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EXECUTIVE SUMMARY

**THE PRESIDENT'S
MALARIA INITIATIVE**

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EXECUTIVE SUMMARY



The fight against malaria is making historic gains across sub-Saharan Africa. In countries where insecticide-treated mosquito nets (ITNs), indoor residual spraying (IRS), improved diagnostic tests, and highly effective antimalarial drugs have been scaled up, mortality rates in children under five years of age have fallen markedly. According to the World Health Organization's (WHO's) *2014 World Malaria Report*, in Africa, between 2000 and 2013, the estimated number of malaria cases in all age groups decreased from 174 million to 163 million. The estimated malaria mortality rate in children under five decreased by 58 percent in the Africa region between 2000 and 2013, while the scale-up of malaria control interventions over the same period resulted in an estimated 4.3 million fewer malaria deaths globally.

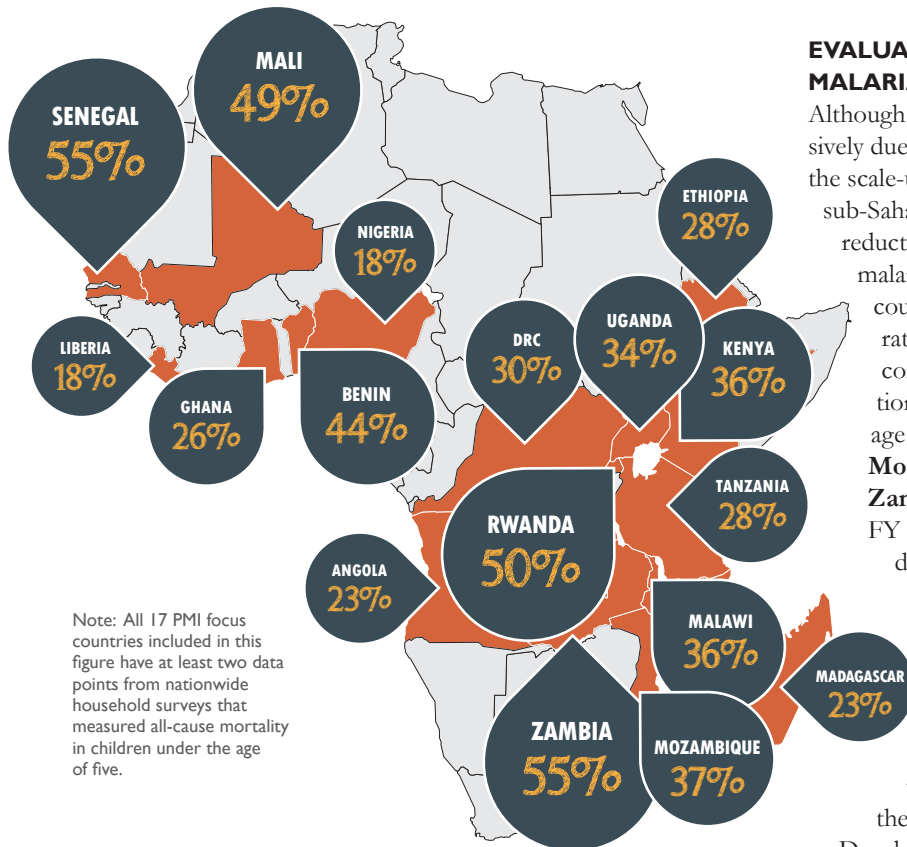
These successes in reducing malaria's burden are the result of a tremendous increase in financing for malaria control and the expansion of malaria control interventions. The cumulative efforts of the President's Malaria Initiative (PMI), national governments, the Global Fund to Fight AIDS, Tuberculosis and Malaria

(Global Fund), and many other partners are clearly working. The U.S. Government's financial and technical contributions, through PMI, have been key in this remarkable progress. In the nearly 10 years since it was launched, PMI has garnered recognition as a highly effective program that successfully combines solid support at the country level with global leadership on malaria prevention and control with other funding and technical partners.

