

PROGRESS AGAINST MALARIA

WINNING THE FIGHT AGAINST A DEADLY DISEASE



THE
LIVING
PROOF
PROJECT

U.S. investments in global health are working.

Global malaria efforts over the last decade have contributed to dramatic declines in malaria-related illness and death. Increases in coordination, political attention, and funding have led to an unprecedented scale-up of effective interventions such as insecticide-treated bed nets, insecticides, and new drug treatments.

The last decade has witnessed major new investments in malaria control efforts around the world. Under the umbrella of the Roll Back Malaria (RBM) Partnership, a host of global institutions and funders have come together to agree on, fund, and implement a cohesive strategy for the rapid scale-up of malaria control in Sub-Saharan Africa and worldwide, including the development of a robust pipeline for new drugs and other tools to fight the disease.

Significant financial and technical support has allowed countries to make solid progress toward reducing illness and death. Illness and deaths due to malaria have fallen dramatically in many countries, prompting some to consider the long-term prospects for elimination and eventual eradication.

Global Progress

Funding from international donors for malaria control increased more than fifteenfold from \$50 million (U.S.) in 1997 to almost \$800 million (U.S.) in 2007.¹ The increased commitment to scaling up malaria control led to the establishment of three major new initiatives:

- **The Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund)** was established in 2002 as an innovative financing mechanism to raise and disburse funding to countries in need. As a partnership representing public and private stakeholders, the Global Fund uses a demand-driven, performance-based model. Countries can apply for grants to finance their response to malaria, and continued financing is dependent on achievement of targets. The Global Fund provides two-thirds of all global malaria funding, supporting 78 countries around the world with grants totaling nearly \$6.6 billion (U.S.) since 2002.²
- **The World Bank's Malaria Booster Program**, established in 2005 to help countries in Sub-Saharan Africa reduce illness and death from malaria by 2015, has invested nearly \$500 million (U.S.) in 20 countries to improve and expand their

malaria control programs.³ The Booster Program plans to lend an additional \$1.2 billion (U.S.) for control efforts in Sub-Saharan Africa through 2011.

- **The United States President's Malaria Initiative (PMI)** was established in 2005 by the U.S. government to reduce the number of malaria-related deaths by 50 percent in 15 Sub-Saharan African countries by 2010. From 2004 through 2008, PMI provided nearly \$500 million (U.S.) to scale up control across Africa. In July 2008 the U.S. Congress authorized an additional \$5 billion (U.S.) for 2009 to 2013 for malaria control efforts.⁴

Significant investments in research and development (R & D) for malaria control and eradication have been stimulated through leadership and funding from the Bill & Melinda Gates Foundation. Established in 1994 and now the largest private grant-making foundation in the world, the foundation has invested more than \$1.2 billion (U.S.) in malaria R & D between 1998 and 2007, with a particular emphasis on development of drugs for treatment and an effective malaria vaccine.⁵

Innovation and Scientific Advances

Recent developments have significantly increased the effectiveness of malaria control efforts, providing the opportunity to mount a major campaign against the disease.

Investments in R & D have brought forward a host of new drugs and other tools to treat and prevent malaria:

- **New Rapid Diagnostic Tests (RDTs)** allow greater access to malaria diagnosis in remote, under-resourced areas. RDTs help prevent mistreatment and overtreatment, which can lead to drug resistance and drug waste.
- **Artemisinin-based Combination Therapies (ACTs)** became available in the late 1990s and are now in widespread use, providing the most effective treatment for malaria and replacing drugs that were losing effectiveness due to

resistance. **Medicines for Malaria Venture (MMV)**, a 10-year-old, not-for-profit public-private partnership, is leading the development of a future arsenal of malaria treatments.

New efforts are targeted at ensuring that drugs get to those who need them.

- The Global Fund, along with several key partners, has launched a pilot of the **Affordable Medicines Facility for malaria (AMFm)**, an innovative global business strategy to expand access to affordable ACTs through the private sector by subsidizing the cost of ACTs, improving the supply chain, and strengthening the incentives for private suppliers to provide the right

WHAT IS MALARIA?

Malaria is an infectious disease that, despite being treatable and preventable, still causes nearly 1 million deaths per year.²⁰ Malaria is caused by the *Plasmodium*²¹ parasite and is transmitted to humans through the bite of an infected *Anopheles* mosquito. Malaria infects people of all age groups; however, those who lack immunity— young children, pregnant women, and people living with HIV/AIDS—are more vulnerable to the disease.

