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

SBU Contains Procurement Sensitive Information

PRESIDENT'S MALARIA INITIATIVE

Year Five

FY10

Malaria Operational Plan (MOP)

TANZANIA

November 13, 2009
v1.0

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ACRONYMS

<5MR	Under-Five Mortality Rate
ACT	Artemisinin-based Combination Therapy
ADDO	Accredited Drug Dispensing Outlet
ALu	Artemether-lumefantrine
AMFm	Affordable Medicines Facility-malaria
ANC	Antenatal Care
BCC	Behavior Change Communication
CDC	Centers for Disease Control and Prevention
CCHP	Comprehensive Council Health Plan
COMMIT	Communication and Malaria Initiative in Tanzania
CTC	Care and Treatment Center
DDT	Dichloro-diphenyl-trichloroethane
DLDB	Duka La Dawa Baridi (unlicensed drug venders)
DfID	Department for International Development (U.K.)
DHMT	District Health Management Team
DSS	Demographic Surveillance System
ELISA	Enzyme-linked Immunosorbent Assay
FANC	Focused Antenatal Care
FBO	Faith-based Organization
FELTP	Field Epidemiology and Laboratory Training Program
FSN	Foreign Service National
FY	Fiscal Year
GFATM	Global Fund to fight AIDS, Tuberculosis and Malaria
GoT	Government of Tanzania
HIS	Health Information System
HIV	Human Immunodeficiency Virus
HMIS	Health Management Information System
HPO	Health and Population Office
HSIU	Health Services Inspectorate Unit
IEC	Information, Education and Communication
IHI	Ifakara Health Institute
ILS	Integrated Logistics System
IMALDIA	Improving Malaria Diagnosis Project
IMCI	Integrated Management of Childhood Illness
IMR	Infant Mortality Rate
IPTp	Intermittent Preventive Treatment in pregnancy
IRS	Indoor Residual Spraying
ITK	Insecticide Treatment Kits
ITN	Insecticide-treated Net
IV	Infant Voucher
JICA	Japan International Cooperation Agency
JSI	John Snow, Inc.
LLIN	Long Lasting Insecticide-treated Nets
M&E	Monitoring and Evaluation
MEDA	Mennonite Economic Development Associates
MEEDS	Malaria Early Epidemic Detection System
MIP	Malaria In Pregnancy
MIS	Malaria Indicator Survey
MMTSP	Malaria Medium Term Strategic Plan

MOHSW	Ministry of Health and Social Welfare
MOP	Malaria Operational Plan
MSD	Medical Stores Department
NATNETS	National Insecticide Treated Nets Programme
NBS	National Bureau of Statistics
NGO	Non-governmental Organization
NIMR	National Institute for Medical Research
NMAC	National Malaria Advisory Committee
NMCP	National Malaria Control Program
PEPFAR	President's Emergency Plan for AIDS Relief
PERSUAP	Pesticide Evaluation Report and Safer Use Action Plan
PLHIV	People Living with HIV/AIDS
PMI	President's Malaria Initiative
PSI	Population Services International
RBM	Roll Back Malaria
RCC	Rolling Continuation Channel
RCHS	Reproductive and Child Health Service
RDT	Rapid Diagnostic Test
RHMT	Regional Health Management Team
RNE	Royal Netherlands Embassy
RTI	Research Triangle Institute
SP	Sulfadoxine-pyrimethamine
SPA	Service Provision Assessment
SPS	Strengthening Pharmaceutical System Project
TDHS	Tanzania Demographic and Health Survey
TDY	Temporary Duty
TFDA	Tanzania Food and Drug Authority
THMIS	Tanzania HIV and Malaria Indicator Survey
TNM	Tanzania Net Manufacturer
TNVS	Tanzania National Voucher Scheme
U5CC	Under Five Coverage Campaign
UCC	Universal Coverage Campaign
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
USG	United States Government
WHO	World Health Organization
WHOPES	World Health Organization Pesticide Evaluation Scheme
WVT	World Vision Tanzania
ZTC	Zonal Training Centre (renamed Zonal Resource Centres)
ZMCP	Zanzibar Malaria Control Program
ZAMRUKI	Zanzibar Malaria Research Unit of Karolinska Institute

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A. EXECUTIVE SUMMARY

United Republic of Tanzania – Year Five

In June 2005, the United States Government (USG) selected the United Republic of Tanzania (including the Mainland[1] and Zanzibar) as one of the first of three countries to be included in the President's Malaria Initiative (PMI). Activities within the PMI Tanzania Malaria Operational Plan for fiscal year 2010 (FY10) are described separately for Mainland Tanzania and Zanzibar since each of these administrative areas has an independent malaria control program.

Ninety three percent of the population (41 million persons) are at risk for malaria on the Mainland; all 1.2 million persons in Zanzibar (100%)[2] are at risk. Annual malaria deaths in Tanzania are estimated to be 60,000, with 80% of these deaths among children under five years of age. Approximately 14-18 million clinical malaria cases are reported annually by public health services. Over 40% of all outpatient attendances are attributed to malaria.

The most recent data for malaria interventions in Tanzania comes from the 2007-08 Tanzania HIV/AIDS and Malaria Indicator Survey (THMIS). In this survey, 38% of Mainland households owned at least one ITN, with 25% of children under five and 26% of pregnant women sleeping under an ITN. The overall prevalence of malaria parasitemia was 18.1% in 2007/2008. In Zanzibar, ITN ownership and use have shown marked improvement. On these islands, 72% of households own at least one ITN and estimates of use among children under five and pregnant women were 59% and 51%, respectively. Malaria prevalence in Zanzibar was reported at 0.8% in the 2007-08 THMIS survey.

Tanzania has multiple grants from the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM) (Round 1, 4, 7, Rolling Continuation Channel, and 8). These awards have provided most of the funding for ACTs and the ITN distribution on the Mainland. The National Malaria Control Program (NMCP) is currently implementing a campaign to provide free long-lasting insecticidal nets (LLINs) distribution to all children under five years of age. The Round 8-funded effort to expand LLIN coverage to all remaining sleeping spaces on the Mainland will commence by late 2009. PMI is working with all donors and the NMCP to ensure that funding and activities are aligned with and complement the national strategy.

The $52 million PMI MOP for FY10 was developed with full participation of the NMCP on the Mainland and the Zanzibar Malaria Control Programme (ZMCP). Separate consultative meetings with malaria control stakeholders were held in the Mainland and Zanzibar in March-April 2009. An iterative process with NMCP and ZMCP followed, resulting in agreement on all activities, budgets and timelines. The proposed FY10 MOP has been reviewed and approved by NMCP and ZMCP.

The major activities to be supported by PMI with FY10 funding include the following:

[1] Official Government of Tanzania documents and all DHS and MIS documents capitalize the "M" in Mainland.

[2] Tanzania National Projections Vol. XII based of 2002 Census. National Bureau of Statistics – Mainland and Chief Government Statistician – Zanzibar. Nov 2006.

Insecticide-treated Nets: After much delay, the Mainland is continuing with implementation of its universal coverage strategy. This strategy began with the launch of the Under Five Coverage Campaign, a free net distribution for all children less than five years of age in late 2008 and is ongoing through early 2010. The campaign is jointly funded by the GFATM, the World Bank, PMI and Malaria No More, with PMI supporting the purchase of approximately 1,000,000 LLINs out of a total of 7,200,000 LLINs. Following the Under Five Coverage Campaign, the Government of Tanzania expects to distribute an additional 14.6 million LLINs, targeting 2.5 LLINs per household. The Universal Coverage Campaign (UCC) is expected to take place in early 2010. While the GFATM is expected to cover the majority of UCC costs, in 2009 PMI will support this campaign by procuring approximately 1,000,000 LLINs for Kagera Region and supporting use promotion "hang-up" campaigns in 2009 and 2010. On conclusion, it is expected at least 85% of all Tanzanians, including vulnerable groups such as pregnant women and children under five, will be sleeping under an LLIN. Zanzibar is also moving towards a universal coverage strategy that PMI will support with procurement of approximately 65,000 LLINs.

PMI has also been supporting the Tanzania National Voucher Scheme (TNVS), a public-private partnership for pregnant women and caregivers of infants to redeem vouchers at nearby ITN retailers. Although redemption rates are expected to decline as free campaigns begin, PMI will support the TNVS as a way of sustaining universal coverage.

Indoor Residual Spraying: On the Mainland, PMI supported three rounds of IRS in Muleba district and two rounds in Karagwe district with over 90% coverage (protecting 698,122 people) in both districts. Spraying on Mainland has significantly reduced the malaria prevalence, all cause hospital admissions, and deaths attributable to malaria at a sentinel surveillance site in Muleba district. Zanzibar has received four rounds of IRS with the last round targeting 204,319 houses and protecting 1,085,912 of the 1.2 million people in Zanzibar. This has contributed significantly to bringing malaria prevalence under 1% and advancing Zanzibar to a pre-elimination phase in malaria control.

In FY10, PMI will expand IRS on the Mainland to cover 18 districts in the Lake zone, an area with some of the highest malaria prevalence in Tanzania. The spraying will target 1,150,000 houses to protect 6.2 million people, approximately 14% of the total Mainland population. Although Zanzibar is in the pre-elimination phase, it remains vulnerable to malaria outbreaks because the disease surveillance system is still in its infancy and ITN coverage and use are not yet optimal. PMI will continue to support Zanzibar with a fifth round of IRS in eight priority districts, targeting 132,000 structures and protecting 712,000 people. IRS will continue in Zanzibar and the two Mainland districts of Muleba and Karagwe until there is universal coverage of ITNs and surveillance systems are functional and able to detect malaria outbreaks for timely action.

Case Management: Since 2006, PMI has supported procurement of ACTs and RDTs, training in case management and malaria diagnostics, and management of severe malaria. PMI investment in malaria diagnostics in FY09 and FY10 will focus on training, equipping, and certifying microscopists for parasitological diagnosis. PMI will also support establishment of an RDT and microscopy quality assurance and quality control system on the Mainland. In Zanzibar, PMI will procure RDTs for public health facilities and will expand the use of RDTs in the private sector and for active case detection.

PMI will procure up to eight million ACT treatments to cover the gap from the end of 2009 when GFATM Round 4 funds run out through September 2010 when a new ACT supply is expected. PMI will also continue to strengthen the logistics management system, including

end-use verifications for monitoring antimalarial drug availability and case management practices.

In FY10, PMI investment in the private sector will support expansion of ACTs through Accredited Drug Dispensing Outlets (ADDO) and strengthening the capacity of the Tanzanian Food and Drug Authority to develop a monitoring and reporting system for ADDOs. PMI will also continue to support Zonal Resource Centers to train 1,047 nurses in the remaining seven Mainland zones and support the MOHSW to update the training curriculum for health professions involved in malaria treatment at health facilities. Additionally, to improve case management outcomes at health facility level, PMI will support service delivery to improve malaria diagnostics and case management in four Mainland regions with the highest malaria and child mortality rates. In Zanzibar, PMI will continue to support and strengthen malaria case management and diagnostics in both public and NGO health facilities.

Intermittent Preventive Treatment in pregnancy (IPTp): The 2007-2008 THIS/MIS showed that IPTp uptake improved from 22% (2004 DHS) to 30%. PMI funding for IPTp has focused on health worker training and a facility-level quality improvement program. Over 3,200 providers from 1,628 Mainland facilities have been directly trained in Focused Antenatal Care (FANC) and quality improvement with many more reached through cascade training. FY09 PMI funds will accelerate FANC rollout to an additional 1,500 new providers (from 1,125 facilities) in all regions of Tanzania — resulting in 93% of all ANC providers and 70% of ANC facilities with trained providers.

With FY10 funds the program will shift focus to help regional and district authorities provide supportive supervision to improve the quality of ANC services. Efforts will ensure: ANC clients are adequately counseled on the importance of IPTp; early ANC attendance will result in full IPTp coverage; SP for IPTp is consistently available at ANC clinics; and that reporting of directly observed IPTp in the ANC is improved. Funds will support additional training of new staff so that 100% of ANC facilities have at least one FANC-trained provider.

Epidemic Surveillance and Response: PMI will continue to strengthen malaria surveillance and reporting on Zanzibar to identify and respond to sudden increases in malaria transmission. Health facility-based early epidemic detection systems currently operating in 52 health facilities will be strengthened and expanded to include private health facilities. Active case detection will further reduce ongoing transmission. On the Mainland, two areas warrant additional attention to epidemic detection and response: Dar es Salaam and Kagera Region. Although transmission in Dar es Salaam has dropped in recent years, it remains surrounded by high transmission areas. Kagera Region is expected to see similar drops in transmission due to broader application of IRS and rapid scale-up of universal LLIN coverage. Lessons learned from Zanzibar will be used to implement malaria early epidemic detection systems in these areas.

Building NMCP Capacity: In FY10, PMI will continue to provide technical assistance to NMCP and ZMCP for policy development, program management, and monitoring. This capacity strengthening will be extended to District Health Management Teams to support the District Malaria/IMCI focal persons to plan, implement, and monitor malaria activities in their districts. Over the last year, PMI has supported the placement of 11 Tanzania trainees at the Tanzania Field Epidemiology and Laboratory Training Program (TFELTP). These trainees have participated in various malaria activities of NMCP and ZMCP, including

malaria surveillance and out break investigation. In FY10, PMI will continue to co-fund and place 26 Tanzania epidemiologists in the TFELTP.

Monitoring and Evaluation: Significant advances have been made regarding timing and planning of future nationally representative household surveys. A written M&E plan has been finalized following a consultative process with many malaria stakeholders in Tanzania. In FY10, PMI will continue to support the expansion and maintenance of health facility-based sentinel surveillance on the Mainland and Zanzibar. Planning will begin during FY10 for the implementation of a malaria indicator survey during the high transmission season in 2011.

Budget: The FY10 budget for Tanzania is $52 million. The Mainland accounts for $46,770,000 and $5,230,000 is allocated to Zanzibar. The commodity portion of the total budget is 41%. Of the total allocated, 7.98% is ITNs, 42.79% is for IRS, 37.24% is for case management and IPTp, 5.86% is for monitoring and evaluation, and 3.54% for management and administration.

B. PRESIDENT'S MALARIA INITIATIVE

In June 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 the President's Malaria Initiative (PMI) is to reduce malaria-related mortality by 50% after three years of full implementation in each country. This will be achieved by reaching 85% coverage of the most vulnerable groups – children under five years of age and pregnant women – with proven preventive and therapeutic interventions, including insecticide-treated mosquito nets (ITNs), indoor residual spraying (IRS), intermittent preventive treatment for pregnant women pregnancy (IPTp), and artemisinin-based combination therapy (ACT).

The President's Malaria Initiative (PMI) began in three countries in 2006: Angola, Tanzania, and Uganda. In 2007, four countries were added: Malawi, Mozambique, Senegal, and Rwanda. In 2008, eight more countries were added to reach a total of 15 countries covered under the PMI. Funding began with $30 million in fiscal year (FY) 06 for the first three countries; increased to $160 million in FY07 and to $300 million in FY08 and FY09, and is expected to reach $500 million in 15 countries by FY10.

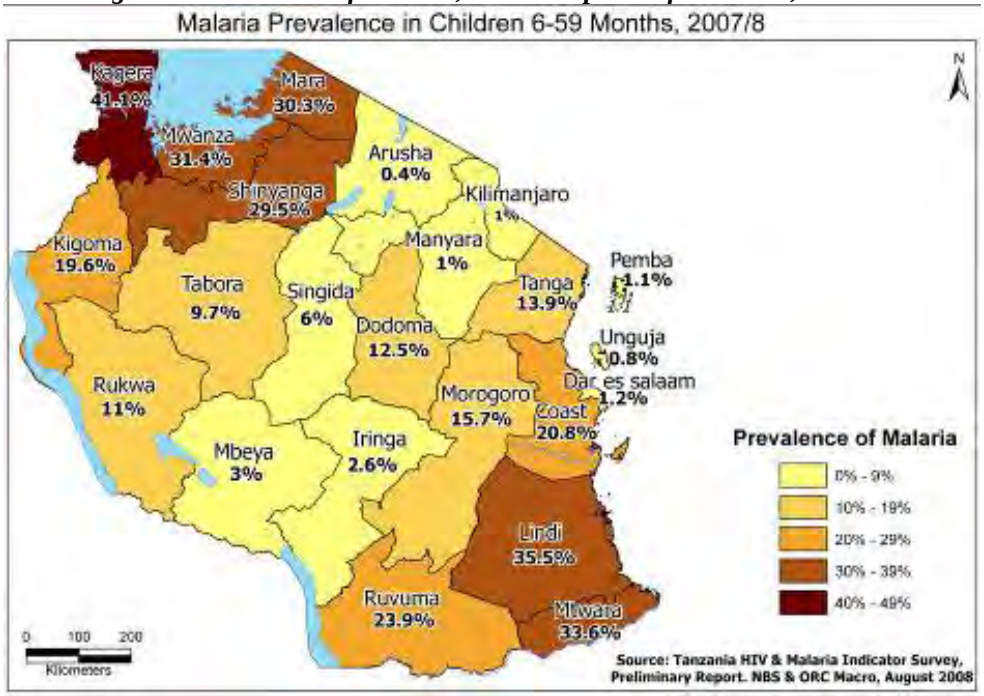
The USG is committed to working closely with host governments and within existing national malaria control plans. Efforts are coordinated with other national and international partners, including the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM), Roll Back Malaria (RBM), the World Bank Malaria Booster Program, and the non-governmental and private sectors, to ensure that investments are complementary and that RBM and Millennium Development Goals are achieved. Malaria operational planning sessions for the PMI, as well as subsequent evaluations, are highly consultative and held in collaboration with the national malaria control program and other partners.

This document presents a detailed PMI implementation plan for FY10 in Tanzania. It briefly describes the current status of malaria control and prevention policies, planned interventions, challenges and unmet needs, and the planned Year 5 PMI activities. The operational plan was developed in close consultation with the National Malaria Control Programme (NMCP) and the Zanzibar Malaria Control Programme (ZMCP) and the participation of many national and international partners involved in malaria prevention and control in Tanzania. The total amount of PMI funding requested for Tanzania is $52 million for FY10.

C. MALARIA SITUATION

Malaria epidemiology in the United Republic of Tanzania must be considered in the context of two very different transmission settings: the Mainland and Zanzibar. On the Mainland, 93% of the population lives in areas where *Plasmodium falciparum* is transmitted. Prevalence of malaria among children 6 to 59 months of age ranges from 0.4% in the elevated region of Arusha to 41.1% in the northwestern region of Kagera, with a national prevalence of 18.1% (Figure 1). The combined prevalence of malaria on Zanzibar (Unguja and Pemba together) was 0.8% in 2007-08.

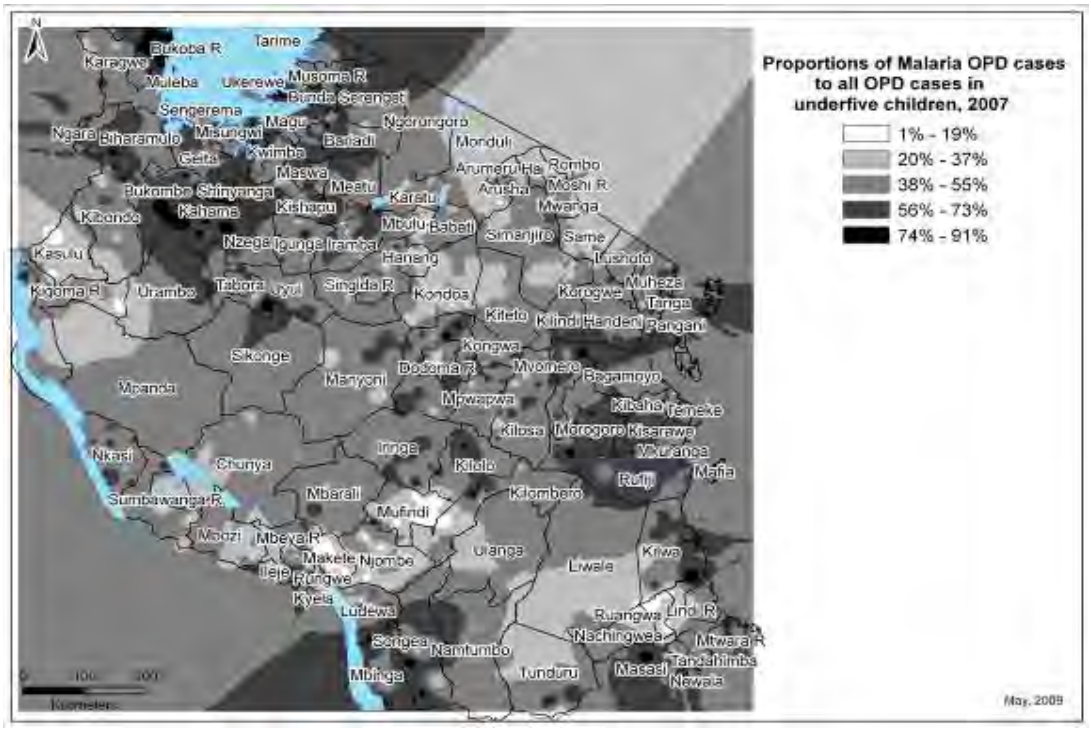
Figure 1: Prevalence of Malaria, United Repubic of Tanzania, 2007-08



Unstable seasonal malaria transmission occurs in approximately 20% of the country, while stable malaria with seasonal variation occurs in another 20%. The remaining malaria endemic areas in Tanzania (60%) are characterized as stable perennial transmission. *P. falciparum* accounts for 96% of malaria infection in Tanzania. The principal malaria vector in the Mainland and Zanzibar is *Anopheles gambiae*.

