

# CDC and the U.S. President's Malaria Initiative



Photo courtesy of BK Kapella

## The U.S. President's Malaria Initiative

The U.S. President's Malaria Initiative (PMI) is a U.S. Government initiative established in 2005 to sharply decrease malaria deaths by scaling up proven interventions. The Centers for Disease Control and Prevention (CDC) and the U.S. Agency for International Development (USAID) jointly implement this initiative led by the U.S. Global Malaria Coordinator. PMI works in 19 sub-Saharan Africa countries, where malaria exacts its greatest toll, and the Greater Mekong Subregion, where resistance to the most effective malaria treatment drugs has already appeared.

In each PMI country/region, two PMI resident advisors (one each from CDC and USAID), supported by other in-country staff and teams at CDC and USAID headquarters, work with the host country government to support implementation of the national malaria control program (NMCP) plans. PMI teams develop annual malaria operational plans; participate in national malaria partner coordination mechanisms; and assist in the design, implementation, monitoring, and evaluation of program activities.

Because of PMI and its global partners, more people than ever have access to life-saving malaria interventions. The World Health Organization (WHO) 2013 *World Malaria Report* documents that global intervention scale-up was associated with more than 3.3 million lives saved from 2000 through 2012.

## CDC's Major Contributions

For more than 60 years, CDC has provided scientific leadership in public health efforts to fight malaria, increasing global capacity to prevent death and illness from malaria, especially among those most vulnerable to this disease—pregnant women and children. CDC helped develop and evaluate four key global malaria interventions: long-lasting insecticide-treated nets (ITNs), rapid tests to diagnose malaria and artemisinin-based combination therapies to treat malaria patients, intermittent preventive treatment for pregnant women, and indoor residual house spraying (IRS)—all recommended by WHO and supported by PMI. With PMI, CDC's expertise in strategic science focuses on making sure these interventions remain effective and continue to save lives.

CDC continues its long history of collaboration with NMCPs, helping build their technical leadership and capacity to plan and implement effective prevention and control measures.

## CDC's Congressional Mandate in Support of PMI: Strategic Information

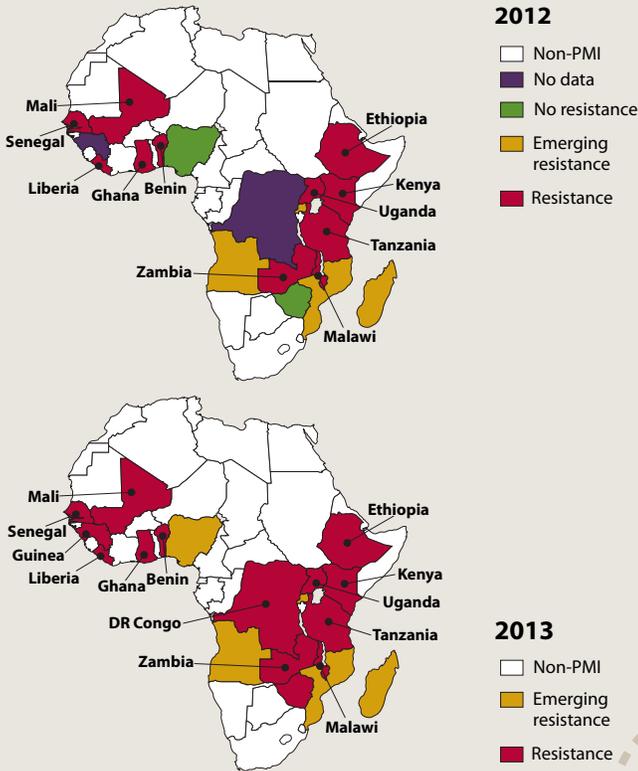
CDC is directed by U.S. Congress to take a leading role in strategic information (monitoring and evaluation, surveillance, operations research)—advising the U.S. Global Malaria Coordinator on priorities for these activities and being a key implementer. To ensure that limited resources are used wisely, CDC helps countries and the U.S. Government target appropriate malaria prevention and treatment efforts and understand the impact of PMI efforts.

## Evaluating Impact

CDC, working closely with USAID, provides scientific expertise in evaluating the impact of the scale-up of malaria control interventions on malaria morbidity and mortality in PMI target countries in sub-Saharan Africa, in collaboration with national and global partners. Impact evaluations have begun in ten PMI countries. In-country PMI resident advisors have played a critical role in successful evaluations in Tanzania, Malawi, Senegal, Ethiopia, and Rwanda, which have all plausibly linked improvements in child survival and evidence of decreased malaria transmission with intervention scale-up. Household surveys show that the decline in deaths of children under five years of age over the last decade range from 16% in Malawi to 50% in Rwanda. PMI continues to provide leadership in conducting extensive impact evaluations in five other PMI countries. CDC scientists also assist NMCPs and partners in disseminating evaluation findings at national and international policy forums and scientific meetings and continue to provide leadership in advancing the science of impact evaluation.

## Pyrethroid Resistance in PMI Countries

PMI monitors mosquitoes' resistance to insecticides, which ITNs and IRS rely on for preventing malaria transmission. When resistance to one class of insecticide is detected, changing to a different insecticide is required for IRS to remain effective.



## Monitoring Interventions through Surveillance

CDC's malaria epidemiologists, entomologists, laboratorians, and public health advisors provide internationally recognized expertise to help ensure that PMI-funded interventions continue to provide protection against malaria and save lives. For example, mosquitoes that transmit malaria may develop resistance to the insecticides used on bed nets or applied to walls of households. Likewise, malaria parasites can gradually develop resistance to antimalarial drugs. NMCPs are vigilant when it comes to monitoring unexpected differences in the effectiveness of malaria interventions.

We work closely with NMCPs to develop in-country capacity to monitor the susceptibility of malaria vectors to commonly used insecticides and susceptibility of malaria parasites to the first- and second-line antimalarial drugs used in each PMI country.

Surveillance for confirmed malaria cases, another cornerstone of CDC expertise, is key.

Improved systems to capture, transmit, analyze, and disseminate malaria surveillance data in a timely manner will help hone strategic approaches as malaria continues to decline. This combination of monitoring (vector – parasite – human) in each PMI country provides necessary data to trigger programmatic decisions regarding insecticide use, malaria treatment policy, and optimal deployment of program resources so that program activities can be continuously adjusted for maximum effectiveness.

## Optimizing Interventions via Operational Research

Following the broad scale-up of proven public health interventions, operational questions are often raised about how to maximize impact of a particular intervention by making it even more effective, more acceptable, more accessible, or more economical. CDC experts identify operational research opportunities within PMI countries and implement studies to strengthen and refine malaria control strategies. For example, when variation in physical durability of ITNs was first observed several years ago, CDC initiated efforts to study net longevity in eight PMI countries. Results of these studies helped identify weaknesses in some net brands, and in one case a manufacturer modified its net construction to improve the longevity of ITNs procured by PMI. This strategic information has also played a key role in helping WHO formulate guidance recommendations for net monitoring. CDC's scientific rigor and global network of collaborators ensure these operational research activities are carefully conceived and implemented so that results can be used to guide PMI resource allocation to protect the greatest number of persons and avert the greatest number of malaria deaths.



Insecticide-treated nets in the field are examined for holes in a PMI operational research study led by CDC.

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