

UNDERSTANDING MOSQUITO NET USE AT THE HOUSEHOLD LEVEL

Are mosquito nets being used? If so, who uses them?

By Carol Baume, Ph.D.

Senior Research Officer, Academy for Educational Development

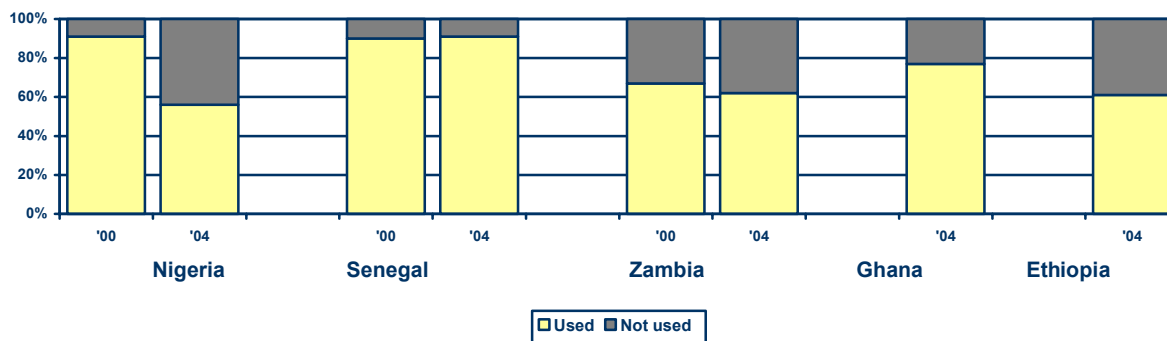
Malaria prevention efforts promoting insecticide-treated nets (ITNs) often assume that if a household gets a mosquito net, that net will actually be used and that those most vulnerable—children under five and pregnant women—will sleep under it. To date, there has been little data on the use of nets/ITNs within the household, and whether programs need to adjust their communication strategies to make sure nets are used and that the most vulnerable sleep under them. And little has been documented about other aspects of household net use that would be useful for planning and assessing ITN programs. The NetMark project¹ of the Academy for Educational Development (AED)² conducted household surveys in Nigeria, Senegal, and Zambia in 2000, and again in 2004 in those countries plus Ghana and Ethiopia. The data answers the questions:

- Are nets that are owned being used? What is associated with a household using its net?
- Who in the household is most likely to use the net? Least likely?
- Does gender affect childhood net use?
- What is the average number of people under one net?
- What are the most common sleeping groups under one net?

Are nets that are owned being used? What is associated with a household using its net?

Although most household nets are used, in some countries net use should be emphasized. In Senegal, nearly all (91%) nets owned are used, but in Nigeria, Zambia, Ghana, and Ethiopia we found a sizeable minority of nets going unused. In all countries except Zambia, the studies were conducted during the rainy season, when net use is likely to be highest. An unexpected finding was that, between 2000 and 2004, the percent of nets used decreased considerably in Nigeria, even though the study was conducted during the same month in both years. We have no firm explanation for this decrease.

Figure 1: Percent of nets owned that were used the prior night



We had not set out to examine the issue of unused nets, but did exploratory analyses to see if there was a relationship with demographic or net variables in our data set. We found no consistent pattern among

¹ NetMark is funded by the United States Agency for International Development (USAID). For more information on the NetMark project, visit www.netmarkafrica.org

² See www.aed.org for more information on the Academy for Educational Development.

countries regarding the relationship of a net being used to demographic variables such as urban-rural location or socio-economic status of the household. We did find that in all five countries

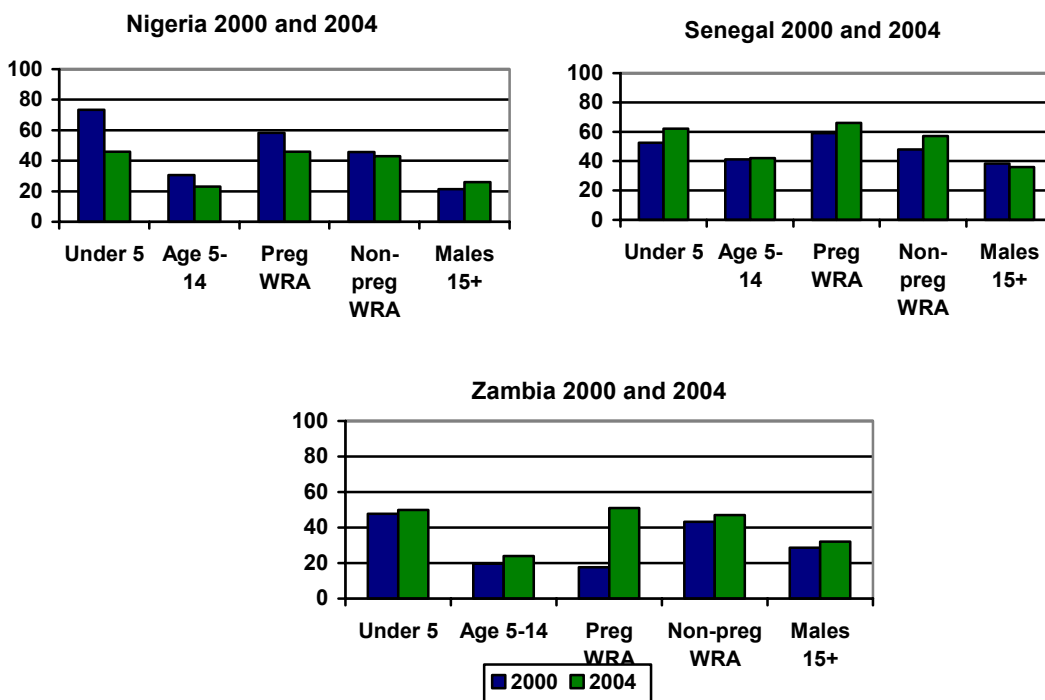
- treated nets were more likely to be used than untreated ones
- nets two years old or less were more likely to be used than older nets
- nets that were paid for were more likely to be used than nets obtained for free
- larger nets were more likely to be used than smaller ones, except in Ethiopia
- the more nets a family owned, the less likely that all of them would be used

