

This Malaria Operational Plan has been endorsed by the President's Malaria Initiative (PMI) 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

Malaria Operational Plan (MOP)

MALAWI

FY 2009

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EXECUTIVE SUMMARY

MALAWI

YEAR THREE

In June 2006, the United States Government announced that Malawi was selected to be included in a five-year, \$1.2 billion initiative to rapidly scale-up malaria prevention and treatment interventions in high-burden countries in sub-Saharan Africa. The global goal of the President's Malaria Initiative (PMI) is to reduce malaria-related mortality by 50% in vulnerable groups—children under five years of age, pregnant women, and people living with HIV/AIDS. This will be accomplished by achieving 85% global coverage of groups at risk of malaria with four key interventions: artemisinin-based combination therapy (ACT), intermittent preventive treatment (IPTp) for malaria in pregnancy, insecticide-treated mosquito nets (ITNs), and indoor spraying with residual insecticides (IRS).

Malaria is a major public health problem in Malawi. It is endemic in 95% of the country with over 85% of malaria infections due to *Plasmodium falciparum*. The Ministry of Health (MOH) in Malawi estimates that there are approximately six million episodes of malaria per year, with the disease accounting for 40%¹ of all outpatient visits. Malaria is the number one cause of hospital admissions among children under five.

The 2006 Multiple Indicator Cluster Survey (MICS) provides the most up to date information on Malawi's coverage of key malaria control and prevention activities. According to this survey 35% of households owned one or more ITNs and 23% of children under five slept under an ITN the previous night. Coverage of IPTp of malaria in pregnancy is relative high for the region; 80% of women received one dose of sulfadoxine-pyrimethamine (SP) but only 46% of women received at least two doses. As ACTs were introduced in late 2007, no data is available on the prompt treatment of children under five with ACTs. Additionally, before the PMI-supported IRS campaign in Nkhhotakota district in late 2007, which covered more than 28,000 households, no large-scale IRS campaign had been carried out in Malawi in the recent past.

Other than PMI, the majority of the funding for malaria activities in Malawi comes from the Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund), the World Bank Program, and donor and government funds pooled through the health sector-wide approach (SWAp). From the Global Fund, Malawi has been approved for a combined Round 2 and Round 7 grant to procure both ITNS and ACTs. The World Bank has also designated Malawi a Malaria Booster country and has provided funds for improvements in the health information management system. Finally, the SWAp supports malaria control efforts as part of the Essential Health Package (EHP).

The following table shows the targets proposed in Year 2 and the rapid implementation of activities supported by PMI in the second year of implementation:

¹ Malaria Strategic Plan, 2005-2010

Proposed Year 2 Targets (PMI and partners)	Expected Results after Year Two of Implementation (March, 2009)
800,000 LLINs distributed	All 800,000 PMI-purchased LLINs will have been distributed through public sector antenatal clinic (ANC) and Expanded Programme on Immunization (EPI) clinics
4.5 million treatments of first-line ACT distributed	ACT distribution through public and CHAM health facilities will be ongoing through June of 2009
29,000 households sprayed with residual insecticide	IRS will have been completed by December of 2008
Staff will be trained in all districts and materials present in all health facilities to ensure uptake of the second dose of SP for IPTp	All health facilities will have at least one person trained in IPTp and the materials necessary for directly observed IPTp during ANC visits.

The Year 3 Malaria Operational Plan for Malawi was based on the progress and experiences of the first two years and was developed during a planning visit in May 2008 by representatives from the United States Agency for International Development (USAID), the Centers for Disease Control and Prevention (CDC) and the Malawi National Malaria Control Program (NMCP). This plan was developed in close consultation with nearly all national and international partners involved with malaria prevention and control in the country. Based on these discussions and further meetings with the NMCP, the planning team concluded that the following major activities/expected results will be supported in the third year of the Initiative:

Indoor residual spraying: Following the successful implementation of the Year 1 PMI IRS activity in Nkhosakota District, IRS in Malawi is now considered a feasible malaria control strategy in rural areas. The first spray round covered 28,308 households and in Year 2, PMI will support a second round of spraying in Nkhosakota district in the same area. In Year 3, the NMCP plans to initiate a scaled-up rural IRS program, covering approximately 500,000 households (approximately 1.5 million structures) with an estimated population of 2.5 million people in seven additional highly endemic districts with financial support through the SWAp. The Initiative's role in the national scale up of IRS will be to spray the entirety of Nkhosakota District, one of the seven districts scheduled by the NMCP. In addition to spraying Nkhosakota district, PMI will also continue entomological monitoring and surveillance including vector assessments and insecticide resistance testing in designated NMCP IRS scale-up districts to monitor the ongoing efficacy of both ITN and IRS interventions.

Insecticide-treated nets: Malawi has had considerable success scaling up ITNs over the past few years through the use of community and health facility distribution avenues and mass campaigns. In 2006, Malawi revised its ITN policy to improve its ability to rapidly scale-up ITN coverage. The new policy includes free distribution of ITNs through the expanded program on immunization (EPI), through antenatal care visits (ANC), time-limited mass campaigns in rural areas, and to all children under five attending health facilities. In Years 1 and 2, PMI supported this policy by procuring 2.03 million LLINs of which 1.24 million have already been distributed.

In Year 3, PMI will procure approximately 1,000,000 LLINs for distribution through EPI and ANC channels to support the NMCP's and PMI's goal of achieving 85% ITN coverage of children under five and pregnant women. Although household ownership of ITNs is rising in Malawi, consistent behavior change messaging is integral to ensuring continued usage throughout the year. Therefore, PMI will support a national-level and community-based information, education, and communication behavior change communication (IEC and BCC) campaign to increase demand for and correct usage of LLINs, particularly among the target population. This campaign will include both grants to community-based organizations (CBOs)

and through the use of mass media. Year 3 targets for PMI are to improve the level of ITN ownership and utilization by pregnant women and children less than five years to 85%.

Intermittent preventive treatment of malaria in pregnancy: Despite high coverage of the first dose of IPTp, national health surveys in both 2004 and 2006 showed substantial gaps in two-dose IPTp national coverage, especially among poorer women and women in rural areas. In order to increase coverage of IPTp in these areas, PMI Year 1 and 2 supported the strengthening of focused-ANC at the district health facility level by continuing to scale-up proven job aids and other tools that have led to an increase in IPTp delivery and uptake. PMI also funded IEC and BCC efforts encouraging repeated ANC attendance which will increase the opportunity for delivering the second IPTp dose. PMI Year 3 will continue to support these activities towards achieving a target of 70% of pregnant women receiving at least two doses of SP for IPTp.

Case management: In 2007, Malawi changed its national first-line malaria treatment from SP to the ACT, artemether-lumefantrine (AL). In Year 1 and 2, PMI supported the initial procurement and distribution of AL to the public sector, along with pharmaceutical and logistical management support and IEC/BCC. To date, PMI has procured and distributed approximately six million doses of AL to the over 500 health facilities. To ensure that the ACTs were properly distributed, PMI invested heavily in the capacity of the Ministry of Health Central Medical Stores (CMS), specifically aiding the development of the distribution schedules, upgrading storage facilities, and strengthening reporting throughout the supply chain.

In Year 3, the consolidated Round 2 and 7 Global Fund grant will fund the procurement of ACTs for distribution to public sector facilities. PMI will support the scale-up of community-based distribution of ACTs in one zone. The model will use the community-based integrated management of childhood illness approach to supply ACTs to children under five who have poor access to formal public health facilities. In addition, PMI will continue to provide technical assistance in supply chain management to Central Medical Stores and the Ministry of Health. Through these efforts, it is expected that prompt and effective treatment of malaria of children under five will improve.

Monitoring and evaluation: PMI includes a strong monitoring and evaluation component to measure progress toward the project goal and targets and to identify and correct problems in program implementation. The PMI monitoring and evaluation plan is coordinated with the NMCP and other partners to share resources, to ensure that critical gaps are being filled, and to standardize data collection and reporting. In Years 1 and 2, PMI conducted an anemia/parasitemia study in children 6-30 months of age in eight districts to track ITN ownership and usage, household socioeconomic markers, anemia and parasitemia biomarkers, and treatment of febrile illness. To provide longitudinal data on these indicators, this anemia/parasitemia survey will be conducted again in Year 3. PMI will also use Year 3 funds to continue to support the sentinel health facility and village sites operationalized during Year 2. Data will be collected at the sentinel sites on key indicators of malaria morbidity and mortality. PMI will support the 2009 Demographic and Health Survey to allow for PMI to monitor progress and impact of malaria prevention and treatment interventions.

Building NMCP capacity: To achieve PMI targets for coverage of ACTs, ITNs, IPTp, and IRS, PMI will work with partners to strengthen the capacity of the MOH and the NMCP at the central, zonal, and district levels to plan, conduct, supervise, monitor and evaluate malaria prevention and control activities. Efforts will be focused on improving management and coordination of monitoring and evaluation activities by seconding full time technical assistance in this area to the

NMCP. PMI will also provide organizational development and management capacity building to NMCP staff through short-term technical assistance.

Budget

The total amount of PMI funding requested for Malawi is \$17.7 million for FY 2009. Of this amount, 42% will support malaria prevention through the promotion and procurement of LLINs, 27% will support improved case management interventions including procurement of ACTs with supportive health systems strengthening activities, and 10% will support the IRS campaign. Approximately 3% will support malaria in pregnancy activities and 5% will support monitoring and evaluation. Forty-eight percent of the total budget will be used to purchase and distribute intervention-related commodities.

ABBREVIATIONS

ACT –	artemisinin-based combination therapy
ANC –	antenatal clinic
AQ –	amodiaquine
AL -	artemether-lumafantrine
AS –	artesunate
BCC –	behavior change communication
CBO –	community-based organization
CDC –	Centers for Disease Control and Prevention
CHAM –	Christian Health Association of Malawi
CMS -	Central Medical Stores
CHSU-	Community Health Sciences Unit
DfID -	United Kingdom Department for International Development
DHMT –	District Health Management Team
DHS –	demographic and health survey
FBO –	faith-based organization
FY-	fiscal year
EPI -	Expanded Programme on Immunization
EHP –	Essential Health Package
Global Fund –	Global Fund to Fight AIDS, Tuberculosis, and Malaria
GOM –	Government of Malawi
HMIS –	Health Management Information System
HSA –	health surveillance assistant
IEC –	information, education, communication
ICC -	Interagency Coordinating Committee
IMaD -	Improving Malaria Diagnostics project
IMCI-	integrated management of childhood illness
IPTp –	intermittent preventive treatment of malaria in pregnancy
IRS –	indoor residual spraying
ITN –	insecticide-treated net
IVCC -	Innovative Vector Control Consortium
JICA –	Japan International Cooperation Agency
LLIN –	long-lasting insecticide-treated net
M&E -	monitoring and evaluation
MICS –	Multiple Indicator Cluster Survey
MIS –	Malaria Indicator Survey
MOH –	Ministry of Health
NGO/FBO –	non-governmental organization
NMCP –	National Malaria Control Program
NSO –	National Statistical Office
PDA -	personal digital assistants
PEPFAR -	President’s Emergency Plan for AIDS Relief
PMI –	President’s Malaria Initiative
PSI –	Population Services International
RBM –	Roll Back Malaria
RDT –	rapid diagnostic test
RMS -	regional medical stores
SADC –	Southern Africa Development Community
SP –	sulfadoxine-pyrimethamine

SPS- Strengthening Pharmaceutical Management
SWAp – health sector-wide approach
UNICEF – United Nations Children’s Fund
USAID – U.S. Agency for International Development
USG – United States Government
WHO – World Health Organization

PRESIDENT’S MALARIA INITIATIVE (PMI)

In July 2005, the United States Government (USG) announced a new, five-year, \$1.2 billion initiative to rapidly scale-up malaria prevention and treatment interventions in high-burden countries in sub-Saharan Africa. The goal of this Initiative is to reduce malaria-related mortality by 50%. This will be achieved by reaching 85% coverage of the most vulnerable groups—children under five years of age, pregnant women, and people living with HIV/AIDS—with proven preventive and therapeutic interventions. These include artemisinin-based combination therapy (ACT), insecticide-treated bed nets (ITNs), intermittent preventive treatment of pregnant women (IPTp), and indoor residual spraying (IRS) to prevent transmission.