In spite of the progress achieved, malaria remains a major cause of mortality among young children. More than 1,000 children still die from malaria every day, and without sustained and vigilant efforts, the great progress made could be quickly reversed, and successful investments in malaria control could be lost. To avoid a resurgence of malaria, PMI, with the global malaria community, must redouble efforts, sustain financial resources, and accelerate the scale-up of malaria prevention and treatment measures. Malaria places an economic burden on countries and has wide-ranging effects, such as reducing school attendance and lowering worker productivity, in addition to the significant out-

FIGURE 1

Reductions in All-Cause Mortality Rates of Children Under Five



Note: All 17 PMI focus countries included in this figure have at least two data points from nationwide household surveys that measured all-cause mortality in children under the age of five.

of-pocket spending on malaria treatment by households. Fighting malaria not only saves lives, but also directly supports the achievement of broader development goals.

SAVING CHILDREN'S LIVES

The decreases in malaria illnesses and deaths have contributed significantly to the reductions in all-cause child mortality across PMI focus countries as measured through nationwide household surveys. To date, 17 of the 19 PMI focus countries have data from paired nationwide surveys that were conducted since PMI activities began. These surveys indicate that, in all 17 of these PMI-supported countries, all-cause mortality rates among children under five years of

age have significantly decreased. These declines range from 18 percent (in both Liberia and Nigeria) to 55 percent (in both Senegal and Zambia) (see Figure 1).

EVALUATING THE IMPACT OF MALARIA CONTROL EFFORTS

Although declines in all-cause under-five mortality are not exclusively due to malaria interventions, there is growing evidence that the scale-up of malaria prevention and treatment measures across sub-Saharan Africa is playing a major role in these unprecedented reductions. PMI is carefully estimating the contribution of malaria control efforts to declines in mortality in PMI focus countries through in-depth impact evaluations. In collaboration with Roll Back Malaria (RBM) partners, PMI has completed evaluations of the impact of malaria interventions on all-cause mortality in children under five years of age in nine countries to date (Angola, Ethiopia, Malawi, Mozambique, Rwanda, Senegal, Tanzania, Uganda, and Zanzibar). Three impact evaluations were conducted during FY 2014 (Mozambique, Uganda, and Zanzibar), and these demonstrated strong linkages between declines in all-cause mortality among children under five years of age and the rollout of malaria control interventions.

CONTRIBUTING TO INTERVENTION SCALE-UP

Since PMI's announcement in 2005, the efforts of national governments, together with PMI, the Global Fund, the World Bank, the U.K. Department for International Development (DFID), and many other partners, have resulted in a massive scale-up of malaria prevention and treatment measures across focus countries. PMI's contributions to this global effort have been significant, protecting and treating millions of people through procurement of millions of long-lasting ITNs, rapid diagnostic tests (RDTs), ACTs, and sulfadoxine-pyrimethamine (SP) treatments as well as training thousands of people on malaria case management and IRS operations.

In addition, PMI continued to collaborate closely with other donors who support malaria control efforts. For example, in eight PMI focus countries (Angola, Democratic Republic of the Congo [DRC], Guinea, Malawi, Nigeria, Tanzania, Uganda, and Zambia), PMI provided financial and technical assistance for the

IN FY 2014, PMI:



Procured **+31M** long-lasting insecticide-treated nets



Sprayed **+5M** houses with insecticides, protecting **+18M** people



Procured **+13M** preventive treatments for pregnant women and trained **+27,000** health workers in their use



Procured **+80M** antimalarial treatments and **+59M** rapid diagnostic tests

distribution of more than 24 million long-lasting ITNs that were procured by other donors. In addition, PMI supported distribution of nearly 4 million ACTs in Nigeria that were procured by the Global Fund and the World Bank.

The coverage of malaria control interventions in PMI focus countries has improved significantly since the start of the Initiative, and PMI's contributions, together with those of host governments and other partners, have been key in achieving these results. In the 19 focus countries where at least two comparable nationwide household surveys have been conducted since PMI activities were launched:

- Household ownership of at least one ITN doubled from a median of 29 percent to 60 percent.
- Usage of an ITN the night before the survey increased from a median of 18 percent to 46 percent among children under five years of age.
- Usage of an ITN the night before the survey more than doubled from a median of 17 percent to 41 percent among pregnant women.

In all 17 focus countries where intermittent preventative treatment for pregnant women (IPTp) is national policy and where at least two comparable nationwide household surveys have been conducted since PMI activities were launched:

- The proportion of pregnant women who received two or more doses of IPTp for the prevention of malaria increased from a median of 13 percent to 25 percent.

