

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



PRESIDENT'S MALARIA INITIATIVE

BENIN

Malaria Operational Plan FY 2012

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ABBREVIATIONS

ACT	Artemisinin-based combination therapy
ADB	African Development Bank
AL	Artemether-lumefantrine
ANC	Antenatal care
ARM3	Accelerating Reduction of Malaria Morbidity and Mortality
CAME	<i>Centrale d'Achat des Médicaments Essentiels</i> (Central Medical Stores)
CCM	Country Coordinating Mechanism
CDC	Centers for Disease Control and Prevention
CHW	Community Health Worker
CREC	<i>Centre de Recherche Entomologique de Cotonou</i> (Center for Entomology Research – Cotonou)
CRS	Catholic Relief Services
CY	Calendar Year
DHS	Demographic and Health Survey
EPI	Expanded Program on Immunization
FY	Fiscal Year
Global Fund	The Global Fund to Fight AIDS, Tuberculosis, and Malaria
GOB	Government of Benin
HMIS	<i>Système National d'Information et de Gestion Sanitaires</i> (Health Management Information System)
IEC / BCC	Information, education, communication/ Behavior change communication
IMCI	Integrated Management of Childhood Illnesses
IPTp	Intermittent preventive treatment of malaria in pregnancy
IRS	Indoor residual spraying
ITN	Insecticide-treated net
LLIN	Long-lasting insecticide-treated net
LMIS	Logistics management information system
M&E	Monitoring and evaluation
MCH	Maternal and child health
MOH	Ministry of Health
NGO	Non- governmental Organization
NMCP	<i>Programme National de Lutte contre le Paludisme</i> (National Malaria Control Program)
PISAF	<i>Projet Intégré de Santé Familiale</i> (Integrated Family Health Project)
PMI	President's Malaria Initiative
PMTCT	Prevention of Mother to Child Transmission (of HIV/AIDS)
PSI	Population Services International
RBM	Roll Back Malaria
RCC	Rolling Continuation Channel
RDT	Rapid diagnostic test

SP	Sulfadoxine-pyrimethamine
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
USG	United States Government
WHO	World Health Organization

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) to reduce the burden of disease and promote healthy communities and families around the world. The President's Malaria Initiative (PMI) is a core component of the GHI, along with HIV/AIDS, tuberculosis, maternal and child health, family planning and reproductive health, nutrition, and neglected tropical diseases.

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. The 2008 Lantos-Hyde Act extended funding for PMI 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 December 2006, Benin was selected to receive funding during the third year of PMI. In Benin, malaria is endemic nationwide and is a major cause of morbidity and mortality. It is reported to account for 40% of outpatient consultations and 25% of all hospital admissions. With 39% of the population living below the poverty line and a per capita annual income of only \$750, malaria places an enormous economic strain on Benin's development. According to the World Bank, households in Benin spend approximately one quarter of their annual income on the prevention and treatment of malaria.

The Global Fund to Fight AIDS, Tuberculosis, and Malaria (Global Fund) has awarded two malaria grants to Benin. Catholic Relief Services (CRS) received \$22.6 million to support community case management and health system strengthening in 14 health zones through 2012, and Africare received \$31.6 million to support two long-lasting insecticide treated net (LLIN) universal coverage campaigns, community case management of malaria, and nationwide procurement of ACTs for children under five through 2012. An additional \$52.7 million award for Africare is pending, and would continue funding through 2015. The World Health Organization (WHO), the United Nations Children's Emergency Fund (UNICEF), and other national and international partners continue to support scaling-up of malaria prevention and control measures in Benin.

This FY 2012 Malaria Operational Plan is based on progress and results to date, as well as input received from the National Malaria Control Program (NMCP) and partners during a planning visit in June 2011. The activities that PMI is proposing complement the contributions of other partners and directly support the NMCP's strategic plan. The proposed FY 2012 PMI budget for Benin is \$16.1 million. The following paragraphs describe the progress to date and FY 2012 plans.

Insecticide-treated bed-nets (ITNs): The NMCP strategy is to support free distribution of long-lasting ITNs (LLINs) through antenatal care (ANC) and vaccination clinics, distribution of

highly-subsidized LLINs through community-based channels, free distribution through mass campaigns, and the sale of LLINs in the commercial sector. PMI procured and distributed 568,000 LLINs in FY 2011 using FY 2009 funds, and will be procuring an additional one million LLINs with FY 2010 funds to support routine services and a smaller amount for private sector distributions. With FY 2012 funding, PMI will procure approximately 740,000 LLINs for free distribution to pregnant women at ANC visits and to children at vaccination clinics, as well as for social marketing through the private sector. In addition, PMI will support behavior change communication (BCC) activities, including mass media and community-level approaches (e.g., local radio stations, women's groups) to increase demand for and promote correct and consistent use of LLINs.

Indoor residual spraying (IRS): PMI supported the first large-scale spraying program in Benin in 2008, and has supported five rounds of IRS since. During the last 12 months, two rounds of spraying were completed, protecting 636,000 people in four communes in Ouémé-Plateau. In FY 2011, spraying shifted to the north, targeting seven of the nine communes in the Atacora District, where a total of 145,247 structures were sprayed and 426,232 residents protected. PMI only covered seven communes due to fear of funding shortages. With a better understanding of the costs involved, we are now confident that an extension to nine communes will not increase the budget beyond what used to be expended on IRS in Benin. With FY 2012 funding, PMI-supported IRS will be expanded in Atacora District to cover all nine communes, protecting an estimated 700,000 people. Meanwhile, in the areas in the south that are no longer receiving IRS, PMI will continue to support the NMCP entomological and malaria case surveillance to identify and respond to any potential rebound in malaria cases. Also, LLINs were distributed in Ouémé-Plateau to ensure continued protection of the population after spraying ceased in August 2010.

Malaria in pregnancy: During the past year, PMI provided over 700,000 LLINs and 634,000 SP treatments for both public and private health clinics. To improve the quality of intermittent preventive treatment during pregnancy (IPTp) services in both the public and private sector, PMI supported a post-training follow-up for the 1,546 midwives and nurses that received training on focused antenatal care and IPTp during the previous year. Post-training follow-up supervision visits were completed for more than half of those trained. With FY 2012 funding, PMI will conduct refresher training of health workers in IPTp, supervise health workers to improve the quality of services, strengthen logistics management for malaria in pregnancy commodities, support BCC activities to promote ANC attendance, procure 900,000 treatments of SP, and educate pregnant women and communities on the risks of malaria in pregnancy, the need for early and regular ANC visits, and the benefits of IPTp.

Case management – Diagnosis: During the past year, laboratory and clinical supervisors from all 12 departments of Benin were trained and continue to serve as national trainers and supervisors for malaria diagnostics in 72 health facilities. Six rounds of supervision have been completed, a supervision checklist has been distributed, and new registers for data collection are being used and checked by supervisors. PMI also purchased an additional 20 microscopes, bringing the total number of microscopes purchased by PMI to 65. PMI also purchased one million rapid diagnostic tests (RDTs), 600,000 of which have already been distributed to health facilities. The remaining 400,000 will arrive in early 2012. With FY 2012 funding, PMI will procure an additional one million RDTs, lab reagents for microscopy, and support a

comprehensive diagnostics strengthening program including training, supervision, and policy and standard operating procedure development.

Case management – Treatment: In the last 12 months, PMI has procured 1.2 million artemisinin-based combination therapy (ACT) treatments, which were distributed through *Centrale d'Achat des Médicaments Essentiels* (Central Medical Stores; CAME). PMI also supported nationwide supervisor training in case management. With FY 2012 funding, PMI will procure 1,023,180 million ACT treatments, supervise and support health workers to follow case management and prevention guidelines, support the training and equipment needs for management of severe malaria, and support training in malaria case management and licensing of private sector drug sellers.

Integration with other GHI programs: In August 2011, Benin submitted its GHI strategy, which emphasized collaboration across the five US Government (USG) health partners working in Benin. With FY 2012 funding, PMI will support the integration of facility-level registers for Expanded Program on Immunization (EPI), ANC, preventing mother to child transmission (PMTCT) of HIV, and malaria. PMI support will include training of new health workers in the Integrated Management of Childhood Illnesses (IMCI) strategy and providing refresher training for health workers who have not recently received training. Also, PMI will contribute to the GHI objective of improving preventive and care-seeking behaviors at the community level.

Health systems strengthening: In the context of the GHI, PMI is focusing increased attention on health systems strengthening through strong support to Benin's supply chain for essential medicines. Improving information systems is another priority for the coming year. PMI continued to support the health management information system, the logistic management information system, and the routine malaria information system. Implementation of reforms at CAME continue on schedule. While supporting implementation of reforms at CAME, PMI supported training of staff in all 34 health zones in the use of commodities management software and provided support to the national and departmental staff in planning, designing, and monitoring and evaluation. In FY 2012, PMI will continue to strengthen the pharmaceutical management of antimalarials; provide support to the overall improvement of the supply chain for essential medicines, with emphasis on the peripheral level, and provide support to the overall strengthening of the health system in Benin. PMI will work with other partners to improve transparency and governance of pharmaceutical management at the health zone depots.

Behavior change communication: In 2011, PMI supported malaria-related IEC/BCC activities that reached people in peri-urban areas by contracting with non-governmental organizations (NGOs) to promote net hang-up and use in communities. In rural areas, 1,048 CHWs and 925 women's group leaders continue to promote net use and ANC attendance through home visits. Also, PMI is supporting IEC/BCC activities associated with LLIN universal coverage campaigns. Finally, PMI supported a nationwide survey, which assessed net use and behavioral determinants and showed improving net usage among vulnerable groups. With FY 2012 funding, PMI will continue to support household visits and group education visits to promote net use and prevention of malaria. PMI will also support IEC/BCC efforts designed to raise awareness of appropriate care-seeking and treatment for malaria, educate women and communities on the importance of IPTp, and mobilize communities for indoor residual spraying.

Monitoring and evaluation: PMI has completed reports for the outpatient and pilot inpatient health facility surveys that were jointly conducted by the Ministry of Health (MOH), World Bank Booster Program, and PMI. Planning for the 2011 Demographic Health Survey (DHS) is currently underway, while PMI FY 2012 funds will support planning and implementation of a Malaria Indicator Survey (MIS) in 2013. PMI will continue to support sentinel site surveillance, as the program has shown strong potential in its capacity to collect reliable data on inpatient malaria cases and deaths and monitor trends over time. In addition, PMI will continue to support quarterly monitoring of the availability and utilization of key antimalarial commodities at the health facility level.

INTRODUCTION

GLOBAL HEALTH INITIATIVE AND THE PRESIDENT'S MALARIA INITIATIVE

Malaria prevention and control is a major objective of United States foreign assistance. In May 2009, President Barack Obama announced the GHI, a 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.

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.

The PMI is a core component of the GHI, along with HIV/AIDS, and tuberculosis. The PMI was launched in June 2006 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 was extended through FY2014 and, as part of the GHI, the goal of the PMI has been adjusted to reduce malaria-related mortality by 70% in the original 15 countries by the end of 2015. This goal will be achieved by continuing scale up coverage of the most vulnerable groups — children under five years of age and pregnant women — with proven preventive and therapeutic interventions, including ACTs, ITNs, IPTp, and IRS.

Benin became a PMI focus country in 2008. Large-scale implementation of ACTs and IPTp and wide-spread distribution of ITNs began in 2007 and has progressed rapidly with support from PMI and other partners, in spite of the country's weak health infrastructure.

In the FY 2010 Malaria Operational Plan, PMI/Benin decided to group the majority of activities under one malaria bilateral program. PMI/Benin completed a technical review of applicants in June 2011 and expects to award the new bilateral malaria program at the beginning of FY 2012. Certain elements, such as IRS and commodities procurement, will remain centrally managed to ensure global standards are met. USAID/Benin will work closely with the new implementing partner to ensure that all technical areas are covered in the work plan, asking them to encourage consortium building and sub-partnerships. Key personnel have been designated in the technical areas of case management, supply chain management, BCC, and monitoring and evaluation.

This FY2012 Malaria Operational Plan presents a detailed implementation plan for the fifth year of PMI in Benin, based on the PMI Multi-Year Strategy and Plan and the NMCP's five-year National Malaria Strategy. The Malaria Operational Plan was developed in consultation with the NMCP and with the participation of all national and international partners involved with malaria prevention and control in the country. The activities that PMI is proposing to support fit in well with the 2010-2015 National Malaria Control Strategy and Plan and build on investments made by PMI and other partners to improve and expand malaria-related services, including the recently approved Global Fund to Fight AIDS, Tuberculosis, and Malaria (Global Fund) Round 3 Rolling Continuation Channel (RCC) malaria proposal. This document briefly reviews the current status of malaria control policies and interventions in Benin, describes progress to date, identifies challenges and unmet needs if NMCP and PMI targets are to be achieved, and provides a description of planned FY2012 activities.