The President’s Malaria Initiative began in Fiscal Year (FY) 2006 in three countries, Angola, Tanzania, and Uganda; four other countries, Malawi, Rwanda, Senegal, and Mozambique, were added for FY07. PMI received \$30 million in FY 06, received \$135 million from the U.S. Congress in FY07 and \$300 million in FY 08. The budget is expected increase to \$500 million in FY10. The aim is to cover a total population of 175 million in 15 countries with these proven interventions by 2010.

In implementing PMI, the USG works closely with host governments in the context of their national malaria control strategies and plans. PMI efforts are coordinated with other national and international partners, including the Global Fund to Fight AIDS, Tuberculosis, and Malaria (Global Fund), Roll Back Malaria (RBM), the World Bank Malaria Booster Program, World Health Organization (WHO), the United Nations' Children's Fund (UNICEF) and non-governmental and private organizations and institutions, to ensure that investments are complementary and that RBM and Millennium Development Goals are achieved.

This document, developed in collaboration with the Government of Malawi (GOM) and other stakeholders, presents a detailed implementation plan for the third year of PMI in Malawi. It briefly reviews the status of malaria control policies and existing interventions supported by all partners in Malawi, identifies challenges and unmet needs to reach the targets of PMI and the National Malaria Control Program (NMCP) and provides a description of proposed Year 3 (FY 09) PMI activities.²

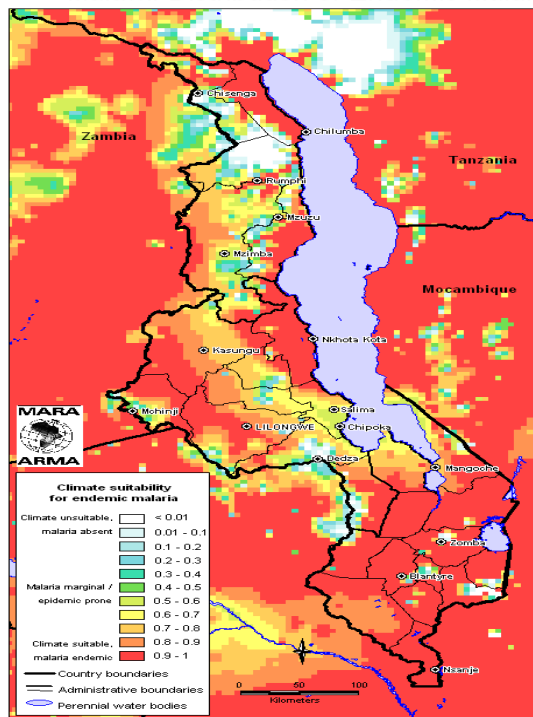
MALARIA SITUATION IN MALAWI

Malawi is a land-locked country in Southern Africa with a 2008 estimated population of 13.6 million people. It is one of the poorest countries in the world with a gross domestic product per capita estimated at US \$600 per year. In 2007, the life expectancy was approximately 43 years.

Malaria is a major public health and economic problem in Malawi; it is a disease that affects the poorest and keeps them poor. Adults lose an average of 25 working days per year, which results in significant loss of household income. In addition, the cost of treatment can easily overwhelm family resources in Malawi where low-income families spend an estimated 28% of their yearly income to treat malaria.³ Children under five, pregnant women and those living with HIV/AIDS

² For Malawi, PMI Year 1 of FY 07 funding implemented between October of 2007 and October of 2008; Year 2 is FY 08 funding implemented between October of 2008 and October of 2009. Year Three will use FY 09 funding for program implementation between October of 2009 and 2010. Early funding is the exception with implementation beginning in March of the implementation year.

³ Source: National Malaria Control Programme Strategic Plan 2005-2010.



This map is a product of the MARA/ARMA collaboration (<http://www.mara.org.za>), July 2002, Medical Research Council, PO Box 70380, Overport, 4067, Durban, South Africa
 CORE FUNDERS of MARA/ARMA: International Development Research Centre, Canada (IDRC); The Wellcome Trust UK; South African Medical Research Council (MRC);
 Swiss Tropical Institute, Multilateral Initiative on Malaria (MIIM) / Special Programme for Research & Training in Tropical Diseases (TDR); Roll Back Malaria (RBM).
 Malaria distribution model: Craig, M.H. et al. 1999. *Parasitology Today* 15: 105-111.
 Topographical data: African Data Sampler, WRI, http://www.igso.org/infotools/maps/ads/ads_idx.htm

represent the most at-risk populations for malaria-related morbidity and mortality. It is estimated that there are approximately 680,000 pregnant women annually and 2.31 million children under five in Malawi.

The peak transmission season in Malawi follows the rainy season (October through April) and lasts from December to May. WHO estimates that in 2006 there were approximately six million episodes of malaria per year, accounting for over 30% of all outpatient visits. Over 85% of malaria infections in Malawi are due to *Plasmodium falciparum*. According to the 2003 Health Management Information System (HMIS) report, health facilities reported 250,000 - 350,000 malaria outpatient cases monthly throughout the country. Malaria is the number one cause of hospital admissions and the leading cause of death among children under five. Malaria accounts for 39% of in-patient admissions, while severe anemia, much of which is attributable to malaria, accounts for an additional 11%.

Funding for Malaria Control

In December 2004, the GOM signed a memorandum of understanding with a number of donors to establish a sector-wide approach (SWAp) program for the health sector. The SWAp aims to promote better coordination among donors in support of a government-led national program and attempts to reduce transaction costs in planning, implementing, and monitoring health programs designed to address agreed-upon priority problems.

There are two distinct types of donors in the SWAp. Some donors pool their money in a common “basket”, while discrete donors fund projects and activities directly, without going through the common funding basket. Despite this difference, both types of donors in the SWAp support collectively identified priorities developed through an annual consultative planning and monitoring process. The funds from the “pooled” donors are drawn down by the national health program in support of agreed-upon activities in an annual Program of Work. Discrete donors may earmark all or portions of their funds for specific purposes, and provide their funding through different financing mechanisms other than through the government treasury. However, the discrete donors still participate in the SWAp planning and review process. All partners agree on a set of common indicators and targets that are tracked and reported to all stakeholders. The

United States does not contribute to common-basket but participates in the SWAp as a discrete donor, providing funds to projects working to achieve the goals laid out in the Program of Work.

The GOM is committed to controlling malaria because of the disease's contribution to poverty and the burden that it places on families, especially children under five and pregnant women. The GOM understands the impact that an effective malaria control program can have on achieving the goals of the SWAp as well as the Millennium Development Goals. The formerly vertically-funded NMCP now receives basic funding from the SWAp. As a result of decentralization of the health care system to the district level, systemic issues facing the NMCP are now handled through the SWAp mechanism using the same approach as the ten other health interventions that constitute the SWAp's Essential Health Package (EHP) .

The SWAp mechanism is the main avenue through which the NMCP works in collaboration with its partners. The major stakeholders for malaria control are the Global Fund, UNICEF, World Health Organization (WHO), Japan International Cooperation Agency (JICA), the Government of Norway, the United States Government, the United Kingdom Department for International Development (DfID), the World Bank, and the European Union. These partners support malaria control through "basket funding" or as discrete donors. Approximately \$23 million was available for malaria control through the SWAp from July 2007-June 2008; however, by the end of the fiscal year, only 17% of the total SWAp budget had been spent.

A major source of malaria funding in the SWAp comes from the Global Fund. Malawi has two approved Global Fund Grants from Rounds 2 and 7. Round 2 Phase 1 provided the majority of the ITNs that have been distributed in the last two years, and Round 7 was approved in the fall of 2007 to procure ACTs for public health facilities. The Ministry of Health is currently working with the Global Fund to consolidate Round 2 Phase 2 into the Round 7 grant to provide a total of \$36.5 million in funding. As of August 2008, this grant had not yet been signed.

The World Bank Malaria Booster Program provided a \$5 million five-year grant to support the development of the HMIS for the Essential Health Package in Malawi beginning in FY 07.⁴ However, due to difficulties disbursing the funds, very few activities have been implemented other than a health facilities survey which was conducted in August 2008. At the end of 2008, the grant will end and these funds will no longer be available. The World Bank does not have plans to provide another grant in the health sector before 2010.

Outside of malaria control, Malawi has a very strong HIV/AIDS control program. Currently Malawi has one of the largest Global Fund grants, receiving a grant for \$170 million for HIV/AIDS treatment in Round 1, and \$19 million for the care of orphans and vulnerable children in Round 5. Malawi is also a President's Emergency Plan for AIDS Relief (PEPFAR) non-focus country, receiving approximately \$45 million from the USG for the prevention, care, and treatment of HIV/AIDS. PEPFAR and PMI share several implementation partners working on integrated or common platforms to support improved health outcomes in Malawi. The PMI team continually engages with the USG PEPFAR team to identify ways to further coordinate activities and develop synergies. One example is the PMI team sits on and contributes to the technical working groups under PEPFAR where the program areas intersect.

⁴ Malawi is currently at risk of losing this funding due to a failure to spend the resources during the allocated time period.

NATIONAL MALARIA CONTROL PLAN AND STRATEGY

The NMCP functions under the Directorate of Preventive Health Services in the MOH. Three positions at the national level are designated to manage the program with four additional junior staff. The NMCP sets policies, establishes strategies, coordinates activities, and provides technical guidance for the program. Five zonal officers are responsible for overseeing malaria activities in their respective zones, and a District Malaria Control Coordinator directs malaria control activities in each of the 28 districts. Of the above positions, the Program Manager post is vacant, the Deputy Program Manager is on a maternity leave which began in July 2008 and three of the zonal officer positions are unfilled, leaving a leadership gap in the key program roles.

