

Owning insecticide-treated bed nets lowers child mortality by 23 percent

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Children who live in households that own at least one insecticide-treated bed net are less likely to be infected with malaria and less likely to die from the disease, according to a new study by the Institute for Health Metrics and Evaluation (IHME) at the University of Washington.

The new study, "Net benefits: a multi-country analysis of [observational data](#) examining associations between insecticide-treated [mosquito nets](#) and health outcomes," will be published in *PLoS Medicine* on Sept. 6. It follows a study published last year in *PLoS Medicine* that documented the rapid scale-up of bed net distribution. That paper found that in countries with large populations at risk for malaria, bed net ownership had increased from an average of 2.2% of the at-risk population in 1999 to 32.8% in 2008. The efforts are paying off. By controlling for other factors that might contribute to [child mortality](#), researchers found [clear evidence](#) that bed nets reduce the number of [child deaths](#) from malaria. Ownership of at least one insecticide-treated bed net was associated with a 23% reduction in mortality in children under the age of 5.

The reduction in mortality starts with a reduction in malaria infections, the authors say. In households that owned at least one bed net, the risk of children under the age of 5 becoming infected with the malaria-causing parasite was reduced by 20%.

Malaria is spread through [mosquitoes](#) that primarily bite at night, and sleeping children are particularly vulnerable to death from a [malaria infection](#). Scientists have been engaged in an ongoing debate about the effectiveness of bed nets, mostly based on data from small studies in one country or a limited time period. IHME researchers, in collaboration with researchers at the University of Zambia, examined data from 29 health surveys conducted over the past decade in 22 sub-Saharan [African countries](#) to test the benefits of bed nets.

"Most of the studies that have examined the relationship between bed nets and [health outcomes](#) have been limited to a handful of countries," said Dr. Stephen Lim, Associate Professor of Global Health at IHME and the paper's lead author. "We now can say with confidence that bed nets reduce mortality substantially and that the efforts to distribute these bed nets across the region are working."

Until the "Net benefits" study, the most compelling evidence for the effectiveness of bed nets came from randomized controlled trials in several countries. The new findings are consistent with the results from those trials, and they show that bed nets can have a strong effect on mortality outside of controlled conditions.

"Bed nets don't just work well in theory. They work under messy, real world conditions," said Dr. Emmanuela Gakidou, Associate Professor of Global Health at IHME and the paper's senior author. "The countries that have the highest malaria burdens are mostly rural, low-income settings where conditions are far from the ideal setting you would find in a clinical trial. This shows us that, regardless of the particulars of the country, bed nets can reduce mortality."

Dr. Gakidou and her co-authors suggest that expanded ownership of bed nets could lead to even more health gains in sub-Saharan Africa. In some countries, less than 25% percent of homes own a bed net, according to the latest data prepared by IHME and published by the World Health Organization in the World Malaria Report 2010.

"Public and private donors have rallied around bed net programs, but progress in countries has been uneven," said Dr. Felix Masiye, Head and Lecturer in the Department of Economics at the University of Zambia and one of the paper's co-authors. "Millions of children remain without protection, and only by understanding what is happening on the ground in

the region can we find the best way to make sure more households enjoy the benefits [bed nets](#) offer."

Provided by Institute for Health Metrics and Evaluation

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