PRESIDENT'S MALARIA INITIATIVE

UGANDA

Malaria Country Action Plan
FY 2006

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ABBREVIATIONS

AED	Netmark Project
ACT	artemisinin-based combination therapy
AFFORD	USAID-funded Bilateral
ANC	antenatal Clinic
AQ	amodiaquine
ARC	American Red Cross
AS	artesunate
BCC	behavior change communication
cACT	community-based ACTs
CDC	Centers for Disease Control and Prevention
CQ	chloroquine
CDD	community drug distributors
DCI	Development Cooperation of Ireland
DFID	UK Department of International Development
DHO	District Health Officer
DHS	Demographic and Health Survey
DMO	District Medical Officer
DSS	Demographic Sentinel System
FANC	focus antenatal care
GDA	Global Development Alliance
FBO	Faith-Based Organization
GDP	Gross Domestic Product
GFATM	Global Fund to Fight AIDS, Tuberculosis, and Malaria
GOU	Government of Uganda
GTZ	German Development Cooperation
HBMF	Home Based Management of Fever
HIMAL	Highland Malaria Project
HIS	Health Information systems
HPL	Health Partners in Communication
HSSP	Health Sector Strategic Plan
ICCM	Inter-Agency Coordination Committee for Malaria
IDP	Internally Displaced Person
IEC	Information, Education and Communication
IMCI	Integrated Management of Childhood Illnesses
IPT	Intermittent Preventive Treatment
IRS	Indoor Residual Spraying
ITN	insecticide-treated net
JHU/CCP	Johns Hopkins University Communications for Change Project
JICA	Japanese International Cooperation Agency
JMS	Joint Medical Stores
JSI	John Snow International

KAP	Knowledge, Attitudes and Practices
LLIN	Long-Lasting Insecticide Treated Net
MACIS	Malaria and Childhood Illness Secretariat
MCSP	Malaria Control Strategic Plan
MEMS	Monitoring and Evaluation Management Systems
MICS	Multiple Indicator Cluster Survey
MIP	Malaria in Pregnancy
MIS	Malaria Indicator Survey
MOH	Ministry of Health
MU	Makerere University
NDA	National Drug Authority
NMCP	National Malaria Control Programme
NDQL	National Drug Quality Laboratories
NMS	National Medical Stores
NGO	Non-Governmental Organization
OVC	Orphans and Vulnerable Children
PLWA	People Living with HIV/AIDS
PMI	President's Malaria Initiative
PMU	Program Management Unit
PSI	Population Services International
RBM	Roll Back Malaria
RDT	Rapid Diagnostic Test
RTI	Research Triangle Institute
SP	Sulfadoxine-Pyrimethamine
SWAp	Sector-wide Approach
UCSF	University of California, San Francisco
UDHS	Uganda Demographic and Health Survey
UNDP	United Nations Development Programme
UNICEF	United Nations Childrens' Fund
UPHOLD	Uganda Program for Human and Holistic Development
USAID	United States Agency for International Development
USG	United States Government
WHO	World Health Organization
WHOPES	World Health Organization Pesticide Evaluation Scheme

EXECUTIVE SUMMARY

On June 30, 2005, the President announced President's Malaria Initiative (PMI), a new five-year, 1.2 billion dollar initiative to rapidly scale-up malaria prevention and treatment interventions in high-burden, sub-Saharan Africa. The goal of the PMI is to reduce malaria mortality by 50% by achieving 85% coverage of at-risk groups with four key interventions: artemisinin-based combination therapy (ACT), intermittent preventive treatment (IPT) for malaria in pregnancy, insecticide-treated mosquito nets (ITNs), and indoor residual spraying with insecticides (IRS). The PMI selected Uganda as one of the first three focus countries for this Initiative.

Uganda's leading cause of morbidity and mortality is malaria, which is endemic in 95% of the country. Estimates show that malaria accounts for about 25-40% of outpatient visits to health facilities and the annual number of deaths attributable to malaria ranges from 70,000 to 100,000. Children under five are most affected by malaria; nearly half of hospital inpatient pediatric deaths are due to malaria.

Uganda has made some progress scaling up prevention and treatment activities. Responding to the reality that for most caretakers, self-medication is the first realistic treatment choice, Uganda has successfully implemented its Home-base Management of Fever (HBMF) program, which has increased the number of children under five receiving malaria treatment within 24 hours of onset of fever by 50%. The Ministry of Health has also recently adopted ACTs as the official treatment policy and it will be introduced in 2006. The Ugandan government has also implemented IPT in some antenatal care clinics (ANC), and household net ownership is now calculated at 25%. The government has also sporadically used IRS in response to malaria outbreaks in the 5% of the country that is epidemic-prone.

The Global Fund to Fight AIDS, Tuberculosis, and Malaria (GFATM) is the predominate source of funding for malaria activities in Uganda. Uganda is the recipient of two malaria grants (Round 2 and Round 4) totaling $89 million. The round 2 grant contributes to the scaling up of HBMF, IRS, and ITNs and the round 4 grant focuses on the introduction of ACTs nationally.

The PMI will support existing National Malaria Control Program (NMCP) strategies and will coordinate closely with international and national partners to complement their funding and efforts. To achieve the goal and targets of the PMI in Uganda, the following major activities will need to be supported in year 1 of the Initiative:

1. Distribution of ITNs in the conflict districts of the North through large-scale health campaigns, well-child, ANC clinics, and social marketing;
2. Support the distribution of ITNs procured by the GFATM for children under five and the procurement of additional ITNs for pregnant women;
3. Conduct IRS with effective insecticides in the epidemic-prone district of Kabale;
4. Revitalize the national IPT plan by developing ANC curricula and training health workers;

5. Support the introduction of ACTs nationally by strengthening logistics and distribution systems and by training health workers in the new ACT policy to ensure that ACTs are available and administered correctly in health facilities;
6. Evaluate the feasibility of including community-based distribution of ACTs in Uganda's HBMF program; and
7. Involve the private sector in malaria control activities.

The PMI will include a strong monitoring and evaluation component to measure progress against project goals and targets, to identify problems in program implementation, to allow modifications to be made efficiently if and when they are needed, and to confirm that those modifications are having their desired effect. This plan will be coordinated with the NMCP, the GFATM, and other partners to standardize data collection and reporting.

THE PRESIDENT'S MALARIA INITIATIVE

On June 30, 2005, the United States Government announced a new five-year, $1.2 billion initiative to rapidly scale-up malaria prevention and treatment interventions in high-burden countries in sub-Saharan Africa. The goal of this Initiative is to reduce malaria-related mortality by 50% 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, pregnant women, and people living with HIV/AIDS-with proven preventive and therapeutic interventions, including artemisinin-based combination therapies (ACTs), insecticide-treated nets (ITNs), intermittent preventive treatment (IPT) of pregnant women, and indoor residual spraying (IRS).

The Initiative will begin in 2006 in three countries, Angola, Tanzania and Uganda. The proposed funding levels in FY06 are $30 million. Funding levels for the three countries will increase until 2008 and then will be maintained for the final 3 years. The proposed funding levels for the President's Malaria Initiative (PMI) are as follows: $135 million in FY07, $300 million in FY08 and FY09, and $500 million in FY10. The aim is to cover a total population of 175 million in up to 15 countries by 2010.

In implementing this Initiative, the United States Government is committed to working closely with host governments and within existing national malaria control strategies and plans. Efforts will be coordinated with other national and international partners, including the GFATM to Fight AIDS, Tuberculosis, and Malaria (GFATM), Roll Back Malaria (RBM), the World Bank Malaria Booster Program and non-governmental and private sectors to ensure that investments are complementary and RBM and Millennium Development goals can be achieved.

This document presents a detailed one-year implementation plan for the PMI in Uganda. It is based on the PMI Five-Year Strategy and Plan. It briefly reviews the current status of malaria control policies and interventions in Uganda, identifies challenges and unmet needs if the targets of the PMI are to be achieved and provides a description of proposed Year 1 activities under the PMI.

MALARIA SITUATION IN UGANDA

Epidemiology of Malaria in Uganda

Malaria is endemic in 95% of Uganda. The remaining 5% of malaria transmission lies in the highlands of the South West, West, and East, which are epidemic-prone. Malaria is the leading cause of morbidity and mortality; it accounts for 25-40% of outpatient visits at health facilities, 20% of all hospital admissions and 9-14% of all hospital deaths. Nearly half of hospital in-patient deaths among children under five are attributed to malaria. A significant percentage of malaria-related deaths occur at home and are not reported by the facility-based information system. Current estimated annual number of deaths from malaria ranges from 70,000 to 100,000. The number of malaria diagnoses reported by the public health services has been increasing in recent years, particularly for children under five. This may be attributable to an increase in resistance of the malaria parasite against the current malaria treatment. The total

number of fever cases for all ages was estimated to be 65 million in 2004. Of these cases, approximately 12 million were treated in the public and private not-for-profit sector.