The Malaria Strategic Plan 2005-2010, “Scaling-Up Malaria Control Interventions”, was developed and approved by the MOH in June 2005. This strategy is in line with the SWAp Program of Work that the MOH, in collaboration with donor partners, is implementing. Furthermore, it is consistent with EHP, also developed by the MOH. This strategy guides allocation of resources and outlines three key areas for scale-up: mosquito vector control (ITNs and IRS), case management, IPTp and cross cutting issues. These major interventions are discussed below:

Mosquito vector control with ITNs: Malawi adopted an ITN policy in 2006 which includes free distribution of ITNs for newborn children born in health facilities, children attending their first Expanded Program on Immunization (EPI) visit (if an ITN was not received at birth), and pregnant women at first visit to an antenatal clinic (ANC). The new policy supports time-limited, national, free distribution campaigns every 2-3 years targeting the most vulnerable populations in Malawi. In February 2008, this policy was amended to include distribution to all under 5 children attending health facilities. To complement this strategy, the NMCP is supportive of donors and NGOs in developing other innovative distribution models to fill gaps in rural communities in collaboration with District Health Offices as additional funding is made available. Long-lasting ITNs (LLINs) are the preferred ITN for scaling-up coverage nationally.

Mosquito vector control with IRS: The malaria strategy includes a plan for introducing IRS as a malaria prevention strategy in rural Malawi. It specifies the implementation of an IRS pilot to document operational, logistical and human resource requirements for IRS scale-up in rural Malawi. In 2009, the government plans to integrate these lessons into an expanded IRS program targeting seven districts with a total approximate population of 2.5 million.

Case Management: In 2006, the MOH selected artemether-lumefantrine (AL) as the first-line drug and selected amodiaquine-artesunate (AQ/AS) as the second-line ACT, reserving quinine for the treatment of severe malaria and the management of malaria in the first trimester of pregnancy. The introduction of these drugs is in line with the World Health Organization (WHO) recommendation to use ACTs to improve malaria treatment and prolong the therapeutic life of antimalarial drugs. The new drug policy was launched in November of 2007 with PMI support and is currently being implemented. While no policy has been officially developed, the NMCP is planning to expand the availability of ACTs into the community via integrated management of childhood illness (IMCI) drug boxes.

IPTp: As part of a comprehensive focused-ANC package, Malawi’s policy on IPTp recommends the provision of at least two doses of sulfadoxine-pyrimethamine (SP) to pregnant women during the second and third trimester. The policy states that the treatments should be at least one month apart and given under direct observation.

Cross Cutting issues: The Malaria Strategic Plan also addresses the need to develop human resource capacity, strengthen information, education and communication (IEC) and advocacy for malaria control, improve communications and logistics, support operational research and develop systems to strengthen monitoring and evaluation to track progress and measure results.

In the public sector, delivery of malaria control interventions is carried out using the district health system with the district health office as the MOH’s coordinator of all health matters at district level. The private sector, specifically the faith-based Christian Health Association of Malawi (CHAM), is also involved in malaria control. CHAM provides 37% of the health care services in Malawi and is a crucial service delivery partner. CHAM is able to access public sector resources for malaria control.

RECENT ESTIMATES OF MALARIA INDICATORS

The most up-to-date information on the current status of malaria control comes from the nationally representative UNICEF Multiple Indicator Cluster Survey (MICS) conducted in the dry season of 2006. A total of 22,994 children under the age of five, 26,259 women aged 15–49, and 7,636 men aged 15–49 were interviewed in 30,553 households in 26 districts of Malawi. Unfortunately, because the MICS was conducted prior to the introduction of ACTs, no information is available on the proportion of children who received treatment with an ACT within 24 hours of the onset of fever. However, it did find that 24.9% of children with a fever in the last two weeks received any appropriate antimalarial drugs. Indicators relating to IRS were not measured.

Indicator	Estimated national coverage based on 2006 MICS
Proportion of households with at least one ITN	37.8 %
Proportion of children under five years old with fever in the last two weeks who received treatment with ACTs.	0.2 %
Proportion of children under five years old who slept under an ITN the previous night.	24.7%
Proportion of pregnant women who slept under an ITN the previous night.	25.6%
Proportion of women who received two or more doses of IPTp during their last pregnancy leading to a live birth within the previous two years (IPTp).	46.7%
Targeted Household adequately sprayed with a residual insecticide in the last twelve months.	Not available ⁵

GOAL AND TARGETS OF THE PRESIDENT’S MALARIA INITIATIVE

The goal of PMI is to reduce malaria-associated mortality by 50% compared to pre-Initiative levels in PMI countries. By the end of 2010, PMI will assist Malawi to achieve the following targets in populations at risk for malaria:

⁵ Data on IRS are not routinely collected in the MICS and there was no IRS program in Malawi when the 2006 MICS was conducted.

- More than 90% of households with a pregnant woman and/or children under five will own at least one ITN;
- 85% of children under five will have slept under an ITN the previous night;
- 85% of pregnant women will have slept under an ITN the previous night;
- 85% of houses in geographic areas targeted for IRS will have been sprayed;
- 85% of pregnant women and children under five will have slept under an ITN the previous night or in a house that has been sprayed with IRS in the last 6 months;
- 85% of women who have completed a pregnancy in the last two years will have received two or more doses of IPTp during that pregnancy;
- 85% of government health facilities 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.

EXPECTED RESULTS FOR YEAR THREE:

Prevention:

- Procure and distribute 1,030,000 LLINs so that Malawi maintains at least 85% ITN ownership in households with pregnant women and children under five. These ITNs will be distributed in conjunction with community- and national-level IEC materials and messages.
- Continue to support malaria in pregnancy interventions at health facility level through IEC, training, job aides, and supportive supervision to increase coverage of the second dose of IPTp to 70%
- Spray 53,000 households in Nkhoswe District as part of a national IRS campaign.

Treatment:

- Increase access to ACTs in rural areas by making AL available via IMCI drug boxes to children under five in remote villages in one zone
- Ensure that malaria treatment with ACTs continues to be implemented in all government health facilities
- Continue to strengthen supply chain management such that the supply of AL in the public sector remains consistent

INTERVENTIONS: PREVENTION

Indoor residual spraying (IRS)

Prior to PMI, IRS had not been considered a viable vector control strategy in rural Malawi. The 2002 malaria control policy relating to IRS for Malawi states, “IRS is only used in a selective manner and is the method of choice for preventing and containing malaria epidemics in well-defined or high-risk situations.” IRS activities were mainly limited to the private sector on estates growing agricultural products.

The current Malaria Strategic Plan proposed the introduction of IRS in four well-defined rural areas to determine its feasibility, documentation of the resources needed, and training of teams in the appropriate response to malaria outbreaks. As a response to this plan, the African

Development Bank supported two small-scale pilot studies with a focus on the operational costs and feasibility of IRS in rural areas using a pyrethroid insecticide (lambda-cyhalothrin; ICON®). Spraying was conducted in about 30 villages in Ntchisi and Mzimba Districts, consisting of approximately 1,700 and 400 households, respectively.

The Malawi Ministry of Health proposed that dichloro-diphenyl-trichlorethane (DDT) be included as an insecticide for exclusive use in IRS and held two stakeholder meetings in 2007. These stakeholder meetings attempted to address concerns regarding the operational controls necessary to prevent leakage into the agricultural sector, including contaminations of tobacco cash crop and ground water, and proper disposal requirements of the residual waste. A Malawi consensus and revised policy has not been reached on the inclusion of DDT in insecticide management plan for IRS; therefore, PMI-supported IRS activities in Malawi will use not use DDT at the current time.

Progress to Date:

Building on the African Development Bank experience, PMI during Year 1 conducted an initial round of IRS with the NMCP from November 2007 through March 2008 in rural areas north and south of the Dwangwa Sugar Estates in Nkhotakota District. The total number of houses sprayed was 28,308 and this initial round of IRS provided numerous lessons learned on the execution, feasibility, and cost of IRS on a medium scale. The lessons learned highlighted the challenges in coordinating a spray operation in rural areas. In particular, the IRS operation did not adequately enumerate the households and structures within the spray area, the training was insufficient, adherence to safety precautions and environmental protections required a significant level of attention, and better strong and consistent IEC messaging is needed at the village level. Clear information, combined with testimonials from those whose houses have already been sprayed can appreciably increase the uptake of this intervention. The active involvement in planning and implementation of the District Health Management Team was identified as a major strength with many lessons learned for NMCP national scale-up in future years.

NMCP, PMI, and the Innovative Vector Control Consortium have worked together to conduct extensive entomological monitoring of the first IRS spray round. Monitoring of the first round of spraying has included entomological surveillance of mosquito populations both within and just outside the targeted IRS area, and mosquito population density monitoring through live collections of adult mosquitoes, and efficacy testing of the insecticide on the walls of the structures sprayed. Preliminary results show a reduction in the vector population following IRS, but analyses of these insect collections have not yet been fully analyzed. These results should be available soon and will inform the use of insecticide and the effectiveness of the IRS program.

In late 2008, a second round of IRS will be conducted in the same area as Year 1 with a pyrethroid insecticide. This activity will again be in partnership with the Dwangwa Sugar Estates and will cover the same population as in Year 1. It is expected that lessons learned from the first campaign will be implemented.

Given the experience and lessons of the 2007 campaign, the NMCP plans to scale-up to a total of seven districts nationally in 2009 using funds from the SWAp. The districts to be sprayed under the NMCP IRS scale-up plan include Nkhotakota, Karonga, Nkhata Bay, Salima, Mangochi, Chikwawa, and Nsanje and contain approximately 500,000 houses and 1.5 million structures with a population of approximately 2.5 million people. These districts were chosen based on the intensity of malaria transmission and burden of disease, as well as the potential applicability to other rural areas in Malawi. NMCP sees the Year 2 PMI IRS campaign in Nkhotakota District as

an opportunity to build the designated districts' capacity in IRS and has selected health workers from each district to receive hands-on training. These workers will serve as a part of the core IRS team and will oversee the scale-up plans and activities in their respective districts. In addition, the well-established public-private partnership with the Dwangwa Sugar Estates will be continued. Planning for this activity is currently underway with the NMCP, District Health Management Team, WHO, PMI, and other partners. As part of this expansion of IRS, PMI has been asked to participate in the national MOH IRS plan by spraying one of the seven MOH IRS-designated districts. This scale-up will involve an increase in PMI-supported spraying from spraying 28,000 houses to 62,000 houses. WHO will provide technical assistance in the areas of planning, management, and implementation for the NMCP's IRS program with additional monitoring and evaluation support from PMI.

Funding has been secured from the SWAp to procure the insecticide and necessary equipment but the procurement has been delayed due to World Bank requirement's that an environmental assessment be completed. NMCP has also requested the associated operational costs (e.g. labor, transport) from the SWAp for six of the seven districts; however, the funding request is still pending approval from the Malawi Parliament. It is presumed that this funding will be provided.

PMI will also continue ongoing entomological monitoring. Entomological monitoring is important in ensuring that the IRS activity has a measurable impact on the vector population in the area sprayed. This information can be used to document the impact of the program as well as to inform PMI as to whether the insecticide used (both for IRS and LLINS) maintains its efficacy against the vector population and how long the insecticide is lasting on both the walls of sprayed structures and on the LLINs.

