



Executive Summary

# THE PRESIDENT'S MALARIA INITIATIVE

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Maggie Halahan Photography

## Executive Summary

Over the past five years, many African countries have reported substantial progress in reducing their burden of malaria. Mortality in children under five years of age has fallen dramatically across sub-Saharan Africa in association with a massive scale-up of malaria control efforts with insecticide-treated mosquito nets (ITNs), indoor residual spraying (IRS), improved diagnostic tests, and highly effective antimalarial drugs. Evidence is growing that the cumulative efforts and funding by the President's Malaria Initiative (PMI), national governments, The Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund), the World Bank, and many other donors are having an effect and that the risk of malaria is declining. In fact, according to the World Health Organization's (WHO's) 2011 World Malaria Report, the estimated number of global malaria deaths fell from about 985,000 in 2000 to about 655,000 in 2010, with most of this reduction occur-

ring in sub-Saharan Africa. In spite of these remarkable achievements, progress is fragile, and malaria remains a public health problem. The goal over the next 5 to 10 years will be to sustain and build on these efforts in the face of such challenges as antimalarial drug resistance, insecticide resistance, and uncertainties around donor and national funding for malaria control.

### IMPACT ON MALARIA

Since 2006, there has been substantial progress in malaria control in the PMI focus countries. Eleven of the original 15 PMI focus countries now have results from at least two nationwide household surveys that measured mortality in children under five years of age: a baseline survey and a follow-up survey three or more years after PMI support began. All 11 paired surveys demonstrate reductions in all-cause, under-five mortality rates, ranging from 16 percent (**Malawi**) to 50 percent (**Rwanda**) (see Fig-

ure 1). Follow-up surveys will be completed in the remaining four PMI focus countries by 2013.

Although multiple factors may be influencing the decline in under-five mortality rates, there is growing evidence that the scale-up of malaria prevention and treatment measures across sub-Saharan Africa are playing a major role in these unprecedented reductions in childhood mortality.

**Tanzania** is the first PMI focus country to carry out an in-depth evaluation of the impact of the scale-up of malaria prevention and treatment measures on childhood mortality. This evaluation was conducted in collaboration with the Government of Tanzania, the Roll Back Malaria (RBM) Partnership, WHO, and the Ifakara Health Institute. Between 1999 and 2010, under-five mortality in Tanzania fell by 45 percent from 148 to 81 deaths per 1,000 live births. This

## PMI CONTRIBUTIONS AT A GLANCE

Indicator <sup>1</sup>	Year 1 (2006)	Year 2 (2007)	Year 3 (2008)	Year 4 (2009)	Year 5 (2010)	Year 6 (FY 2011)*	Cumulative
People protected by IRS (houses sprayed)	2,097,056 (414,456)	18,827,709 (4,353,747)	25,157,408 (6,101,271)	26,965,164 (6,656,524)	27,199,063 (6,693,218)	28,344,173 (7,004,903)	N/A <sup>2</sup>
ITNs procured	1,047,393	5,210,432	6,481,827	15,160,302	18,592,039	23,254,496	59,706,489 (46,894,646 distributed) <sup>3</sup>
ITNs procured by other donors and distributed with PMI support	–	369,900	1,287,624	2,966,011	10,856,994	19,307,756	31,035,352
SP treatments procured	–	583,333	1,784,999	1,657,998	6,264,752	4,701,162	13,794,245 (12,137,287 distributed) <sup>4</sup>
Health workers trained in IPTp <sup>5</sup>	1,994	3,153	12,557	14,015	14,146	28,872	N/A <sup>6</sup>
RDTs procured	1,004,875	2,082,600	2,429,000	6,254,000	13,340,910	14,572,510	33,581,385 (24,377,490 distributed) <sup>4</sup>
Health workers trained in malaria diagnosis (RDTs and/or microscopy)	–	1,370	1,663	2,856	17,335	34,740	N/A <sup>6</sup>
ACT treatments procured	1,229,550	8,851,820	22,354,139	21,833,155	41,048,295	38,588,220	116,822,629 (92,864,575 distributed) <sup>4</sup>
ACT treatments procured by other donors and distributed with PMI support	–	8,709,140	112,330	8,855,401	3,536,554	6,993,809	27,142,034
Health workers trained in treatment with ACTs	8,344	20,864	35,397	41,273	36,458	42,138	N/A <sup>6</sup>

<sup>1</sup> The data reported in this table are up-to-date as of September 30, 2011, and include all PMI focus countries and the Greater Mekong Subregion. In addition, during FY 2011, the U.S. Government provided support for malaria prevention and control activities in other countries. For data by country, see Appendix 2.

