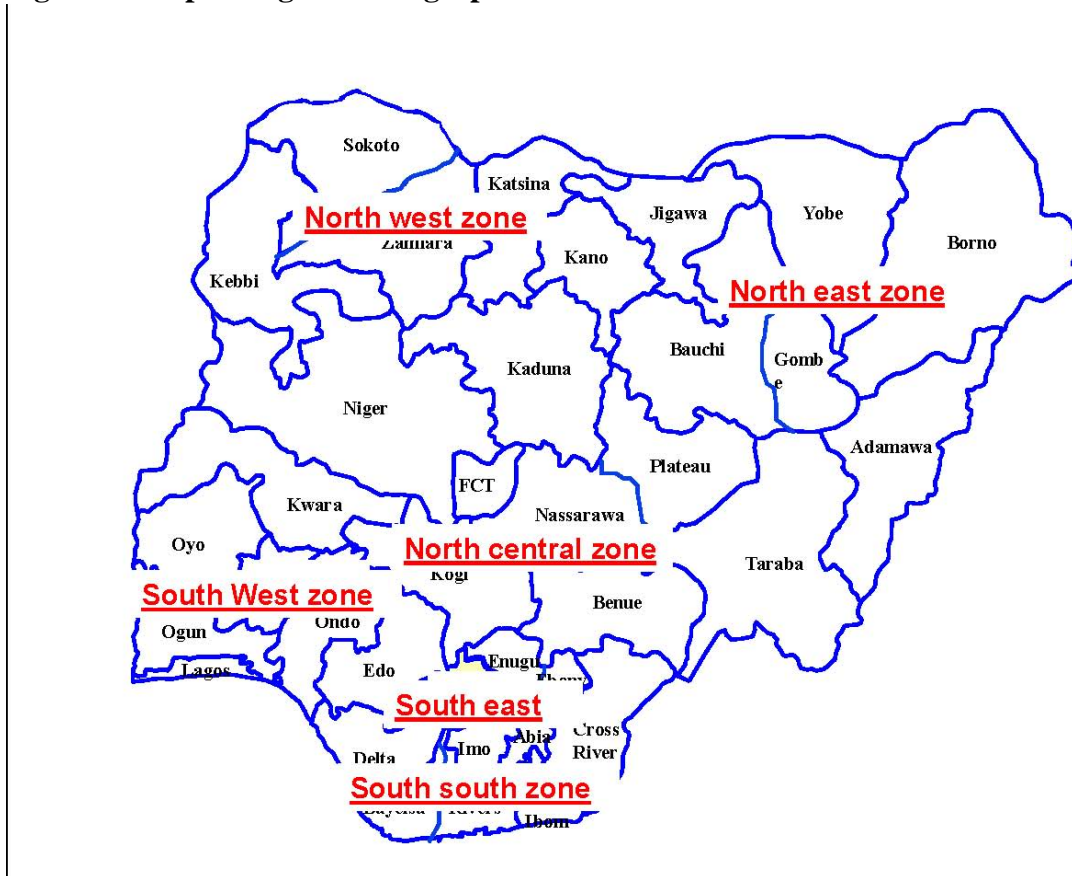
coordinated with other national and international partners, including the Global Fund to Fight AIDS, Tuberculosis, and Malaria (Global Fund), Roll Back Malaria (RBM), the World Bank Malaria Booster Program, and the non-governmental and private sectors, to ensure that investments are complementary and 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 FY 2007 and FY 2008, and then more than doubled to about \$16 million in FY 2009 and FY 2010. In FY 2011, its first year as a PMI country, the funding for Nigeria was \$43.5 million. This document presents a detailed one-year implementation plan for FY2012, the second 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 June 2011. The inter-agency team worked in close consultation with the National Malaria Control Program (NMCP) 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 \$43.2 for FY 2012.

MALARIA SITUATION IN NIGERIA

Nigeria is the most populous country in Africa with an estimated annual growth rate of about 1.9% and an estimated 2011 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.

Figure 1: Map of Nigeria with geopolitical zones



Nigeria is ranked 142 out of 169 countries in the 2010 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 South West Zone has the lowest under-five mortality. 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 with 97% of the population at risk. 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 225,000 deaths annually. It also contributes to an estimated 11% of maternal mortality and 10% of low birth weight (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).

Major Partners in Malaria Control

Donor support to malaria control in Nigeria has increased dramatically in recent years. In addition to the scale up by PMI other major partners include:

World Health Organization (WHO): WHO provides technical support to the NMCP, including assistance with development of policies and guidelines. To better serve the overall program the WHO office has assigned a regional health officer to each of the six geopolitical zones.

Global Fund: Nigeria was the recipient of a 5-year, \$600 million Global Fund to Fight AIDS, Tuberculosis, and Malaria (Global Fund) Round 8 award that was signed in 2008. It was designed to provide malaria commodities and improved delivery for prevention and case management to all of Nigeria except for the seven states covered by the World Bank.

World Bank: In 2009, a second, 5-year phase of the World Bank Malaria Booster Program provided \$100 million in addition to the original commitment of \$180 million to support for commodities and improved service delivery for the full complement interventions for prevention and case management of malaria in seven states.

DfID: The UK Department for International Development (DfID) launched a five-year \$100 million malaria program in 2008 led by the Malaria Consortium. The focus is capacity development, improving population coverage of bednets and access to effective anti-malarial treatment, increased community awareness and demand for malaria interventions and operational research to provide an evidence base for more effective malaria strategies. The project supports the NMCP at the national level and has a focus in six states; Lagos, Kano, Anambra, Ogun, Katsina and Niger States.

UNICEF: works closely with its Roll Back Malaria partners to supply safe, effective and affordable anti-malaria interventions. A focus of UNICEF has been the provision of intermittent preventive treatment (ITP) for pregnant women through antenatal clinics and has made this service free in some areas of the country.

CURRENT STATUS OF MALARIA INDICATORS

The most up-to-date information on the status of malaria control efforts in Nigeria comes from the 2010 Nigeria Malaria Indicator Survey (MIS), Preliminary Report, which was completed in December 2010. A total of 6,344 women aged 15–49 were interviewed and

included 6,234 children under the age of five years. National level results are shown in the table below. Malaria prevalence based on microscopy indicated that 42% of children aged 6-59 months had malaria parasites. Parasitemia was higher in rural areas (48%) than urban areas (22%); and decreased as a mother's education level improved. Geopolitical zonal variations of indicators were reported. The highest malaria prevalence zones were South West (50%), North Central (49%), and North West (48%), while the lowest prevalence zones were South East (28%), North East (31%), and South South (32%). ITN ownership was highest in the North East (63%) and lowest in the South West (20%).

Table 1: Malaria Indicators

Malaria Indicators	Est. National Coverage (2008 DHS)	Est. National Coverage (2010 MIS)
Proportion of households with at least one ITN	8.0 %	41.5%
Proportion of children under five years old who slept under an ITN the previous night	5.5%	29.1%
Proportion of children under five years old who slept under an ITN the previous night in a household with an ITN	49.8%	59.0%
Proportion of pregnant women who slept under an ITN the previous night	4.8%	33.7%
Proportion of pregnant women who slept under an ITN the previous night in a household with an ITN	44.4%	65.6%
Proportion of children under five years old with fever in the last two weeks who received treatment with ACTs within 24 hours	1.1 %	3.2%
Proportion of children under five years old with fever in the last two weeks given any antimalarial within 24 hours that received an ACT	7.0%	12.0%
Proportion of women who received an antimalarial drug during their last pregnancy leading to a live birth within the previous two years	18.4%	39.6%
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)	4.9%*	13.2%*

*during an antenatal visit

NATIONAL MALARIA CONTROL PLAN AND STRATEGY

The 2009-2013 National Malaria Control Strategic Plan is based on the National Health Sector Development Framework and Strategic Plan and is in line with national health and development priorities. The overall objectives of the Strategic Plan for the period 2009 – 2013 are to:

- nationally scale up for impact a package of interventions which include appropriate measures to promote positive behaviour change, prevention and treatment of malaria.
- sustain and consolidate these efforts in the context of a strengthened health system and establish a basis for the future elimination of malaria in the country.