MALARIA SITUATION IN BENIN

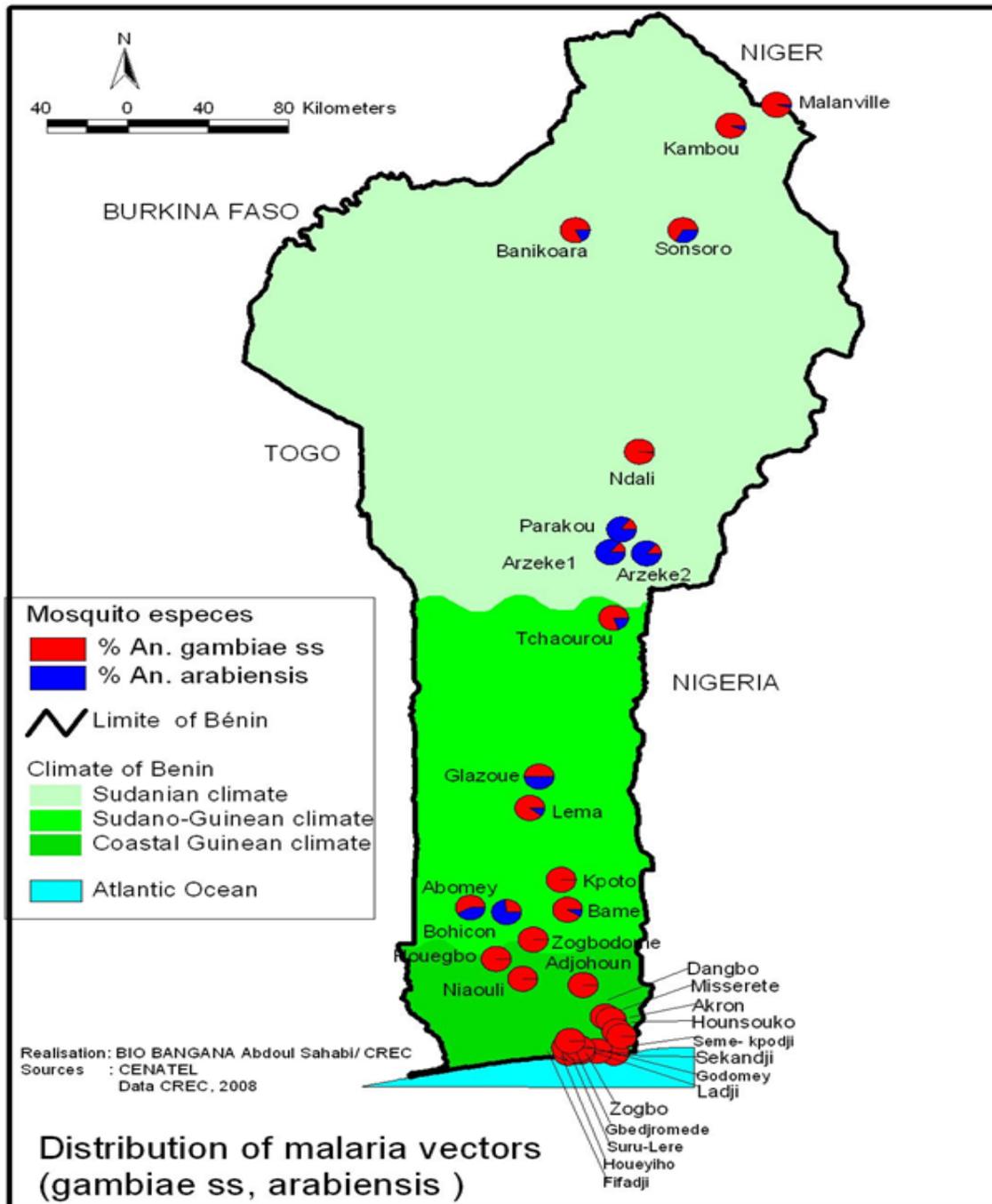
Epidemiology

Malaria is a leading cause of morbidity and mortality among children under five in Benin. Roll Back Malaria estimated that in 2004 there were about three million cases of malarial illness (all ages), and the WHO-convened Child Health Epidemiology Reference Group estimated that in the year 2000 about 10,000–13,000 malaria deaths occurred in children under five. The Benin HMIS data also suggest a high burden of morbidity from anemia, much of which is likely caused by malaria. The Benin 2006 Demographic and Health Survey (DHS) found that among children 6–59 months old, 78% had anemia (25% mild, 46% moderate, and 8% severe).

Entomology/transmission (populations at risk of malaria)

Malaria transmission is stable but influenced by several factors such as vector species, geography, climate, and hydrography. The primary malaria vector in Benin is *Anopheles gambiae* s.s.; however, secondary vectors may become important in certain circumstances. For example, the widespread distribution and continuous breeding of *An. gambiae* results in endemic transmission nationwide, with three distinct regions. In the coastal region of Benin, which has many lakes and lagoons, transmission is heterogeneous because of the presence of both *An. melas* and *An. gambiae*. Above the coastal region, malaria is holoendemic. Finally, in northern Benin, malaria is seasonal, with a dry season (November to June) and a rainy season (July to October)¹ during which malaria rates are highest.

¹ 2006 DHS



CURRENT STATUS OF MALARIA INDICATORS

The table below presents the most recent estimates of malaria indicators, taken from the DHS, a nationally representative household survey conducted from August-November 2006. These estimates have been accepted as the baseline data for PMI Benin, as no other survey of acceptable quality has been conducted since then. It is important to note that ITN and ACT

coverage figures are believed to be considerably higher because of combined PMI, World Bank Booster, Government of Benin (GOB), and other stakeholders' interventions since 2006. The IRS figures are current for 2011, as this percentage is drawn from PMI program monitoring documents, rather than DHS data.

Malaria Indicators	
Proportion of households with at least one ITN	25% [2006, Benin DHS]
Proportion of children under five years old who slept under an ITN the previous night	20% [2006, Benin DHS]
Proportion of pregnant women who slept under an ITN the previous night	20% [2006, Benin DHS]
Proportion of women who received >2 doses of IPTp during their last pregnancy in the last 2 years	<1% [2006, Benin DHS]
Proportion of children under five years old with fever in the last two weeks who received treatment with ACTs within 24 hours of onset of fever	<1% [2006, Benin DHS]
Houses targeted for IRS that have been sprayed	85% [2011, RTI Report]

GOAL AND TARGETS OF THE PRESIDENT'S MALARIA INITIATIVE

The goal of the PMI is to reduce malaria-associated mortality by 70% compared to pre-initiative levels in the 15 original PMI countries and to reduce malaria-associated mortality by 50% in new countries added to the PMI in FY2010 and later. By the end of 2014, PMI will assist Benin to achieve the following targets in populations at risk for malaria:

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

NATIONAL MALARIA CONTROL PLAN AND STRATEGY

The NMCP five-year National Malaria Strategic Plan ended in 2010. The review process leading to the development of a new Strategic Plan for the next five years is still ongoing. PMI and WHO are working with the NMCP to complete the plan. The vision behind the NMCP 2011-2015 strategy is to continue to promote universal access to malaria prevention and treatment interventions, implement activities that encourage positive behavior change, achieve rapid and sustained high coverage levels, and thereby reduce malaria's burden.

The core interventions of the 2011-2015 strategy include:

- Universal coverage with ITNs, with a special emphasis on distributing LLINs through mass distribution campaigns planned for 2010 (launched 10 months late in July 2011) and 2014. Donors and the GOB will continue to support routine distribution to pregnant women during ANC visits and to children under five years during routine immunization clinics
- Expanding IRS, which covered seven communes in the department of Atacora in 2011 and will cover all nine communes in 2012
- Universal access to ACTs, as well as improved diagnosis and management of severe malaria
- Emphasis on the prevention and treatment of malaria in pregnancy, particularly with IPTp
- Intensive IEC/BCC efforts and social mobilization at all levels, especially at the community level
- Integration of malaria control activities within the health system with an emphasis on human resource development
- Strong monitoring, evaluation, and operations research to monitor progress, evaluate impact, and continuously improve interventions

In its 2011-2015 Strategic Plan, the NMCP will seek to enhance coordination capacity within the decentralized structures at the departmental level. Under this approach, 12 departmental coordinating structures will be supported to improve health outcomes through implementation of policies and strategies defined by the national coordination structures.

The GOB has recently introduced numerous initiatives including:

- Waiver of user fees for children under five attending health facilities
- Increasing capacity of CHWs
- Free malaria treatment for children under five and pregnant women

Those initiatives will be included in the NMCP plan and strategy for the next five years.

MAJOR PARTNERS IN MALARIA CONTROL

Benin has many technical and financial partners in the health sector. The following table describes the most significant contributors to malaria control, and the opportunities for collaboration.

Bilateral Donors		
Country	Current/Planned Activities	Status of Current/Planned Collaboration
Belgium	The Belgian Cooperation has started implementing performance-based financing in several health zones in the North and Southwest of Benin.	USAID plans to collaborate with the Cooperation Technique Belge, the Belgian Cooperation's implementing arm, on capacity building. The focus will be on improving the leadership skills of current health programs in the MOH's central level, including the NMCP.
China	The Chinese government brings in large amounts of ACT treatments (Arsuamoon) into the country each year. Medical teams are sent to various locations around the country to provide clinical services. Most recently, a 100-bed referral hospital in Parakou was completed with equipment and furnishings from China.	USAID Mission plans to engage the Chinese Government at the Embassy level. The Chinese Government delegation in Benin has not accepted any invitations to the health sector review or to any of the monthly health partner meetings.
France	In Benin, the Coopération Française has traditionally funded malaria research, focusing on vector control. Through its development arm, the French Development Agency, it plans to expand its Benin portfolio to other health issues, with a focus on supporting free caesarian sections and maternal emergencies, the nursing/midwifery schools, and support for inter-ministerial actions to address population growth.	French Development Agency plans to collaborate with USAID on FP, maternal and neonatal mortality issues. On malaria, they will support the upgrading of knowledge and skills of midwives currently serving in maternities throughout Benin. This will include refresher courses in the prevention and management of malaria during pregnancy. The French Government will continue funding the <i>Institut de Recherche pour le Développement</i> , which collaborated with PMI and the <i>Centre de Recherche Entomologique de Cotonou (CREC)</i> in a field evaluation of combining IRS (non-pyrethroid insecticide) and LLINs for malaria control in locations where the malaria vector is resistant. The study was completed in 2010.
Japan	Japanese International Cooperation Agency has a small health portfolio in Benin, mostly focused on community nutrition and the renovation/construction of hospital buildings, dispensaries and clinics.	HOMEL is one of the first 13 hospitals nationwide where the TETU (<i>Triage, Evaluation et Traitement d'Urgence</i>) approach is being piloted. TETU was introduced by PMI to reduce deaths from severe malaria in young children.

	JICA supported the construction of a new wing of the <i>Hopital de la Mère et de l'Enfant Lagune</i> (HOMEL).	
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Multilateral Donors		
<i>Donor</i>	<i>Current/Planned Activities</i>	<i>Status of Current/Planned Collaboration</i>
<i>Banque Africaine de Développement/African Development Bank (ADB)</i>	ADB is a regional development bank that provides soft loans to member nations in Africa. ADB is a pioneer of performance-based financing in the health sector of Benin.	ADB current performance-based project focuses on Zou, Borgou and Donga departments, which seeks to strengthen the health system in these three departments. One of the targeted diseases is malaria, for which 187,500 bed nets will be distributed to pregnant mothers and infants. Local health committees and Community Health Workers are also supported by the project.
Global Fund	Benin is a major beneficiary of grants for AIDS, TB and Malaria. A \$12 million Round 7 Phase I Global Fund malaria grant to CRS provides community based treatment of malaria for 40% of the country while a RCC grant to Africare will support the expansion of community case management to the rest of the country and provide for universal access to bed nets by financing two national net distribution campaigns.	USAID is a permanent member of Benin's Country Coordinating Mechanism, and participates in decisions on grant submissions. This year, PMI/Benin plans to fund a consultant to support the NMCP's submission of a malaria proposal to the Global Fund.
UNFPA	UNFPA focuses on family planning and maternal mortality reduction.	UNFPA has been an important ally in solving problems related to the Demographic and Health Survey-IV. The field work will start August 2011.
UNICEF	UNICEF is the lead for Benin's health sector partners. They support IMCI, maternal mortality reduction, and the management of severe child malnutrition in several departments in both the northern and southern parts of Benin. They are piloting performance-based financing of CHWs through health zones and communes. They are working on	UNICEF and USAID have collaborated well on child health issues and in strengthening the health system. Strong collaboration in integrated community case management of childhood illness is ongoing. If UNICEF expands activities in FP and sanitation, USAID will explore the possibilities of collaborating in these areas as well.

	polio eradication. They plan to expand to family planning and sanitation (construction of latrines).	
World Bank	The World Bank recently began implementing a \$22 million performance-based financing project to improve maternal and neonatal health in eight health zones. The World Bank's project, <i>Projet d'Appui à la Lutte contre le Paludisme</i> , ends in 2011.	USAID and the World Bank's <i>Projet d'Appui à la Lutte contre le Paludisme</i> are collaborating in the universal distribution campaign for bed nets.
WHO	WHO supports the GOB in the development of technical norms, protocols and service standards in the health sector.	USAID and WHO collaborate on MCH issues, such as the development of a national policy on the use of RDTs, malaria treatment protocols, routine malaria information system, and most recently on the evaluation of the five-year National Malaria Control Strategy and the development of the next road map for malaria control in Benin.