Roughly 50 percent of the world's population (3.3 billion people) is at risk for malaria. An estimated 350 to 500 million cases occur per year across approximately 100 malarious countries, 45 of which are in Sub-Saharan Africa.²² Ninety percent of malaria deaths occur in Africa, and 85 percent of those who die are children under 5 years of age.²³

The disease burden is highest in poor, rural areas and contributes annually to an estimated 1.3 percent reduction in economic growth in high-burden countries.²⁴ Malaria reduces school attendance, impairs cognitive development in children, and lowers productivity.²⁵

Malaria can be effectively prevented and treated using tools that exist today. A multipronged approach using ITNs, IRS, IPT of children and pregnant women, and prompt diagnosis and treatment using ACTs has been proven to prevent death and significantly reduce illness.

drug at a low cost.⁶ It is estimated that this initiative will save from 175,000 to 298,000 lives per year.⁷

New and better tools are being made available to prevent malaria:

- The introduction of **Long-Lasting Insecticide-treated Bed Nets (LLINs)**, which incorporate insecticides directly into net fibers, has dramatically increased protection against malaria. LLINs are significantly more durable and cost-effective than previous insecticide-treated bed nets (ITNs), which require annual retreatment with insecticides.
- The assessment and implementation of **Intermittent Preventive Treatment (IPT)** in pregnancy in high-burden areas effectively reduces risk of infection among pregnant women and their unborn children, improving the newborn's health and chances of survival. World Health Organization (WHO) has recommended IPT for infants in areas of moderate to high malaria transmission where drug resistance is not a problem; plans for scaling up implementation are under way.

Malaria vaccine research has progressed rapidly over the last few years. More than \$600 million (U.S.) has been spent on vaccine research since 1999.⁸ A first-generation vaccine with at least 50 percent protection in infants and children lasting a minimum of one year is undergoing clinical trials, and is planned for release in 2015.⁹

Results

As a result of scaled-up investments in malaria control interventions, **millions of people have better access to prevention and effective treatment for malaria.**

- Production of insecticide-treated bed nets more than tripled, from 30 million in 2004 to an estimated 110 million in 2008.¹⁰
- ACT distribution increased from 6 million doses in 2005 to nearly 50 million in 2006, with more than 90 percent being delivered to Africa.¹¹
- The supply of ACTs provided through government hospitals and clinics has increased significantly due to the

INCREASING COVERAGE with Insecticide-treated Bed Nets



Source: WHO, *World Malaria Report 2008*

negotiation of drug prices and large grants provided by the Global Fund, PMI, and others.

- Policy on IPT for pregnant women was adopted in 33 African countries by 2006.
- Approximately 120 million people were covered by indoor residual spraying (IRS) of houses in 2006. Sao Tome and Principe, South Africa, and Swaziland lead the African region with coverage of nearly 100 percent of their at-risk populations.

Experience shows that when coverage with ITNs, indoor residual spraying, and rapid diagnosis and treatment are scaled up, the number of people sickened by the disease declines rapidly. A growing number of countries are experiencing these dramatic benefits.¹²

Malaria cases are declining. Within Africa, four countries (all with high intervention coverage and relatively small populations) cut their malaria burden by 50 percent or more between 2000 and 2006. Similar, though smaller, declines are also occurring in other African countries. Outside Africa, malaria cases also declined by 50 percent or more during the same time period in at least 22 countries.¹³

Deaths from malaria have been reduced. As malaria cases continue to decline in many parts of the world, so do the

number of deaths from malaria. Several countries with high intervention coverage reported dramatic reductions in the number of deaths due to malaria between 2001 and 2006: Rwanda (45 percent), Cambodia (50 percent), Philippines (76 percent), Eritrea and Zanzibar (80 percent), and Sao Tome and Principe (90 percent).¹⁴

Of the approximately 100 remaining malarious countries in the world, 39 are working to eliminate malaria either nationally or subnationally.¹⁵ The United Arab Emirates, Mauritius, Morocco, and Oman recently interrupted transmission of the disease and have been certified by WHO as malaria-free or are currently pursuing certification. Many others have established malaria-free zones in parts of their country, and are working toward a national goal of elimination.