The Plan has a goal of reducing malaria-related mortality in Nigeria by 50% by 2013. The coverage targets for malaria prevention interventions were not reached by December 31, 2010, but NMCP has reset the target date to 2013. By December 31, 2013, the targets are:

- 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;
- At least 80% of patients with fever attending a health facility receive an appropriate diagnostic test and are effectively treated according to the national treatment guidelines by 2013;

The Federal Government has a strategy to support the provision of free distribution of LLINs, IPTp, IRS, the use of RDTs, treatment of uncomplicated malaria with ACTs, and the use of pre-referral treatment of severe malaria (using applicable medications, such as artemisinin rectal suppositories) at peripheral health facilities.

The NMCP coordinator is the leader of the program. There are five branches in the program - Program Management, Procurement and Supply Management, Integrated Vector Management, Monitoring and Evaluation, and Advocacy, Communication and Social Mobilization - with a total of about 80 staff members. At the national level, the NMCP is responsible for establishing policies, guidelines and norms. Each state and LGA has a RBM malaria officer (local civil service) who is responsible for overseeing malaria activities in his/her area.

GOALS AND TARGETS OF THE PRESIDENT'S MALARIA INITIATIVE

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 TWO EXPECTED RESULTS

Focusing efforts on a population of approximately 33 million, using FY2012 funding and working closely with partners and through the NMCP, PMI will have achieved the following results by March 2013:

- Procured and delivered 2 million LLINs in eight focus states through routine channels and improved ITN use by target groups.
- Supported malaria case management in eight focus states so that at least 70% of children diagnosed with malaria with either RDTs or microscopy, receive an appropriate antimalarial.
- Promote early and regular ANC attendance and, increase the percentage receiving two doses of IPTp to 25% in the eight PMI 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 2, PMI will continue to focus its efforts in 8 states: Sokoto, Bauchi, Zamfara, Nasarawa, Benue, Ebonyi, and Oyo. Two of these, Sokoto and Bauchi, are 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 outcomes statewide. The remaining six states will be supported through the Malaria Action Program for States (MAPS) project, which aims to provide high-impact malaria interventions at the state level.

INTERVENTIONS – PREVENTION

Insecticide-treated nets

Background:

The 2009 – 2013 NMCP Strategic Plan 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 followed by a second phase which focuses on the replacement of torn or worn out nets through routine services, free or subsidized distribution through community-based organizations, and subsidized or full cost nets distributed through the commercial sector.

Sixty-three million LLINs are needed to reach a coverage of two LLINs for all households nationwide. As of May 2011, just under 34 million LLINs had been distributed to 22 of Nigeria 37 states, representing 57% of the total number of LLINs planned for universal coverage distribution. Funding is available for procurement of LLINs to cover the remaining 15 states, but there was a lack of operational funds for delivery of those LLINs. The World Bank Booster Program agreed to cover the operational costs in those states and as of May 2011, disbursements had been made to five of those states. Another five states were not covered under the original donor pool and in 2010, the Nigerian Millennium Development Goal Debt Relief Fund agreed to purchase 6 of the 9.2 million required for these “orphan” states. Global Fund Round 8, World Bank, UNITAID, and the Nigerian MDG Debt Relief Fund 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.

Results from the MIS, conducted from October to December 2010, showed significant increases in LLIN ownership and use as compared with the 2008 Nigeria DHS. The average for ownership of one ITN in 2008 was 8% and increased to 42% in 2010, with rural ownership higher (45%) than urban (33%) indicating that the mass campaigns were achieving a high degree of equity. ITN use also improved from an average of less than 6% of children under five years using an ITN the previous night in 2008 to more than 29% in 2010. The data also revealed that this was more than a gain due to the presence of nets to use. In 2006 50% of children under five in a household with an ITN slept under the net as compared to 59% in 2010. Results for pregnant women were similar, increasing from 5% in 2006 to 34% in 2010 and, in households with an ITN, the percentage increased from 41% in 2006 to 66% in 2010.

Results were analysed across states with campaigns and stratified by those supported by the World Bank and those supported by other partners. Ownership of at least one ITN was 72% in World Bank states, 75% in other campaign states and 22% in states that had not yet completed a mass campaign, indicating that overall the campaigns in Nigeria have been successful.

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 from 2011 to 2013 to help maintain high coverage.

Progress during the past 12 months:

PMI continued its support for the LLIN Campaign State Support Teams, which were expanded from four to six teams in April 2010. These teams provide comprehensive technical support to each of the states for their mass LLIN campaigns.

In early 2009, prior to adoption by Nigeria of the universal coverage approach, PMI had supported a campaign that delivered 676,000 LLINs targeted at children under five years of age in Cross River State. In June 2010 PMI undertook a fill in campaign with an additional 614,000 LLINs to reach the target of two LLINs per household. A registration undertaken to identify household already possessing an LLIN from the first campaign was able to account for only about 52% of the LLINs delivered about 18 months earlier, indicating that almost twice as many LLINs would be needed to achieve universal coverage. The distribution proceeded but covered about half of the population area originally intended, reduced from 18 LGAs to 9 LGAs. That door-to-door distribution and hang-up campaign was completed in early 2011 and the final phase to reach the remaining LGAs with an additional 600,000 LLINs is planned for October 2011.

International Federation of the Red Cross conducted a qualitative study in Cross River State to determine why so many of the LLINs distributed in January 2009 were not present in June 2010. They found that even though 75% thought that nets were the best way to prevent malaria, 60% of key informants stated that the nets were no longer effective after about 18 months. Forty percent of those in a small household survey indicated that nets were thrown out because they were torn and 44% had given one or more nets away since the campaign. Focus group discussions found that greater than 70% thought the campaign nets had expired. This indicates said that the nets were torn or destroyed, some nets no longer used were observed to be in good physical conditions. Forty four percent of those who no longer had their campaign net said they had given their net away.¹

To date, six of the eight PMI supported states have received nets through universal coverage campaigns. The lack of funds for logistic support have delayed distribution of LLINs in Benue and Oyo States and both are now programmed for distributions in 2011.

The estimated LLIN gap for Nigeria, as determined by the Global Fund Central Coordinating Mechanism and the NMCP for keep-up in 2013, is estimated to be about 30 million LLINs. Twenty four million have been programmed by various donors, including

¹ “Cross River – Qualitative survey to account for missing nets”, Maleghemi Sylvester and Marcy Erskins, APM Annual Meeting, 10-11 February, 2011: <http://www.allianceformalariaprevention.com/resources/Nigeria%20Looking%20for%20the%20missing%20LLINs%20-%20Dr.%20Sly.pdf>

DfID, WB, and PMI, with seven million LLINs programmed in the Global Fund Round 8 to fill the remaining gap. The projected need for continuous, keep up distribution in the six PMI focus states that have completed universal campaigns and the need for universal coverage in the two other PMI states is presented below.

Table 2: Gap analysis for continuous distribution of LLINs in eight PMI states

PMI States	Estimated population – 2011*	Number LLINs distributed in mass ITN campaigns to achieve UC (mo/yr)	Projected LLIN contributions in 2011 AND 2012	Projected ITN gap for 2013**	Expected donor contribution in 2013	Gap
Bauchi	5,323,108	2,049,499 (11/09)	596,872 (WB)	303,529	303,529 (PMI)	0
Cross River	3,309,578	676,887 (01/09) 614,000 (06/10) 600,000 (08/11)	240,500 (PMI)	44,954	44,954 (PMI)	0
Ebonyi	2,514,374	942,148 (02/11)	259,715 (PMI)	143,372	143,372 (PMI)	0
Nasarawa	2,138,562	835,135 (06/10)	203,072 (PMI)	121,943	121,943 (PMI)	0
Sokoto	4,235,861	1,612,781 (12/09)	549,834 (PMI)	189,562	189,562 (PMI)	0
Zamfara	3,751,031	1,470,738 (03/11)	386,451 (PMI)	214,791	214,791 (PMI)	0
Total					1,018,151	0
Universal Coverage campaign not yet done	Estimated population – 2011*	Nets needed for mass campaign				Gap
Benue	4,912,955	1,956,504	1,956,504 (GF)	634,970	450,000 (PMI)	184,9700
Oyo	6,445,933	2,643,613	2,643,613 (MDG)	765,397	550,000 (PMI)	215,3970
Total					1,000,000	
* extrapolated from 2006 census						
** calculated using NetCALC and the following assumptions: LLIN life 4 years; maintaining coverage of 80% of 1 net/2 persons; average household size 4.4; growth rate 2.0						
WB= World Bank						

Proposed activities with FY 2012 funding (\$18,717,000):

PMI will provide LLINs to support maintenance of high coverage through continuous distribution on the eight PMI focus states. In situation where ANC and EPI clinic attendance is relatively high, PMI will strive to expand and improve on this more traditional delivery channel. However, in recognition of the need for additional avenues for distribution to maintain high coverage even in those settings, PMI will invest in operations research to develop innovative continuous approaches. This will include support for operations research (pre-proposals submitted to the PMI OR Committee) that will evaluate distributions through schools-based and community based systems. This is

supported by the Nigeria national strategy and will not only benefit the PMI focus states, but will provide best practices for the rest of Nigeria.