Status of Malaria Interventions and Health System Infrastructure

While there has been some progress in treatment and prevention efforts, timely treatment for malaria remains a problem. The first treatment choice for more than two-thirds of caretakers is self-medication, with only a quarter of caretakers seeking treatment at a health facility. To address this situation and to ensure that children under five receive appropriate treatment for malaria, Uganda has been implementing the Home Based Management of Fever (HBMF) program. This program is designed to put malaria treatment for young children into the hands of caregivers. As part of the HBMF program, community volunteers in districts nationwide (as of October 2005) distribute pre-packaged, age-specific, "Homapak" malaria treatment kits to mothers/caregivers of young children with clinical symptoms of malaria, with instructions on proper use. A 2003 evaluation of the HBMF program found an increase from 7.3% in 2001 to 39.2% of children under five receiving treatment within 24 hours in the 9 districts implementing the HBMF intervention.[1] In April 2005, the NMCP reported an increase to 66% of children under five receiving treatment within 24 hours of the onset of fever in districts implementing HBMF. HBMF has been scaled up and is now being implemented at the community level nationally.

The "Homapak" used in the Uganda's HBMF program uses a combination of chloroquine and sulfadoxine-pyrimethamine (CQ/SP). This combination is currently effective in approximately 78% of cases. However, the GOU is planning a transition from CQ/SP to artemisinin-based combination therapy (ACT). Currently there is no evidence on how ACTs would best be implemented, how efficacious they are or the costs of using them through a HBMF program. Until more is understood about community-based distribution of ACT, the MOH will continue to use CQ/SP for HBMF. Given that the current supply of Homapak will likely run out by the end of 2006, this issue needs immediate resolution.

Intermittent Presumptive Treatment (IPT) for pregnant women is being implemented in all health facilities that offer antenatal care services. Currently, approximately 33% of women attending ANC clinics receive two doses of IPT.[2]

Household ownership of any type of net has increased over the past five years from 13.2% to 25.9%, and the proportion of children under five sleeping under a treated net has also increased to about 15%. There remains a clear need to increase coverage of insecticide-treated nets (ITNs) and long-lasting insecticide-treated nets (LLINs).[3]

Indoor Residual Spraying (IRS) has only been implemented in selected sub-counties in Uganda on a limited scale for the last few years. The Uganda National Malaria Strategy includes a plan to

[1] Fapohunda, B.M; Beth, A.P., et al (2004). The home based management of fever strategy in Uganda: survey report 2004. BASICS II/MOH/WHO/USAID, Kampala

[2] Achievement, Challenges and areas of Concern for National Malaria Control Programme for HSSP I, JB Rwakimari, April 2005.

[3] Uganda HIV Sero-Behavioral Survey (UHSBS), 2004/5

begin an IRS program targeting the highland districts at risk of epidemic malaria using GFATM funds.

Uganda has become a model for HIV/AIDS prevention treatment and care. Through the President's Emergency Plan for AIDS Relief (PEPFAR), the United States Government (USG) has worked with local partners to develop HIV/AIDS care and support resources for people living with HIV/AIDS (PLWHA). These projects provide malaria prevention and treatment through promotion of ITNs and treatment for this particular vulnerable population.

Government

Within the formal government health sector, preventive and curative malaria interventions, as described in the Health Sector Strategic Plan II (HSSP), have been incorporated as part of the Minimum Health Care Package delivered at the primary health care level. Primary health care centers are responsible for the delivery of malaria services through IMCI and mobilization of communities and other partners to address malaria at the household level. At the district level, primary duties include planning, resource allocation and management, as well as oversight of all facilities in the district including those operated by non-governmental organizations (NGOs) (mainly faith-based organizations) and the private sector. Districts are decentralized to a large degree and are responsible for their respective health plans and budgets. The MOH and RBM partners strengthen the existing referral structure to improve access to treatment for severe malaria at higher level facilities. At the central level, the National Malaria Control Programme supports implementation through policy formulation, standards setting and quality assurance, resource mobilization, capacity development and technical support, malaria epidemic control and monitoring and evaluation. Health allocations comprise 9.7% of the GOU's national budget.[4]

NGOs, Private Sector and Institutions

NGOs receive significant funds from the GOU through Primary Health Care Grants to provide outreach and preventive services at hospitals, district and local health care facilities.[5] NGOs, including FBOs, distribute ITNs at subsidized prices. Some ITNs are distributed free to vulnerable target groups including women and children. Moreover, the GOU has worked extensively with the private sector to produce Homapak for HBMF.

The private sector plays a significant role in expanding access to effective treatment for malaria through direct service provision, pharmacies and drug shops, which provides 60-80% of all malaria treatments. Private sector manufacturers and distributors produce equipment and supplies, and they serve as a source of ITNs for NGOs and the rapidly growing retail market (Total sales of ITNs in 2004 was 565,000, and in the first half of 2005 totaled 371,000).

Research and teaching institutions build pre- and in-service training courses for personnel involved in malaria control interventions. In addition, these institutions promote evidence-based practices through focused operations research.

[4] Annual Health Sector Performance report, Fiscal Year 2004/2005, October 2005
[5] Health Facility Survey, 2002

NATIONAL MALARIA CONTROL PLAN

The Ministry of Health established the Malaria Control Programme (NMCP) in 1995. The program developed its first three-year strategic plan in 1997 for 1998/1999 to 2000/2001. This was followed by the second strategic plan which covered four years (2001/2002 to 2004/2005). Development of the third strategic plan to cover five years (2005/2006 to 2009/2010) is one of the pending priority activities.

The NMCP objective is to reduce malaria morbidity and mortality to minimize related social ill effects and economic losses attributable to malaria in the country. It has identified the following core interventions to achieve this goal:

- Improving prompt and effective malaria case management at health facilities, community and household levels;
- Increasing demand for and supply and use of ITNs and net treatment kits;
- Applying selective vector control measures including indoor residual insecticide spraying (IRS) and environmental management;
- Increasing the coverage of IPT in all ANC facilities;
- Strengthening malaria epidemic preparedness and response at all levels (prediction, early detection and control of malaria epidemics); and
- Establishing sound information, education, communications (IEC)/ behavior change communications (BCC) interventions for malaria prevention and control.

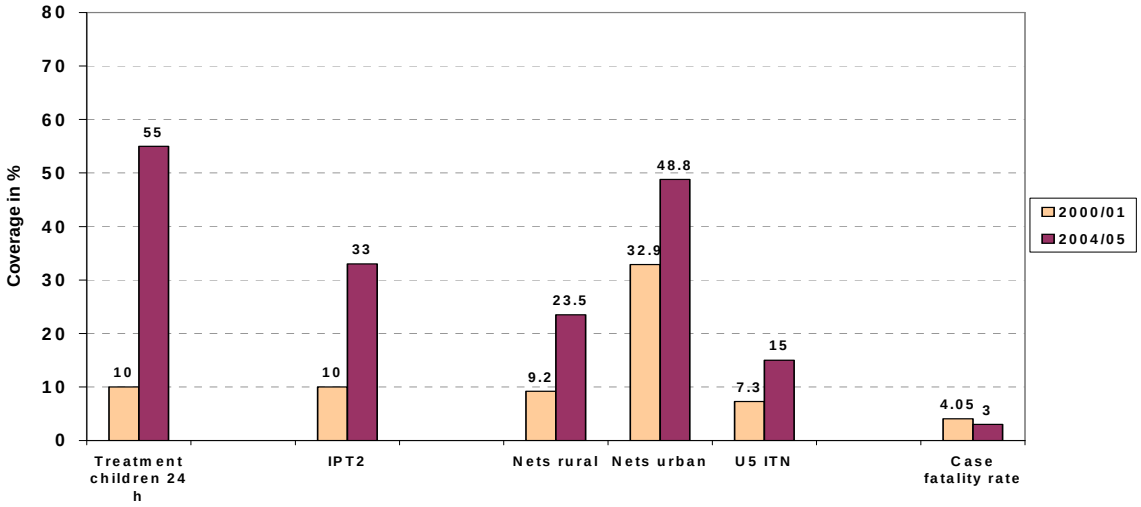
Four targets have been set by the Uganda National Malaria Control Program as part of the five-year national malaria control strategy included in the HSSP I:

- Increasing the proportion of the population at risk of malaria who receive appropriate treatment for malaria within 24 hours of recognition of symptoms;
- Increasing the proportion of pregnant women receiving IPT to 60%;
- Increasing the proportion of children aged less than five years regularly sleeping under ITNs to 50%; and
- Reducing the malaria case fatality rate at the hospital level from 4.05% to 3%.

