



THE GLOBAL MALARIA ACTION PLAN

For a malaria-free world

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Roll Back Malaria Partnership

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“ It is imperative that universal coverage of prevention and treatment for the millions of people who suffer and die from malaria is attained. The Global Malaria Action Plan will guide and unify the malaria community in its efforts to provide timely and effective assistance to endemic countries. With sufficient funding and political support, this plan will help us reap dramatic gains against malaria in the coming years. ”

Awa Marie Coll-Seck, Executive Director of the Roll Back Malaria Partnership

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Acronyms and Abbreviations

ACT	Artemisinin-based Combination Therapy
AI	Active Ingredients (refers to the four AI classes of pesticides)
AL	Artemether-Lumefantrine
ANC	Antenatal care
AS	Artesunate
BCC	Behavior Change Communication
CQ	Chloroquine
EPI	Expanded Program for Immunization
GMAP	Global Malaria Action Plan
HWG	Harmonization Working Group
IEC	Information, Education and Communication
IPTp	Intermittent Preventive Treatment in pregnancy
IRS	Indoor Residual Spraying
IVM	Integrated Vector Management
ITN	Insecticide-Treated Nets
LLIN	Long-Lasting Insecticidal Nets
MAWG	Malaria Advocacy Working Group
M&E	Monitoring and Evaluation
MDA	Mass Drug Administration
MDG	Millennium Development Goal
MIP	Malaria In Pregnancy
MEE	Middle East and Eurasia
MERG	Monitoring and Evaluation Reference Group
NGO	Non-Governmental Organization
NMCP	National Malaria Control Program
OR	Operational Research
PAR	Populations at risk of malaria
PSM	Procurement and Supply Chain Management
PQ	Primaquine
R&D	Research and Development
RBM	The Roll Back Malaria Partnership
RDT	Rapid Diagnostic Tests
RTS,S	Most clinically advanced vaccine against <i>P. falciparum</i>
RWG	Resources Working Group
SP	Sulphadoxine-pyrimethamine
SRN	Sub-Regional Networks
SSA	Sub-Saharan Africa
SUFI	Scale-Up For Impact
WHO	World Health Organization
WHOPES	WHO Pesticide Evaluation Scheme
WIN	Scalable Vector Control Working Group

Foreword

Many of us who have spent our lives working for human health and development understand the tremendous challenges that must be overcome to achieve impact at a global level. Yet, we are driven daily by the desire to alleviate the unnecessary suffering caused by preventable disease.

Malaria impacts the lives of 3.3 billion people in 109 countries each year, the majority of which are already among the world's most vulnerable. Current prevention and treatment tools have led to significant progress in malaria control. With rapid scale-up of these interventions and continued investment in malaria programs and research, we are confident that a malaria-free world will be achieved.

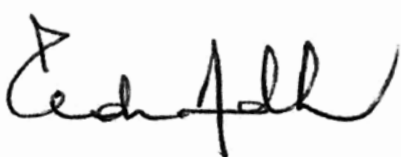
Greater attention, stronger leadership and more resources are being devoted to malaria control and elimination today than at any time in the past forty years. We are at a critical tipping point in the global fight against malaria. If we can bolster ongoing efforts, align leadership, build partnerships and leverage available resources, we can build the momentum needed to eliminate malaria in a number of countries. However, if this momentum is not sustained, progress stalls and funding wanes, our failure comes at the price of millions of lives needlessly lost.

The Global Malaria Action Plan presents a strategy to achieve our shared vision of near zero deaths from malaria and eventual eradication in the long term. A product of collaboration among hundreds of experts, this plan issues an urgent call for action, critical to making our vision a reality.

Every individual and organization reading this report has a vital role to play in building a world free of malaria. No single group is large enough, knowledgeable enough, or powerful enough to achieve such a goal alone. Malaria eradication worldwide will require leadership, management, resources and unwavering commitment at the community, national, regional and global levels. In addition, it demands public, private and civil society partnerships, aggressive research and development, strong health systems, coordination of commodities and services, and the harmonization of global support.

