

Malaria deaths halved in Rwanda and Ethiopia

Better drugs, mosquito nets are the crucial tools

David Brown, Washington Post

Widespread use of insecticide-treated mosquito nets and state-of-the-art drugs have succeeded in cutting malaria deaths in half in two countries most heavily affected by the disease, the World Health Organization is to report Friday. The findings from Rwanda and Ethiopia are the first to show greater than 50 percent reduction in malaria mortality nationwide in "high-burden" countries. Such dramatic reductions had been achieved previously only in smaller regions or in countries where the disease is rare or intermittent. The new results suggest what might be possible in dozens of countries and are likely to spur efforts already under way to roll out the relatively low-cost interventions, whose effects are measurable within months. "This is the first time we have seen these results with the new tools," said Arata Kochi, head of malaria programs for WHO. "This is a genuinely historic achievement," said Richard Feachem, former director of the Global Fund to Fight AIDS, Tuberculosis and Malaria. "This is not theoretical. We do not have to wait for a vaccine or new drugs. If we implement today's technologies aggressively on a national scale, we will have a big impact."

Two key items in the current "tool kit" are bed nets impregnated with insecticide that lasts three to five years and treatment with at least two drugs. One of them is artemisinin, a compound originally derived from a Chinese herbal medicine. The nets repel or kill mosquitoes. They work even if they have holes in them. When used by 80 percent of households, the nets can reduce infections in African villages even among people who don't use them, a phenomenon similar to the "herd immunity" provided by vaccines. Artemisinin-containing therapies are oral drugs that work quickly and are often life-saving when the brain is infected by the malaria parasite.

WHO epidemiologists looked at the effect of nets and artemisinin-containing therapies in four places: Rwanda, Ethiopia, Zambia and Ghana. The countries had differing success rates in introducing the measures, and the impact on cases and deaths varied accordingly in a graded, "dose-response" effect. The most striking results were in Rwanda, in Central Africa, where an unplanned experiment occurred in 2006.

In September that year, 3 million nets were given to households containing children under 5 or pregnant women. The next month, artemisinin-containing therapies were stocked in all public hospitals and clinics, where more than three-quarters of Rwanda's 8 million people get medical care. Within two months, malaria cases and deaths were falling steeply. By 2007, the number of hospitalized cases of malaria in children under age 5 was 64 percent lower than in comparable periods in 2005, and deaths were 66 percent lower.

In Ethiopia, the drugs and nets were introduced in 2005, with each household getting one net for every two people. Hospitalized malaria cases in young children fell 60 percent and deaths 51 percent.

The indoor spraying of DDT and other long-lasting insecticides - another important and, in some quarters, controversial tool - did not appear to contribute to the steep declines in Rwanda or Ethiopia. Improvements were less dramatic in Ghana, where cases fell 13 percent and deaths 34 percent. That country could

only afford to give nets to households with children under age 2. It also had a new medical insurance program that gave more people access to medical care, possibly dampening the decline in malaria deaths compared to previous years. Zambia, whose cases fell 29 percent and deaths 33 percent, didn't finish distributing nets until late last year, and hospitals and clinics there frequently ran out of the artemisinin-containing drugs.

Data on cases and deaths came from records of hospitals and outpatient clinics.

Deadly disease

Malaria is responsible for 2 percent of all deaths worldwide and 9 percent of deaths in Africa. About 1.1 million deaths - almost all in children - are directly attributable to the tropical disease, and at least 1 million more occur from complications such as severe anemia. In Africa, where most cases occur, malaria costs \$12 billion a year in medical expenses and lost productivity.

For more information: malaria.who.int