<sup>2</sup> A cumulative count of people protected by IRS is not provided because most areas are sprayed on more than one occasion.

<sup>3</sup> Distribution of ITNs varies and includes to health facilities, direct distribution to households through mass campaigns, and through the private sector via social marketing.

<sup>4</sup> Distributed to health facilities.

<sup>5</sup> These figures include health workers who were trained in focused antenatal care in Rwanda, where IPTp is not national policy.

<sup>6</sup> A cumulative count of individual health workers trained is not provided because some health workers have been trained on more than one occasion.

\* For Year 6, PMI transitioned from a calendar year to a fiscal year reporting schedule.

decline occurred during a period when major improvements were taking place in malaria control policies in mainland Tanzania, including the adoption of highly effective artemisinin-based combination therapies (ACTs) for malaria treatment and a massive scale-up of ITN distribution and use.

Although no national-level data on the prevalence of malaria parasitemia are available from Tanzania, information from several sources shows declines in parasitemia rates in children under five years of age from a level of 18 to 25 percent in the early part of the decade to less than 5 percent in recent years. The prevalence of severe anemia in young children (which is closely associated with malaria) also fell by 50 percent from 11 percent in 2004 to just 6 percent in 2010. These findings of a reduction in malaria morbidity are further supported by a modeling exercise that indicates that malaria mortality in children under five in Tanzania has fallen and that nearly 63,000 lives have been saved over the 10-year period between 2000 and 2010 due to malaria interventions.

### THE PRESIDENT'S MALARIA INITIATIVE

Malaria prevention and control is a major focus of U.S. Government foreign assistance objectives. The U.S. Government is the single largest funder of the Global Fund. PMI, which was launched in June 2005 by President George W. Bush, represented a major five-year (FYs 2006–2010), \$1.265 billion expansion of U.S. Government resources for malaria control. Its goal is to reduce the burden of malaria and thereby help promote development on the African continent. The initial objective was to reduce malaria-related deaths by 50 percent in 15 African countries with a high burden of malaria by expanding coverage of four highly effective malaria prevention and treatment measures, with a focus on pregnant women and children under five years of age, the groups most vulnerable to the severe consequences of malaria.

Based on the 2008 Lantos-Hyde United States Leadership against HIV/AIDS, Tuberculosis, and Malaria Act, which autho-

rized a further increase of up to \$5 billion in PMI funding for five more years, PMI's goal was broadened to achieve Africa-wide impact by halving the burden of malaria in 70 percent of at-risk populations in sub-Saharan Africa, i.e., approximately 450 million residents.

During the past year, PMI has expanded its efforts in Africa by:

- Designing PMI programs and beginning implementation of malaria control activities in two new PMI focus countries: **Guinea** and **Zimbabwe**.
- Expanding PMI programs in **Nigeria** to 8 of 36 states (total population of 27 million) and the **Democratic Republic of the Congo** to 4 of 11 provinces (total population of 19 million).

PMI now includes 19 focus countries in Africa and one regional program in the Greater Mekong Subregion of Southeast Asia (see map on page 7). In addition, the



## PMI External Evaluation

In 2011, PMI commissioned an External Evaluation of the first five years (fiscal years [FYs] 2006–2010) of PMI’s activities and performance. The Evaluation Team reviewed extensive documentation and interviewed key personnel at USAID/ Washington and the U.S. Centers for Disease Control and Prevention (CDC)/Atlanta, together with staff from partner organizations, including WHO, the RBM Partnership, the United Nations Children’s Fund (UNICEF), the Global Fund, and major nongovernmental organizations (NGOs). The team conducted site visits to five PMI focus countries and e-mail and telephone interviews with national malaria control program personnel and PMI staff from the other 10 PMI focus countries. The External Evaluation Report affirmed that PMI’s planning, implementation, partnerships, and funding have been key to global efforts to combat malaria. The Evaluation Team made five policy and five technical overarching recommendations that will guide programmatic improvements in the coming years. Following are a selection of positive quotes from the Report:

*PMI is by-and-large a very successful, well-led component of the U.S. Government’s Global Health Initiative.*

*[PMI] quickly re-oriented a problematic U.S. Government malaria program, took it to a large scale quickly, efficiently and effectively complemented the larger global malaria program, and contributed to the apparent reduction in child mortality.*