Proposed Year 3 Activities: (\$1,850,000)

To support the NMCP's expansion of IRS in Malawi, the PMI, per the NMCP's request, will scale-up its IRS activities to cover the entire Nkhoswe District. Additionally, PMI will support the entomological monitoring of the IRS program in partnership with Innovative Vector Control Consortium. WHO has been given the mandate to provide technical assistance for the overall IRS operation; however, PMI will provide additional technical support if needed. In FY 09, PMI will:

- Support IRS operations and spray 62,000 households in Nkhoswe District. This may include technical assistance to the NMCP for IRS in other districts if needed. (\$1,700,000)
- Continue to expand and enhance entomological and epidemiological monitoring in and around the targeted IRS area as well as other sites in Malawi for addressing both ITN and IRS needs. (\$150,000)

Insecticide-Treated Nets

The scale-up of ITNs is a key component of the NMCP's overall approach to malaria control and prevention. The NMCP ITN guidelines, which were revised in 2006 and again in 2008, allows for a market segmentation approach, consisting of the free distribution of ITNs through ANC and EPI clinics, periodic mass campaigns, and full-cost net sales to those who can afford it. Specifically, pregnant women receive free ITNs either during ANC visit or during childbirth if their newborn is born in a health facility. In addition, a child under five receives an ITN during EPI visits. These new guidelines also call for periodic (approximately every 3 years) national mass free distribution campaigns, targeting rural areas and children under five.

The 2006 MICS survey provides the most recent nationally representative data on ITN ownership and use. The survey data estimated that 37.8% of households own an ITN and 51.4% of households have at least one net of any kind. These figures varied by urban and rural areas but not by region. In urban areas, 55% of households owned at least one ITN compared with 34.9% in rural area. Usage of ITNs by vulnerable groups was lower than expected. According to the MICS, which was conducted in the dry season, only 24.7% of children under five and 25.6% of pregnant women slept under an ITN the previous night? The PMI-supported Anemia and Parasitemia survey estimated levels in the rainy season in eight districts in 2007 found that net usage among children under five was 51.3% and usage among those households that owned an ITN was 89%. It should be noted that this survey is not nationally representative; however, the variance between the results of the surveys, along with other surveys suggests a difference in the consistent use of nets between the rainy season and the dry season.

Progress to date:

Mass campaigns

Using Global Fund Round 2 funds, the NMCP implemented its first mass ITN distribution campaign in late 2006, distributing over 660,000 nets bundled with treatment kits nationally to the “poorest of the poor” with emphasis on children under five and pregnant women. A second Global Fund-supported mass distribution campaign began in July 2008 and distributed another 1.1 million nets bundled with treatment kits. This most recent national campaign primarily targeted households with children under five that do not own any ITNs. Several stakeholders including PMI objected to the continued procurement of bundled nets instead of LLINs; but the NMCP decided that the ability to procure a greater quantity of ITNs outweighed the benefits of having an LLIN. Fortunately, the NMCP’s most recent Global Fund procurement plan has budgeted for LLINs and thus the current ITN campaign along with a further distribution of the 400,000 remaining bundled nets will all be distributed in 2008. Therefore, from late 2008 onwards, all nets distributed are planned to be LLINs.

Routine distribution through health facilities

PMI has been the primary supporter of the ANC and EPI LLIN distribution program. Since 2006, PMI has procured and distributed over 1,061,000 LLINs through this channel. Through the PMI partner, PSI, currently over 100,000 LLINs are distributed to the health facilities each month. Using FY 08 funds, PMI has just procured another 800,000 LLIN which should arrive in country before the end of 2008 and will sustain the ANC and EPI distribution channel through 2009.

Due to rising fuel prices, (the cost of fuel in Malawi has increased by 50% this year alone), the cost of distributing LLINs continues to rise. Also the need for new vehicles and increased warehouse space has further taxed PMI’s ITN distribution budget. As a result, PMI’s cost of distributing an ITN from the central level to the health facility is projected to rise to \$0.70, up from \$0.50 last year. Thus, the total cost of an LLIN in Malawi is approximately \$6.70 (\$6 for the procurement and delivery of the LLIN to a central warehouse, and \$0.70 to distribute the LLIN to the health facility).

Private Sector

Although PMI has not directly supported the development of the ITN commercial market, demand for ITNs remains high in the private sector. Private sector ITN distribution offers the opportunity for middle to higher income houses with multiple bedrooms to outfit all sleeping

areas with ITNs. PSI has continued to use a revolving fund to provide its private sector *Chitetezo* bundled ITN brand in the commercial sector to a primarily urban niche market. These ITNs retail for 850MK or approximately \$6 dollars to achieve significant cost recovery. Currently PSI sells approximately 130,000 *Chitetezo* nets annually in mostly urban areas. Using its own funds and a cost recovery scheme, PSI has plans to introduce a retail brand of LLINs to replace the *Chitetezo* bundled net in 2009.

Net Retreatment

Since many of the nets in circulation are not LLINs, the NMCP supports annual nationwide retreatment campaigns. These campaigns are implemented as part of the events of Southern Africa Development Community Malaria Week which is held annually in November at the start of the rainy season. Using Global Fund Round Two funds, the NMCP implemented successful retreatment campaigns in 2006 and 2007, retreating over 6.4 million nets with KO-Tab. It is expected that these campaigns will continue in 2008 and 2009 with support from Global Fund and the SWAp. This will ensure that the bundled ITNs distributed in 2007 and 2008 will be retreated annually.

Net Gap

The table below describes the total projected ITN gap in Malawi in 2009. As line “f” in the table shows, over 5.7 million ITNs have been distributed in Malawi since 2006. Assuming that these ITN are still in country and usable, there should be enough ITNs to achieve greater than 85% coverage of pregnant women and children under five. Although universal ownership is not yet policy in Malawi, it is being carefully considered by the NMCP. Should the PMI continue to supply a similar quantity of LLINs with FY 09 funds (approximately one million LLINs), NMCP will be able to maintain the high ITN ownership it has already achieved among households with pregnant women and children under five and make strides towards universal ownership. It is projected that there will be over two nets per household with pregnant women and children under five following the distribution of PMI and Global Fund LLINs in 2009.

Summary of ITN Gap in Malawi

a. Total ITNs needed in Malawi to achieve 100% Universal Ownership (2.5 ITNs per household)	6,800,000
b. Total ITN needed in Malawi to achieve 100% coverage of pregnant women and children under five (equal the number of PW and U5)	2,640,000
c. ITN's distributed through all sources (campaign, routine, private sector) FY 06	1,865,847
d. ITN's distributed through all sources (campaign, routine, private sector) FY 07	1,198,099
e. ITN's distributed through all sources (campaign, routine, private sector) FY 08	2,649,672
f. Total ITNs in country as of FY 08 (sum of c+d+e)	5,713,618
g. Total ITNs Gap to Reach 85% Existing Vulnerable Population (equals b less f)	0
h. Total ITN's Needed to support new pregnancies and births	1,360,000

i. Total ITNs Needed to Replace nets distributed in FY 06 (assuming a 3 year life span) (equals c)	1,865,847
j. Total Requirement for ITNs to Reach 85% coverage in FY 09 ((f-(h+i)*.85)	129,394
k. Total Requirement for ITNs to Reach Universal Coverage in FY 09 (a- (f-(h+i))	4,312,219
l. Number of ITNs in FY 09 from Global Fund	750,000
m. PMI Contribution for ITNs in FY 09	1,030,000
n. Remaining ITN Gap for FY 09 to cover vulnerable populations (j- (l+m))	0
o. Remaining ITN Gap for FY 09 to reach universal coverage (k- (l+m))	2,532,229

Information, Education and Communication

As described above, recent surveys highlight the needs for IEC and BCC to promote consistent year round use of ITNs. To this end, PMI has been using print and mass media to encourage consistent ITN use by the target population. Three primary messages have been emphasized: malaria is a deadly disease, nets can protect you from malaria, and nets should be used year round by children under five and pregnant women. Several radio spots, posters, music videos and public service announcements reflecting these messages have been developed and disseminated nationally.

As a complement to the mass media campaign, PMI is also working to change behavior through community level interventions. In Years 1 and 2, PMI supported the development of a small grants program to use NGOs and CBOs for community mobilization to support ITN distribution. To date, six grants in six different districts have been awarded to Malawian NGOs to work with local communities to increase behavior change through interpersonal communication approaches such as local dramas, health education talks, and community events. These grants will communicate behavior change messaging on ITN usage, prompt and effective treatment, IPTp, as well as assist in hanging ITNs in homes. While support to the small grants program is ongoing, there is still an absence of a national-scale community-level IEC campaign that will potentially impact the reach and scope of PMI in Malawi.

Planned Year 3 Activities: (\$7,420,000)

Malawi is likely to achieve close to 85% ITN coverage of vulnerable groups toward the end of 2008 and with PMI and Global Fund support will work towards universal coverage in 2009. This is due in part to the large contribution of PMI and the Global Fund. However, there continues to be issues with the correct and consistent use of ITNs and LLINs, particularly in the dry season. In FY 09, PMI will:

- Procure approximately 1,030,000 LLINs for distribution through the ANC and EPI programs. (\$6,230,000)
- Support the cost of distributing these nets from the central level to the health facilities at approximately \$0.70 per LLIN. (\$715,000)
- Support a national IEC and BCC campaign to increase the demand for, and the correct and consistent use of ITNs among the targeted populations through radio and TV ads, print media, and community interpersonal approaches such as community drama (integrated campaign covering ITNs, ACTs, and IPTp). (\$300,000)

- Support a small grants program to at least six NGOs and FBOs that work at the community-level through interpersonal and community-based approaches to encourage the correct and consistent use of LLINs (integrated campaign covering ITNs, ACTs, and IPTp). (\$175,000)

Intermittent Preventive Treatment in Pregnancy (IPTp)

Malawi has been at the forefront of policy development and implementation in the use of anti-malarial drugs for IPTp since the late 1980s. The national policy on IPTp was established in 1994 and most recently revised in 2002; it now states, “All pregnant women should receive at least two treatment doses of SP at least one month apart at the ANC under direct observed therapy.” Intermittent preventive treatment is given free of charge by ANC workers in health facilities under direct observation; administered doses are recorded in ANC registries maintained in the clinic and on cards (“health passports”) carried by the pregnant women. According to the 2006 Malawi MICS, the percentage of pregnant women receiving one dose of SP was 80.7%, but only 46% of pregnant women received at least two doses or more of SP despite high ANC attendance rates (97% of women attend at least once).

