Free Distribution or Cost Sharing? Evidence from a Malaria Prevention Experiment in Kenya

Researchers:

Jessica Cohen

Pascaline Dupas

Sector(s): Gender, Health

Fieldwork: Innovations for Poverty Action (IPA)

Location: Western Province, Kenya

Sample: 20 prenatal clinics and around 10,000 pregnant women

Target group: Mothers and pregnant women

Outcome of interest: Communicable diseases Malaria

Intervention type: Preventive health Pricing and fees

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Partner organization(s): Government of Kenya Ministry of Health, TAMTAM Africa

Some argue that charging prices 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. However, charging prices may also reduce program coverage by dampening demand. Researchers investigated the impact of the price of insecticide-treated bed nets (ITNs) on usage and demand in Kenya. Researchers found that cost-sharing considerably dampened demand, and those who were left out under a cost-sharing scheme had very high usage rates when they could access the product for free. Because there are social health benefits from achieving a certain ITN coverage rate, the results suggest that free distribution of ITNs is both more effective and cost-effective than cost-sharing.

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.[1], 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.[2] 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 beneficiaries 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.[3], It impacts economic growth and productivity, and almost 170 million working days are lost annually due to the disease.[4] 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 percent in regions of Africa where malaria is endemic. Despite their proven efficacy, in Kenya, only 5 percent of children and 3 percent of pregnant women sleep under an ITN. Priced at US$5-7 per net, they are not affordable to most families, and so governments and NGOs often distribute ITNs at heavily subsidized prices.



Young, pregnant women in the waiting area of a health clinic.

Photo credit: Aude Guerrucci, J-PAL

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 percent of market price, and four comparison clinics were provided 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 percent 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.

In addition, this research, combined with similar findings across contexts and other types of preventive health products, has helped shift policy in favor of reducing user fees for key preventive health products. For more details, see the evidence to policy case study.

Cohen, Jessica, and Pascaline Dupas. 2010. "Free Distribution or Cost-Sharing? Evidence from a Randomized Malaria Prevention Experiment." The Quarterly Journal of Economics125(1): 1-45.

1. WHO, "10 Facts on Malaria," http://www.who.int/features/factfiles/malaria/en/index.html.
2. African Medical & Research Foundation, (AMRF), “Fact sheet – Malaria,” http://usa.amref.org/index.asp?PageID=87.
3. Pierre- Louis, Anne Maryse. 2009. “Intensifying the fight against malaria : the World Bank's booster program for malaria control in Africa.” World Bank. http://documents.worldbank.org/curated/en/473021468009019995
4. The World Bank, “Booster Program for Malaria Control in Africa – Kenya,” http://go.worldbank.org/EGMG4G6DX0 .