15 YEARS OF FIGHTING MALARIA & SAVING LIVES

Annual Report to Congress April 2021

PMI | U.S. PRESIDENT'S MALARIA INITIATIVE

LED BY

USAID
FROM THE AMERICAN PEOPLE

CDC

A MESSAGE

FROM THE U.S. GLOBAL MALARIA COORDINATOR

Dr. Raj Panjabi was appointed by President Joe Biden to lead the U.S. President's Malaria Initiative in February 2021. Born in Liberia, Dr. Panjabi settled in the United States after fleeing civil war at age nine. Previously, he served as a professor at Harvard Medical School and CEO of Last Mile Health, an award-winning nonprofit he founded in 2007 to deliver life-saving care to the world's most remote places. TIME named him one of the 100 Most Influential People in the World and he won a $1 million TED Prize in 2017. Dr. Panjabi earned his medical degree at the University of North Carolina - Chapel Hill, completed his residency at Harvard Medical School, and holds a Master's in Public Health in epidemiology from Johns Hopkins University.

Pandemics are global but their impact is personal. When I first contracted malaria as an infant, my mother was worried sick. We lived in Liberia where, as is still the case in many African countries, if you don't know someone who died from malaria you know someone who suffered from it. I was lucky. I received treatment and survived. For too many other children and their families, this is not the case. Today, a child still dies every two minutes from the disease – one we know how to prevent and treat. This is one of the greatest crises of our generation.

I believe we are not defined by the crises we face, but by how we respond. A year ago, while caring for patients in rural Africa, I saw the relief on parents' faces when their children also survived malaria thanks to funding from the U.S. President's Malaria Initiative (PMI). PMI is one of the most effective and efficient development programs in history. PMI has invested $8 billion in hundreds of millions of mosquito-killing nets and sprays, life-saving malaria tests and medicines, and heroic health workers in clinics and communities. Together with our partners, PMI has helped save 7.6 million lives and prevent 1.5 billion infections.

This past year, COVID-19 led to an unprecedented crisis. But, I feel inspired by how

Cover photo: A mother and daughter sit near their mosquito net in Vohipeno, Madagascar. Credit: USAID ACCESS Activity

> "Ending malaria, one of history's deadliest pandemics, within our generation will inspire hope."
>
> —Dr. Raj Panjabi, U.S. Global Malaria Coordinator

PMI continues to respond. Malaria campaigns that spray homes with insecticides, provide people with mosquito nets, and distribute preventive medicines for children have been sustained. Health workers have been trained and equipped to provide these services safely.

While PMI and our partners have been resilient, progress against malaria is under threat. COVID-19 continues to strain health workers and clinics, disrupting access to malaria testing and treatment. New mutant parasites and mosquitoes are growing resistant to medicines and insecticides. Unpredictable rains due to climate change are creating new breeding grounds for malaria-carrying mosquitoes. And the funding gap to end malaria has widened.

If we are to end malaria within our generation, we need bold action now. Too many people with malaria are out of reach of the medicines and tools we know save lives. **We must reach the unreached.**

Too many nurses, midwives, community health workers and others who deliver malaria services struggle without sufficient training, equipment, and fair pay. They are now risking their lives to serve during COVID-19. **We must make health systems safer for them and better for the people they serve.**

Too many countries are still far from their goal of eliminating malaria. We must leverage new data, technology and science. **We must end malaria faster.**

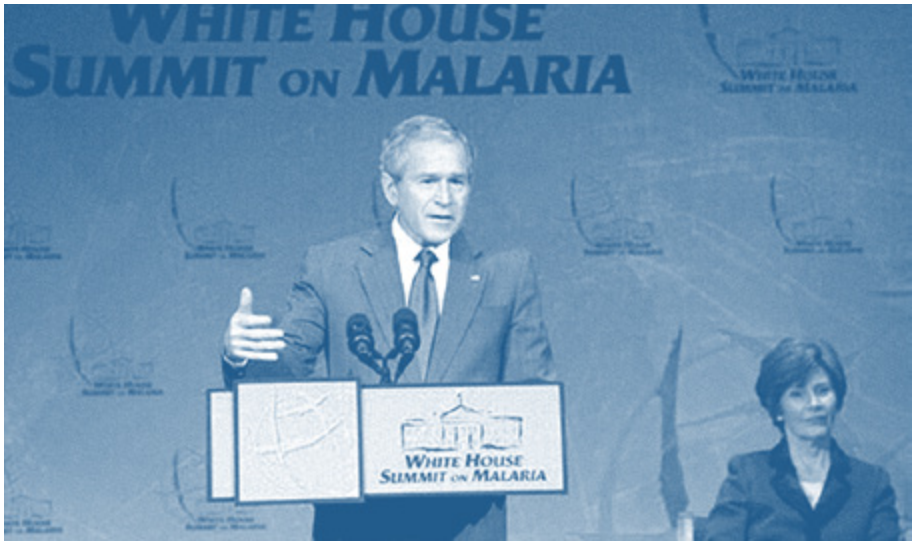
Ending malaria matters. It matters because it builds health systems that keep us all safer, including networks of community health workers, clinics and labs that help us fight malaria while protecting us from emerging threats like COVID-19. But ending malaria also matters because it inspires hope. We are at a turning point. Losing this fight will create despair against future pandemics. But ending malaria, one of history's deadliest pandemics, within our generation will inspire hope. And hope is worth fighting for. ●

Female Spray Operators in Tanzania receiving their morning briefing before heading out to spray. Credit: PMI VectorLink

ABOUT PMI

The U.S. President's Malaria Initiative (PMI) supports 24 partner countries in sub-Saharan Africa and 3 programs across the Greater Mekong in Southeast Asia to control and eliminate malaria. PMI delivers cost-effective, life-saving interventions—such as insecticide-treated bed nets, indoor residual spraying, and essential medicines—and invests in health workers and health systems to accelerate the global fight against this deadly disease. Thanks to the generous support of the American people, PMI helps partner countries achieve and maintain substantial reductions of malaria and save more lives each year.

PMI is a multi-agency initiative, led by the U.S. Agency for International Development (USAID) and co-implemented with the U.S. Centers for Disease Control and Prevention (CDC). PMI has strong support from, and collaborates closely with, the Department of Defense, National Institutes of Health, Peace Corps, and other U.S. government entities. PMI works closely with national malaria control programs and supports partner governments' national malaria strategies. PMI also engages with local research institutions and universities, non-governmental organizations, faith and community groups, and the private sector to encourage local ownership and wide-ranging investment in fighting malaria. ●



President George W. Bush delivers remarks at the inaugural White House Malaria Summit in 2006. Credit: White House Archives

ABOUT MALARIA

A disease that knows no national boundaries, spares no race or religion, and takes a devastating toll especially on women and children. A largely preventable and treatable disease.

—Former First Lady Laura Bush

Malaria is one of history's deadliest pandemics. Malaria was eliminated in the United States in the early 1950s. However, nearly half of the world's population is currently at risk of the disease and malaria remains a major global health security and economic threat. Malaria parasites are spread by infected *Anopheles* mosquitoes when they bite. Early symptoms, such as fever, headache, and chills, may be mild and difficult to recognize. If not treated, malaria can rapidly progress to severe illness and death. The latest data from the World Health Organization estimates there were 229 million malaria cases and 409,000 malaria deaths worldwide in 2019. More than two thirds of these deaths were children under five years old and 94 percent of all deaths occurred in sub-Saharan Africa. The World Health Organization estimated $6.8 billion was needed to fight malaria in 2020; current global funding for malaria is around $3 billion and the funding gap has widened dramatically over recent years, putting decades of progress at risk. ●

A Ford Trimotor sprays insecticide in the southern United States to control malaria-carrying mosquitoes. Credit: CDC

Together with our partners, PMI has helped save **7.6 million lives** and prevent **1.5 billion malaria infections** since 2000.

In PMI partner countries

29%
decline in malaria case rates.

60%
decline in malaria death rates.

x2
the access to mosquito nets.

500m
mosquito nets delivered.

375 million with PMI funds and 130 million on behalf of other donors.

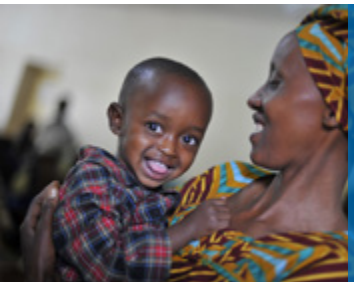
310m
people protected through spraying homes.

610m
rapid tests delivered.

715m
fast-acting medicines delivered.

x3
the proportion of pregnant women receiving recommended three doses of preventive medicine.

42m
pregnant women protected with preventive medicines.



Child death rate from all causes has fallen on average
44%

23m
children protected with preventive medicines.

2m
trainings funded for health workers.

*See annexes for more details

15 YEARS OF SAVING LIVES

The malaria fight is one of the most inspiring global health stories of our time. Bipartisan U.S. investments against malaria have been among the best investments in global health and development, dramatically decreasing malaria deaths and illness. Over the last two decades, global investments against malaria have saved 7.6 million lives and prevented 1.5 billion malaria infections. The U.S. Government, through PMI and the U.S. contribution to the Global Fund, has played a leading role in helping partner countries achieve these results. PMI support has given millions of people the ability to protect themselves and others from this preventable and treatable disease.

When President George W. Bush announced PMI in 2005 to help save lives, it marked a new chapter of U.S. leadership in the global malaria fight and renewed hope for a malaria-free world.

In 2006, PMI provided support to several million people in Angola, Tanzania, and Uganda. Today, PMI has expanded its proven malaria-fighting tools and expert technical assistance to benefit more than 700 million people across sub-Saharan Africa and Southeast Asia. Over the past 15 years, PMI has helped shape the way the world fights malaria, while building lasting change through cross-cutting investments in supply chains, health workers, health infrastructure, and disease surveillance, among other areas. Since 2006, PMI partner countries have driven a 29 percent decline in malaria case rates and 60 percent decline in malaria death rates.

Thanks to the bipartisan support of Congress and the generosity of the American people, PMI invested $746 million across its portfolio in fiscal year (FY) 2020. ●

"Americans are a compassionate people who care deeply about the plight of others and the future of our world...In the fight against malaria, we can help lift a burden of unnecessary suffering, provide hope and health, and forge lasting friendships."

—Former President George W. Bush

A father and his little girl at the Akwamufie Health Center in Ghana. Credit: PMI Impact Malaria

Nets being loaded onto a bicycle for transport in rural Zambia. Credit: USAID GHSC-PSM Project

In FY 2020, despite significant challenges caused by COVID-19, PMI funded and delivered commodities to protect:

80 million
people with mosquito nets.

20 million
people with indoor residual spraying.

7.5 million
pregnant women with preventive treatment.

9 million
children with preventive treatment.

63 million
people with rapid malaria tests.

59 million
people with fast-acting medicines.