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 health facility services and activities and used to support operations research for school-based and community-based to reach vulnerable populations. (\$11,805,000)*
2. *Logistic and operational support for distribution of LLINs for “keep up” in six MAPS states and two TSHIP states. This will include deliver through routine services and through innovative approaches to reach vulnerable populations and to maintain high overall household coverage. This includes the development of systems for regular distribution, storage, supervision, reporting, and associated IEC/ BCC (\$5,000,000)*
3. *Operations research to assess the effectiveness and costs of innovative “keep-up” strategies for deliver of LLINs to vulnerable populations and to maintain high net ownership and use by the general population. This proposed operations research will assess school and community based approaches for continuous distribution of LLINs to maintain universal coverage. (\$750,000)*
4. *Support for social marketing of LLINs as part of a mixed model strategy to ensure LLIN availability. Promote LLIN ownership and use nationwide but with a focus on MAPS and TSHIP states. (\$1,000,000)*
5. *Support for radio IEC/BCC for malaria prevention and treatment. PMI will support advocacy for malaria prevention through local language and the influence and control through the mass media. This will include working with journalists to identify and develop appropriate malaria news. (\$150,000)*
6. *Technical assistance to PMI ITN activities. Federal and State level assistance with the LLIN program, for one USAID TA. \$0*
7. *Technical assistance to PMI ITN activities. Federal and State level assistance with the LLIN program, one CDC TA. (\$12,000)*

Indoor residual spraying (IRS)

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 four pyrethroids and bendiocarb were conducted in 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, World Bank, in collaboration with insecticide manufacturing companies, is the only donor supporting IRS, and is conducting spraying in seven states (four in the north and three in the south). 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. World Bank will support IRS in 2 LGAs each in 2012 and 2013. 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.

Nigeria possesses significant internal resources to support IRS and several states and LGAs have begun limited spraying using their own funds. In addition, the Nigerian MDG Debt Relief Fund has resources of about \$1 billion annually and has used some of these funds to support malaria control through the purchase of LLINs. The MDG Fund has indicated a willingness to fund IRS if suitable proposals are received.

Progress during the past 12 months:

PMI in collaboration with the NMCP and other partners is establishing the capacity to conduct an IRS program in Nasarawa State, to include technical, strategic, managerial, and operational support to implement IRS in two LGAs, Doma and Nasarawa Eggon. These locations were selected as part of the IRS capacity building process, based on malaria transmission rates, rainfall patterns, suitability for IRS, and government commitment.

The following activities will be completed with PMI support in preparation for 2012 spray operations: a supplemental environmental assessment (SEA) to comply with Nigerian and US environmental regulations; geographical reconnaissance, including basic mapping and enumeration of structures in the spray area; a logistics assessment that quantifies commodities needed and identifies operational sites as appropriate; entomological testing to establish baseline susceptibility and density, and identify species; and procurement of insecticide and other commodities. Susceptibility results will

be used for insecticide class selection. Using established protocols and standard operating procedures, selection will be based on susceptibility of vectors; registration in country; acceptability to the NMCP; approval by the WHO Pesticide Evaluation Scheme; and technical and logistic considerations, including, surface wall construction, duration of effectiveness, and insecticide cost.

Our objective is to work with the NMCP to provide advocacy and training opportunities at a world class demonstration site to reach partner organizations, as well as appropriate national, state and local government officials. A more immediate objective is to transfer the IRS program over to Nasarawa State after 2-3 years of assistance, move the PMI training and capacity building to a new State and repeat the process. With this approach, the States will assume responsibility for the IRS programs, with PMI available for technical consultation and assistance, as needed.

Proposed USG activities with FY 2012 funding (\$2,445,000):

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 spray operation as a broad training and educational opportunity in 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 long-term basis. PMI also sees monitoring of insecticide resistance as vital to Nigeria and West Africa in general. With FY 2012 funding, PMI will support the following activities:

- *Provide support for an IRS program in two LGAs (up to 100,000 houses) in Nasarawa State in 2013. 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. (\$390,000)*
- *Strengthen capacity for entomological monitoring at federal and state levels, to include an insecticide resistance surveillance course for 20-40 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 (IPTp)

Background

Nigeria has an estimated 7.5 million pregnant women annually, almost all of whom are at risk of malaria in pregnancy (MIP). The burden of malaria during pregnancy is high with enormous health and economic impact on the country. The 2005 National Strategy for Malaria in Pregnancy includes the following interventions: IPTp with SP; use of LLINs in areas not protected by IRS; and prompt, effective treatment of clinical malaria episodes. The IPTp policy calls for two doses of SP taken at least one month apart; the first dose after quickening and the second dose one month later, and both should be directly observed.

The 2009 – 2013 strategic plan of the NMCP recommends the implementation of malaria in pregnancy interventions as component of the Focused Antenatal Care (FANC) services delivered by the Reproductive Health / Maternal Child Health units.

Progress during the past 12 months:

The 2008 DHS reported that nationally 4.8% of pregnant women slept under an ITN the previous night, but for those in households with an ITN the percentage was 44.4%. Only 4.9% received two or more treatment doses of sulfadoxine-pyrimethamine (SP) for IPTp. The 2010 MIS showed an increase in one ANC clinic visit from 62% in 2006 to 72%; 65.6% of pregnant women slept under an ITN and 13.2% received two or more treatment doses of SP for IPTp.

The implementation of MIP is weak in Nigeria and the supply of SP is inadequate partly due to the poor pharmaceutical supply chain management. In 2008, SP was purchased with funds provided by MDG Debt Relief Fund account. Also the absence of clean water and cups in some health facilities limits the ability of health workers to directly observe compliance. There is also low awareness on the part of both health workers and pregnant women about IPTp and the need to improve collaboration between NMCP and Reproductive Health program and define better the roles and responsibilities of each program.

Proposed activities with FY 2012 funding (\$2,300,000)

1. *Procure adequate quantities of SP for health facilities in the PMI-supported states and provide other resources like disposable cups and possibly clean water for health facilities to deliver direct observation of IPTp. (\$100,000)*
2. *Provide support to strengthen policy and implementation of IPTp in six MAP states as an integrated part of Focused Antenatal Care. Support for the review and update of the MIP policy document, implementation guidelines and the training materials of the NMCP in collaboration with the Division of Reproductive Health. (\$2,000,000)*

3. *Provide support to strengthen policy and implementation of IPTp in two TSHIP states as an integrated part of Focused Antenatal Care Building on TSHIP's existing system strengthening activities, PMI will support the review and updating the MIP policy, implementation guidelines, and the training materials of the NMCP in collaboration with the Reproductive Health Division. (\$200,000)*

INTERVENTIONS - CASE MANAGEMENT

Malaria Diagnosis

Background:

The Nigerian National Guidelines for Diagnosis and Treatment of Malaria are aligned with the revised (2010) WHO recommendations on universal diagnostic testing for malaria. 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.” Prompt parasitological diagnosis, either by microscopy or rapid diagnostic test (RDT), is strongly recommended in all suspected cases of malaria.