The Global Malaria Action Plan offers a strategic way forward for policy makers, advocates, health workers, donors, researchers and all those rallying against malaria. Working together, many countries have seen a significant reduction in malaria deaths in recent years. Looking ahead, this plan further equips us to tackle ambitious but achievable goals, including cutting malaria cases worldwide in half by 2010 and reaching near zero deaths from malaria by 2015.

With an unwavering commitment to end the scourge of malaria and stop the millions of senseless, preventable deaths from the disease, we challenge those standing alongside us to utilize the guidance and innovation of this comprehensive plan as we work together for a malaria-free world.



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Executive Summary

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Introduction

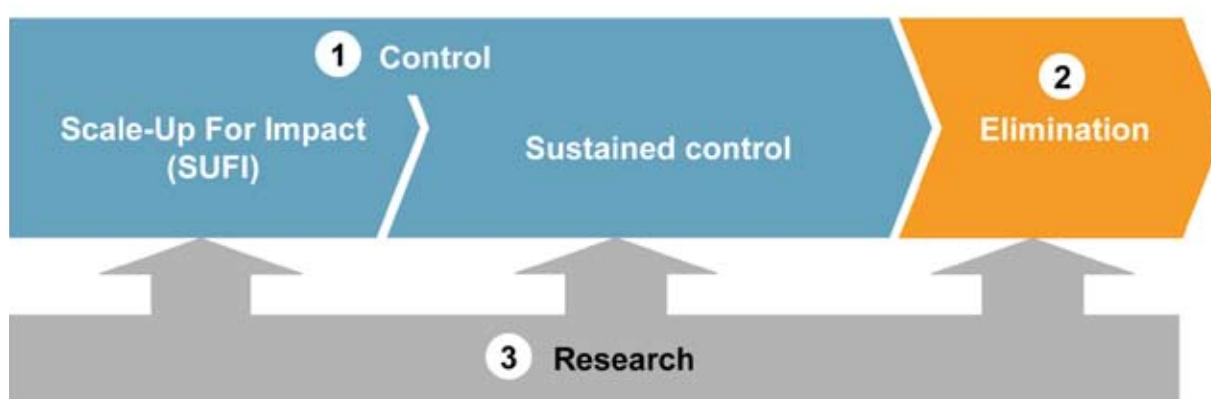
Sustained country leadership and commitment are essential in overcoming malaria. The Roll Back Malaria (RBM) Partnership has developed the Global Malaria Action Plan (GMAP) first and foremost to support countries. The GMAP provides a global framework for action around which partners can coordinate their efforts. Developed through an intensive consultative process, it consolidates the collective input of 30 endemic countries and regions, 65 international institutions and 250 experts from a wide range of fields. The GMAP presents (i) a comprehensive overview of the global malaria landscape, (ii) an evidence-based approach to deliver effective prevention and treatment to all people at risk and (iii) an estimate of the annual funding needs to achieve the goals of the RBM Partnership for 2010, 2015 and beyond. The GMAP is a *living* document: as approaches and tools evolve to fight malaria, so will the plan.

The GMAP outlines the RBM Partnership's vision for a substantial and sustained reduction in the burden of malaria in the near and mid-term, and the eventual global eradication of malaria in the long term, when new tools make eradication possible. To reach this vision, the targets of the GMAP are to:

- **Achieve universal coverage**, as recently called for by the UN Secretary-General, for all populations at risk with locally appropriate interventions for prevention and case management by 2010 and *sustain* universal coverage until local field research suggests that coverage can gradually be targeted to high risk areas and seasons only, without risk of a generalized resurgence;
- **Reduce** global malaria **cases** from 2000 levels by 50% in 2010 and by 75% in 2015;
- **Reduce** global malaria **deaths** from 2000 levels by 50% in 2010 and to near zero preventable deaths in 2015;
- **Eliminate** malaria in 8-10 countries by 2015 and afterwards in all countries in the pre-elimination phase today; and
- In the long term, **eradicate** malaria world-wide by reducing the global incidence to zero through progressive elimination in countries.