In FY 2020, PMI generated cost savings of $37.5 million for malaria commodities through optimizing supply chain processes and economies of scale, including almost $17 million on malaria medicines, $11 million on rapid tests, and $5 million on nets. These efficiencies helped offset higher costs caused by COVID-19 during FY 2020. However, COVID-19 is expected to further strain supply chain systems and drive up costs in FY 2021.

15 YEARS OF PROTECTING PREGNANT WOMEN AND CHILDREN

PMI programs benefit everyone. However, pregnant women and young children are the most vulnerable to malaria. Each year, malaria kills more than 270,000 children under the age of five worldwide. Further, malaria is responsible for one in five stillbirths in sub-Saharan Africa.

PMI plays a key part in USAID's work to prevent child and maternal deaths. In FY 2020, PMI funding gave 7.5 million pregnant women and 9 million children access to life-saving treatments to prevent malaria. In addition, PMI delivered mosquito nets to pregnant women through prenatal clinics and to children through schools and immunization visits, while helping mothers and children learn how sleeping under nets can protect them and their families from deadly mosquito bites.

Yet, PMI does more than provide life-saving tools to protect women and children. PMI invests in the people and systems that keep them safe—training and equipping health workers to reach those most in need and transforming health policy through local and global advocacy plus targeted research.

"PMI is about saving lives. The lives of pregnant women and the lives of young children."

–Former U.S. Global Malaria Coordinator Rear Admiral Tim Zeimer

In Chitado, Angola, Nurse Luzia Camba Glória Vungo is now confidently caring for her patients and applying new skills to improve maternal care. Malaria is responsible for one in every four maternal deaths in her country and Luzia's clinic was one of the 142 clinics selected for additional training and support with PMI funding. Luzia's training is just one way PMI is contributing to the Angolan government's goal of building the capacity of municipal malaria and maternal health teams and improving pregnancy outcomes.

Credit: USAID Health for All Project, Angola

"Thanks to the formative supervision visits I have received, I now can confidently conduct physical examinations and manage fever in pregnant women, in addition to correctly filling in prenatal patient registers."

– Nurse Luzia Camba Gloria, Chitado Municipal Health Center, Angola

In Niger, community health workers perform malnutrition screenings for children while distributing preventive malaria medicine during the rainy season. Credit: PMI Impact Malaria

On average, all-cause child mortality fell 44% in partner countries since PMI support began.

As the rainy season rolled in across the Sahel, all nine PMI-funded mass campaigns to protect children with antimalarials rolled out with minimal delays despite the COVID-19 pandemic. Earlier work to coordinate donor orders, strengthen ties with the manufacturer, and preposition inventory at a regional distribution center paid off. With extra precautions to protect frontline health workers, 9 million children were protected during one of the most dangerous times of year for children falling ill or dying from malaria. Planning ahead for FY 2021, PMI pre-ordered supplies to mitigate future supply challenges from COVID-19 and help ensure this protection continues.

The proportion of women receiving at least three doses of IPTp has more than doubled from 12% to 33% in PMI partner countries. More than half of women now receive at least two doses.

In Burkina Faso, 58 percent of women now receive the recommended three doses of intermittent preventive treatment for malaria in pregnancy (IPTp) during prenatal care visits. Yet the government is aiming for 100 percent to maximize protection for expectant mothers. To help Burkina Faso reach its target, PMI funded research to see if community distribution of IPTp could help. The study, designed and led with the Ministry of Health, found that when community health workers distributed this lifesaving treatment, in addition to prenatal clinics, the average number of doses women received increased 26 percent from 2.3 to 2.9 when compared to distribution in clinics alone.

In Malawi, PMI is exploring community distribution of IPTp to help overcome local stigma that prevents women from attending prenatal care and receiving treatment. A network of mothers and traditional leaders in the districts Nkhatabay and Ntcheu now encourage women to take preventive malaria treatments that community health workers provide. Results from this work will help the Ministry of Health decide if community delivery should be integrated into national IPTp policy in Malawi. In the context of COVID-19, when many women may be afraid to seek care from health facilities, investing in community approaches becomes even more critical.

"The study has brought about such a big change in our communities. I wish this was cascaded to the rest of the country."

—Stuart Chalimba, community health worker, Ntcheu District, Malawi

Ruth and her husband Godfrey after their first prenatal visit in Kwimba District, Tanzania. "She is carrying our first baby, so we are taking all precautions so she does not get malaria. Thanks to the providers here, we received a thorough and comprehensive malaria screening and counseling process. They also gave us a mosquito net to sleep under at night. We feel so lucky." Credit: USAID Boresha Afya Lake and Western Zone Project

PMI is also improving malaria care for pregnant women in other ways, such as funding training for health workers in the Democratic Republic of the Congo (DRC). In Kalunga, a five-day training for health workers helped increase the number of women receiving three doses of IPTp from 51 percent in October 2019 to almost 96 percent by March 2020. PMI is also working with Tanzania's National Malaria Control Program, National Institute for Medical Research, and Open University of Tanzania to assess the value of routine malaria screening to detect asymptomatic malaria infections in pregnant women. In addition, PMI is funding the University of Bamako to study the impact of enhanced training, supervision, and community-based promotion on malaria care in pregnancy in Mali. ●

Nurse Yvette Somuah thoroughly washes her hands at a health center in Mampong, Ghana. Credit: PMI Impact Malaria

15 YEARS OF INVESTING IN HEALTH HEROES

PMI is committed to building strong connections to the people and communities in partner countries, fostering local ownership of malaria programs and sustainable approaches that strengthen health systems from the ground up. Health workers have always been at the heart of PMI's programs and 2020 shone a light on this like never before. PMI is proud to support all health heroes serving on the frontlines as they protect their communities from malaria, COVID-19, and other deadly diseases.

"These two diseases [malaria and COVID-19] have similar symptoms...COVID-19 has allowed me to show my skills in disease prevention and control as a community health worker and has helped strengthen the relationship of trust between me and my community."

—Aboubacar Traore, PMI training recipient, Kassongony, Guinea

PMI helps fund CDC's Field Epidemiology Training Program, which trained 418 disease detectives across 14 countries in FY 2020. Previous graduates have gone on to hold senior positions in national malaria control programs, reference labs and training centers, and organizations such as the African Leaders Malaria Alliance. PMI's investments in this program have also generated benefits beyond malaria. For example, 2019 graduate Denis Okethwangu is now helping village health teams in Uganda navigate care challenges posed by COVID-19.

PMI has funded almost

2 million trainings

for health workers…

11,674
2006

39,182
2007

68,694
2008

79,808
2009

98,484
2010

131,833
2011

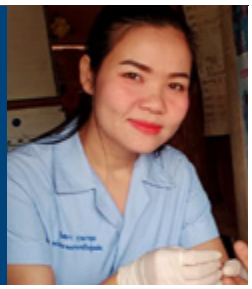
134,467
2012

132,817
2013

197,438
2014

201,736
2015

160,213
2016



154,771
2017

164,062
2018

163,054
2019

197,151
2020

…in malaria diagnosis and treatment, preventive medicine, and effective spraying.

Community members in Garambe, Guinea, learn how to protect their children from malaria with their local health mobilizers. Credit: USAID StopPalu Project

"Prompt treatment prevents the disease from worsening, which also prevents additional expenses and loss of working days for me and school days for my children. This is even more important during this period of the COVID-19 pandemic when we are afraid to go to health facilities...We are more reassured by the care and advice of our community health worker, whom we have known for a long time and in whom we trust."

—Aissatou Bobo Diallo, PMI beneficiary, Labé, Guinea

PMI funds training, supervision, and mentorship programs for a wide variety of health workers from the community to national level. PMI training spans malaria diagnosis and treatment, patient counseling, epidemiology, stock inventory management, environmental safety, advanced lab techniques, and beyond. In FY 2020, PMI also trained health workers on treating malaria in the context of COVID-19 and how to deliver malaria prevention and treatment activities more safely through protective measures such as hand washing, masks, temperature checks, and social distancing. However, health workers will need additional support to maintain lifesaving malaria services as COVID-19 continues to disrupt care and strain already fragile health systems.

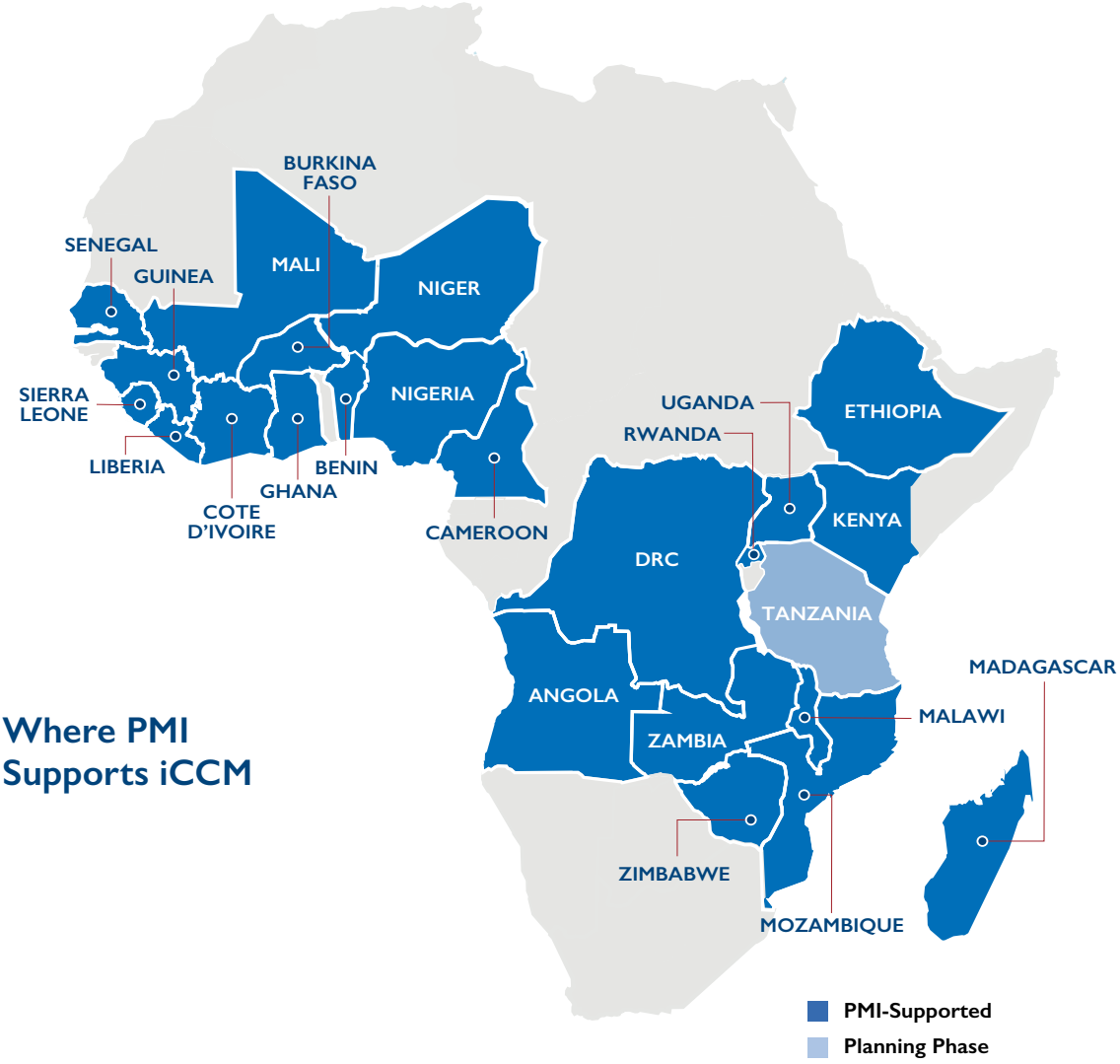
"It is very far from our community to the nearest health facility and the roads are really bad. It costs 500 Liberian dollars ($2.92 USD) to reach the health facility, that is if you can get transport, or a three hour walk...Since the intervention of iCCM, things have changed significantly in our community. We no longer worry about how our children will get treated whenever they get sick."