Biological diagnosis is not feasible at most health facilities in Nigeria at this time and rapid scale up will be difficult. The NMCP plans to gradually scale up diagnostic tools. The initial target is 80% parasitological diagnosis in patients above five years of age at health facilities by 2013. Microscopy should be available in health facilities with a high malaria case load, a need for parasite quantification, and/or facilities that manage other diseases needing microscopic diagnosis. The NMCP considers hospitals, large health centers that include inpatient beds and tertiary care facilities as the facilities where microscopy should be available.

The NMCP plans to use RDTs at all facilities where microscopy is not available or not possible due to lack of personnel, to complement microscopy in secondary facilities, and in certain outpatient clinics of tertiary facilities. Forecasting and quantification of the RDT needs for Nigeria is difficult. Care reporting through the Health Management Information System (HMIS) and the parallel Malaria Information System is poor. There are an estimated 110 million fever cases per year. About 20% of these will seek care at a public health facility. The availability of accurate microscopy is not known. The NMCP estimates that 50-60 million RDTs will be needed annually to achieve universal access to malaria diagnosis in the public sector.

Progress during the last 12 months:

Partners- The NMCP has updated the National Guidelines for Diagnosis and Treatment of Malaria. Global Fund Round 8 funding is being used by the NMCP and Society for Family Health (SFH) as Principal Recipients in 12 States to improve malaria diagnostic capacity in the public and private sector. Laboratory technicians and microscopists are being trained at tertiary and secondary health facilities, as well as at the School of Health

Technology and Hygiene. The NMCP and SFH are also piloting the expansion of RDTs in 6 States each, but progress has been slow. SFH has only achieved 5% of its target for RDTs thus far. DfID through its SUNMAP project, working in 6 states and World Bank through the Booster program, working in 7 states, are working to improve diagnostics.

Global Fund, AMFm and SFH are supporting efforts to introduce RDTs in the private sector, particularly among PMVs where a majority of Nigerians seek treatment for malaria. Pilot studies are underway to test approaches that will make it advantageous for these informal providers to use RDTs, both financially and in terms of improving relation with patients. PMI will follow developments in this area and be prepared to support work with the private sector in the future.

USG- Unfortunately, the implementation of the PMI-supported activities to build diagnostic capacity was delayed due to suspension of the implementing partner. As this has been resolved, diagnostic interventions can move forward. With USAID funding, a preliminary malaria laboratory assessment was completed in Sokoto and Cross River States on a selection of functioning laboratories at primary and secondary facilities. This assessment found that 90% of the facilities used microscopy to diagnosis malaria; two-thirds had a dedicated malaria microscopist; and only 28% used RDTs. In addition, a Walter Reed Program has been supporting malaria diagnostics through PEPFAR programming at military facilities. A malaria diagnostic training curriculum has been developed, as well as supervisory checklists. Also, training support has been provided to the NMCP. The table below shows the RDT needs and gaps for 2013.

Table 3: 2013 RDT Need Estimates

State	Estimated population 2013	Fevers per year (0.9)	Public HF utilization 30%	30% RDT Roll Out	Anticipated quantities of RDTs in 2013		
					GF/WB	FGN/ MDG/ State/ LGA**	PMI
Sokoto	4,235,861	3,810,847	1,143,254	342,976		34,298	308,679
Zamfara	3,751,031	3,374,663	1,012,399	303,720		30,372	273,348
Oyo*	6,445,933	5,743,936	1,723,181	516,954		51,695	465,259
Benue*	4,912,955	4,377,908	1,313,372	394,012	368,000		26,012
Ebonyi*	2,514,374	2,240,545	672,163	201,649		20,165	181,484
Bauchi	5,323,108	4,789,002	1,436,701	431,010	431,010		
Nasarawa	2,138,562	1,923,989	577,197	173,159	173,159		
Cross River	3,309,578	2,977,504	893,251	267,975	267,975		
Total	32,631,402	29,238,394	8,771,518	771,618,455	1,240,144	136,530	1,228,770

*New states

** FGN (Federal Government of Nigeria); MDG (MDG Debt Relief Fund); State (State Government); LGA (Local Government Authority)

Proposed USG activities with FY 2012 funding (\$3,712,000):

It is recognized that there is a need to develop the appropriate capacity among health and lab personnel, supervisors, and eventually community volunteers in the use of RDTs. This includes not only the routine use of the tests, but also procurement, distribution, quality control, and behavior change communication. Regular and systematic supervision is necessary.

PMI will support expansion of malaria diagnostics by improving microscopy and use of RDTs through State and LGA level training. PMI will also support the pilot testing of a quality assurance/control system for both microscopy and RDTs at the state level. PMI will program funds to procure sufficient quantities of RDTs to cover their phased introduction in four MAPS states and one TSHIP state. Delivery of RDTs will be coordinated with laboratory training and ACT stocks. With 2012 funding PMI will support the following activities:

1. Procure an estimated 1.3 million RDTs. Funding for microscopes and microscopy kits (reagents, slides, lancets, etc.) were included in the FY 2011 MOP. In FY 2012 PMI will procure sufficient RDTs to support the scale up of malaria laboratory diagnosis using RDTs in 5 of the 8 targeted states. (\$1,300,000)
2. Improve the quality of parasitological diagnosis through the training of health and lab personnel in eight states and pilot test quality assurance/quality control (QA/QC) systems at the state level. PMI will also work with the NMCP to improve the appropriate use of diagnostics including interpreting laboratory results and managing patients based on results. Support will include in-service training and supervisory visits for both laboratory workers and health care providers, as part of a comprehensive program for laboratory diagnostics. This activity will begin with FY 2011 funding in targeted states and quickly expand to all PMI states in FY 2012 with \$400,000 directed toward the two TSHIP states and \$2,000,000 toward the six MAPS states. (\$2,400,000)
3. Provide technical assistance in malaria diagnostics. CDC will provide technical support for microscopic and RDT diagnosis. (\$12,000)

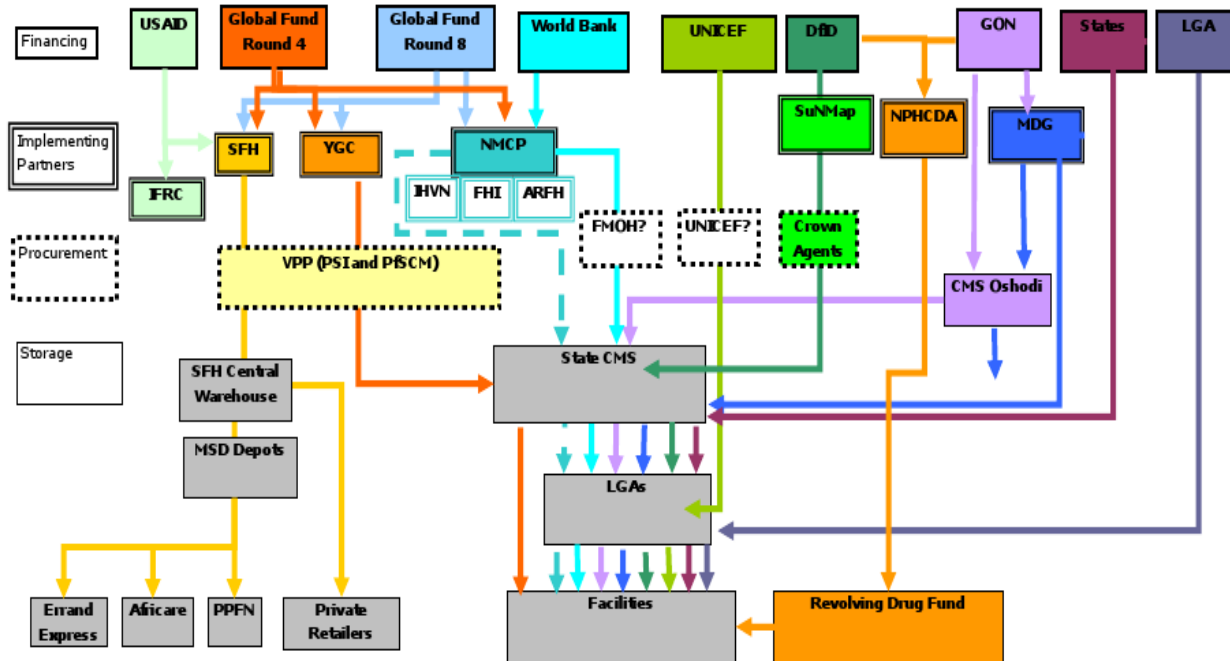
Pharmaceutical management

Background:

The public sector procurement and supply chain management of essential medicines is extremely fragmented and chaotic, leading to frequent stock outs of all commodities including ACTs. As demonstrated by the figure below, donors, the federal government, state and LGAs all have the ability to procure ACTs and RDTs and each has its own unique distribution system. In principle, donor and government-procured essential medicines flow either through the National CMS to the state CMS or directly to the

states. The states, LGAs and individual health facilities can supplement these procurements using their drug revolving funds, and/or tax revenues to buy additional supplies in the private sector. Further complicating the supply chain are those medicines supplied directly by donors, which often are directly delivered to the states. The result is a flow of essential medicines supplied by the federal, state, LGA and donors all with different distribution patterns.