The population size of Tanzania (41 million) and level of malaria endemicity results in 38 million persons at risk for this disease—the largest number among all 15 PMI countries. Health facilities report malaria as the leading cause of outpatient and inpatient health care visits and the primary cause of deaths among children. Over 40% of all outpatient attendances are attributable to malaria, resulting in approximately 16 million clinical malaria cases (Figure 1). NMCP estimates that 70,000 malaria deaths occur annually in Tanzania among all ages (extrapolated from under-5 mortality rate in 2004-05 TDHS, size of under-5 population, and the proportion of deaths attributable to malaria).

Figure 2: Proportions of Malaria Out-Patient Department Cases in Children Under Five Years



Indicators for the Millennium Development Goals are improving. Population-based household surveys conducted in 1999, 2004-05, and 2007-08 show significant declines in infant mortality rates and under-five mortality rates over the past 10-15 years (Table A).

Table A:
Infant and Under-five Mortality Rates for Five year Periods Preceding Household Surveys, Tanzania

	1999 DHS	2004-05* DHS	2007-08* MIS/THIS[3]
Infant mortality rate (95% C.I.)	99.1 (84.9-113.3)	68.0 (60.7-75.3)	57.7 (50.4-65.0)
Under-five mortality rate (95% C.I.)	146.6 (128.4-164.8)	112.0 (102.6-121.5)	91.4 (82.7-100.2)

The 2004-05 Tanzania Demographic and Health Survey (DHS) showed a significant decline in infant mortality rate from approximately 100 per 1000 live births in 1999 to 68 per 1000 live births in 2004. More recently, the 2007-08 MIS infant mortality estimate was 58 per 1000 live births. Similarly, the under-five mortality rate declined from 147 deaths per 1000 live births in 1999, to 112 in the 2004 DHS and 91 per 1000 in the 2007-08 MIS. While some of the reductions in infant and under-five mortality coincide with increased coverage of key malaria interventions, it is difficult to quantify how much is due to reductions in malaria-specific mortality.

[3] The confidence intervals around the THIS/MIS estimates of under-five all-cause mortality are given in the appendix of the final THIS/MIS report.

The 2007-08 infant mortality rate estimates vary across socio-demographic strata. The Northern and Western Zones[4] and Eastern Zone in the Mainland experienced the extremes in this mortality: 63 and 103 per 1000 live births, respectively. Cohorts classified in the richest wealth quintile experienced an infant mortality rate of 73 per 1,000 live births while for the poorest quintile the figure was 82. The infant mortality rate was also strongly associated with mother's education, with rates of 64 per 1,000 live births among women with secondary education and 85 for women with no education. These data suggest that further gains in infant mortality need to come from intensified efforts to reach populations living in certain Zones, particularly among the poorest and least educated.

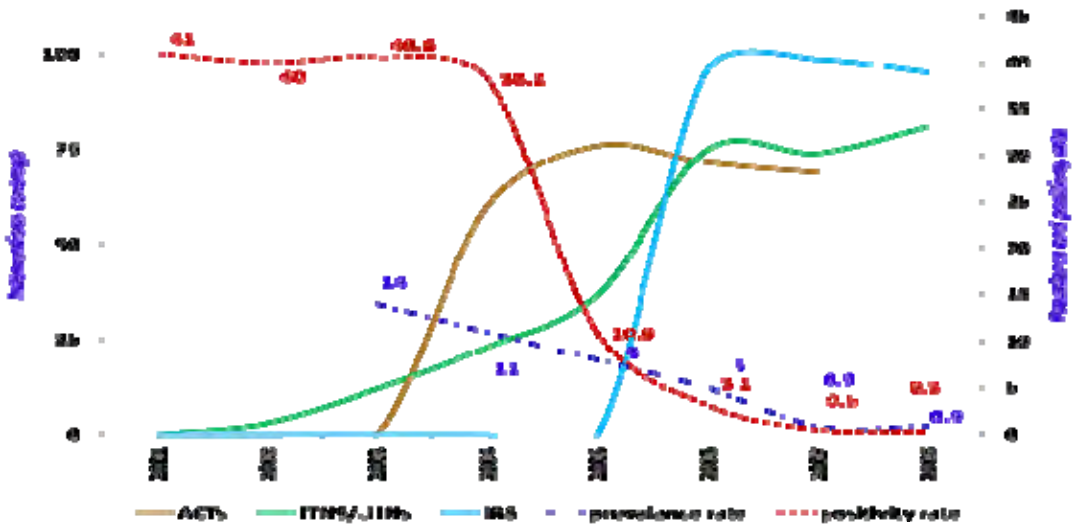
The 2007-08 MIS suggests GFATM and PMI-supported malaria control interventions have made progress. Prevalence of malaria parasitemia among children 6 to 59 months of age was 18.1% on the Mainland. While no earlier national estimates of parasitemia exist for comparison purposes, this estimate was lower than what would be expected in the absence of a strengthened malaria control infrastructure.

In Zanzibar, the current malaria prevalence of 0.8% (2007-08 THMIS) indicates that Zanzibar has controlled malaria on the two islands of Unguja and Pemba (slide positivity rate <5%) and is in the pre-elimination phase. Zanzibar's control of malaria is attributable to the cumulative implementation of three highly effective interventions of prevention, case management, and malaria in pregnancy. Since 2006, Zanzibar has implemented four rounds of IRS, with each round reaching over 95% of the targeted houses for spraying, and protecting over a million people. The IRS coverage for the 2007-08 MIS was 94%, compared to 4% in the Mainland. Zanzibar has also achieved impressive levels of ITN coverage and ACT use in health facilities. Compared to the Mainland, where the 2007-08 MIS showed only a 15 percentage point increase over the 2004-05 TDHS estimate for household ownership of at least one ITN, Zanzibar achieved a 2.6 fold increase in ownership of an ITN. Intermittent preventive treatment of malaria in pregnancy shows signs of improvement. In the 2007-08 THMIS, IPTp-2 coverage increased to 30% on the Mainland and to 55% in Zanzibar, up from 22% and 14% in 2004 DHS, respectively.

From 2003 to 2008, Zanzibar rapidly scaled up delivery of malaria control interventions in the two islands. The prevalence rate from annual cross sectional surveys in two sentinel districts (North A district in Unguja and Micheweni district in Pemba) and the slide positivity rate (SPR) from six malaria sentinel surveillance sites shows substantial decrease in malaria prevalence as ACT availability increased and IRS/ITN coverage indicators increased over time (Figure 3). Confirmatory diagnosis through RDTs, in particular, was expanded beginning in 2006 with PMI and subsequent GFATM support.

[4] Mainland Tanzania is divided into 8 zones, 21 regions and 114 districts and 132 government councils. Zanzibar has 5 regions, 10 districts and 10 government councils.

***Figure 3. Slide Positivity Rate in Relation to Intervention Coverage* (%) in Zanzibar (2003-2008)**



Source: Zanzibar Malaria Control Program

In spite of these achievements, there are still areas of concern. While household ownership of at least one ITN increased between 2004-05 and 2007-08, the current estimates for ITN use among pregnant women and children under five remain below the Abuja targets (Table B).

Table B: ITN Coverage Indicators:	Mainland		Zanzibar	
	2004-05* TDHS (%)	2007-08* MIS (%)	2004-05* TDHS (%)	2007-08* MIS (%)
% Households at least one ITN	23	38	28	72
% Pregnant women sleeping under ITN	15	26	20	51
% Under fives sleeping under ITN	16	25	22	59

*TDHS and MIS field activities both conducted between Oct and Feb of each year.

In the 2007-08 THMIS, anemia prevalence in both Mainland and Zanzibar was 8% and 5%, respectively. This suggests the Integrated Management of Childhood Illness (IMCI) strategy needs to be strengthened to ensure that childhood malaria and other febrile illnesses in Zanzibar and the Mainland are properly addressed in an environment of reduced malaria prevalence.

Although Zanzibar has reached the pre-elimination phase, the situation is fluid and interventions require continued attention to prevent a rebound of malaria to pre-control levels. This calls for continued investment in resources for the major interventions and heightened epidemiological and entomological monitoring. IRS will be continued until universal ownership and use of ITNs is achieved, the epidemic surveillance system is more functional, and cross border monitoring with the Mainland is established. Rational use of ACTs has to be improved through correct malaria diagnosis and prescription practices.

Finally, as Zanzibar continues to accomplish dramatic reductions in malaria cases it will become increasingly important for malaria controllers to mount rapid responses to sudden surges in malaria transmission. A malaria early epidemic detection system (MEEDS) was implemented at ten health facilities in Pemba and Unguja in mid-2008 and expanded to 42 additional facilities in late 2008. Weekly data are reported to ZMCP and instances of increased malaria transmission are regularly investigated. Continued investment in MEEDS is critical if Zanzibar is to maintain the current low malaria prevalence and achieve lower levels in the future. MEEDS will enable ZMCP to detect and respond to malaria outbreaks in a timely manner, before transmission expands more extensively.

D. NATIONAL MALARIA CONTROL PROGRAMMES

Two separate Ministries of Health operate in the United Republic of Tanzania, one each for the Mainland and Zanzibar. Each Ministry has its own national malaria control program with staff reporting to their specific leadership. The NMCP serves only the Mainland (population 39.8 million) while the ZMCP serves Zanzibar (population 1.2 million).

▪ *Mainland*

Under the leadership of a Program Manager, the NMCP is organized into five cells (organizational units) including case management, vector control, ITN, information and education, and monitoring and evaluation (including operations research). Each cell consists of a Team Leader and two to four staff members. Several support staff serve all five cells. The organizational units of ZMCP are similar and have a comparable number of staff.

The Mainland's NMCP has established several committees to coordinate and direct national malaria control policies and priorities. The National Malaria Advisory Committee (NMAC) meets twice a year. The NMAC offers NMCP technical advice on malaria control. There are four sub-committees of NMAC: case management, vector control, monitoring and evaluation, and information, education and communication (IEC). The ITN strategies and policies are coordinated through the National Insecticide Treated Nets (NATNETS) Programme, with a steering committee. A diagnostics working group guides NMCP policies/strategies for strengthening and expanding malaria diagnostic capacity. In early 2009, an M&E technical working group was formed following numerous consultative meetings. PMI is represented in each of these working groups.

The recent NMCP *Malaria Medium-Term Strategic Plan 2008 – 2013* states that the burden of malaria morbidity and mortality will be reduced by 80% from current levels by the end of 2013. The NMCP has adopted the WHO-recommended strategies to meet these objectives: 1) appropriate management of febrile episodes in homes and health facilities (in the case of health facilities treatment is with an ACT); 2) protecting pregnant women against malaria by using IPTp; 3) integrated vector control which includes encouraging populations at risk to sleep under ITNs and efforts to implement IRS. Larviciding is also being carried out in the Mainland.

Operationally, the Mainland strategy involves behavioral change and communication, implementation of the IMCI strategy in households and communities (including proper fever management in children under five), training of private vendors for improved distribution of ITNs, use of a subsidized voucher system for vulnerable groups to make ITN ownership less expensive, use of IPTp and ITNs by pregnant women, and establishment of early warning systems for malaria epidemics. Beginning in late 2008, the NMCP began to implement their

national campaign of free distribution of LLINs to all children under five years of age (funded primarily by GFATM, PMI, and World Bank). Upon completion of GFATM Round 8 contract negotiations (estimated to be late 2009) another national campaign of free LLIN distribution will begin, with the goal defined as an LLIN for every remaining sleeping space.

Financing of malaria activities for the Mainland is highly dependent on outside sources. According to the gap analysis prepared as part of the GFATM Round 8 proposal, the GoT malaria budget allocation on the Mainland has been drastically reduced from a high of $5.2 million (2006-2007) to $2.8 million (2007-2008) as GoT financing has shifted to support other priorities. The PMI is actively engaging with the Minister on this issue to determine the actual budget allocation for 2010.

The NMCP was partly successful in its submission to GFATM under the Rolling Continuation Channel (RCC) grant (see Table B). Unfortunately, the proposal budget and scope of work was reduced to $59 million to finance only two years of the pregnant woman LLIN voucher. The NMCP was also successful with its GFATM Round 7 proposal request for $52.5 million for: 1) increased coverage of malaria parasitological diagnosis through the introduction of rapid diagnostic tests (RDTs) where microscopes are unavailable; 2) increased access to ACTs through subsidy in the private sector; and: 3) improved quality of care for severely ill patients; and 4) monitoring and evaluation. The NMCP was also awarded the GFATM Round 8 grant to support nationwide universal coverage of LLINs.

The World Bank is another donor supporting the NMCP. A credit for $60 million dollars was approved (July 4, 2007) by the World Bank to support the health sector. Of the total, $25 million has been allocated to support the malaria program—approximately $10.2 million for a national re-treatment campaign ($8.2 million for insecticide and $2 million for implementation and logistics costs) and $14.8 million to support the catch-up campaign for children under five.

Table C*
Major External Sources of Funding for Malaria Control
Mainland

Source	Amount ($Millions)	Period Covered	What is covered?
GFATM Round 4	54.2	Jun 05 – May 07	Provision of ACTs (Received approval for second phase).
GFATM Round 7	52.5	2008 – 2013	Improved malaria diagnosis through the introduction of RDTs; Access to ACTs in the private sector; Improved quality of care in children with severe malaria; Monitoring and evaluation.
GFATM RCC	59.8	2008 – 2011	Support to the pregnant woman voucher; LLIN catch-Up campaign for under fives; BCC; and monitoring and evaluation. Program will be evaluated after two and one half years to assess whether to continue voucher scheme support.
GFATM Round 8	113.3	2009 - 2014	Attain universal coverage through distribution of 14.6 million LLINs to 8.7 million households through a one-time mass “catch-up” campaign. Strengthen regional malaria IMCI focal persons on monitoring and evaluation.
DfID/Royal Netherlands Embassy (RNE)	7.0	2007 - 2011	Insecticide subsidy

Table C*
Major External Sources of Funding for Malaria Control
Mainland

Source	Amount ($Millions)	Period Covered	What is covered?
World Bank	25	Jul 07 – Dec 09	Under-five LLIN catch-up campaign, national re-treatment campaign.
Italian Cooperation 2	1.3 *Proposed*	Jan 08 – Dec 09	Activities not yet determined.
Swiss Development Corporation	1.5	Sep 08 – Aug11	ITN Cell within NMCP
Japanese International Cooperation Agency	.1	Jan 07 – Dec 09	Establishment of acute pediatric care units in tertiary and regional hospitals.

* Adapted from GFATM Round Seven proposal. National Malaria Control Programme, Ministry of Health and Social Welfare. July 2007.

▪ *Zanzibar*

The ZMCP has no locally-organized, sanctioned committees that provide ongoing expert guidance and advice. However, in late 2008 the Clinton Foundation (with numerous consultants) began to assist Zanzibar with developing a long-term, costed malaria elimination plan. PMI may assist the Zanzibar MOHSW efforts to develop a charter for an Advisory Council for Malaria Elimination in Zanzibar. This Council will serve as a standing technical body to provide MOHSW and ZMCP expert advice and recommendations regarding the elimination of malaria from Zanzibar.

The Zanzibar Strategic Plan 2008-2012 targets a 70% reduction in health facility-based morbidity attributable to malaria (from 35% in 2006 to 10% in 2012). This target will be reached by maintaining high coverage with effective interventions and establishment of solid epidemic detection and response. By end of 2008, Zanzibar had successfully implemented four rounds of IRS with a high coverage of over 95% of houses and protection of over a million people. LLINs were distributed free to pregnant women and children under five years of age in 2006. Zanzibar has GFATM Round 8 funding to implement universal LLIN coverage by 2010.

According to ZMCP, the MOHSW (Zanzibar) budget is approximately $6.1 million, with approximately $100,000 allocated to malaria control. GFATM Round Six remains an important funding source for Zanzibar malaria activities, with expected contributions of $1.8 million and $1.6 million for 2007 and 2008, primarily for ACTs and LLINs. PMI has provided approximately $3 million per year since 2006, focusing on IRS. The ZMCP also receives GFATM Round 8 money for ACT procurement for public and private health facilities, training and supervision of health workers in case management, and diagnostic capacity and RDT procurement. The grant also includes support for IPTp and universal LLIN distribution, as well as other system and community strengthening activities. The total budget requested in the ZMCP Round 8 proposal was $19.6 million.

E. CURRENT STATUS OF MALARIA INDICATORS

Two nationally representative population-based surveys and other data sources provide intervention coverage estimates for key malaria outcome indicators. Tables D and E describe what is currently known for the Mainland and Zanzibar. Several Mainland Tanzania coverage targets remain below desired levels as indicated by the 2007-08 MIS (8,500 households). In Zanzibar ITN coverage is high, but below PMI targets, following a 2006 free LLIN distribution campaign for pregnant women and children under five years of age. The 2004-05 Tanzania DHS provides baseline estimates for the main indicators of interest.

Table D: Coverage Indicators Mainland and Zanzibar

Coverage Indicator	Mainland 2004-05 TDHS (%)	Mainland 2007-08 MIS (%)	Zanzibar 2004-05 TDHS (%)	Zanzibar 2007-08 MIS (%)
% Households with at least one ITN	23	38	28	72
% Children under five who slept under an ITN the previous night	16	25	22	59
% Pregnant women who slept under an ITN the previous night	15	26	20	51
% Women who received two or more doses of IPTp at ANC visits during their last pregnancy	22	30	14	52
% Children under five years old with fever in last two weeks who received any antimalarial treatment.	58	57	61	66
% Children under five years old with fever in the last two weeks who received treatment with ACTs within 24 hours of onset fever.	-	14	-	8.4
% of targeted houses adequately sprayed with a residual insecticide in the last 12 months	-	xx†	-	xx†

†RTI activity reports (Mainland includes two districts only: Muleba sprayed in January 2009 and Karagwe sprayed in March 2009; Zanzibar data reflect mm 2009 round of spraying)
‡90% of Mainland government facilities reported no stock-out in Jan-Mar 2007, supervision summary reports (NMCP). 100% of Zanzibar government facilities reported no stock-out in May 2007, the time of the ZMCP biennial survey.

Table E: Impact Indicators Mainland and Zanzibar

Impact Indicator	Mainland 2004-05 TDHS	Mainland 2007-08 MIS	Zanzibar 2004-05 TDHS	Zanzibar 2007-08 MIS
All-cause under 5 mortality rate	133	112	101	79
Parasitemia prevalence (6-59 mo. old)	-	18.1%	-	0.8%
Anemia (Hb<8 g/dL) prevalence (6-59 mo. old)	11.1%	7.8%	6.4%	4.7%

F. GOALS & TARGETS OF THE PRESIDENT'S MALARIA INTIATIVE

The goal of PMI is to reduce malaria-associated mortality by 50% in Tanzania. By the end of 2010, PMI will assist Tanzania to achieve the following targets among persons at risk for malaria:

- More than 90% of households with a pregnant woman and/or children under five will own at least one ITN;
- At least 85% of children under five will have slept under an ITN the previous night;
- At least 85% of pregnant women will have slept under an ITN the previous night;
- At least 85% of houses in geographic areas targeted for IRS will have been sprayed;
- At least 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 six months;
- At least 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;
- At least 85% of government health facilities will have ACTs available for treatment of uncomplicated malaria;
- At least 85% of children under five with suspected malaria will have received treatment with ACTs within 24 hours of onset of their symptoms.

G. EXPECTED RESULTS – Year Five

Prevention:

- In 2010, approximately 14.6 million LLINs will be distributed in Mainland Tanzania during the Universal Coverage Campaign, of which approximately 1 million will be provided by PMI/Tanzania. This is in addition to the 7.2 million LLINs that are being distributed in 2009 to children under five years of age. By early 2011 Tanzania will have distributed approximately 21.8 million LLINs (an estimated 2.5 LLINs per household), reaching universal coverage.
- By early 2011, at least 85% of all Tanzanians will be sleeping under an LLIN.
- At least 85% of the targeted houses in eighteen districts targeted for IRS in Lake Zone regions, with the some of the highest rates of parasitemia, will have been sprayed, protecting 6.2 million residents approximately 14% of Mainland total population.
- In 2010, an additional 1,950 ANC health workers will have been trained in FANC/IPTp.