*PMI leadership successfully engaged key U.S. Government actors and sustained bipartisan political support for the Initiative amidst a change of Administrations and the emergence of the Global Health Initiative.*

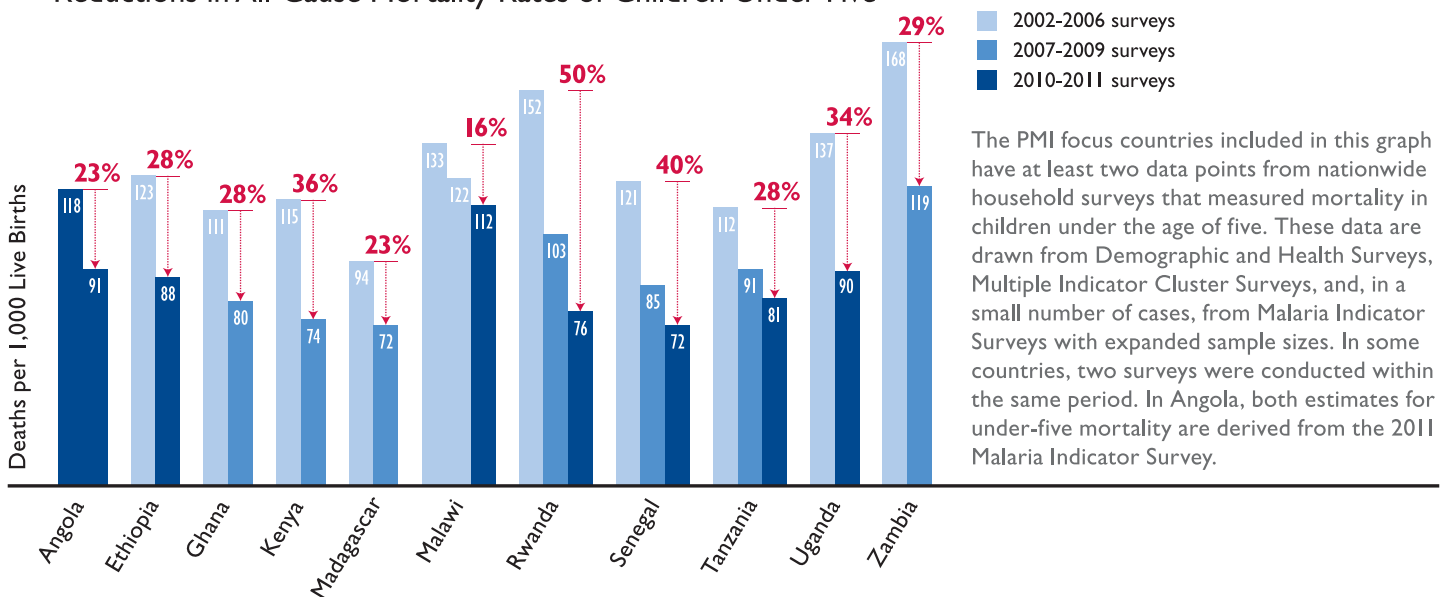
*Through its major contributions to the global malaria response via its collaborations with multilateral and bilateral partners, its effective relationship with the Global Fund, and its contributions to reinvigorating national malaria control programs, PMI has made substantial progress towards meeting its goal of reducing under-five child mortality in most of the 15 focus countries.*

*PMI is generally considered as an exemplary partner by most partners because it is not using its large and broad presence and substantial financial support to gain undue influence within the partnership. [Partners] described PMI as “flexible,” “more transparent,” “inclusive in designing its approaches,” and “receptive to ideas and suggestions.”*

The full report and PMI’s management response are available on the PMI website at [http://www.pmi.gov/news/pressreleases/pmi\\_audit.html](http://www.pmi.gov/news/pressreleases/pmi_audit.html).