Figure 2: Essential drug supply chain in Nigeria



Malaria is not immune from this disjointed system. The World Bank and the three Global Fund Principal Recipients have procured the majority of ACTs. These ACTs are delivered directly to state-level Medical Stores and then distributed down to the LGA and health facility level. The consistency of ACT supplies varies by donor: the World Bank states have had the most consistent supply of ACTs, though there have been stockouts of individual presentations. States supported by the Global Fund grants to the Principal Recipients covering the public sector, NMCP and Yakuba Gowon Centre, have not fared as well, and many states are facing major stockouts as of July 2011 (see treatment section for a description of ACT stock levels). To compensate for this erratic supply, individual health facilities often procure malaria treatments from local pharmacies, but often the treatments they procured are not inline with the national drug policy. Supply chain capacity and processes vary by state. Each state has its own system to manage malaria commodities in including their own Central Medical Stores (CMS). Warehousing capacity in some states is insufficient to ensure the secure storage of commodities, thus ACTs and RDTs cannot be stored there. Logistics management

systems in general are weak and reliable consumption data is limited at all levels of the system. The multiplicity of procurers and the variability of the supply chain both between and within the states have made the establishment of management system to track supply, and rationalize ordering and distribution extremely difficult.

The launch of the AMFm further complicates this system as ACTs are now available in the private sector. Since its launch, 49 first-line buyers have been registered, 45 million treatments have been ordered and 9 million have been delivered. It is expected that the majority of these treatments will be sold in the private sector, many through Patent Medicine Vendors. The Clinton Health Access Initiative is working to make the public sector a “second line” buyer, enabling States and/or LGAs to procure large quantities of ACTs from AMFm wholesalers. While this may help ensure a continuous supply of ACTs, it will make tracking and monitoring stock all even more difficult.

Progress during the last 12 months:

The NMCP Procurement and Supply Management Branch’s mandate is to coordinate the procurement and delivery of commodities from these varied sources and develop a rational forecasting and distribution plan for malaria-related commodities. A major step toward such a plan is the recently developed draft Procurement and Supply Chain Framework that outlines the national ACT and procurement policy and delineates roles and responsibilities of partners. Additionally, a national ACT quantification exercise was completed, providing state by state estimates of ACT needs for the coming year. As this quantification used only morbidity estimates it should be considered a rough estimate at best.

To address the lack of reliable logistics information, the NMCP is also rolling out a new malaria commodity logistics systems designed to bring coherency to the malaria commodities system (ACTs, SP and RDTs) and institute a clear chain for quantification, procurement, and distribution between NMCP, state, LGA and facility levels. As part this effort, a logistics management information system will be developed to collect and transmit consumption and stock information between levels to ensure accurate monitoring and quantification. Ideally, the system will also track AMFm ACTs supplied to the public sector as well, though how that will occur has not been fully explained. Training on this new system is being rolled out and will aim to train 179,000 health workers. Given the large number to be trained, the system will not be fully operational for 1-2 years.

Proposed USG activities with FY 2012 funding: \$2,000,000

PMI is focusing on both supporting the NMCP’s efforts to implement the malaria commodity logistics systems as well as strengthening supply chain capacity within each state. As each state has its own central medical stores and procurement and distribution plans, PMI will need to work directly at the state level and develop state-specific solutions. With FY 2012 funding, PMI will support the following activities:

1. *Strengthen supply chain management for antimalarials at the CMS level and below in the eight PMI supported states-* Provide training to health workers and technical assistance for the implementation of the new supply chain system with a focus on the facility and LGA level. Training will specifically be focused on how to use the new LMIS system. Refurbish a limited number of state CMS warehouses to bring them to international standards where needed. Continue to provide technical assistance to the NMCP Procurement and Supply Management Branch to enhance their coordination role, monitor and forecast stocks, and help implement the new procurement and supply management framework. (\$2,000,000)

Malaria Treatment

Background:

The Nigerian National Guidelines for Diagnosis and Treatment of Malaria state that the objective of treating uncomplicated malaria is to rapidly cure the patient in order to prevent progression to severe disease and reduce morbidity and mortality. In addition, prompt appropriate treatment decreases transmission and can prevent or delay the emergence of drug resistance.

After drug efficacy trials in 2002 and 2004 found unacceptably high rates of failure to chloroquine and sulfadoxine-pyrimethamine, in 2004 the FMOH changed the drug policy to ACTs with AL as the first-line treatment for uncomplicated *Plasmodium falciparum*, and artesunate–amodiaquine (AS-AQ) as the alternate first-line.

The NMCP has 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. Drug Therapeutic and Efficacy Trials (DTET) were completed at seven of these sites in 2009. The NMCP has stated that a final study report will be available in July 2011. DTET are planned for the other seven sites in 2011. The World Bank supports DTET in 6 geopolitical zones. AMFm is expected to support sites as well.

The recommended treatment of uncomplicated malaria for children weighing less than 5 kg is oral quinine. Clinical malaria during pregnancy is to be treated with quinine as well, although ACTs may be used after the first trimester. For severe malaria, the Nigerian guidelines recommend intravenous (IV) or intramuscular (IM) artesunate, IV or IM quinine, or IM artemether. The recommended pre-referral treatment of severe malaria is IM or intra-rectal artesunate, quinine, or artemether.

The management of malaria in Nigeria may occur at home, in the community or at the health facility. Mothers frequently seek treatment in the private sector through patent medicine vendors (PMVs) who have received some training on the recognition of basic symptoms of uncomplicated malaria and empowered to provide treatment. The NMCP is also planning to expand community case management in the public sector through

Community Oriented Resource Persons (CORPS). Management of malaria at the health facilities occurs at three levels:

- Primary – includes primary health care clinics, dispensaries, and health posts and is expected to be available in all the political wards
- Secondary – consists of comprehensive health centers, cottage hospitals, general hospitals, and some private hospitals and are expected to be found in all LGAs
- Tertiary – includes teaching hospitals, specialist hospitals, Federal Medical Centers, and some general and private hospitals

The NMCP has updated the National Guidelines for Diagnosis and Treatment of Malaria with support from partners on the Case Management TWG. Despite support from Global Fund and other partners, implementation of the ACT policy has progressed very slowly. The 2010 Nigerian MIS preliminary report shows that of children under age five with fever, only about 49% received any antimalarial treatment. Of those children who received malaria treatment within 24 hours, only 12% took an ACT (26% urban vs. 8% rural). In contrast, 57% took chloroquine and 22% took SP.

Contributing factors to the poor uptake of ACTs include: low awareness of ACT treatment by health workers and patients; frequent stock outs in public sector health facilities; and the high cost of ACTs in the private sector

Progress during the past 12 months:

PMI supported a quantitative exercise in April 2011 to determine the status of ACT stocks. The exercise revealed existing stock outs in public health facilities and also an inadequate pipeline over the next 12 months. A key factor in the ACT shortage was the restriction in 2011 on Yakuba Gowon Centre's procurement of ACTs for public health facilities in 19 states as a result of an ongoing Global Fund audit. The NMCP was to procure 7,826,355 ACTs for public health facilities in 11 states. World Bank plans to procure sufficient ACTs to cover the seven states it supports (15,982,517). Global Fund, the NMCP and partners continue to look for solutions to the procurement bottleneck. Table 4 below provides the estimated ACT need for PMI focus states in 2013. Bauchi and Nasarawa are the only two PMI states not affected by the restriction of the Principal Recipient (Yakuba Gowon Centre) due to an on-going Global Fund OIG investigation. PMI anticipates that the situation will be resolved well before 2013.

