INVESTIGATING THE USE OF MOSQUITO NETS FOR MALARIA PREVENTION IN GLEFE, GHANA

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INTRODUCTION

Malaria is a major cause of mortality and morbidity in Ghana. Children less than five years of age and pregnant women are particularly susceptible to this disease. Consistent use of insecticide-treated nets (ITNs) have been shown to be cost-effective in preventing the incidence of malaria by various efficacy trials. To that end, **Representatives for Equal Access to Community Health-care, Ghana (REACH Ghana)** distributed ITNs to 100 households located in Glefe, near Dansoman in the Greater Accra Region, Ghana during their first annual Screenathon on December 30, 2010. This particular community was identified as a particularly vulnerable community due to its coastal location with poor sanitary conditions, low socioeconomic status (SES) of residents and young age of the population (median age= 22 years old).

OBJECTIVES

The primary objectives of this study is as follows:

1. To assess usage of nets distributed by REACH Ghana
2. To assess the willingness to pay a nominal fee for nets distributed

The secondary objectives of this study includes:

1. To investigate the incidence of malaria in net users versus non-net users
2. To investigate any differences in the incidence of malaria in users of nets received from REACH Ghana versus users of nets obtained from other sources.

The results of this study will be used to make any modifications in the logistical planning and/or policy surrounding the distribution of mosquito nets in 2011 annual Screenathon. In particular, the results from the assessment of willingness to pay will be used to evaluate the feasibility of charging a nominal fee for receipt of the nets, with the end goal of reaching a wider target population by reducing the associated cost per net-receiving household.

MATERIALS AND METHODS

A total of 46 women of similar childbearing age, socioeconomic status, household demographics and who were current residents of Glefe were invited to participate in a questionnaire-based interview. Informed consent was obtained from all participants prior to the interview. Interviews were conducted in the Ga language with the aid of a local volunteer interpreter.

Out of the 46 interviewees, one case was deemed invalid and excluded from all analyses. Missing values were also similarly excluded from relevant analyses.

Household demographics are shown in Figure 1. 11 participants out of the total of 46 interviewed had received an ITN from REACH Ghana during the annual Screenathon. 90% of the total number of households interviewed had at least one child below the age of 5 years old, and 100% of the households had at least one female aged between 15-49 years old.

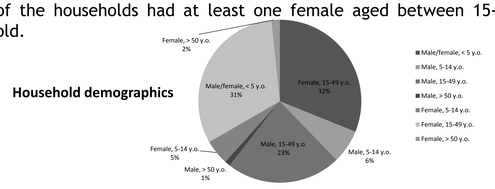

FIGURE 1

The results of the questionnaire was compiled into a database and analyzed for the following questions:

1. **What is the percentage usage of the nets among REACH net recipients versus the non-recipients?**
   This was assessed by asking the question "Are you using a/the net?", with possible responses being "Yes" or "No".

2. **Is the targeted population (children < 5 y.o. and women of childbearing age) using the nets?**
   This was assessed by asking the question "Who slept under the net last night?"

3. **What is the probability of getting malaria in net versus non-net users?**
   This was assessed by first determining whether or not households/individuals were using the nets, then asking whether or not they have had a case of malaria in the previous 6 months.

4. **What percentage of participants are willing to pay for nets?**
   This was assessed by asking the participants "Are you willing to pay for a net" with possible responses being "Yes" or "No".

5. **What are the price ranges that participants are willing to pay for a net?**
   This was assessed by giving participants 5 categories of price ranges and asking the maximum price they would be willing to pay for a net.

RESULTS

1. **What is the percentage usage of the nets in REACH net recipients versus the non-recipients?**

   The percentage usage in REACH net recipients was 90% as compared to 38% of the non-REACH net recipients. Overall percentage usage was 51%.

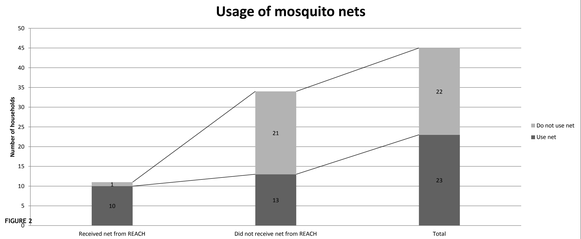

FIGURE 2

2. **Is the targeted population (children < 5 y.o. and women of childbearing age) using the nets?**

   77% of children below the age 5 and 85% of women aged between 15-49 slept under a net the previous night.