Treatment:

- In 2010, approximately 8.2 million ACT treatments will have been procured for public sector.
- In 2010, 200 microscopes will have been procured and 200 microscopists will be trained and certified in malaria diagnosis and internal quality assurance nationwide.
- By 2011, all 21 regions in Mainland will be converted to the Integrated Logistic System (ILS) for distribution of ACTs.
- By 2011, an additional 1,047 of health workers will have been directly trained in comprehensive malaria case management.
- In 2010, 21 Regional and 131 District IMCI/Malaria Focal Persons will be trained in new policy areas in case management, malaria diagnostics, IRS and MIP.

H. INTERVENTIONS – PREVENTION

H.1 INSECTICIDE TREATED NETS

Background

▪ ***Mainland***

ITN coverage in Tanzania has increased during the last five years through a combination of subsidies targeting pregnant women and infants through the Tanzania National Voucher Scheme (TNVS) and through commercial sales supported by social marketing. Despite nearly three million ITNs VS and three million net retreatment kits distributed, progress towards achieving the desired coverage levels has been too slow: The 2007-08 MIS demonstrated that only 26% of pregnant women and 25% of children under five were sleeping under ITNs.

Consequently, important changes in policy and practice occurred in 2007-2008. The MOHSW agreed on the following: 1) the TNVS will gradually move toward LLINs following funding commitments from GFATM (Rolling Continuation Channel 2007) and PMI; 2) the voucher top-up value will be reduced to Ts 500 ($.45) to enable more families to afford a LLIN; 3) a national under-five "catch-up" campaign to distribute free LLINs to all children under five years of age; and 4) a national "universal coverage campaign" to distribute LLINs to all sleeping spaces, covering the entire population. The background on each of these key programs (TNVS, Under Five Coverage Campaign, Universal Coverage Campaign) is described below.

Tanzania National Voucher Scheme (TNVS). The Tanzania National Voucher Scheme started in November 2004 with support from the GFATM to provide ITN vouchers to pregnant women. PMI supported the expansion of the voucher scheme to infants, beginning in October 2006. As of March 2009, over 4.6 million vouchers have been redeemed for polyester ITNs.

Following concerns of affordability and equity due to increases in the top-up payments paid by pregnant women and the caregivers of infants (average top-up fees have increased from 968 Tsh ($0.80) in 2005 to over 2,300 Tsh ($1.80) in 2008[5]), NMCP in 2007 decided to change the TNVS to a fixed top-up amount to 500 Tsh ($0.45). The new top-up amount will be implemented from August to October 2009. Even with these changes, the future of the TNVS in the wake of the Under-Five and Universal campaigns is uncertain. Currently, the TNVS is operating through a network of nearly 7,000 retailers and wholesalers operating nationwide, which accept vouchers and top-up payment in exchange for nets. These retailers will lose their bed net business after the Universal Coverage Campaign, and will naturally be reluctant to stock expensive LLINs until the need and demand for new nets recovers.

Notwithstanding these questions on the viability of TNVS, there is a need for a "keep-up" mechanism to cover replacement ITNs and newly pregnant women and infants. At a minimum, 3.2 million nets are needed each year to cover new pregnancies and births.

[5] Monitoring and Evaluation of the TNVS, Report on 2008 TNVS Household, Facility services and Facility users surveys, Ifakara Health Research and Development Centre and the London School of Hygiene and Tropical Medicine

Currently, only the TNVS has the infrastructure to function as a keep-up mechanism nationwide. A comprehensive assessment of different keep-up strategies will be funded through GFATM Round 8 funding towards the end of the Under Five Coverage Campaign and the end of the Universal Coverage Campaign. PMI will monitor the ongoing impact of the campaigns on voucher redemption rates and work with NMCP to explore alternative keep-up mechanisms as data become available.

Under Five Coverage Campaign (U5CC). PMI is supporting, along with the GFATM and the World Bank, the Government of Tanzania's "Under Five Coverage Campaign," a mass distribution campaign to distribute 7.2 million free LLINs to all children under five years of age. The U5CC was intended to rapidly increase net coverage for children under five with expected distribution of 7.2 million LLINs.

Universal Coverage Campaign (UCC). Accumulating evidence indicates that broad ITN coverage (at least 60%) for the entire population will reduce overall malaria transmission throughout the community. The 2007-2008 THIS/MIS demonstrated that ITN household ownership was 38%. NMCP expects ITN ownership to rise to 90% after implementation of the UCC. In May 2008, the GoT announced a policy to attain universal LLIN coverage (defined as one LLIN per sleeping space).

The proposed UCC will contribute approximately 14.6 million additional LLINs to the expected 7.2 million LLINs to be distributed through the U5CC. The combination of the U5CC and the UCC will deliver an average of 2.5 nets to every household in Mainland Tanzania (or one LLIN for every two people). It is estimated that the entire campaign will cost $108 million (including procurement of 14.6 million LLINs, distribution, training, behavior change communication, and monitoring and evaluation). The majority of funding for this campaign will come from GFATM Round 8.

PMI plans to jump-start GoT's UCC strategy by implementing a Universal Coverage Campaign in the Kagera region. PMI aims to complement IRS activities in Kagera, as high net coverage rates will allow for a reduction of dependence on IRS.

- ***Zanzibar***

Zanzibar has been successful with their initial distribution of LLINs. Approximately 333,000 LLINs provided by GFATM and PMI were distributed to all pregnant women and children under five in late 2005 and early 2006. The latest MIS survey indicates ownership of at least one ITN in 72% of households, with 59% of children under five and 51% of pregnant women sleeping under an ITN. Together with ACT treatment and IRS, LLINs have helped reduce malaria incidence significantly (see Section C. Malaria Situation).

The ZMCP also explored the use of vouchers as a keep-up mechanism in 2008. However, the ZMCP decided to discontinue voucher schemes and move towards universal coverage with a goal of providing at least two LLINs per household. Through support from GFATM (Round 8) and PMI, approximately 550,000 LLINs will be distributed through mass campaigns implemented in each district in 2010.

Progress over Past 12 Months

▪ *Mainland*

The U5CC was initially scheduled to start May 2008 and the introduction of the new TNVS (with reduced top-up fee) about one month after. However, both initiatives are behind schedule due to delayed signing of the GFATM RCC grant and delayed contracting by the Ministry of Health.

PMI procured one million LLINs (FY08 and FY09 funding) for a U5CC pilot district and support for up to two additional ZONES. The U5CC was piloted with PMI support in the Mpanda district in October of 2008 with the distribution of 113,560 LLINs. Training and registration for the larger campaign started in the regions of Lindi and Mtwara in March 2009, and actual LLIN distribution occurred May 15-17, 2009. An estimated 469,644 LLINs were distributed in Lindi and Mtwara (352,244 funded by PMI) in May 2009 and an additional 1,500,000 LLINs (520,447 funded by PMI) were distributed in the Lake Zone in July 2009. This rolling campaign will cover one zone (two or three regions) per month and will be completed by March 2010.

In addition to support for LLIN procurement, distribution, and training for the U5CC, PMI will also support a 2009 national hang-up campaign. This campaign uses volunteers visiting each house immediately after the U5CC to ensure LLINs are hung or to offer assistance hanging them. Studies suggest this is an effective way to ensure that beneficiaries actually sleep under nets they receive during campaigns.[6] The hang up campaign will be limited in scale in 2009, providing an opportunity to review the program and evaluate whether it results in increased LLIN use. Tanzania has funding from the GFATM to conduct five district level post campaign surveys to evaluate the effectiveness of the under five campaign with respect to coverage and use, including the hang up campaign.

The new TNVS vouchers are expected to be distributed nationwide between August and October 2009. A total of 513,198 PMI-supported infant vouchers and 827,630 pregnant women vouchers were redeemed in 2008 (75% supported with PMI funds). Redemption rates are expected to decline following the U5CC.

The Government of Tanzania expects to combine the U5CC and UCC as soon as the UCC contracting actions are completed by the MOHSW. PMI will assist the GoT in achieving universal coverage by using FY09 funds to launch the UCC in Kagera region at the end of 2009. The NMCP will then return to the U5CC zones and simultaneously distribute the Universal Coverage Campaign nets.

▪ *Zanzibar*

FY08 PMI funds ($180,000) were reprogrammed from the voucher scheme to support free LLIN distribution to the Micheweni District in Pemba. A total of 30,000 LLINs were distributed in Micheweni District in April 2009, in support of Zanzibar's universal coverage strategy.

[6] Eisele, T and Root, B. "Insecticide-treated net use among children and pregnant women in sub-Saharan Africa: systematic review of the evidence." Department of International Health and Development, Tulane University School of Public Health, 29 August 08. Prepared for John Hopkins University Center for Communications Programs

In 2008, Zanzibar implemented its universal coverage strategy in four of ten districts by using GFATM Round 4 and UNICEF funds to distribute 193,044 LLINs. ZMCP plans to distribute an additional 300,000 LLINs in 2009 using GFATM Round 8 funds to cover an additional five districts. However, activities have stalled due to the delayed signing of the GFATM Round 8 grant. PMI FY09 funds will cover most of the needs for the last district (approximately 20,000 LLINs).

Proposed Activities

▪ ***Mainland***

(H.1.a) Keep-up Programs. PMI will continue to support the TNVS infant voucher and provide support as needed to the Pregnant Women voucher (currently funded by GFATM until the first half of 2010). PMI support is significantly reduced in anticipation of decreased TNVS redemption rates after the campaigns. PMI will continue to support NMCP's 'keep-up' mechanism through vouchers or other means to protect newly born babies and pregnant women. *($700,000)*

(H.1.b) Hang-up Campaigns. PMI expects that by early 2010 the U5CC will be complete and the UCC implementation will start. Both of these campaigns have been fully funded by GFATM, the World Bank, PMI, and UNICEF/Malaria No More. PMI proposes to support these massive LLIN distribution efforts by supporting a second national hang-up campaign to ensure beneficiaries actually sleep under the LLINs they receive via the campaigns. *($2,500,000)*

▪ ***Zanzibar***

(H.1.c) *Universal Coverage Campaign*. PMI will procure and distribute approximately 65,000 LLINs to continue to support Zanzibar's Universal Coverage strategy. Approximately 35,000 LLINs will be used to cover gaps in universal coverage and another 30,000 LLINs will be provided to boarding schools and other institutions to begin coverage of all sleeping spaces, beyond just households. *($400,000)*

H.2 INDOOR RESIDUAL SPRAYING

Background

▪ ***Mainland***

NMCP's 2008-2013 Medium-Term Strategic Plan includes scaling-up IRS to 60 (approximately 50%) of the Mainland's 123 districts over a five-year period. The plans call for use of Dichloro-Diphenyl-Trichloroethane (DDT) and the long acting lambda-cyhalothrin. Currently, PMI is the only donor contributing to NMCP's IRS program. The GoT has not programmed any resources towards IRS, but NMCP is planning to request GFATM Round 10 for IRS resources and will scale up to more regions. The NMCP strategy targets IRS in areas of high malaria prevalence and unstable transmission.

Muleba and Karagwe districts, located in Kagera Region, were chosen to launch PMI-funded spray operations in 2007. These districts are located in North Western Tanzania, on the shores of Lake Victoria, and are characterized by stable transmission with seasonal variation. Given the epidemiology and other factors, NMCP decided to conduct pre-emptive IRS in the affected areas which began with PMI funds in late 2007.

Expansion of IRS in late 2009 and 2010 will include up to an additional 18 districts in the Lake Zone (Kagera Region, seven districts; Mwanza Region, six districts; and Mara Region, five districts). The Lake Zone regions have the highest burden of malaria among all 21 regions of the Mainland. Malaria prevalence among children 6-59 months of age was recently estimated at 41.1% in Kagera, 31% in Mwanza, and 30% in Mara (2007-08 MIS). The planned expansion of IRS will help Tanzania begin to move toward a targeted approach to controlling malaria in the western portion of the Lake Victoria Basin, an area where Uganda and Rwanda have also employed IRS.

Spraying in the two districts of Muleba (3 rounds IRS) and Karagwe (2 rounds IRS) will continue through 2009 until the PMI supported universal LLIN campaign is implemented in late 2009/2010. IRS may be stopped after the LLIN campaign if there is sufficient epidemiologic and entomologic evidence to support scale down in these two districts. Epidemiological data is collected at Rubya hospital, which is one of the PMI-funded NMCP health facility-based sentinel surveillance sites. Two more sentinel sites will be established in Mwanza and Mara districts to monitor the impact of the combined IRS and universal LLIN interventions in the Lake Zone. Entomologic data (species, density, sporozoite rates) will also be collected in the three regions.

IRS activities in Mainland and Zanzibar will ensure protection of the environment and safe disposal of waste in accordance with the approved Pesticide Evaluation Report and Safe Use Action Plans (PERSUAP).

- ***Zanzibar***

Since 2006 Zanzibar has conducted four rounds of IRS in both islands of Unguja and Pemba with impressive coverage over 90% for all the rounds, protecting over a million people with each round.

In 2008, the fourth round of spraying used a long-lasting version of the insecticide lambda-cyhalothrin. Spraying took place in all districts with the exception of urban Stone Town and West districts which have benefited from the GFATM-funded universal LLIN campaign. The decision to scale-back IRS in Zanzibar (pre-elimination phase) is contingent on two milestones: 1) achieving universal coverage and use of LLINS in the general population; and 2) having a reliable epidemiologic and entomologic surveillance system. PMI will continue to support universal IRS in the eight rural districts of Zanzibar until these conditions are met.

Collection of the necessary epidemiologic data (household and health facility-based), complemented by entomologic data, is ongoing and will enable ZMCP and PMI to make informed decisions regarding the reduction of IRS.

Progress over Past 12 Months

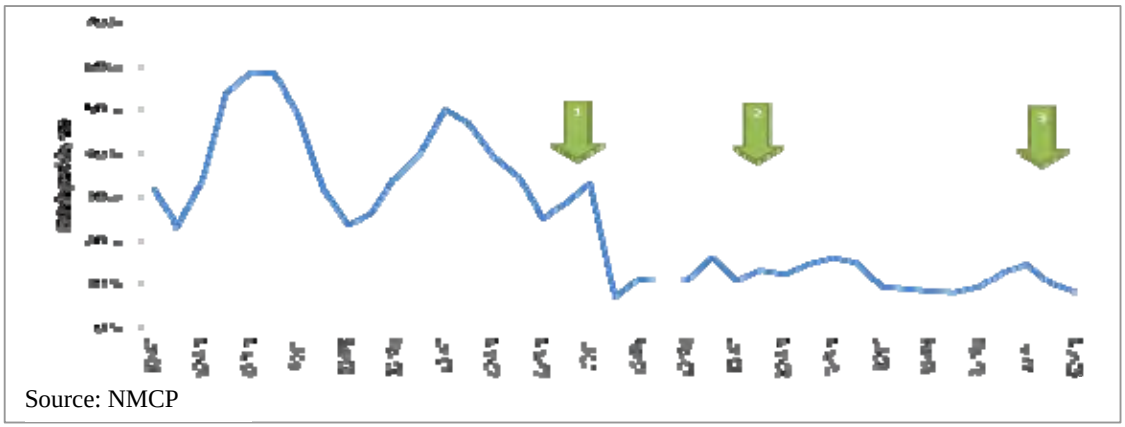
- ***Mainland***

In 2008 Muleba district received a second round of IRS, covering 36,419 eligible structures (90.5% coverage) and protecting 174,811 people. Karagwe district received a first round of IRS covering 59,177 eligible structures (98.5% coverage) and protecting 284,050 people (Table F).

Table F: IRS Coverage and Number of People Protected					
District	Round	Year	Houses sprayed	Coverage	No of people protected
Muleba	Round 1	2007	34,691	85.0%	166,517
	Round 2	2008	36,419	90.5%	174,811
	Round 3	2009	55,991	90.0%	268,757
Karagwe	Round 1	2008	59,177	98.5%	284,050
	Round 2	2009	89,451	97.0%	429,365

In early 2009, target areas in both districts were increased and sprayed again with coverage rates of 90% and 97% in Muleba and Karagwe, respectively. Data from Rubya District Hospital, the main hospital for Muleba District, (Figure 4) shows a decline in blood slide positivity rate (SPR) after the first round of IRS.

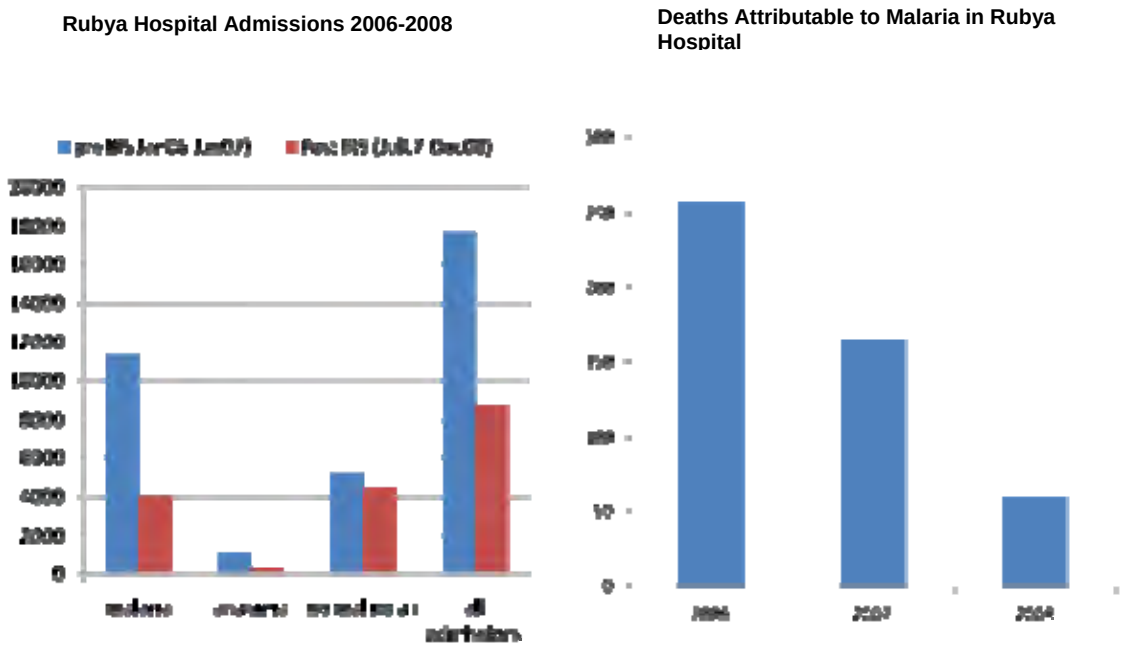
Figure 4. SPR in Rubya Hospital, Muleba District and Three Rounds of IRS



Source: NMCP

The daily number of admissions due to malaria, anemia and transfusions has also declined significantly (Figure 5). Outpatient and inpatient data from Rubya hospital also shows a dramatic decrease in the number of OPD cases and hospital admissions due to malaria. The number of hospital admissions reduced from 109,154 in 2006 before the spraying to 3,269 in 2008 after the second round of spraying. The number of hospital deaths was reduced from 250 in 2006 before the spraying to 50 in 2008 after the second round of spraying.

Figure 5: Malaria Morbidity and Mortality in Rubya Hospital from 2006-2008



▪ *Zanzibar*

Zanzibar has received four rounds of complete IRS to date, in addition to one round of focal spraying as part of an epidemic response in July 2008. The last round was conducted in October and December 2008. In the forth round of spraying 200,731 houses (99% of target) were sprayed, protecting over a million people. The weekly Malaria Early Epidemic Detection System (MEEDS) is now operational in 52 health facilities. Entomologic data are also received from six sites in Zanzibar and the entomologic lab is now performing bioassays.