—Fatu Binda, age 24, Binda Kelita, Liberia

*In Liberia, the World Bank estimates 44% of the population live on less than $2 USD/day

When simple treatments for malaria—as well as pneumonia, diarrhea, and other common diseases—are delivered closer to home, it is easier for people to receive care. Equipped with basic training and supplies—including antimalarials and rapid tests, oral rehydration salts, antibiotics, and zinc—community health workers can save a neighbor's life. This community-driven concept is known as integrated community case management (iCCM). Since 2007, PMI has worked closely with country governments, the World Health Organization, UNICEF, and other donors to invest in iCCM. In FY 2020, PMI supported iCCM in 23 countries, providing malaria medicines and rapid tests to community health workers, along with an estimated $24 million to support training, supervision, and other equipment. ●

Where PMI Supports iCCM



15 YEARS OF INNOVATING

For the last 15 years, PMI has delivered proven, cost-effective interventions to those in need. Although many PMI interventions—such as mosquito nets, insecticides, and antimalarials—appear remarkably similar today, PMI is always evolving and improving. In FY 2020, PMI continued to roll out new kinds of nets and insecticides, fund operational research to improve delivery of its programs, strengthen environmental protections, and deploy digital and data-driven solutions.

NEW NETS: PMI is funding new net types that are more effective against insecticide-resistant mosquitoes because they use novel insecticide formulations or combinations. PMI ordered more than 23 million of these nets in FY 2020.

PMI delivered 2.5 million PBO-type nets to Sierra Leone for their mass net campaign in 2020, making Sierra Leone the first country to deploy new nets nationwide. Global Fund also provided more than 2 million PBO nets to the campaign. Credit: Sierra Leone National Malaria Control Program

In Cameroon, Côte d'Ivoire, and Zimbabwe, PMI funded a virtual mentorship program to support struggling health workers while minimizing in-person supervision visits during the pandemic. Between April and June 2020, more than 350 health workers received phone calls to review protocols for identifying different causes of fever, assess stock needs of malaria commodities, and talk through any challenges. Expanding remote mentoring and supervision interventions like these will be important to boosting health worker morale and safeguarding care quality as the COVID-19 pandemic continues.

"It's good to be remembered during this COVID-19 pandemic where there is fear and uncertainty...This phone call provides the much-needed motivation. We like this approach, let's do it more often."

—Nurse Gwenzi, Nyamuzuwe Rural Hospital, Zimbabwe

PMI has invested almost $40 million in reinforcing countries' routine health surveillance systems to date, including support for data collection, analysis, and use. FY 2020 was a landmark year for these investments, with PMI providing more than $18 million to generate better health information worldwide.

When PMI began, paper-based systems for recording and reporting health data were the norm, limiting partner governments' ability to apply rapid, evidence-based decision-making to improve malaria programs. Over the years, PMI has helped partner countries build technological infrastructure to generate timely, accurate health data down to the district—and sometimes even community—level. Today, these investments are providing national malaria control programs with better and more timely data to monitor disease trends and more accurately plan supply chain needs. PMI investments in data reach well beyond malaria to benefit reporting on other diseases, including COVID-19.

A health worker in Homa Bay, Kenya, enters data into a scanner-friendly record book. Credit: USAID Tupime Kaunti Project

Health workers in Homa Bay, Kenya, participate in a training to speed up data entry with scanning technology. Credit: USAID Tupime Kaunti Project

Although Kenya continues to expand online data management, county health workers in remote areas still spend many hours copying paper records into online databases for national-level analysis and tracking of malaria cases. Although this data informs vital government decision-making, it consumes valuable time and human errors are easily made when entering hundreds of lines of data. In Homa Bay and Migori counties, PMI is piloting new scanning technology, which would automate this important data entry process. Thanks to PMI, 320 health workers in 91 health facilities have been trained and equipped with mobile phones to auto-scan malaria records, saving time and improving data quality.

Getting the right stock to the right place at the right time is challenging in the best of times. During a pandemic—where supply of raw materials, manufacturing, and transport are disrupted—it is even harder. No health facility wants to run out of life-saving antimalarial medicines. In Angola, delivery times of PMI-funded commodities to health facilities were reduced by up to 50 percent and stockout rates fell to less than 10 percent thanks to streamlining the distribution approach to send stock directly from the capital to municipalities. In Zambia, district health offices leaned on the PMI and USAID-funded Stock Redistribution Tool to find needed malaria supplies. The user-friendly map interface connects to the national logistics management system and enables remote decision-making for stock redistribution in provinces. When his stocks ran low in the Chongwe District Health Office, pharmacist Christopher Mapunda was able to locate spare supplies from Luangwa District Hospital, 167 miles away. Supply chains remain volatile as a result of COVID-19. PMI will continue to seek innovative ways to overcome evolving challenges. ●

Complementary Facilities

Mtendere Urban Health Center is Stocked out. It needs 45 units to reach its Min stock level
These nearby facilities have excess stock:

Facility Code	Facility Name	Distance (Approximation: Straight Line x 1.2)	Excess Stock on Hand (Above Max)
504008	State House Clinic	5.5 km	28 units
504010	Bauleni Urban Health Center	6.3 km	41 units
504018	Kabwata Urban Health Center	7.8 km	36 units
504026	Matero Main Urban Health Center	12.4 km	3197 units
504017	George Urban Health Center	15.7 km	1210 units

Zambia Stock Redistribution Tool

15 YEARS OF PARTNERING FOR GREATER IMPACT

PMI applies a unique mix of technical and financial assistance to accelerate partner countries' fight against malaria. PMI investments are strategically targeted to support each partner country's malaria control plan while coordinating with and leveraging resources from a wide range of partners. PMI delivers support at all levels in partner countries, working with national, regional, and district governments; traditional leaders; faith and community groups; the private sector; local research institutions; and many others. For 15 years, PMI has stood shoulder-to-shoulder with partner countries, demonstrating the value and stability of U.S. partnership. Throughout FY 2020, PMI also worked with other U.S. government entities and strengthened coordination with other donors. In addition, PMI supported country-driven multilateral efforts through engagement with the World Health Organization, Global Fund, RBM Partnership to End Malaria, and African Leaders Malaria Alliance, among others.

"I appreciate PMI's contribution in building the capacity of staff both at central, regional and district levels; in strengthening the health system and data management. A sincere appreciation to PMI and the American people for all they are doing to help malaria control."

—Dr. Dorothy Fosah Achu, Permanent Secretary, National Malaria Control Program, Cameroon

Health workers and lab technicians working under Cameroon's National Malaria Control Program received 170 laptops and 30 microscopes thanks to PMI funding. Credit: PMI Impact Malaria

Nets being loaded onto a truck for delivery to villages in Cambodia. Credit: USAID Cambodia Malaria Elimination Project

"The milestone of delivering 2 billion life-saving nets is a hallmark example of effective global partnership and sustained commitment over the past two decades."

—Dr Abdourahmane Diallo, CEO, RBM Partnership to End Malaria

In January, 2020, PMI joined the global malaria community in celebrating the delivery of the 2 billionth mosquito net since 2004—400 million of these nets were delivered thanks to PMI.

Pyronaridine-artesunate was developed thanks to the Medicines for Malaria Venture, which receives funding from USAID, the Bill & Melinda Gates Foundation, and the Government of the United Kingdom, among other donors. Medicines for Malaria Venture is developing a pipeline of new, effective, and affordable antimalarial drugs that PMI helps deploy to partner countries to aid their fight against resistance.

Thailand's eastern provinces are hotspots for drug-resistant malaria strains. Between 2018 and 2019, Sisaket and Ubon Ratchathani provinces accounted for just 14 percent of *Plasmodium falciparum* malaria cases but 67 percent of treatment failures. Thailand's Division of Vector Borne Diseases, with support from PMI, maintains a close watch on early signs of drug resistance and is a key ally in stopping the spread of drug resistance and protecting global health security. When the first-line treatment for malaria started to falter in 2019, the National Drug Policy Committee approved pyronaridine-artesunate as the new first-line treatment in these provinces and patients started receiving the new drug in 2020.

A trainee learns to identify malaria parasites in Thailand. Credit: USAID Asia


Saw Kyaw Shar Awer (left) provides supportive supervision and coaching to health volunteer Ma Khin Hnin Aye at a rubber plantation worksite in Burma. Credit: USAID Defeat Malaria Project

PMI delivers life-saving malaria care directly to the people of Burma through working with local health organizations, civil society groups, and the private sector. PMI focuses on at-risk marginalized groups, including migrant populations and forest workers, who are most likely to contract malaria and least likely to have access to care. In FY 2020, PMI leveraged partnerships with 68 private companies to expand care for workers via mass screening activities and a network of 113 health volunteers.

PMI's work with local research institutions and universities capitalizes on partner countries' expertise to improve PMI programs. In FY 2020, PMI used the results of a study co-conducted with Ghana's Noguchi Memorial Institute and National Malaria Control Program to help increase mosquito net use. Armed with knowledge about what messages resonate best with communities, PMI is now emphasizing benefits such as cost and time savings of prevention over treatment and nuisance-free sleep in health messages, as well as supporting community-led solutions for using nets when sleeping outdoors.

Community and faith-based organizations are also central to PMI's work. In Mozambique, PMI has partnered with faith-based organization Programa Inter-Religiosa Contra a Malaria since 2007 to reach millions in Christian, Muslim, Hindu, and Baha'i faith communities through work with religious leaders and community volunteers that encourages people to use mosquito nets, allow spraying in their homes, and adopt other beneficial health behaviors. In Uganda, religious leaders speak at funerals, church services and other community settings about the benefits of spraying houses and sleeping under mosquito nets, increasing demand for PMI interventions. For example, in Otuke District, PMI protected 20,000 more people than planned because acceptance was so high.

"Fighting malaria and COVID-19 is not the role of the health workers alone. We need everybody's contribution."

—Reverend Jimmy Max Ajon, St. Paul's Church of Uganda

#SeekCareForFever - social media graphics were designed by an artist from Cameroon.

