

Malaria: The Unfulfilled Agenda of the Twentieth Century

by

Tapen Sinha, PhD

ING Chair Professor of Risk Management, ITAM, Mexico

Special Professor, University of Nottingham, UK

(tapen@itam.mx, Tapen.Sinha@Nottingham.ac.uk)

Introduction

Malaria kills between one and three million human beings every year. But, it is both preventable and curable.

Malaria is caused by a family of parasites – the most virulent being *Plasmodium falciparum*. This particular specie accounts for 80% of infections and 90% of deaths from malaria in the world. The main carrier of this parasite are Anopheles mosquitoes. The most deadly specie of mosquito for malaria is *Anopheles gambiae*. Thus, any reason that causes the propagation of these species of mosquitoes and the corresponding parasite would lead to the spread of the disease.

The disease is not uniformly distributed around the globe. More than 80 percent of malaria sufferers live in Sub-Saharan Africa. Not surprisingly, most deaths occur in that region as well.

Prevention of malaria

Malaria has two simple preventions.

First, by eradicating Anopheles mosquitoes. Until the turn of the Twentieth Century, malaria was endemic in Europe and the United States. By draining stagnant water and wetland, and thereby eradicating mosquitoes, malaria was practically eliminated from Europe. In the United States, it was virtually wiped out first by draining wetlands and then by killing mosquitoes by spraying DDT.

Second, by keeping the mosquitoes from biting. This can be achieved in a number of ways: (1) Wearing insect repellent containing 20% to 35% DEET (N,N-diethylmethyltoluamide) or dimethyl phthalate on exposed skin. (2) Wearing long-sleeved shirts and long trousers if one has to stay outdoors during darkness. (3) Spraying insecticides and using insecticide dispensers that contain tablets impregnated with pyrethroids and burning pyrethroid mosquito coils indoors at night. (4) Sleeping under bed-nets. This method works even better if the bed-net is treated with the insecticide permethrin.

Treatment of malaria

In the past, malaria was treated with cheap drugs such as chloroquine and sulfadoxine-pyrimethamine. Unfortunately, the parasite has developed resistance over these drugs. Now, the effective treatment is through artemisinin-based combination therapies (ACTs). However, malaria does not have any vaccine.

Economic cost of the disease

Africa, in particular is the home of this disease. Nine out of ten people sick or dying from malaria are from Africa. Of the 720 million people living in 42 countries in sub-Saharan Africa, about 615 million are at risk of contracting malaria. The economic cost of the disease in Africa alone is \$12 billion a year. The amount of money required to combat it needs some \$3 billion a year for the next two decades. The amount of money spent by various global organizations is around \$300 million a year. Thus, we are far away from what is needed to be done

Why malaria is neglected

When the avian flu hit in late 2005, governments around the world rallied around to stop the spread of the disease. No such luck with malaria – even though millions are dying every year. Unless the rich countries get affected in large numbers, prevention and cure will not get any financial support. Poor people in poor countries have no voice because they have no economic clout. For the same reason, vaccine against malaria is not in the horizon. For pharmaceutical companies, development of vaccine would not make economic sense.