Several factors led to lower coverage of the second dose of SP including confusing policy guidelines and poor training of health workers. Studies in Blantyre District found that the major reasons for the relatively low IPTp two coverage included lack of clarity among health workers regarding proper timing of the second dose, lack of water and cups to take SP under direct observation, concerns about providing SP on an empty stomach, concerns about providing a “strong drug” later in the pregnancy, and stock-outs of SP. An intervention to simplify the policy, provide job aides such as gestational wheels, simplify correct dosage timing, and develop IEC materials for both staff and patients resulted in an increase in the proportion of women receiving at least two doses of IPTp with SP from 48% to 69% in the study population (79% when facilities with stock-outs of SP were excluded from the analysis). Consequently in July 2006, the MOH changed the national guidelines to state that at least two doses of SP should be given during the second and third trimester one month apart. ANC workers should administer the first dose as soon as possible after 16 weeks of pregnancy. SP is being provided by the MOH as part of the Essential Health Package (EHP).

Progress to Date:

In Year 1 and Year 2, PMI began to address some of the causes of the low uptake of the second doses of IPTp by disseminating previously developed IPTp job aides such as gestational wheels to simplify correct dosage timing, providing cups and safe water vessels to aid directly observed therapy, and developing IEC materials for both staff and patients to increase understanding of the importance of receiving two doses of IPTp. In order to ensure health workers received appropriate training and supportive supervision on IPTp specifically and in focused ANC more broadly, PMI in partnership with the NMCP have conducted zonal trainings for District Malaria and Reproductive Health Coordinators on focused-ANC and IPTp. Also, supportive supervisory visits have been made in eight districts to follow-up the trainings.

To encourage women to attend ANC for the recommended number of visits and at the appropriate times during pregnancy, PMI launched an IEC campaign both at the community level, using small grants to CBOs and NGOs, and at the national level, using radio and other mass media. Through the small grants program, six CBOs and NGOs working in six districts received funding to encourage women to attend ANC earlier in their pregnancy and to go for all scheduled visits. Also included in their messaging is information on the importance of receiving

at least two doses of SP at the appropriate time during pregnancy. These messages are part of a broader package of IEC and BCC materials and approaches being used by these grantees at the community level. To ensure that these messages are being heard at the national level, PMI is also supporting a major campaign using radio, video and print media.

Sulfadoxine-pyrimethamine still appears effective for IPTp in Malawi and elsewhere. However, given widespread *P. falciparum* resistance to SP for treatment in children, this situation requires close monitoring to inform any needed policy changes in the future. PMI is supporting drug efficacy monitoring of SP for IPTp with Year 1 funding and this study will be completed in mid-2009. Should SP be found to have reduced efficacy, policy decisions will be needed to implement an appropriate alternative regimen for IPTp.

Proposed Year 3 Activities: (\$475,000)

During Year 3, PMI will continue to focus on scaling up proven tools and approaches that have been found to expand the implementation of focused ANC and to increase IPTp uptake at the health facility level by increasing the frequency of ANC visits by pregnant women and by ensuring that health workers provide IPTp to all eligible women presenting for antenatal care. Given that IPTp coverage is relatively high, these efforts should help increase the uptake of the second dose and a third dose, which is especially important for HIV-positive pregnant women. This effort will be complemented by a continuing mass media and community-level campaign to encourage women to go to a clinic as early as possible in their pregnancy. In FY 09, the PMI will

- Support the ongoing nationwide scale-up of IPTp and focused ANC at health facilities and strengthening of ANC services by continuing to provide zonal trainings, job aides, training materials, and supplies such as cups and potable water. The national scale-up of IPTp will also be partially supported by available funding from the NMCP. (\$250,000)
- Continue support for national IEC and BCC mass media campaign to promote IPTp. (\$50,000)
- Continue support for NGO and Community Based Organization (CBO) IEC and BCC outreach activities through small grants to increase ANC attendance and the demand for IPTp (integrated campaign with ITN and ACT promotion). (\$175,000)

INTERVENTIONS – CASE MANAGEMENT

Malaria Diagnosis

Malawi's national policy is to presumptively treat all children less than five years of age and pregnant women who present with signs of malaria with the first-line therapy within 24 hours of onset of fever. Laboratory diagnosis of malaria is recommended for children older than five years, non-pregnant women, and men who present with signs of uncomplicated malaria at a facility with laboratory diagnostic capabilities.

Currently the ability to confirm by laboratory test a malaria diagnosis is limited in most health facilities. Referral hospitals, district hospitals, and only an estimated 10% of health centers are equipped to perform microscopic diagnosis of malaria. The Malawi National Malaria Strategic Plan for 2005-2010 calls for 60% of health centers to be capable of performing laboratory diagnosis for malaria. There are currently only 187 microscopes (supplying 25% of health facilities) available in country for malaria diagnosis and six regional microscopists able to train more microscopists and to monitor quality at the health center level.

All building of laboratory and diagnostic capabilities will be done in collaboration with PEPFAR, which is making tangible investments into laboratory services. To date, PEPFAR is working through the MOH's Community Health Sciences Unit (CHSU) and Howard University to implement a pre-service training for laboratory tests and develop a laboratory fellows program. In addition, PEPFAR is supporting 3-4 regional laboratories around the country and is working towards an integrated approach to quality assurance

The NMCP is in the process of evaluating which rapid diagnostic test (RDTs) is appropriate for use at the health facility level in Malawi and how to ensure that the results are used appropriately in rationale decision-making. With pre-PMI funding, the CHSU and the College of Medicine's Malaria Alert Centre (COM/MAC), and CDC have developed a protocol to help the NMCP and partners determine the best-suited brand of RDT and the most appropriate way to integrate them into the diagnostic algorithm in Malawi. In addition, this protocol will identify factors influencing health workers' acceptance or non-acceptance of RDTs and use of these results by health workers when managing febrile illness in patients over five years of age and non-pregnant women. Also, this evaluation will help determine if RDTs are a cost-effective approach to ensure appropriate use of ACTs, especially in light of the cost of the RDT itself. Results of this assessment are anticipated to be available in early 2009.

Progress to Date:

In Year 2, PMI is supporting a diagnostics assessment to identify gaps in malaria diagnosis. This assessment will review the current status of diagnostic capacity including the number and capacity of trained microscopists, the quality of the equipment, the availability of supplies, and quality assurance guidelines and techniques. The recommendations of this assessment will inform the diagnostics work planning for Year 3 by highlighting key areas where interventions have the potential to improve microscopy and RDT diagnosis and diagnostic-related behaviors in Malawi.

The Global Fund Round 7 proposal contains a request to fund the procurement and scale-up of RDTs in Malawi beginning in Year 2. To cover all health facilities without microscopy, over 3.1 million RDTs will be procured over the life of the grant. The specific RDT will be determined in part by the results of the National Research Laboratory and College of Medicine's RDT study (mentioned above) to be completed in 2008. The PMI diagnostic assessment (Year 2) and follow-up work plan (Year 3) will be critical for developing appropriate training, use, and quality control and assurance guidelines to accompany the distribution of Global Fund Round 7 RDTs.

Operational research for diagnostics:

It is common for clinicians to treat for malaria even in the face of a negative test for malaria, while failing to search thoroughly for and consider other causes of fever. Inappropriate clinician responses to negative malaria tests results in missed diagnosis, which can increase the risk of death, and significantly increases the cost of malaria control efforts both through the consumption of malaria tests whose results are disregarded and through the unnecessary use of antimalarials. This issue needs to be addressed on a national scale. Factors contributing to this practice will be explored by a FY08 RDT study being conducted through the COM/MAC in the next six months. Prior to the anticipated expanded implementation of RDTs through the Global Fund Round 7 grant, and to guide training of health care workers on the use of RDT results, PMI will fund a FY 09 pilot of interventions to improve clinician adherence to RDT results, to ensure that an appropriate antimalarial is prescribed when a patient's RDT is positive and that other

causes for illness are thoroughly sought when the result is negative. These interventions will include health worker training and supervision, clarification of guidelines for the management of a negative RDT result, all with an emphasis on redefining health worker perception of RDTs as a tool for managing the febrile patient, rather than just a tool for managing malaria. The CHSU, COM/MAC, and CDC study described above will provide additional information to guide selection and development of the optimal interventions for the Year 3 pilot.

Proposed Year 3 Activities: (\$395,000)

The findings of the upcoming diagnostic assessment will direct the activities to be completed in FY09. PMI will support the MOH to strengthen diagnostic capacity, potentially focusing on the following areas:

- Implement the outcomes of the diagnostic assessment. This could include training of health workers on the appropriate use of diagnostic test results, particularly microscopy, IEC for the public on the importance of adhering to health worker prescribed treatment as directed by the result of a malaria diagnostic test, training on the correct use of RDTs (if and when RDTs be available), further training on malaria microscopy at the health facility level and/or, strengthening and expansion of diagnostic quality assurance. A work plan will be developed in late 2008 to lay out specific activities. (\$325,000)
- Operations research to pilot interventions to improve clinicians' treatment practices in response to malaria diagnostic test results. The interventions will focus on health worker training and supervision and clarification of guidelines for the management of a negative RDT result, with an emphasis on redefining health worker perception of RDTs as a tool for managing the febrile patient, rather than just a tool for managing malaria. (\$70,000)

Pharmaceutical and Supply Chain Management:

Malawi's pharmaceutical management system has been plagued with serious problems. Stock-outs of SP and other drugs occur regularly due to issues related to quantifications of need, ordering, tendering, receipt, storage, and the logistics of distribution. Currently, Central Medical Stores (CMS) handles the procurement, storage, and distribution of most drugs to all government health facilities. Because of budget constraints, procurement issues and management problems, CMS is currently only able to supply 60% of the national requirement for drugs. As a result of this, programs such as the HIV/AIDS program and the EPI program have chosen to outsource the procurement and distribution of antiretrovirals and vaccines through UNICEF.

There is significant pressure from the Global Fund and other donors to reform CMS. The MOH has proposed converting CMS to a public trust with a private sector model of doing business. This conversion to a trust will allow CMS to hire staff outside the MOH staff structure and to enforce results-oriented management practices.

USAID and DfID are currently the donors most directly engaged in CMS reform and in the trust conversion process. DfID is a significant driver of the conversion of CMS to a trust and has invested heavily in recent years on providing organizational technical assistance to CMS. Both DfID and USAID sit on the CMS Steering Committee on the trust conversion process. In fact, DfID has tied their disbursement into SWAp to the reform of CMS.

Progress to Date:

Beginning in Year 1, PMI procured the initial 18 months supply of the first-line therapy, AL to cover the gap between the policy change and implementation of the successful Global Fund Round 7 grant. Utilization of PMI-procured AL began in December of 2007 and PMI has procurement plans for AL in place through June of 2009 when it is expected that the first shipment of the Global Fund-supported first-line drug will be available.

Unfortunately, the procurement of the Global Fund supported AL is anticipated to be fraught with challenges. Firstly, the grant has yet to be signed (as of August 2008) and no funds have been dispersed. If Global Fund grant signing and procurement plans move forward in a timely fashion, the overlap between GF Round 7 and PMI procurements of AL will be sufficient to ensure there is no drug shortfall in the first year of GF Round 7 implementation. However, given past problems with Global Fund disbursements, it would not be surprising if the grant is not signed in adequate time to ensure that the emergency procurement of AL is procured before PMI drug stocks are depleted. Secondly, the Global Fund Round 7 grant has possibly under budgeted funds for the supply of AL to the public sector and CHAM facilities. An updated quantification of first-line drug needs completed after the submission of the Global Fund Round 7 procurement and supply plan shows 27% higher consumption than expected, and the current Global Fund procurement budget is based on an earlier quantification that does not account for this consumption level. Both of these potential issues would result in a gap in AL supply beginning in July 2009. PMI has been working closely with the Global Fund to resolve these issues.