Seeking care in the first 24 hours after onset of a fever can save a child's life if they have malaria. Yet, polls showed almost half of people delayed, skipped, or were unable to complete needed health visits in African countries since the onset of the COVID-19 pandemic. To encourage people to seek necessary care, PMI worked with Facebook and the RBM Partnership to End Malaria to launch a #SeekCareForFever social media campaign in August 2020 across 10 PMI partner countries. In collaboration with PMI, Facebook developed customizable image and video content and donated ad credits to boost their reach. The campaign reached over 4.7 million Facebook users in the first month, including approximately 38 percent of all Facebook users in Liberia, 39 percent in Niger, and 65 percent in Sierra Leone. ●

How has PMI adapted to **COVID-19**?

Working with manufacturers and logistics providers to minimize supply chain disruptions.

Expanding remote supervision and virtual training.

Revising malaria job aids to include COVID-19 safety protocols.

Delivering nets and medicines door-to-door to avoid crowded collection points.

Teaching caregivers to administer preventive medicine for children.

Promoting handwashing, mask wearing, and other protective measures.

Providing health education through advertising, radio, town criers, social media, and more.

15 YEARS OF FOSTERING RESILIENCE

PMI investments help build stronger, more resilient health systems capable of tackling malaria and other diseases. PMI also plays a vital role in building partner countries' capacity to sustain malaria progress when faced with threats such as drug and insecticide resistance, changing disease patterns, conflict, natural disasters, and other disease outbreaks. Over the years, those fighting plague and Ebola, or responding to cyclones and refugee crises, have leaned on PMI systems and expertise. In FY 2020, PMI stepped up to support national malaria control programs to safely continue life-saving malaria interventions amidst the COVID-19 pandemic.

"When we strengthen health systems in far regions of the world, we reduce the risk of future pandemics that can threaten our people and our economy."

—President Joe Biden

A thriving, competitive market for health commodities lowers costs, improves quality, and encourages innovation. Before the pandemic, PMI noticed warning signs of declining market competition for rapid malaria tests. PMI worked as part of a global malaria diagnostic task force—that included the Global Fund, World Health Organization, UNICEF, Bill & Melinda Gates Foundation, and other major buyers of rapid malaria tests—to right-size the market and expand the pool of pre-qualified suppliers. This work became even more critical as COVID-19 created shockwaves in manufacturing worldwide, further threatening supply of this vital commodity and causing prices to spike. The task force convened a supplier summit in June 2020, ultimately securing production of an estimated 105 million malaria tests to meet demand through 2020 and minimizing negative cost impacts. The market has also bounced back, expanding from two predominant suppliers in 2019 to eight in 2020.

Chansotheary Phan, Vice Chief of Snam 7 Health Center, Kampot province, received malaria detection training funded by PMI. "I am delighted to be trained by USAID/PMI...Now I can serve the community with my testing ability." Credit: Cambodia Malaria Elimination Project

Strong health surveillance is critical to safeguarding progress against known diseases such as malaria and warning of new diseases with pandemic potential. PMI investments build better disease surveillance in partner countries by providing local scientists with the equipment and skills they need to detect disease threats. ●

Invasive mosquito species can change how and where diseases like malaria spread, threatening global health security. Global trade increases the risk of new disease-carrying species being introduced to non-native areas, including the United States. PMI funding for mosquito surveillance across Africa and Asia accelerates detection and response to emerging threats like *Anopheles stephensi*, which emerged recently in northern Africa.

PMI funding supports: **229 mosquito surveillance sites, 244 insecticide resistance monitoring sites,** and **101 parasite resistance monitoring sites.**

LOOKING FORWARD

While FY 2020 brought unprecedented challenges, the long-term impact and value of U.S. Government investments against malaria and other diseases were clear. The world has made considerable gains against malaria in the last 15 years. However, COVID-19 could wipe these gains out. Indications of significant disruptions in basic malaria services in health facilities and communities and documented gaps in personal protective equipment to deliver services safely must be addressed. The scale of service disruptions is still being determined. However, there is no question that delays in diagnosis and treatment could cause malaria deaths to rise significantly, easily exceeding COVID-19 deaths in some of the highest malaria burden regions. PMI is committed to working together with partner countries and the broader malaria community to ensure prevention campaigns continue and every effort is made to recover and sustain malaria services. PMI is inspired by partner countries' resilience and creativity in the dual fight against malaria and COVID-19—and optimistic that together we can win both.

"The goal of defeating malaria is a challenging goal, yet it can be done. It's not going to require a miracle; it just requires a smart, sustained, focused effort."

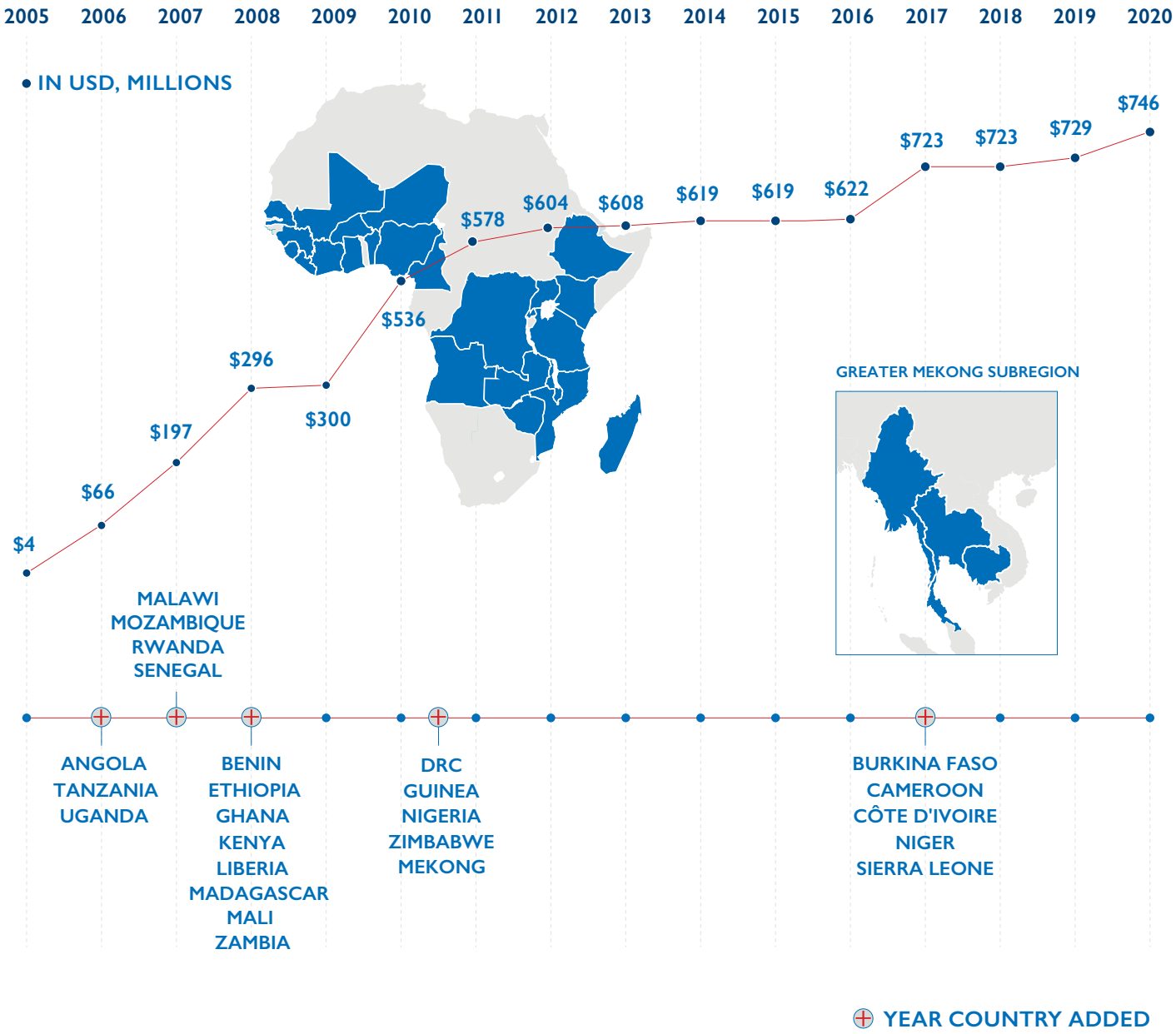
—Former President George W. Bush

New mothers await their postnatal appointment in Ghana. Credit: PMI Impact Malaria

ANNEX I

FUNDING FOR THE U.S. PRESIDENT'S MALARIA INITIATIVE

Reducing malaria enables countries to unlock economic growth and realize greater human potential, paving their path out of poverty and fostering more productive partnerships with the United States. Thanks to the bipartisan support of Congress and the generosity of the American people, PMI invested $746 million across its portfolio in FY 2020.



Please refer to the funding table for more information.

Numbers rounded to nearest million. In FY 2020, USAID also provided funding for malaria activities in Burundi ($8 million), the Latin America and the Caribbean Region ($5 million), and multilateral malaria efforts ($11 million). In addition, the U.S. Government is the largest donor to the Global Fund to Fight AIDS, Tuberculosis, and Malaria. The Global Fund was the other leading source of donor funding for country malaria programs over the same period.

*Burkina Faso also received $66 million in USAID funding for malaria activities between 2010 and 2016.

COUNTRY	PMI FUNDING START	FY 2020 ($ MILLION)	ALL YEARS ($ MILLION)
ANGOLA	2005	19	360
BENIN	2006	17	223
BURKINA FASO*	2010	26	101
BURMA	2013	10	74
CAMBODIA	2013	10	59
CAMEROON	2017	24	89
CÔTE D'IVOIRE	2017	25	100
DRC	2010	55	488
ETHIOPIA	2006	36	482
GHANA	2006	28	361
GUINEA	2011	16	133
KENYA	2006	34	442
LIBERIA	2007	14	176
MADAGASCAR	2006	26	338
MALAWI	2006	24	318
MALI	2006	25	319
MEKONG	2011	3	51
MOZAMBIQUE	2006	29	393
NIGER	2017	18	72
NIGERIA	2010	77	712
RWANDA	2006	20	255
SENEGAL	2006	23	318
SIERRA LEONE	2017	15	60
TANZANIA	2005	42	619
UGANDA	2005	35	448
ZAMBIA	2006	30	339
ZIMBABWE	2011	15	146
HEADQUARTERS	2006	51	493
TOTAL	—	**746**	**7,968**

ANNEX 2

U.S. PRESIDENT'S MALARIA INITIATIVE COMMODITY AND TRAINING INVESTMENTS

- The reporting timeframe is the 2020 Federal fiscal year (FY), which runs from October 1, 2019 to September 30, 2020.
- PMI counts commodities as "procured" once the procurement service agent has released a purchase order or invoice for those commodities. PMI reports commodities as "delivered" once PMI receives proof of delivery to the beneficiary country.
- Intervention packages are tailored and depend on many factors including demographics, national policies, climate, resistance patterns, mosquito/parasite type, and available contributions by partner governments and other donors. PMI only delivers commodities where they are recommended and needed. Therefore, commodities and training provided will differ by country and from year-to-year. PMI works closely with national malaria control programs and other donors to optimize coordination and avoid duplications or gaps.
- Procurements and deliveries may appear listed as zero because they occurred just outside (before or after) the fiscal year. Differences between these numbers are also expected because of factors such as production timelines, shipping duration, stocks held temporarily in reserve before delivery, and other factors.

