NetMark
A Regional Partnership for Sustainable Malaria Prevention

SUMMARY OF ETHIOPIA HOUSEHOLD SURVEY

Data Collection: August – September 2004

HIGHLIGHTS

70% of respondents had heard of mosquito nets
47% of respondents had heard of treated mosquito nets

25% of households owned a net
11% of households owned an ITN*

16% of children under five slept under a net the prior night
6% of children under five slept under an ITN the prior night*

9% of pregnant women slept under a net the prior night
6% of pregnant women slept under an ITN the prior night*

*Roll Back Malaria Core Indicator

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SAMPLE

- The total sample was 1000 households from five sites: Bahir Dar, Nazareth, Dire Dawa, Dessie and Awassa.

- In each site, 200 households were included: 80 from the urban center, and 120 from up to 200 kilometers from the urban center.

- Respondents were women aged 15-49 who were mothers/guardians of at least one child under the age of five.

- Half of respondents were 20-29 years old, and 64% had some education. Cement was the main floor material in urban areas and earth or dung in rural areas. Half (49%) of the households got water from a public tap, 65% had traditional pit latrines, 78% had electricity, and 53% used wood for cooking.

KEY FINDINGS

Awareness of nets and insecticide-treated nets (ITNs)

- Although awareness of mosquito nets is nearly universal in many sub-Saharan countries, when asked if they had ever seen or heard of a mosquito net, 30% of respondents in Ethiopia said they had not. Awareness of mosquito nets was lowest in Dessie site at 50% and highest in Dire Dawa site at 86%.

- Awareness of nets was strongly associated with socioeconomic status (SES); 96% of respondents from the highest SES quintile had heard of nets, compared with 35% in the lowest quintile. Awareness was also much higher in urban (90%) than in rural areas (57%).

- When asked if they had ever seen or heard of mosquito nets treated with insecticide (ITNs), less than half—47%—said they had. Awareness of ITNs was lowest in Dessie at 26% and highest in Bahir Dar at 58%.

- ITN awareness was strongly associated with SES; 13% in the lowest SES quintile had heard of ITNs, compared with 81% in the highest SES quintile. Awareness was also higher in urban (66%) than in rural areas (34%).

Net ownership

- The percent of households in the sample that owned a net was 25%, but varied considerably by site: Bahir Dar 40%, Awassa 25%, Nazareth 24%, Dire Dawa 24%, and Dessie 13%.

- Net ownership was strongly associated with SES: 55% of households in the wealthiest SES quintile owned a net, in contrast to only 3% in the poorest SES quintile.

- Urban households were much more likely than rural households to own a net (40% vs. 15%).

- Net-owning households owned an average of 1.3 nets per household.

- Six percent (6%) of households in the sample owned a baby net (a non-hanging net with a built-in frame), with ownership heavily concentrated in the highest SES quintile. (Baby nets are not counted in net ownership figures.)

- Among respondents in *non* net-owning households who had heard of nets, reasons for not having a (hanging) net were cost (42%), lack of availability (23%), and the belief that nets are not necessary (19%).

ITN ownership

- Eleven percent (11%) of households owned an ITN (a currently treated net)[1], but ITN ownership varied greatly by site: Bahir Dar 24%, Awassa 9%, Nazareth 9%, Dire Dawa 9%, and Dessie 4%.

- ITN ownership declined sharply with SES: 24% of households in the highest SES quintile owned an ITN, but only 2% of households in the lowest SES quintile did.

- Urban households were more likely than rural households to own an ITN (17% compared to 6%).

- ITN-owning households owned an average of 1.3 ITNs per household.

Appropriate Use

Children under five

- Among all households, 16% of children under five slept under a net (*including baby nets*) the prior night. There was considerable variation by site, from a low of 7% in Dessie to a high of 34% in Bahir Dar. The percent of under-fives sleeping under a net sharply increased with SES: 0.8% of under-fives in the lowest SES quintile and 40% of those in the highest slept under a net the prior night.

- Among all households, 6% of all children under five slept under an *ITN* the prior night, ranging from a low of 0.4% in Dessie to a high of 18% in Bahir Dar. The percentage of under-fives sleeping under an ITN was strongly associated with SES: 0.4% in the lowest quintile and 13% in the highest slept under an ITN the prior night.

- Within net-owning households, 57% of children under five in those households slept under some kind of net the prior night.

Pregnant women

- Among all households, 9% of pregnant women slept under a net the previous night. No pregnant women in the two lowest SES quintiles slept under a net the prior night, compared with 25% in the highest SES quintile who did.

- Among all households, 6% of pregnant women slept under an ITN net the prior night. No pregnant women in the two lowest SES quintiles slept under an ITN the prior night, compared with 19% in the highest SES quintile who did.