Table G: IRS Coverage and Number of People Protected

Round	Year	Houses sprayed	Coverage	No of people protected
Round 1	2006	203,754	96%	1,059,521
Round 2	2007	196,827	90%	1,023,500
Round 3	2007	212,021	97%	1,102,609
Focal spraying	2008	3,588	100%	18,658
Round 4	2008	200,731	94%	1,067,254

Proposed Activities

▪ *Mainland*

(H.2.a) Scale-up IRS in the Three Regions of the Lake Zone (Kagera, Mwanza, Mara). PMI will support scale up of IRS in the three regions of Kagera, Mwanza, and Mara, located in the Lake Zone of Mainland. Spraying will be continued in the districts of Muleba and Karagwe in Kagera Region until there is universal use of LLINs and reliable epidemiological and entomologic surveillance data. For these regions, spraying will take place in the 18 rural districts within Lake Zone. The urban areas (Bukoba Urban for Kagera region, Nyamagana and Ilemela for Mwanza region, and Musoma Urban for Mara region) will be covered by universal LLINs. The spraying will target 1,150,000 houses in the Lake Zone and will

protect approximately 6.2 million people (approximately 14% of Mainland total population), assuming 85% coverage. During FY10 the 18 districts in Kagera, Mwanza, and Mara will contribute to and take a leadership role in planning, execution, and monitoring of IRS in their districts. Districts which have completed several rounds of IRS will provide training support to new IRS districts. *($18,000,000).*

▪ ***Zanzibar***

(H.2.b) Provide Support to Complete Spraying in Eight Rural Districts in Zanzibar. Zanzibar is now at the pre-elimination stage. ZMCP and partners have decided that due to the identification of several geographically dispersed malaria case clusters in late 2008, an additional two full round of IRS coupled with additional epidemiologic data from the MEEDS is required before spraying can be curtailed to a focal approach. PMI will support two additional rounds of spraying in all eight rural districts of Zanzibar targeting 132,700 houses and a projected 712,000 people protected. The urban areas of West and Stone town will be covered with universal LLINs. Current collection of the necessary epidemiologic data (household and health facility-based), complemented by ongoing entomologic data, will provide ZMCP information to make decisions regarding the scale down of IRS. The first of these additional rounds of spraying in Zanzibar took place in October 2009, using a long lasting insecticide. ($3,700,000)

H.3 INTERMITTENT PREVENTIVE TREATMENT FOR PREGNANT WOMEN

Background

▪ ***Mainland***

Focused Antenatal Care (FANC) is the WHO-supported strategy into which IPTp has been integrated in Tanzania. The Mainland MOHSW has been implementing FANC in all public health facilities since 2004, but the TDHS in 2004 showed that only 22% of pregnant women received IPTp. Current Reproductive and Child Health Section (RCHS) policy for IPTp is two doses of sulfadoxine-pyrimethamine (SP), given as directly observed therapy (DOT) initiated at first visit after quickening (from 20 weeks) and second dose within the third trimester, no less than four weeks following the first dose. The Tanzania Service Provision Assessment (TSPA 2006) found that only 9% of first visit ANC clients are counseled regarding the second dose of IPTp – a missed opportunity to increase uptake of IPTp. The MIS 07-08 report found that IPTp1 was at 57% and IPTp2 has increased to 30%. Recent data collected through the USAID ACCESS program sentinel site surveillance system indicate that higher IPTp2 rates correlate well with sites reporting no SP stock outs during the reporting period. This indicates that availability and timely procurement of SP continues to be an issue.

PMI has been supporting the Government of Tanzania to strengthen FANC services at all health facilities and improve uptake of IPTp. The ACCESS program, funded by PMI, is scaling up FANC/MIP services nationwide through: 1) development and dissemination of a standardized training package; 2) training health providers via both in-service and pre-service programs; 3) strengthening supervision and quality improvement of ANC services (focusing on availability of SP at ANC clinics); and 4) creating demand for ANC services and advocating safe motherhood issues through the White Ribbon Alliance and PMI-supported BCC interventions.

Key issues remain related to policy and quality of services. For example, the policy regarding free distribution of SP for IPTp appears not to have been fully understood throughout the MSD system and has not yet been widely disseminated to District Medical Officers, District Pharmacists, and other parties. Continued attention and communication is required to ensure availability of SP at the facility level and to strengthen supervision at the facility level.

▪ ***Zanzibar***

According to the THIS/MIS 07-08, coverage of IPTp2 is currently at 52% on Zanzibar. Although the endemicity of malaria in Zanzibar has fallen as a result of its successful malaria control program, the ZMCP has opted to continue the current ANC MIP program. In addition to an ongoing universal coverage campaign with LLINs, the ZMCP promotes the use of LLINs by pregnant women, continues the practice of IPTp in the ANC, and acknowledges the need for prompt and appropriate diagnosis and treatment of malaria in pregnancy to ensure the safety of pregnant mothers. SP availability is high and antenatal care and SP are free. Community-level BCC is being implemented to increase understanding and use of malaria preventive measures in pregnancy. National malaria treatment policies for Zanzibar recommend ACT during the second and third trimester of pregnancy and quinine during the first trimester.

The RCHS division of the MOHSW in Zanzibar has requested support in training its providers in FANC/MIP and in improving the quality of antenatal services to improve outcomes. Antenatal care uptake is high in Zanzibar, with 85% of women making at least one antenatal visit to a public health facility during their pregnancy (TDHS 04-05). Nevertheless attendance is late (median months pregnant at first visit is 5.6), and uptake of interventions to prevent malaria in pregnancy can be improved.

Progress over Past 12 Months

▪ ***Mainland***

The 2007-08 MIS report indicated IPTp2 coverage of 30%, which represents an increase over the 22% coverage reported in the 2004-2005 DHS. PMI has supported the training of 816 FANC district trainers, building local training capacity in every district of Mainland Tanzania. As of March 2009 these trainers have directly conducted cascade training in each district to over 3,200 providers from 1,628 facilities (33%) in approximately 64% of the districts in Tanzania. To ensure quality, an additional 50 national level trainers with advanced training skills have been developed to provide guidance and support during the district level trainings. With remaining FY08 and expected FY09 PMI funding, it is anticipated that an additional 2,375 providers from approximately 1,781 health facilities will be trained, covering approximately 93% of all ANC providers and 70% of all ANC facilities. The pre-service curriculum, as well as tutors and clinical preceptors from all 53 nurse-midwifery schools in Tanzania, have been up-dated leading to approximately 1,600 new graduates with FANC skills each year since 2006.

In collaboration with MOHSW, facilitative supervision workshops were initiated for regional and district RCHS coordinators supervising ANC to facilitate quality service provision and establish on-going facility-based quality improvement cycles in FANC. The FANC performance standards serve as the basis of the quality improvement tools and, in collaboration with the MOHSW and its Health Services Inspectorate Unit (HSIU), have been integrated into the national supervision system. This integration reinforces the supervision

skills of regional and district RCHS Coordinators and provides them with a tool to assist the supervision process. At the same time, a sentinel site surveillance system consisting of 37 facilities nationwide will collect key quality MIP data for closer program monitoring and assessment of general program trends. During the 2007 calendar year, the sentinel sites reported IPTp2 uptake at 25% (and 40% for sites with no SP stock outs during this time). During 2008 this figure increased to 52% (and 60% for sites with no SP stock outs during this time), showing positive trends in IPTp2 uptake over time.

Figure 6. IPTp Service Provision at 30 Sentinel Sites Over the Past Year

Facility-based exit surveys of clients conducted by PMI in 2008 at the sentinel sites showed that although 95% of clients were satisfied with the services received on the interview day, only 48% indicated they had been counseled about malaria during their current pregnancy and only 35% knew that a woman should take two doses of SP for prevention in pregnancy. Although these numbers are better than the household based findings in the THIV/MIS 07-08, they represent a significant gap in quality of services that will be addressed in partnership with PMI BCC. Additionally, to create demand for quality services, PMI continues to: (1) support the integration of key antenatal messages into a national reproductive health radio show; (2) partner with faith based institutions to sensitize religious leaders to integrate ANC and MIP messages into their sermons; and (3) support the White Ribbon Alliance of Tanzania which has brought high profile attention to Safe Motherhood issues in.

▪ *Zanzibar*

In FY09, PMI supported technical assistance to ZMCP and Zanzibar RCHS to conduct a FANC/MIP advocacy meeting with key stakeholders and to train trainers in both the FANC and ANC QI approach. FY08 and FY09 funds are being used to train approximately 100 providers in FANC and the QI approach. Given the relatively low rate of malaria on the islands, PMI will consult with ZMCP to develop an assessment of need to continue IPTp in Zanzibar (to be conducted at PMI-supported sentinel sites). This study will be implemented in FY09, with results used in FY10 to re-assess the ZMCP malaria in pregnancy approach. If

indicated, the strategy may be revised to focus on case management rather than continued distribution of SP via ANC.

Proposed Activities

▪*Mainland*

(H.3.a) IPTp/FANC Implementation. FY10 PMI funding will support training of an additional 1,950 providers in FANC. The total number of providers to be trained in FANC/MIP with PMI support by September 2010 will exceed 6,000 and will represent all ANC providers including those who may have missed training due to ANC service rotation. It is anticipated that districts will complement these trainings with additional refresher FANC provider training with their own funds.

PMI will focus on supporting the MOHSW to improve FANC service provision quality and institutionalize the facility-based quality improvement approach. In collaboration with the MOHSW and its HSIU the following activities will be conducted to ensure quality of service provision: (1) encouragement of regular facilitative supervision visits to health facilities by regional and district coordinators, using the FANC standards as the basis for supervision; (2) joint external verification visits to ANC sites that achieved the requisite percentage of standards representing quality FANC service delivery; (3) establishment of a recognition system for high-performing facilities; and (4) continued collection of key ANC service delivery data (including availability of SP) through the sentinel site system so that real time data can be used to address inefficiencies in service provision. *($1,800,000)*

▪ *Zanzibar*

(H.3.b) MIP Activities in Zanzibar. In FY10 PMI will continue to support ZMCP and RCHS implementation of FANC/MIP activities in Zanzibar. Activities will include: (1) comprehensive training of remaining ANC providers in diagnosis and treatment of malaria in pregnancy and (2) further institutionalization of ANC-based quality improvement practices including routine monitoring, facilitative supervision of health facilities and recognition of performance. The results from the MIP study in Zanzibar will be reviewed and—after appropriate consultations—will be used to inform any relevant policy shift in Zanzibar regarding IPTp given the low prevalence setting. *($60,000)*

(H.3.c) Operations Research—Placental Parasitemia in Absence of IPTp. A lack of clear guidance on IPTp in the current epidemiologic setting in Zanzibar has left ZMCP with difficult decisions regarding the continuation of this intervention. To determine the risk of placental parasitemia in the current low malaria transmission setting, ZMCP and implementing partners will collect placental blood films from women at time of birth. Specimens will be obtained only from women with records that indicate no IPTp was administered during pregnancy. No comparison group will be included since the objective is to estimate the risk of placental parasitemia among women unexposed to this intervention. Results will help inform ZMCP's decisions regarding the continuation of IPTp in Zanzibar. *($80,000)*

H.4 BEHAVIOR CHANGE & COMMUNICATION

Background

▪ ***Mainland***

Until late 2007, Behavior Change and Communication activities in Mainland Tanzania were piecemeal, with different interventions implemented by various NGOs and funders. Generic social marketing of ITNs was supported by the PSI Tanzania SMARTNET project. ACT related BCC activities were supported by PSI, World Vision and Tanaam and IRS activities were supported by RTI. The Government of Tanzania's capacity to implement BCC was weak. The Health Promotion Unit of the Ministry of Health was severely understaffed and unable to perform its supervisory role of leading BCC efforts in the field, and had been mostly limited in its role to review BCC messages/materials, to ensure accuracy and coordination. The NMCP's Information, Education, Communication (IEC) cell had created a National Communications Strategy, but had been unable to update or disseminate this critical document to the field to inform activity implementation.

In October 2007, PMI started Tanzania's first comprehensive Behavior Change and Communication initiative, the "Communication and Malaria Initiative in Tanzania" (COMMIT) project. COMMIT was designed to address household behaviors across key PMI interventions—ITNs, case management, ACT use and IPTp in an integrated fashion. IRS is also included in targeted regions where it is taking place. COMMIT is working closely with the GFATM-funded BCC partner and expects to achieve national coverage of BCC activities by end of 2010.

Primary PMI coverage indicators are listed in Table D (page nine). In 2008, COMMIT collected baseline data on knowledge, awareness, access, and attitudinal variables through household surveys (TNVS survey and PSI TRAC survey). In general, while knowledge and awareness appeared high, access and attitudinal variables were lower. This suggests a more active approach is necessary to change behaviors and ensure PMI coverage targets are met. Key findings, including the results of the May 2009COMMIT rapid community assessment survey, are as follows[7]:

- ITN: While 95% of people surveyed were aware that ITN use prevents malaria transmission[8], only 23% believed that they could save enough money to obtain bed nets for all their children (see H.1, ITN section) and only 30% believed they could ensure their children sleep under a bed net every night.[9] According to a COMMIT community assessment survey conducted several months after COMMIT interventions began, these figures improved. More than 43% of respondents believed that they could save enough money to obtain bed nets for all their children and 52% believed they could ensure their children sleep under a bed net every night.
- ACT: While 86 % of respondents were aware that ACTs are a treatment for malaria[10] and 93 % believed a child should visit a health provider on the first day that they have a fever, only 77% believed that they *could* take their child to a health facility on the

[7] Note, baseline data presented are for two specific regions, Lindi and Mtwara, to allow direct comparison with the two COMMIT community assessment conducted in May 2009 in the same two regions.
[8] PSI TRAC Survey 2008
[9] PSI TRAC Survey, 2009
[10] Tanzania National Voucher Scheme Survey, 2008

first day that they develop a fever.[11] These figures remained constant in the 2009 COMMIT community assessment survey.[12]

- IPTp: Nearly 80% of Tanzanians surveyed believe that malaria is dangerous for pregnant women.[10] However, only 48% of ANC clients reported receiving malaria counseling, and only 23% of first-visit ANC clients were told to return for a second dose of SP.[14] The COMMIT community assessment survey conducted in 2009 did not track this variable.

▪ *Zanzibar*

Zanzibar has good acceptance and use of all malaria interventions. ITN use for children under five is 59% and over 90% of houses have been sprayed with IRS. IPTp use, while still behind target, is improving with 52% of women receiving IPTp2. Despite these positive trends, BCC efforts have been fragmented and applied in an ad-hoc manner, focusing on selective interventions (especially IRS). BCC efforts to date have not been evaluated to determine which methods are most effective. PMI has been working with the Health Promotion Unit of the Zanzibar MOHSW, the lead department for the development, coordination and implementation of BCC activities.

Progress over Past 12 Months

▪ *Mainland*

In the last year (approximately one year since PMI-funded BCC activities began), COMMIT has identified key target audiences, gathered data on key determinants of behavior related to malaria prevention and control in Tanzania (some data presented above), and drafted messages to support adoption of behaviors. The project has rolled out rural communication activities, which comprise its core focus, in six regions in the country. COMMIT is currently expanding to ten more regions to establish coverage in a total of 16 of 21 regions in country. Local community change agents will operate in nine regions by July 2009. Initially, it was intended that a GFATM-funded contractor would cover the rest of the country with BCC interventions. However, these activities have been delayed by late signing of the GFATM RCC grant as well as Ministry sub-contracting procedures. As the contractor will not be able to cover more than five regions in 2009, the PMI-funded COMMIT project will add two additional regions in 2009 to accelerate nation-wide roll-out of these activities. COMMIT is currently conducting an assessment of its rural communications activities in two regions to determine their efficacy and suggest mid-program course corrections.

Specific BCC/IEC activities undertaken to date include:

- COMMIT funding will support broadcasting mass media campaigns on national and local radio stations:
    - Key messages stress the importance of sleeping under ITNs and of re-treating nets with Insecticide Retreatment Kits (IRK, started 2008, continuing 2009). These spots have been associated with a 62% increase in IRK sales between 2007 and 2008.

[11] PSI TRAC Survey 2008

[12] The fact that the COMMIT survey showed improvements in ITN indicators but not with case-management can be explained, as the first year of COMMIT programming focused mainly on ITN promotion. COMMIT is broadening its focus in current and coming year activities.

[10] PSI TRAC Survey 2008

[14] JHPIEGO Exit Interviews

  - Additional spots promoting ACT use began in June 2009, stressing early care-seeking for fever at health facilities, and promotion of purchasing ACTs at Accredited Drug Dispensing Outlets in two regions.
  - IPTp promotion and early ANC spots began in June 2009.
- COMMIT will train 1000 Community Change Agents in eight regions in ITN use, ACT and case management, and IPTp by the end of 2009. GFATM support is covering other regions; it is estimated the entire nation will be covered by 2010.
- PMI funds will support conducting road shows (target: 800 by 2009) and mobile video units shows (target: 700 by 2009) in 16 regions of Tanzania. GFATM support will cover the remaining regions.
- PMI support will be used to reactivate bi-monthly BCC Working Group Meetings under the leadership of the NMCP IEC cell. This will ensure that all messages are cleared by the BCC Working Group as well as the MOHSW IEC Working Group.

▪ ***Zanzibar***

For the past several years, Zanzibar has conducted similar BCC activities, which include training community health committees and using road shows to disseminate malaria prevention and treatment messages; training teachers to conduct malaria education; employing billboards that promote "Kataa (refuse) malaria,"; and training journalists to report on malaria issues. USG has consistently worked to build the Health Promotion Unit capacity by procuring equipment such as computers, scanners and cameras. However, there are no data to determine which BCC approaches have been most effective. In 2009, Zanzibar will address this situation with a qualitative assessment employing key stakeholder interviews and targeted focus group discussions to assess which activities are most effective, and to tailor appropriate messages in light of Zanzibar's recent drop in malaria prevalence.

Proposed Activities

▪ ***Mainland***

(H.4.a) IEC/BCC Across All Intervention Areas—ITNs, IRS, IPTp, and Case Management. It is anticipated by Year Five, ITN coverage rates will be much higher in the Mainland and will be supported through the Hang Up campaign (see section H1). However, case management indicators on prompt and effective treatment of ACTs are still low. Therefore, PMI will shift more BCC funding to promoting early case management and appropriate use of ACTs. PMI will use 20% of BCC funds for ITN promotion ($500,000), and increase support for case management to 40% ($1,000,000). Support for IPTp will remain at 20% ($500,000) and support for IRS will increase to 20% ($500,000) as IRS scales up rapidly in Year 5 (see section H.3). Work with community change agents, road shows and mobile vehicle units, and mass media activities will continue at a national level, closely coordinated with the GFATM-funded BCC partner. Activities will also focus on work with health facilities to improve interpersonal skills of health providers and capacity building of the NMCP IEC cell. *($2,500,000)*

▪ ***Zanzibar***

(H.4.b) IEC/BCC Across All Intervention Areas—ITNs, IRS, IPTp, and Case Management. Year Four BCC activities in Zanzibar will focus on consolidating and maintaining successful malaria prevention and control behaviors. This includes proper use of ITNs, ACTs, and IPTp, as well as continued acceptance of IRS. BCC support will be provided in an integrated fashion. Sustainability will be emphasized, as further support will be provided to strengthen

the MOHSW's Health Unit's capacity to implement malaria BCC. Community-based approaches to BCC which include directly working with Shehia health committees and selected community-based organizations will continue. *($175,000)*

I. INTERVENTIONS – CASE MANAGEMENT

I.1 DIAGNOSTICS

Background

▪ ***Mainland***

Malaria diagnostics have been singled out by NMCP as a key programmatic area that needs PMI support to strengthen overall case management. Since 2006, PMI has supported the procurement of RDTs for purposes of evaluating different approaches to scaling-up this diagnostic tool on the Mainland. Initial results from these efforts show that RDTs could be deployed in most of the country. The IMALDIA, CDC/IHI and JMP projects have found that given appropriate supervision and quality control health workers can effectively perform the test and handle results appropriately. Findings from the research sites include: 1) ICT® seems more compatible with health worker skills; 2) there is a preference for RDTs even in facilities where microscopy is available; and 3) overprescription of antimalarials is rampant due to presumptive treatment of febrile illness.

The GFATM Round 7 award allocates $15,517,564 for RDT procurement, and quality assurance of both RDTs and microscopy. Part of the GFATM grant will go for RDT purchases for national deployment in five phases within five years or less. The NMCP objective is to increase the percentage of laboratory-confirmed malaria cases that are confirmed in public health facilities from a baseline of 20% to 80%. It is clear from numerous assessments that the quality of malaria microscopy is very poor at almost all levels of the health system. Moreover, the lack of an internationally recognized reference laboratory that can provide certification for expert microscopy is likely to be a key barrier to developing a functional quality control/quality assurance system.

According to the new guidelines, all suspected malaria cases should be parasitologically confirmed prior to treatment, including children under five. However the treatment protocol does allow clinicians to base treatment on clinical symptoms alone if they feel the patient and/or family would be unable to return if symptoms failed to improve. A total of 26 million RDTs will be purchased over the implementation timeframe. Phased rollout will begin in April 2009, starting in areas of low/moderate transmission and expanding to areas of stable/high transmission. Regions prioritized for the first phase of implementation include Iringa, Kagera and Dar-es-Salaam (and RDT research sites). Although resources for RDT procurement and basic microscopy supplies are available, the tender has not yet gone out and some questions remain on the RDT specification.

▪ ***Zanzibar***

Through PMI support in previous years, ZMCP has been able to provide RDTs to nearly all peripheral health facilities (114/140) and enhance blood slide microscopy at the remaining

(26/140). Moreover, the program has adapted its treatment algorithm and reporting requirements to recommend parasitological confirmation for all patients. This step has enabled the program to demonstrate substantial reductions in malaria parasite prevalence (currently community prevalence of asymptomatic persons is less than 1%) and slide positivity rate among health facility clients with fever (currently less than 5%).

Progress over Past 12 Months

▪ *Mainland*

PMI has supported the introduction and use of RDTs in Tanzania since 2006. Mainland RDTs were used for investigational purposes only, to evaluate performance of different brands (i.e. Paracheck® and Parahit®) under operational conditions. RDTs were distributed to four research projects in early 2007 and distribution continued through 2008. Additional RDTs were provided to the Tanzania HIV Indicator Survey (THIS) to test all children under five present in a subset of households during the survey. RDTs are also being procured and distributed to the United Nations High Commissioner for Refugees (UNHCR) for use in refugee camps in northwestern Tanzania. Between April 2008 and April 2009, PMI procured 1,075,000 RDTs for the Mainland research sites and UNHCR.

