Malaria

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at a glance

Why tackle malaria?

Malaria is endemic to the poorest countries in the world, causing 300 to 500 million clinical cases and more than one million deaths each year. More than 90% of malaria deaths occur in Sub-Saharan Africa (approximately 3,000 deaths each day), and almost all the deaths are children younger than 5. In Sub-Saharan Africa, 15% of all disability-adjusted life-years (DALYs) are lost to malaria. In highly endemic countries, malaria during pregnancy is a leading cause of low birth weight, one of the primary causes of neonatal mortality. Women living in endemic countries are four times more likely to have symptomatic malaria attacks when they are pregnant.

Over the last two decades, morbidity and mortality from malaria have been increasing due to deteriorating health systems, growing drug and insecticide resistance, periodic changes in weather patterns, civil unrest, human migration, and population displacement.

Malaria disproportionately affects poor people. Rural populations carry the overwhelming burden of disease. People living in poor quality housing are particularly at risk. Poor people are at greater risk of complications and death, because their access to effective treatment is so limited. Malaria also contributes to poverty by reducing the productivity of infected people and their caretakers. Households spend significant sums (US$ 0.39 to 3.84/capita per year in Sub-Saharan Africa) to prevent and treat malaria.

The table below shows that approximately 60% of all deaths from malaria in the world occur among the poorest 20% of the world's population. This is a higher percentage than for any other disease. Efforts to reduce malaria are clearly pro-poor.

It has been estimated that malaria has slowed economic growth in African countries by 1.3% per year. Compounded over 35 years, this amounts to a 32% reduction in the GDP of countries in Africa where malaria is endemic. The economic losses due to malaria in Africa have recently been estimated at about US$12 billion per year.

A High Proportion of Program Benefits Accrue to the Poorest 20% of the World's Population

Disease	Percentage of deaths from disease that occur among the poorest 20% of the total global population
Malaria	**57.9%**
Childhood Diseases	55.0%
Diarrheal Diseases	53.2%
Perinatal Conditions	45.0%
Tuberculosis	44.4%
Maternal Conditions	43.2%
Respiratory Infections	42.6%
HIV/AIDS	41.8%
Weighted Average	**48.6%**

Davidson R. Gwatkin, May 1999

What can be done to reduce malaria morbidity and mortality?

Roll Back Malaria

The global partnership to Roll Back Malaria (RBM) was jointly founded by WHO, UNICEF, World Bank, and UNDP in 1998 with the objective of halving the malaria burden world-wide by the year 2010. This goal can only be achieved if all actors (e.g., governments, private sector, industry, NGOs and communities) and all sectors (e.g., health, education, agriculture, water, and infrastructure) engage and participate in malaria control activities. This is at the core of RBM's approach.

The Core Strategies for RBM were selected because of their proven efficacy and effectiveness, their potential as sustainable interventions, and their demonstrated cost-effectiveness (<US$25 per DALY). The four central RBM strategies are:

1. **Rapid, effective treatment of persons with malaria at home or in a health facility within 24 hours of onset of symptoms:** As 60% to 80% of malaria cases are treated in the community, efforts must focus on ensuring that correct treatment is available at or near the home. RBM promotes Integrated Management of Childhood Illness (IMCI) as a key intervention for improving management of children with fever at health facilities and in the community.

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This table summarizes the core nutrition interventions, their intended beneficiaries, and indicators to track achievement of primary nutrition objectives

