

# Eliminating Malaria Saves Millions of Lives

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Malaria remains an overwhelming problem in tropical developing countries, accounting for more than 200 million cases and more than 600,000 deaths each year. Nearly 40% of the world's population is at risk for acquiring malaria. In Sub-Saharan Africa, most severe cases and deaths occur in children younger than 5 years and in pregnant women (1).

The wide spread use of antimalarial new compounds would eliminate malaria, and in 1955, the World Health Organization (WHO) launched its campaign to eradicate the disease. This goal proved overly optimistic and the centrally organized Dichlorodiphenyltrichloroethane (DDT) spraying programs at core of the campaign were discontinued in 1967 (1). The campaign, nevertheless, brought regional successes that coincide with other factors to reduce malaria incidence in many areas of the world. A stark exception to this general progress is sub-Saharan Africa, where malaria remains deeply entrenched. Even the most committed spraying and eradication programs in endemic areas of this region could not defeat malaria's efficient transmission by the *Anopheles gambiae* mosquito (1).

The massive use of Chloroquine selected for Chloroquine-resistance *Plasmodium falciparum* strains in South-east Asia that entered and spread across Africa. In the absence of a fully effective vaccine, success against Malaria in Africa will continue to depend on effective drugs, such as artemisinin-based combination therapies, that are reliable, affordable, and readily available (2).

The World Health Organization has reported an increasing number of countries on the verge of eliminating malaria. In 2014, 13 countries reported zero cases and six had fewer than 10 cases. Yet despite enormous progress, malaria remains an acute problem in some countries. This year alone, there have been an estimated 214 million new cases of malaria, with around 438,000 deaths (3).

A study by the Malaria Atlas Project at Britain's Oxford

University showed that "by far the most important intervention" in reducing malaria cases and deaths has been the use of insecticide-treated bednets (ITNs), around a billion of which have been distributed in Africa since 2000 (4).

Sixty-eight percent of malaria cases prevented since 2000 were stopped by ITNs, while artemisinin-based combination therapies and indoor spraying accounted for 22% and 10% of cases prevented, according to the study published in Nature, September 16 (5).

Rates of death from malaria have plunged by 60% in the past 15 years, meaning more than 6 million lives have been saved, the vast majority of them African children (6).

In a joint WHO-United Nations Children's Fund (UNICEF) report, experts also said that a crucial millennium development goal to halt and begin to reverse the incidence of malaria by 2015 has been met "convincingly," with new cases of the parasitic mosquito-borne disease down by 37% since 2000 (7).

Global malaria control is one of the great public health success stories of the past 15 years. The most rapid decreases were found in the Caucasus and Central Asia, which had no cases in 2014, as well as in Eastern Asia (3).

Of the 106 countries and territories that reported malaria transmission in 2000, 102 are expected to reverse its incidence by the end of 2015. Although huge progress has been made, malaria is still an urgent public health issue in many regions, according to the WHO. In 2015, an estimated 214 million new cases of malaria occurred, with approximately 438,000 deaths from the disease. Almost half of the world's population, or 3.2 billion people, are at risk from malaria, which is both preventable and treatable. Some countries bear a disproportionately high share of the worldwide malaria burden. The bulk of cases (80%) and deaths (78%) have occurred in 15 countries, mostly in sub-Saharan Africa, where in 2015, 89% of the malaria cases and 91% of the deaths occurred (7).

In addition, between 2000 and 2015, the proportion of children aged younger than 5 years old sleeping under an ITN in sub-Saharan Africa rose from less than 2% to about 68%; furthermore, one quarter of children in sub-Saharan Africa still live in a home without ITN or indoor residual spraying. Also, in 2015, only about 13% of febrile children in sub-Saharan Africa received an artemisinin-based combination therapy (7).

The treatment of malaria is now timelier and more appropriate because rapid diagnostic tests have enabled healthcare workers to distinguish between malarial and nonmalarial fevers in sick individuals. According to WHO, artemisinin-based combination therapies are very effective against the most prevalent and deadly malaria parasite affecting humans, *P. falciparum*. Drug resistance and mosquito resistance to the pesticides that are used to coat ITNs are both pressing concerns (8).

The United Nations now has a new goal for malaria control, to cut the numbers of new cases and deaths by a further 90% by 2030. The WHO-UNICEF report said that annual funding for the antimalaria campaign will need to triple, from \$2.7 billion now to \$8.7 billion in 2030, to meet that goal (6).

In Iran, despite the excellent effort for eliminating malaria, the incidence and prevalence of malaria due to immigration from neighboring countries is high. In fact, there is linkage between incidence and prevalence of malaria and immigration due to civil conflict. Therefore, malaria screening of immigrants and early warning programs are effective to prevent outbreak of the diseases in potential risk area (9).

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