In year three (FY08), a small PMI-funded operational research activity was added. This activity demonstrated that it was quite feasible for health workers to record RDT results into the regular health management and information system forms that health workers use in Mainland health facilities. It is expected that this activity will assist the NMCP with developing a workable plan for assuring quality for rapid tests once distributed to the periphery. Planning is underway to introduce a globally recognized national reference laboratory to establish and maintain a national network of skilled microscopists to support RDT quality control/quality assurance in the field.

▪ *Zanzibar*

Between April 2008 and April 2009, PMI supported the procurement of 250,000 RDTs for Zanzibar. ZMCP procured an additional 150,000 tests through the Central Medical Stores in 2008. ZMCP completed training of more that 275 health workers, and produced and distributed 250 RDT job aids. At least 114,000 suspected cases have been tested at health facilities, with 3,120 positive cases reported. This near universal testing and confirmation has become the basis for the Malaria Early Epidemic Detection System, which has allowed the program to identify and respond to unusual or unexpected increases in reported cases. The program still reports overtreatment of malaria in spite of negative results, as well as irregular external and internal quality control. RDTs have not been consistently sent back to a reference laboratory (the Bagamoyo Research Trials Unit of Ifakara Health Institute) for comparison against standardized strains of known concentration. In addition, the shortage of qualified laboratory personnel has contributed to a very low rate of microscopic examination in facilities where this modality is supposed to be used rather than RDTs.

Proposed Activities

▪ *Mainland*

(I.1.a) RDT and Blood Slide Microscopy Quality Assurance and Quality Control. The new diagnostic policy emphasizes the implementation of RDTs at peripheral levels and

parasitological diagnosis for children under five. This requires a robust quality assurance system to monitor the sensitivity and performance of blood slide microscopy and RDTs. The careful implementation and quality assurance for blood slide microscopy or RDTs requires a system to certify expert blood slide microscopists and the establishment of regional reference laboratories that can verify the RDT and microscopy performance. PMI will support the development of this system including capacity building at Ifakara Health Institute and National Institute of Medical Research to become centers of excellence that can grant this level of training certification and serve as reference laboratories. PMI will also support devising a plan for both internal and external quality assurance—including training materials, standard operating procedures and validation. . (*$400,000)*

(I.1.b) Microscope Procurement. Development and implementation of internal and external quality assurance for malaria diagnosis will require an additional investment in resources for blood slide microscopy. PMI will fund the procurement of 200 microscopes which will be provided to trained microscopists for use at their field locations. *($200,000)*

(I.1.c) Microscopy Training. PMI will support national and regional training workshops and certify microscopists to support malaria diagnosis and internal quality assurance nationwide. A mechanism for supportive supervision and follow up for trained microscopists will be built into the overall training program. *($300,000)*

▪ ***Zanzibar***

(I.1.d) RDT Procurement. PMI will procure an additional 200,000 RDTs for health facilities in Zanzibar and scale up RDT coverage to private sector hospitals and health facilities. In addition, these supplies may be used for active case detection and response in the event of an unusual increase in reported cases identified through the MEEDS. (*$124,000)*

I.2 CASE MANAGEMENT

Background

▪ ***Mainland***

Pharmaceutical Management and Logistics. ACTs were officially launched in Mainland Tanzania on December 15th, 2006. The NMCP adopted artemether lumefantrine (ALu) as the first-line treatment for malaria on the Mainland. Quinine is used for treatment of severe malaria. Funding for ACTs in the public sector has been supported primarily by GFATM Round 4 funding. As of December 2008, approximately 31 million treatments have been distributed to 4,800 health facilities in Tanzania.

The initial quantification of ACT need was based on morbidity data and health facility attendance. An updated March 2009 quantification exercise for all malaria medicines confirmed there will be an ACT funding gap in late 2009 when Round 4, Phase 2 funds are expended. April 1, 2009 estimates suggest the existing supply of ACTs will be expended by October 2009 and an order must be placed by June 2009 to avoid a stock out.

NMCP is writing a proposal requesting the reprogramming of GFATM Round 7 funds for ACT procurement in both the public and private sector through the Affordable Medicines Facility-Malaria (AMFm). In addition, NMCP is requesting additional ACTs for the public sector through the GFATM Round 9 grant. Writing of both proposals commenced on April

17, 2009 and the proposals were submitted on July 1, 2009. Regardless of Tanzania's success with either the Round 9 or AMFm application, ACTs are unlikely to be available through either mechanism until at least June 2010—possibly as late as September 2010—resulting in a shortage of approximately 8.2 million treatments.

TABLE H. Quantification and Need for ACTs Through September 2010		
	Number of Treatments	Value in US $
Average Monthly Consumption of ACTs	1,383,840	$1,338,272
Projected Need Sept. 2009—Sept. 2010	16,606,080	$16,059,264
Current Sources of Funding		
Remaining GF Rd 4 funding	(4,835,357)	($5,000,000)
Remaining PMI funding[15]	(3,529,810)	($3,650,000)
Projected gap through Sept. 2010	8,240,913	$7,409,264

Medical Stores Department (MSD) is the central drug procurement and distribution organization tasked with the forecasting, procurement, consignment and delivery of ALu to health facilities. Pharmaceutical logistics has been managed well and no major supply issues have been observed to date. A 2008 supervisory exercise deployed to 116 facilities in 16 of 21 regions found that ALu was available across weight bands in approximately 80% of facilities surveyed. In addition, PMI supported the first round of the end-use verification exercise in January 2009 which assessed the availability of antimalarials drugs (including ACTs), case management practices, and logistics systems in 20 health facilities located in Kigoma, Tabora, Lindi and Mtwara. This exercise, while not nationally representative, identified several key pharmaceutical management issues including:

- At least one presentation of ALu was available in most facilities. Three out of 21 facilities were stocked out of ALu on the day of the visit.
- Logistics management systems require strengthening at the health facility level and there are inadequacies in inventory management, supervision, and storage conditions.
- Among patients diagnosed with malaria, 79% (of 6,931) received ACTs while 21% received SP, quinine tabs, or quinine injection.

A rapid assessment of the pharmaceutical management systems strengthening tool also revealed that while many areas performed adequately, key weaknesses remain in inventory management and information systems required to track medicine availability at different levels of the system. In the past year, MSD has focused on implementing a new integrated logistics system (ILS) designed to address some of these issues. The ILS is a transition from a push to a pull system. Integrating the new ALu into this logistics pull system has remained a key challenge for malaria programs. This new system is expected to result in better quantification and rational use of all medicines, including ALu.

Treatment. Beginning in July 2006, the NMCP began training all health workers in the new treatment guidelines. The NMCP training strategy has four phases: 1) training clinicians and pharmacists about ACTs (2006); 2) training nursing and clinical staff on comprehensive case management, including management of severe malaria (2007-2009); 3) training for RDT use (2007-2008); and 4) training private providers and drug outlets. Phase 1 was completed with

[15] This is remaining FY08 and FY09 funding for ACTs

FY2006 PMI and GFATM support. Phase 2 is being supported by FY 2007-2009 PMI funds through the Zonal Resource Centers (formerly Zonal Training Centers) where training of trainers (TOT) allows cascade training to the regions and districts. The TOT is a two week residential course followed by three support supervision visits for each trainee in their place of work. District-based training is a shorter (five days for nurses and two days for clinicians) residential training in management of uncomplicated malaria, malaria in pregnancy, and management of severe malaria funded by PMI and district funds. GFATM Round 7 funds are being used to provide the Phase 3 RDT training and Phase 4 training for private sector providers and drug outlets.

Despite comprehensive in-service training, there are critical weaknesses in facility-level case management quality. There is a lack of supervision, and evidence suggests that treatment guidelines are not followed at the facility level. For example, the end use verification exercise revealed that only 79% of patients clinically diagnosed with malaria received an ACT. The 2007-08 THMIS household survey revealed that only 20% of children under five years of age with fever received an ACT and only 13% of children under five with fever received an ACT within 24 hours of onset of fever. Quality of care and referral for severe malaria treatment also is weak. The PMI-funded severe malaria project conducted by IHI documented that only 31% of children classified with severe febrile illness at peripheral health facilities were referred to a higher level facility. Additionally, the curricula for pre-service training for Clinical Officers, Nurses and Midwives, and Health Officers is out-dated and does not reflect current practices. This gap justifies continued in-service training to improve quality in malaria case management at facility level.

There is a great need to improve support for frontline providers and reinforce best practices in Tanzania health facilities. This need is heightened by the planned roll out of RDTs at peripheral health facilities and the change in treatment guidelines from presumptive treatment of children under five to required parasitological diagnosis prior to treatment on the Mainland. With health sector decentralization, responsibility for supervision and service delivery lies with the Regional and District Council Health Management Teams. Addressing needs in malaria case management, the national IMCI and the Malaria Control Programs have a designated District IMCI/Malaria focal person trained and deployed to follow malaria issues such as availability of ACTs, SP and ITN vouchers and case management quality in their district facilities (see above section on training this cadre). Nevertheless, support for such supervisory activities in the district is not routinely ensured in Comprehensive Council Health Plans (CCHPs). Additionally, effectiveness of the focal person is highly variable, subject to multiple competing demands, high turn-over, lack of funding for supervision, and poor support from senior Health Management Team members.

Additional challenges include inadequate access to public sector facilities and a lack of perceived competence, especially in rural settings. This is a recognized impediment to the provision of early malaria treatment; therefore, Tanzanians often seek treatment through the private sector. According to reports from NMCP, approximately 35% of fevers in children under five are treated in the private sector, primarily through informal medicine shops. ACTs of variable quality are found in private sector outlets, but they constitute less than seven percent of antimalarial drug sales at this time (see section I.8). The most common antimalarial drug sold in private sector outlets is SP while unsubsidized ACTs are virtually unaffordable for the average rural Tanzanian.

NMCP collaboration with the Tanzania Food and Drug Authority (TFDA) has been proactive in addressing private sector malaria treatment issues. The TFDA permitted the sale of subsidized ACTs through the accreditation and regulation process of the Accredited Drug Dispensing Outlet (ADDO) program in 2007. The ADDO program transforms unlicensed drug vendors, called the Duka La Dawa Baridi (DLDB), into outlets licensed to dispense ACTs along with other specified prescription drugs. This program, supported by PMI, was undertaken in collaboration with TFDA, NMCP, local government authorities, ADDO owners, and other stakeholders. The program developed policies, standards, trainings, and regulatory systems to establish ADDOs in which sales of ACTs were permitted. There are currently 893 ADDOs in four regions (Morogoro, Ruvuma, Rukwa, and Mtwara). RDTs are currently not available in the ADDOs, however the NMCP is working with partners to provide RDTs through the public sector with GFATM Round 7 funds. Health facilities will be involved in a later performance and policy evaluation of the private sector role in malaria treatment.

The NMCP has funding from the GFATM Round 7 Malaria Program to "increase access to and use of appropriate and affordable antimalarial treatment for children under five". The long-term plans are to recruit all of the approximate 4,600 DLDBs across the country in the ADDO system in a phased manner. The NMCP is also applying to the AMFm to enable the private sector to procure ACTs for $.05 and obtain additional funding for supporting interventions such as training.

On the policy side, the NMCP and TFDA are taking steps to improve the quality of antimalarial drugs and remove artemisinin monotherapies from the market. The TFDA issued instructions that all artemisinin mono-therapy products be withdrawn by January of 2008 and enforced the ban on wholesalers for artemisinin monotherapy in August of 2008. The TFDA issued a nationwide recall of Metakelfin, a branded SP product, in April 2009 due to widespread prevalence of counterfeits.

Therapeutic drug efficacy monitoring. Antimalarial drug resistance is an ongoing threat to malaria control. Zanzibar and the Mainland introduced artemisinin-based combination therapies as first-line treatment of malaria in 2003 and 2007, respectively. While it is hoped that development of resistance will be delayed through use of combination therapy, the higher cost of these therapies may encourage people to use them incorrectly (e.g., using only a fraction of the recommended dose). This behavior may accelerate development of resistance. As resistance emerges, malaria control programs need to be able to evaluate current drug efficacy in a way that provides timely, relevant, reliable, and understandable information. Data derived from these evaluations are essential to maintain confidence in current treatment recommendations, or to generate convincing evidence that current treatment recommendations must change. Completing such evaluations consistently over time and with a representative selection of sites, NMCP can strategically minimize the impact of a failing treatment regimen.

▪ *Zanzibar*

ACTs were deployed for the first time in Zanzibar in 2003 and the current first-line malaria treatment is artesunate-amodiaquine. ACTs are widely available in health facilities and health worker compliance with appropriate use of ACTs has been documented at approximately 70%. With the decrease in malaria case load in health facilities, there is now an increased focus on diagnosis and attention to non-malarial causes of fever and death in

children under five. The IMCI strategy for low malaria endemicity is included in the newly revised malaria case management guidelines and is being implemented in Zanzibar. However, ZMCP identified several remaining challenges including outdated training curricula for the various health professions and persistence of health workers in prescribing antimalarials despite negative RDT results, continued use of monotherapy, inadequate differential diagnosis of severe febrile illnesses (e.g. septicaemia, pneumonia etc.) from severe malaria; and lack of a mechanism to supervise private health facilities on management of malaria.

Progress over Past 12 Months

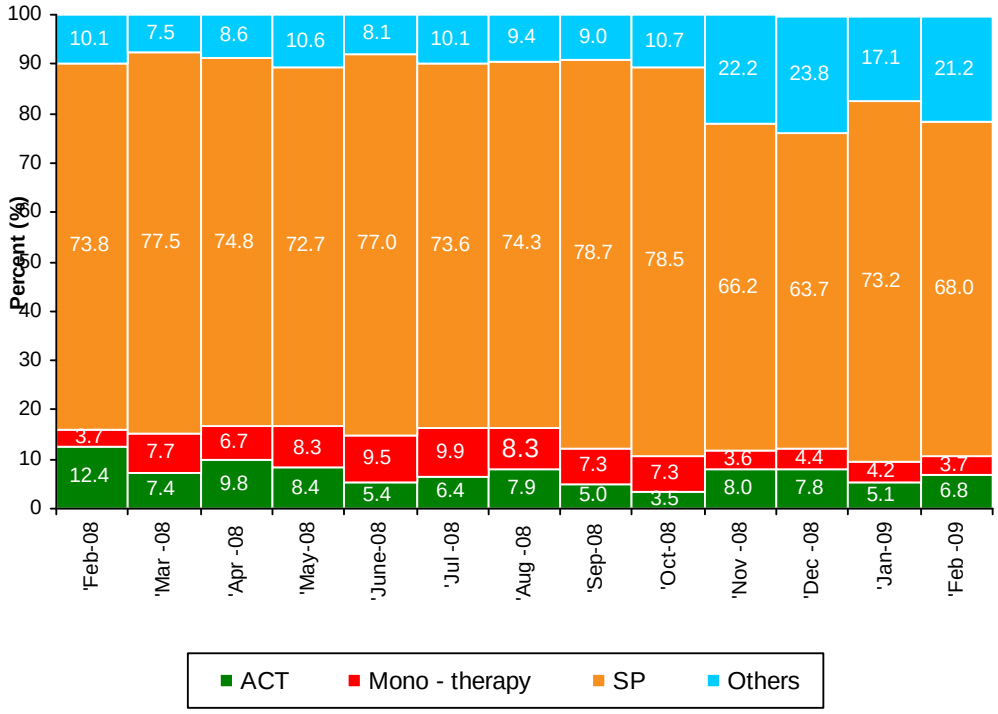
▪ *Mainland*

PMI has focused on filling in gaps of NMCP's case management strategy including ACTs for refugees, supporting private sector pilot activities, training on case management, and technical assistance for pharmaceutical management.

Pharmaceutical Management and Logistics. PMI has continued to support the roll out of the ACTs through support to MSD and the new integrated logistics system through the USAID/DELIVER project. Support has focused on integrating ALu into the new integrated logistics system, which is a transition from a push to a pull system. As of February 2009, 14 regions have converted to the ILS system with 12 regions having integrated ALu. There are seven regions remaining to be converted by the end of 2009 and will include ALu integration. NMCP will fund the conversion of three regions with GFATM Round 7 money. PMI will contribute to the conversion of the remaining four regions in FY09. The work on integrating ALu into this system has focused on training, development of new forms and a new database that incorporates ALu consumption. The malaria commodity logistics work has also included support to the ACT working group, an annual quantification for malaria drugs, and continued support of new inventory control procedures. In addition, the end use verification tool was piloted in Tanzania in January 2009 (select data above) and will continue over the next year.

PMI has also funded activities to promote awareness and demand for ACTs in the private sector and to reinforce TFDA's ban on artemisinin monotherapies. Using FY2007 and FY2008 PMI funding, AED T-MARC has tracked retail audits of Tanzanian private drug sellers in four regions (Figure 7). Additionally, since November of 2008, T-MARC has included one other region in the retail audit that has ADDOs to which PMI is providing ACTs. General trends over the past year show that after the TFDA declaration and later enforcement of the ban on monotherapy (January and August 2008 respectively) there has been an increase in sales of monotherapy to approximately 10% in July (as stock was being sold out) sales have gradually dropping to around 4% of sales. Not surprisingly, sales of SP, which is not very effective in treating malaria given high levels of resistance, still account for approximately 80% of sales since the cost of unsubsidized ACTs are out of the average client's financial ability to purchase. Compared to unaccredited outlets, there are higher sales of ACTs and very low levels of monotherapies in the ADDOs where ACTs are provided by PMI.

Figure 7: Private Sector Sales of Malaria Treatments (Five Regions)



FY09 funds will develop materials based on outcomes of a mystery client survey in private sector outlets to initiate private provider and drug seller awareness on the importance of ACTs as first-line therapy for malaria, and to highlight the dangers of monotherapies and inefficacy of SP.

Treatment. PMI has supported several interventions to improve access to ACTs and improve case management at the facility level. Since Year 2 (FY07) PMI has been funding the Phase 2 training of nurses for comprehensive malaria case management, including severe malaria. Through three Zonal Resource Centers, a total of 260 District Trainers have been trained in 12 regions. In turn, they have trained 912 registered nurses in malaria case management. At the end of August 2009 an additional 233 trainers and registered nurses were trained, covering 14 out of 21 regions on the Tanzania Mainland.

The management of severe malaria continues to be of concern. The current NMCP treatment guidelines call for the use of quinine for management of severe malaria and permit the use of intramuscular artemether for hospitalized cases. Multiple options exist for treating severe malaria at peripheral health facilities (rectal artesunate, intramuscular artemether or quinine), but NMCP has little information regarding which strategy is preferred by healthcare workers. FY07 and FY08 PMI funds have been used by IHI to implement a severe disease in children package that aims to improve health workers assessment, classification, treatment, and medical referral of severely ill children under five years old. The project has been implemented in 76 health facilities across six districts, with more than 453 health workers trained in an adapted IMCI algorithm. Commodities for treating severe febrile illness and for providing pre-referral care have been purchased and distributed to all 72 peripheral health facilities and four hospitals. Data are currently being collected concerning proper

classification of severely ill children and preferences for pre-referral treatment. Preliminary findings from the first phase of intervention included 17,000 clinical encounters for children 2-59 months. Six percent of these were identified as having very severe febrile disease. More than 75% received a pre-referral or initial treatment with artemether or artesunate, but only 31% were referred for definitive care. Pre-referral treatment seems to be an acceptable practice among peripheral health workers.

In 2006, PMI funds began to support the NMCP and TFDA private sector distribution strategy which has evolved from a two-region pilot to a national strategy involving the transformation of unaccredited drug outlets into accredited outlets.

Subsidized ACTs are being sold at a reduced price of $0.90 and $0.46 for adults and children respectively. An estimated 646,050 ALu treatments have been purchased from Novartis for the ADDOs since August 2007. To date, 269,559 doses have been purchased by ADDOs in the two pilot regions. The uptake has been slower than expected in the private sector due to a variety of reasons including poor demand for ACTs, weaknesses in the distribution system for ADDOs at peripheral points, and the cost structure of ACTs that reduce the likelihood of ADDOs dispensing ACTs. To address these issues supportive supervision visits to outlets and refresher trainings for dispensers were conducted; routine consumption reporting of ACTs from ADDOs were encouraged; and BCC efforts were devised together with COMMIT and T-MARC to improve demand for ACTs. Recently the TFDA has agreed to permit district level distribution points to be set up by relaxing the need for stock being distributed by a facility operated by a trained pharmacist (a rather rare skill in many parts of rural Tanzania).

USAID will use FY09 funding to develop a new Social Marketing activity to combine social marketing of malaria, family planning and HIV/AIDS commodities through the private sector. This activity will concentrate on the ADDOs, but will also include other authorized private sector facilities such as private hospitals. The initial commodities will include ACTs and oral contraceptives. The focus of the activity will be on distribution, including training dispensers, regulation and marketing.