Who in the household is most likely to use the net? Least likely?

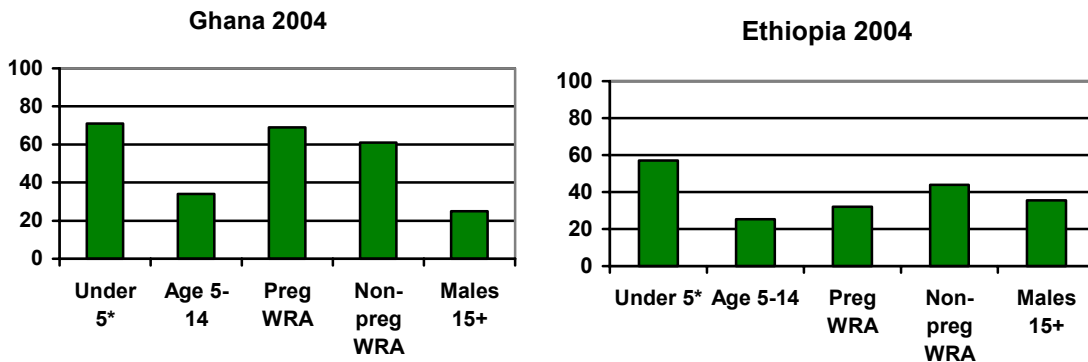
The 2004 results were very encouraging regarding who in the household sleeps under the net. In all countries surveyed, children under five, especially those under two, were most likely to use the household net(s). Women of reproductive age (WRA), and particularly those who were pregnant, were almost as likely or equally likely as under-fives to be under a net. This represents a change from 2000, when pregnant women were less likely to be under a net. Notably in Zambia, pregnant women went from the least likely (in 2000) to the most likely (in 2004) to sleep under the household net.

In Nigeria, the decline in the percent of people under a net is due to the increased number of unused household nets. However, because the percent of households owning a net in Nigeria doubled between 2000 and 2004³, the absolute number of Nigerians sleeping under nets increased in that time period.

Figure 2: Percent of household members who slept under a net the prior night



³ See *NetMark 2004 Survey on Insecticide-Treated Nets in Nigeria*, www.netmarkafrica.org/research



In all countries, the household members least likely to sleep under a net were children aged 5-14 and adult males. In Ethiopia, pregnant women were also among the least likely to be under a net, possibly because there has not been a culture of net use in Ethiopia, and intensive ITN activities are much more recent there than in the other countries surveyed. In all countries, adult females were much more likely to sleep under a net than adult males, although the difference was least pronounced in Ethiopia. These findings run counter to a popular belief that the man of the house usually sleeps under the net.

Does gender affect childhood net use?

This is easily answered: no. There was no evidence of gender bias in childhood net use; in all five countries surveyed, male and female children under five were equally likely to be placed under the net.

What is the average number of people under one net?

When a household uses a net, each net on average protects two people, with the average ranging from 2.03 in Nigeria to 2.32 in Ethiopia. In all countries, the average number of people under the net was slightly higher in rural than in urban areas.

What are the most common sleeping groups under a net?

The most common sleeping pattern by far in all five countries was for a woman of reproductive age and a child under five to be under a net (sometimes along with others, such as the spouse or a child over five). This holds true in both urban and rural areas. In each country, in at least 96% of households that owned only one net, a child under five and/or a woman of reproductive age had used the net on the prior night. When a household owned multiple nets, the less vulnerable members were more likely to sleep under a net.

Conclusions

The study shows that we need a better understanding of why some households do not use their nets even during the rainy season. There is anecdotal evidence that people perceive nets to be hot, that some people find them difficult to hang, and others believe themselves protected by other means such as coils or aerosols. Qualitative research should help programs identify and overcome the net use barriers specific to the populations they serve. The data do reassure us that when nets are used, the great majority of families follow public health recommendations and give priority to those most vulnerable to malaria. It is especially gratifying that pregnant women are now much more likely to use the net than they were in 2000, a testament to the success of ITN programs in educating people about the susceptibility of pregnant women to severe malaria and in allaying fears about the insecticide. It is also good to know that young boys and girls are equally likely to be protected, and that most nets are protecting at least two people. ITN programs can focus on increasing access to and ownership of nets, and in getting people to use them.

Acknowledgments: Thanks to Celeste Marin, who carried out the data analysis.