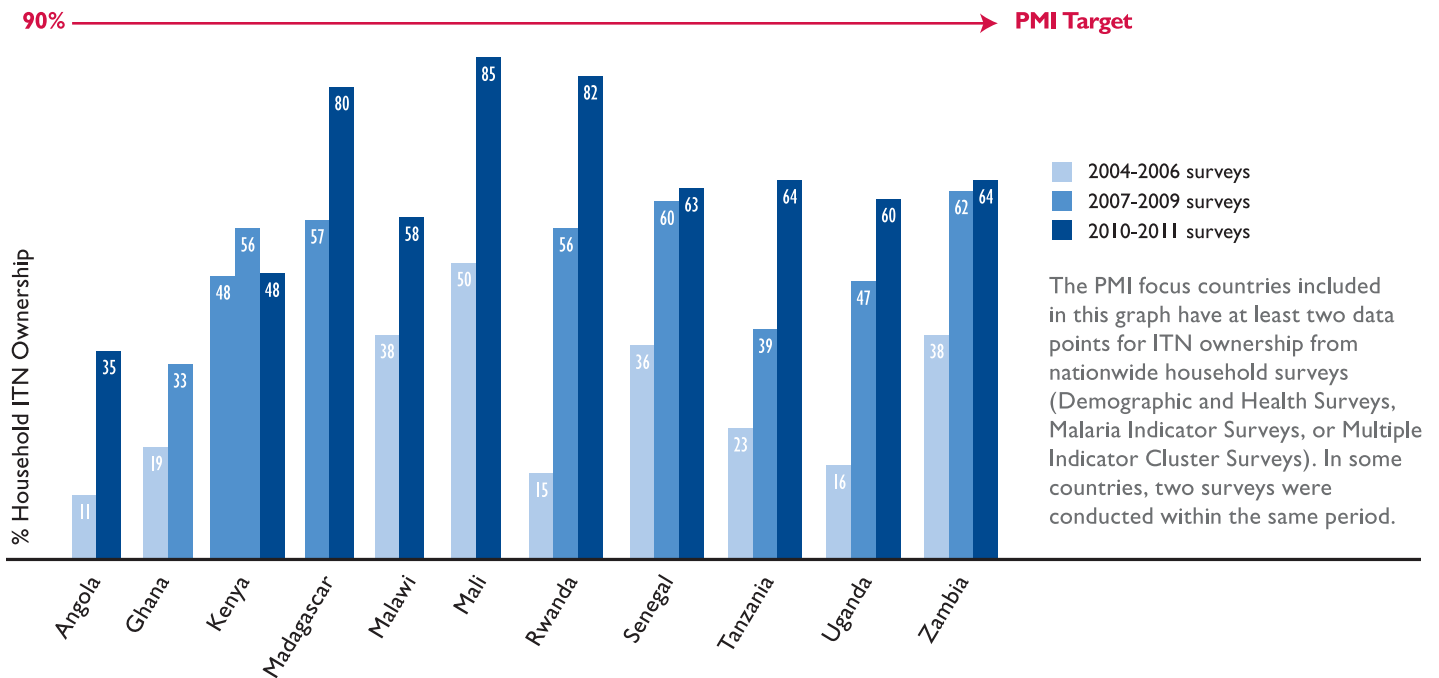
**FIGURE 1**

### Reductions in All-Cause Mortality Rates of Children Under Five



**FIGURE 2**

**Increasing ITN Ownership**



U.S. Agency for International Development (USAID) supports malaria control activities in three other countries in Africa (Burkina Faso, Burundi, and South Sudan), as well as a regional program in Latin America (the Amazon Malaria Initiative). Furthermore, USAID has made significant investments to support development of new antimalarial drugs and vaccines.

Malaria control is also a key component of the U.S. Government’s Global Health Initiative (GHI), which was announced by President Barack Obama in May 2009. This initiative builds on the U.S. Government’s commitment to address major global health concerns, such as malaria, HIV/AIDS, tuberculosis, maternal and child health, nutrition, and neglected tropical diseases. Under GHI, PMI has expanded its integration with maternal and child health and HIV/AIDS programs, worked to strengthen partnerships, and continued to build capacity in health systems.

**SCALING UP MALARIA CONTROL INTERVENTIONS**

Since PMI was launched in 2005, the efforts of national governments, together with PMI, the Global Fund, the World Bank, and many other donors, have resulted in a massive

scale-up of malaria prevention and treatment measures across PMI focus countries.

In FY 2011 alone, PMI procured more than 23 million long-lasting ITNs and 38 million ACT treatments, and protected more than 28 million residents by spraying their houses with residual insecticides (see PMI Contributions at a Glance on page 3). Additionally, PMI assisted with the distribution of more than 19 million long-lasting ITNs and nearly 7 million ACT treatments procured by other partners, highlighting the well established and productive collaboration between PMI and other donors. PMI also trained tens of thousands of health workers in malaria control – often as part of integrated health worker training and capacity building efforts – including diagnosis and treatment of malaria with ACTs. In all PMI focus countries in Africa and the Greater Mekong Subregion, PMI supported health systems strengthening and capacity building, with a particular focus on pharmaceutical management, laboratory diagnosis, vector control, and monitoring and evaluation.