PMI distributed the ACTs it procured through CMS under the stipulation that CMS improve its storage facilities, documentation and information system, transportation capacity, security systems and logistics management system. Although CMS was able to physically distribute the drugs to the health facilities with reasonable accuracy, difficulties in record-keeping and an inability to warehouse the commodities continue to plague the system and highlighted key barriers to maintaining a strong supply chain both within and external to CMS. From the health facility level, through the district to the regional medical stores (RMS), consistent and timely reporting of drug consumption and stock on hand remains a major barrier to ensuring adequate stocks at health facilities. The shared responsibility for this reporting between CMS, Health Technical Support Services, and the District Health Officers means that any systems strengthening effort must target multiple stakeholders within the MOH system.

Weaknesses present in the supply chain were emphasized when PMI identified a drug leakage early in the ACT distribution. This leakage resulted in the arrest of several health workers and other businessmen and a large scale supervisory exercise to determine where the leakage originated. The swift response of key partners such as the Pharmacy, Medicines, and Poisons Board to investigate the leakage was deemed a testament to its strength as an organization. While PMI, the MOH, and other partners worked together to address the leakage, the root causes of the leakage –a lack of supervision and oversight throughout the supply chain- still require further attention.

Aside from the risk of further leakage, drug consumption data collected through the supply chain is also integral to conducting accurate drug quantification exercises. The more accurate the data retrieved from the supply chain system, the more able the quantification team will be to forecast drug needs with minimal wastage and stockouts. For these reasons, PMI continues to provide technical support to CMS to ensure a functional supply chain for health facility- and community-based ACTs, and the EHP, which supplies SP and other drugs to health facilities across Malawi.

PMI has been working with the projects Strengthening Pharmaceutical Systems (SPS) and Deliver to improve the supply chain with a focus on the data quality and flow of information to improve drug management and evidence-based decision-making. In particular, SPS's Malawi platform concentrates on rational drug use, and they have worked to address provider behavior pertaining to drug dispensing to patients, stock records and management of drug stocks at the health facility level, and consumption patterns through regular supportive supervision, and training. Also, they were instrumental in the development of the AL quantification which has guided the first few procurements of AL. PMI through SPS also supports end-use verification/monitoring of availability of key antimalarial commodities at the facility level. Specifically, entails regular supervisory/monitoring visits to a random sampling of health facilities and regional warehouses to detect and trigger further action on the following critical areas: ACT (or other drug) stockouts; expiration dates of ACTs at health facilities; leakage; anomalies in ACT use; and verifying quantification/ consumption assumptions. Finally, SPS also has a drug quality assurance component of their platform in Malawi and they are supporting the Malawi Government's Pharmacy, Medicines and Poisons Board efforts to regulate the private sector drug market, with a focus on quality assurance.

PMI supports Deliver in Malawi to address issues of drug logistics, including procurement and distribution planning, management of the national Logistics Management Information System, national stock status reporting and overall logistics coordination. Specifically, DELIVER provided CMS with significant technical assistance for the logistics planning for the first distribution of the ACTs. This assistance included the hiring of vehicles, renting of warehouse space, and the development of the AL distribution plan. They continue to work with CMS to strengthen the logistics management information system and are working to roll-out the use of personal digital assistants or hand held computers to manage supply chain at the health facility level to improve reporting.

Proposed Year 3 Activities: (\$3,375,000)

PMI will continue to support the MOH in the strengthening of the pharmaceutical management system. Efforts will be made at all levels of the system from the central level, through the RMS' and the health facilities. In FY 09, PMI will:

- Continue providing technical assistance to strengthen the existing pharmaceutical management system through CMS to ensure a consistent supply of AL both at the health facility and for the community level IMCI program (see malaria treatment section). This includes ongoing support for pharmaceutical management, stock management, inventory control, and capacity building (\$675,000)
- Continue providing technical assistance and training to the MOH to strengthen pharmaceutical management at the health facility level. This includes training health workers, helping with quantification, and providing assistance on quality control and post market surveillance. (\$700,000)
- Procure AL to potentially bridge any gap in AL supply, should the Global Fund Round 7 procurement be delayed. If these funds are not needed for bridging an AL gap they will be reprogrammed to LLINs and IRS. (\$2,000,000)

Malaria Treatment

In November 2007, the MOH launched a new malaria treatment policy, naming AL as the new first-line antimalarial drug and AS-AQ as the new second-line treatment; intravenous quinine is

reserved for use in cases of treatment failures of ACT drugs and for management of severe malaria. With SWAp funds, all health workers were trained on the new drug policy as well as malaria treatment in general. Despite this training, health worker compliance to the new policy remains a problem in some areas and there continues to be confusion among caregivers on the new regimen.

As part of its EHP, Malawi uses the IMCI strategy to treat children for malaria and other common illnesses. The IMCI strategy was adopted in Malawi in 1998, and by the end of 2005, it was implemented in 18 districts. The goal of the IMCI policy is to contribute to the reduction of childhood morbidity and mortality by two thirds between 2000 and 2015 in Malawi.

Based on the gains made through the use of the IMCI approach at the health facility level, the MOH is working to roll out a community-based IMCI program to approximately 4000 hard to reach villages (approximately 10% of the population) in Malawi. Under the community-based IMCI program, 1400 drug boxes have been placed in remote village health posts and contain essential drugs for treating key childhood infections, specifically cotrimoxazole, oral rehydration therapy, chloramphenicol eye ointment, and paracetamol. In the past, these drug boxes have also contained SP; however, SP was removed following the policy change to AL. The drug boxes are managed by the health surveillance assistant (HSAs), a type of paid village health worker, and these HSAs have been trained on the management of fever, diarrhea, cough, and red eye.

Because access to AL at the community-level is limited only to the private sector, the NMCP has pushed to include AL in dosages appropriate for children under five in the drug boxes. To scale-up such an approach would require the procurement of ACTs for children under five and the drug boxes, training of HSAs on the appropriate use of AL, supportive supervision of the HSAs, the development of tools for IEC and monitoring, as well as technical assistance on the implementation. Currently, CDC (with non-PMI funds) and UNICEF are supporting a pilot which will include AL in a subset of the drug boxes. This study will compare drug use, fevers, and morbidity/mortality patterns with villages not receiving AL in their drug boxes and will inform this scale-up

Progress to Date:

In Years 1 and 2, PMI has mainly focused on ensuring that the ACTs PMI has procured are used appropriately and that the new treatment policy is understood and followed. Building on the training of health workers funded by the SWAp, PMI in year 2 plans to provide refresher training and supportive supervision to health workers. It is expected that health workers will receive a quarterly supervisory visit which will provide them with additional on-the-job training.

Also, PMI has supported IEC and BCC on proper adherence to ACTs and the importance of the prompt treatment of fever. To convey these messages, both mass media and community level approaches have been used. PMI has funded the development of video and radio programs which provided caregivers with detailed information on the signs and symptoms of malaria, the proper use of AL, and the importance of prompt treatment. At the community level, six CBOs are receiving funding to use interpersonal approaches to convey the same messages. Outside of the six small grants for IEC, community-level case management IEC is still a gap and should be scaled up nationally. Each small grant will be reviewed annually to determine its impact.

Operational research for case management:

Adherence to a complete treatment regimen is important to ensure a complete cure in the individual and to prevent the development of parasite resistance to a drug through incomplete or sub-therapeutic dosing. While AL is now readily available at all public health facilities, there is evidence that patients are not adhering to the appropriate six-dose treatment schedule. There are historical data indicating that adherence to a regimen of chloroquine, with only three daily doses, was poor, and there is anecdotal evidence now in Malawi that adults may use treatment doses intended for children, reducing the likelihood of cure and increasing the likelihood and speed of the development of drug resistance. The President's Malaria Initiative will implement a study piloting the effectiveness of different interventions to improve adherence that have been successful in other countries. The successful interventions will be expanded through the development of patient IEC and BCC materials for broad distribution to improve adherence to AL. Patient IEC and BCC will be even more important as the availability moves to the community where distribution will be handled by HSAs with less formal training than health facility clinicians.

Approximately 50% of Malawians access malaria treatment outside health facilities. Even with PMI's FY09 support for the expansion of community case management activities in several districts many Malawians will still have poor access to ACTs. To address ACT access for Malawians who are not reached through health facilities or community Health Surveillance Assistants, PMI will fund a pilot for introducing subsidized ACTs into the private sector. This pilot will inform further efforts to expand ACT access in the private sector.

Proposed Year 3 Activities: (\$1,375,000)

In Year 3, PMI will expand the community-level IMCI pilot program to include ACTs in remote villages in one zone in Malawi. The expansion phase of the pilot will include the provision of ACTs for children under five, technical assistance, implementation support to the districts and health facilities in the selected zone, an IEC campaign specifically targeted at seeking treatment at the community level and publicizing greater access to effective drugs, and increased supply chain management assistance designed at bringing commodities tracking to the HSA-level. Support also will be continued for an IEC and BCC campaign addressing broader issues surrounding malaria treatment will be continued. Finally, the PMI will support important operations research on ACTs adherence and private sector distribution.

Specifically in FY 09, PMI will:

- Procure ACTs for children under five for use in community-based IMCI in one zone (\$200,000)
- Providing technical assistance and support to scale-up community-level ACT distribution to ensure better access to prompt and effective treatment. This includes the procurement of drug boxes, training and supportive supervision for HSAs, and IEC efforts. (\$215,000)
- Continue to implement community-based and mass media-based integrated malaria IEC campaigns (described in other sections) to promote prompt and effect treatment of fever. (\$500,000)
- Support a small grants program to educate communities on the new drug policy and promote regime adherence (integrated campaign with ITN and IPTp promotion). (\$250,000)
- Conduct operations research to pilot interventions to improve patient adherence to ACT regimes. Results will be used to develop IEC and BCC materials that will in order to improve adherence. (\$140,000)

- Conduct operations research to pilot subsidized ACT distribution in the private sector. (\$70,000)

HIV/AIDS AND MALARIA

The HIV/AIDS epidemic in Malawi poses a significant burden with approximately 12% of the adult population ages 15 to 49 living with HIV/AIDS (UNAIDS, Report on the Global AIDS Epidemic, 2007). Malawi received \$45 million dollars for FY 08 from the President's Emergency Plan for AIDS Relief (PEPFAR) to support HIV counseling and testing services, antiretroviral treatment, prevention of mother-to-child transmission services, and laboratory infrastructure and services, and to strengthen monitoring and evaluation capacity. The clinical interactions between HIV and malaria are well described in the literature and highlight the importance of seeking opportunities to integrate malaria interventions into HIV programs. Persons living with HIV/AIDS (PLWHA) are at increased risk of severe malaria and poor treatment outcomes and therefore require aggressive preventive measures.