INSECTICIDE-TREATED NETS (ITNs)

ITNs kill mosquitoes that land on them and physically block mosquitoes at night when they are most likely to bite. PMI maintains ITN coverage through a combination of mass distribution campaigns and continuous distribution via health clinics, schools, and other channels.

FY 2020 HIGHLIGHTS:

49,619,465
ITNs Procured

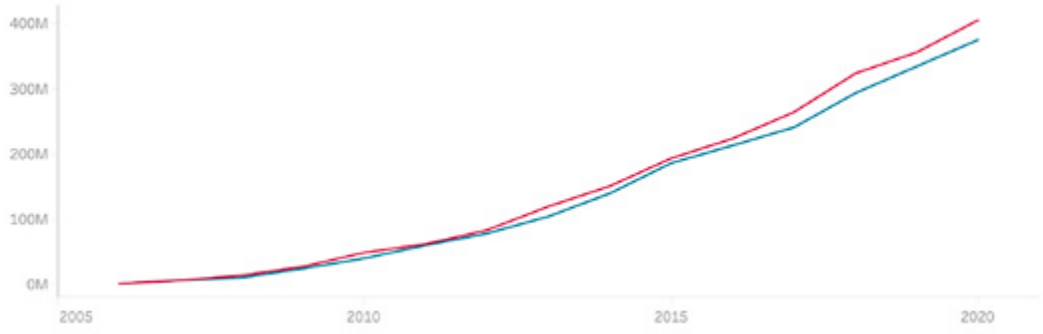
40,886,057
ITNs Delivered

Notes: The table reports the number of ITNs purchased and distributed with PMI's funding. In addition, PMI coordinates with other donors to distribute commodities purchased with non-PMI resources (see Partnerships).

FY 2020

COUNTRY	ITNs PROCURED	ITNs DELIVERED
ANGOLA	1,000,000	1,000,000
BENIN	-	2,792,273
BURMA	850,000	800,000
CAMBODIA	250,000	576,444
CAMEROON	380,000	-
CÔTE D'IVOIRE	2,815,535	-
DRC	2,910,000	5,091,000
ETHIOPIA	3,636,553	3,098,234
GHANA	5,831,839	1,300,000
KENYA	5,232,748	980,975
LIBERIA	239,400	239,400
MADAGASCAR	3,677,000	1,000,000
MALAWI	1,200,000	1,700,00
MALI	1,203,200	2,778,200
MEKONG	190,250	210,250
MOZAMBIQUE	-	1,065,000
NIGER	375,238	375,238
NIGERIA	8,600,000	7,133,250
RWANDA	-	1,611,539
SENEGAL	1,525,000	1,538,200
SIERRA LEONE	300,000	2,500,000
TANZANIA	3,399,175	3,629,054
UGANDA	2,638,527	400,000
ZAMBIA	2,565,000	667,000
ZIMBABWE	800,000	400,000

15 YEARS



ALL YEARS
CUMULATIVE

404,464,225
ITNs Procured

376,134,311
ITNs Delivered

In Ghana, nearly 1.5 million pupils in 22,645 public and private schools received mosquito nets in 2019. Credit: USAID GHSC-PSM Project

INDOOR RESIDUAL SPRAYING (IRS)

IRS treats the inside walls of homes with long-lasting insecticides. It is an effective way to kill mosquitoes and disrupt the transmission of malaria.

FY 2020 HIGHLIGHTS:

5,325,166
Houses Sprayed

19,926,527
People Protected

30,238
IRS Spray Personnel Trained

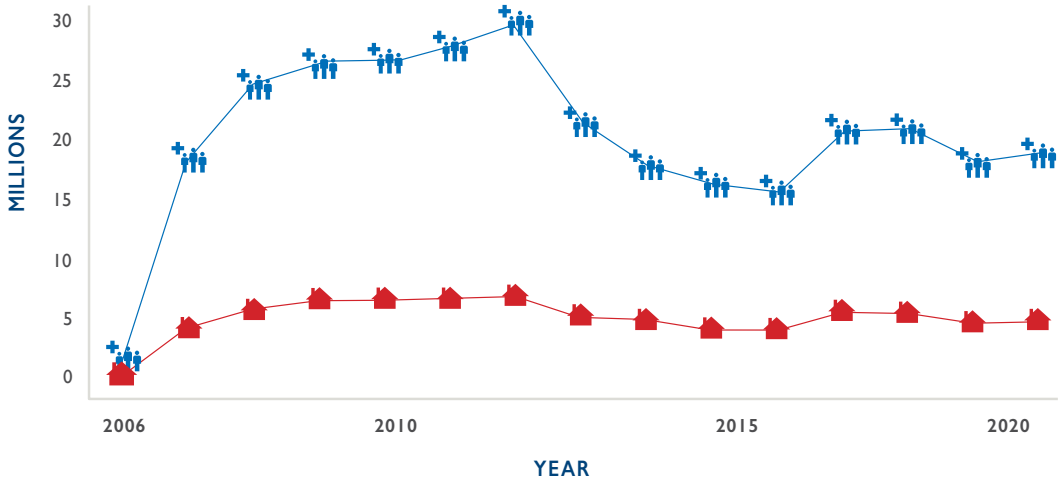
Notes: PMI defines "spray personnel" as spray operators, supervisors, and ancillary personnel. It does not include the many people trained to conduct information and community-mobilization programs for IRS campaigns.

PMI also offers technical assistance to non-PMI IRS campaigns.

FY 2020

COUNTRY	HOUSES SPRAYED	PEOPLE PROTECTED
BENIN	350,349	1,104,928
BURKINA FASO	162,037	508,017
COTE D'IVOIRE	53,962	193,935
ETHIOPIA	527,375	1,511,728
GHANA	339,139	965,467
KENYA	436,472	1,792,495
MADAGASCAR	267,874	1,150,922
MALAWI	107,565	441,375
MALI	129,302	503,043
MOZAMBIQUE	338,330	1,484,191
RWANDA	334,802	1,355,656
SENEGAL	136,417	571,649
TANZANIA	471,622	1,915,151
UGANDA	1,001,746	3,847,573
ZAMBIA	536,983	2,273,188
ZIMBABWE	131,191	307,209

15 YEARS



ALL YEARS

People Protected

Houses Sprayed

Veronica Chembezi supervises the Ngala operational site in Malawi's Nkhotakota District, where PMI sprays. With the income she is earning, Veronica plans to finish school and start a small business.

Beatrice Ahou Kouakou was the only woman on her spray team in Cote d'Ivoire's Nguessan Pokoukro District, yet earned the title 'best applicator' and helped increase the daily average number of homes sprayed from 8 to 10.

Credit: PMI VectorLink

Since 2017, Argentina Carlos Muringo has driven PMI spray operators across rough terrain to reach even the hardest-to-reach areas in Mozambique. A mother of three, her earnings help pay for her two daughters' college fees.

INTERMITTENT PREVENTIVE TREATMENT IN PREGNANCY (IPTp)

Malaria is dangerous for pregnant women and their babies. Ensuring women receive IPTp at prenatal visits after the first trimester can prevent malaria. Ideally women receive at least three doses.

FY 2020 HIGHLIGHTS:

21,997,664
IPTp Doses Procured

23,019,681
IPTp Doses Delivered

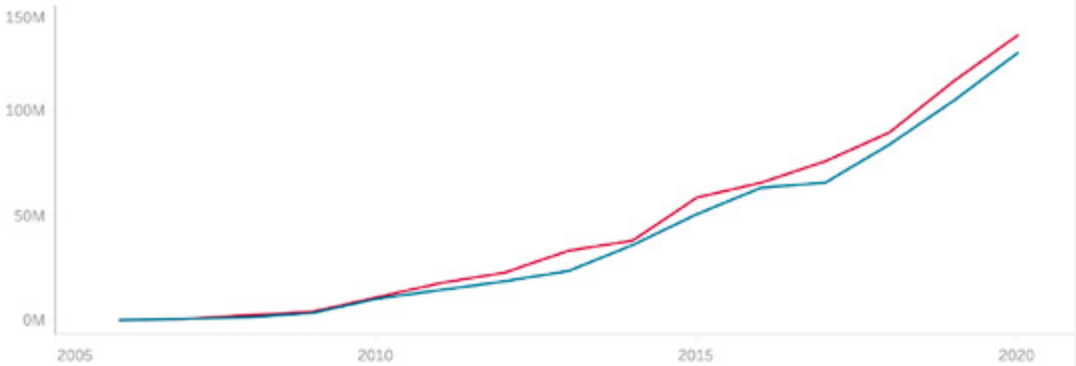
23,963
Health Workers Trained in IPTp

Notes: Table reports the number of IPTp doses purchased and delivered with PMI funding. Each dose comprises three sulfadoxine-pyrimethamine tablets. PMI also funds the provision and promotion of ITNs, as well as the prompt diagnosis and appropriate treatment of malaria and anemia as part of a multi-pronged approach to preventing malaria in pregnancy.

FY 2020

COUNTRY	DOSES PROCURED	DOSES DELIVERED
ANGOLA	2,500,000	2,500,000
BENIN	1,082,050	1,082,050
CAMEROON	1,353,750	1,353,750
COTE D'IVOIRE	740,000	740,000
DRC	2,000,000	-
GUINEA	1,254,000	1,254,000
KENYA	1,166,666	1,166,666
LIBERIA	337,500	675,000
MADAGASCAR	500,000	-
MALAWI	2,400,000	1,500,000
MALI	2,266,666	1,695,333
MOZAMBIQUE	1,180,666	2,677,416
NIGER	1,424,700	1,554,800
NIGERIA	-	3,661,250
SENEGAL	-	1,325,550
TANZANIA	2,250,000	-
ZAMBIA	1,541,666	1,541,666
ZIMBABWE	-	292,200

15 YEARS



ALL YEARS
CUMULATIVE

136,300,726
IPTp Doses Procured

127,987,026
IPTp Doses Delivered

Boni Awa receiving IPTp at Mouyassue Health Center in Cote d'Ivoire during prenatal care to prevent malaria during pregnancy.

Again with her healthy four-month old son in March 2020.

Credit: PMI Impact Malaria

SEASONAL MALARIA CHEMOPREVENTION (SMC)

SMC is a monthly preventive treatment given to children under five years of age that protects them from contracting malaria during peak transmission season.