Uganda has several strategy documents that support treatment and prevention of malaria including: Antimalarial drug policy change from CQ/SP to Artemisinin Combination Therapy (2004); Malaria in Pregnancy Control (2000); Home Based Management of Fever (2002); Policy and Strategy for Insecticide Treated Nets (2003); revised draft for The Use of ACTs at the Community Level (2005); and Policy and Strategy for Indoor Residual Spraying (in final stages).

In April 2005 the NMCP prepared a summary table of results to date in terms of the major malaria indicators, which are presented below.

Figure 1: Progress of Key HSSP I Indicators, 2000/2001 to 2004/2005



The targets for 2010 written in HSSP II are to:

i) Reduced malaria admission of children under five years in hospitals from 74.5/1000 in 2003 to 50/1000 in 2010

ii) Reduced case fatality rate amongst malaria in-patients aged less than five years from 3% in 2004 to 2% in 2010

iii) Increased the proportion of children aged less than five years getting correct treatment within 24 hours of onset of symptoms from 25% in 2004 to 80%.

iv) Increased the proportion of pregnant women attending ANC who have completed IPT 2 from 24% in 2004 to 75% in 2010

v) Increased the proportion of households having at least one insecticide-treated net (ITN) from 15 % in 2003 to 70%

vi) Increased the proportion of targeted structures for indoor residual spraying (IRS) in epidemic areas re-sprayed every 6 months from 0 % in 2004 to 60%.

Coordinating mechanisms

Roll Back Malaria: As a signatory to the Abuja Declaration, Uganda has established country-specific objectives which focus on increasing access to treatment for children and pregnant women, expanding the number of persons at-risk sleeping under bed nets and improving detection and response to malaria epidemics. Roll Back Malaria partners have supported interventions, operations research, and monitoring and evaluation. This includes a survey to establish baseline data to and a nationwide assessment to evaluate progress towards achieving Abuja targets.

Inter-Agency Coordination Committee for Malaria (ICCM): The ICCM provides a forum at the national level for all stakeholders to coordinate malaria control plans and activities as well as monitor progress against objectives and targets. Members include the major donors (USAID, DfID, DCI), multilaterals (WHO, UNICEF), NGOs and FBOs, Ministry of Health representatives and the private sector. Four technical working groups have been established as

part of the ICCM: vector control/ITNs; malaria case management (including malaria in pregnancy); information education and communication; and monitoring, evaluation and research.

MAJOR PARTNERS IN MALARIA CONTROL

In addition to government resources and funds channeled by international partners through budget support as part of the health sector wide approach (SWAp), major direct contributors to the funding of the national malaria control strategy include multilaterals including WHO and UNICEF as well as several bilateral organizations.

Uganda has received two GFATM awards to support malaria control and prevention programs. The 2nd round GFATM grant of $23 million contributes to scaling up of home-based management of fever to all districts in the country, organization of a first round of free ITN distribution and net re-treatment and start up of an IRS program in 3 districts (planned for 2005/06). Moreover, the $66 million 4th round GFATM grant will allow Uganda to introduce ACTs at health facility levels initially, followed by availability in the community and a sustained ACT supply until 2009. GFATM funds will provide 1.8 million ITNs that are earmarked for free distribution to vulnerable populations in early 2006.

However, in early September 2005, the GFATM temporarily suspended implementation of these grants, pending reorganization of the Project Management Unit within the Ministry, which had been charged with implementing the grants. The Government has taken concrete actions to resolve this issue; as of 11 November 2005, the suspension has been lifted and the GOU is moving forward with next steps in GFATM grant implementation. Funding for drugs has been considered part of emergency orders that can move forward despite the suspension. Drugs are expected to arrive in Uganda beginning in early 2006 and this order includes 15.7 million doses of Coartem, a brand of ACT, for 2006 that has been purchased from Novartis.

USG partners and agencies in Uganda

USAID/Uganda has a long-standing malaria program in the country, and has also been the largest bilateral donor for malaria in Uganda since 2000. USAID/Uganda's implementing partners in malaria activities include John Snow International (JSI), Johns Hopkins University Communications for Change Project (JHU/CCP), Netmark Project (AED), the Malaria and Childhood Illness Secretariat (MACIS) hosted by AMREF and in the recent past, Population Services International (PSI) and Research Triangle Institute (RTI). Through its contract for the UPHOLD project via JSI and the AFFORD project via JHU/CCP, USAID/Uganda also has sub-contractual relationships to the Malaria Consortium.

In 2000, CDC and USAID began a collaborative activity to strengthen the technical capacity within the National Malaria Control Program. Jointly, the two agencies provided a malaria technical expert to the GOU; the technical support has assisted in moving the GOU's malaria programs forward. CDC has also supported U.S.-based organizations that work with Makerere University to conduct operational research and to strengthen the capacity through training of health officials. Currently, CDC supports the University of California, San Francisco (UCSF) to

both evaluate a pharmacovigilance system and to monitor drug efficacy of malaria drugs. UCSF works with the Uganda Malaria Surveillance Project at Makerere University. CDC also supports Research Triangle Institute to provide ITNs to two IDP camps in northern Uganda. CDC has an office in Uganda based in Entebbe at the Uganda Virus Institute. CDC/Uganda works primarily in HIV under the President's Emergency Plan for HIV/AIDS Relief (PEPFAR) and supports a number of programs through NGO's. As part of their home-based care program, ITNs are being delivered to HIV/AIDS infected individuals. Presently, CDC has engaged the services of AMREF, an NGO, which is conducting a refresher training for laboratory personnel to improve their technical competencies in microscopic diagnosis malaria, HIV and tuberculosis diagnosis as well as managerial skills in data management to improve their estimate of laboratory reagents ordering. The course also includes strengthening managerial skills in data management to improve participants' skills for forecasting and procuring laboratory supplies.

Other donors and international partners

DfID is one of the major donors contributing to malaria programs. DfID works largely through budget support in addition to some project funding via the Malaria Consortium. The Development Cooperation of Ireland (DCI) also supports malaria programs through the Malaria Consortium as well. Although GTZ has previously made contributions to research and implementation work at district level, current support remains limited. WHO is funding training of trainers for Indoor Residual Spraying, and has been an active participant in supporting Uganda's malaria efforts. UNICEF contributes to some ongoing activities related to malaria, although recently this has not been a major focus for UNICEF in Uganda. World Bank funding is available to the government for malaria control within their IDA funding envelope.

GOAL OF PRESIDENT'S MALARIA INITIATIVE

By 30 September, 2011, reduce malaria-related mortality in Uganda by 50%.

TARGETS OF THE PRESIDENT'S MALARIA INITIATIVE

After three years of full implementation (30 September 2010), the PMI will provide accelerated resources to assist the country to achieve the following targets among at-risk populations for malaria:

1. 85% of children under five will have slept under an insecticide-treated bed net (ITN) the previous night;
2. 85% of pregnant women will have slept under an insecticide-treated bed net (ITN) the previous night;
3. 85% of children under five with suspected malaria have received treatment with an antimalarial drug in accordance with national malaria treatment policies within 24 hours of the onset of their symptoms;
4. 85% of houses targeted for indoor residual spraying will have been sprayed; and
5. 85% of children under five with suspected malaria have received treatment with an antimalarial drug in accordance with national malaria treatment policies within 24 hours of the onset of their symptoms.

MONITORING AND EVALUATION

Current status

Monitoring and evaluation to measure progress against project goals and targets, to identify problems in program implementation and allow modifications to be made, and to confirm that those modifications are having their desired effect will be a critical component of the PMI. In Uganda, rapid scale-up of malaria prevention and control interventions and achieving high coverage rates with ACTs, ITNs, IPT, and IRS are priorities not only for the PMI, but also for the NMCP, the GFATM, and other national and international partners working on malaria. For this reason, an effort will be made to coordinate all monitoring and evaluation activities funded by the PMI with those of the NMCP and other partners into a single integrated system to avoid duplication, conserve resources, and ensure as much uniformity as possible in the indicators chosen to measure progress, in approaches to collecting and analyzing data, and in reporting.