These contributions have led to dramatic improvements in the coverage of malaria control interventions in the 15 original PMI focus countries. Eleven PMI focus countries

(**Angola, Ghana, Kenya, Madagascar, Malawi, Mali, Rwanda, Senegal, Tanzania, Uganda, and Zambia**) have now reported results of recent nationwide household surveys that allow a comparison with similar surveys used as the PMI baseline. In those 11 countries:

- Household ownership of one or more ITNs increased from an average of 32 to 61 percent (see Figure 2).
- Usage of an ITN the night before the survey more than doubled from an average of 23 to 51 percent for children under five years and about the same amount for pregnant women.
- The proportion of pregnant women who received two or more doses of intermittent preventive treatment for pregnant women (IPTp) for the prevention of malaria increased from an average of 20 to 37 percent.

Thanks to these improvements in coverage, together with the many millions of residents protected by PMI-supported IRS, a large proportion of at-risk populations in the PMI focus countries are now benefiting from highly effective malaria prevention

measures. Follow-up national household surveys to assess improvements in coverage of malaria control measures in the remaining four PMI focus countries will be completed by 2013. In addition, although most African countries did not adopt ACTs as their first-line treatment for malaria until 2003–2004, these highly efficacious drugs are now widely available in health facilities throughout Africa.

### STRENGTHENING PARTNERSHIPS FOR MALARIA CONTROL

In keeping with the principles of GHI, PMI coordinates its activities with a wide range of partner organizations, including national malaria control programs (NMCPs); multilateral and bilateral institutions, such as WHO, the United Nations Children’s Fund, the World Bank, the Global Fund, and the U.K. Department for International Development (DFID); private foundations, such as the Bill & Melinda Gates Foundation, the William J. Clinton Foundation, and the UN Foundation; and numerous NGOs and faith-based organizations, many of which have strong bases of operation in underserved rural areas, where the burden of malaria is greatest. To date, PMI has supported malaria control interventions by 230 nonprofit organizations, more than one-third of which are faith based.

- In 2011, DFID channeled \$23 million in funding (in addition to \$11 million in 2010) through USAID in **Zambia** for the procurement of antimalarial drugs and essential medicines for other conditions for the period 2011–2015. This flexible funding will make it possible to fill the commodity gaps brought about by delays in donor funding and improve access to commodities.

- Because delays in procurements may lead to stockouts of critical commodities, such as antimalarial drugs and ITNs, PMI has established a Central Emergency Procurement Fund to help alleviate shortages at the national level. During FY 2011, PMI worked with other partners to assist 12 countries in filling emergency gaps in essential malaria commodities – gaps caused by changes in country needs, fluctuations in funding and timing of procurements from external partners, and other unforeseen circumstances. Through its Central Emergency Procurement Fund, PMI purchased nearly \$9 million of malaria commodities, including long-lasting ITNs and ACT treatments. PMI’s responsiveness and flexibility in its commodity procurement and management systems minimized or prevented dangerous stockouts, saving many lives.

### PROMOTING PROGRAM INTEGRATION

- *Integration with Maternal and Child Health Programs:* Malaria prevention and control is a fundamental part of comprehensive maternal and child health services in Africa and contributes to the capacity of ministries of health to deliver high-quality services. ITNs procured by PMI are distributed primarily through antenatal and child health clinics or integrated health campaigns that include other interventions, such as vitamin A supplementation and vaccinations. PMI also funds antenatal care programs that provide a comprehensive package of services for pregnant women, including IPTp, during their regular antenatal clinic visits.
- *Integrated Community Health Programs:* One of the greatest barriers to prompt

and effective treatment of malaria in Africa is the lack of access to health facilities for people living in rural areas. In response to this problem, many countries have begun to introduce and scale up integrated community case management (iCCM), which provides health care to children in hard-to-reach communities using trained, supervised community workers. PMI has worked with other maternal and child health programs in expanding iCCM of the major causes of fever – pneumonia, malaria, and diarrhea – in children under five in Africa. In FY 2011, PMI provided support to iCCM programs in 14 focus countries, of which **Ethiopia, Madagascar, Malawi, Rwanda, and Senegal** have moved quickly to scale up their iCCM programs nationwide. Most of the remaining PMI focus countries are piloting iCCM in more circumscribed areas but have plans to expand in the coming years.