PMI has been filling in ACT procurement gaps for UNHCR and for ADDOs not covered by GFATM, Round 4 funding. UNHCR camps serve a population of approximately 276,000 refugees and people in surrounding communities that would not otherwise have access to ACT treatment. Since 2006, PMI has supported the procurement and distribution of 730,410 ACT treatments for refugee camps and surrounding communities. As a result of declining refugee population and pipeline from 2007 and 2008, UNHCR is not anticipated to need significant support in 2010 and will procure ACTs through the AMFm in 2010.

- ***Zanzibar***

In FY08, PMI provided funds to support improved health worker skills through malaria case management training, use of ACTs, and interpersonal skills for instructing caretakers how to comply with recommendations. Resources also strengthened implementation of updated IMCI guidelines, particularly in low transmission settings. To date, 350 health workers were trained on malaria case management and supportive supervision was accomplished in 60 health facilities (44%). The national guidelines for malaria diagnosis and treatment were reviewed and revised for low endemic settings.

Proposed Activities

▪ *Mainland*

(I.2.a) Service delivery strengthening. PMI will contribute (with $200,000 of additional USAID maternal child health funding) to a new service delivery project aimed at improving case management outcomes at the facility level in the four most highly malaria endemic regions (Kagera, Mwanza, Shinyanga, and Mara), accounting for the highest child mortality rates in Tanzania[16]. The activity will focus primarily on malaria case management but a ratio of 15% or higher of maternal child health funding will be maintained over the life of the project to cover broader child health issues. These regions cover a population of over 11.7 million people and will be targeted for the universal ITN campaign and IRS interventions. The geographic scope of the project may also expand pending performance of the project and available funds. This activity will 1) work with RHMTs to support the development of district plans complete with funding levels targeted to address the burden of malaria and febrile illness in children under five (RMOs are invested with responsibility to guide CHMTs in the development of their CCHPs and to approve district health plans); 2) ensure that the CCHPs include lines of action and funding to enable the district IMCI/Malaria focal persons to play their part in improving case management of malaria and febrile illness; 3) provide an intense supervision system (adapted from the TEHIP[17] "management cascade" and involving the IMCI/malaria focal person) to foster the use of planning tools, job aids, data collection systems, and quality assurance methods at the facility level; 4) work with CHMTs and facility in-charges to ensure that routine maintenance of equipment and availability of key supplies and commodities (including RDTs, ACTs, SP, ORS, drugs for prereferral and definitive management of severe malaria, and first line antibiotics) are ensured in health facilities; and 5) include on-the-job refresher trainings in diagnosis (including RDTs) and case management for uncomplicated and severe childhood illness; 6) develop and sustain referral systems with unambiguous referral criteria and predetermined transport mechanisms. The activity will have a monitoring and evaluation component to ensure that these activities will result in significant improvements in case management indicators and serve as a model for roll out to other high priority regions in future years. (*$3,000,000)*

(I.2.b) ACT Procurement for Public Sector and Possible Emergency Needs (UNHCR and/or ADDOs). In FY10, PMI will procure and distribute a nine-month supply of ALu for the Mainland public sector to ensure a sufficient ACT supply through September 2010. It is not certain the Round 9 or AMFm applications will be successful or that they will cover the public-sector need. Additionally, it is likely that ACTs procured through these funding sources will be unavailable until June or September 2010 given the manufacturing lead times and contractual arrangements. Because of these uncertainties, PMI will fill gaps for the ADDOs or UNHCR in the event funding is not awarded as expected or consumption exceeds supply. *($8,600,000)*

[16] Child mortality rates (1-5 years) for the Lake Zone (Kagera, Mwanza, and Mara) is 56 per 1,000 live births. Lake Zone has the highest mortality rates in Tanzania. Shinyanga was also selected due its large population and high malaria prevalence rate. *Tanzania HIV/AIDS and Malaria Indicator Survey 2007-2008*

[17] Tanzanian Essential Health Interventions Project (TEHIP) was a CIDA funded project that implemented intense management tools, supervision, and focused service delivery improvements through IMCI in two districts in Tanzania. The project demonstrated a 40% decrease in child mortality after 8 years of implementation. "Fixing Health Systems", by Don de Savigny et al., International Development Research Centre 2008

I.2.c Social marketing of ACTs. In FY10, PMI will fund the further distribution of ACTs to ADDOs and other private sector facilities, including distribution, regulation and commodity marketing, in coordination with NMCP, TFDA and complementary to potential GFATM activities, both Round 9 (if approved) and AMFm (if approved). TFDA has a prominent role in ensuring the safe rollout of ACTs in the private sector; it is responsible for developing systems to accredit and supervise the ADDOs, and for ensuring the safety, quality and efficacy of antimalarial medicines in Tanzania. This support is not provided through Round 7 funds. Specifically, PMI will provide technical assistance to TFDA to support the following activities: capacity building of the DHMTs and drug inspectors at all levels; develop and implement tools for preparing, reporting, storage and management of data generated from inspection activities; provide support to develop M&E of the ADDO program and ACT distribution effectively; provide support to orient drug dispensers on proper dispensing and documentation of ACTs. *($700,000)*

(I.2.d) Therapeutic DrugEefficacy Monitoring. In FY10, PMI will support implementation of therapeutic efficacy monitoring for artemether-lumefantrine and amodiaquine-artesunate on the Mainland. The primary goal is to provide NMCP and ZMCP with essential information regarding clinical and parasitological responses to these first-line antimalarials. The results will be used for developing an evidence-based antimalarial treatment policy as Tanzania continues to scale-up the availability and use of ACTs nationwide. The simplest and most universally accepted measure of testing for antimalarial drug treatment efficacy follows a standardized World Health Organization protocol.

Monitoring systems will be established in four selected sentinel sites on the Mainland since Zanzibar experiences insufficient numbers of malaria patients to carryout this type of monitoring. Patients (6-59 months of age) with microscopy-confirmed uncomplicated malaria will be selected according to specific parasitologic and clinical criteria and administered the appropriate ACT. The patient's caregiver will then schedule routine follow-up visits. Patient follow-up will extend to 42 days, with patient assessments on days 1, 2, 3, 7, 14, 21, 28, 35, and 42 days after starting treatment. The primary outcome to be assessed is clinical cure, defined as resolution of both fever and parasitemia by Day 3 and maintained until day 42. *($200,000*)

(I.2.e) Training and Follow-up for Malaria Case Management. With FY10 funding, PMI will train clinicians and nursing health cadres from the remaining seven regions in comprehensive malaria case management. The training will result in an additional 1,047 district trainers and nurses trained in these seven regions of the country. PMI will also support development, printing and distribution of training materials as instructed by the NMCP. *($1,000,000)*

(I.2.f) Updating Pre-service Training Curricula for Medical Training Institutions. The MoHSW/NMCP will be supported to review and update the malaria treatment and prevention training curricula for medical training institutions in Tanzania to ensure new medical professional graduates fully understand NCMP treatment guidelines and malaria policies. This will include review of the curricula for key professions including Medical Doctors, Assistant Medical Officers, Clinical Officers, Enrolled and Registered Nurses, Laboratory Assistants and Technicians, and Pharmacy Assistants and Technicians. Activities will include review of the training curricula, pretesting, production and dissemination of the updated curricula, and development of training materials. Updates will include current practices in malaria prevention and case management, including malaria diagnostics and MIP. *($200,000)*

(I.2.g) Strengthen Pharmaceutical Management and Supply Chain System. In FY10, support for malaria commodity logistics will continue to focus on monitoring the ILS system to ensure continued availability of ACTs and other antimalarial medicines at the facility level. By FY10, all 21 regions are expected to have converted to the ILS system. The supply chain work will focus on ensuring the availability and analysis of accurate consumption data through the ILS database and supervision tools with a particular focus on regions that were retrofitted with ALu integration after the ILS rollout. The logistics monitoring capacity of the district malaria/IMCI focal people will be strengthened and additional support provided on inventory control procedures at central, regional and facility levels. Support will also be provided in managing and monitoring PMI-funded ALu procurement. This activity will also provide supply chain support for the large scale roll out of GFATM Round 7 RDTs through the public sector. This will necessitate maintaining "cool chain" transport and warehousing, quality control, and integration into the ILS.

Pharmaceutical and supply chain strengthening activities will also include end-use verification/monitoring of availability of key antimalarial commodities at the facility level. Specifically, this will entail regular supervisory/monitoring visits to a random sample of health facilities and regional warehouses. Random visits will allow teams to detect and respond to critical issues such as: ACT (or other drug) stock outs; expired ACTs at health facilities; leakage; anomalies in ACT use; and to verify quantification/consumption assumptions. (*$750,000)*

(I.2.h) Management of severe malaria. In the coming year, IHI and NMCP will develop a proposal for disseminating the findings of the pilot phase activity and generating a consensus around the necessary next steps for developing new policies and practice guidelines around the use of new non-per-os medicines for safe and effective management of severe childhood illness. A major out come of this activity will be providing the training materials, curriculum and job aids adapted from the pilot exercise and developing a costed plan for rolling out a pre-referral intervention nationwide. (*$300,000)*

▪ ***Zanzibar***

(I.2.i) Malaria case management. PMI will support ZMCP to continue strengthening case management and diagnosis of malaria and other febrile illnesses, focusing on the needs of a low malaria endemicity setting. ZMCP will increase its supervision support to private and NGO health facilities. ZMCP will also plan continuous medical education training for all clinical staff to strengthen the focus on diagnosis, reporting and treatment in low endemic setting. *($50,000)*

J. INTEVENTIONS – EPIDEMIC SURVEILLANCE & RESPONSE

J.1 EPIDEMIC SURVEILLANCE & RESPONSE

Background

▪ ***Mainland***

Epidemic malaria is defined as 'an acute exacerbation of disease out of proportion to the normal to which the community is subject.' True malaria epidemics have not usually occurred on the Tanzania Mainland, but seasonal increases in transmission certainly exist.

However, recent data and established plans for intervention scale-up warrant sustainable early epidemic detection systems in at least two Regions on the Mainland: Dar es Salaam and Kagera. In Dar es Salaam, malaria prevalence has begun to decline to levels that are similar to parts of Zanzibar. Dar es Salaam is certainly epidemic prone given the large population (over four million) that is now infrequently exposed to malaria parasites and losing immunity, yet surrounded by regions with high levels of transmission.

Kagera Region should expect dramatic declines in malaria prevalence (not unlike Zanzibar) following the distribution of free LLINs to children under five years, plus provision of LLINs for all remaining sleeping spaces (funded by PMI FY09) and multiple rounds of IRS. Kagera must begin to develop systems that will detect foci of ongoing transmission, highlight location with sudden increases in new malaria cases, and trigger a response from malaria control staff.

▪ ***Zanzibar***

PMI will continue to focus epidemic surveillance and response activities in Zanzibar where malaria has become an uncommon occurrence. High incidence of severe morbidity and mortality and negative economic consequences can be averted if ZMCP anticipates epidemics, detects them early, and initiates response activities.

Progress over Past 12 Months

▪ ***Zanzibar***

In FY08, PMI provided technical and financial support to ZMCP to develop and implement a Malaria Early Epidemic Detection System (MEEDS) in Unguja and Pemba. The system includes a strategy to collect daily data for three key indicators among outpatients visiting peripheral health facilities (total visits, confirmed malaria positive, confirmed malaria negative). The system was inaugurated in ten facilities in April 2008 and is now operational in over 50 facilities. Weekly aggregate data, stratified by under five and over five years of age, are transmitted from each health facility using a customized cell phone menu. All data are received by a computer server operated by a Tanzanian telecommunications company.

The weekly data are processed by the server and packaged into two useful formats: 1) text messages with weekly data summaries sent to cell phones of key ZMPC staff and district medical officers; and 2) cumulative weekly data made available for viewing over a secure web site. Epidemic thresholds are being refined to determine when an epidemic response should be elicited from ZMPC and district-level health officials. In June 2008, ZMCP appropriately responded to the first suspected malaria epidemic detected by this novel system.

Proposed Activities

▪ ***Mainland***

(J.a) Implement New MEEDS Reporting in Kagera and Dar es Salaam. MEEDS will be established in at least 25 peripheral health facilities in Kagera region and 20 facilities in Dar es Salaam by the end of 2010. The system will be modeled after the MEEDS system in Zanzibar and provide real-time surveillance data through web based system. ($*550,000)*

▪ ***Zanzibar***

(J.b) Scale-up MEEDS to at Least 50% of All Health Facilities by the End of 2010. Reaching this target required outfitting a mix of approximately 60 public and private health facilities. Epidemic confirmation procedures will be strengthened and prearranged mechanisms will be developed to deploy a small cadre of trained staff to investigate suspected epidemics. Readiness for malaria epidemic investigation and response (e.g., active case detection using RDTs, mass treatment of fever cases in the affected community, focal IRS, and supplies for management of severe malaria) requires sufficient stocking and rotation of commodities. Primary components of this work include systems to ensure Zanzibar's rapid and effective response to confirmed epidemics, and a full time surveillance and response advisor placed in ZMCP. *($475,000)*

K. HIV/AIDS and MALARIA

The PMI-Tanzania team works in collaboration with PEPFAR-Tanzania on many cross-cutting programmatic issues related HIV/AIDS and malaria interventions. Earlier efforts were made to include ITNs as part of a basic care package provided to persons living with HIV/AIDS who are enrolled in PEPFAR-funded home-based care. However, with the introduction of a national campaign to distribute free LLINs to all children under five years of age and to all remaining sleeping spaces, this strategy has become less important. However, once the U5CC and UCC are completed, special BCC efforts may be undertaken to ensure use of LLINs by People Living with HIV/AIDS (PLHIV).

The PMI Tanzania team is currently working with a PEPFAR partner to begin implementation of malaria RDTs into several HIV/AIDS Care and Treatment Centers (CTCs). Currently, CTC clients in need of a malaria diagnostic test typically report to a separate laboratory at the health facility where the CTC is located. Due to long waiting periods, many CTC clients decline to wait for this diagnostic service and subsequently fail to receive ACT for treatment of malaria. The goal of the PMI strategy is to increase the proportion of CTC clients with fever who receive parasitologic confirmation for malaria and subsequent treatment for malaria when appropriate. It is hoped this approach will provide the National AIDS Control Program with a strategy to improve clinical management of fever cases among PLHIV in Tanzania. Preliminary results of this work are expected in mid-2010.

Other ongoing activities ensure regular interaction among staff of both initiatives. For example, collaboration is underway to strengthen laboratory system capacity at the national, regional, and district levels with the assistance of multiple implementation partners funded by PEPFAR and PMI alike, with duplication of efforts actively avoided. PEPFAR-Tanzania has engaged PMI-Tanzania in efforts to perform laboratory quantifications of reagents and supplies. The CDC Resident Technical Advisor serves on a PEPFAR-Tanzania committee that reviews the implementation and progress of several PEPFAR-funded public health evaluations.

L. CAPACITY BUILDING WITHIN NMCP/ZMCP

L.1 FIELD EPIDEMIOLOGY & LABORATORY TRAINING PROGRAM

Background

▪ ***Mainland and Zanzibar***

Two PMI resident technical advisors each spend approximately 50% of their time at the NMCP offices and make frequent visits to the Zanzibar Malaria Control Program. PMI resident advisors are a short-term strategy to provide technical assistance within NMCP and ZMCP. Longer-term, more comprehensive strengthening of human capacity is a key area where PMI can help assure sustainability of malaria control programs.

The African Field Epidemiology Network, the USAID Global Health Bureau, CDC-Atlanta and CDC-Tanzania (with PEPFAR funding) have all worked with Tanzanian colleagues since February 2007 to develop the Tanzania Field Epidemiology and Laboratory Training Program (FELTP). FELTP is a public health training program to enhance competencies in applied epidemiology, implementation, evaluation, and management of disease interventions, surveillance strengthening, epidemic preparedness and response, and leadership skills. PMI-Tanzania began to support this program in FY08. The program is managed by the MOHSW in collaboration with Muhimbili University of Health and Allied Sciences and National Institute of Medical Research (NIMR).

During the two-year program, FELTP trainees are embedded within the MOHSW where they work daily with the staff of specific disease control programs (e.g., NMCP and ZMCP). Implementation of the program began in early 2008 and was formally launched in September 2008 by the Minister of Health and American Ambassador. The FELTP office is strategically located within the NMCP/NIMR/CDC/WHO compound. The PMI CDC resident advisor has participated in the ongoing development plan for the Tanzania FELTP, including curriculum planning, field placement options, thesis project development, and implementation of a monitoring and evaluation plan.

Progress over Past 12 Months

▪ ***Mainland and Zanzibar***

The inaugural class of 11 Tanzania FELTP trainees began studying in October 2008 and completed their first semester exams in January 2009. Field placement assignments for the trainees have included malaria-related activities with NMCP and ZMCP: evaluation of a malaria surveillance system in Mpwapwa and collection of recent travel history from malaria patients diagnosed in Zanzibar. All trainees participated in the investigation of a cholera outbreak in late 2008 (921 cases, 15 deaths), thereby developing their skills for future malaria outbreak investigations. During their second year, three of the 11 trainees have selected master's thesis topics that focus on malaria (two Mainland, one Zanzibar). The CDC resident advisor assists with mentoring these trainees and participates in the classroom teaching (surveillance, study design, outbreak investigation, data analysis). A new cohort of approximately 15 trainees commenced FELTP training in September 2009, bring the total number of trainees to 26. The FELTP trainees also played a key role in Tanzania's

investigation of suspected H1N1 cases in May 2009, demonstrating the program's capacity to strengthen the nation's overall public health response system.

Proposed Activities

▪ ***Mainland and Zanzibar***

(L.1) Continue Support to Tanzania FELTP Program. PMI will continue support to the FELTP program and contribute to the further development of 26 Tanzanian epidemiologists. The trainees will receive continuous mentoring and will participate in malaria field assignments and investigations throughout Mainland and Zanzibar. *($175,000)*

L.2 TRAINING AND ORIENTATION FOR IMCI/MALARIA FOCAL PERSONS

Background

▪ ***Mainland***

The current health service delivery system is based on support from the Regional Health Management Team to the District Health Management Team. Each District Health Management Team has an IMCI/Malaria focal person responsible for planning, implementation, and monitoring of malaria activities in the district, including supervision to the district health facilities. The NMCP is responsible for: setting national malaria priorities, policies and guidelines; development of strategic plans and monitoring framework; mobilization of resources for malaria; and quality control and assurance. However, it does not have a direct responsibility of implementation, monitoring, and supervision of malaria interventions in the districts. This is the responsibility of RHMTs and DHMTs. To date, there has been limited investment in support to the RHMTs and DHMTs to improve the planning, supervision, and delivery of malaria interventions in the district, including quality of services at the health facility level, and replacement of the IMCI/Malaria focal persons who leave the districts. This support is a key gap, and it will be necessary to ensure successful implementation of malaria prevention and case management interventions at all levels of the public sector health system.

Proposed Activities

▪ ***Mainland***

(L.2) Support to Conduct Refresher Training and Orientation for RHMT and DHMT Level IMCI/Malaria Focal Persons. During FY10, PMI will support NMCP to conduct orientation courses for the 21 Regional and 132 District IMCI/Malaria focal persons. The orientation will be accomplished through a two day zonal level meeting in each of the ten Mainland zones. The orientation will cover: new policy areas in case management, malaria diagnostics, IRS, and MIP; progress in implementation of malaria activities; logistics management; monitoring and reporting; and BCC/IEC activities. The training replacements for the 20 District IMCI/Malaria focal persons who left the districts will follow the standard eight-week modular curriculum with four weeks residential training followed by two weeks of practical work in home districts, with a final two weeks of residential coursework. The expected outcome of this activity is improved coordination among the RHMT/DHMT and NMCP, and improved implementation and management of PMI activities at regional and district levels. *($125,000)*

M. COMMUNICATION AND COORDINATION

The overall success of PMI in Tanzania is largely attributable to the complementary design of the PMI operational plan to the national malaria control strategy and the emphasis placed on effective participation of PMI in the on-going coordination process, led by the Tanzania government. PMI-funded malaria activities have been undertaken in close coordination with the national malaria control programs (NMCP, ZMCP) and other national and international partners, including WHO, UNICEF, the GFATM, World Bank and the private sector. A prime example of this type of coordination is the planning of the under-five ITN catch-up campaign and the universal coverage in which PMI, GFATM and the World Bank have strategically fitted their roles and resources to support the national implementation plan. Other examples are the roll out of RDT in all the regions of Mainland, and the subscription to one strategic plan and monitoring framework.

PMI understands the importance of effective communication and coordination from the global to the national level, and the effort required to maintain the degree of participation that optimizes PMI contributions to the goal of malaria control. PMI headquarters in Washington and Atlanta, while representing PMI at global malaria forums, routinely communicate and share information with the PMI- Tanzania team in using available communication technology (email, conference call, fax, extranet). In Tanzania, the USAID and CDC in-country technical advisors maintain offices at the national malaria control program office in order to optimize communication. Additionally, the PMI team, which includes the two technical advisors, also meets regularly with NMCP personnel to discuss and prioritize issues and problems.