The bottleneck of ACT supplies impacts training as well. Without adequate ACT supplies, the effectiveness of training to improve case management performance, supervision, and pharmaceutical management practices is limited. In addition, it is hard to justify rolling out community-based treatment to underserved rural populations when the associated health facilities have not been trained and sufficiently supplied with ACTs.

Within the private sector, SFH through Global Fund Round 8 introduced subsidized ACTs primarily through PMV. The PMVs provide very good geographical access to many rural communities and SFH will expand the reach of its program by training over

7,000 PMVs to deliver ACTs. A total of 20,049,548 ACTs are planned through SFH for the private sector with Global Fund Round 8 funding in 2011. At the end of June, 10.5 million doses of AMFm ACTs had arrived in-country and been distributed to private sector pharmacies and PMV shops. Another 25 million AMFm ACTs are coming this calendar year. The table below shows the estimated Public sector ACT gap in PMI states for 2013.

Table 4: 2013 Public Sector Estimated ACT Gap

State	Estimated population 2013	Fevers per year (0.9)	Public HF utilization 30%	80% ACT Roll Out	Anticipated quantities of ACTs in 2013		
					GF/ WB	FGN/ MDG /States /LGAs*	PMI
Sokoto	4,235,861	3,810,847	1,143,254	914,603	470,000	274,381	170,222
Zamfara	3,751,031	3,374,663	1,012,399	809,919	419,000	242,976	147,943
Oyo	6,445,933	5,743,936	1,723,181	1,378,545	690,000	413,563	274,981
Benue	4,912,955	4,377,908	1,313,372	1,050,698	531,000	315,209	204,489
Ebonyi	2,514,374	2,240,545	672,163	537,731	293,000	161,319	83,411
Bauchi	5,323,108	4,789,002	1,436,701	1,149,360	1,149,360		
Nasarawa	2,138,562	1,923,989	577,197	461,757	489,000		
Cross River	3,309,578	2,977,504	893,251	714,601	376,000	214,380	124,221
Total	32,631,402	29,238,394	8,771,518	7,017,214	4,417,360	1,621,829	1,005,267

*Anticipate 30% of need covered by FGN (Federal Government of Nigeria); MDG (MDG Debt R Fund/Nigeria); State (State Government); LGA (Local Government Authority)
FGN

Proposed USG activities with FY2012 funding (\$7,474,000):

Large quantities of ACTs have been programmed by other donors for 2012, and if commitments are fulfilled, there should be no ACT gap. However, it is difficult to determine the ACT gap for 2013. PMI will plan to procure ACTs to fill any gaps that may occur in the PMI focus states. PMI will also invest in improving the capabilities for delivery of appropriate treatment at health facility, private sector and community level. With FY 2012 funding, PMI will support the following activities:

1. *Procure ACTs 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 in PMI targeted states. (\$1,350,000)

2. *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 community case management of malaria. (\$5,600,000)
3. *Social marketing strategies targeting PMVs* and the general public to promote correct and consistent use of ACTs. (\$500,000)
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)

CAPACITY BUILDING AND HEALTH SYSTEM STRENGTHENING

Background:

Malaria is a major health issue in Nigeria but cannot be effectively dealt with in isolation. Malaria control must be viewed as part of the national efforts to enhance development, reduce poverty and improve health. The overall approach to malaria control forms part of the Nigeria revised health policy and the country's efforts to strengthen the health system to reach the Millennium Development Goals (MDG).

Global Fund, World Bank, and other donors have primarily been contributing to building capacity at Federal Minister of Health level. Direct support of the NMCP is being provided by DfID through the SunMap Project, which continues to technical assistance as well as support that enables the NMCP to organize coordination meetings with partners and conduct trainings.

Beyond the central level, it is equally important to build capacity at the state, LGA, and facility levels. Technical expertise varies greatly across states and LGAs as does program management, and monitoring and evaluation expertise. PMI will focus on strengthening state and LGA abilities to plan, budget, implement, supervise, monitor and evaluate their malaria control and prevention efforts.

PMI supports a variety of activities to improve delivery of malaria interventions through health facilities and, to a lesser extent, at community level. This support will increase capacity among health workers for: deliver IPTp, malaria case management based on diagnosis with RDTs, management of severe malaria, and delivery preventions messages that promote use of LLINs. PMI will also support: short-term training and technical assistance to the NMCP; engage in improving routine monitoring and data collection at State and LGA levels; provide guidance for implementing continuous distribution of LLINs; strengthen entomological capabilities, particularly for monitoring insecticide

resistance; and train personnel in both the techniques of spraying insecticides for IRS and in overall management of an IRS operation.

Proposed activities with FY 2012 funding (\$400,000):

PMI will provide technical and logistic support to the NMCP in order to strengthen intervention approaches and partner coordination. PMI will also take advantage of an opportunity to influence health legislation and policy that will positively influence the resources, implementation, and outcomes for maternal and child health, including malaria. A major focus of this activity will be to gain final approval of the Health Bill, which will institutionalize and greatly increase the level of spending for primary health care.

With FY 2012 funding, PMI will support the following activities:

1. *Coordination of NMCP's activities at national, state, and LGA levels* to strengthen implementation of malaria control activities. PMI will provide support for NMCP activities for planning and coordination activities among partners at national level and across states. This may include support for workshops, travel, technical assistance to states and other related activities (\$200,000)
2. *Support for promotion of policies favorable for malaria interventions.* PMI will support efforts to put in place and rollout legislation, policies and guidelines that will strengthen child and maternal health interventions. (\$200,000)
3. *Technical assistance through PMI in-country staff* for project coordination, programming, partnership and managing of malaria projects, malaria related policies and guidelines disseminations. (Cost covered under Staffing and Administration).
4. *Support to states and LGAs through implementing partners* (MAPS, DELIVER and TSHIP) to strengthen supportive supervision by state and LGA workers (No additional costs)

INTEGRATION WITH OTHER GLOBAL HEALTH INITIATIVE PROGRAMS

The GHI aims to maximize the impact the United States achieves for every health dollar it invests in a sustainable way. The GHI 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 partnership, multilateral organizations, and private contributions; encouraging country ownership and investing in promoting research and innovation. The USG health programs in Nigeria are in the process of developing a GHI strategy, which is expected to be completed and approved before the end of 2011.

Progress during the last 12 months

PMI-supported malaria projects in Nigeria are in the process of becoming better integrated with activities in other USG program areas, with other donor projects and with the government's overall health strategy (the 2010 National Strategic Health Development Plan) and the specific strategy of the NMCP.

Specific accomplishments have included:

- While focusing on specific states, USG malaria assistance is fully integrated with the national malaria planning system, including USG staff and implementing partners as members or chair/co-chair of technical working groups at the national level. These groups ensure that all donor inputs are coordinated.
- Plans for community-level interventions to improve case management include management of malaria, diarrhea and pneumonia and possibly other childhood diseases. PMI Resident Advisors have been able to facilitate integration of the formerly freestanding "Role Model Caregiver" malaria program into an integrated Community Case Management (iCCM) strategy of the National Primary Health Care Development Agency. The USG supported primary health care project, which includes malaria funding, is implementing an iCCM model in its states rather than a stand-alone community malaria management model.
- The integrated PHC project (TSHIP) and the flagship malaria project (MAPS) have both been instructed that they are to cover their entire state, rather than selected facilities or localities. This is to better align their planning and orientation with that of each state.
- Development of the laboratory quality improvement activity for malaria has been done jointly with PEPFAR staff in the context of PEPFAR assistance to laboratory services.