Baseline data (as of 2004) for the key indicators for the PMI were identified for Uganda's Health Sector Strategic Plan II (HSSP) 2005-2010. A Demographic and Health Survey (DHS) will take place in early 2006 (field work to be done in January/February 2006) which will provide final baseline data. A malaria module will be included in the DHS, and specific questions have been added to meet the needs of the PMI. Baseline data from the HSSP have been included in table below, to be confirmed or adjusted depending on DHS results.

<u>Evaluation of Progress toward the President's Malaria Initiative Goal and Targets:</u>

The PMI evaluation plan in Uganda consists of two major components:

1. Evaluation of coverage rates for the four key interventions, ACTs, ITNs, IPT, and IRS (e.g., percentage of pregnant women sleeping under an ITN the previous night)
2. Evaluation of impact on malaria mortality and morbidity; and levels

At the end of the first year, progress against each of the process indicators listed below will be reported by all implementing partners.

Table 1: Process indicators (to be used in association with impact indicators)[6]

Treatment:

- Numbers of ACTs distributed, where distributed, and percentage used by district
- Use of Homapak (or other home-based treatment package) – numbers distributed and used, by district
- % of districts with health facility staff fully trained in ACT delivery
- % of districts covered by IEC/BCC messages on new ACT treatment
- % of health facilities with no stock-outs of ACT for 3 weeks or more

Malaria in Pregnancy

- Number of SP doses delivered and used by district, number of stock-outs
- % of districts with health facility staff fully trained in IPT
- % of districts covered by IEC messages on IPT and IPT 2
- % of districts with increases in antenatal clinic attendance
- % of pregnant women receiving IPT1 and IPT2

ITNs

- Number of ITNs purchased
- Number of ITNs distributed by source, by district, by urban/rural and by socioeconomic status
- Number of nets distributed by the commercial sector that are LLINs

IRS

- Number of spraying machines purchased
- Amount of insecticide purchased
- Number of persons (sprayers/supervisors) trained

Entomological Monitoring and Evaluation

Uganda, through the PMI, needs to effectively monitor vector mosquito populations for susceptibility to insecticides to detect selection for physiological and behavioral insecticide resistance associated with IRS/ITN use. Behavioral resistance would be monitored through human bait collections conducted inside and outside houses with IRS/ITNs. The *Anopheles* species mosquitoes collected from the human bait collections would be evaluated for

[6] Data will be disaggregated by Region, District, Gender, Age, and other relevant focus areas

physiological resistance using the CDC Bottle assay, and subsequently identified to species and the sporozoite rate determined using the *P. falciparum* CSP ELISA.

Indoor *Anopheles* vector densities would be monitored to detect changes in IRS/ITN insecticidal efficacy and changes in man-vector contact rates. Efficacy should be monitored and evaluated using indoor pyrethrum spray collections with the mosquitoes collected identified to species and the sporozoite rate determined using the *P. falciparum* CSP ELISA.

Quality assurance of IRS treatment and ITNs should be monitored to verify both initial efficacy and longevity of ITNs and IRS treatment. The standard WHO cone bioassay would be used to for these evaluations.

Entomology M&E will require personnel trained in mosquito collection and identification and an insectary to rear mosquitoes needed for the bioassays. An ELISA testing capability could be established in each country, or mosquitoes could be sent to a central/regional laboratory for analysis. When resistance is identified, CDC-Atlanta staff will assist in identification of the mechanism(s) using biochemical and molecular methods.

Other data collection

Uganda has a health management information system (HMIS) that collects disease and case incidence data from all districts in Uganda, including reporting on malaria cases. Reporting from most districts includes information from over 60% of all sub-districts and counties, with many districts reporting 70-80% of sub-counties. There is an upward cascade of reports: from the health units to district headquarters, and finally to Ministry of Health headquarters. There is an Integrated Disease Surveillance and Response system in place. Both of these systems collect data from the facility level. Through the HBMF program, community data is available, but it is of poor quality and not generally aggregated at district or national levels. The community medicine distributors have registers in which they record what actions have been taken; however, this information is not always collected by the health facilities.

There are two demographic sentinel system (DSS) sites that are only marginally functional. The PMI will work to strengthen one DSS site so it can provide periodic surveillance data to monitor progress. Data from these sites will be used to monitor the impact of the new malaria treatment policy (ACT) on malaria morbidity and mortality in the country. There are also seven functional sites for anti-malaria drug sensitivity monitoring. Studies will continue at these sites and the results will help inform the program directorate of any need for treatment policy review.[7]

While there is limited capacity for reporting adverse drug reactions, a well-functioning pharmacovigilance system is not in place. Thus, development of such a system is a high priority for the MOH. This system should monitor susceptibility or resistance to insecticides for ITNs or IRS as well as ACT adverse drug reactions.

Proposed USG component:

[7] The East African Network for Monitoring Antimalarial Treatment (EANMAT) was established in 1997 with 8 sentinel sites in Uganda, Kenya and Tanzania. In Uganda, seven of these sites have successfully conducted many rounds of studies. Data from these sites were used as evidence to change the malaria treatment policies.

1. *Strengthen one DSS site:* In year one, the PMI will focus on strengthening DSS sites so that that can provide the necessary data to measure all-cause mortality and malaria related mortality.
2. *Support the addition of verbal autopsy to the FY06 DHS:* The addition of verbal autopsy allows the DHS to identify malaria deaths and thus create a baseline of malaria mortality. Concurrently, this will provide an opportunity to examine the sensitivity and specificity of verbal autopsy to identify malaria deaths
3. *Collect HIS and other data on ITN use, IRS coverage, IPT coverage, ACT roll-out, and quality improvement.* The MEMS project will serve as central data collection point to analyze PMI progress towards the goals and allow for rapid reporting of results.
4. Appendix 4 outlines these activities as well as other M&E activities funded centrally.

EXPECTED RESULTS – YEAR ONE

Indicator*	Baseline	Year 1
Proportion of pregnant women who receive 2 or more doses of IPT during their pregnancy	33%	40%
Proportion of children under five sleeping under an ITN the previous night	15%	50%
Proportion of pregnant women sleeping under an ITN the previous night	12%	35%
% of houses targeted for indoor residual spraying (IRS) that have been sprayed	0%	60%
% of districts nationwide where malaria treatment with ACTs is implemented in health facilities	0%	50%
% of children under five with suspected malaria attending a government health facility receive treatment with an ACT	0%	35%
% of children receiving community treatment of malaria (children under five with fever who receive treatment within 24 hours of onset of symptoms)	60%	60%

*95% of the population is at risk of malaria year round- 5% of the population is only at risk during epidemics.

INTERVENTIONS - PREVENTION

INTERMITTENT PREVENTIVE TREATMENT

Current status

In 1998, the policy for Intermittent Preventive Treatment for pregnant women (IPT) was adopted to cover all of Uganda's districts; however, implementation did not begin immediately. The IPT policy recommends that pregnant women should receive two doses of SP after the first trimester. The MOH included MIP control strategies in both its Health Sector Strategic Plan I (HSSP1

2000-2005) and HSSP II (2005/06-2009/10). At the central level of the NMCP, a focal person is responsible for MIP related activities. This person is expected to work closely with the Reproductive Health unit (RH) to implement focus antenatal care (FANC). FANC is a minimum package of services that a pregnant woman should receive when visiting an antenatal care facility (ANC). The MIP strategy identifies activities that should be conducted at different levels of the health delivery system, including the community level. The RH and NMCP are jointly responsible for the implementation of the program through training, support supervision, monitoring and evaluation and operational research.

The 2004 report on MIP activities presented by the NMCP showed that approximately 95% of pregnant women in Uganda attended ANC at least once during their pregnancy. Of those women, 80% returned for a second visit. However, the women start ANC visits very late in their pregnancy, and therefore very few received the recommended 2 doses of SP. SP resistance in Uganda is about 10%, and the current HIV sero-prevalence among pregnant women is 6.4%. There is a varying level of IPT coverage in different districts ranging from 10% to 50%, and the national average of IPT_2 (2 doses of IPT during pregnancy) is estimated at 33%.

District health workers were trained on IPT during an ongoing training by the USAID program DISH II, which included a section on MIP. A national FANC training manual does not exist, and the previous MIP training was limited to ANC workers only. Uganda was successful in its application for the GFATM Round 2, and IPT was a component of the application. A number of the NGOs are implementing IPT in the districts where they operate. There is no systematic implementation of IPT in the private sector and there are no reports available from private clinics to the NMCP.