Local coordination of PMI activities begins at the planning stage and is followed through to the implementation and monitoring phases. Since the first year of PMI, the Tanzania PMI team has adopted a transparent consultative process centered around an annual consultative meeting with all stakeholders. This annual meeting serves as the initiation point for the next year's malaria operational plan (MOP). The fifth year consultative meeting has offered a remarkable increase in the number of participants with more diverse representation of malaria partners in Tanzania.

Efforts toward local coordination of PMI activities is furthered in multiple existing forums, which include the National Malaria Advisory Committee, various technical sub-committees (case management, vector control, IEC, etc.), Inter-Agency Malaria Coordinating Committee, and the NATNETS advisory board. In addition, the NMCP also holds a monthly PMI meeting with all PMI implementing partners to coordinate implementation. These monthly meetings also allow implementing partners to provide activity updates and discuss challenges that they face.

N. PRIVATE SECTOR PARTNERSHIPS

PMI/Tanzania has been involved in many private sector partnerships since the beginning. The TNVS has been a partnership with the bed net manufacturers and thousands of private sector retailers around the country. The Malaria Early Epidemic Detection System (MEEDS)

is a partnership with the Information Technology industry and many Non-Government Organizations have participated in IEC/BCC activities. Private sector ADDOs are being used to distribute ACTs. These activities, as described in other sections, will continue. But much more needs to be done.

Background

Many NGOs including faith-based organizations are conducting malaria control activities such as ITN distribution and IEC/BCC to their client communities, yet they do not have access to state-of-the-art educational materials and services produced by the NMCP and PMI. In many cases these organizations are not aware of NMCP or PMI activities, leading to potential duplication of services. Corporate programs also provide health care to large number of employees, employee families and the surrounding community in many areas of Tanzania. Examples include agricultural plantations such as Unilever Tea Estates, large hotels and resorts, and mining operations. Generally, public sector services such as ITNs and ACTs are not distributed to these entities. As Tanzania moves toward sustained malaria control in the coming years, it will be necessary to ensure that all Tanzanians are covered to eliminate malarial focal points. Finally, many corporations have significant resources they can provide to malaria control as part of corporate responsibility programs, but they lack guidance on how these may be used most effectively.

Proposed Activities

N. Private Sector Partnerships/NGO Coordination. PMI will provide a small grant to an NGO to establish an office to coordinate PMI activities with private sector programs. While the private sector will be expected to finance (or at least substantially contribute to) their malaria control activities, this office will coordinate among the NMCP, PMI partners, and private sector, including NGOs. They will facilitate Memoranda of Understanding and exchange of information and materials. All PMI partners will be encouraged to participate to ensure maximum coverage of the PMI interventions. *($50,000)*

O. MONITORING & EVALUATION PLAN

Background

Monitoring is used within PMI-Tanzania to verify incremental progress of the malaria control programs to see whether activities have been implemented as planned, ensure accountability, detect problems and constraints related to particular interventions, and promote evidence-based decision making. Evaluation uses social and epidemiologic methods to assess and improve the implementation of interventions. Rigorous monitoring and evaluation (M&E) is a cornerstone of PMI, with the overall goal to measure program effectiveness and to clearly demonstrate impact on malaria morbidity and mortality.

Many partners are engaged in malaria control within Tanzania. Consequently, a successful M&E framework must accommodate more than just a single donor's or implementer's interests. PMI has worked closely with colleagues from NMCP, ZMCP, GFATM, WHO, World Bank, Malaria Control and Evaluation Partnership in Africa, other units of the

MOHSW (e.g., HMIS, Integrated Disease Surveillance and Response, and Health Sector Reform) and other sectors of the Government of Tanzania (National Bureau of Statistics) to promote coordinated M&E efforts. PMI and other stakeholders have assisted NMCP and ZMCP to draft and finalizing written M&E plans extending into 2013.

The M&E framework supported by PMI is based on the goal to achieve a 50% reduction in malaria-related deaths by scaling-up four highly effective interventions to 85% coverage of pregnant women and children under five. Monitoring the progress of PMI-funded activities via input, process, and output indicators is carried out on a quarterly basis via the submission of quarterly reports from all PMI implementing partners. Data from these quarterly reports are entered into a central database maintained by the PMI team. These indicators are presented in the PMI Annual Report to Congress.

The following data sources and timelines provide the foundation for PMI's evaluation of malaria control outcomes and impact in Tanzania.

▪ *Mainland and Zanzibar*

Demographic and Health Surveys (DHS). Every four to five years, the DHS collects nationally representative, population-based data for a wide variety of demographic and health indicators, including core malaria intervention coverage indicators, anemia, and all-cause child mortality. The DHS is designed to produce estimates that are comparable over time and across countries. The sample is designed to produce separate estimates on key indicators at the national level, for urban and rural areas. It is conducted by National Bureau of Statistics (NBS) with technical assistance from Macro International. The last DHS was conducted during October 2004 – February 2005. The next DHS is planned for the same months in 2009/2010.

Malaria Indicator Survey (MIS). The MIS survey assesses core household coverage and morbidity indicators used in Tanzania. The survey package includes a core questionnaire, data tabulation plan, and materials for organizing and conducting fieldwork. This stand-alone survey is designed to be implemented in a similar manner to the DHS, producing nationally representative, population-based estimates of core RBM indicators. The MIS also produces a range of data for in-depth assessment of the malaria situation within Tanzania. The first MIS conducted in Tanzania took place in 2007-08 (as part of the larger Tanzania HIV/AIDS and Malaria Indicator Survey). MIS surveys are planned for 2011 and 2013 as a key data source for impact evaluation following scale-up of LLIN coverage for the entire population during 2009-10. Parasitemia and anemia data will be included in these surveys. The Tanzania MIS will be performed during the peak malaria transmission season (May to July).

Other household surveys. The Tanzania National Voucher Scheme (TNVS) nationally representative household survey was conducted annually between 2005 and 2008. The primary objectives of the survey were to measure net coverage (ownership and use), voucher coverage, equity, average voucher top-up payments, and voucher redemption rates. The survey design was a random two-stage cluster sample of 24 districts (21 districts in 2005, 2006, 2007) across Mainland Tanzania. In NMCP's recently finalized (May 2009) M&E plan, the TNVS surveys will not continue after 2008. However, considerably smaller surveys will be implemented by the same partners in eight districts to monitor the implementation progress of the 2009 campaign to distribute free LLINs to children under five and the 2010 campaign to distribute free LLINs universally. The surveys are funded by GFATM.

Over the past several years, NMCP and ZMCP have each conducted RBM household indicator surveys (pre-MIS methodology). In early 2009 both programs aligned M&E plans away from these surveys and now embrace the DHS/MIS approach. The Zanzibar Malaria Research Unit of Karolinska Institute (ZAMRUKI) will likely continue annual household surveys in two sentinel districts (North A in Unguja and Micheweni in Pemba). However, future funding for the ZAMRUKI surveys remains uncertain.

Table I below summarizes these major household surveys conducted in Tanzania since 2004, and the more streamlined plan through 2013. Baseline data for coverage and impact indicators will be based on 2004-05 Tanzania DHS data. Mid-point data will stem from a 2007-08 MIS (including parasitemia, anemia, and mortality data). The next DHS in 2009-10 will include coverage indicators and impact data (excluding parasitemia) following four years of PMI implementation.

Table I: Major Malaria Household Surveys in Tanzania, 2004–2013.

Calendar year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
PMI Year			Yr 1	Yr 2	Yr 3	Yr 4	Yr 5			
DHS	X					X				
MIS				X				X		X
TNVS		X	X	X	X	X	X			
NMCP-RBM		X			X					
ZMCP-RBM		X		X						
ZAMRUKI		X	X	X	X	X	X	X	X	X
ZMCP mortality					X					

Demographic Surveillance Sites (DSS). PMI supported two DSS projects on Mainland Tanzania from FY06-08. These sites monitor births, deaths, and other health indicators in geographically defined populations over time. While PMI has not supported these sites beyond FY08, data continue to be available from the DSS through continued support of other donors.

Health Management Information System (HMIS). HMIS is used in the health sector to collect routine data from all health facilities. The objectives of the HMIS are to provide data for monitoring the following key impact indicators over time: 1) standardized laboratory-confirmed malaria cumulative incidence per year, among children under five years old, everyone older than five years old, and pregnant women; 2) intermittent preventative therapy uptake among pregnant women; and 3) standardized crude laboratory-confirmed malaria death rate among children under five years old, everyone older than five years old, and pregnant women. Currently, the majority of malaria cases reported to this system represent clinical diagnosis, which is usually non-specific fever, although malaria laboratory confirmation of clinical diagnosis is conducted in all hospitals and a few health centers. This information is reported annually through Council Health Management Teams and the Health Statistics Abstract. Data flows from the health facility level up to the central level, where it is compiled, analyzed, and reported. Currently, a major initiative is underway to reform the existing HMIS system. Multiple donors have committed over $5 million to strengthen the system and an operational plan has been developed.

Health facility-based sentinel surveillance. The time-lag and costs associated with obtaining impact data from large, complex household surveys necessitates other approaches for monitoring malaria control program achievements or failures. Out-patient and in-patient data

on malaria morbidity and mortality collected prospectively from selected sentinel health facilities with laboratory diagnostic capacity throughout Tanzania will provide a basis for this strategy. To date, Tanzania has implemented health facility-based sentinel surveillance at four district hospitals and will continue to expand during FY09.

Entomologic monitoring. Systems to provide the necessary information to guide long-term vector control programs include mosquito abundance data, capacity to perform regular bioassays to assess the residual efficacy of insecticides on treated walls and nets, and insecticide resistance monitoring. In July 2009, PMI will support the expansion of IRS to five new districts in Kagera Region. In 2010 IRS is expected to be further expanded to Mwanza Region. In addition NMCP plans to move towards universal coverage of LLINs. Establishing an entomologic program for timely assessments of these vector control activities will be critical in monitoring the impact and efficacy of these programs.

Routine and systematic entomological monitoring continues in Zanzibar (Unguja and Pemba) at seven sentinel sites. The ZMCP is performing the wall contact bioassays to monitor the efficacy of the insecticide on sprayed surfaces, using their insectary colony of susceptible *Anopheles gambiae s.s.* Collaboration with the Liverpool School of Tropical Medicine continues with insecticide resistance testing. The ZMCP is also considering the establishment of in-house polymerase chain reaction capabilities for vector species identification and insecticide resistance testing.

USAID Monitoring and Evaluation. PMI administrative monitoring consists of managing all the contracts and cooperative agreements and data reporting for the Annual Report, as well as to the USAID Operational Plan. USAID regulations require that all data reported to Washington be verified according to a Program Management Plan, including conducting biannual Data Quality Assessments. These management issues require tremendous time from our technical staff. Therefore, the USAID/Tanzania Mission has decided to issue a Mission-wide contract to provide these services for all Teams (i.e., Health, Natural Resources, Democracy and Governance, etc.).

Progress over Past 12 Months

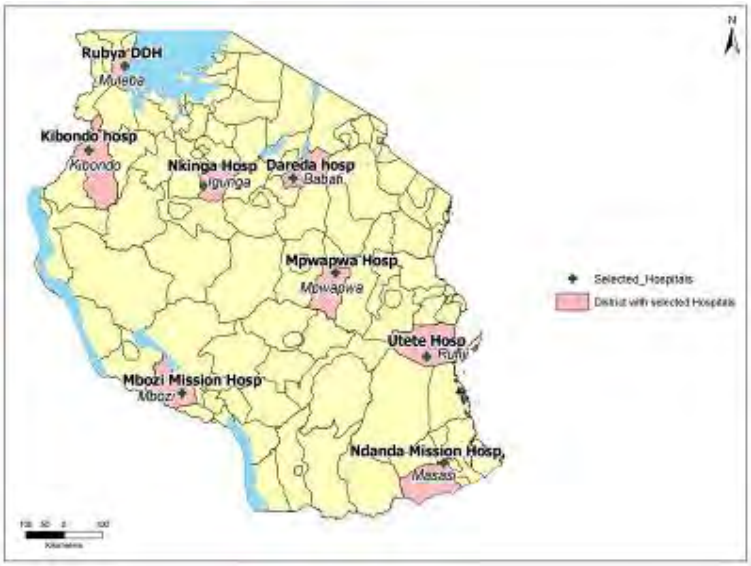
▪ Mainland

Strengthening NMCP's strategic information system and support supervision. NMCP's strategic information database has become more comprehensive. It now includes longitudinal data from the NMCP household surveys conducted in 2001, 2003, 2005, and 2008 (plus biomarker data for 2005 and 2008) across 21 Districts. While these surveys will *not* continue in the future, the earlier surveys will serve as a source of comparison data for many years ahead. These data are supplemented each year by HMIS data contributed by district malaria focal persons during NMCP's annual malaria/IMCI conference. The HMIS dataset includes information from 21 regions, 128 districts, and over 5,000 health facilities. NMCP had also incorporated 2008 MIS data into their strategic information system. They regularly use these three data sources to generate informative maps widely used by many stakeholders, including PMI. In response to NMCP's concern about not being sufficiently informed regarding specific activities of PMI-funded partners, as of mid-2008 all quarterly reports from PMI partners are systematically submitted to NMCP. While these reports complement their strategic information system, management and storage of these documents places additional burden on the M&E unit.

Support to strengthen NMCP's field supervision and quality assurance The PMI funded activities to improve supervision and quality assurance has allowed NMCP staff to visit health facilities and households to interview staff, view supplies of drugs and vouchers, review registers, observe case management and provide immediate oral and written feedback. In 2008-09, PMI funds allowed NMCP to conduct the first of multiple rounds of systematic support supervision visits. The first round included visits to nine regions (three districts per region) where a check-list of activities was undertaken at over 100 facilities. NMCP staff will be summarizing findings from these supervisory visits and will address critical issues during regular meetings with program managers.

Health facility-based sentinel surveillance. The sentinel site surveillance system was launched on the Mainland in mid-2008. Six facilities have been selected and implementation has occurred at four sites (Rubya, Utete, Mpwapwa, Dareda District Hospitals). The distribution of the Mainland's sentinel health facility sites is illustrated in Figure 8. Following successful implementation and reporting of data by these four initial sites, the additional four sites will be added during FY09.

Figure 8. Distribution of health facility-based sentinel surveillance sites on Mainland, 2009.



Demographic Surveillance System. PMI funds from FY06-08 supported two DSS sites on the Mainland. The primary impact indicator provided by these sites is malaria-specific mortality rates based on verbal autopsy. These malaria-specific mortality rates from the past several years, along with parameters to reflect changes in intervention coverage over time, will be used in mathematical models to evaluate the impact of specific interventions. In late 2008, PMI received malaria specific mortality data from these DSS sites for 2006, 2007, and the first six months of 2008. Following a shift in strategy to health facility-based sentinel surveillance in 2008, PMI made a decision to terminate support of the Tanzania DSS sites in FY09.

Entomologic Monitoring. RTI, through an agreement with NIMR-Mwanza, conducted a baseline entomologic survey in Muleba and Karagwe to monitor IRS activities in Feb 2008. A follow-up survey was carried out six months post-IRS (August and September 2008)**.** The survey report indicated a 100% suppression of *An. gambiae* and *An. funestus*. Initial data from resistance testing of *An. funestus* collected in Muleba indicated no resistance to permethrin, deltamethrin, lambdacyhalothrin and DDT. *An. gambiae* populations were too low to carry out resistance testing.

PMI is currently supporting the Regional/District Health authorities and NIMR-Mwanza to achieve the necessary routine entomologic monitoring of post-spray activities by developing a two-tier strategy: 1) a small regional entomology laboratory to support routine activities at sentinel sites; and 2) a central laboratory at NIMR-Mwanza for the Lake Victoria basin. The small regional entomology laboratory at Bukoba Regional Hospital will provide space where monthly mosquito collections will be sorted, counted, and preserved prior to transport to NIMR-Mwanza for further analysis. The Bukoba laboratory will also serve as a small mosquito holding/rearing facility when the WHO insecticide resistance and wall bioassays are conducted. PMI is also supporting the refurbishment of the NIMR-Mwanza laboratory and insectary to support contact bioassays. NIMR-Mwanza together with NIMR-Amani, CDC, and NMCP are harmonizing their protocols to establish sentinel sites and entomologic monitoring at the Regional and District levels.

In early 2009, NIMR-Mwanza was sub-contracted to conduct a baseline entomologic survey in the five new districts in Kagera Region before initiating IRS activities to determine vector species and density. NIMR, with funding from WHO/Gates Foundation, has initiated the four-year plan to develop and implement a resistance monitoring program in 13 sentinel sites. In late 2009, NIMR expand the program to include Kagera Region and will monitor the impact of PMI-supported IRS in that region.

Tanzania Demographic and Health Survey. Planning for the 2009-10 TDHS has been underway for the past year. A contract with MEASURE DHS III has been awarded and stakeholders have been meeting regularly with NBS. In addition to PMI funding in FY08 ($100,000) and FY09 ($400,000), other USAID sources (Maternal and Child Health, Family Planning and Reproductive Health) were also committed. PEPFAR is also funding the survey with FY09 resources.

▪ Zanzibar

Strengthening malaria strategic information system and support supervision. The malaria database maintained by ZMCP now includes data from three household surveys (2003, 2005, 2007) and one mortality survey (2008). ZMCP published a frequently quoted document in January 2008 (Roll Back Malaria Indicator Survey Main Report) that summarizes these previous surveys for planning and funding purposes. Funds from FY08 have also been used to finalize a written M&E plan for ZMCP.

Health facility-based sentinel surveillance. Another key achievement has been the establishment of seven sentinel surveillance sites in Zanzibar, see Figure 9. As Zanzibar is aiming to completely suppress local malaria transmission, the seven sentinel facilities there will be further strengthened to ensure the collection and reporting of the highest quality data.

Figure 9. Distribution of Health Facility-based Sentinel Surveillance Sites on Zanzibar.

Entomologic monitoring. A functioning insectary has been established and the staff has begun performing bioassays and resistance monitoring. PMI supported the purchase and implementation of Enzyme-Linked Immunosorbent Assays (ELISA) at the ZMCP. CDC, together with RTI, provided logistical and supervisory support in setting-up the ELISA laboratory. Three Entomology personnel from the ZMCP were trained in the CS-ELISA assay to detect malaria sporozoites in mosquitoes. The CDC will continue to provide technical assistance to increase ELISA capability to include blood meal analysis for vector biting preferences and assays for mosquito enzyme activity related to insecticide resistance. Data from 2007-2008 indicates that the man-biting rate has been reduced by 75% in Unguja and 83.8% in Pemba after three rounds of IRS. However, the proportion of *An. gambiae s.l.* exhibiting outdoor biting behavior in Unguja appears to have increased from 67.2 % pre-spray to 74.9 % post-spray. A similar increase was noted in Pemba from 35 % to 46.3 %.

▪ *USAID Monitoring and Evaluation*

The USAID Monitoring and Evaluation contract is in the award process. This is a USAID/Tanzania Mission wide contract which will assist in developing required Program Monitoring Plans, Data Quality Assessments and other monitoring functions required by USAID regulations. The successful offeror will also assist PMI to collect indicators and other information for the Annual Report and other required documentation, freeing PMI staff for more technical duties. PMI provided $100,000 in FY09 for the start up of this activity.