Proposed activities with FY 2012 funding

Nigeria is only now developing its GHI strategy document and there are active discussions about how to better coordinate our work, such as:

- PEPFAR has an existing, albeit limited, involvement with malaria diagnostics as part of its laboratory strengthening program, with malaria considered under the category of HIV opportunistic infections. PMI Nigeria will explore the possibility of building on the existing PEPFAR structures for malaria diagnostics rather than setting up a separate structure in those facilities with PEPFAR presence.
- Working with PEPFAR implementing partners to ensure that malaria in pregnancy is supported as part of the expansion in support for prevention of mother to child transmission nationally. Limited support for malaria prevention in pregnancy is already part of PEPFAR work and we are exploring how PEPFAR and PMI can work more closely together in this area.

- Joining with other USG health programs, particularly PEPFAR, in helping to promote a National Health Management Information System which links to a web database and which will allow both more complete and in depth information for decision making across multiple program areas. This is a particularly challenging task for malaria since the NMCP implemented what amounts to a parallel system designed in 2009 which also serves reporting requirements for the Global Fund. It will take time and careful design to make a transition to a well-functioning single system, but PMI will participate in this process.

COMMUNICATION AND COORDINATION WITH OTHER PARTNERS

Background

Coordination, communication, and effective partnership among all malaria donors, implementers, monitors and advocates are harmonized by the Nigeria Roll Back Malaria Partnership. The Federal Ministry of Health has established the Ministerial Task Force on AIDS, Tuberculosis and Malaria (ATM) which includes the Technical Working Group for Malaria (TWG). The TWG is comprised of technical staff from all relevant donors and the NMCP. The NMCP coordinates the implementation of malaria control activities, “prioritizing actions within the ministry to strengthen coordination, program management, performance, information flow and the alignment of existing activities.” The TWG also has sub-working groups that focus on six technical areas: IVM, Case Management, Advocacy Communication and Social Mobilization, PSM, Program Management, and M&E. A Partners’ Forum, which consists of all of the RBM partners and provides a place where partners can share lessons learned and experiences, complements the TWG structure. 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. Providing support for these coordination mechanisms, which have been somewhat more active and motivated in the recent years, will continue to be a priority and will help strengthen the harmonization among partners and maximize synergy of efforts.

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 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. PMI will provide support to the states Roll Back Malaria partnership in MAPS and TSHIP states for communication and coordination among donors, implementing partners and civil societies.

The two PMI Resident Advisors coordinate PMI activities with the NMCP and other key stakeholders, and are active members of the six malaria technical area sub-working

groups. The Malaria Advisors spend a significant proportion of their time at the NMCP and serve as a liaison between senior Nigeria officials and PMI and USAID Health personnel..

MONITORING AND EVALUATION

Background:

In 2009, the NMCP developed a National Monitoring and Evaluation Plan for Malaria Control in Nigeria. The process was led 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 (HMIS) includes a small number of malaria indicators (number of fever/malaria cases and treatments) that are reported monthly from health facilities to the LGA level. The LGA HMIS focus person collates and summarizes these data quarterly and submits reports to their respective states. The State HMIS office is responsible for collating data from the LGAs and reporting to the National HMIS coordinator on a bi-annual basis. This system is currently being revised by the FMOH. 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 HMIS data, such as the limited number of malaria indicators, incomplete data, and lack of timeliness, the NMCP established a parallel system for routine malaria reporting in response to Global Fund requirements. This system is now implemented in all 37 states with varying degrees of success. The malaria-specific information system requires that only ten health facilities per LGA report malaria data on a monthly basis to the LGA, where data 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 that is submitted to the NMCP M&E unit monthly. A major weakness of the system is reported to be untrained and unmotivated staff at the health facility, LGA, and state levels.

The WHO State Coordinator collects data from the Infectious Disease Surveillance Report (IDSR) on 40 infectious diseases including malaria cases on a monthly basis.

Reporting is not 100%, but covers more health facilities than the malaria surveillance system.

Population-based surveys: The most recent national-level, population-based survey conducted in Nigeria is the 2010 MIS. The field work for the data collections was completed in December 2010 and a preliminary report is now available. The 2010 MIS provides under-five parasitemia down to the six Geopolitical Zone-level, as shown in the table below.

Table 5: MIS 2010 Parasitemia Prevalence Results

Malaria prevalence in children age 6-59 months		
Zone	RDT + (%)	Microscopy + (%)
North Central	45	49
North East	47	31
North West	56	48
South East	36	28
South South	54	32
South West	61	50
Total	51	42

Progress during the past 12 months:

PMI is presently serving as the Chair of the TWG M&E working group and partner coordination in this group has improved over the past 12 months. This is reflected in the successful completion of the MIS. A workshop to finalize the MIS report occurred in June 2011. A MICS is planned for 2011 and RBM is planning to publish a Nigeria Progress and Impact Report by the end of 2011. The next national DHS survey is planned for 2013. PMI, along with other USAID health sectors, will provide support for the DHS and will actively advocate among partners for similar contribution.

The NMCP is conducting antimalarial drug efficacy monitoring in seven geopolitical zones with the financial support of World Bank. PMI's support to strengthen data reporting at the health facility, LGA, and state levels was delayed by issues related to an implementing partner. This has been resolved and M&E activities are moving forward.

PMI has to date supported three NMCP staff participation in the CDC Field Epidemiology and Laboratory Training Program: one graduated in 2010; one is in the 2nd year and is posted at the NMCP Case Management department; and one is in the 1st year and is posted at the NMCP M&E department.

Planned USG Activities with FY 2012 funding: (\$4,298,000):

Monitoring and evaluating PMI's activities will rely on a combination of household surveys, routine malaria data collection, and information from implementing partners.

With FY2012 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. With FY 2012 funds PMI will support the following activities:

1. *Strengthen routine M&E systems in eight states:* Support 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 analysis, use, and dissemination at the LGA, state and national levels will also be a priority. (\$2,600,000)
2. *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).
3. *Field Epidemiology and Laboratory Training Program:* Support training of NMCP and state level staff in epidemiologic methods, data analysis techniques, operations research, and strategic information for public health decision-making through CDC's FELTP. This program will help build needed expertise and skills in epidemiologic principles and concepts and lead to improvements in data collection and use by NMCP and State level M&E staff. FELTP residents will support the monitoring of malaria burden in the PMI targeted states and ultimately assist in measuring the impact of program scale-up on malaria morbidity and mortality (\$200,000)
4. *Provide support to the National DHS survey planned for 2013.* The planning for the next DHS has not started. The PMI contribution is likely to decrease as other malaria partners in Nigeria (Global Fund, World Bank, DFID) make financial commitments to the survey. (\$1,300,000)
5. *Entomological monitoring for insecticide resistance:* Entomologic monitoring is a critical component of the IRS intervention. In addition to Nasarawa State, the capacity for entomologic monitoring will be strengthened at the federal level as well as other states. (budget under IRS intervention)
6. *Technical Assistance for M&E strengthening from CDC:* (\$12,000)

STAFFING AND ADMINISTRATION

Two Resident Advisors, one representing CDC and one representing USAID are in place. The USAID advisor was identified and began work in May 2010 and the CDC advisor in August 2011. 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 the PMI, including finalizing details of the project design, implementing malaria prevention and treatment activities, monitoring and evaluation of outcomes and impact, and reporting of 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 FMOH/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 to the PMI malaria activities and technical assistance to the NMCP (\$2,354,000)