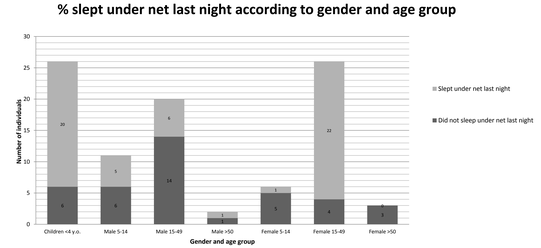

FIGURE 3

3. **What is the probability of getting malaria in net versus non-net users?**

a. Households who do not use nets are 2.28 times more likely to have had a case of malaria in the past 6 months when compared to households who use nets

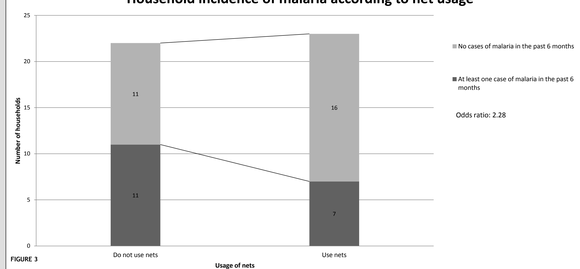

FIGURE 3

b. Children below the age of 5 who did not sleep under a net the previous night was 2.44 times more likely to have had a case of malaria in the past 6 months when compared to the children who slept under a net the previous night.

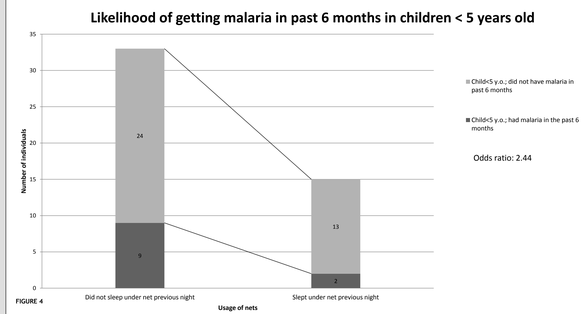

FIGURE 4

c. Females aged between 15-49 years old who did not sleep under a net the previous night were equally like to have had a case of malaria in the past 6 months when compared to the females who slept under a net the previous night. (figure not shown)

d. Incidence of malaria in children and women of childbearing age among users of REACH distributed nets was lower, but due to small sample size no conclusive statements could be made.

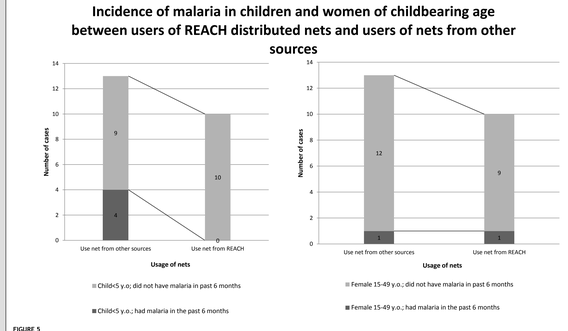

FIGURE 5

4. **What percentage of participants are willing to pay for nets?**

   90% of the recipients of REACH nets were willing to pay for their nets, while only 50% of current net non-users were willing to pay for another net. 65% of users of nets from other sources were willing to pay for another net.

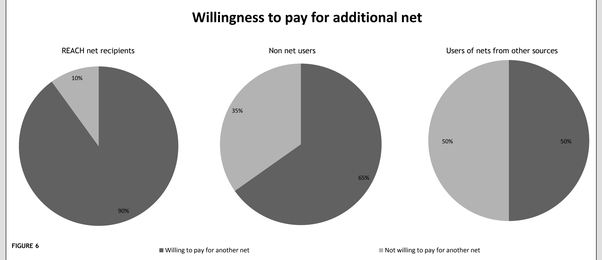

FIGURE 6

5. **What are the price ranges that participants are willing to pay for a net?**

   Majority of people indicated that they would be willing to pay 1-3 cedis for a net.

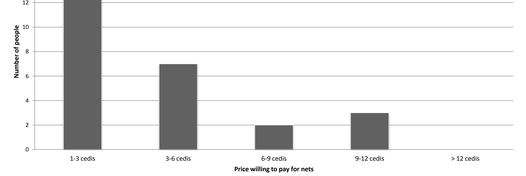

FIGURE 7

DISCUSSION AND CONCLUSIONS

Only 11% of the recipients of nets from REACH Ghana were interviewed due to lack of contact information. Overall, children under the age of 5 and women of childbearing age were prioritized in the use of nets.

There was higher percentage usage of nets when it was distributed by REACH as compared to nets obtained from other means. The incidence of malaria was generally reduced in households and individuals who used the nets, but due to a small sample size and lack of specific questions, no firm conclusions could be drawn. Willingness to pay for a net varied among different groups, with most individuals willing to pay between 1-3 cedis for a net.

Further efforts should be aimed towards identifying the potential barriers to the use of nets, especially among the targeted population of children below the age of 5 and women of childbearing age.

NetMark2008 Household Survey on Insecticide Treated Nets (ITNs) in Ghana (2008), AED NetMark Project.

ACKNOWLEDGEMENTS

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