Progress to Date:

To date, the main concentration of PMI's HIV/AIDS control activities has been to provide free LLINs to all HIV positive women and children under five through ANC and EPI clinics, which covers a significant portion of the HIV positive population vulnerable to malaria.

The programmatic areas in which malaria and HIV/AIDS interventions can be integrated include the following: provision of IPTp in ANC clinics providing Prevention of Mother to Child Transmission services, inclusion of LLINs in home-based care kits for people living with HIV/AIDS, distribution of LLINs in clinics providing antiretroviral treatment, and strengthening of distribution systems for medications and commodities.

Proposed Year 3 Activities: (No additional Cost to PMI)

The President's Malaria Initiative team is currently addressing issues of malaria in people living with HIV/AIDS in two main areas. In terms of tangible contribution, all HIV-positive pregnant women and children under five have access to a free LLIN through routine visits to health facilities. In addition, PMI will work with PEPFAR in Malawi to provide technical support on the distribution of LLINs through home-based care kits for people living with HIV/AIDS and through antiretroviral treatment clinics. PMI will also work to capitalize on other opportunities to distribute LLINs through programs working on both HIV and malaria prevention and care (such as the Peace Corps/ Malawi).

In addition, PMI will continue partnering with PEPFAR in health system strengthening activities which benefit both malaria and HIV disease control interventions equally. PMI and PEPFAR are both currently engaged in strengthening of the supply chain which affects the availability of drugs for routine opportunistic infection treatment. The two Presidential Initiatives are using a common approach, platform and partner(s) for a more cost effective and rational programming. Efforts will also be made to coordinate support to strengthening laboratory services and integrating focused antenatal care interventions.

CAPACITY BUILDING WITHIN THE NATIONAL MALARIA CONTROL PROGRAM

The NMCP was established under the Directorate of Preventive Health Services within the Ministry of Health and is housed at the CHSU in Lilongwe along with other disease-specific control programs. The program has seven positions at the national level to form the core management and coordination team. The Program Manager reports to the Director of Preventive Health Services. There are an additional five zonal officer positions, responsible for the districts in their respective zones. At the district level, the District Malaria Control Coordinator oversees district-based malaria control activities under the District Health Officer. At the current time, the Program Manager position is unfilled, the Deputy Program Manager is on maternity leave and three of the zonal officer positions are vacant. While the NMCP Capacity Review (draft, February, 2008) quoted one Ministry of Health staff member as calling the NMCP 'lean' and 'mean', the absence of present leadership in the two most senior roles is cause for concern.

Progress to Date:

In 2008, PMI supported a detailed review of NMCP capacity to assess the strengths and weaknesses of the program and to lay out a framework for support. The review found that while the NMCP is staffed with hard working dedicated people and is a well-structured framework for malaria control, it is severely understaffed, the existing staff have had limited training in management, and the NMCP lacks access to an adequate operational budget. Staffing is the most apparent issue; over the last five years, the staff increased from two to seven; however, the recently departed NMCP Program Manager held multiple positions in the MOH including the Head of the CSHU and the Acting Director of Preventative Health Services. It can be assumed that the next Program Manager will also likely hold more than one full-time position within the MOH structure. To address the staffing issue, the review recommends three to four of the following seven positions should be established: Monitoring and Evaluation (M&E) Specialist, Case Management Specialist, IEC Specialist, Administrative Officer, Data Management Specialist, Pharmacologist, and Global Fund Grant Manager.

Furthermore, the NMCP Capacity Review suggests working to increase the management capacity among existing staff as a way to increase the productivity of the existing team. There is a need for training in management to help the NMCP direct and coordinate the activities of donors, technical working groups, and other partners. The lack of an operational budget for the NMCP contributes to its inability to manage partners and programs. Although the SWAp has increased resources for malaria control, the concurrent process of decentralization has resulted in fewer resources at the central level. In addition, as Global Fund resources are managed through the SWAp, funds that would otherwise be dedicated solely to the program are difficult to track and do not always reach the intended recipient. As a result, working groups such as the Malaria Subcommittee of the EHP Technical Working group have no funding for meetings to develop policy and review progress.

Proposed Year 3 Activities (\$500,000)

In the area of staffing and management, PMI will support both full time and short term technical assistance. Specifically, PMI will provide full time technical assistant to focus on monitoring and evaluation. An M&E officer will be seconded through a PMI partner and will sit at the NMCP full time. While the individual will act as an NMCP staff member, performance assessments will be conducted by the partner in collaboration with the NMCP. PMI will also sponsor short-term technical assistance to work with the NMCP on site to increase their capacity for time management and project management through organizational and management tools and skills. Also PMI will continue to encourage the GOM to increase the staff and the leadership

capacity at the NMCP to make their program a more successful component of the MOH's platform.

The Malaria Subcommittee of the EHP Technical Working Group needs ongoing strategic support to function in their crucial support role to the NMCP. In addition, districts need support to plan and prioritize malaria control in their budgeting process with this increase in budgetary responsibility through the decentralization process. PMI will fund discrete portions of the relevant technical meetings to facilitate their occurrence on a quarterly basis or ad hoc as necessary. PMI partner budgets will also include funding to include NMCP and relevant MOH partners on monitoring and evaluation and supervision trips to facilitate the NMCP's continuing involvement.

- Continue to provide support for the Secretariat needs of the NMCP for the technical committees and task forces to convene policy and guideline review meetings and operational support for NMCP staff involvement in monitoring, supervision, and evaluation activities of PMI-supported activities. (\$50,000)
- Provide short term technical assistance to enhance the management skills of the current NMCP staff particularly in the areas of organizational development, supervision, planning and coordination. This activity will begin once the new NMCP staff have been hired. (\$150,000)
- PMI will support the secondment of an M&E specialist who will assist NMCP in collection and use of data to inform programmatic monitoring and decision-making. (\$300,000)

SURVEILLANCE, MONITORING AND EVALUATION PLAN

PMI's monitoring and evaluation approach follows closely the MOH's National Malaria M&E Plan for 2007 to 2011. This National Malaria M&E strategy is the first such strategy that the Ministry has developed and it has become an integral part of the Ministry of Health's SWAp M&E Strategy.

At the request of the NMCP, the M&E Technical Working Group developed a comprehensive monitoring and evaluation plan for malaria in Malawi. This plan covers a broad range of issues, including drug quality surveillance, strengthening of sentinel site surveillance for monitoring of impact indicators, vector assessments for IRS and ITN program monitoring, household and facility surveys (including the collection of biomarkers), and post-market surveillance, pharmacovigilance, and resistance testing following the introduction of AL. The M&E strategy complements the Malawi Five-Year Strategic Plan and will assist in mapping and coordinating operational research and M&E activities of all malaria prevention and control partners.

The HMIS system, which is a major source of information on malaria-related cases in Malawi, has major deficiencies, including incomplete reporting of data, lack of timeliness, inadequate data validation, IPTp data limited to did or did not receive (no data on which dose -1, 2, or more has been given), and lack of data disaggregated by age and sex at the district and national level. The World Bank Booster Program-funded HMIS project will be conducting a quality assessment of the HMIS system that should provide guidance on how these weaknesses could be addressed. In addition, a PMI-supported assessment of the management capacity of the NMCP highlighted the lack of program staff to oversee monitoring and evaluation activities. The NMCP states that this is their highest priority among its staffing deficiencies.

The 2004 MDHS conducted during the dry season, the 2004 UNICEF, NMCP, CSR, and CDC national survey of malaria indicators conducted during the rainy season, and the 2006 MICS conducted during the dry season represent the major national household surveys conducted in Malawi over the past three years. Because the MIS was conducted just prior to the launch of the PMI, it will serve as the baseline for PMI. The next DHS, planned for 2009 with results available in 2010, will serve as a key mid-term evaluation of PMI interventions and their impact. A follow-up malaria indicator survey, scheduled for 2011, will serve as the end-point evaluation of the impact of PMI.

Progress to Date:

Although the data from the periodic DHS and MICS national surveys are needed for monitoring progress from year to year, reliable month-to-month data are critical to making sound program decisions and to detect early signs of program weakness. With Year 1 and Year 2 funding, PMI is establishing and strengthening ten sentinel sites in eight districts, with data collection taking place at selected health facilities and villages in the catchment area of each of these facilities. Staff at each site will receive training on data collection, use of data for decision-making and supportive supervision. These staff will monitor the quality of the data collected at the health facility and village levels. In some sites, additional staff persons will be employed using PMI funds to carry out these tasks.

In Year 1 and Year 2, PMI has supported an annual anemia and parasitemia surveys in eight districts (six of which are also districts that have sentinel site). Data collected includes ITN ownership and usage, history of febrile illness and promptness and effectiveness of treatment in children less than five years of age, household socioeconomic markers, and anemia and parasitemia biomarkers for children 6-30 months of age. The results have found that the prevalence of anemia has decreased from 18.4% to 10.5%. Parasitemia has also decreased but the results were not statistically significant.

Results from the Anemia and Parasitemia Surveys*

Indicator	2005 (%)	2007 (%)
Prevalence of anemia (Hb<8g/dl) in children 6-30 months	18.4	10.5
Prevalence of parasitemia in children 6-30 months	18.9	15.0

* All 2007 results represent statistically significant improvements over 2005 except for the reduction in parasitemia, which was not statistically significant.

As survey data is available since 2005, anemia and parasitemia and indicator surveys serve to monitor the rapid scale-up of interventions for impact, to provide early trends in coverage and usage of key interventions for both rural and urban populations during the rainy season, and to evaluate the outcome and impact of PMI-supported IRS activities, which has been carried out in one of the eight survey districts (the other districts will serve as controls for this evaluation). In 2009, there are plans to include indicators on IPTp.

Proposed Year 3 Activities (\$590,000)

In the absence of reliable routine health information systems, monitoring of progress for PMI control activities will rely on a combination of household and health facility surveys and routine data collection at sentinel sites. In 2009, PMI will continue to support the anemia and parasitemia biomarker survey, which provides yearly impact data and intervention coverage and

use trends for the rainy season in selected districts, and will also provide support for the 2009 DHS, which will provide national level impact data every five years including intervention coverage and use trends for the dry season. This year, PMI will also support technical assistance to the NMCP to strengthen M&E capacity (see capacity building section). The following proposed PMI activities are in accordance with the national M&E plan.

- Continue to support full implementation of these sites. In addition to facility-level data, village registers, which have been approved for countrywide use to track community-level indicators, will be monitored in selected villages in the catchment area of the sentinel health facility sites. (\$140,000)⁶
- Support a portion of the upcoming 2009 DHS to obtain mid-term data on coverage of key PMI interventions and assess possible impact on febrile illness and under-five mortality. This survey will include anemia but not parasitemia measurements and PMI will have access to the data for further sub-analysis. (\$300,000)
- Provide funding for an annual Anemia and Parasitemia Survey. In FY09, this survey will include the addition of questions on IPTp. (\$150,000)
- Continue to work with the NMCP and technical partners, especially WHO, UNICEF, and the Malaria Alert Centre, and the M&E TWG to implement the comprehensive M&E plan for malaria described above. (No additional costs to PMI)

STAFFING AND ADMINISTRATION (\$1,720,000)

Two health professionals have been hired to oversee PMI in Malawi, one representing CDC and one representing USAID. In addition, one FSN 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.

