

**Researchers**

Jessica Cohen  
Harvard University

Pascaline Dupas  
Princeton University

**Sample Size**

Prenatal clients

**Research Implemented by IPA**

Yes

# Free Distribution or Cost-Sharing: Evidence from a Malaria Prevention Experiment in Kenya

***Watch a [video](#) of researcher Jessica Cohen talking about this study.***

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## Abstract

Bednets treated with insecticide are a proven way to deter mosquitoes and prevent deadly malaria. But how can we get more people to use these potentially lifesaving items? Some argue that those who pay for goodwill value it more and use it more compared to those who receive it for free. We found no evidence that women receiving free nets were less likely to use them than those who paid a price for them. Charging for nets does however considerably reduce access, dropping by 75 percent when the price increases from zero to \$0.75. Overall, our results suggest that free distribution is both more effective and more cost-effective than charging (even a subsidized price) for nets.

## Policy Issue

Malaria is one of the world's foremost public health concerns, causing as many as 1 million deaths each year, the majority of which occur in sub-Saharan Africa.<sup>1</sup> Malaria is often associated with poverty—the poor are most affected, likely because they have reduced access to medical services and information, and the lowest ability to avoid working in malaria epidemic areas. The disease can also perpetuate poverty—taking a high toll on households and healthcare systems and reducing GDP by an estimated full percentage point each year in malaria-endemic countries.<sup>2</sup> The spread of malaria can be greatly reduced with the use of preventive strategies such as insecticide-treated bed nets (ITNs).

There is a general consensus among academics and policymakers that the provision of public health goods with positive externalities should be publicly financed. But this consensus coexists with a long-running debate on what proportion of the cost the recipients of these public health programs should bear. Standard economic analysis implies that goods (such as ITNs) that have a positive benefit (such as reduced malaria transmission) to the whole community when they are used by individuals should be provided at zero cost to the user. However, some argue that charging for health tools may increase their usage intensity, by screening out those who do not value the good and inducing people to rationalize their purchase by using the good.

Although cost sharing may lead to higher usage intensity than free distribution, it may also reduce program coverage by dampening demand. And if people who cannot afford the price are more likely to be sick, then, by selecting these people out, charging could significantly reduce the health benefits of the partial subsidy.

## Context of the Evaluation

In Kenya, malaria is responsible for one out of every four child deaths.<sup>3</sup> It impacts economic growth and productivity, and almost 170 million working days are lost annually due to the disease.<sup>4</sup> ITNs are used to prevent malaria infection and have been proven highly effective in reducing maternal anemia and infant mortality, both directly for users and indirectly for non-users with a large enough share of net users in their vicinity. ITNs have been shown to reduce overall child mortality by an average of 20% in regions of Africa where malaria is endemic. Despite their proven efficacy, in Kenya, only 5% of children and 3% of pregnant women sleep under an ITN. Priced at US\$5-7 per net, they are not affordable to most families, so governments and NGOs often distribute ITNs at heavily subsidized prices.

## Details of the Intervention

This program targeted ITN distribution to pregnant women who visited clinics for prenatal care.

*First stage:* Sixteen health clinics were randomly selected to receive ITNs at a subsidized rate, with the discount varying between clinics from 90-100% of market price, and four comparison clinics were provided with no ITN distribution program.

*Second stage:* Within a given clinic, a further discount is randomly offered to women who have already chosen to buy the net. This second stage is intended to allow separate estimation of the selection and sunk cost effects of price on usage discussed above.

Administrative records at the clinics were collected; data on the number of women enrolling for and receiving prenatal care services and the percentage of prenatal clients acquiring an ITN was recorded. Individual-level data was acquired through interviews with pregnant women. Women were asked basic background questions, whether they purchased a net, and their hemoglobin level was recorded.

## Results and Policy Lessons

*Impact on ITN Usage Intensity:* No evidence was found to suggest that cost-sharing increases ITN usage: women who paid positive subsidized prices were no more likely to use nets than those who received ITNs for free. Additionally, there is no evidence that cost-sharing puts ITNs in the hands of women who need the net most: those who pay higher prices appear no sicker than the prenatal clients in the comparison group in terms of measured anemia (an important indicator of malaria).

*Impact on ITN Demand:* Cost-sharing does considerably dampen demand. ITN uptake drops by 60 percentage points when the price increases from zero to \$0.60, a price still \$0.15 below the price at which ITNs are currently sold to pregnant women in Kenya. These results imply that demand for ITNs is 75% lower at the cost-sharing price prevailing in Kenya at the time of the study (\$0.75) than it is under a free distribution scheme. Overall, given the large benefit to the community associated with widespread usage of insecticide-treated nets, results suggest that free distribution of ITNs is both more efficient and more cost-effective than cost-sharing.

## Sources

1. WHO, "10 Facts on Malaria," <http://www.who.int/features/factfiles/malaria/en/index.html>.
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3. The World Bank, "News & Broadcast: World Bank Intensifies Anti-Malaria Efforts in Africa", <http://go.worldbank.org/IWWIICOOC0>.
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