Objectives	Core Interventions	Beneficiaries/ Target Groups	Indicators
Prevent and reduce general malnutrition			
Improve maternal nutrition and reduce low birth weight (LBW) incidence	**Promote good maternal nutrition** ✓ Counseling on dietary intake, reduced energy expenditure, before, during, and after pregnancy ✓ Weight gain monitoring during pregnancy ✓ Anemia control and prevention of micronutrient deficiencies ✓ Targeted food supplementation for pregnant & lactating women, adolescent girls	Adolescent and school-age girls, pregnant and lactating women, women of reproductive age	✓ LBW rate and trends ✓ Weight gain during pregnancy ✓ % of women falling below cutoff for Body Mass Index
Prevent growth faltering and promote optimal growth/ reduce childhood malnutrition	**Promote optimal infant feeding** ✓ Counseling on infant feeding: - Exclusive breast feeding up to six months - Breast feeding with nutritionally adequate complementary feeding between 6 and 24 months - Feeding of sick and malnourished children ✓ Counseling on infant feeding options for HIV+ women **Promote optimal growth and reduce malnutrition** ✓ Growth monitoring and counseling ✓ Infectious disease control ✓ Micronutrient strategies – see below ✓ Targeted supplementary feeding Treatment, monitoring and referral of severely malnourished and HIV positive children	Pregnant and lactating women, children under 24 months Children under 24 months, care givers	✓ % of population 6-36 months below –2Z scores weight for age, height for age, weight for height ✓ % immediate breast-feeding (within 1st hour) of birth ✓ Exclusive breast feeding rate in infants < 6 months ✓ Mean duration (in months) of breast feeding; ✓ Median age of introduction of complementary foods ✓ Adequacy score for quality of complementary feeding
Prevent and treat micronutrient deficiencies			
All deficiencies	**Communicate about diverse food sources rich in micro-nutrients; counseling on use of fortified food, and supplements**	Population wide	✓ Blood levels of iron, vitamin A or clinical signs of deficiencies ✓ Urinary iodine
Vitamin A deficiency (VAD) prevention and treatment	**Fortify and Supplement with Vitamin A** ✓ Fortification of staples (e.g. sugar) with vitamin A ✓ Vitamin A supplementation: post-partum (within 60 days) and twice yearly for children 6-59 months. Also in treatment of prolonged diarrhea, measles, respiratory infections, severe Protein-Energy Malnutrition (PEM), other severe infections. ✓ High dose treatment for clinical signs of VAD	Population wide Mothers, immediately post-partum; young children	✓ Incidence of under-5 mortality rates ✓ Prevalence of night-blindness in the population ✓ % of children, 6-59 months, receiving vitamin A supplements

Objective	Core Interventions	Beneficiaries/ Target Groups	Indicators
Widespread use of insecticide-treated materials and other measures to prevent mosquito bites			
Increase the percentage of children <5 years and pregnant women (or all persons at risk) using cost-effective prevention strategies (e.g. Insecticide Treated Materials)	IEC campaigns to promote the use of ITMs and retreatment (including technical assistance and purchase of supplies and equipment) Train CHWs in techniques for treating nets Operational research on innovative strategies to provide ITMs to those who cannot afford to purchase them (e.g. voucher programs, targeted distribution through NGOs) Operational research on other vector control methods (e.g. improved water management strategies, residual spraying, larviciding)	**In areas of Sub-Saharan Africa with high-level malaria transmission:** Children <5 years Pregnant women and their infants **In other regions:** All persons living in areas with malaria transmission	✓ % of children <5 and pregnant women (or all persons at risk outside of Africa) sleeping under insecticide-treated nets or other materials ✓ % of service providers trained in techniques for treating nets ✓ % of households that have at least one treated net
Prevention of malaria in pregnant women			
Increase the percent of pregnant women receiving comprehensive antenatal care services, including provision of intermittent presumptive treatment or chemoprophylaxis against malaria	Expand comprehensive antenatal care services, including provision of intermittent drug treatment or chemoprophylaxis, consistent with malaria treatment policies, and iron supplementation Establish or enhance effective drug procurement, delivery, and management systems for ANC clinics IEC campaigns to promote the use of antenatal services Clinical supervision of nurses and nurse-midwives in comprehensive antenatal services Promote ITM use by pregnant women	Pregnant women and their infants	✓ % of pregnant women who have taken chemoprophylaxis or intermittent drug treatment, according to the national policy ✓ % of antenatal clinic staff trained in preventive intermittent antimalarial treatment or chemoprophylaxis for pregnant women
Epidemic Detection and Response			
Rapidly identify and contain malaria epidemics	Develop epidemic preparedness guidelines (including technical assistance and materials production) Establish or enhance integrated disease surveillance systems, including purchase of computers and stationery supplies Develop and produce disease surveillance guidelines Train surveillance staff to analyze and interpret disease surveillance data	All persons living in epidemic-prone areas	✓ % of malaria epidemics detected within two weeks of onset and properly controlled