FY 2020 HIGHLIGHTS:

36,762,550
SMC Rounds Procured

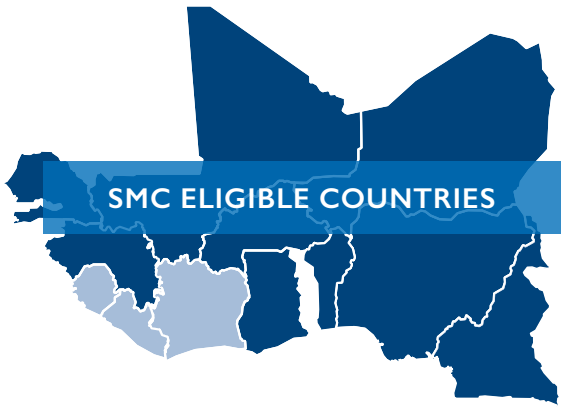
36,762,550
SMC Rounds Delivered

67,462
Health Workers Trained in SMC

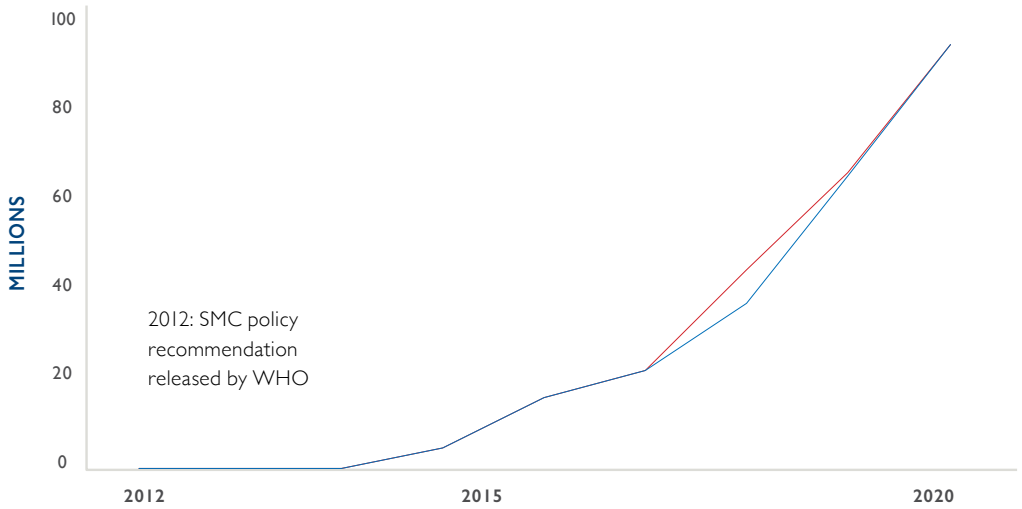
Notes: SMC is only recommended in certain geographic regions. PMI funds SMC in all eligible countries it supports. On average, four rounds of treatment are recommended per child (one round per month during the rainy season).

FY 2020

COUNTRY	ROUNDS PROCURED	ROUNDS DELIVERED
BENIN	531,000	531,000
BURKINA FASO	2,460,000	2,460,000
CAMEROON	7,553,550	7,553,550
GHANA	1,900,000	1,900,000
GUINEA	1,755,700	1,755,700
MALI	4,864,650	4,864,650
NIGER	8,244,600	8,244,600
NIGERIA	5,223,050	5,223,050
SENEGAL	4,230,000	4,230,000



15 YEARS



ALL YEARS
CUMULATIVE

93,537,621
Rounds Procured

93,537,621
Rounds Delivered

This year, caregivers were the ones to give children their SMC medicine while health workers supervised to minimize contact for COVID-19 safety.

Credit: USAID Integrated Health Services Activity, Benin

Credit: PMI for States Project, Nigeria

Credit: National Malaria Control Program, Senegal

Credit: PMI Impact Malaria, Cameroon

RAPID DIAGNOSTIC TESTS (RDTs)

RDTs are a quick, easy, and inexpensive way to test a suspected malaria case. As other common diseases can cause similar symptoms to malaria, testing helps ensure patients get the right diagnosis.

FY 2020 HIGHLIGHTS:

106,973,840
RDTs Procured

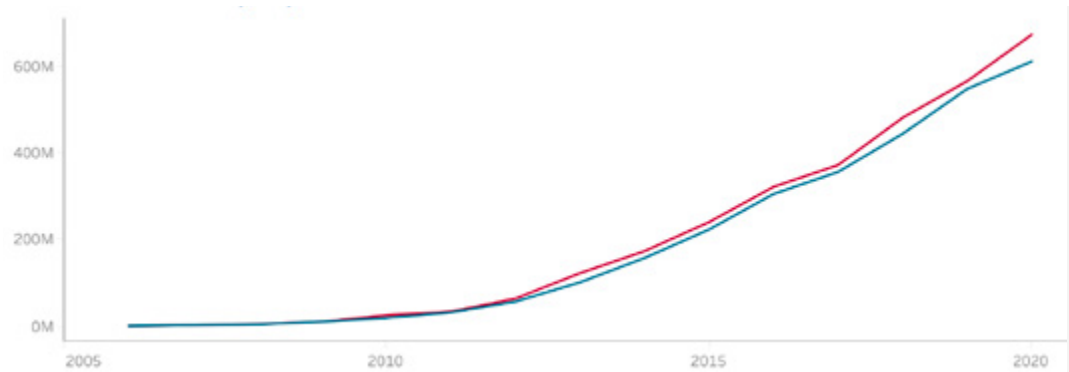
63,272,215
RDTs Delivered

37,994
Health Workers Trained in Malaria Diagnosis (RDTs and/or Microscopy)

FY 2020

COUNTRY	RDTs PROCURED	RDTs DELIVERED
ANGOLA	10,000,025	4,725,475
BENIN	-	2,000,000
BURKINA FASO	13,000,000	7,750,000
BURMA	400,000	540,000
CAMBODIA	-	35,000
CAMEROON	725,475	250,000
CÔTE D'IVOIRE	3,611,675	1,948,225
DRC	4,311,050	-
GHANA	2,000,000	-
GUINEA	2,599,875	840,150
KENYA	7,400,000	3,896,075
LIBERIA	2,720,275	2,400,000
MADAGASCAR	2,290,325	2,290,325
MALAWI	7,500,000	7,750,500
MALI	3,215,425	875,000
MEKONG	500,000	150,000
MOZAMBIQUE	16,076,350	12,446,425
NIGER	1,250,000	1,250,000
NIGERIA	16,354,250	7,155,500
SENEGAL	23,040	23,040
SIERRA LEONE	1,730,000	1,730,000
UGANDA	2,850,000	3,617,000
ZAMBIA	6,666,075	-
ZIMBABWE	1,000,000	1,000,000

15 YEARS



ALL YEARS
CUMULATIVE

672,558,705
RDTs Procured

610,865,080
RDTs Delivered

Thanks to PMI and partners, the supply of rapid diagnostic tests was protected during the COVID-19 pandemic, including this delivery to Laos.

Credit: USAID Asia

PMI also funds training and equipment for malaria diagnosis using microscopy, such as in Niger.

Credit: PMI Impact Malaria

ARTEMISININ-BASED COMBINATION THERAPIES (ACTs)

ACTs are the best medicine available for treating the most common form of malaria. Patients are typically cured after a three-day course.

FY 2020 HIGHLIGHTS:

83,695,002
ACTs Procured

58,953,709
ACTs Delivered

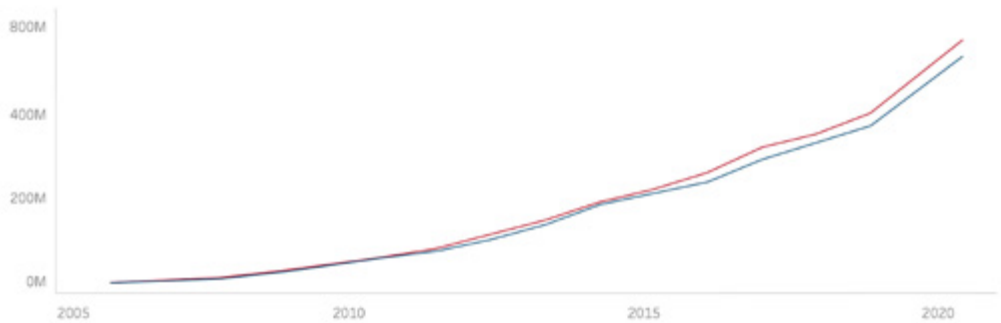
37,494
Health Workers Trained in Malaria Case Management

Notes: Table reports the number of ACTs purchased and delivered with PMI funding. In addition, PMI coordinates with other donors to distribute commodities purchased with non-PMI resources (see Partnerships).

FY 2020

COUNTRY	ACTs PROCURED	ACTs DELIVERED
ANGOLA	3,652,725	2,576,175
BENIN	2,838,270	2,838,270
BURKINA FASO	6,00,119	3,500,040
BURMA	27,000	34,800
CAMEROON	1,227,600	223,890
COTE D'IVOIRE	1,833,000	1,248,000
DRC	5,682,975	4,001,110
GUINEA	2,440,830	1,685,550
KENYA	5,301,750	3,170,010
LIBERIA	1,577,610	1,542,335
MADAGASCAR	1,970,235	1,970,235
MALAWI	3,140,010	1,000,020
MALI	1,074,924	567,294
MEKONG	14,070	-
MOZAMBIQUE	16,919,940	5,201,970
NIGER	1,824,010	2,153,950
NIGERIA	13,069,485	14,687,005
RWANDA	1,268,160	2,131,950
SENEGAL	993,689	1,083,965
SIERRA LEONE	600,000	1,201,620
TANZANIA	720	-
UGANDA	2,274,900	2,181,660
ZAMBIA	9,534,420	5,530,230
ZIMBABWE	424,560	424,560

15 YEARS



ALL YEARS
CUMULATIVE

756,923,426
ACTs Procured

714,879,728
ACTs Delivered

Easy as one, two, three. Take your temperature, do a rapid malaria test, and recover from a deadly disease in just three days with a fast-acting and effective medicine.

Credit: PMI Impact Malaria

PARTNERSHIPS

Commodities Purchased by Other Donors and Distributed with PMI Support

Fighting malaria together makes us more effective and achieves greater impact than any of us could alone. PMI works with national malaria control programs in close partnership with other multilateral and bilateral donors, academic and research institutions, civil society, the private sector, community and faith-based organizations, advocacy groups, and NGOs, among others.