To achieve these targets, the GMAP outlines a three-part global strategy: **1) control** malaria to reduce the current burden and sustain control as long as necessary, **2) eliminate** malaria over time country by country and **3) research** new tools and approaches to support global control and elimination efforts. See Figure 1.

Figure 1: Three components of the global strategy



This executive summary highlights the key messages from the GMAP. More detailed information can be found within the full plan.

Part I: Malaria Today

- Malaria is a complex and deadly disease that puts approximately 3.3 billion people at risk in 109 countries and territories around the world. In 2000, there were between 350 and 500 million cases of malaria and at least one million deaths world-wide, most of them in African children.¹ In addition to its health toll, malaria places a heavy economic burden on many endemic countries, contributing to the cycle of poverty and limiting economic development. For example, Africa alone is estimated to lose at least US\$ 12 billion per year in direct losses (e.g. illness, treatment, premature death), and many times more than that in lost economic growth.
- Today, malaria can be prevented, diagnosed and treated with a combination of available tools. The primary tools used for prevention are long-lasting insecticidal nets (LLINs), indoor residual spraying (IRS) in which insecticides are sprayed on the walls of homes, and intermittent preventive treatment for pregnant women (IPTp) to prevent malaria infection in high transmission settings. Other vector control measures (e.g. larviciding and environmental management) are used when appropriate based on scientific evidence. Medicines and diagnostics are used for malaria case management. Malaria can be confirmed by parasitological diagnosis with either microscopy or a rapid diagnostic test (RDT). Artemisinin-based combination therapies (ACTs) are the recommended treatment against *P. falciparum* malaria. Chloroquine (CQ) and primaquine (PQ) are the treatment of choice against chloroquine-sensitive *P. vivax* malaria.
- Following an aborted Global Malaria Eradication campaign in the 1950s - 1970s, malaria received little attention until recently. Over the past decade, there has been substantial progress in raising awareness about malaria. Several countries have demonstrated that it is possible to substantially reduce malaria-related morbidity and mortality. For example, following expanded coverage with LLINs and ACTs, malaria cases and deaths in health facilities in Rwanda declined by more than 50%. Similar results were achieved in Eritrea, Sao Tome and Principe, and Zanzibar (United Republic of Tanzania).
- There is still much to do to achieve the RBM targets and bring the benefits of universal coverage to a wider range of countries. Country level capacity building and health systems strengthening will be critical to ensure countries can deliver the needed interventions to populations at risk. Data from the World Health Organization (WHO) World Malaria Report 2008 shows that many countries are far from meeting the universal coverage targets for key interventions. For example, across 18 African countries in 2006-2007, 34% of households owned an insecticide-treated net (ITN) and 23% of children under five slept under an ITN. In addition, UNICEF data on the number of ITNs produced shows an increase from 30 million ITNs in 2004 to 95 million ITNs in 2007, with further increases expected in 2008. Further, a number of partners and countries have been actively involved in boosting the utilization of indoor residual spraying in recent years.
- The trend in funding for malaria is positive. Unprecedented amounts of money have gone to malaria control since 2004, reaching an estimated US\$ 1.5 billion from all sources combined in 2007. Disbursements from international donors alone increased almost threefold from US\$ 250 million in 2004 to US\$ 700 million in 2007 and are expected to increase to US\$ 1.1 billion in 2008. However, to reach the RBM targets, funding will need to be increased to about four times the total current funding levels.