USG Agencies		
<i>Donor</i>	<i>Current/Planned Activities</i>	<i>Status of Current/Planned Collaboration</i>
Peace Corps	Peace Corps has roughly 100 volunteers currently assigned to Benin.	About a third of Peace Corps volunteers are health volunteers. Part of their portfolio is to assist in health education on malaria prevention and treatment. During the past year, a Peace Corps Return Volunteer spent six months assisting PMI/Benin in the development of the routine malaria information system. USAID and Peace Corps are currently negotiating the possible assignment of 2-3 PC volunteers to PMI activities in Benin beginning FY 2012.

Civil Society and Private Sector		
<i>Donor</i>	<i>Current/Planned Activities</i>	<i>Status of Current/Planned Collaboration</i>
Africare	Africare is a US-based NGO focused on advancing the socio-economic development of Africa.	Africare is the principal recipient of a Global Fund RCC grant that was signed in 2010. The main activities under the grant are universal bednet distribution and community case management of malaria in young children. Africare actively participates in the formulation of the Annual Integrated Work Plan on malaria control in Benin.
Catholic Relief Services (CRS)	CRS is the US-based affiliate of Caritas Internationalis, and is the charity arm of the US Catholic Bishops Conference.	CRS is the principal recipient of a Global Fund grant that just completed the first year of its second phase of implementation. The focus is on community case management. CRS actively participates in the formulation of the Annual Integrated Wok Plan on malaria control in Benin.
Benin Business Coalition	Benin Business Coalition is a consortium of indigenous and local affiliates of foreign businesses in Benin. Having been designated as a principal recipient of a Global Fund grant for HIV, they have prepared a proposal for malaria activities. Principal members are Accor, Lafarge, Novotel, Sanofi-Aventis and the Port Autonome de Cotonou.	Benin Business Coalition plans to collaborate with the NMCP (and indirectly with USAID) in ITN distribution and health education, as well as the use of RDTs and ACTs among employees of their member organizations in Benin. Their malaria proposal targets riverine communities.
Gates Foundation	The Gates Foundation supports global health activities through project grants.	The Gates Foundation funds research activities of CREC on malaria vector resistance to insecticides.

EXPECTED RESULTS – YEAR FIVE

Prevention:

- Approximately 740,000 LLINs will have been procured and distributed through routine channels and the private sector;
- At least 85% of houses in villages targeted by the MOH and PMI for IRS in Atacora department will have been sprayed, with a total of 700,000 residents protected by IRS; and
- Intermittent preventive treatment with SP in pregnant women will be available and implemented in all health facilities nationwide. This activity is expected to increase the proportion of pregnant women receiving IPTp2 to at least 70% nationwide.

Diagnosis/Treatment:

- Approximately 1 million RDTs will have been procured and distributed to ensure access to malaria diagnosis nationwide; and
- Approximately 1 million ACT treatments will have been procured and distributed to children and adults. With combined procurements from the Global Fund, this activity will support universal access to malaria treatment.

INTERVENTIONS – PREVENTION

Insecticide-treated nets (ITNs)

Background

The NMCP's 2006-2010 Strategic Plan supported free distribution of LLINs through ANC and immunization clinics, distribution of highly-subsidized LLINs through community-based channels, free distribution through mass campaigns, and the sale of LLINs in the commercial sector. In addition to continuing routine distribution to pregnant women and children under five, the NMCP's 2011-2015 Strategy Plan will likely promote universal coverage with LLINs through mass distribution campaigns in 2011 and 2014.

The 2006 DHS found that more than half of all households (56%) owned at least one mosquito net of any type; however, only 25% of households reported owning at least one ITN and only 20% of children under five and pregnant women said that they had slept under an ITN the previous night. The 2011 DHS should confirm significant progress in terms of ITN ownership and usage since the baseline.

On July 8, 2011, the NMCP launched a mass distribution campaign for universal coverage of LLINs with support from its partners. Global Fund contributed 2.7 million nets, the World Bank 1.7 million nets, and the African Development Bank (ADB) 187,500 nets, for a total of 4.6 million nets. PMI also contributed a total of 280,000 bed nets to support the universal distribution campaign. Although no gap is projected for the campaign, Benin expects a gap in 2013 for ITNs for routine services. The gap to cover the Calendar Year (CY) 2013 estimated need is 763,837 nets, as outlined in Table A below.

Table A: LLIN Gap Analysis for 2011-2013

Category	CY 2011	CY 2012	CY 2013	Assumptions	Data Source
Population	9,199,444	9,498,426	9,807,125	Annual increase of 3.25% from 2006 figures	INSAE 2006
Pregnant women	480,211	495,818	511,932	5.22 % of the population	NMCP
Children under one year of age ²	459,972	474,921	490,356	5 % of the population	
Number of households	1,839,889	1,899,685	1,961,425	5 persons per household	INSAE 2006
ITNs needed for mass distribution campaign	280,000	0	0	The NMCP later announced a gap for 280,000 with was covered by PMI. 80,000 ITNs left over from FY09 procurement; 200,000 from the FY10 procurement.	
ITNs needed for ANC services	302,533	312,365	322,517	ANC1 coverage rate: 90% 1 net per pregnant woman. 70% of ANC clients will attend either public or faith-based clinics.	PNLP, DSF; SNIGS 2008
ITNs needed for Immunization clinics	413,975	427,429	441,320	1 net per child under one, with 90% immunization coverage	PNLP, DSF; SNIGS 2008
ITNs needed for routine services (adjusted)	716,508 adjusted to 537,381	739,794	763,837	In CY 2011, mass distribution will reduce routine distribution by about 25%. [716508*0.75=537381]	
Total ITNs needed for both routine services and mass distribution campaign	5,262,881	739,794	763,837		
Partners' ITN contribution for routine services	800,000	410,000	TBD	Comments	
PMI	800,000	410,000	700,000*	200,000 delivered in April 2011(used to fill in the gap for the mass distribution campaign); 500,000 arrived in Cotonou the end of July 2011; and 300,000 will be received in December 2011	FY 2010 and FY 11 MOPs

²Children under one are to receive bednets through immunization clinics according to Malaria Control Program strategy and guidelines

*proposed quantities for FY 2012 funding.

WB/ Booster Program	0	0	0	Had been delivered and reserved for mass distribution	NMCP
UNICEF	0	0	0		
GoB /National budget	0	0	0		
African Development Bank	0	0	0		
Estimated stocks on hand in health facilities at the beginning of the year		350,000	20,206	For the shipment of LLINs planned for CY 2011, the last consignment will arrive in Benin by the end of December 2012 and will be used to cover the needs for the first months in CY 2012	Estimates
Partners' ITN contribution for mass distribution campaign held in July 2011	Total: 4,880,500	0	0	Partners contributed a total of 4.7 million nets in 2010.	
PMI	280,000	0	0	80,000 from FY 2009 stocks and 200,000 from FY 2010 procurement	USAID, NMCP
WB/ Booster Program	1,675,000	0	0		
UNICEF	0	0	0		
GoB /National budget	0	0	0	Budget not certain	NMCP
African Development Bank	187,500	0	0	2010 Malaria Road map	NMCP
GFATM (RCC)	2,738,000	0	0	RCC Proposal	Africare
Gap (-) / Surplus (+)³	+ 155,000	+ 20,206	43,631	(Total needs) – (contributions) – (carry over)	

³ The LLIN surplus is due to the safety stock pre-positioned to avert stock-outs if shipments are late, if consumption for routine services or losses are higher than anticipated. The surplus will allow corrections and adjustments in case of errors in calculation of population figures.

Vector resistance to pyrethroid insecticides reduces the efficacy of ITNs, as well as IRS. Since LLINs are treated with synthetic pyrethroids, if they are not replaced in a timely manner, they eventually deliver a sub-lethal insecticide dose that selects for resistance by selectively killing susceptible vectors. The potential impact of sub-lethal ITNs on vector resistance could be significant. However, the current test for assessing ITN insecticidal decay, the WHO bioassay, is difficult to scale up. A more efficient method, based on a chemical (colorimetric) test, has been developed and standardized. The colorimetric method has been tested by CREC and PMI; it has been validated against the WHO method, correlated with total insecticide content of the LLIN, and threshold values been established. The test is currently available for monitoring deltamethrin-treated polyester LLINs in the same way as the WHO bioassay method. Similar colorimetric tools to track polyethylene LLINs, as well as IRS (using all approved classes of insecticides) are in development. To manage pyrethroid resistance, the PMI in Benin uses a different class of insecticide, a carbamate (bendiocarb), in its spraying program.

Progress during the last 12 months:

During the past year, PMI ordered a total of 1 million LLINs. The distribution of the first shipment of 200,000 nets was completed by May 2011. This was added to the stock for the LLIN distribution campaign. A second consignment of 500,000 nets arrived in Cotonou on July 22, 2011. The last consignment of 300,000 nets will be delivered in December 2011 and distributed via routine services to children under-five and pregnant women. PMI implementing partners continue to support the government to distribute LLINs to individual health zones together with IEC/BCC to promote ownership and use. PMI is providing support to strengthen logistics management for all commodities, including LLINs. The government continues to implement the recommendations from a PMI-supported supply chain management assessment, which indicated a need for improved governance and transparency in the malaria supply chain, as well as for improved forecasting and distribution networks.

Using FY 2011 funds, PMI plans to procure 410,000 LLINs for free routine distribution. These nets are anticipated to arrive by early 2012. This new procurement added to leftover stock from calendar year 2011—approximately 350,000 LLINs—will be enough to cover the overall LLINs needs for routine distribution, estimated at 740,000 LLINs.

Social marketing of LLINs is a complementary activity to the main distribution strategies and is intended to counteract the black market sales of low quality nets. Those who are not present for the universal campaign may need to buy an ITN in a local market, and would therefore need to pay three to four times the price of the PMI-subsidized socially marketed ITN. During the last 12 months, 28,780 LLINs purchased with FY 2009 PMI funds were distributed at a highly subsidized price, through the private sector using the social marketing approach in urban areas. Using FY11 funds, PMI will procure 60,000 for distribution through the private sector at the highly-subsidized price of \$2 as a keep-up strategy for non-target populations.

Finally, PMI is continuing to support and strengthen entomological monitoring and evaluation of PMI vector control interventions and to strengthen entomological monitoring and evaluation of PMI vector control interventions in partnership with the *Centre de Recherche Entomologique de Cotonou* (Center for Entomological Research – Cotonou, or CREC). A PMI operational research activity to track LLIN loss (i.e. removal from a house for any reason) following the universal

campaign is underway using three WHO indicators: net survivorship, bioefficacy, and durability. CREC has already completed an LLIN retrospective tracking assessment, which examines nets distributed in 2007. The prospective assessment will begin following the distribution of LLINs in the 2011 universal campaign.

Proposed activities with FY2012 funding: (\$4,830,000)

1. *Procurement and delivery of LLINs to the health facility level:* Procure approximately 700,000 LLINs for distribution to pregnant women at ANC visits and to children at vaccination clinics. Pregnant women will receive LLINs as part of a kit including one LLIN, mebendazole, folic acid, iron, and sulphadoxine-pyrethamine (SP) at a cost of slightly more than \$1 per kit, with the LLIN and SP being given free of charge. These nets, together with the balance remaining from previous orders, will cover the routine services needs through 2014. Costs for this activity include procurement of LLINs and their transport to health zone depots (\$4,550,000).

2. *IEC/BCC for net use:* Support to IEC/BCC strategies that are focused at the community level, but will use mass media approaches when appropriate. Messages will focus on explaining correct care and use of nets and emphasizing the importance of ITN use among under-fives and pregnant women, as well as by all other members of a household. This will be part of a larger, integrated, IEC/BCC activity for LLINs, IPTp, and case management. The integrated activity will also include building IEC/BCC capacity of the NMCP through technical assistance to ensure good coordination of IEC/BCC efforts at the national level and IEC/BCC of NGOs (*Costs covered under the IEC/BCC section*);

3. *Strengthen Logistics Management Information System and Supply Chain Management:* Support strengthening of commodities management by monitoring achievements and gaps in universal coverage following the mass distribution campaign (*Costs covered under the Health Systems Strengthening section*); and

4. *Procure and distribute LLINs through the private sector:* Procure and distribute approximately 40,000 highly-subsidized LLINs through the private sector, using a “keep-up” strategy designed to maintain and further boost net usage levels among non-target populations in urban areas. The goal of this activity will be to maintain the high LLIN coverage achieved through the 2011 universal campaign. Nets will be sold at an affordable price of \$1-\$2 each through private-sector outlets. (\$280,000).