2. **Widespread use of insecticide-treated materials (ITMs) and other appropriate methods to limit human-mosquito contact:** In areas of Sub-Saharan Africa with high levels of malaria transmission, regular use of an insecticide-treated bednet can reduce mortality in children less than 5 years of age by as much as 30% and has a significant impact on anemia. Similar or greater benefits have been achieved for pregnant women and in other regions.

3. **Prevention of malaria in pregnant women living in high transmission areas:** In areas in which malaria is highly endemic, the incidence of low birth-weight (a leading cause of neonatal mortality) can be reduced by as much as half through use of intermittent presumptive treatment (IPT) with drugs such as sulfadoxine-pyrimethamine.

4. **Detection and appropriate response to epidemics within two weeks of onset:** Detection of epidemics requires timely, complete surveillance of malaria cases and monitoring of weather patterns. Reserve drug stocks, transport, and hospital capacity are needed to mount an appropriate response. In some epidemic zones, well-timed and targeted vector control activities have minimized the impact of epidemics.

Do's and Don'ts

- **Target the population at-risk:** In areas with high-level malaria transmission (e.g. most of tropical Africa), severe morbidity and mortality is mostly confined to children <5 years of age and pregnant women. All persons living in areas of low or moderate transmission and non-immune visitors to malarious areas are at risk.
- **Promote evidence-based decision-making:** Because the epidemiology of malaria differs between and within regions, program priorities must be based on relevant information gathered through routine surveillance and operational research. In particular, periodic drug efficacy studies are essential for guiding malaria treatment policies. Surveillance and HMIS systems also require strengthening.
- **Expand strategies for improving the quality of treatment beyond the public sector:** Recognizing that most people seek treatment outside of the public sector, strategies to improve treatment practices must include public, private, and NGO facilities, traditional healers, community practitioners, pharmacies, and drug sellers.
- **Focus on home as the first line of treatment:** Education campaigns to improve caretakers' abilities to recognize illness and danger signs in their children, seek care appropriately, and provide correct treatment are essential components of any malaria control strategy.
- **Avoid development of vertical or stand-alone programs:** Many of the activities required by successful malaria control programs (e.g., training of health workers, education campaigns, and improvement of drug availability) are also essential components of other disease control programs. Integration and coordination of activities should be encouraged. For example, IMCI is a key strategy for improving management of childhood illness, including malaria. Prevention of malaria is a core strategy of the "Making Pregnancy Safer" initiative.
- **Expand capacity through partnerships:** NGOs, communities, and the private sector may have clear comparative advantages in community education and social marketing campaigns and in distribution of essential commodities, such as ITMs and insecticides. The public sector has the primary responsibility for policy making, standard setting, quality control, targeted subsidies, and regulation.
- **Engage all actors and sectors:** Malaria control strategies require collaboration of other actors in the health sector (e.g., maternal child health and reproductive health). Collaborative design of operations in other sectors (e.g., Agriculture, Water and Power, Infrastructure) can mitigate malaria risk. Education and Information sectors have key roles in educational campaigns.

For more information

Useful contacts (within the World Bank)
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Useful contacts (outside the World Bank)
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Useful web sites
Roll Back Malaria Web site: http://mosquito.who.int
World Bank (intranet): http://afr/afth4/RBM/Default.htm

Expanded versions of the "at a glance" series, with e-linkages to resources and more information, are available on the World Bank Health-Nutrition-Population web site: www.worldbank.org/hnp