¹ The World Health Organization released its most recent WHO World Malaria Report 2008 (WMR) in September 2008. The WMR 2008 contains information on burden, policies, coverage and funding for 109 malaria endemic countries and territories. In the report, WHO uses a revised and updated methodology to estimate the incidence of malaria outside the African Region. This results in fewer malaria cases than previously estimated in the Americas, Eastern Mediterranean, Europe, Southeast Asia and Western Pacific regions. RBM Partners, including WHO, are continuing to improve and align estimates of malaria burden worldwide.

Part II: The Global Strategy

Control: Overcoming malaria

- The RBM Partnership's control strategy aims to reduce malaria morbidity and mortality by reaching universal coverage and strengthening health systems. The Global Malaria Action Plan defines two stages of malaria control: 1) *scaling-up for impact (SUF)* of preventive and therapeutic interventions, and 2) *sustaining control* over time.
- **In scaling-up for impact**, the goal is to rapidly reach universal coverage for all populations at risk with locally appropriate malaria control interventions (i.e. LLINs, IRS, IPTp, drugs and diagnostics), supported by strengthened health systems. Delivery strategies may involve mass campaigns, distribution of interventions through existing public- and private-sector outlets, and by community health workers, for example. Strengthening health systems, including capacity building, for malaria control must begin during scale-up and continue beyond this. To achieve universal coverage by 2010, core malaria control interventions needed are:
 - 730 million LLINs globally (about 350 million for Africa). In Africa, approximately 50 - 100 million nets needed will be distributed in 2008, leaving 250 - 300 million new LLINs that need to be distributed in 2009 and 2010,
 - 172 million households sprayed annually with insecticides,
 - 25 million treatment courses of IPTp for pregnant women in Africa,
 - 1.5 billion diagnostic tests (microscopy or RDTs), and
 - 228 million treatments of ACTs (*P. falciparum*); 19 million doses of CQ and PQ (*P. vivax*).²
- **Sustaining control** is important to prevent the resurgence of malaria. After core interventions are scaled up, the malaria burden will drop and the need for case management is expected to fall dramatically. However, malaria control will not eliminate the mosquito vector, the parasite, or the favorable environmental conditions for transmission in many locations. To keep malaria at bay, countries must maintain high levels of coverage of preventative interventions even in the absence of a large number of cases. Relaxation of control – whether because of the decline in political will, a decrease in funding, or some other reason – increases the risk of resurgence in transmission and of epidemics.
- The goal of sustained control is to *maintain* universal coverage with interventions until countries enter the elimination stage. Sustained control will require strong political commitment at country level and a continued focus on the health systems activities started during scale-up (particularly communication and behavior change efforts and monitoring and evaluation). In addition, maintaining high coverage levels will require effective distribution approaches aimed at strengthening all routine delivery mechanisms and improving integration with other disease programs where appropriate. Strong inter-program collaboration, robust procurement and supply chain management systems and accurate forecasting capabilities are pre-requisites. Increased decentralization of decision-making and budgeting will facilitate strengthened community participation in the delivery of interventions.

Elimination and Eradication: Achieving Zero Transmission

- Elimination is defined as reducing to zero the incidence of locally acquired malaria infection in a specific geographic area as a result of deliberate efforts, with continued measures in place to prevent re-establishment of transmission. More than twenty lower burden countries around the world are already poised to eliminate malaria within their borders.

² Because *P. vivax* malaria is expected to respond more slowly to control efforts than *P. falciparum* malaria and the number of *P. vivax* cases may even increase with a decrease in *P. falciparum* cases, the quantities of CQ and PQ required may increase over time. However, it is also possible that more cases due to *P. vivax* will need to be treated with ACTs owing to increased resistance against CQ.

- The RBM Partnership promotes elimination efforts in countries where feasible, which will vary based on factors such as epidemiological feasibility, transmission intensity, country commitment and proximity to natural borders of the disease. The expert consensus is that elimination of malaria will require new control tools in traditionally high-transmission areas. Key components of elimination programs include cross-border initiatives, strong surveillance and case detection, significant and predictable government financial and political commitment, and communication and advocacy to prevent elimination fatigue. Many of these factors are also required during the scale-up phase. The RBM Partnership encourages international support of these elimination programs, as they will generate much-needed evidence to inform future efforts.
- Eradication is the permanent reduction to zero of the global incidence of infection caused by *Plasmodia* as a result of deliberate efforts, so that intervention measures are no longer needed. Eradication is a long-term goal. It can be achieved by eliminating malaria country by country as new approaches and tools expand the geographical range of where elimination is possible.