Proposed Activities

▪ *Monitoring and Evaluation Support*

(O.1.a) Strengthening NMCP's strategic information system. The NMCP receives reports and data from a wide array of their own M&E activities, plus ongoing activities in other parts of the MOHSW, sentinel surveillance sites, and from all PMI-funded partners. These diverse, complex data are often overlooked and not sufficiently used to guide programmatic decision making. PMI support will enable the small data management unit within NMCP to purchase updated data management and analysis software, improve mechanisms for data back-up and virus protection, and improved hardware. These upgrades will assist NMCP and other stakeholders, including PMI, to improve overall planning based on trends in malaria cases and delivery of interventions. These funds will also support the management of ongoing data that will become available through the new, PMI-supported end-user verification surveys. Support will also enable NMCP staff to complete supervision visits every other month, including per diem and vehicle expenses. Districts and health facilities for supervision will be prioritized according to criteria such as accessibility, geography, and levels of endemicity and areas indicating previous management or implementation problems. Supervisors will use checklists to record their findings, and incorporate data into quarterly HMIS reports and presentations for NMCP and partners. *($90,000)*

(O.1.b) Strengthening ZMCP Strategic Information System. Similar to the Mainland, the challenges of data management, analysis, and interpretation continue to increase for ZMCP as more stakeholders generate data and reports. ZMCP faces ongoing challenges in providing adequate support supervision in Pemba due to difficulty in traveling to a separate island. PMI will continue to assist ZMCP's efforts to strengthen their strategic information capacity and create malaria intervention and case monitoring systems. PMI funds will also support ZMCP staff to complete supervision visits every other month, including per diem and vehicle expenses to help ensure district staff are regularly briefed on the evolving progress of malaria control and changing epidemiology of malaria in Zanzibar. (*$40,000)*

(O.1.c) Support to WHO. PMI will provide assistance to the WHO local office to enable the WHO Malaria Epidemiology Officer to travel within the country in support of NMCP and ZMCP monitoring and evaluation plan. The WHO officer will provide valuable monitoring and supervision support when PMI activities are expanded in FY10, particularly as surveillance and IRS is expanded in the Lake Zone Region. ($35,000)

▪ *Health Facility-based Sentinel Surveillance*

(O.2.a) Mainland. The initial sentinel sites selected in 2008, according to PMI criteria, resulted in the inclusion of district hospitals only. Consequently, no timely information is currently received from either health centers or dispensaries. As NMCP scales up use of RDTs at all levels, completes the under-five and universal LLIN distribution campaigns, and expands IRS, key impact data will be missed from the current sentinel surveillance strategy. PMI will assist NMCP efforts to establish health facility-based sentinel surveillance at lower-level facilities within the same six districts currently included. Six dispensaries and six health centers will be incorporated into the system. Many of the districts are remote and require up to two days of travel time in each direction. Frequent visits to each site by teams of at least three people will be necessary to successfully scale up this M&E approach. (*$300,000)*

(O.2.b) Zanzibar. PMI will continue support of the sentinel surveillance sites in Zanzibar. Efforts will focus on ensuring timely reporting and improvement of data quality. (*$30,000)*

▪ *Entomologic Monitoring*

(O.3.a) Mainland. The emphasis will be to strengthen activities started in 2009 and continue development of entomology capacity for the Lake Victoria Basin. This will be a collaborative management effort from NMCP, NIMR and CDC, with RTI providing logistical and supervisory support. PMI funds will used to improve the capability of Regional and District levels to implement a routine entomologic monitoring system. The capacity of NIMR-Mwanza will be strengthened to provide technical assistance to Regional and District personnel. Laboratory capacity will be improved for mosquito identification, sporozoite rate testing, and insecticide resistance monitoring. This capacity will be essential as IRS activities are expanded in Kagera and Mwanza Region. *($290,000)*

(O.3.b) Zanzibar. PMI will continue support to ZMCP to consolidate and maintain successes in the entomological monitoring. This will be crucial to assess the impact both the high coverage IRS activities and scale-up to universal LLIN coverage. Continued monitoring of vector biting behavior will be essential since LLINS are of the same insecticide class as the insecticide used in IRS. PMI will continue to assist the ZMCP in developing entomological guidelines for the malaria early warning system. *($96,000)*

(O.3.c) Procurement of Entomological Reagents. CDC will support procurement of entomology supplies and laboratory reagents for testing mosquito material collected in entomological surveillance for malaria parasites, for blood meal analysis, and for insecticide resistance testing. These reagents have been difficult to obtain locally *($10,000)*

▪ *Household Surveys*

(O.4.a) Tanzania Demographic and Health Survey. PMI funds will be used to support preparation and dissemination of final results of this survey. Results of the survey will be essential for evaluating four years of PMI activity in Tanzania. This complements FY10 funding allocations from Family Planning and Reproductive Health, Maternal and Child Health, and PEPFAR. *($90,000)*

(O.4.b) Malaria Indicator Survey. Timing of the 2009-10 DHS is beyond the control of NMCP or PMI and consequently the data collection period will begin when the under five LLIN campaign is mid-way completed and before the universal coverage campaign commences. PMI will fund the implementation of the Malaria Indicator Survey 2011 to provide end-point estimates following five years of PMI funding. The MIS survey will provide parasitemia and anemia estimates in addition to coverage estimates for the major interventions. *($1,800,000)*

▪ *USAID-Tanzania M&E*

(O.5.a) Mission-wide Monitoring and Evaluation Contract. PMI will continue support for the USAID Mission-wide Monitoring and Evaluation Contract. This contract will assist the PMI team to pull together the USAID PMP indicators, perform data quality audits, and contribute to reporting PMI indicators for the annual report, consolidating sentinel site data, and consolidating malaria specific indicators from PMI partners. *($265,000)*

P. MANAGEMENT & ADMINISTRATION

Background

Two expatriate health professionals have been hired as Resident Advisors to oversee the PMI in Tanzania, one representing CDC and one representing USAID. In addition, two Foreign Service National (FSN) program managers were hired to support the PMI team, one located in USAID and one in CDC. The USAID Health and Population Office Chief and Deputy work within the PMI team, but are paid by USAID Operating Expenses. A US Personal Services Contractor assists the PMI team part time as Cognizant Technical Officer or Activity Manager and is partially supported by PMI funding. All PMI staff members are part of a single inter-agency team led by the USAID/Tanzania Mission Director. The PMI team shares responsibility for development and implementation of PMI strategies and work plans, coordination with national authorities, management of collaborating agencies and supervision of day-to-day activities. Candidates for these positions (initial hires or replacements) are evaluated and interviewed jointly by USAID and CDC. Both agencies are involved in hiring decisions, with the final decision made by the individual agency.

The PMI professional staff work together to oversee all technical and administrative aspects of the PMI in Tanzania, including finalizing details of the project design, implementing malaria prevention and treatment activities, monitoring and evaluation of outcomes and impact, and reporting of results. Both Resident Advisors report to the USAID/Tanzania Mission Director. The CDC Resident Advisor is supervised by CDC both technically and administratively. All technical activities are undertaken in close coordination with the National Malaria Control Program and Zanzibar Malaria Control Program of their respective Ministries of Health and Social Welfare and other national and international partners, including the WHO, UNICEF, the GFATM, World Bank and the private sector.

Locally-hired staff to support PMI activities either in Ministries or in USAID/Tanzania is approved by the USAID/Tanzania Mission Director. Because of the need to adhere to specific country policies and US Government accounting regulations, any transfer of PMI funds directly to Ministries or host governments require approval by the USAID/Tanzania Mission Director and the USAID Controller.

Proposed Activities

With FY10 funds, PMI will hire a third FSN to be housed in the PMI office currently being shard part time by the technical advisors at the NMCP (desk space being a severely limiting factor at USAID.) This will be a professional level technical advisor who will assist in managing the public sector PMI activities in the Mainland. Additionally, PMI pays 66% (the percentage of the Health and Population Office's overall budget provided by PMI) for a financial analyst and a contracting specialist. Total Management and Administrative costs excluding the salary and benefits of the two PMI advisors for CDC and USAID are less than 2% of the total budget.

In addition to the USAID PMI Technical Advisor and the support staff, $516,000 is retained by USAID to fund the management and administration costs:

Salary and Benefits of the USAID PMI Technical Advisor	$368,000
Salary and Benefits of FSN Program Specialist	$106,000
Salary and Benefits of FSN Technical Specialist	$120,000
Other USAID Management and Administrative Costs:	
50% Salary and Benefits of USPSC	$192,000
66% Salary and Benefits of HPO Financial Analyst	$70,000
66% Salary and Benefits of HPO Contracting Specialist	$63,000
66% Salary and Benefits of HPO Administrative Assistant	$43,000
IT Cost Recovery (estimate)	$20,000
PMI Program Development and Support	$128,000
	$516,000

$730,000 is provided to the CDC Inter-Agency Agreement (CDC IAA) for the following technical support, TDY and administrative purposes:

Salary and Benefits of the CDC PMI Technical Advisor	$500,000
FSN Program Specialist	$100,000
CDC-Atlanta Technical/Admin support via TDY	$130,000
	$730,000

Table 1

President's Malaria Initiative – Tanzania Mainland and Zanzibar
Year Five (FY10) Timeline of Activities

	ACTIVITY	2009 Oct Dec	2010 Jan May	2010 Jun	Jul	Aug	Sep	Oct	Nov	Dec	2011 Jan	Feb	Mar	Apr	May
H.	INTERVENTION - PREVENTION														
H.1	Support for Hang Up Campaign - Mainland														
H.1	Support to the Tanzania National Voucher Scheme - Mainland														
H.1	Support to Zanzibar's Universal Coverage Campaign - Zanzibar														
H.2	Indoor Residual Spraying - Mainland & Zanzibar														
H.3	Malaria in Pregnancy - Mainland & Zanzibar														
H.4	Behavior Change & Communication - Mainland & Zanzibar														
I.	INTERVENTIONS - CASE MANAGEMENT														
I.1	RDT and Blood Slide Microscopy QA and QC - Mainland														
I.1	Microscope Procurement and Microscopy Training - Mainland														
I.1	RDT Procurement - Zanzibar														
I.2	ACT Procurement for Public Sector - Mainland														
I.2	Strengthen Pharmaceutical Management - Mainland														
I.2	Support to TFDA for Private Sector ACT Access - Mainland														

I.2	Support to ADDOs and Private Sector ACT Roll Out														
I.2	Case Management Training - Mainland														
I.2	RHMT and District IMCI/Malaria Focal Persons Training - Mainland														
I.2	Service Delivery Strengthening - Mainland														
I.2	Severe Malaria Activity - Mainland														
I.2	Therapeutic Drug Efficacy Monitoring - Mainland														
I.2	Support of Malaria Case Management - Zanzibar														
J.	EPIDEMIC SURVEILLANCE & RESPONSE														
J.1	Epidemic Surveillance & Response – Mainland & Zanzibar														
L.	CAPACITY BUILDING NMCP FELTP														
L.1	Capacity Building NMCP FELTP - Mainland														
L.2	Training and Orientation for IMCI/Malaria Focal Persons														
N.	PRIVATE SECTOR PARTNERSHIPS														
N.1	Support to Private Sector Programs - Mainland														
O.	MONITORING AND EVALUATION														
O.1	Strengthening Strategic Information System – Mainland & Zanzibar														
O.2	Strengthen Supervision and Quality Assurance - Mainland & Zanzibar														
O.3	Health Facility-based Sentinel Surveillance - Mainland & Zanzibar														
O.4	Entomological Monitoring – Mainland & Zanzibar														
O.5	Support for Preparation and Dissemination of 2009-10 TDHS														

TABLE 2 – PLANNED OBLIGATIONS

President's Malaria Initiative - *Tanzania Mainland and Zanzibar* Planned Obligations for FY10 ($000)					
Proposed Activity	Mechanism	Budget	Geographic Area	Description of Activity	Page Ref.
H. PREVENTION ACTIVITIES					
H.1 Insecticide Treated Nets					
a. Keep-up Campaign	MEDA	700	Mainland	Support to TNVS	18
b. Hang-up Campaign	Tanzania Red Cross Society	2,500	Mainland	National 2nd Campaign	18
c. Universal Coverage Campaign	MEDA	400	Zanzibar	Ensure net coverage to end IRS	18
H.2 Indoor Residual Spraying					
a. Mainland IRS	New IRS bilateral	18,000	Mainland	4 Lake Zone Regions	21
b. Zanzibar IRS	New IRS bilateral	3,700	Zanzibar	Reduced Districts	22
H.3 Control of Malaria in Pregnancy					
a. IPTp/FANC Implementation	ACCESS	1,800	Mainland	MIP training and QA	25
b. MIP Activities in Zanzibar	ACCESS	60	Zanzibar	MIP training and QA	25
c. Operations Research: Placental Parasitemia	ACCESS	80	Zanzibar	Study to determine prevalence of placental parasitemia for IPTp policy	25
H.4 Behavior Change & Communication					
a. BCC Across All Intervention Areas	COMMIT	2,500	Mainland	ITNs, IRS, IPTp, and Case Management	28
b. BCC Across All Intervention Areas	ZMCP	175	Zanzibar	ITNs, IRS, IPTp, and Case Management	28
SUBTOTAL: Preventive Activities		$ 29,915			
I. CASE MANAGEMENT ACTIVITIES					
I.1 Diagnostics					
a. RDT and Microscopy QA/QC	TBD	400	Mainland	Set up System	30
b. Microscope Procurement	Deliver	200	Mainland	Procurement	30
c. Microscopy Training	TBD	300	Mainland	Training	31
d. RDT Procurement	Deliver	124	Zanzibar	Procurement	31
I.2 Case Management					
a. Service Delivery Strengthening	New Child Survival RFA	3,000	Mainland	Support Lake Region malaria control	37
b. ACT Procurement	Deliver	8,600	Mainland	Procurement	38
c. ACT Social Marketing	New Private Sector RFA	700	Mainland	Technical Assistance	38
d. Therapeutic Drug Efficacy Monitoring	New Malaria Technical Support IQC	200	Mainland	Technical Assistance	38
e. Training and Follow Up for Malaria Case Management	ZTC	1,000	Mainland	Training	39

f. Updating Pre-service Training Curricula for Medical Training Institutions	New Malaria Technical Support IQC	200	Mainland	Training	39
g. Malaria Commodity Logistics	Deliver	750	Mainland	Procurement	39
h. Management of Severe Malaria	IHI	300	Mainland	Technical Assistance	39
i. Case Management -- Zanzibar	ZMCP	50	Zanzibar	Implementation	40
SUBTOTAL: Case Management		$ 15,824			
J. EPIDEMIC SURVEILLANCE AND RESPONSE					
a. MEEDS Reporting in Kagera and Dar es Salaam	New Malaria Technical Support IQC	550	Mainland	Technical Assistance	41
b. MEEDS in Zanzibar	New Malaria Technical Support IQC	475	Zanzibar	Technical Assistance	41
SUBTOTAL: Epidemic Surveillance		$ 1,025			
L. CAPACITY BUILDING					
L.1. Capacity Building NMCP FELTP	CDC/FELTP	175	Mainland	Training	43
L.2. Training for District-level IMCI/Malaria Focal Persons	TBD	125	Mainland	Training	44
SUBTOTAL: Capacity Building		$ 300			
N. PRIVATE SECTOR PARTNERSHIPS					
N.1. Private Sector Partnerships/ NGO Coordination	New Malaria Technical Support IQC	50	Mainland	Technical Assistance	45
SUBTOTAL: Capacity Building		$ 50			
O. MONITORING AND EVALUATION					
O.1 M&E Support					
a. Strategic Information System	NMCP	90	Mainland	Implementation	52
b. Strategic Information System	ZMCP	40	Zanzibar	Implementation	53
c. Support to WHO	WHO	35	Mainland	Technical Assistance	53
O.2 Health Facility-based Sentinel Surveillance					
a. Sentinel Surveillance System-Mainland	New Malaria Technical Support IQC	300	Mainland	Technical Assistance	53
b. Sentinel Surveillance System-Zanzibar	New Malaria Technical Support IQC	30	Zanzibar	Technical Assistance	53
O.3 Entomological Monitoring					
a. Entomological Monitoring	New Malaria Technical Support IQC	290	Mainland	Technical Assistance	53
b. Entomological Monitoring	ZMCP	96	Zanzibar	Implementation	53
c. Reagent Procurement	CDC	10	Both	Procurement	54
O.4 Surveys					
a. Demographic and Health Survey	Measure DHS III	90	Mainland	Technical Assistance	54

b. Malaria Indicator Survey	Measure DHS III	1,800	Mainland	Technical Assistance	54
O.5 USAID-Tanzania M&E					
a. Mission-wide M&E contract	The Mitchell Group	265	Mainland	Technical Assistance	54
SUBTOTAL: MONITORING AND EVALUATION		$ 3,046			
P. MANAGEMENT AND ADMINISTRATION					
1. USAID Resident Advisor	USAID	368	Both	Administration	55
2. USAID Program Specialist FSN	USAID	106	Both	Administration	55
3. USAID/PMI Technical FSN	USAID	120	Both	Administration	55
4. USAID Administration & Technical Support	USAID	516	Both	Administration	55
5. CDC Resident Advisor	CDC	500	Both	Administration	55
6. CDC Program Specialist	CDC	100	Both	Administration	55
7. CDC Administration & Technical and TDY Support	CDC	130	Both	Administration	55
SUBTOTAL: Management and Administration		$ 1,840			
GRAND TOTAL		$ 52,000	Commodities represent 41% of total budget		

TABLE 3 – BUDGET BREAKDOWN BY INTERVENTION

President's Malaria Initiative – Tanzania Mainland and Zanzibar
Year 5 (FY10) Budget Breakdown by Intervention ($000)

Area	Commodities		Non-Commodity*		Total
	$	%	$	%	
H.1 Insecticide Treated Nets	900	25%	2,700	75%	3,600
H.2 Indoor Residual Spraying	10,850	50%	10,850	50%	21,700
H.3 Intermittent Preventive Treatment	0	0%	1,940	100%	1,940
H.4 Behavioral Change & Communication	0	0%	2,675	100%	2,675
I. Case Management	9,674	61%	6,150	39%	15,824
J. Epidemic Preparedness & Response	0	0%	1,025	100%	1,025
L. Capacity Building	0	0%	300	100%	300
N. Private Sector Partnerships	0	0%	50	100%	50
O. Monitoring & Evaluation	10	0%	3,036	100%	3,046
P. Administration	0	0%	1,840	100%	1,840.0
Grand Total	21,434	41%	30,566	59%	52,000

* Non-Commodity includes BCC

BCC - Mainland has been broken down as follows:	
ITN	500,000
IRS	500,000
Case Management	1,000,000
IPTp	500,000
Total	2,500,000

BCC - Zanzibar has been broken down as follows:	
ITN	50,000
IRS	50,000
Case Management	50,000
IPTp	25,000
Total	175,000

TABLE 4 – BUDGET BREAKDOWN BY PARTNER

President's Malaria Initiative - Mainland Tanzania and Zanzibar
Year 5 (FY10) Budget Breakdown by Partner
($000)

Partner Organization	Geographic Area	Activity	Budget
ACCESS (JHPIEGO)	Mainland	H.3.a IPTp/FANC implementation	1,800
	Zanzibar	H.3.b MIP Activities in Zanzibar	60
	Zanzibar	H.3.c Placental Parasitemia OR	80
CDC	Mainland	L.1. Capacity Building NMCP FELTP	175
	Both	O.3.c Reagent Procurement	10
	Both	P.5. CDC Technical Advisor	500
	Both	P.6. CDC Administrator	100
	Both	P.7. CDC Administrative & Technical and TDY Support	130
COMMIT (JHU CCP)	Mainland	H.4.a BCC Across All Intervention areas	2,500
Deliver (JSI)	Mainland	I.1.b Microscope Procurement	200
	Zanzibar	I.1.d RDT Procurement	124
	Mainland	I.2.b ACT Procurement	8,600
	Mainland	I.2.g Malaria Commodity Logistics	750
IHI	Mainland	I.2.h Management of Severe Malaria	300
IMAD (MCDI)	Mainland	I.1.c Microscopy Training	300
	Mainland	I.1.a RDT and Microscopy QA/QC	400
Measure DHS III (MACRO)	Both	O.4.a Demographic and Health Survey	90
	Both	O.4.b Malaria Indicator Survey	1,800
MEDA	Mainland	H.1.a Keep-up Campaign	700
	Zanzibar	H.1.c Universal Coverage Campaign	400
New Child Survival RFA	Mainland	I.2.a Service Delivery Strengthening	3,000
	Mainland	L.2. Training for NMCP Staff	125
Tanzania Red Cross Society	Mainland	H.1.b Hang-up Campaign	2,500
New IRS bilateral	Mainland	H.2.a Mainland IRS	18,000
	Zanzibar	H.2.b Zanzibar IRS	3,700
	Mainland	O.3.a Entomological Monitoring	290

New Malaria Technical Support IQC	Mainland	I.2.d Therapeutic Drug Efficacy Monitoring	200
	Mainland	I.2.f Updating Pre-service Training Curricula for Medical Training Institutions	200
	Mainland	J.a MEEDS Reporting in Kagera and Dar es Salaam	550
	Zanzibar	J.b MEEDS in Zanzibar	475
	Mainland	N.1. Private Sector Partnerships/ NGO Coordination	50
	Mainland	O.2.a Sentinel Surveillance System-Mainland	300
	Mainland	O.2.b Sentinel Surveillance System-Zanzibar	30
New Private Sector RFA	Mainland	I.2.c Social Marketing of ACTs	700
NMCP	Mainland	O.1.a Strategic Information System	90
The Mitchell Group	Both	O.5 Mission-wide M&E Contract	265
USAID	Both	P.1 USAID Technical Advisor	368
	Both	P.2 USAID Program Specialist FSN	106
	Mainland	P.3 USAID/PMI Technical FSN	120
	Both	P.4. USAID Administration & Technical Support	516
WHO	Mainland	O.1.c Support to WHO	35
ZMCP	Zanzibar	H.4.b BCC Across All Intervention Areas	175
	Zanzibar	I.2.i Case Management -- Zanzibar	50
	Zanzibar	O.1.b Strategic Information System	40
	Zanzibar	O.3.b Entomological Monitoring	96
Zonal Resource Centers	Mainland	I.2.e Training and Follow Up for Malaria Case Management	1,000
GRAND TOTAL			**52,000**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