In terms of malaria prevention, while enormous progress in ITN ownership and use has been recorded in PMI focus countries, these

improvements have not been uniform. Although some countries are nearing or exceeding PMI targets for these indicators, others still are scaling up. Furthermore, median coverage of pregnant women with at least two doses of IPTp in PMI focus countries has increased more modestly but continues to fall short of the target. To increase the number of pregnant women receiving SP, PMI is supporting the implementation of WHO's revised IPTp guidelines (2012), which recommend providing SP at every scheduled antenatal care (ANC) visit after the first trimester. In addition to supporting the rollout of ITNs and IPTp, PMI continued to support the implementation of IRS activities, and in fiscal year (FY) 2014, more than 90 percent of houses targeted were successfully sprayed, protecting more than 18 million people in 13 countries.

Effective case management remains an essential component of malaria prevention and control. During FY 2014, in all focus countries, PMI supported the scale-up of diagnostic testing for malaria at the health facility and community levels to ensure that all patients with malaria are properly identified and receive a quality-assured and recommended malaria treatment. Throughout PMI focus countries, RDTs and ACTs are now widely available, and health workers have been trained in their use. Through PMI's efforts and those of partners and national malaria control programs (NMCPs), the proportion of suspected malaria cases that are confirmed with laboratory tests and treated with a recommended antimalarial drug combination continues to increase in nearly every focus country.

LEVERAGING PARTNERSHIPS IN THE FIGHT AGAINST MALARIA

PMI is one of the major international financers of malaria control along with the Global Fund and the United Kingdom, which has recently substantially increased its effort. Partnerships at the country and global levels are central to the continued success of PMI's malaria control efforts. PMI strategically targets its investments to support



The President's Malaria Initiative Strategy 2015–2020

Launched in June 2005 by President George W. Bush, the President's Malaria Initiative (PMI) represented a major 5-year, \$1.265 billion expansion of U.S. Government resources for malaria control. The Initiative is led by the U.S. Agency for International Development (USAID) and implemented together with the U.S. Centers for Disease Control and Prevention (CDC). PMI funds programs in 19 focus countries in Africa and one regional program in the Greater Mekong Subregion of Southeast Asia. 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 Brazil, Colombia, Ecuador, Guyana, Peru, and Suriname).

When it was first launched, PMI's goal was to reduce malaria-related mortality by 50 percent across 15 high-burden countries in sub-Saharan Africa through a rapid scale-up of four proven and highly effective malaria prevention and treatment measures: ITNs; IRS; accurate diagnosis, and prompt treatment with ACTs; and IPTp. With the passage of the Tom Lantos and Henry J. Hyde Global Leadership against HIV/AIDS, Tuberculosis, and Malaria Act in 2008, PMI developed a U.S. Government Malaria Strategy for 2009–2014.

In February 2015, PMI launched its next 6-year strategy for 2015–2020. The Strategy takes into account the progress over the past decade and the new challenges that have arisen, setting forth a vision, goal, objectives, and strategic approach for PMI through 2020, while reaffirming the longer-term goal of a world without malaria. Malaria prevention and control remains a major U.S. foreign assistance objective, and this strategy fully aligns with the U.S. Government's vision of ending preventable child and maternal deaths and ending extreme poverty. It is also in line with the goals articulated in the draft Roll Back Malaria (RBM) Partnership's second Global Malaria Action Plan and the World Health Organization's (WHO's) draft Global Technical Strategy.

The U.S. Government shares the long-term vision of affected countries and global partners of a world without malaria. This vision will require sustained, long-term efforts to drive down malaria transmission and reduce malaria deaths and illnesses, leading to country-by-country elimination and eventual eradication by 2040–2050. The U.S. Government's goal under the PMI Strategy 2015–2020 is to work with PMI-supported countries and partners to further reduce malaria deaths and substantially decrease malaria morbidity, toward the long-term goal of elimination. Building upon the progress to date in PMI-supported countries, PMI will work with national malaria control programs (NMCPs) and partners to accomplish the following objectives by 2020:

1. Reduce malaria mortality by one-third from 2015 levels in PMI-supported countries, achieving a greater than 80 percent reduction from PMI's original 2000 baseline levels.
2. Reduce malaria morbidity in PMI-supported countries by 40 percent from 2015 levels.
3. Assist at least five PMI-supported countries to meet the WHO criteria for national or sub-national pre-elimination.