The Malaria Research Agenda

- Three types of research support effective malaria control and elimination: 1) research and development for new tools, 2) research to inform policy and 3) operational and implementation research.
- **Research and development** is needed to create new or improved anti-malarial interventions including drugs, vector control tools, diagnostics, and vaccines. For *control*, tools for both *P. falciparum* and *P. vivax* malaria are needed that increase operational ease of use and compliance, minimize the risk of emergence of drug-resistant malaria (especially artemisinin-resistant malaria) and insecticide-resistant mosquitoes, reach underserved populations, are less expensive and provide consistently accurate diagnosis. For *elimination*, tools are needed that support interruption of transmission and target asymptomatic carriers. To further define the research and development agenda for elimination, formal consultative processes are being established.
- **Research to inform policy decisions** will define the type of interventions and programs best suited for different contexts. For *control*, research is needed on parasitological diagnosis of children under 5 in high transmission settings, on the optimal use of LLINs and IRS (singly or combined), on the use of intermittent preventive treatment in infants and children (IPTi and IPTc) and on when preventative intervention coverage levels can be reduced. For *elimination*, research can help identify areas that would benefit most from a public health or economic standpoint, and the surveillance, prevention and case management tools that would be most suitable for those areas.
- **Operational and implementation research** is needed to understand the use and effectiveness of interventions in the field and improve the delivery and quality of prevention and treatment interventions. For *control*, health systems research is needed to improve delivery of interventions; behavioral research is needed to improve uptake, use and compliance; and research on new monitoring and evaluation technologies is needed to improve data for program management. To support *elimination*, operational research is needed, among others, on interventions to protect against the reintroduction of malaria across international borders and by transient populations, and on indicators and program approaches to guide the gradual withdrawal of universal coverage in formerly high transmission settings in favor of interventions that are targeted at high risk areas and seasons only.

Costs of Investment in Malaria Control, Elimination and Research

- To achieve the coverage targets for 2010, almost four times the funds currently available are needed. Increased funding by malaria-endemic countries themselves is critical, but international donors will also be called upon to fill the large resource gaps.
- The estimated needs, based on the costs of prevention, treatment and program strengthening in 109 malarious countries and territories over the next several years, are:
 - Approximately US\$ 5.3 billion and US\$ 6.2 billion in 2009 and 2010, respectively
 - From 2011-20, an average of US\$ 5.1 billion annually
 - From 2021-2030, an average of US\$ 3.3 billion annually
 - From 2031-2040, an average of US\$ 1.5 billion annually
 - Asia and Africa account for the majority of the costs (approximately US\$ 2.7 billion in Africa and US\$ 3.0 billion in Asia-Pacific in 2010)
- R&D investment is critical to ensure that the interventions to meet control and elimination objectives are developed. Through 2018, about \$750-900 million per year should be spent for new malaria control tools – vector control, drugs, vaccines and diagnostic technologies. See Table 1 for a summary of all costs.

Table 1: Summary of annual global costs

Cost (US\$ millions)	2009	2010	2015	2020	2025
Prevention cost	3,728	3,982	3,724	3,864	2,576
Case management cost	968	1,359	550	226	87
Program cost	638	839	764	787	714
<i>Global control and elimination costs</i>	<i>5,335</i>	<i>6,180</i>	<i>5,037</i>	<i>4,877</i>	<i>3,378</i>
<i>Research & Development cost</i>	<i>759</i>	<i>759</i>	<i>800</i>	<i>681</i>	<i>460</i>
Total Cost	6,094	6,939	5,837	5,559	3,838

Note: Detailed cost estimates are included in Part II - Chapter 5: Costs and Benefits of Investing in Malaria Control, Elimination and Research, Appendix 4 and Appendix 5.