Indoor residual spraying (IRS)

Background

The NMCP’s National Strategy aims to scale up IRS so that spraying occurs in 20 of 77 communes by 2015. The 20 communes will be selected by a national IRS committee, to be created by the NMCP. The selection will be based on malaria epidemiology, availability of funds, cost, and the country’s coverage with other vector control activities. Currently, PMI is the only partner supporting IRS in the country. However, a Global Fund Round 11 proposal to support IRS scale up is planned. Table B summarizes PMI contributions to IRS: four rounds in the South and one round in the North.

Table B. PMI-supported IRS (with a carbamate insecticide), 2008-2011

Round	Date	Region	District	Communes Sprayed	Structures Sprayed	Population Protected
1	7-8/2008	South	Ouémé	4	142,813	521,698
2	3-4/2009	South	Ouémé	4	156,223	512,491
3	3-4/2010	South	Ouémé	4	166,910	636,448
4	8-9/2010	South	Ouémé	4	200,036	623,904
5	5-6/2011	North	Atacora	7	145,247	426,232

The effect n of carbamate insecticides is estimated to last three to five months. When applied just prior to the start of the seasonal rains, the insecticide should remain effective throughout the rainy, high vector density season, which lasts for three to four months.

Progress during the last 12 months:

PMI has previously funded IRS in southern Benin; but in May 2011, PMI-funded IRS activities moved to the North. The south has two rainy seasons each year, both of which require an IRS campaign to protect the population. In the north, there is one rainy season. Thus, only one round of spraying with carbamate class insecticides (which have been shown to last 3 months in the South) per year is needed. In addition, the North is well suited to IRS because the region has lower LLIN coverage than the South and a particularly high level of childhood mortality. To prevent an increase in malaria cases after withdrawing IRS in the South, PMI procured LLINs for the national mass distribution campaign in the former IRS areas. With support from its partners, the NMCP launched the campaign on July 8, 2011, with the goal of reaching universal LLIN coverage in the areas previously sprayed with IRS. PMI will also continue to support the malaria case surveillance system in Ouémé-Plateau to detect any increase in malaria cases following the withdrawal of IRS activities. In the event that the surveillance system detects malaria cases above a threshold level, PMI will support the NMCP to provide an appropriate response through case management, supervision, LLIN distribution, and IEC/BCC activities.

Entomological monitoring is ongoing, with vector-insecticide susceptibility being the indicator of greatest interest. Data from mosquito collection and testing at ten sites in the North is used to inform the selection of the class of insecticide for use in 2012. The basis for selecting ten sites is that the increased cost from four sites to ten is negligible and because resistance is very localized. CREC, the PMI partner for entomological monitoring and evaluation, has documented cases of vector-insecticide resistance at multiple sites. Some Benin populations of *An. gambiae* s.s have been shown to be resistant to pyrethroids, carbamates, and/or DDT (chlorinated hydrocarbons). Large-scale cultivation of cotton and other agri-business activity is thought to be the source of selection pressure for resistance. In response, the Ministry of Health is considering a resistance management strategy of bi-annual (i.e., every two years) rotation between IRS insecticide classes. If implemented, the carbamate class IRS insecticide used this year and, presumably again in 2012, may be replaced in 2013 by a 'compound B' from either the pyrethroid or the organo-phosphate insecticide class. The Ministry will use vector-insecticide susceptibility data for all WHO-approved classes of IRS insecticide to support the strategy. A second objective of PMI-supported susceptibility monitoring is to monitor susceptibility to pyrethroid class insecticides on a national scale to assess resistance, a potential threat to the LLIN strategy documented in earlier studies.

The ten susceptibility sites in the North include two sentinel sites for comprehensive entomological monitoring. There are two similar sites in the former IRS areas in the South, for a total of four sentinel sites, plus eight susceptibility sites nationally. The following indicators are estimated at least one time per year at the sentinel sites, during the annual peak vector density period: vector taxonomy, vector distribution, vector seasonality, and quality assurance of LLIN and IRS programs. Vector behavior, infection rates, and physiological age structure are also assessed when necessary.

Proposed activities with FY2012 funding: (\$3,444,200)

1. *IRS implementation:* One round of spraying in the nine communes of Atacora Department protecting approximately 200,000 houses. This will be the third round of spraying in the North. Insecticide resistance patterns, assessed following the 2012 IRS round, and any national strategy for resistance management, will be used to inform the choice of insecticide for IRS. IEC/BCC efforts to promote acceptance and compliance with IRS will precede spraying (\$3,300,000);

2. *Entomological monitoring for spray areas and selected sentinel sites:* (1) Annual vector-insecticide susceptibility monitoring at 12 sites will inform selection of IRS insecticides, map trends in vector susceptibility, evaluate the impact of resistance management strategies and assess the threat to LLIN impact. (2) IRS-entomological monitoring and evaluation at four sites: two in Atacora for IRS impact and two in the former IRS areas of Ouémé-Plateau. (3) PMI will also support an NMCP Global Fund Round 11 proposal for IRS sustainability in Ouémé. PMI has built capacity in Ouémé, where approximately 400 residents have been trained in IRS. Entomological monitoring, as defined in the PMI guidance, will include insecticide resistance surveillance as well as: assessment of IRS insecticide decay rates for LLINs and IRS-treated surfaces; impact of IRS on vector taxonomy, density, and behavior; malaria infection rate; and physiological age structure of the vector population. (\$120,000); and

3. *Technical assistance for vector control:* The Centers for Disease Control and Prevention (CDC) will provide technical assistance for vector control activities. One trip will provide support to the operational research activity to track LLIN loss and durability. A second trip will inform the design and supervision of entomological surveillance. (\$24,200).

Intermittent preventive treatment of malaria in pregnancy (IPTp)

Background

The NMCP adopted IPTp as a national policy in November 2004. In 2005, the NMCP officially introduced IPTp in all 12 departments and, as of 2010, has completed training and implementation at the health facility level. The national policy recommends pregnant women receive two doses of SP during pregnancy and that HIV seropositive women receive a third dose.

Two SP treatments for IPTp are included in each ANC kit. This kit, provided at a cost of approximately \$1, also includes iron supplements, folic acid, mebendazole, and one LLIN. Technically, both the SP and LLIN components of this kit are provided free of charge, while the other items in the kit are provided at a minimal cost. The first SP treatment is delivered at the time that the kit is provided to the client and is administered under direct observation. To

administer the second treatment under direct observation, the second dose is stored at the health facility and given to the client when she returns for a follow-up ANC visit one month later. Antenatal care clinic attendance is high in Benin. The 2006 DHS showed that: 1) 88% of women make at least one ANC clinic visit, 2) 84% of women made at least two visits, and 3) rates of attendance are higher in urban (93%) than rural (85%) areas. As expected, with the high level of multiple ANC visits, pregnant women attend their first ANC clinic visit relatively early in their pregnancy, at 4.2 months.

According to the 2006 DHS (before IPTp scale up), <1% of pregnant women received two doses of SP during their ANC visits. A household survey conducted in 2010 by the NMCP with Global Fund support, found substantial improvements: 46% of pregnant women received at least two doses of SP during the most recent pregnancy in the past 5 years (LEADD survey 2010, table 4.1). Appropriate training and post-training support for midwives and nurses, who together provide 80% of ANC consultations, combined with a steady supply of SP and modest increases in ANC attendance, could increase coverage to the 85% target level.

Progress during last 12 months:

As of July 2011, few PMI-funded IPTp activities in Year 4 (FY2010 funding) have begun. This is due to delays in awarding the new bilateral agreement “Accelerating the Reduction of Malaria Morbidity and Mortality” (ARM3) as well as the government’s extensive procurement guidelines that slow the process. PMI delivered 1.9 million SP tablets in early August 2011. This delivery will cover all public and private sector needs for 2010 and 2011.

Proposed activities with FY2012 funding: (\$27,000)

1. *Procure SP treatments:* Procure 900,000 doses of SP to cover 2013 needs (510,000 estimated pregnancies). Treatment will be available in the public and private sectors according to the national policy. (\$27,000);
2. *Supervise and refresher training of health workers in IPTp to improve quality of service:* PMI will support on-site supervision and refresher training for public and private health facility midwives and nurses to correctly deliver SP in the context of the focused antenatal care approach. Training will include benchmark assessments, on-the-job training of the new treatment algorithm, and coaching. Supervision will continue to be part of an integrated approach for supervision at health facilities. (*Costs covered in Case Management-Treatment section*);
3. *Strengthen logistics management for SP:* PMI will continue to provide technical assistance to the CAME and depots at health zone level in order to improve supply chain management, forecasting/quantifying, tracking, and storage of SP. Training of CAME staff at all levels (central, regional, and health zone) will be conducted. These activities will be combined with the other support that PMI will provide to improve logistics management (see the Pharmaceutical Management, LLIN, and Case Management sections of this document). (*Costs covered in Health Systems Strengthening section*); and
4. *IEC/BCC for IPTp:* PMI will support IEC/BCC to promote ANC clinic attendance and educate pregnant women and communities on the benefits of IPTp. This activity will include support for

community-level approaches, such as training of community-based workers and mass media campaigns over public radio. Immunization outreach sessions will be used as opportunities for educating women. This will be part of a larger integrated IEC/BCC activity to satisfy needs for case management, LLINs, and IPTp. (*Costs covered in IEC/BCC section*).

INTERVENTIONS –CASE MANAGEMENT

Diagnosis

Effective case management of malaria depends on early, accurate diagnosis with microscopy or RDTs, followed by prompt, appropriate treatment. In February 2011, the NMCP updated their malaria case management guidelines to align them with WHO standards, recommending universal diagnostic testing for malaria. All patients with suspected malaria should now be tested using microscopy or an RDT, including children under five years old; and treatment decisions should be based on test results. This new policy has not been widely disseminated.

In general, diagnostic testing is being scaled-up at the same time as ACTs, however, implementation has been challenging. A 2009 health facility survey found that only 48% of patients needing diagnostic testing were tested, and 23% of patients with a negative test result still got antimalarial treatment. In March 2011, concerns were raised about the management and use of RDTs. The latest survey of health facility stocks of commodities showed that 30% of facilities visited have expired RDTs in their stocks.

The current malaria policy includes the use of RDTs throughout the health system, and RDTs are often the only diagnostic test performed at the peripheral level. Although testing is recommended for all malaria suspected cases, CHWs are not yet expected to use RDTs. To implement the new recommendation on universal testing, pilot studies on the use of RDTs by CHWs will be conducted in 2011 before scaling-up this approach nationwide. The diagnosis policy change will most likely lead to an increased demand for RDTs.

Table C: Gap analysis for RDTs for 2011- 2013 period

	CY 2011	CY 2012	CY 2013
Forecasted needs for RDTs	1,000,000	2,064,480	2,034,280
Quantity to be funded by:			
- World Bank	500,000	0	0
- PMI	1,000,000*	1,000,000**	1,000,000***
Stock carried over from previous year funding	0	500,000	0
Surplus	500,000	0	0
Gap	0	564,480	1,034,280

*Funded through FY10 funds. 600,000 RDTs already received. 400,000 will be delivered in early 2012.

** Through FY 11 funds,

***Proposed quantity for FY 12 funding

The estimated need for RDTs for 2013 is greater than two million tests (see Table C). In CY 2011, PMI purchased 600,000 RDTs to cover the country's gap. Microscopy is supposed to be available in hospitals and larger health facilities. The NMCP estimates that Benin needs a total of 129 microscopes to cover departmental hospitals, health zones, and commune health centers through 2015. The need for microscopes is defined by the NMCP as a minimum of two microscopes for every departmental hospital and health zone and one microscope for every commune health center. In 2009, the World Bank purchased 10 microscopes. Since 2008, PMI has purchased 65 microscopes and microscopy reagents. Thus, over half (58%) of the NMCP's need has been met.

PMI continues to support a comprehensive diagnostics strengthening program that involves the training of clinicians and laboratory technicians, the implementation of a quality control and quality assurance system, and strengthening supervision to ensure that health workers follow clinical practice guidelines. Despite progress in improving laboratory worker skills and diagnostic performance, large numbers of health providers continue prescribing antimalarial drugs to patients who have a negative test result, obtained either by an RDT or microscopy. PMI is placing an emphasis on the regular collection and reporting of reasonably valid monitoring data to assess key health facility indicators that measure the availability of commodities (e.g., RDTs), the appropriate use of diagnostic testing and antimalarials, and the frequency of supervisory visits for health workers.