To achieve these objectives, PMI will take a strategic approach that emphasizes the following five areas:

1. Achieving and sustaining scale of proven interventions
2. Adapting to changing epidemiology and incorporating new tools
3. Improving countries' capacity to collect and use information
4. Mitigating risk against the current malaria control gains
5. Building capacity and health systems

These areas of focus are informed by PMI's experiences to date, which include building on the successes that countries have achieved with the support of PMI and other partners, incorporating the lessons learned from implementation thus far, and addressing directly the ongoing and new challenges that could prevent further progress toward malaria control and elimination.

The strategy is available for download at www.pmi.gov.



Responding to the 2014–2015 Ebola Epidemic

PMI, in partnership with the governments of **Guinea** and **Liberia** as well as other U.S. Government and international partners, supported the global community's unprecedented response to the Ebola epidemic of 2014–2015, while simultaneously continuing to combat malaria in these countries. As a result of the Ebola epidemic, a number of activities were postponed in both countries, including planned Malaria Indicator Surveys, laboratory and case management trainings and supervision visits, and a health facility survey in Guinea. Although some PMI-supported activities were put on hold or delayed during the Ebola response, others continued throughout the crisis and played a central role in supporting the health system. For example, PMI's direct support to the Liberian Government helped to sustain services at facilities in Bong, Nimba, and Lofa counties, and in both countries, PMI assisted with revising malaria case management and ITN distribution guidelines. In addition, PMI coordinated its support for supply chain and logistics for malaria commodities closely with the Global Fund in order to maintain the supply of essential medicines at health facilities. Furthermore, PMI staff assisted with Ebola epidemiologic investigations and infection prevention and control, as well as overall coordination and management efforts.

each focus country's malaria control strategy and plans and coordinates activities with a wide range of partner organizations. These include multilateral and bilateral institutions such as WHO and UNICEF; private foundations such as the Bill & Melinda Gates Foundation, Clinton Foundation, UN Foundation, and Malaria No More; and other U.S. Government programs. Furthermore, PMI has supported implementation of malaria activities through more than 200 nonprofit organizations, approximately one-third of which are faith-based.

CONDUCTING CRITICAL MALARIA RESEARCH

Research to support malaria control efforts and reduce the burden of malaria remains a high priority of the U.S. Government. The U.S. Government malaria research effort involves the U.S. Centers for Disease Control and Prevention (CDC) and the National Institutes of Health of the Department of Health and Human Services, the Naval Medical Research Center, and the Walter Reed Army Institute of Research of the Department of Defense, and the U.S. Agency for International Development (USAID).

USAID supports the development of novel antimalarial drugs and malaria vaccines and of new and more effective insecticides to combat insecticide resistance. PMI complements upstream malaria vaccine and drug development efforts by supporting operational research to help guide its program investments, make policy recommendations to NMCPs, and target interventions to increase their cost-effectiveness. As the burden of malaria falls in sub-Saharan Africa, operational research will help programs adjust to the changing epidemiological landscape. PMI carries out operations research in collaboration with local investigators and institutions, thus strengthening in-country capacity to undertake research.

Examples of PMI-supported operational research in FY 2014 include:

- In **Kenya**, PMI is supporting an ongoing study of an innovative “screen-and-treat” approach for pregnant women compared to

conventional IPTp with SP, a strategy that could prove useful in settings where resistance to SP is high. The approach involves screening pregnant women with an RDT at each antenatal care visit and treating them with dihydroartemisinin (DHA)-piperaquine if they are found to have malaria.

- To address the growing threat of pyrethroid resistance, PMI is currently supporting field trials of synergist nets in a pyrethroid-resistant area of Mali. Forthcoming results will shape new PMI policy on if, where, and how to deploy these new tools to prevent malaria.
- In partnership with a local research institute in **Madagascar**, *Institut Pasteur*, PMI is implementing an operational research study to identify simple and cost-effective methods to determine the intensity of malaria transmission in order to prioritize where to target IRS activities.
- To improve the implementation of case management activities, PMI launched an expanded operational research project on text messaging in **Malawi** to evaluate the effectiveness of text message reminders to health care workers in improving integrated diagnosis and management of malaria, diarrhea, and pneumonia.