TABLE 1
Budget Breakdown by Partner for FY 2012

Partner Organization	Geographic Area	Activity	Activity Budget	Total Budget, by Partner
DELIVER	8 states: 6 states under the MAPS Project, 2 under the TSHIP Project	Procure and deliver approximately 2 million to state level in 8 states and to LGA level as required.	\$11,805,000	\$16,555,000
	8 states: 6 MAPS Project states and 2 TSHIP Project states	PMI will ensure that adequate quantities of SP are available to meet the needs for IPTp in eight states	\$100,000	
	6 MAPS states	The primary aim of the procurements will be to fill RDT gaps and help prevent stock-outs of antimalarial diagnostic tests in the public sector in eight states.	\$1,300,000	
	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.	\$2,000,000	
	8 states: 6 MAPS states and 2 TSHIP states	The primary aim of the procurements will be to fill ACT gaps and help prevent stock-outs of antimalarial medications in the public sector in eight states.	\$1,350,000	
IRS2 IQC T04	One state in middle central	Conduct IRS in two LGAs reaching approximately 100,000 households. 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	\$2,390,000
	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.	\$390,000	
	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	\$200,000	
TSHIP	Sokoto and Bauchi	TSHIP states already have resources for strengthening health systems. PMI will provide additional support for the distribution of LLINs particularly to pregnant women and children in rural	\$500,000	

		areas with the goal of maintaining high LLIN coverage		
	2 TSHIP states	Building on TSHIP's existing system strengthening activities, PMI will support the review and update the MIP policy document, implementation guidelines and the training materials of the NMCP in collaboration with the Reproductive Health division.	\$200,000	
	2 TSHIP states	Strengthening the diagnostics with particular focus on RDTs use in TSHIP states	\$400,000	
	2 TSHIP States	Building on TSHIP's existing system strengthening activities, PMI will support improvement of malaria case management in the public sector, with a focus on training and motivation of the health workers	\$600,000	
	2 TSHIP states	Building on the TSHIP system strengthening activities, support training and supervision of data collection and management at selected health facilities, LGAs, and states	\$300,000	\$2,000,000
MAPS	6 states under the MAPS project	PMI will support the distribution of LLINs particularly to pregnant women and children in rural areas with the goal of maintaining high LLIN coverage.	\$4,500,000	
	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	\$2,000,000	
	6 MAPS states	Strengthening the diagnostics with particular focus on RDTs use in MAPS states	\$2,000,000	
	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 iCCM.	\$5,000,000	
	Federal NMCP	Support to the NMCP to strengthen technical capacity and national level coordination of malaria program	\$200,000	
	6 MAPS states	Support training and supervision of data collection and management at selected health facilities, LGAs, and states	\$2,300,000	\$16,000,000
CDC-IAA	Federal and State level	1 CDC technical assistance visit for routine distribution of LLINs	\$12,000	

	Federal and State level	Federal and State level	\$55,000	
	Nationwide	1 CDC TDY to provide technical support to microscopic and RDT diagnosis of malaria	\$12,000	
	Nationwide	2 CDC TDYs to assist the NMCP in revitalizing the drug resistance surveillance network	\$24,000	
	Federal	Training two NMCP personnel in field epidemiology	\$200,000	
	Federal and State level	1 CDC TDY to provide technical support for monitoring and evaluation	\$12,000	\$315,000
MEMS	National	Assistance with management of PMI reporting	\$186,000	\$186,000
NetWorks	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	\$750,000	\$750,000
Voice of America	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.	\$150,000	\$150,000
ESMPIN	Nationwide (with a focus in MAPS and TSHIP states)	Promote LLIN ownership and use nationwide but with a focus on MAPS and TSHIP states..	\$500,000	\$1,000,000
	Nationwide (with a focus in MAPS and TSHIP states)	PMI will support social marketing strategies targeting PMVs and the general public to promote correct and consistent use of ACTs by vulnerable groups.	\$500,000	
Press	Federal	Support implementation of Health Bill and other legislation and policies that will increase investment in and improve delivery of maternal and child health interventions.	\$200,000	\$200,000
DHS Macro	Federal	Support for the 2013 national DHS, particularly the malaria module and anemia and parasitemia	\$1,300,000	\$1,300,000
USAID/CDC	Nationwide	Support for USAID and CDC annual staffing and administration costs.	\$2,354,000	\$2,354,000
		TOTAL		\$43,200,000

**TABLE 2
Planned Obligations for FY 2012**

Proposed Activity	Mechanism	Total Budget	Geographic area	Description of Activity
ITNs				
Procure approximately two million LLINs for net "keep-up" activities.	DELIVER	\$11,805,000	8 states: 6 states under the MAPS project, 2 under the TSHIP project	Procure and deliver approximately 2 million 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	\$4,500,000	6 states under the MAPS project	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	\$500,000	Sokoto and Bauchi	
Operations research to assess the effectiveness and costs of innovative "keep-up" strategies for delivery of LLINs.	NetWorks	\$750,000	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
Support for social marketing of LLINs as part of a mixed model strategy to ensure LLIN availability	ESMPIN (New Social Marketing Project)	\$1,000,000	Nationwide (with a focus in MAPS and TSHIP states)	Promote LLIN ownership an use nationwide but with a focus on MAPS and TSHIP states..
Support for radio IEC/BCC for malaria prevention and treatment	Voice of America	\$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.
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 ITNs		\$18,717,000		
IRS				

Provide support for a comprehensive IRS program in two LGAs (up to 100,000 houses) in Nasarawa State.	IRS2 IQC T04	\$1,800,000	One state in middle central	Conduct IRS in two LGAs reaching approximately 100,000 households. 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 T04	\$390,000	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 T04	\$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
Subtotal: IRS		\$2,445,000		
IPTp				
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 six MAPS and two TSHIP states as an integrated part of Focused Antenatal Care	MAPS	\$2,000,000	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, including consideration of reduction in fees for ANC services
	TSHIP	\$200,000	2 TSHIP states	
Subtotal: IPTp		\$2,300,000		
Case Management				
Diagnostics				

Procure RDTs for 8 PMI target states	DELIVER	\$1,300,000	8 states: 6 MAPS states and 2 TSHIP states	The primary aim of the procurements will be to fill RDT gaps and help prevent stock-outs of antimalarial diagnostic tests in the public sector in eight states.
Strengthen diagnostics for malaria	MAPS	\$2,000,000	6 MAPS states	Strengthening the diagnostics with particular focus on RDTs use in MAPS and TSHIP states
	TSHIP	\$400,000	2 TSHIP states	
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 Diagnostics		\$3,712,000		
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.
Subtotal: PSM		\$2,000,000		
Treatment				
Procure ACTs and severe malaria drugs to supply eight states.	DELIVER	\$1,350,000	8 states: 6 MAPS states and 2 TSHIP states	The primary aim of the procurements will be to fill ACT 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	MAPS	\$5,000,000	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 iCCM in MAPS and TSHIP states
	TSHIP	\$600,000	2 TSHIP States	

Strengthen appropriate delivery of high quality ACTs through the private sector	ESMPIN	\$500,000	Nationwide (with a focus in MAPS and TSHIP states)	PMI will support social marketing strategies targeting PMVs and the general public to promote correct and consistent use of ACTs by vulnerable groups.
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 Treatment		\$7,474,000		
Subtotal Case Management		\$13,186,000		
Capacity Building				
Provide support for coordination activities at federal, state, and LGA levels.	MAPS	\$200,000	Federal NMCP	Support to the NMCP to strengthen technical capacity and national level coordination of malaria program
Support for promotion of policies favorable for malaria interventions.	PRESS (policy bilateral for USAID Mission Health Sector)	\$200,000	Federal	Support implementation of Health Bill and other legislation and policies that will increase invest in and improve delivery of maternal and child health interventions.
Subtotal: Capacity Building		\$400,000		
M&E				
Strengthen and build capacity for routine malaria data at state and LGA level in two states	MAPS	\$2,300,000	6 MAPS states	Support training and supervision of data collection and management at selected health facilities, LGAs, and states in MAPS and TSHIP states.
	TSHIP	\$300,000	2 TSHIP states	
Monitoring and evaluation management system	MEMS	\$186,000	National	Assistance with management of PMI reporting
Field Epidemiology and Laboratory Training Program	CDC IAA	\$200,000	Federal	Training two NMCP personnel in field epidemiology
Support for 2013 DHS	DHS Macro	\$1,300,000	Federal	Support for the 2013 national DHS, particularly the malaria module and anemia and parasitemia
TA for M&E strengthening	CDC IAA	\$12,000	Federal and State level	1 CDC TDY to provide technical support for monitoring and evaluation
Subtotal: M&E		\$4,298,000		

In country staffing and administration costs	USAID/CDC	\$2,354,000	Nationwide	Support for USAID and CDC annual staffing and administration costs.
<i>Subtotal: Staffing and Administration</i>		<i>\$2,354,000</i>		
GRAND TOTAL		\$43,200,000		