FY 2020 HIGHLIGHTS:

8,927,443
ACT Treatments Procured by Other Donors Distributed by PMI

23,527,087
ITNS Procured by Other Donors Distributed by PMI

FY 2020

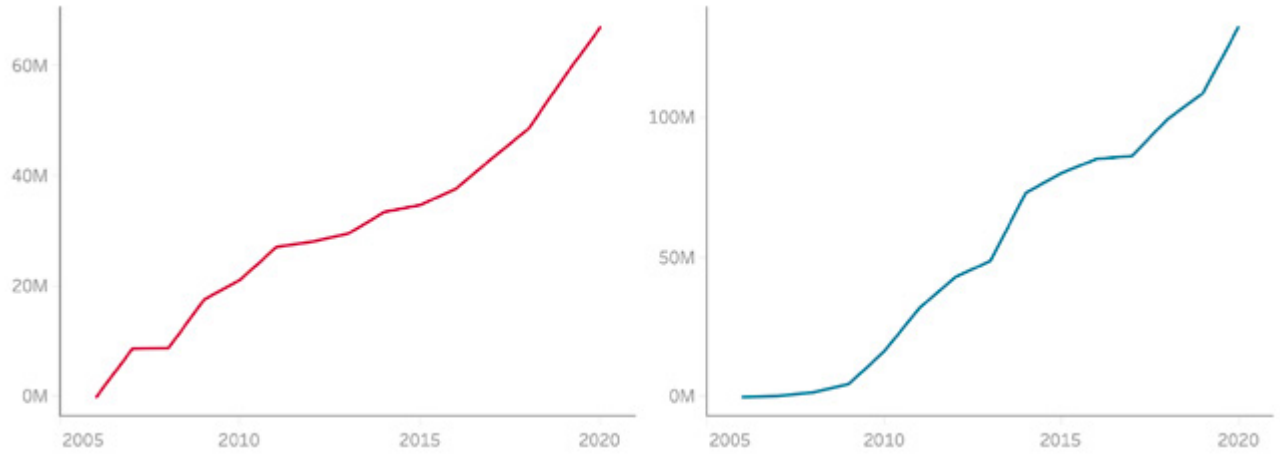
COUNTRY	ITNs Other Donors	ACTs Other Donors
BENIN	-	1,583,551
CAMBODIA	10,241	-
COTE D'IVOIRE	1,366,986	2,655,538
DRC	750,000	-
GUINEA	-	209,988
LIBERIA	-	1,043,130
MADAGASCAR	292,896	360,125
MALAWI	-	270
MOZAMBIQUE	-	2,213,311
RWANDA	-	210,000
SIERRA LEONE	234,000	-
TANZANIA	3,041,849	-
UGANDA	17,876,115	-
ZIMBABWE	-	651.530

15 YEARS

ALL YEARS CUMULATIVE

66,904,991
ACT Treatments Procured by Other Donors Distributed with PMI Support

132,302,634
ITNs Procured by Other Donors Distributed with PMI Support

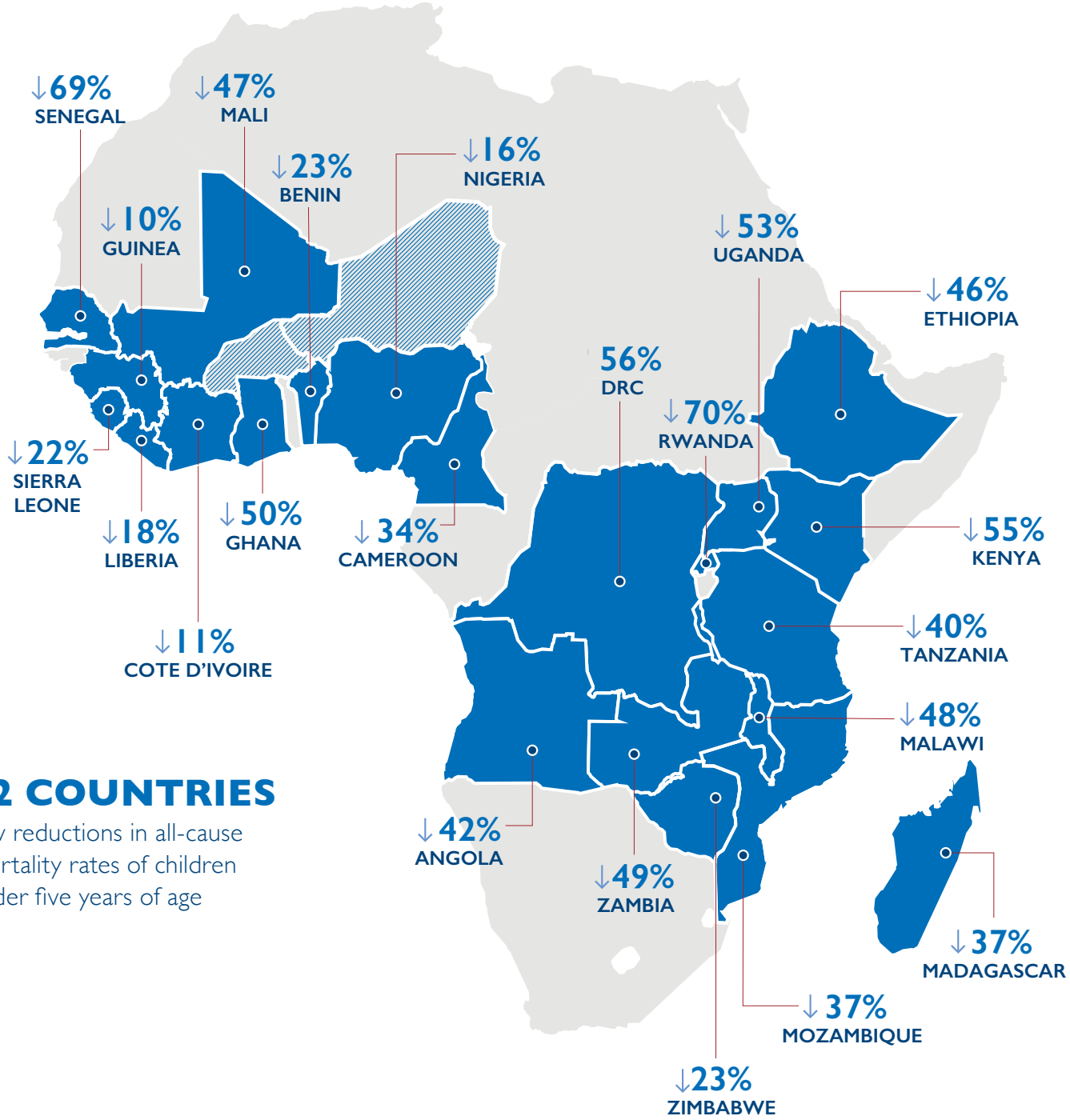


ANNEX 3

ALL-CAUSE MORTALITY RATES AND INTERVENTION COVERAGE IN U.S. PRESIDENT'S MALARIA INITIATIVE PARTNER COUNTRIES

- Data in this annex include a baseline survey for each indicator from before PMI began working in each country and the most recent comparable endline survey available.
- Two surveys are not yet available for all indicators for newer PMI partner countries.
- For more information on survey data, visit the Demographic and Health Services Program website and the United Nations Children's Fund Multiple Indicator Cluster Surveys website.

PERCENT REDUCTIONS IN ALL-CAUSE MORTALITY IN CHILDREN UNDER AGE FIVE IN PMI COUNTRIES IN AFRICA



Note: The 22 countries highlighted in blue have at least two data points from nationwide household surveys that measured all-cause mortality in children under the age of five. Burkina Faso and Niger are shaded but were not included as data points, as they do not yet have two comparable household surveys available. For more detail including the source and year of the surveys, see the all-cause death rates table.

ALL-CAUSE DEATH RATES IN CHILDREN UNDER AGE FIVE IN PMI COUNTRIES

COUNTRY	SURVEY	DEATHS PER 1,000 LIVE BIRTHS
ANGOLA	MIS 2011	118
ANGOLA	DHS 2015-2016	68
BENIN	DHS 2006	125
BENIN	DHS 2017	96
BURKINA FASO	DHS 2010	129
CAMEROON	DHS 2011	122
CAMEROON	DHS 2018	80
COTE D'IVOIRE	DHS 2011-2012	108
COTE D'IVOIRE	MICS 2016	96
DRC	MICS 2010	158
DRC	MICS 2017	70
ETHIOPIA	DHS 2005	123
ETHIOPIA	DHS 2016	67
GHANA	MICS 2006	111
GHANA	DHS 2014	56
GUINEA	DHS 2012	123
GUINEA	DHS 2018	111
KENYA	DHS 2003	115
KENYA	DHS 2014	52
LIBERIA	MIS 2009	114
LIBERIA	DHS 2013	93
MADAGASCAR	DHS 2003-2004	94
MADAGASCAR	MICS 2018 snapshot	59

COUNTRY	SURVEY	DEATHS PER 1,000 LIVE BIRTHS
MALAWI	MICS 2006	122
MALAWI	DHS 2015-2016	63
MALI	DHS 2006	191
MALI	DHS 2018	101
MOZAMBIQUE	DHS 2003	153
MOZAMBIQUE	DHS 2011	97
NIGER	DHS 2012	127
NIGERIA	DHS 2008	157
NIGERIA	DHS 2018	132
RWANDA	DHS 2005	152
RWANDA	DHS 2014-2015	45
SENEGAL	DHS 2005	121
SENEGAL	cDHS 2018	37
SIERRA LEONE	DHS 2013	156
SIERRA LEONE	DHS 2019 KIR	122
TANZANIA	DHS 2004-2005	112
TANZANIA	DHS 2015-2016	67
UGANDA	DHS 2006	137
UGANDA	DHS 2016	64
ZAMBIA	DHS 2007	119
ZAMBIA	DHS 2018 KIR	61
ZIMBABWE	DHS 2010-2011	84
ZIMBABWE	DHS 2015	65

OWNERSHIP OF ITNs IN PMI COUNTRIES

COUNTRY	SURVEY	ITN OWNERSHIP (%)	HOUSEHOLDS WITH AT LEAST ONE ITN (%) (Most Recent Survey Value)
ANGOLA	MIS 2006-2007 DHS 2015-2016	11 31	31%
BENIN	DHS 2006 DHS 2017	25 92	92%
BURKINA FASO	MIS 2017-2018	75	75%
CAMEROON	DHS 2011 DHS 2018	36 73	73%
COTE D'IVOIRE	DHS 2011-2012 MICS 2016	68 76	76%
DRC	MICS 2010 MICS 2018	51 63	63%
ETHIOPIA	MIS 2007 MIS 2015-2016	65 64	64%
GHANA	MICS 2006 MIS 2019	19 74	74%
GUINEA	MICS 2007 DHS 2018	8 44	44%
KENYA	MIS 2007 MIS 2015	48 63	63%
LIBERIA	MIS 2009 DHS 2019-2020 KIR	47 55	55%
MADAGASCAR	DHS 2008-2009 MICS 2018	57 78	78%
MALAWI	MICS 2006 MIS 2017	38 82	82%
MALI	DHS 2006 DHS 2018	50 90	90%
MOZAMBIQUE	MIS 2007 MIS 2018	16 82	82%
NIGER	DHS 2012	61	61%
NIGERIA	MIS 2010 DHS 2018	42 61	61%
RWANDA	DHS 2005 DHS 2019-2020	15 66	66%
SENEGAL	MIS 2006 cDHS 2019 KIR	36 82	82%
SIERRA LEONE	MIS 2016 DHS 2019	60 68	68%
TANZANIA	DHS 2004-2005 MIS 2017	23 78	78%
UGANDA	DHS 2006 MIS 2018-2019	16 83	83%
ZAMBIA	MIS 2006 MIS 2018	38 80	80%
ZIMBABWE	DHS 2010-2011 MICS 2019	25 37	37%

Ownership is defined as the percentage of households that own at least one ITN.