Progress during the last 12 months:

During the past year, one laboratory technician and one clinician from each of the 12 departments of Benin were trained in microscopy, and are now serving as national trainers and supervisors for malaria diagnostics in 60 health facilities. In 2011, 24 additional laboratory technicians received refresher training. The fifth round of outreach training and supervision was completed in March 2011, a sixth round in July 2011, and another is planned for September 2011. The PMI bilateral program will continue to work collaboratively with the National Referral Laboratory and the NMCP to improve the use of microscopy and RDTs. This support will include training and supervision of laboratory technicians and the development of a quality assurance/quality control system.

Despite the progress made in malaria diagnosis, assessments by PMI's diagnostics partner indicate that 30% of health facilities are still prescribing antimalarial drugs to patients who have a negative RDT or microscopy result. PMI will continue to support the NMCP and the National Referral Laboratory to improve confidence among health professionals in diagnostic testing and the appropriate use of those results when prescribing.

The PMI purchased an additional 20 microscopes with FY10 funds, bringing the total number of microscopes purchased by PMI to 65. In collaboration with PMI implementing partners, the NMCP has developed a distribution plan for the deployment of this third group of microscopes among health facilities.

Proposed activities with FY2012 funding: (\$1,050,000)

1. *Procure 1,000,000 RDTs*: The estimated need for RDTs for calendar year 2013 is just over two million RDTs, and to date no partner seems willing to help fill this gap. However, recent health facility reports have found that RDT consumption rates are lower than those for ACTs. Therefore, PMI will only plan on filling half of the reported gap. Additionally, PMI will work with the NMCP and other partners to clarify the true need and work to ensure that supplies do not exceed demand. (\$730,000);

2. *Procure laboratory reagents*: Provide microscopy supplies. (\$20,000); and

3. *Supervision and strengthening of malaria diagnostic activities*: This activity will include supervision, developing policies and standard operating procedures, maintaining microscopes, training, procuring reagents, and conducting periodic review of malaria diagnostics and quality control of slides/RDTs. (\$300,000).

Treatment

Background

The NMCP updated its malaria case management guidelines in February 2011 to recommend universal diagnostic testing for malaria. Artemether-lumefantrine (AL or Coartem®) remains the first-line treatment for uncomplicated malaria in Benin. Artesunate-amodiaquine (AS-AQ, Arsucam®) is recommended for patients under six months of age, for those who cannot tolerate AL, and when AL is not available. Artemisinin-based combination therapies are available in the regional and health zone warehouses throughout the country and health staff have been trained to correctly treat malaria. The latest (June 2011) sentinel site surveillance quarterly report found an average stock out rate of 30% of ACTs in all the five sites.

In May 2011, the President of Benin publicly announced that all malaria treatments should be free of charge for children under five years and for pregnant women. This initiative has the potential to greatly impact the health system, but no specific implementation plans have been formed.

In collaboration with other donors, PMI provided training on the treatment protocol for uncomplicated malaria to service providers in the public and private sectors using FY 2008 through FY 2011 funding. PMI will continue to support training and supervision of health care providers on uncomplicated malaria at the outpatient level.

Severe malaria: The NMCP policy recommends treating severe malaria with quinine. Injectable artesunate or artesunate suppositories are recommended for pre-referral treatment of severe malaria. For pregnant women, all malaria cases are considered severe, and the recommended treatment is quinine during the first trimester and ACTs during the second and third trimesters. Severely ill cases identified in peripheral outpatient health facilities should be referred to a larger health facility with an inpatient ward.

PMI also continues refresher training and supervision to ensure appropriate management and referral practices for severe malaria in all 55 hospitals nationwide. The quality assurance and quality improvement component of PMI-supported activities include improvement at the health

facility level, as well as community involvement in health and oversight in health center management. The system, which is coordinated with the MOH, incorporates training of supervisors (including those responsible for supervising community health workers who distribute ACTs), development of practical tools, conducting on-the-job observation and training, promoting use of diagnostic results to ensure appropriate treatment, collecting, analyzing and using data to improve planning and decision making.

PMI also emphasizes the regular collection and reporting of reasonably valid monitoring data to assess key health facility indicators on the availability of commodities (e.g., ACTs and RDTs); the appropriate use of diagnostic testing and antimalarials; and the frequency of supervisory visits for health workers. Ensuring appropriate case management also includes support for training in integrated management of childhood illness (IMCI) for newly hired health workers and health workers in the private sector to contribute to national scale-up of IMCI.

Progress during the last 12 months:

For the management of uncomplicated malaria, the NMCP used World Bank funds to train health workers on the malaria algorithm mainly in the public health facilities. In the last year, PMI has procured two shipments of AL: 480,000 treatments with FY 2010 funds, which are in the process of being distributed to health facilities throughout the country, and a second order of 700,000 treatments, which will be procured using FY 2011 funds. To complement these activities, PMI funds were used to conduct formative supervision for case management in all the 34 health districts, however, these supervision activities ceased in August 2010, when the implementing partner ran out of funding.

Given the new guidance for malaria case management adopted earlier in 2011, there is still a need for supportive supervision and training of health workers to ensure the appropriate use of malaria drugs, including severe and uncomplicated malaria and an understanding of the use of pre-referral drugs at lower-level health facilities. PMI has also supported an innovative approach developed by WHO, “Emergency Triage Assessment and Treatment”, to strengthen a network of 13 hospitals in Benin to improve the management of severe malaria. This approach will be expanded in most of the hospitals in Benin.

Proposed activities with FY2012 funding: (\$2,386,700)

1. Procure ACTs: Procure 1,023,180 ACT treatments for older children (5+ years) and adults (blister packs of 12, 18, and 24 tablets). (*\$1,536,700*);

Table C. Estimated needs for artemether-lumefantrine, 2012-2013

Item	Quantity	Unit price* (\$)	Cost (\$)
AL 6 tabs	-	0.54	-
AL 12tabs	357,180	0.94	335,749
AL 18 tabs	156,000	1.41	219,960
AL 24 tabs	510,000	1.78	907,800
Subtotal	1,023,180	-	1,463,509
5% freight and customs clearance	-	-	73,175
Total			\$1, 536,685

*estimated

2. Support quality improvement and supervision of healthcare workers at the facility level: Support supervisory visits, as part of a comprehensive quality assurance approach, to ensure high quality malaria case management with ACTs, focused ANC (which includes IPTp and ITN distribution), and the distribution of ITNs during routine immunization clinics. The quality assurance and quality improvement component of this activity will include improvement at the health facility level, as well as community involvement in health and oversight in health center management. The system, which will be coordinated with the MOH, will incorporate training of supervisors (including those responsible for supervising the CHWs that distribute ACTs), developing practical tools, supporting travel, conducting on-the-job observation and training, monitoring, and promoting correct use of diagnostic results. The training will also reinforce appropriate treatment, providing feedback, collecting, analyzing and using data to improve planning and training, motivating supervisors and workers, and will train supervisors to implement changes identified during supervision. The focus of supervision will be at the health facility, as the rollout of CHW programs is being covered by the Global Fund and through community-based PMI implementing partners. Technical experts from the MOH and PMI will provide oversight for this activity. The key goals are to: (1) provide supervision to at least 90% of health workers nationwide with malaria-related responsibilities at least once every three months, (2) ensure that at least 90% of patients needing malaria testing are tested, (3) ensure that at least 90% of patients (all ages) needing an antimalarial receive an effective antimalarial, and (4) ensure that at least 90% of patients (all ages) not needing an antimalarial do not receive an antimalarial. Progress in reaching each of these four goals will be quantitatively monitored and reported every three to six months. These activities will be evaluated with monitoring data (based on supervisors' reports), health facility surveys, and the End-Use Verification Tool, which will be used quarterly. (\$600,000); and

3. Support malaria training for health workers. This activity will support training on the management of severe malaria, resuscitation protocols, and use of laboratory diagnostic equipment. When necessary, this activity will support training for new health workers in malaria treatment. (\$250,000).

INTEGRATION WITH OTHER GHI PROGRAMS

Health facility-based Integration

Background

Benin's health sector is organized according to the tenets of primary health care with three levels: central, intermediate, and operational levels. At the operational level, an integrated package of services is offered by health workers. An assessment of Benin's national health information system identified the lack of coordination among stakeholders, resulting in the development of parallel and competing systems, as being an important cause of poor performance. To address these issues, PMI Benin, within the USAID Family Health Team, is strategically integrated with other USG health programs, particularly maternal and child health. Multiple funding sources managed by USAID's family health program contribute to clinical IMCI training and the procurement and distribution of ANC kits. This kit, provided at a cost of approximately \$1 to pregnant women at their first ANC visit, also includes iron supplements, folic acid, mebendazole, two treatments of SP, and one LLIN. USAID funded trainings are also designed to integrate standard packages of services to be provided to patients (e.g., clinical IMCI, integrated ANC).

Progress in the last 12 months:

In addition to training new health workers in IMCI and providing refresher training for those health workers that need it, PMI is also supporting the integration of EPI, ANC, PMTCT, and malaria registers at the facility level. As reported by the NMCP, the collection and reporting of health data is a major burden to health workers, due to vertical programs. As a result, with FY11 funds, PMI is leading the development, printing, and dissemination of harmonized and integrated ANC, PMTCT, EPI and malaria M&E tools in health facilities, which will reduce the number of registers that health workers are required to complete to only one.

Proposed activity with FY2012 funding: (\$100,000)

1. *IMCI training*: Both the NMCP and the MOH are committed to providing malaria treatment services within the context of an integrated package of care. As a result, PMI will continue to support IMCI training at health facilities that provide outpatient services for both newly-hired public health care workers as well as for existing workers who require refresher training. (\$100,000).

Other integrated facility-based activities are included in the relevant sections (i.e., IPTp, LLIN, IEC/BCC, pharmaceutical management).

Community-Based Integration

Background

Since 2009, the PMI team has worked with maternal and child health colleagues from USAID to co-fund an integrated package of interventions, including case management of malaria, diarrhea and pneumonia, along with health promotion activities for immunization at the community level. In 2009, the NMCP finalized National Directives for Community and Home-Based Management of Malaria⁴, which approved the distribution of ACTs at the community level for treatment of malaria, but not the use of RDTs. As a result of advocacy efforts by USG implementing partners, the MOH has also agreed to allow the use of antibiotics for the treatment of childhood pneumonia at the community level.

Community case management activities in Benin currently involve a wide range of partners including USAID/PMI, Africare, UNICEF, CRS, other international and local NGOs, and a number of community- and faith-based organizations. Most community-based treatment programs in the country select CHWs with village input, then formally link the CHWs to either an *arrondissement*-level health center or a commune-level health center. Certain programs elect CHWs through existing local women's groups and manage community-case management activities through these networks.

Catholic Relief Services is the Global Fund Round 7 grant Principal Recipient conducting community-based case management activities in 14 health zones. The work began in July 2008 and is being implemented in collaboration with Plan Benin, Medical Care Development International, Africare, and Caritas Benin. The RCC for Africare covers 20 health zones, which has extended community and home-based management of uncomplicated malaria to all health zones nationwide.

In the communes where PMI is working, there has been and will continue to be significant cost-sharing between malaria and MCH due to the common target groups of mothers and children under-five. A significant percentage of USAID MCH funding is dedicated to co-financing integrated activities with PMI, which is in line with the proportion of morbidity and mortality associated with malaria in Benin and consistent with GHI principles.

Progress during the last 12 months:

PMI/USAID's community-based program is implementing community case management in five health zones across three departments, which were selected in collaboration with the NMCP and Directorate of Family Health. In a coordinated fashion, PMI, Africare, CRS, and UNICEF have worked to standardize approaches. PMI/USAID's community-based partner has worked with the MOH on training and the development of management tools and has relied on UNICEF to provide supplies of ORS and cotrimoxazole to its CHWs. Meanwhile, PMI/USAID has expanded the training module for CHWs supported by Africare to include the treatment of pneumonia and diarrhea. Africare in turn has supplied ACTs to those CHWs trained by PMI/USAID, and PMI/USAID and Africare share a joint supervision plan.

During the last 12 months, USAID's community-based implementing partner has trained 1,049 CHWs, 93% of whom are functional and working in their communities. Approximately 87% of

⁴ *Directives nationales pour la prise en charge du paludisme au niveau communautaire et à domicile au Bénin selon la nouvelle politique*, NMCP 2009

all functional CHWs have been supervised at least once in the last three months, and cover catchment areas of approximately half of the population in the health zones where USAID/PMI has established a presence. Africare has trained 4,115 CHWs in their respective health zones since the beginning of the RCC's implementation. However, complete coverage of all eligible villages throughout Benin remains a key challenge for the country's community case management program.

Of the 28,103 cases seen by PMI-supported CHWs, 18,243 were diagnosed with a febrile illness, 3,902 had diarrhea, and 4,915 had an upper respiratory tract infection. Of all the under five children presenting with illness, 27,060 were treated at the community level and 1,043 were referred.