Although the NMCP and RH are supposed to jointly implement all activities related to IPT, the NMCP solely handles IPT activities. In some of the health facilities where IPT is being implemented, there are a number of problems including inadequate orders by health facilities of SP for both treatment and IPT. As a result, SP is used only for case management, as ACT implementation has not yet started. Most of the ANC clinics do not have SP available, nor do they have cups and water available for pregnant women to take SP as directly observed therapy (DOT). Anecdotally, it is said that a number of pregnant women, as well as some ANC workers, believe SP is too strong a medicine to be taken during pregnancy, and therefore the women do not take the SP even if it is available. In Uganda, ANC services are only delivered at health centers that service the sub-county level and above; this reduces pregnant women's access to IPT.

The NMCP is planning on developing a directly observed therapy (DOT) approach at the community level for IPT. This will be integrated with the HBMF and other community-based interventions.

Proposed USG Component

The current level of 33% of pregnant women receiving at least 2 doses of IPT is well below the Abuja target, and far from the PMI target of 85%. Through PMI, efforts will be made to address and solve identified problems to increase coverage of IPT.

PMI will facilitate a review of the current implementation of IPT activities in the country involving the NMCP, RH and all stakeholders, especially NGOs. A multi-disciplinary technical team will be established to review and adapt a FANC training manual as well as the facilitator's guide. The team will subsequently write an implementation plan for the re-training of health workers. This training will also include NGOs and FBOs, and all categories of health workers who play a role in the delivery of services at the facility level, including dispensary and laboratory staff. This will help resolve the problem of inadequate SP requisition, and make SP available to ANC staff to provide IPT with SP as through DOT. Strategies will be discussed with districts on how cups and clean water may be provided for IPT DOT implementation.

To create demand for IPT by pregnant women, advocacy using appropriate IEC materials will be used. These messages will encourage pregnant women to attend ANC early and these messages are intended to expel the notion of SP being too strong of a medicine to use during pregnancy. Advocacy will be headed by the health education unit of MOH in collaboration with the NMCP utilizing all available media outlets.

The RH and NMCP will work with the data collection unit of MOH to improve the data collection process and analysis of IPT uptake at the district level. Feedback will be given to each district accordingly.

Proposed activities are as follows:

1. *Adoption and printing of FANC training manuals:* A multi-disciplinary technical team composed of academia as well as the NMCP and RH program will organize a five-day workshop to review all available literature and develop country specific guidelines for FANC activities. The team will adapt existing training manual to address the Uganda context. This team will also update the pre-service curriculum for the various institutions that train health professionals.

2. *Develop implementation plan for FANC training:* Both the NMCP and RH will develop a systematic detailed plan of action for training of health workers in the country. The training will last approximately 3 days.

3. *Develop and conduct FANC training for health workers:* The training could have an initial training-of-trainers (TOT), after which teams will be formed to start training the various identified regions. Participants who excel during the training will be recruited to facilitate subsequent trainings.

4. *Adequate requisition of SP from medical stores:* With the arrival and introduction of Coartem for case management, the SP stock in the country will be reserved for IPT use only. Therefore, enough SP will be available for the initial 2 years of the PMI. However, national estimates will be made and sufficient SP will be ordered during the second year of PMI.

Table 3: ITN requirements in the IDP camps in Year 1 to achieve 95% coverage

Baseline	Total Nets per Target group
25% <5s already using ITNS in IDP camps	245,000
25% Pregnant Women Already using ITNs in IDP camps	60,000
25% of PLWHA using ITNs in IDP camps	50,000 (50% coverage)
Total	**395,000**

2. ITN Re-treatment: The PMI will support the re-treatment of existing nets in 19 selected districts with a population of 10.8 million people in 2.2 million households. These districts are currently supported by the USAID UPHOLD project that has trained re-dippers that are experienced in net re-treatment. The previous re-treatment campaign retreated approximately 74% of existing nets. The launch date for this follow-up re-treatment campaign is January/March 2006 in order to ensure continued efficacy of these ITNs. Approximately 715,000 nets will be retreated. The campaign will be supported by an IEC campaign launched by the Afford social marketing project.

3. National distribution of LLINs: Currently, 15% percent of the five million children under five and 12% of the 1.3 million expected pregnant women are using nets. To achieve 50% coverage of children under five, 1.8 million nets are needed. In 2006, approximately 2 million ITNs will be distributed via a mass distribution campaign to children under five, and PLWHA. These ITNs will cover both newborns as well as play "catch-up" with older under five children and will be a national effort[9]. These ITNs will be provided by the following organizations: GFTAM procurement of 1.79 million bundled ITNs targeted for children under five, a JICA procurement of 30,000 ITNs, and the previously mentioned UPHOLD purchase of 180,000 LLINs. Because the above mentioned ITNS are primarily targeted at children under five, the PMI will focus on providing ITNs to pregnant women. To achieve 35% coverage of pregnant women, the PMI will procure through UNICEF the 300,000 nets needed and will distribution them upon their arrival in year 2.

Table 4: 2007 ITN NEEDS and PMI procurements

Baseline	2007 ITN needs and Sources of ITNS
15% <5s already using nets 780,000	Total ITNs needed: 1.8 million (50% coverage) Sources ITNs: 30,000 from JICA 70,000 from UPHOLD 1,790,000 from GFATM 0 from PMI
12% of Pregnant Women Already using ITNs	Total ITNs needed: 300,000 (35% coverage)

[9] This effort will not be in the Kabale district which is receiving IRS.

of NMCP, which has conducted vector-insecticide interactions assessments (resistance, repellency, outdoor biting).

Proposed activities are as follows:

1. *Support IRS in the Kabale District:* The PMI will assist the NMCP and their partners with an IRS campaign in the Kabale district using the insecticide lambda cyhalothrin. All households in the district are to be sprayed, however, the first ones to be targeted will be the 'high risk' villages described in the MOH briefing document "Kabale District - Parishes most affected by malaria." Specific assistance will be provided to conduct the initial round of spraying, purchase insecticide, build the capacity of the IRS team (all levels), and expand IRS operations based on the national IRS policy document currently under development by the NMCP with assistance from technical partners. This will also include the mapping of area selected for IRS.

2. *Build IRS management capacity locally:* The PMI will work through the RTI project to build the local capacity of Uganda to support the expansion of IRS. This would include the development of goals and targets which reflects the 5-year Uganda country PMI objective (15 districts to be sprayed during years 4 and 5 plus targeting of certain institutions (boarding schools, hospitals, prisons) where ITN use is less feasible. This management unit would also handle the logistics related to the transport of the insecticide and the forecasting and procurement of insecticide for future years.

3. *Support MOH in IEC/BCC/community mobilization:* Activities will include campaigns to mobilize and educate communities in villages targeted for IRS on what IRS is, as well as the benefits, risks and proper procedures for safety.

INTERVENTIONS – TREATMENT

CASE MANAGMENT

Current status

Uganda is a member of the East Africa Network for Monitoring Antimalarial Treatment (EANMAT) and has sentinel sites for drug testing and efficacy monitoring. Studies conducted by these sites between 1995-98 showed CQ resistance of 28.5% in children under five years old. By 2002-04 the resistance increased to 33%. SP resistance increased during same period from 5.5% to 16%. Based on these findings, the national malaria treatment policy for first-line treatment of malaria was changed from CQ monotherapy to a combination of CQ and SP. This was an interim solution until better options became available. Although the decision was made in 2000, the change was not implemented until 2002. However, further studies done on drug sensitivity between 1999-2001 and 2002-2004 also showed increasing resistance to the CQ/SP combination from 7% to 11.7%. In late 2004, a national malaria treatment policy was adopted with Coartem as the 1st line drug in treating uncomplicated malaria and artesunate + amodiaquine as the alternate. Quinine is still maintained a second-line treatment and for treatment of complicated malaria and the treatment of uncomplicated malaria in pregnancy.

ACTs are found to be appropriate and are available for use at community level for HBMF. In addition, the GOU is identifying alternative funding sources other than the PMI or the GFATM for the continued purchase of the Homapak.

Training of health staff on use of this new drug has yet to commence. There is a detailed plan by NMCP for the training of health staff for a Coartem roll-out and use as well as a budget for training in Coartem implementation. The training of the whole country will take about 4 months. It is also necessary to update the curricula of pre-service institutions that train health workers. With the introduction of Coartem, there should be a pharmacovigilance system put in place to monitor adverse drug reactions. Currently, Makerere University—UCSF is conducting a pilot program on pharmacovigilance, and the NDA is also training institutions in pharmacovigilance.