ACCESS TO ITNs IN PMI COUNTRIES

COUNTRY	SURVEY	ITN ACCESS (%)	ITN ACCESS (%) (Most Recent Survey Value)
ANGOLA	MIS 2006-2007 DHS 2015-2016	15 20	20%
BENIN	DHS 2006 DHS 2017	15 77	77%
BURKINA FASO	MIS 2014 MIS 2017-2018	71 55	55%
CAMEROON	MICS 2014 DHS 2018	56 59	59%
COTE D'IVOIRE	MICS 2016	64	64%
DRC	MICS 2010 MICS 2018	30 44	44%
ETHIOPIA	DHS 2005 MIS 2015-2016	2 49	49%
GHANA	DHS 2003 MIS 2019	2 67	67%
GUINEA	DHS 2005 DHS 2018	2 31	31%
KENYA	DHS 2008 MIS 2015	42 53	53%
LIBERIA	MIS 2009 DHS 2019-2020 KIR	25 40	40%
MADAGASCAR	DHS 2008-2009 MICS 2018	35 62	62%
MALAWI	DHS 2004 MIS 2017	19 63	63%
MALI	DHS 2006 DHS 2018	30 75	75%
MOZAMBIQUE	DHS 2011 MIS 2018	37 69	69%
NIGER	DHS 2012	37	37%
NIGERIA	MIS 2010 DHS 2018	29 48	48%
RWANDA	DHS 2005 MIS 2019-2020 KIR	9 51	51%
SENEGAL	MIS 2006 cDHS 2019	18 74	74%
SIERRA LEONE	MIS 2016 DHS 2019	37 47	47%
TANZANIA	DHS 2004-2005 MIS 2017	16 63	63%
UGANDA	DHS 2006 MIS 2018	9 72	72%
ZAMBIA	DHS 2007 MIS 2018	34 67	67%
ZIMBABWE	DHS 2010-2011 MICS 2019	20 27	27%

Access is defined as the percentage of the population who could sleep under an ITN if up to two individuals per household used an ITN.

USE OF ITNs BY CHILDREN UNDER AGE FIVE IN PMI COUNTRIES

COUNTRY	SURVEY	U5 ITN USE (%)	CHILDREN UNDER FIVE WHO SLEPT UNDER AN ITN THE PREVIOUS NIGHT (%) (Most Recent Survey Value)
ANGOLA	MIS 2006-2007 DHS 2015-2016	18 22	22%
BENIN	DHS 2006 DHS 2017	20 78	78%
BURKINA FASO	MIS 2017-2018	54	54%
CAMEROON	DHS 2011 DHS 2018	21 60	60%
COTE D'IVOIRE	DHS 2011-2012 MICS 2016	37 60	60%
DRC	MICS 2010 MICS 2018	38 51	51%
ETHIOPIA	MIS 2007 MIS 2015-2016	41 45	45%
GHANA	MICS 2006 MIS 2019	22 54	54%
GUINEA	MICS 2007 DHS 2018	5 27	27%
KENYA	MIS 2007 MIS 2015	39 56	56%
LIBERIA	MIS 2009 DHS 2019-2020 KIR	26 44	44%
MADAGASCAR	DHS 2008-2009 MICS 2018	16 62	62%
MALAWI	MICS 2006 MIS 2017	25 68	68%
MALI	DHS 2006 DHS 2018	27 79	79%
MOZAMBIQUE	MIS 2007 MIS 2018	7 73	73%
NIGER	DHS 2012	20	20%
NIGERIA	MIS 2010 DHS 2018	29 52	52%
RWANDA	DHS 2005 MIS 2019-2020 KIR	13 77	77%
SENEGAL	MIS 2006 cDHS 2019 KIR	16 65	65%
SIERRA LEONE	MIS 2016 DHS 2019	44 59	59%
TANZANIA	DHS 2004-2005 MIS 2017	16 55	55%
UGANDA	DHS 2006 MIS 2018	10 60	60%
ZAMBIA	MIS 2006 MIS 2018	24 69	69%
ZIMBABWE	DHS 2010-2011 MIS 2016	10 33	33%

Use is defined as the percentage of children under age five who slept under an ITN the night before the survey.

USE OF ITNs BY PREGNANT WOMEN IN PMI COUNTRIES

COUNTRY	SURVEY	ITN USE PREGNANT WOMEN (%)	ITN ACCESS (%) (Most Recent Survey Value)
ANGOLA	MIS 2006-2007 DHS 2015-2016	22 23	23%
BENIN	DHS 2006 DHS 2017	20 80	80%
BURKINA FASO	MIS 2017-2018	58	58%
CAMEROON	DHS 2011 DHS 2018	20 61	61%
COTE D'IVOIRE	DHS 2011-2012 MICS 2016	40 53	53%
DRC	MICS 2010 MICS 2018	43 52	52%
ETHIOPIA	MIS 2007 MIS 2015-2016	43 44	44%
GHANA	DHS 2003 MIS 2019	3 49	49%
GUINEA	MICS 2007 DHS 2018	3 28	28%
KENYA	MIS 2007 MIS 2015	40 58	58%
LIBERIA	MIS 2009 MIS 2016	33 47	47%
MADAGASCAR	DHS 2008-2009 MICS 2016	46 69	69%
MALAWI	DHS 2004 MIS 2017	15 63	63%
MALI	DHS 2006 DHS 2018	29 84	84%
MOZAMBIQUE	MIS 2007 MIS 2018	7 76	76%
NIGER	DHS 2012	20	20%
NIGERIA	MIS 2010 DHS 2018	34 58	58%
RWANDA	DHS 2005 MIS 2019-2020 KIR	17 57	57%
SENEGAL	MIS 2006 cDHS 2019 KIR	17 68	68%
SIERRA LEONE	MIS 2016 DHS 2019	44 64	64%
TANZANIA	DHS 2004-2005 MIS 2017	16 51	51%
UGANDA	DHS 2006 MIS 2018 KIR	10 65	65%
ZAMBIA	MIS 2006 MIS 2018	25 71	71%
ZIMBABWE	DHS 2010-2011 MIS 2016	9 24	24%

Use is defined as the percentage of pregnant women who slept under an ITN the night before the survey.

IPTp COVERAGE IN PMI COUNTRIES: THREE DOSES

COUNTRY	SURVEY	IPTp2 (%)	IPTp2 (%) (Most Recent Survey Value)
ANGOLA	MIS 2006-2007 DHS 2015-2016	1 19	19%
BENIN	DHS 2006 DHS 2017	0 14	14%
BURKINA FASO	MIS 2014 MIS 2018	22 58	58%
CAMEROON	DHS 2011 DHS 2018	12 32	32%
COTE D'IVOIRE	DHS 2011-2012 MICS 2016	7 23	23%
DRC	DHS 2013	5	5%
GHANA	DHS 2008 MIS 2019	27 61	61%
GUINEA	MICS 2016 DHS 2018	30 36	36%
KENYA	MIS 2007 MIS 2015	7 39	39%
LIBERIA	MIS 2009 DHS 2019-2020 KIR	10 40	40%
MADAGASCAR	DHS 2008-2009 MICS 2018	2 15	15%
MALAWI	DHS 2004 MIS 2017	14 41	41%
MALI	MIS 2015 DHS 2018	18 28	28%
MOZAMBIQUE	DHS 2011 MIS 2018	10 41	41%
NIGER	DHS 2012	9	9%
NIGERIA	MIS 2010 DHS 2018	5 17	17%
SENEGAL	MIS 2006 cDHS 2019 KIR	7 20	20%
SIERRA LEONE	MIS 2016 DHS 2019	31 36	36%
TANZANIA	DHS 2004-2005 MIS 2017	3 26	26%
UGANDA	DHS 2006 MIS 2018	6 41	41%
ZAMBIA	DHS 2007 MIS 2018	41 67	67%
ZIMBABWE	DHS 2010-2011 MICS 2019	5 13	13%

Data come from nationwide household surveys that measured coverage of IPTp3 for pregnant women, defined as the percentage of surveyed women who received at least three doses of sulfadoxine-pyrimethamine during their last pregnancy in the past two years. IPTp is not part of the national policy in Ethiopia and Rwanda. Kenya, Madagascar, and Zimbabwe implement IPTp subnationally because of heterogeneous malaria transmission with areas of low risk. National coverage estimates included here are national and therefore likely underestimate coverage in priority areas.

IPTp COVERAGE IN PMI COUNTRIES: TWO DOSES

COUNTRY	SURVEY	IPTp3 (%)	IPTp3 (%) (Most Recent Survey Value)
ANGOLA	MIS 2006-2007 DHS 2015-2016	3 37	37%
BENIN	DHS 2006 DHS 2017	3 34	34%
BURKINA FASO	MIS 2017-2018	82	82%
CAMEROON	DHS 2011 DHS 2018	26 54	54%
COTE D'IVOIRE	DHS 2011-2012 MICS 2016	18 47	47%
DRC	MICS 2010 MICS 2018	21 31	31%
GHANA	MICS 2006 MIS 2019	28 80	80%
GUINEA	DHS 2005 DHS 2018	4 62	62%
KENYA	MIS 2007 MIS 2015	14 56	56%
LIBERIA	MIS 2009 DHS 2019-2020 KIR	45 70	70%
MADAGASCAR	DHS 2008-2009 MICS 2018	6 29	29%
MALAWI	MICS 2006 MIS 2017	47 76	76%
MALI	DHS 2006 DHS 2018	10 55	55%
MOZAMBIQUE	MIS 2007 MIS 2018	16 61	61%
NIGER	DHS 2012	35	35%
NIGERIA	MIS 2010 DHS 2018 KIR	13 40	40%
SENEGAL	MIS 2006 cDHS 2019 KIR	49 63	63%
SIERRA LEONE	MIS 2016 DHS 2019	71 74	74%
TANZANIA	DHS 2004-2005 MIS 2017	22 56	56%
UGANDA	DHS 2006 MIS 2018 KIR	16 72	72%
ZAMBIA	MIS 2006 MIS 2018	57 81	81%
ZIMBABWE	DHS 2010-2011 MIS 2016	8 36	36%

Data come from nationwide household surveys that measured coverage of IPTp2 for pregnant women, defined as the percentage of surveyed women who received at least two doses of sulfadoxine-pyrimethamine during their last pregnancy in the past two years. IPTp is not part of the national policy in Ethiopia and Rwanda. Kenya, Madagascar, and Zimbabwe implement IPTp subnationally because of heterogeneous malaria transmission with areas of low risk. Data here are national and likely underestimate coverage in priority areas.

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