Proposed activities with FY2012 funding: (\$500,000)

1. *Community-case management of malaria, pneumonia and diarrhea:* With FY2012 funding, PMI will continue to support AL distribution for children under five by CHWs in three health zones identified by the NMCP as having low access to health services and high child mortality rates. This activity also includes co-financed activities with USAID/MCH for delivery of oral rehydration salts, zinc, and antibiotics. The PMI will continue to train and supervise CHWs, develop innovative methods to motivate CHWs, and support the commodity distribution system. (\$500,000).

CAPACITY BUILDING AND HEALTH SYSTEMS STRENGTHENING

Prior to this year's Malaria Operational Plan, PMI/Benin and the NMCP have identified four major challenges in the health systems that impede PMI implementation:

- The NMCP is understaffed;
- Many NMCP staff lack the requisite knowledge and skills to fulfil their job descriptions, resulting in a team that cannot adequately plan, manage and supervise a complex malaria program;
- The health information system does not produce timely, valid data; and
- The management of the health commodities supply chain is weak, resulting in pilferage, stock-outs, and expiration of drugs and RDTs.

With these priorities in mind, the PMI has worked in close collaboration with the GOB and other stakeholders (WHO, the Global Fund, UNICEF, bilateral partners, and NGOs) to reduce barriers to the delivery of malaria control interventions. Under the GHI principle of health systems strengthening and integration of health programs, the overall objective of capacity building activities is to ensure country ownership and long-term sustainability of malaria activities. The capacity-building philosophy of PMI is appropriate for the whole health system and the activities have a beneficial spill-over to other maternal and child health programs.

Capacity Building

Progress during the last 12 Months:

The PMI supported an organizational audit of the NMCP in early FY 2010, in which the final report highlighted a number of organizational and operational issues that needed to be improved. Because of gaps in the report's process and content, the audit's recommendations were not accepted by the NMCP. Despite the issues with the audit, key capacity building activities were completed during the year, in collaboration with other partners. These included:

- A week-long conference on pharmacovigilance in Nairobi, Kenya for the Deputy Coordinator and the Director of Pharmacies in Nairobi, Kenya (PMI funding);
- A three-day conference on State-of-the-art Detection of Counterfeit Drugs in London, England for the Director of Pharmacies (US State Department funding);
- A two-week course on Supply Chain Management for four MOH staff, two of whom were from the NMCP and supported by PMI funding; and
- A Master's degree in entomology for a NMCP staff member (PMI funding).

In addition, PMI/Benin also supported the following:

- A Peace Corps Response Volunteer spent six months assisting the NMCP with the goal of launching the Routine Malaria Information System.
- One Communications Adviser was seconded from PSI/Impact to help in planning, executing, and supervising communications activities.
- A Supply Chain Management Adviser was funded by PMI through the PISAF Project and was embedded in the NMCP to assist in supply chain management activities for one year.
- One HMIS specialist is seconded at the NMCP to support malaria data management in collaboration with the national HMIS and to assist in collection of process indicators.

Short- and Medium-Term Plans:

In the coming months, the PMI will work with the NMCP to prioritize key gaps in staff profiles, beginning with the development of job descriptions and identifying the knowledge and skills gaps of position holders. These gaps will be matched with training opportunities, and the necessary budget to carry out staff participation at key training events. Organizational gaps outlined by the NMCP coordinator include: team building, English language acquisition, program management, focusing on vision development, planning, supervision, problem-solving, communications, M&E, proposal-writing, financial transparency, supply chain management, research design, and implementation. These will be compiled as the three-year NMCP training plan.

The PMI team will continue to harmonize capacity building plans and activities with other donors, mainly the two Global Fund Principal Recipients, CRS and Africare, to ensure complementary approaches and budgeting.

Many of the challenges of improving malaria control in Benin will not be solved overnight. There is a shortage of health care staff. Often health centers employ community health workers with limited training in positions that should be filled by trained staff. Also, women are particularly under-employed as health workers. Because health care staff have not had the proper

basic training, advanced training is difficult if not impossible. In response to these challenges, PMI will invest in training and supervision of health workers in support of the objectives of the National Health Development Plan 2009–2018, which aims to reinforce the overall health system.

Proposed activities with FY 2012 funding: (\$350,000)

1. Support pre-service training and harmonize curricula: In Year 5, PMI will continue its support to national teaching schools to improve their planning capacity and to revise training curricula to include updated modules with the latest accepted protocols for malaria prevention, diagnosis and treatment. Public health aspects of malaria will be integrated, including current national policies on prevention among pregnant women and children under-five. PMI will develop the capacity of two health worker pre-service training institutions and organize refresher training courses. PMI will monitor and consolidate last year's investment and will expand the activity to the midwife and nursing schools. (\$150,000);

2. Support capacity building of the NMCP including M&E system: With FY 2012 resources, PMI will continue to support capacity building efforts at NMCP. This support will include: training (including online training in logistics/management), conferences, workshops, equipment use (i.e., computers), and human resource management capacity building. The M&E component will include training in database management and analysis, survey methodologies, as well as support for the M&E Technical Working Group. The activities above will be harmonized to fit into the NMCP's 2013 work plan. (\$150,000); and

3. Provide Technical Assistance through Quality Assurance Officer: PMI will continue to support to NMCP to build capacity in quality assurance/control and coordination of supervision. (\$50,000).

Health Systems Strengthening

Background

To achieve health improvements required to meet the Millennium Development Goals, reduce preventable deaths among women and children, and build healthy families in Benin, a better performing MOH will be required. To assist the MOH to competently plan strategies, lead programs, motivate personnel, and monitor its own performance, PMI will invest significantly in strengthening Benin's health system through an approach that is fully integrated into the design of all projects in USAID/Benin's health portfolio. Building on investments of prior years, the following gaps in the health system will be targeted in FY 2012: supply chain management, training and supervision, health information systems, health workforce improvements, and community-based health financing.

Supplies, such as insecticide-treated bed nets, malaria medicines, and test kits for malaria diagnostics must be available where needed. To prevent stock-outs of pharmaceuticals and supplies, and to ensure better utilization of these resources, PMI needs to invest in deploying logistics and supplies software nationwide and in the computer training of supply chain managers and other staff.

Strengthening the health system requires improving financial sustainability and affordability. USAID, in partnership with local NGOs and international donor partners, will focus on expanding community-based health financing. This approach has already been effective in different departments and communes throughout Benin in expanding the funding base for healthcare, resulting in increased access to, and utilization of, health services. The focus for FY 2012 funding is to decentralize technical assistance in supply chain management up to the level of health zone at the peripheral level.

Progress during the last 12 months:

Over the past 12 months, PMI has continued to focus on the reform process at the central medical store, CAME. The majority of the reforms have now been completed. Also, the action plan to improve governance and transparency of operations is now completed with the recent acquisition of a new software to improve the information system at CAME. PMI provided technical assistance for the renovation of CAME's information system, and Global Fund and CAME contributed towards the purchase of the software.

With PMI support, the NMCP and the CAME signed a memorandum of understanding that clarifies the role each party plays in relation to PMI-funded commodities provided to the GOB. The document also sets rules for the management of money generated by proceeds from selling antimalarials. A bank account has been created to receive the proceeds generated by the sale of ACTs. The GOB has agreed to utilize the savings later to fund the procurement of additional doses of antimalarials; however, the impact the new policy of free treatment will have on the pharmaceutical system is unknown.

The NMCP continued to host the technical working group for supply chain management of antimalarials. All major donors supporting malaria activities in Benin are represented in the technical working group, including Africare, CRS, UNICEF, the World Bank, ADB, and PMI implementing partners. This working group meets every two months to review and monitor drug consumption and to update a joint procurement plan.

PMI has also led efforts in supporting the NMCP with the design of a logistic management information system (LMIS) for antimalarials. The LMIS tools include monthly and quarterly consumption report books and the Medistock software, a commodities management tool that is used at health zone depots to stock movement (e.g., input, issuing, invoicing). PMI also promoted the introduction of Pipeline software, a forecasting and procurement planning tool currently used at the central level by the supply chain management technical working group

With PMI support, commodities managers in all 34 health zones received training on commodities logistics management, with a focus on quantification, data tracking, and record keeping.

In 2011, USAID commissioned Deloitte to assess the public sector pharmaceutical supply chain and develop assessment tools for future use in countries across Africa. The assessment tools are designed to verify the effectiveness of internal controls that ensure commodities reach the people in need and mitigate the risk of local and transcontinental diversion. Benin was selected for this

assessment since it has made significant improvements to supply chain controls over the past few years. The successful supply chain practices implemented in Benin were captured through the application of the tool. The final report has not yet been made available.

Proposed activities with FY2012 funding: (\$700,000)

1. Strengthen logistics management information system and supply chain management:

Although there have been substantial investments in the supply chain management system over the past three years, Benin continues to show weaknesses in its pharmaceutical management system. Absence of reliable data on commodities management results in frequent stockouts of life-saving antimalarials. The end-user verification survey reports have consistently highlighted an alarming stockout rate of ACTs in close to 50% of facilities surveyed. The Deloitte Assessment of the supply chain found that many health zone depots and health facilities did not have ACTs in stock, although large stocks of ACTs were sitting at CAME, unclaimed.

The PMI will partner with other institutions to assist Regional Health officers to build stronger health zone depots. PMI will advocate for in-depth performance assessments of the 34 health zone depots and support implementation of the action plan to improve the system. Based on findings from multiple field visits and discussions with MOH staff, PMI has found that the revitalization of oversight committees for the health zone depots has improved management and governance at the health zone level. The PMI will continue to work with civil society and oversight entities inside and outside of the government to improve their accountability, while promoting institutional arrangements that enhance the likelihood of improved governance at health zone and national levels.

In FY 2012, the PMI will continue to build on the achievements recorded over the last few years to construct a more sustainable health system by implementing a set of targeted interventions. PMI's contribution to health systems strengthening in Benin will focus on capacity building for the pharmaceutical and supply chain management systems. In collaboration with other stakeholders, PMI will work to address the current issues on LMIS that will result in public health impact. (\$700,000).

BEHAVIOR CHANGE COMMUNICATION

Background:

In 2006, the NMCP drafted a National Malaria IEC/BCC Strategy with technical assistance from WHO. This document was designed to be an integrated communication plan that would standardize messages and tools for all partners working on malaria in Benin. Until recently however, the NMCP had no IEC/BCC point person who could help lead the communication strategy from the government side, but they now have filled that position.

In support of the National Malaria IEC/BCC strategy, PMI funds a National Malaria Communications Working Group (*Groupe Technique de Travail en Communication*), which receives routine technical assistance from a number of PMI implementing partners. The group is

responsible for reviewing the technical content of all IEC/BCC messages pertaining to malaria. It held its first meeting in December 2008 and is scheduled to meet on a quarterly basis. During the last twelve months, the committee met four times. Members of the group include the NMCP, USAID/PMI, Research Triangle Institute, University Research Corporation /PISAF, Africare, CRS, PSI, the World Bank, WHO, UNICEF, and the Peace Corps. The NMCP included key IEC/BCC priorities in its 2011 integrated plan, which has been used to prepare monthly and quarterly plans for all activities.

Over the past five years, the Global Fund Round 3 grant to Africare has also supported malaria messaging at the community level through organized social mobilization campaigns, support to women's groups, and training of CHWs in IEC/BCC. The RCC for Round 3 includes a significant communication component, which will encourage CHWs and women's groups to promote prompt treatment for febrile children at the community level, timely referral of severe malaria cases, and use of ANC to increase IPTp uptake among pregnant women.

Progress during the last 12 months:

With FY 2011 funds, PMI's support to IEC/BCC increased considerably. A multi-pronged approach is being utilized to increase net hang-up and use. In peri-urban areas, PMI continues to work with local NGOs with experience in IEC/BCC to conduct net promotion. In rural areas where CHWs have been trained to treat malaria, PMI is utilizing these community agents to conduct household visits and follow-up activities.

For communication activities related to IRS, PMI has adopted a new and streamlined approach under which the majority of IRS agents trained as spray operators are also used for community mobilization, structure identification, and enumeration activities, which has improved the link between community mobilization and spray operations. Of the 631 people trained in IRS operations, 470 were also trained in community mobilization and sensitization.

In preparation for the universal coverage LLIN distribution, PMI has played close attention to the area of Ouémé Plateau after the close-out of spray operations in its four communes. To support the transition from IRS to LLINs in Ouémé, PMI has supported the production of communication materials, including daily radio news broadcast on local and national stations about the national bed net distribution campaign; use of megaphones in each municipality; *gongonneurs* (the local strategy for mass sensitization); training of 1,300 hang-up volunteers; and the production of media and communication activities for post-distribution. PMI has also engaged Peace Corps Volunteers in hang-up activities, as well as in supervision and data collection.