Malaria diagnosis:
At the sub-county level, the health centre level III is the lowest level in the health delivery system with a laboratory and is supposed to be operated by a laboratory assistant and offer basic laboratory tests. However out the 901 health centre III, only 346 have functional laboratories. The Central Public Health Laboratory (CPHL) is mandated to coordinate, monitor and supervise all the HC III and IV level laboratories but the CPHL is grossly understaffed having only 3 persons and with few resources to carry out this mandate over the peripheral laboratories. Many of the laboratories have even fewer resources and the quality of service is low.

In Uganda, out-patient attendance due to malaria ranges between 25-40%. Most of malaria diagnoses in health facilities are based on clinical presentation. The NMCP strategic document refers to the reliability of microscopy, which is influenced by the quality of equipment, expertise, and the experience of the person performing the test. The document also cautions of the accuracy of these laboratory results, and therefore recommends presumptive treatment of malaria for persons with fever within 24 hours without the evidence of any other disease.

The NMCP presently does not recommend routine use of RDT for diagnosis in Uganda except in the cases of epidemics and in children under 4 months. The NMCP is expecting 100,000 RDTs in the country under the GFATM round 2 grant and this will be used for pilot studies in 3 districts. This will help inform where and when to use RDT. The MOH continues to recommend that the diagnosis of malaria be largely be presumptive; however, the PMI will promote the use of RDT at laboratory facilities to expand diagnostic capabilities. RDTs are not currently used in health facilities, but it is expected that RDTs will be used in HC II & III, many of which may not have laboratory facilities. RDTs may also be used in special situations of suspected malaria epidemics as they occur in certain highland areas, and when mass population movements occur as in some of the northern parts of the country.

Through the PEPFAR, funds have been provided by CDC for the purchase of 35% of the national requirements of microscopes. Through the GFATM round 2, 150 additional microscopes (representing 25% of the national need) have been ordered, but there is still a 40% deficit. AMREF, a NGO, has been contracted by CDC to conduct quality assessment in the various facilities and train laboratory personnel on laboratory management and quality control. Refresher training will also be conducted for all laboratory facilities to improve integration of programs such as tuberculosis control program.

Drug Quality:
The government of Uganda has mandated the NDA to test all antimalarial drugs that are imported or manufactured in the country before they are permitted to be sold. Even though the NDA receives a fee for each drug test, it does not generate enough resources to buy the needed equipment to facilitate or expedite its work. With the expected arrival of an increased quantity of antimalarial drugs and insecticide for IRS, it is important to help the NDA acquire the needed equipment to quickly conduct post-shipment testing and prevent bottlenecks.

Proposed USG component:

Proposed activities are as follows:

1. *Procurement of ACTs:* The major source for procurement of ACTs (Coartem) for the government and NGO health facilities will be mainly from the Global Fund round 4 grant, which was signed in March 2005. Despite the suspension of the GFATM grants (now lifted) in Uganda, Coartem was still purchased as part of an emergency procurement of life saving drugs. With the first shipment of Coartem (3.8 million doses) expected latest in February 2006, there is no immediate need for ACT procurement through PMI, except for the Northern Districts. As part of the "Jumpstart" activity in Northern Uganda, the PMI will procure 130,000 doses of Coartem through WHO.

2. *Logistics and Supply management:* If ACTs are to be rolled out quickly, they must be integrated into the current system of drug distribution, and 20% should go through JMS to the private, not-for-profit sector, and 80% through NMS for the government facilities. For NMS, this implies that Coartem must be included in the drug list for the districts as a free drug. In addition, distribution plans for an initial push of 2-3 months supply for each district must be prepared, and emergency procurement for the districts in the North receiving ACTs earlier will ensure a continuous supply. Technical assistance through the Deliver project has to start immediately since successful rollout of ACTs will depend on it.

3. *Quality control:* According to Ugandan law, all imported drugs have to be quality tested by the NDA. While the laboratory capacity at this institution is being built through various mechanisms (including PEPFAR), there is still need for further expansion in order to guarantee that all incoming ACTs are rapidly processed. A high pressure liquid chromatography machine as well as a gas chromatography machine, together with an initial supply of reagents, will be procured, and funds will be supplied for training of staff.

4. *Training of health workers on ACT:* The training of health workers on the new treatment policy for uncomplicated malaria will follow the model successfully used in 2002. A core national team consisting of zonal coordinators and consultants will be re-trained. Many members of the team have already been involved in the last training, as well as in the development of materials for the ACTs. These will in turn train and orient the district

staff in several regional workshops. With support and supervision from the core team, the districts will then train all health workers on-site as part of a one-day training at the health facilities. Since the core team is already available and the training materials for the new ACT treatment policy have been developed, this activity can be accomplished nationwide within 3-4 months, provided the funds are available including the printing of the materials (e.g. health workers' guide for uncomplicated malaria treatment and laminated treatment algorithms). In order to have the training in place by the time the ACTs are delivered to the districts in about February 2006, this activity must be given high priority. Another activity to be carried out includes updating the pre-service curriculum to incorporate the new treatment policy. There is also a need to train health workers in hospitals and health centre IVs (four-day workshops) in the management of severe malaria.

5. *Supportive Supervision:* Supportive supervision of health workers will help improve and maintain good practices. Supervision of HBMF the community drug distributors is a serious gap for which the districts lack funding. It is recommended to hold quarterly supervision meetings and also if possible, and to visit each community medicine distributor at least one every 3 months.

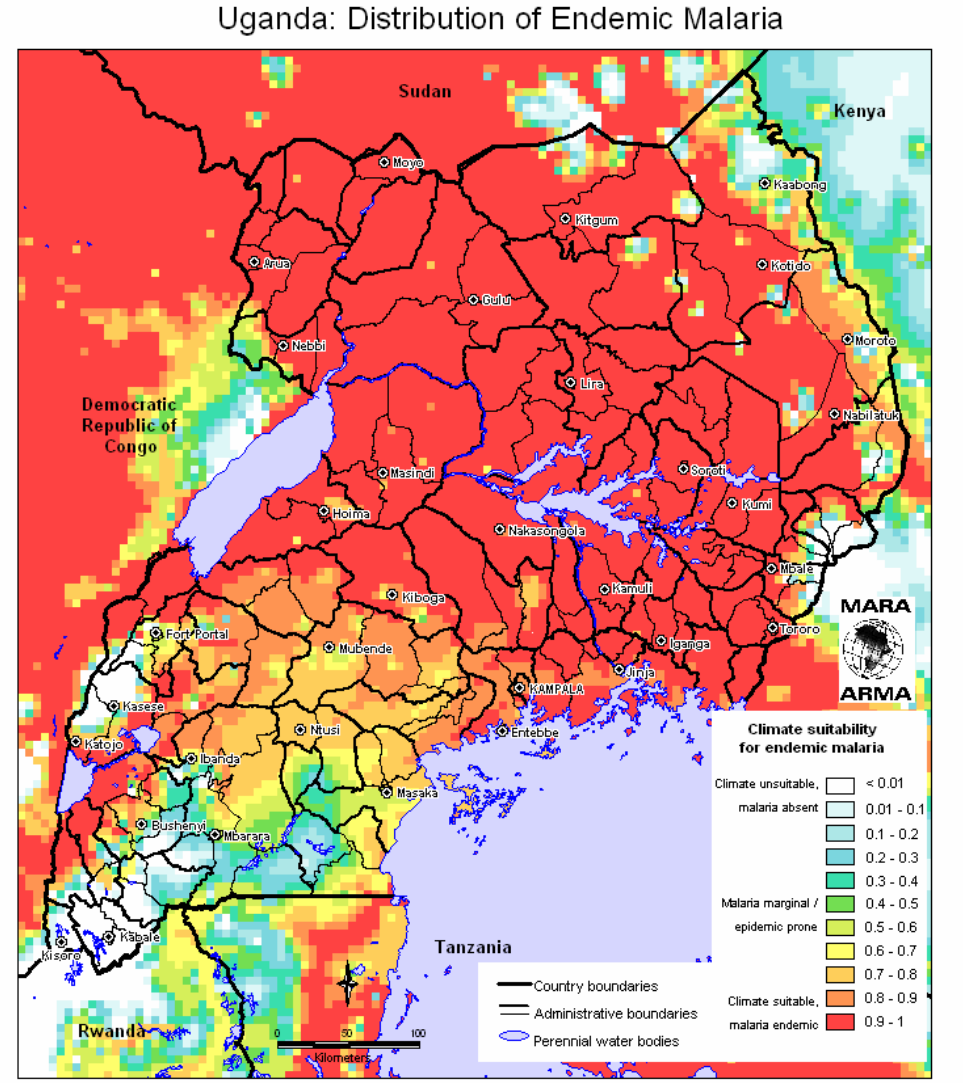
6. *IEC/BCC:* This is a critical activity to ensure the acceptance and correct use of Coartem. Comprehensive plans for advocacy, mobilization and BCC at all levels are part of the GFATM round 4 grant, and although the suspension of these funds has been lifted, the PMI will need to ensure that activities on the ground by early 2006. Availability of these funds is still not known. Essential measures will be taken over by PMI as negotiated. This could include development of key messages, posters and radio spots in several languages, printing, production and dissemination. As soon as GFATM funds are available, the PMI will shift funding from this activity to other priorities.