The PMI professional staff works together to oversee all technical and administrative aspects of PMI in Malawi including finalizing details of the project design, implementing malaria prevention and treatment activities, monitoring and evaluation of outcomes and impact, and reporting of results. Staff members will report through the USAID Health Team Leader to the USAID Mission Director. CDC Malaria Branch will supervise the CDC staff person technically and administratively. All technical activities will be undertaken in close coordination with the MOH's NMCP and other national and international partners, including the WHO, UNICEF, the Global Fund, World Bank and the private sector.

Because of the need to adhere to specific country policies and USAID accounting regulations, any transfer of PMI funds directly to Ministries or host governments will need to be approved by the USAID Mission Director and Controller.

ANNEXES

1. Table 1 - Timeline of Activities
2. Table 2 – Planned Obligations

⁶ Please note that there is an additional \$50,000 in FY08 funds to support this activity.

3. Table 3 – Assumptions and Estimated Year 2 Coverage Levels
4. Table 4 – Budget Breakdown by Intervention
5. Table 5 – Budget Breakdown by Partner
6. Table 6 – List of CDC TA Visits

Table 2

**President's Malaria Initiative – Malawi
Planned Obligations for FY 09 (\$17,700,000)**

Proposed Activity	Mechanism	Total Budget	Commodities	Geographic area	Description of Activity
IRS					
One round of IRS in Nkhotakota District	IRS IQC Follow-on	\$1,700,000	\$500,000	Nkhotakota District	Spray 62,000 households in Nkhotakota District and provide technical assistance to NMCP on IRS
Entomological Monitoring, vector assessments, insecticide resistance monitoring	CDC/Malaria Alert Center	\$150,000		Seven Districts Targeted for IRS	Provide entomological monitoring for IRS in Nkhotakota District and other areas receiving NMCP-supported IRS.
Subtotal*		\$1,850,000	\$500,000		
ITNs					
Procurement of LLINs	New Social Marketing RFA	\$6,230,000	\$6,230,000	National	Procure 1,030,000 WHOPES-approved LLINs
Distribute LLINs to children under five and pregnant women through ANC and EPI	New Social Marketing RFA	\$715,000		National	Distribution of free LLINs to children under five and pregnant women via EPI and ANC clinics.
National IEC/BCC campaign promoting year round use of LLINs	New Social Marketing RFA	\$300,000		National	National (via Mass Media) IEC/BCC campaign to promote correct and consistent, year round use of LLINs

Small grants program to community-based organizations to encourage the correct and consistent use of ITNS	BASICS	\$175,000		National	Use community-based organizations to encourage correct use of ITNs through interpersonal and community-level approaches
Subtotal		\$7,420,000	\$6,230,000		
IPTp					
Training and supportive supervision of health workers providing IPTp	BASICS	\$250,000		National	Support ongoing IPTp efforts to scale-up proven approaches to increase IPTp uptake including, training and supervision of health workers, job aides, gestational wheels etc.
National IPTp IEC/BCC campaign to increase demand for IPTp	New Social Marketing RFA	\$50,000		National	National IEC/BCC campaign to encourage attendance at ANC and to increase awareness of the importance of IPTp as part of FANC
Small grants program to community-based organizations to increase uptake of IPTp	BASICS	\$175,000		National	Community-based IEC/BCC campaign to increase the uptake of two doses of SP and ANC attendance by late or non-attending pregnant women.
Subtotal		\$475,000	\$0		
Case Management					

Implementation of diagnostics assessment findings	IMAD	\$325,000		National	Implementation of diagnostic assessment (FY 08) recommendations. These could include: training of laboratory technicians, procurement of diagnostic supplies, quality assurance, etc.
OR- Improving provider practices in response to diagnostics test results	CDC/Malaria Alert Center	\$70,000		TBD	Operational research to pilot interventions to improve provider practices in response to diagnostic test results.
Provide technical assistance directly to CMS and RMS to strengthen Supply chain management system	DELIVER	\$675,000		National	Continue providing technical assistance to strengthen existing the pharmaceutical management system through CMS to ensure a consistent supply of AL both at the health facility and for the IMCI program. This includes ongoing support for pharmaceutical management, stock management, inventory control, and capacity building.
Continue providing technical assistance and training to the MOH to strengthen pharmaceutical management at the health facility level	SPS	\$700,000		National	Work with the NMCP to train health workers on case management, provide technical assistance on pharmacovigilance, and improve pharmaceutical management at the health facility level.

Procure and distribute ACTs to health facilities as needed	DELIVER	\$2,000,000	\$2,000,000	National	Procure AL to potentially bridge any gap in AL supply should the Global Fund Round 7 procurement be delayed; if there is no gap, these funds will be reprogrammed at a later date as appropriate
Procure ACTs for community level distribution in one zone	DELIVER	\$200,000	\$200,000	One zone	Procure ACTs for the scale-up of community level IMCI in one zone.
Provide technical assistance and support for the implementation of community-based IMCI with ACTs in one zone	BASICS	\$215,000		One zone	Provide training and supervision for HSAs, procure supplies such as drug boxes and registers, and monitoring of implementation.
Design and implement IEC/BCC campaign on the new community level IMCI program and the continued IEC on ACT treatment policy	New Social Marketing RFA	\$500,000		National	Ongoing IEC/BCC mass media campaign to promote prompt and effect treatment of fever, and to educate communities on the ACT policy, the launch of the community level IMCI program and promote regime adherence
Small grants program to community-based organizations to increase knowledge of the ACT drug policy	BASICS	\$250,000		National	IEC material development and production to promote prompt and effect treatment of fever, and to educate communities on the new drug policy and promote regime adherence

Operations research to improve ACT adherence	CDC	\$140,000		TBD	Operational research to improve ACT adherence practices in country
Operations research to pilot private sector distribution of ACTs	SPS	\$70,000		TBD	Operational research to pilot the effectiveness of subsidized ACT distribution in the private sector
Subtotal		\$5,145,000	\$2,200,000		
NMCP					
NMCP secretariat and technical working group support	SPS	\$50,000		National	Assist the Technical Working Group operations via logistical and operational support
NMCP organizational development	HS20/20	\$150,000		National	Provide NMCP with short term technical assistance for organizational and Management consulting
NMCP M&E Advisor	BASICS	\$300,000		National	Provide NMCP with long-term technical assistance for M&E coordination
Subtotal		\$500,000	\$0		
M&E					
Strengthen Sentinel Sites for ongoing M&E activities	CDC/Malaria Alert Center	\$140,000		10 health facilities in 8 districts	Strengthen capacity to monitor malaria indicators, morbidity and mortality.
Support the 2009 Demographic and Health Survey	New Measure DHS Project	\$300,000		National	Inclusion of the Malaria Module in the 2009 DHS
A&P Indicator Survey	CDC/Malaria Alert Center	\$150,000		8 Sentinel Districts	Conduct and anemia and parasitemia indicator survey in 8 sentinel districts. Survey will

					be expanded to include IPTp questions
<i>Subtotal</i>		\$590,000	\$0		
Staffing and Administration					
CDC Staffing	CDC	\$600,000			
USAID Staffing	USAID	\$600,000			
USAID program support costs	USAID	\$450,000			
CDC TDYs	CDC	\$70,000			
<i>Subtotal</i>		\$1,720,000	\$0		
GRAND TOTAL		\$17,700,000	\$8,930,000		

**Table 3: Year 3 (FY 09)
Estimated Budget Breakdown by Intervention Area**

Intervention	Commodities		Non-Commodities		Total (% of total budget)	
	(\$)	(%)	(\$)	(%)	Total (\$)	
Insecticide-treated Nets	\$6,230,000	84%	\$1,190,000	16%	\$7,420,000	42%
Indoor Residual Spraying	\$500,000	27%	\$1,350,000	73%	\$1,850,000	10%
Case Management	\$2,200,000	43%	\$2,945,000	57%	\$5,145,000	29%
Intermittent Preventive Treatment	\$0	0%	\$475,000	100%	\$475,000	3%
NMCP Support	\$0	0%	\$500,000	100%	\$500,000	3%
Monitoring and Evaluation	\$0	0%	\$590,000	100%	\$590,000	3%
Administration	\$0	0%	\$1,720,000	100%	\$1,720,000	10%
Total	\$8,930,000	50%	\$8,770,000	50%	\$17,700,000	100%

**Table 4: Year 3 (FY 09)
Budget Breakdown by Partner**

Partner Organization	Geographic Area	Activity	Budget
CDC/MAC	Nationwide	Entomological Monitoring, vector assessments, insecticide resistance monitoring Strengthen Sentinel Sites for ongoing M&E activities A&P Indicator Survey OR- Provider Practices related to Diagnostics OR- ACT adherence	\$650,000
SPS	Nationwide	Continue providing technical assistance and training to the MOH to strengthen pharmaceutical management at the health facility level NMCP Secretariat Support OR- User Demand of ACT	\$820,000
DELIVER TO 3	Nationwide	Procure ACTs for community level distribution in one zone Provide technical assistance directly to CMS and RMS to strengthen Supply chain management system Procure and distribute ACTs to health facilities as needed	\$2,875,000
HS 20/20	Nationwide	NMCP Organizational Development	\$150,000
BASICS (Grantees: World Medical Fund, Development Aid from People to People (DAPP), St.	Nationwide	Small grants program to community-based organizations to encourage the correct and consistent use of ITNS ⁷ Small grants program to community-based organizations to increase uptake of IPTp Training and supportive supervision of health workers providing IPTp Small grants program to community-based organizations to increase knowledge of the ACT drug policy	

⁷ PLEASE INSERT LIST OF CBOS

\$1,365,000

Johns Ambulance, Church of Central Africa Presbyterian (CCAP) Livingstonia, Malawi Red Cross Society Project Hope)		Provide technical assistance and support for the implementation of community level IMCI with ACTs in one zone NMCP M&E Advisor	
Staffing and Admin	Nationwide	CDC Staffing USAID Staffing USAID program support costs CDC TDYs	\$1,720,000
IMAD	Nationwide	Implementation of diagnostics assessment findings	\$325,000
New Social Marketing RFA	Nationwide	Procurement of LLINs Distribute LLINs to children under five and pregnant women through ANC and EPI National IEC campaign promoting year round use of LLINs National IPTp IEC/BCC campaign to increase demand for IPTp Design and implement IEC/BCC campaign on the new community level IMCI program and the new ACT treatment policy	\$7,795,000
IRS-TBD	1 targeted	One Round of IRS in Nkhotakota District	\$1,700,000

	district		
DHS TBD	Nationwide	Support the 2009 Demographic and Health Survey	\$300,000
GRAND TOTAL			\$17,700,000