To monitor the outcomes of IEC/BCC investments, PMI's main communication partner, along with Africare, implemented a "Tracking Results Continuously" Survey (TRAC) in 2010 to assess net use and its behavioral determinants. Among the 3,319 households surveyed, 67% of children under five and 55% of pregnant women were reported to have slept under an ITN the night before the survey. Statistically significant differences between children and pregnant women who slept under a net versus those who did not were based strongly on the perceived availability of nets, as well as whether a woman thought she or her children were being protected from malaria through nightly net use.

Proposed activities with FY2012 funding: (\$500,000)

1. *Support household visits and group education to promote net use and malaria prevention through women's groups, community health workers, and mass media:* To promote the hang-up, use, and maintenance of over five million LLINs that are being distributed through the universal coverage campaign in 2011, the PMI will continue to employ a multi-pronged approach to behavior change. In peri-urban areas, PMI will contract with local NGOs with experience in BCC to conduct net promotion activities. In areas where CHWs are being trained to treat malaria, PMI will utilize these community agents to conduct household visits and follow-up activities. In addition to interpersonal communication for year-round net use, PMI will also target pregnant mothers to attend ANC early to receive IPTp and work with caregivers to ensure that febrile children are brought in for treatment within 24 hours of the onset of fever. (\$500,000); and

2. *Support community mobilization for IRS:* In nine communes in the North of Benin, PMI will continue to support communication for IRS to inform beneficiaries about the positive benefits of IRS in controlling and preventing malaria, the environmental and safety issues related to the use of insecticide for IRS, and the importance of continuing to use bed nets year-round. PMI will also to continue to support integrated training of spray operators and community mobilizers identified in collaboration with local physicians, heads of health posts, mayors, and village leaders. (*Costs covered in IRS section*).

COMMUNICATION AND COORDINATION WITH OTHER PARTNERS

Background

The NMCP, a unit of the National Directorate for Public Health (*Direction Nationale de Santé Publique*), is the government's designated unit to coordinate and supervise the country's malaria program and policy. Various civil society organizations act as implementing partners of the national malaria program, especially at the community level and in remote areas where neither the MOH nor the NMCP have a presence. Academia contributes technical assistance, research, and training in different areas of expertise. The private sector is represented by private clinics, individual service providers, commercial establishments, and vendors of goods and services that are used in malaria programs. External donors include PMI and the Global Fund.

Progress during the last 12 months:

During the past year, the goodwill between PMI/Benin and the NMCP continued to grow, allowing the relationship to mature into a collegial and productive give-and-take. The NMCP was invited to participate in the four Quarterly Program Reviews during the year, and each time a delegation attended and presented news and developments from the NMCP. Difficult issues, such as product leakages and stock-outs, were discussed openly and plans to resolve the problems were arrived at consensually.

The most important achievement in this area is probably the NMCP's desire to take the lead in the development of this year's Integrated Annual Work Plan (*Plan Intégré de Travail Annuel*). The value of the Integrated Annual Work Plan has been fully embraced by NMCP staff. It has also become a valuable resource in identifying gaps in Global Fund proposal preparation. Performance against commitments documented in the Integrated Annual Work Plan is done quarterly. The Integrated Annual Work Plan workshop is now planned for November 2011 and will be a forum for communicating plans and commitments for 2012.

The new National Malaria Control Strategy and Action Plan were developed this year and will help reduce parallel activities. After several meetings, the road map was completed and disseminated. However, supporting documents that should have followed quickly are still being drafted and have been set aside for the moment because of a series of political events, including presidential and legislative elections and the appointment of a new Minister of Health.

Ongoing mechanisms for communication in 2012:

- *The NMCP as a hub.* The NMCP is the designated hub for coordination of malaria activities in Benin. Technical Working Groups including M&E, case management, communication, and supply chain management met regularly two years ago but no longer meet regularly, and PMI would like to see that change.
- *Routine Malaria Information System Newsletter.* The M&E Technical Working Groups supported the publication of the maiden issue of the NMCP's Routine Malaria Information System newsletter. This newsletter is meant to track and communicate trends in malaria incidence by department, but unfortunately, there were gaps in reporting including missing data from Ouémé-Plateau. In spite of this gap, it is hoped that the newsletter will continue to appear on a quarterly basis as planned.
- *Roll Back Malaria Network.* The NMCP acts as the convener of the RBM network in Benin. The NMCP Coordinator is the Chair, and the WHO Malaria Advisor is the co-Chair. During the past year, several meetings were not convened. Monthly coordination meetings are needed to allow all malaria stakeholders the opportunity to report on their malaria activities during the previous month. This local RBM network is closely linked to the West Africa RBM Network and the global RBM Network based in Geneva.
- *The Country Coordinating Mechanism (CCM) of the Global Fund to fight AIDS, TB and Malaria.* The CCM coordinates proposal preparation to the Global Fund Secretariat in Geneva and provides oversight to the achievement of objectives of approved proposals. USAID/PMI sits as a permanent member of Benin's CCM, and is actively involved in the Malaria Working Group. A new proposal has been put forward to re-allocate sectoral presentation in the CCM. USAID will be the representative for North American donors.
- *The Partenaires Techniques et Financiers (Technical and Financial Partners).* Technical and Financial Partners' members comprise external donors to Benin's health sector, and meet at least once a month. While their interests may not necessarily focus on malaria, the group has been very supportive of health program-related reforms, such as the free malaria medicines for pregnant women and children under-five. This past year, the

Technical and Financial Partners' as a group actively participated in the health sector review and the preparation of the report on the *Stratégie de Croissance et la Réduction de la Pauvreté* for 2010, which included malaria indicators. The GOB recognizes this group as a conduit for the dissemination of health policy initiatives, changes, and protocols.

- *Quarterly Program Reviews.* These are hosted quarterly by USAID, and attended by the NMCP, WHO, and implementing partners. The quality of presentations during the past year has greatly improved and the discussions are open and lively—both for planning and problem-solving.
- *One-on-one coordination meetings.* PMI Benin takes advantage of these types of meetings with the NMCP and other partners, since they are the mainstay of coordination efforts in Benin. PMI Resident Advisors attempted to designate one day a week to work in the NMCP office, but the commute and the limited and unreliable internet connections made the arrangement unfeasible. For Cotonou-based partners, the visits to each other's offices occur frequently; however, this is less convenient for those partners that are based outside Cotonou.
- *The Malaria Operational Planning exercise.* The week-long annual visit of colleagues from CDC/Atlanta and PMI/Washington constitutes several opportunities for information-sharing, documenting lessons learned, and planning for the coming year.

MONITORING AND EVALUATION

Background

The NMCP is developing a national malaria control M&E plan for the next five years, 2011–2015. While awaiting finalization of this new plan, the NMCP and its partners have been following the current *Plan de Suivi et d'Évaluation de la Lutte Contre le Paludisme au Bénin 2007-2010*. The current plan includes a multi-institutional M&E Technical Working Group, monitoring of programmatic process indicators with routine data collection systems, periodic evaluations of outcome indicators, and epidemiologic surveillance. After five years of implementing the national M&E plan, Benin has three main sources of malaria information: 1) household and health facility surveys, 2) malaria and entomological surveillance data, and 3) the National Health Management Information System (HMIS). PMI support for entomological surveillance is described in the IRS section. Each of these data sources is outlined below and is being supported and strengthened by PMI. Sustained support is required before they will be able to provide timely and reliable data for malaria program monitoring.

1) *Household and facility surveys:* The national household surveys provide the most reliable data to date. The Demographic and Health Survey (DHS) conducted in 2006 included all-cause child mortality, anemia, and the standard malaria module. Data collection for the 2011 DHS survey is planned to begin in August 2011. To maximize its value for evaluating malaria control activities, the survey will measure *Plasmodium falciparum* prevalence and child mortality with an increased sample size.

In November 2010, a national household survey on malaria was conducted to evaluate the World Bank Booster project, which is referred to as the LEADD Survey. The survey was supported by the MOH, the World Bank, Africare, CRS, and RBM; and PMI resident advisors participated in the design. The survey used sound methodology, similar to that used in Malaria Indicator Surveys, and is a potential source for tracking household indicators between the 2006 and 2011 DHS. However, discrepancies in the way some indicators were defined or calculated may have compromised the validity of the survey results. PMI is working with the NMCP to investigate and resolve these issues.

In November–December 2009, the MOH, World Bank Booster Program, and PMI jointly conducted an outpatient health facility survey to assess 1) the readiness of health facilities to manage malaria; 2) the availability of antimalarials and diagnostic equipment; and 3) the quality of malaria case management. The partners also conducted a pilot inpatient survey in July 2010. In addition to addressing the issues above, the health facility survey collected data necessary to compute all PMI end-use verification survey indicators.

2) *Malaria surveillance data*: WHO initiated malaria sentinel surveillance in six health zones in 2001. By 2007, surveillance activities at these sites had almost ceased. PMI and the World Bank Booster Program revived surveillance activity in 2008, after Benin became a PMI focus country. Since January 2009, PMI has funded the Regional Institute of Public Health in Benin to strengthen hospitals in three sentinel sites, enabling them to collect data on malaria morbidity and mortality. The number of sentinel sites expanded to a total of five in 2010.

3) *The National Health Management Information System (HMIS)*: The national HMIS reports the number of malaria cases, deaths, and case fatality rates at the health facility level. Although data are stratified by age group and facility type (inpatient vs. outpatient), no effort has been made to distinguish clinically diagnosed cases from those confirmed by laboratory testing. The system has limited capacity; and concerns exist about the accuracy, timeliness, and coverage of the data, as well as how the data are used for decision-making. The latest evaluation of the national HMIS identified the following issues as contributing to poor performance: absence of data transmission equipment, problems with data transmission, inadequate feedback, poor use of existing data, and a lack of coordination among stakeholders, resulting in the development of parallel and competing systems.

With the support of PMI and other partners, the NMCP is strengthening the malaria module of the national HMIS to enable 80% of public and private health facilities and community-level actors to accurately report 100% of malaria data, taking into account the weaknesses stated above. This information system, called the routine malaria information system, is built around twenty key malaria indicators collected on a monthly basis. The health workers are trained, data collection is ongoing since September 2010, and two bulletins have already been published. PMI contributions support 40% of the total routine malaria information system budget. In addition, a statistician hired by PMI in 2008 is the data manager of the routine malaria information system. The World Bank Booster Program, Government of Benin, and WHO fund the remaining 60% of the routine malaria information system budget.

Additional M&E activities have also been initiated to track progress in malaria control at the sub-national level. The USAID-funded Integrated Family Health Project and Africare have conducted household surveys in their project areas. UNICEF has conducted surveys to evaluate its Accelerated Child Survival and Development program.

In general, M&E efforts are hampered by a lack of trained local staff to oversee M&E activities, especially in the areas of statistics and data analysis. A mechanism to coordinate M&E exists (i.e., Benin's RBM partnership, chaired by the NMCP), however, this mechanism needs strengthening.

Progress during the past 12 months:

1) *Household and facility surveys*: Reports have been completed for the outpatient portion of the household facility survey and the pilot inpatient survey. Two End Use Verification surveys were conducted. Planning for the 2011 DHS is also underway.

2) *Malaria surveillance data*: The Benin Sentinel Site program has been producing timely and reliable data since October 2009. After evaluation, PMI has decided to continue funding the program because of high performance on criteria indicators, despite being operational for less than one year. The program has shown strong potential in its capacity to collect quality data to monitor trends over time. The malaria testing rate remains low at 52%, and the implementing partner has been instructed to develop site capacity to reach an 80% testing rate, which is necessary for appropriate surveillance.

3) *The National Health Management Information System (HMIS)*: The NMCP, with support from WHO, the World Bank Booster Program, and PMI, has designed a malaria module for the HMIS. The standard operating procedures have been written and validated, and deployment is underway. With FY2010 funds, PMI has also initiated a partnership with the Peace Corps to reinforce the NMCP and PMI M&E team. PMI provided funding to support a volunteer who has M&E training and experience under the Peace Corps Response Volunteer program to assist with M&E activities in Benin. The Peace Corps Response Volunteer was embedded in the NMCP to help coordinate all activities related to achieving sustainability and assuring the quality of the routine malaria information system's outputs. PMI funded the volunteer's housing and all work-related travel costs.

An assessment conducted by CDC in March 2011 found that, despite nationwide implementation of the RMIS, not all health facilities were reporting data. The reporting rate (proportion of expected reports received from all health facilities) in the first 6 months of implementation (Jul-Dec 2010) was 23.5%. Since the assessment, the second bulletin (Jan-March 2011) indicated a reporting rate of 35.2%. The third bulletin reporting completeness is not yet released, but the reporting rate is expected to reach 50%. In addition, the CDC assessment report identified several data quality issues.