### STRENGTHENING HEALTH SYSTEMS AND BUILDING NATIONAL CAPACITY

PMI resources and activities help strengthen the overall capacity of health systems, both indirectly and directly. Reducing the burden of malaria in highly endemic countries, where malaria typically accounts for 30 to 40 percent of outpatient visits and hospital admissions, enables overstretched health workers to concentrate on managing other childhood illnesses, such as diarrhea and pneumonia. Ministries of health and NMCPs must be able to provide both leadership and the technical and managerial skills to plan, implement, evaluate, and adjust, as necessary, their malaria control efforts. Thus, PMI builds national capacity by helping NMCP staff gain expertise in a variety of areas, including entomology, epidemiology, monitoring and evaluation, laboratory diagnosis, supply chain management, behavior change communication, and financial management. In FY 2011, PMI efforts to strengthen health systems included:

- Building a cadre of ministry of health staff with technical skills in the collection, analysis, and interpretation of data for decision-making and epidemiologic investigations, including through support to the CDC’s Field Epidemiology and Laboratory Training Program in **Angola, Ethiopia, Ghana, Kenya, Mozambique, Nigeria, Tanzania, and Zimbabwe.**

A woman serving on an indoor residual spraying team travels to a village in Rwanda to begin her day’s work.

Credit: Brant Stewart/  
RTI International



## PMI-Supported Malaria Programs

- Collaborating with NMCPs and other partners, such as the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) and WHO, to strengthen laboratory diagnosis of malaria and improve the overall quality of health care.
- Providing funds for strengthening supply chain management systems across all PMI focus countries. In almost all of these countries, PMI has been able to complement investments by PEPFAR and other U.S. Government programs.
- Working with national institutions in PMI focus countries to conduct operational research on issues affecting the implementation of major malaria prevention and treatment measures.

PMI also intentionally promotes and fosters country ownership by carrying out annual planning visits with NMCPs and their partners to collaboratively develop annual PMI Malaria Operational Plans that directly support national malaria control strategies and priorities.

### CHALLENGES

In spite of the progress that has been documented in malaria control in Africa over the past 5 to 10 years, technical challenges remain, such as achieving IPTp coverage targets. The gains are fragile, and the global malaria partnership must remain vigilant to potential threats, as described below:

- **Antimalarial Drug and Insecticide Resistance:** Resistance to artemisinin drugs has not yet been documented in sub-Saharan Africa, but if this were to occur, as it has with the importation of chloroquine-resistant parasites from Southeast Asia, it would represent a major setback for malaria control efforts on the continent. Resistance of the mosquito vector of malaria to the pyrethroid class of insecticides, which are widely used for IRS and are the only recommended insecticides for ITNs, is already being reported from multiple sites in Africa. PMI supports national malaria control programs to conduct regular monitoring of both antimalarial drug and insecticide resistance. In addition, PMI is looking at other approaches, such as rotation of insecticides used for IRS, as a way of delaying



In addition, USAID provides malaria funding to Burkina Faso, Burundi, and South Sudan in Africa and the regional Amazon Malaria Initiative in Latin America (which includes Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, and Suriname).

the development of further resistance to pyrethroid insecticides and prolonging their effectiveness on ITNs.

- **Funding for Malaria Control:** Due to the worldwide economic recession, global support for malaria control has peaked and now seems to be leveling off. The \$30 million increase in PMI funding from the U.S. Congress in FY 2012 and the announcement of a substantial increase in malaria support from the British Government through DFID will help meet some of the needs, but malaria control is a long-term challenge, and sustained external donor support will be critical to national malaria control programs' continued progress.
- **Limited Global Supply of ACTs:** Since 2000, ACTs have become the treatment of choice for malaria in most countries,

resulting in a substantial increase in demand. The active ingredient in all artemisinin products is plant based, and although progress has been reported on chemical alternatives, no synthetic substitute is available. The long lead time for producing artemisinin products, combined with the upsurge in demand for ACTs, have resulted in a dynamic global ACT market. In response to this increased demand and uncertain supply, PMI is working with other major donors and host-country malaria programs, as well as a WHO ACT Taskforce, to identify and prioritize country needs.

PMI is working together with other partners to overcome these and other challenges in program implementation. With sustained funding for malaria control, we expect to see further advances in the fight against malaria in the coming years.

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