Moving Forward

Despite recent successes in malaria control, continued investments are needed to maintain and expand access to tools for prevention and treatment, and to develop new strategies and interventions to stay ahead of emerging resistance to drugs and insecticides.

Sustaining Financing

The fight to control, eliminate, and eventually eradicate malaria will not be won easily. The RBM Global Malaria

Action Plan (GMAP) estimates that funding for research, tool development, and implementation of malaria control and elimination efforts will need to increase nearly fourfold from current levels [from \$1.5 billion (U.S.) to \$5.5 billion (U.S.) per year], and must be sustained through at least 2020.¹⁶ Long-term investment strategies and innovative financing models are needed to help countries plan and sustain long-term investments.¹⁷

Overcoming Barriers to Access and Coverage

Implementation of successful malaria control and elimination programs in countries continues to be hampered by gaps in national program capacity, inadequate distribution systems, and weak health systems. Innovative and systemic solutions are needed to help countries sustain and expand coverage of prevention and treatment. Successful distribution mechanisms and established networks for the scale-up of interventions will promote greater efficiency in malaria programs.

Investing in Research and Development to Stay Ahead of Resistance and Develop Tools for Eradication

Over time, mosquitoes will become resistant to today's insecticides, and malaria parasites will become resistant to

today's drugs. Early resistance to ACTs is already emerging along the Thailand-Cambodia border.¹⁸ Although a major effort to contain the resistance is under way by a collaboration of global partners, investment in R & D must be scaled up to stay ahead of resistance and develop tools to achieve ultimate eradication of the disease.

A first-generation vaccine against malaria has been developed and is in final clinical trials, yet it is expected to be only 50 percent effective, raising significant policy questions about how, where, and at what cost it should be used. The world has no experience in launching a vaccine of such partial efficacy, and additional policy planning is urgently needed before the vaccine becomes available.

Supporting Malaria Control and Elimination Outside Africa

Plasmodium falciparum, the dominant malaria parasite in Africa, has received the majority of global attention and investment to date. However, recent research has shown that the burden of *P. vivax*, which exists primarily in Asia and Latin America, has been underestimated.¹⁹ The development of new tools against *P. vivax* is needed to control and eliminate this more persistent parasite species.

COUNTRY SPOTLIGHT: SCALING UP FOR IMPACT IN ZAMBIA

Despite being one of the poorest countries in the world, Zambia has made remarkable progress in its fight to control malaria in a relatively short period. A country of more than 12 million people, all of whom are constantly at risk for malaria, Zambia's success has been made possible by the commitment of the government and coordination among malaria partners. Implementation of a country plan by the National Malaria Control Program, a single coordinating mechanism supported by many local and international partners, has helped ensure that efforts

are synchronized for maximum impact.²⁶

The National Malaria Control Program successfully implements four key intervention strategies [LLINs, IRS, IPTp (for pregnant women), and ACTs] to provide a comprehensive approach to malaria prevention and treatment. Since 2001, a national scale-up of LLINs has increased the number of households that own LLINs from 115,000 to nearly 3.4 million in 2007. Additional approaches, such as the number of houses treated with IRS, increased from 69,000 in 2003 to 657,000 in 2007. ACT administration increased from 1.1

million doses in 2004 to 3 million doses in 2007. Starting in 2004, IPTp became standard practice, and is currently being assessed to determine how best to further increase its use. Major funding for Zambia's efforts is provided by PMI and the Global Fund.

The widespread deployment of these four simple control measures is having a remarkable impact on the burden of malaria.²⁷ Overall, malaria deaths decreased by 37 percent between 2001 and 2006. Malaria prevalence and severe anemia prevalence (which is closely associated with malaria) in children under 5 decreased by

53 percent and 69 percent, respectively, between 2006 and 2008. Since 2002, it is estimated that the lives of more than 75,000 children under 5 have been saved because of intensified malaria control efforts.

Zambia exemplifies what can be accomplished when a comprehensive approach to malaria control is combined with sufficient political will, financial investment, and global support.



Endnotes

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The Living Proof Project is a multimedia initiative intended to highlight successes of U.S.-funded global health initiatives. Millions of lives have already been transformed and saved with effective, affordable solutions. We have the knowledge, innovative technologies and proven tools to do much more. The content for this progress sheet was developed by the Global Health Group at the University of California, San Francisco and SEEK Development in Berlin. It is also available online at www.livingproofproject.org.