BUILDING NATIONAL CAPACITY AND STRENGTHENING HEALTH SYSTEMS

PMI supports the strengthening of the overall capacity of health systems, both directly and indirectly. In addition to providing assistance to countries to roll out malaria-specific activities, PMI also helps build national capacity in a variety of cross-cutting areas that benefit both malaria and other health programs. This support includes capacity building and training, and strengthening supply chain management, laboratory diagnosis, and monitoring and evaluation systems. In highly endemic countries, malaria typically accounts for up to 40 percent of outpatient visits and hospital admissions. Reducing malaria transmission levels in these countries has a

positive effect on the rest of the health system by allowing health workers to focus on managing other important childhood illnesses, such as pneumonia, diarrhea, and malnutrition. A PMI-funded study in **Zambia** showed substantial reductions in inpatient admissions and outpatient visits for malaria after the scale-up of malaria control interventions, and hospital spending on malaria admissions also decreased by a factor of 10.¹

Through support to the CDC's Field Epidemiology and Laboratory Training Program, PMI helps build a cadre of ministry of health staff with technical skills in the collection, analysis, and interpretation of data for decision-making and epidemiologic investigations in 12 PMI focus countries in Africa (**Angola, DRC, Ethiopia, Ghana, Kenya, Mozambique, Nigeria, Rwanda, Tanzania, Uganda, Zambia, and Zimbabwe**) and one PMI program in the Greater Mekong Subregion (Burma), supporting more than 100 trainees globally to date.

In FY 2014, PMI efforts to strengthen health systems included:

- Providing technical assistance and programmatic support for forecasting malaria commodity requirements (e.g., diagnostic tests and drugs), conducting quality testing of those commodities, strengthening supply chain management systems, and improving the tracking of those commodities in all PMI focus countries in Africa to ensure an uninterrupted supply of commodities and to protect their quality and safety.
- Building the capacity of ministries of health, local governments, and other relevant institutions to manage key aspects of IRS implementation on their own or with limited PMI support; to date,

13 PMI focus countries have implemented country capacity assessments, and 9 have developed action plans that identify key areas where PMI could strengthen the government's capacity, with the goal of gradually transferring responsibilities to the government.

- Building quality assurance systems for laboratories that conduct malaria diagnosis and improve the overall quality of healthcare in collaboration with ministries of health and other partners.

Furthermore, fostering country ownership is at the core of PMI's strategic and implementation approach. PMI carries 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.

MOVING AHEAD

While the progress in the global fight against malaria is to be celebrated, the scale-up of malaria control measures and the resulting decline in malaria illnesses and deaths since 2000 has not been even throughout Africa. In some countries, further efforts to attain high coverage with malaria control interventions are needed before substantial reductions in malaria burden can be expected. In contrast, other countries have progressed to a point where malaria is no longer a leading public health problem. The changing landscape of malaria control has prompted shifts in the goals and targets of many partners in the global malaria community, including the Bill & Melinda Gates Foundation, the RBM Partnership, and WHO. While the progress to date is historic, the continued control and ultimate elimination of malaria remains fraught with serious challenges, including resistance to the artemisinin family of drugs, widespread availability of substandard and counterfeit malaria treatments, resistance to key insecticides, inadequate disease surveillance systems, waning country and donor attention as malaria burden drops, and unexpected crises (see the box on the Ebola epidemic on page 6).

The U.S. Government, through PMI, remains unwavering in its commitment to working together with host country governments and the broader malaria partnership to maintain the momentum against malaria and overcome these and other challenges in program implementation. As PMI looks to the future and the implementation of PMI's Strategy for 2015–2020 (see page 5), the U.S. Government through PMI remains firmly dedicated to fighting malaria and saving lives.

1. Comfort, A.B., et al. 2014. Hospitalizations and Costs Incurred at the Facility Level after Scale-up of Malaria Control: Pre-post Comparisons from Two Hospitals in Zambia. *American Journal of Tropical Medicine and Hygiene*, 90: 20-32.

COVER PHOTO CREDITS

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