7. *Pharmacovigilance:* Since Coartem is a new drug on the market, there needs to be a system in place to capture possible adverse effects. Passive surveillance is carried out by NDA within their routine activities. In addition to funding through the GFATM round 4 grant, several activities are currently being carried out or planned by other partners (CDC/UCSF, DfID/MC) that will contribute to the development of a pharmacovigilance system. Therefore, no immediate action is needed through PMI. However, during year 1, progress will to be closely monitored and adequate provision made for year 2 should this be necessary.

8. *Diagnostics:* There are two main lines of activities planned under the NMCP to improve diagnosis of malaria, strengthening and expansion of laboratory services at health centers that serve the district and sub-county level and introduction of RDT where feasible. For the latter, it is planned to first develop guidelines and an implementation strategy through a pilot in the three districts. Funding for this pilot is available through DfID/MC as well through the implementation of the GFATM Round 4 grant. It is expected that this will take place in the first half of 2006, with results available by the end of 2006. However, for the procurement of RDTs, PMI will have to provide funds in years 2-5.

APPENDIX

Figure 1



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

Figure 2:
Map of activities in Uganda

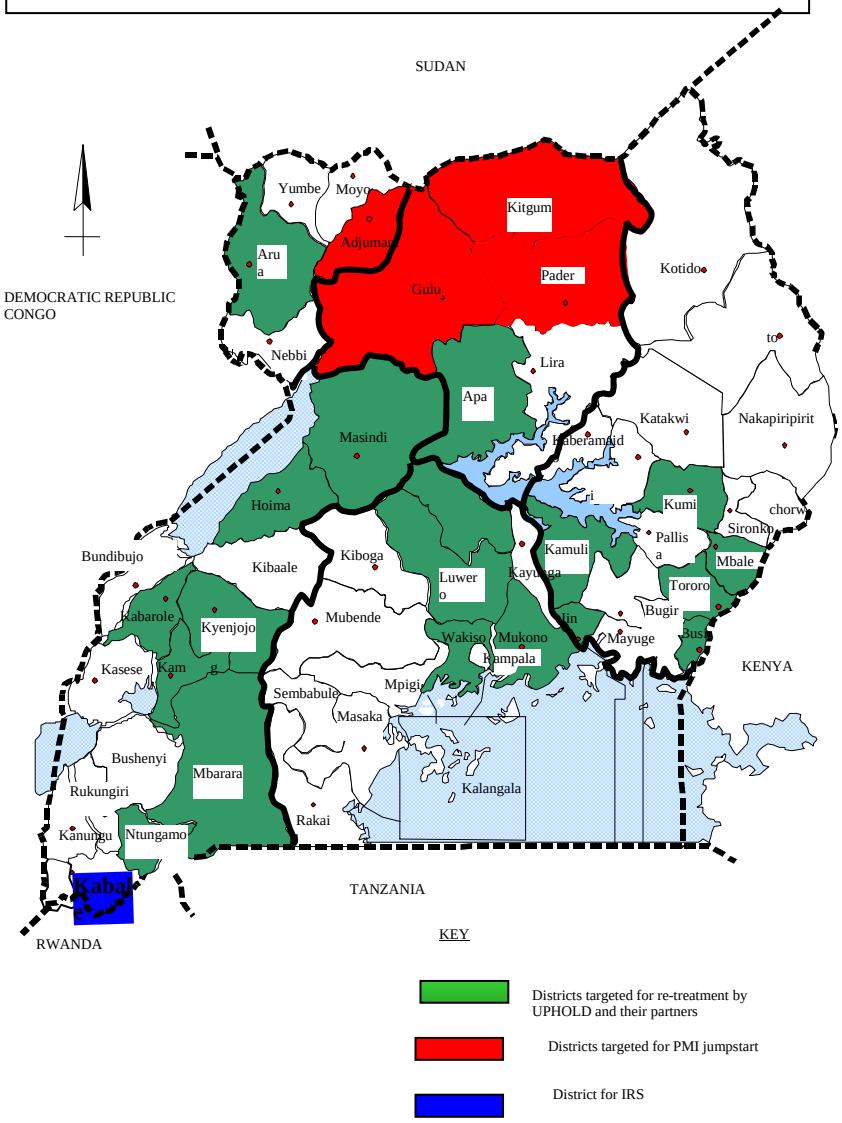
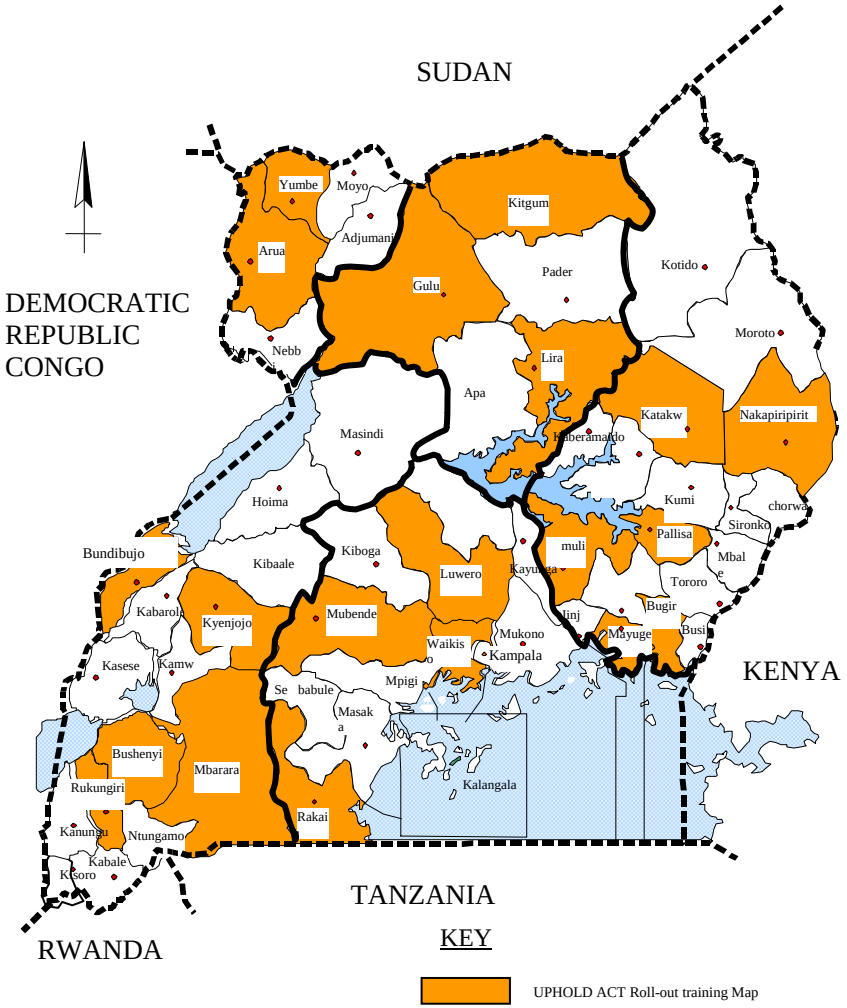


Figure 3: Map of ACT roll-out training



Districts for ACT Roll out Training

Table 1
President's Malaria Initiative – Uganda
Year 1 (FY06) Timeline of Activities

ACTIVITY	2005	2006											
	OCT-DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC
Hire PMI in-country staff													
Purchase commodities (LLTNs; re-treatment kits; IRS equipment; ACT; lab equipment)													
Developed pre-service and in-service focused ANC training materials and implementation plan													
Conduct Focused ANC training and IEC activities													
Build ITN procurement, distribution and logistics management capacity													
Support distribution of ITNs to under fives (child health days, immunization campaigns, etc)													
Support distribution of ITNs to pregnant women													
Support net re-treatment campaigns													
Hire IRS contractor to execute first round of spraying and to train new sprayers													
Conduct IRS spraying													
Conduce IEC/BCC campaign on spraying													
Support the introduction of ACTs into existing drug distribution systems													
Update pre-service and in-service curriculums to reflect ACT treatment guidelines													
Train health workers on ACT use													