Source: GMAP costing model.

Part III: Regional Strategies

- There are considerable differences between regions. Regions differ in the size of the populations at risk, the disease burden in terms of deaths and cases, the relative mix of malaria and vector species, the control strategies and interventions used and the level of funding available to fight the disease. Therefore, the global strategy includes regional strategies for Africa, Asia-Pacific, the Americas, and the Middle East and Eurasia. Following national and regional consultations, the plan outlines the epidemiology, burden and approach to combating malaria in each region, and then explores regional priorities, challenges and funding requirements.
- The highest number of malaria cases and deaths and the greatest challenge for control is in 30 countries in Africa and 5 countries in Asia-Pacific. These countries account for the bulk of the deaths and cases and the greatest economic burden from malaria. They also represent the leading priority for partner support to achieve universal coverage through scale-up, and will require the largest investment of financial and human resources. Emphasis is placed on supporting these countries as well as countries that have regional significance for malaria control and elimination efforts. In addition, the GMAP emphasizes that all malaria-endemic countries ultimately will be of importance in achieving the goal of global eradication.

Part IV: The Role of the RBM Partnership

The **Roll Back Malaria Partnership**, through its various mechanisms (e.g. Working Groups, Sub Regional Networks, Secretariat) and in collaboration with specific Partners, provides assistance at all levels, concentrating on areas with the greatest need and on tasks that benefit the most from collaboration and cooperation. These tasks, which complement and complete the plan, involve:

- Advocacy,
- Resource mobilization,
- Policy and regulatory support,
- In-country planning,
- Financing,
- Procurement and supply chain management,
- Communication and behavior change methodologies,
- Monitoring and evaluation, and
- Preparation and support for humanitarian crises.

RBM Partnership Working Groups already cover many of these topics. The Partnership intends to further expand its activities in the coming years to be ever more responsive to the needs of endemic countries and to reach its targets. In the near term, areas to be expanded include greater support for resource mobilization, assistance with communication and behavior change methodologies, and support for countries facing humanitarian crises (e.g. conflicts, natural disasters). In all areas, the Partnership will strengthen its links with regions outside of Africa. Ties will also be strengthened with research institutions to develop new tools, to inform policies and to improve implementation. These steps will enable the RBM Partnership to more effectively coordinate efforts to implement this plan.

The Bottom Line

The costs of fighting malaria are significant, but the benefits are far greater and the risks of inaction too large to ignore (e.g. lives lost, economic development stymied, resistance emerging).

- *Malaria control saves lives today and prevents deaths tomorrow.* Up to an estimated 4.2 million lives will be saved by 2015 in the 20 highest burden countries in Africa alone if the plan is put into effect.

- *Malaria control is highly cost effective, especially when compared to interventions for other diseases.* At a cost of \$2-24 per disability-adjusted life year (DALY) saved, the only intervention that is more cost effective is childhood immunization.
- *Research investment in new and improved interventions will improve malaria control, increase the cost-effectiveness of interventions and support efforts to eliminate malaria.* Estimates show, for instance, that developing preventative interventions (LLINs, IRS, etc) that achieve greater field effectiveness could decrease the costs for interventions by approximately US\$ 100 million per year.
- *A lower malaria burden yields positive economic benefits and can reduce poverty.* Malaria affects some of the poorest, most marginalized populations in the world. Minimizing the malaria burden means more people at work, more children at school and a break in the cycle of poverty.

“ I believe that if you show people a problem, and then you show them the solution, they will be moved to act. The Global Malaria Action Plan lays out an achievable blueprint for fighting malaria - now it's time for the world to take action. ”

Bill Gates, Co-Chair, Bill & Melinda Gates Foundation