

Malaria: Researchers raise qualms over bednet programme

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Insecticide-treated bednets, whose use is being widely promoted in Africa to combat malaria, may paradoxically be linked to local resurgence of the disease, according to concerns raised by a study on Thursday.

Based on observations in a village in Senegal, the study points to evidence that mosquitoes develop resistance to the insect-killing chemical that coats the nets.

In addition, people may lose their immunity to the malaria parasite when the mosquito population is in decline, and then become exposed when the insect pest recovers, it suggests.

Doctors led by Jean-Francois Trape of the Institute for Development Research in Dakar sought to assess the impact of bednets that were introduced in the central village of Dielmo in August 2008.

A year and a half before the operation, the team checked more than 500 villagers for sickness from malaria and studied local populations of mosquitoes.

They pursued this work over the next four years, in an exceptionally detailed probe.

From August 2008 to August 2010, incidence of malaria fell dramatically, to less than eight percent of the pre-scaleup level, the

investigators found.

But between September and December 2010, the numbers rose sharply again, to where incidence was 84 percent of previous levels.

Among adults and children aged 10 or more, the rate was even higher than before.

The researchers found that the proportion of *Anopheles gambiae* [mosquitoes](#) with a genetic variant conferring resistance to pyrethroid -- the insecticide used in the netting -- had risen from eight percent in 2007 to 48 percent in late 2010.

"These findings are of great concern," Trape's team report in the British journal *The [Lancet Infectious Diseases](#)*.

"They support the idea that [insecticide resistance](#) might not permit a substantial decrease in malaria morbidity in many parts of Africa where *A. gambiae* is a vector and acquired clinical immunity is a key epidemiological factor."

The suspicion -- but not supported by [clinical evidence](#) in this study -- is that older villagers gradually lost immunity to the [malaria parasite](#) as the threat receded and thus became exposed when the mosquito population rebounded.

Malaria claimed 781,000 lives in 2009, according to the UN's World Health Organization (WHO), which is spearheading the campaign to distribute insecticide-treated nets and spray reproduction sites.

About 90 percent of [malaria](#) deaths each year occur in Africa and 92 percent of those are children aged under five.

In a commentary, Joseph Keating and Thomas Eisele, specialists at Tulane University in New Orleans, cautioned against leaping to conclusions.

They praised the study for its thoroughness but said its duration was too short and focussed only on one village in rural Senegal.

By itself, this is not enough to confirm that the bednet programme is flawed or that the same problems apply across Africa, the pair said.

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