Table 2
Uganda – Year 1 Targets

Intervention	Needs for 100% Nationwide Coverage	Needs for 85% Nationwide Coverage (PMI 2010 target)	Needs for Year 1 PMI targets	Year 1 Contributions
IPT	1.3 million pregnant women x 2 treatments/woman = 2.6 million treatments	2.2 million doses	Target: 40% (baseline: 33%) 1.04 million doses needed	GFATM is providing 12 million does of SP
LLINs	5.2 million children <5; 1.3 million pregnant women **TOTAL** = 6.5 million LLINs*	5.5 million LLINs	Target: 50% of children under five (baseline: 15%) 1.8 million ITNs needed Target: 35% of pregnant women (baseline: 12%) 300,000 ITNs needed	GFATM – 1.79 M (bundled ITNs) JICA- 30,000 PMI- 300,000 **TOTAL** = 2.12 million LLINS or ITNs
ACTs – children < 5 ACTs – older children and adults **TOTAL**	5.2 million children x 2.3 episodes/year = 12 million treatments 2.8 million treatments (assumes 1 episode for a third of the adult population) 14.8 million treatments	12 million x 85% = 10.2 million treatments 2.8 million x 85% = 2.4 million treatments 12.6 million treatments	Target: 35% (Baseline: 0%) 4.2 million pediatric treatments 1.2 million treatments 5.4 million treatments	GFATM- 15.7 million treatments of Coartem to arrive in four shipments starting Feb. 2006. Adults are not the target population for the PMI
IRS	1 district of Kabale; 15 districts over 5 years^	13 districts	Target: Kabale district	PMI- Targets Kabale District beginning with the 200 most high risk villages which comprises 60% of households

Table 3
PMI Planned Obligations FY 2006

Proposed Activity	Mechanism	Budget $ (commodities)	Geographic Area	Description of Activity	Relation to Intervention
PREVENTION ACTIVITIES					
Northern Uganda "jumpstart" LLINs	UNICEF	$1050,000 ($1,050,000)	Northern Uganda	Purchase of LLINs for IDP camps in Northern Uganda	ITN
Distribution of "Jumpstart" LLINs	JHU/CCP-AFFORD	$200,000	Northern Uganda	Distribution of LLIN to pregnant women and children under five in IDP camps	ITN
IEC for ITN distribution	JHU/CCP-AFFORD	$400,000 ($250,000)	Northern Uganda	IEC campaign for free ITNS, social marketing and targeted subsidies of procured ITNs	ITN
LLINs procurement	UNICEF	$1,705,000 ($,1705,000)	National	Procurement of LLINs for distribution nationally to target populations in Y2	ITN
Net re-treatment	UPHOLD to Malaria Consortium	$680,000 ($300,000)	TBD	Mass re-treatment campaign in	ITN
ITN logistics	MSH-RPM+	$200,000	National	Support and strengthen the distribution of GFATM nets	ITN
Private Sector LLINs	AED-NETMARK	$330,000	National	Support the development of the private sector net market	ITN
Indoor Residual Spraying in Kabale District	RTI-IVM Task Order	$1,000,000 ($500,000)	Kabale district	IRS implementation	IRS
IEC for IRS in Kabale District	RTI-IVM Task Order	$250,000	Kabale district	IEC, BCC to increase acceptance of IRS in households	IRS

IRS Management	RTI-IVM Task Order	$500,000	National	Manage the logistics, procurement and training to accompany the reintroduction of IRS	IRS
Malaria in Pregnancy Training	JSI-UPHOLD	$330,000	National	Provide training on the administration of IPT as part of a reinvigorated ANC	IPT
IEC for Intermittent Presumptive Treatment	JHU/CCP-HCP	$115,000	National	Provide supportive BCC to encourage women to seek 2 doses of IPT	IPT
TOTAL: Prevention $6,760,000 ($3,805,000) Commodity %56					
CASE MANAGEMENT ACTIVITIES					
ACT roll-out training	JSI-UPHOLD	$330,000	Arua, Yumbe, Gulu, Kitgum, Katakwi, Lira, Nakapiripirit, Kyenjojo, Mubende, Bundibugyo, Mayuge, Pallisa, Bugiri, Kamuli, Bushenyi, Mbarara, Rukungiri, Wakiso, Luwero, Rakai.	Provides training to health care workers on use new ACT malaria treatment policy	Case Management
Logistical assistance for ACTs	MSH-RPM+	$100,000	National	Support the changes in the logistic system necessary to roll-out ACTs	Case Management
Advocacy and IEC for ACT policy	JHU/CCP-HCP	$ 140,000	National	Provides information and educational, media support for roll-out of ACT drug policy	Case Management
Procurement of Coartem as part of "jumpstart"	WHO	$335,000 ($335,000)	Northern Uganda	Procures 130,000 doses of Coartem for Northern Uganda	Case Management

Equipment for National Drug Authority	USP	$225,000 ($125,000)	National	Purchase of HPLC, GC, and reagents for National Drug Authority	Case Management
Evaluation of cACT as part of the HBMF program	CDC- $400,000 UPHOLD- $300,000	$700,000	Select districts	Examines the feasibility of the HBMF with ACT and provides continued support HBMF program	Case Management
Total Case Management $1,830,000 ($680,000) Commodity %37					
MONITORING AND EVALUATION					
Support for one DSS site	CDC/IPH	$100,000	Kabale District	Support the strengthening of a DSS site	M&E
Routine reporting	MSI-MEMS	$100,000	National	Collects and analysis data for reporting	M&E
Support for verbal autopsy in the DHS	CDC/TBD	$140,000	National	Use verbal autopsy to assess malaria-related mortality.	M&E
Support for supervision and quality Improvement Data monitoring	TBD	$70,000	National	Collects data on quality of care and effectiveness of training	M&E
Total M&E $410,000					

STAFFING AND MANAGEMENT					
PMI country staff	USAID/CDC	500,000		CDC and USAID PSC salaries and benefits, travel, equipment, and local support costs	Staffing
Total Staffing and Management $500,000					
Total		**$9,500,000**		**Total Commodities**	**47% (4,465,000)**

Table 4
President's Malaria Initiative- Uganda
Year 1 (FY06) Estimated Budget breakdown by Intervention ($ 000)*

	ITNs	IRS	Treatment	IPT	Epidemics	Total
Commodities	**$3,305,000 (68%)**	**$500,000 (24%)**	**$660,000 (34%)**			**$4,465,000**
Salaries	**$200,000 (4%)**	**$300,000 (14%)**	**$100,00 (5%)**	**$100,000 (16%)**		**$600,000**
Services	**$500,000 (10%)**	**$950,000 (45%)**	**$800,000 (41%)**	**$400,000 (62%)**		**$2,650,000**
Tech Assist	**$260,000 (5%)**	**$200,000 (10%)**	**$200,000 (10%)**	**$75,000 (12%)**		**$735,000**
Other^	**$560,000 (12%)**	**$150,000 (7%)**	**$270,000 (14%)**	**$70,000 (11%)**		**$1,050,000**
Total@	**$4,825,000**	**$2,100,000**	**$1,930,000**	**$645,000**		**$9,500,000**

*Percentages apply to columns
@ Totals in this table don't match totals in Table 2 due to attribution of PMI salaries and M&E.

^Definition of Other:

ITNs: Includes security costs for distribution of ITNs in the instable northern districts, and M&E costs, specifically routine reporting costs, and monitoring supervision and quality. Printing for IEC is also included.

IRS: Includes support for strengthening of DSS sites and routine reporting costs.

Treatment: Includes support for DSS strengthening, routine reporting, verbal autopsy, and quality improvement monitoring. It also includes dissemination of outcome home-based management of fever with ACT pilot studies. Also, there are some security costs for the distribution of ACT in the Northern districts.

IPT: Includes routine reporting costs and quality improvement. It also includes printing costs for IEC materials.

Table 6
President's Malaria Initiative- Uganda
Private Sector Contribution by Intervention ($000)^

Company/Organization	ITNs	IRS	Treatment	IPT	Epidemics	Other
Kampala Pharmaceutical industries Limited			$1,210,000 (planned 2005)			
Independent net distributors	unknown					

^The private sector market is in its nascent stages in Uganda, and is mainly limited to the sale of Chinese bed nets by hawkers and the sale of antimalarial treatments in the informal markets. Little is known about the actual quantity and scope of these activities.