Proposed FY2012 activities: (\$1,112,100)

1. *Strengthen health management information system*: PMI will continue support to strengthen procedures and indicators for malaria in the national health management information system and comprehensive strengthening of the system overall. PMI plans to continue funding the RMIS in

order to support the NMCP's efforts to implement CDC's recommendations. In particular, PMI will contribute to: 1) the creation of a dedicated RMIS office at the NMCP with dedicated equipment (e.g., desktop computer, phone, filing cabinets); 2) increased technical assistance and material support to the zonal offices; 3) creation of a final detailed (and updated) indicator list with better case definitions; 4) improving and printing data collection tools and quarterly bulletins; and 5) the creation and printing of written documentation (i.e., standard operating procedures, protocols) with specific tasks, dates, and persons responsible for all levels participating in the RMIS. (\$100,000);

2. *Support sentinel sites surveillance*: Five existing sentinel sites will continue to be strengthened for the implementation of health facility-based surveillance in support of the PMI M&E framework. This activity includes technical assistance to improve the capacity of these sites to collect reliable data on inpatient malaria cases and deaths. Given the importance of increasing the malaria testing rate in Benin, including at sentinel sites, USAID/PMI has recommended to the contracting officer to include an explicit Substantial Involvement Clause into the implementing partner agreement for effective scale up of malaria diagnosis. This activity will be reviewed at the end of next year to evaluate its performance and to determine if PMI support will continue.(\$100,000);

3. *Conduct Malaria Indicator Survey (MIS)*: Provide technical and financial support for the planning and implementation of the 2013 MIS. The year 2013 is the halfway point between the 2011 DHS and the next expected DHS in 2016. (\$750,000);

4. *Conduct end use verification surveys*: Quarterly monitoring of the availability and utilization of key antimalarial commodities at the health facility level. (\$150,000); and

5. *Provide technical assistance for M&E*: CDC staff will conduct one technical assistance visit to assist the NMCP with M&E planning and implementation (\$12,100).

STAFFING AND ADMINISTRATION

Two health professionals have been recruited as Resident Advisors to oversee the PMI in Benin, one representing CDC and one representing USAID. In addition, one Locally-engaged Staff has been hired to support the PMI team. All PMI staff members are part of a single inter-agency team led by the USAID Mission Director. 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 were interviewed and evaluated jointly by USAID and CDC.

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 and the CDC Advisor is supervised by CDC both technically and administratively. All technical activities are undertaken in close coordination with the MOH/NMCP and other national and international partners, including the WHO, UNICEF, the Global Fund, World Bank, and the private sector.

The USAID Mission Director approves the hiring of local staff to support PMI activities either in Ministries or in USAID. 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 needs to be approved by the USAID Mission Director and Controller.

Proposed FY 2012 activities: (\$1,100,000)

1. *USAID technical staff*: Support one resident advisor and malaria specific staff member. (\$500,000);
2. *CDC technical staff*: Support one resident advisor. (\$300,000); and
3. *Cover other in-country administrative expenses*: Cover ICASS costs (\$300,000).

Table 1

**President's Malaria Initiative – Benin
Year Five (FY 2012) Budget Breakdown by Partner (\$16,100,000)***

Partner Organization	Geographic Area	Activity	Budget
JSI (DELIVER Malaria Task Order 7)	Nationwide	Procure and deliver malaria microscopy kits, LLINs, SP, ACTs and RDTs.	\$ 6,863,700
IRS IQC	IRS sites	IRS in several communes of North Benin, including procurement of insecticides and spray equipment, training of spray operators, and community sensitization.	\$ 3,300,000
CREC (<i>Centre de Recherche Entomologique de Cotonou</i>)	Surveillance: Nationwide Surveys: IRS target area	Support for CREC to conduct entomological monitoring in IRS area; expand and strengthen the national vector resistance surveillance system	\$120,000
Accelerating Reduction of Malaria Morbidity and Mortality (ARM3) Project awardee	Nationwide	Train and supervise laboratory technicians. Support quality assurance/quality control system for malaria diagnostics. Improve lab registers.	\$3,930,000
	Nationwide	Support training and supervision of health workers in IPTp and case management including severe malaria. Train health workers in IMCI. Capacity building for NMCP/CREC and equipment for NMCP. Support for HMIS, LMIS, NMCP M&E capacity, and process indicator collection.	
	Nationwide	Provide training and technical assistance to the Central Medical Stores and Regional health depots on supply management, forecasting, tracking, and improving storage of malaria commodities.	
	Nationwide	IEC/BCC for LLINs, IPTp, and treatment. Private sector LLIN distribution.	
MACRO	Nationwide	Conduct Malaria Indicator Survey including malaria and anemia biomarkers.	\$ 750,000

* Table does not include technical assistance visits nor administrative/management costs for USAID/CDC.

Table 2
President's Malaria Initiative – Benin
Planned Obligations for FY 2012 (\$16,100,000)

Proposed Activity	Mechanism	Budget	Geographic Area	Description of Activity
PREVENTION				
Insecticide-Treated Nets				
1. Procurement and delivery of LLINs to the health facility level	USAID/Deliver Project	4,550,000	Nationwide	Procurement of 700,000 long-lasting insecticide treated bed nets for delivery through routine services. This includes delivery up to the Health Zone level.
2. IEC/BCC for net use	ARM3	(Costs covered in IEC/BCC section)	Nationwide	Follow-up household visits promoting net use in areas not already covered by CHWs.
3. Strengthen Logistics Management Information System and Supply Chain Management	ARM3	(Costs covered in Health Systems Strengthening section)	Nationwide	Support strengthening of the commodities management by monitoring achievements and gaps in universal coverage following the mass distribution campaign (<i>Costs covered under the Health Systems Strengthening section</i>);
4. Procure and distribute LLINs through the private sector	ARM3	280,000	Nationwide	Procure and distribute 40,000 highly-subsidized LLINs through the private sector, as keep-up strategy for non-target populations.
Subtotal: ITNs		\$4,830,000		
Indoor Residual Spraying				
1. IRS implementation	IRS IQC	3,300,000	Nine communes in Atacora (North of Benin)	One round of IRS in Northern Benin; includes training for personnel, equipment/insecticide procurement, community mobilization, and IRS implementation.
2. Entomological monitoring for spray areas and selected sentinel sites.	CREC	120,000	Nine communes in Atacora (North of Benin)	Entomological monitoring in the new spray areas and sentinel sites. CREC will involve NMCP personnel trained in entomology
3. TA for vector control	CDC IAA	24,200	IRS areas	Funding for two TA visits to monitor movement of IRS to the North
Subtotal: IRS		\$3,444,200		

Proposed Activity	Mechanism	Budget	Geographic Area	Description of Activity
Malaria in Pregnancy				
1. Procure doses of sulfadoxine-pyrimethamine (SP)	USAID/Deliver Project	27,000	Nationwide	Procure 900,000 doses of SP treatments to cover 2013 needs (# of pregnancies estimated: 510,000 in 2013). SP bought will also be available to the public and private sector according to the national policy.
2. Provide Supervision and refresher training for health workers in IPTp to improve quality of service	ARM3	(Cost covered in Case Management Treatment Section)	Nationwide	On-site supervision and refresher training of healthcare workers including benchmark assessments, on-the-spot training on new algorithm, and coaching.
3. Strengthen logistics management for SP	ARM3	(Cost covered in Health Systems Strengthening Section.)	Nationwide	Continued technical assistance to the CAME and health zone depots to improve supply chain management, forecasting/quantifying, tracking, and storage of SP.
4. IEC/BCC for IPTp	ARM3	(Cost covered in IEC/BCC Section.)	Nationwide	IEC/BCC to promote ANC clinic attendance and educate pregnant women and communities on the benefits of IPTp. This activity will include support for mass media (including local radio stations), as well as community-level approaches, such as training of community-based workers. Immunization outreach sessions will be used as opportunities for educating women.
Subtotal: Malaria in Pregnancy		\$27,000		
CASE MANAGEMENT				
Diagnosis				
1. Procure Rapid Diagnostics Tests (RDTs)	JSI (DELIVER Malaria Task Order 7)	730,000	Nationwide	Procure one million RDTs to cover needs for 2013. This should be delivered in several consignments.
2. Procure laboratory reagents	JSI (DELIVER Malaria Task Order 7)	20,000	Nationwide	Provide basic materials needed for existing microscopes.

Proposed Activity	Mechanism	Budget	Geographic Area	Description of Activity
3. Support supervision and strengthening of malaria diagnostic activities	ARM3	300,000	Nationwide	Supervision, development of policies, standard operating procedures, maintenance of microscopes, training, conduct periodic review of malaria diagnostic, and quality control of slides/RDTs.
Subtotal: Diagnostics		\$1,050,000		
Treatment				
1.Procure ACTs	JSI (DELIVER Malaria Task Order 7)	1,536,700	Nationwide	Procurement of 1,023,180 ACT treatments for older children and adults. This should be procured in several orders.
2.Support quality improvement and supervision of healthcare workers at the facility level	ARM3 Project	600,000	Nationwide	On-site supervision of healthcare workers including benchmark assessments, on-the-spot training on new algorithm, and coaching including supervision of diagnostics activities.
3.Support malaria training for health workers	ARM3 Project	250,000	Nationwide	Training on the management of severe malaria, resuscitation equipment and other related supplies. When necessary a training for new health workers in malaria treatment.
Subtotal: Treatment		\$2,386,700		
INTEGRATION WITH OTHER GHI PROGRAMS				
Facility-level integration				
1.IMCI training	ARM3 Project	100,000	Nationwide	Support in-service training of health workers in integrated management of childhood illness.
Subtotal: Facility-level integration		\$100,000		

Proposed Activity	Mechanism	Budget	Geographic Area	Description of Activity
Community-based interventions				
1. Community-case management of malaria, pneumonia, and diarrhea.	ARM3 Project	500,000	Nationwide	Support AL distribution for children under five by CHWs in three health zones identified by the NMCP as having low access to health services and high child mortality rates.
Subtotal: Community-based interventions		\$500,000		
CAPACITY BUILDING / HEALTH SYSTEMS STRENGTHENING				
Capacity Building				
1.Support pre-service training and harmonize curricula	ARM3 Project	150,000	Nationwide	Develop capacity of two health worker pre-service training institutions.
2.Suport capacity building of NMCP including Monitoring Evaluation System	ARM3 Project	150,000	Nationwide	Training, including online training in logistics/management, conferences, workshops, equipment (i.e., computers), and human resource capacity building. M&E strengthening includes a database, data manager, Technical Working Group for an M&E Website, and trainings.
3.Provide technical assistance through Quality Assurance Officer	ARM3 Project	50,000	Nationwide	Build NMCP capacity in quality assurance and quality control, as well as coordination of supervision.
Subtotal: Capacity building		\$350,000		
Health Systems Strengthening				
1. Strengthen logistics management information system and supply chain management.	ARM3 Project	700,000	Nationwide	Continue strengthening of national Logistics Management Information System, training, and supply chain management from the central-level down to the health facilities.

Proposed Activity	Mechanism	Budget	Geographic Area	Description of Activity
Subtotal: Health Systems strengthening		\$700,000		
BEHAVIOUR CHANGE COMMUNICATION				
1. Support household visits and group education to promote net use and malaria prevention through women's groups and community health workers and mass media	ARM3 Project	500,000	Nationwide	Work with CHWs and women's groups to promote use of prevention methods and care seeking behaviors at the community-level. Support BCC efforts related to appropriate care seeking and treatment. Messaging around appropriate care seeking for fever. Mass media can be used when appropriate.
2. Support community mobilization for IRS	IRS2 IQC	<i>(Cost covered in IRS section)</i>	9 communes in the North of Benin	
Subtotal: BCC		\$ 500,000		
MONITORING AND EVALUATION				
1. Strengthen health management information system	ARM3 Project	100,000	Nationwide	Strengthening procedures and indicators for malaria in the health management information system and comprehensive strengthening of system overall, including RMIS.
2. Support sentinel sites surveillance	ARM3 Project	100,000	Five sites	Technical assistance to five sites for collection of reliable data on inpatient malaria cases and deaths.
3. Conduct Malaria Indicator Survey	MACRO	750,000	Nationwide	Conduct Malaria Indicator Survey including malaria and anemia biomarkers.
4. Conduct End-Use verification surveys	ARM3 Project	150,000	Selected sites	Monitoring of availability and utilization of key anti-malarial commodities at the health facility level.
4. Provide technical assistance for M&E	CDC IAA	12,100	Nationwide	Funding for one CDC advisor to provide technical assistance for monitoring and evaluation.
Subtotal: M&E		\$ 1,112,100		

Proposed Activity	Mechanism	Budget	Geographic Area	Description of Activity
In-country Management and Administration				
1. USAID Technical Staff	USAID	500,000	Not applicable	Support to two resident advisors and malaria-related staff.
2. CDC Technical Staff	USAID	300,000		
3. Cover other in-country administrative expenses	USAID	300,000		
Subtotal: In-country Management and Administration		\$1,100,000		
GRAND TOTAL		\$16,100,000		

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