- Within net-owning households, 32% of pregnant women slept under a net/ITN the previous night.

[1] An ITN or currently treated net is defined as a long-lasting net that does not require frequent treatment, a pretreated net obtained within the last 12 months inclusive, or a net that has been soaked with insecticide within the past 12 months inclusive. This definition corresponds with the Roll Back Malaria definition of an ITN.

Women of reproductive age (WRA)

- Among all households, 12% of WRA slept under a net the previous night, ranging from a low of 5% in Dire Dawa and Dessie to a high of 29% in Bahir Dar. Only 0.8% of WRA in the lowest SES quintile slept under a net, compared with 24% of WRA in the highest SES quintile who did.

- Among all households, 5% of WRA slept under an ITN the prior night, ranging from a low of 0.9% in Dessie to 15% in Bahir Dar. Only 0.4% of WRA in the lowest SES quintile slept under an ITN, compared with 12% of WRA in the highest SES quintile who did.

- Within net-owning households, 43% of WRA slept under a net/ITN the prior night.

General patterns

- Within net-owning households, children under five (57%), and especially those under one (69%), were more likely to sleep under a net than were other household members. Pregnant women were not given preference over other adults for sleeping under a net/ITN.

- Within net-owning households, older children—those aged 5-14—were the least likely household members to sleep under a net/ITN (25%).

- Among all nets owned, 61% had been used the prior night, but the proportion of nets used ranged from 34% in Dire Dawa to 83% in Bahir Dar. Urban residents were somewhat more likely to have used their net the previous night than were rural residents (65% compared to 53%).

- The average number of months per year a household used its net/ITN was 5.8, with households tending to use their net(s) either all year round or for only a few months of the year.

Characteristics of nets

Net Treatment and washing

- Among all nets owned, 57% had ever been treated (before or after being obtained); 44% were already treated when they were acquired, and 27% had been treated since acquired.

- Forty-one percent (41%) of nets were currently treated (ITNs), with much variation by site: 60% in Bahir Dar were currently treated, compared to 22% in Dessie and 30% in Awassa.

- Seventeen percent (17%) of nets owned had come bundled (packaged) with an insecticide treatment so that the owner could treat the net.

- Among nets treated since acquired, 47% were treated at home by a family member and another 9% treated at home by someone who came to the house specifically to treat the net. Another 44% of nets treated since acquired were treated outside the home in a place such as a health facility.

- Two-thirds (66%) of nets had been washed; 24% had been washed within the prior month; another 14% within the prior 3 months; and another 22% within the prior 6 months.

Net type, age, source, brand, price, and purchaser

- Most nets (87%) were factory-made; 10% were tailor-made; and 3% were originally factory-made but re-configured by a tailor (usually rectangular nets re-made into conical).

- Most nets were recently acquired: 55% had been acquired within the past two years; 78% had been acquired within the prior three years.

- At the time of the study, the vast majority of nets in Ethiopia were donor, government, and NGO-supplied, yet 69% of nets were purchased from commercial sources. The rest (31%) came from non-commercial sources such as clinics or government. Nets in urban areas were more likely to come from a commercial source, while nets in rural areas were more likely to come from a non-commercial source. Awassa site had the highest proportion of commercial nets (88%), while Bahir Dar site had the lowest (56%).

- Few knew the brand of their net(s), with the brand unknown for half (51%) of nets**.** UNICEF was by far the most common "brand" owned, at 30% of nets. (Brand was identified by net-owning respondents from a showcard or by the interviewer from a label.) Nets belonging to households in the highest SES category were nearly as likely to be UNICEF nets as those in the lowest SES category (28% compared to 33%). Nets belonging to rural households were more likely to be UNICEF nets than were those in urban households (40% compared to 24%).

- Four percent (4%) of nets were free. Among nets paid for where the cost was known, the median price paid was 30 birr (US$3.61). The median price of a net was highest in Awassa site (45 birr) and lowest in Dessie site (18 birr).

- About one-quarter of the nets (27%) were acquired by the respondent, and 50% were acquired by the respondent's husband.

Net size, shape, and color

- Nets were fairly evenly distributed by size: 37% were single-sized, 34% were double and 29% king-sized.

- The majority of nets were rectangular (59%) but a sizeable proportion was conical (40%). Net shape varied by site: 70% of nets in Awassa were conical, compared to 28% in Dessie.

- The most common colors were green (43%) and white (28%). More than half the nets in Bahir Dar and Dessie were green, and one quarter of the nets in Awassa were dark blue. (Note that UNICEF nets are green and PSI nets are dark blue.)

Net Preferences

- Approximately half of respondents (54%) said they preferred king-sized nets, 24% preferred double and 18% preferred single.

- Conical nets were preferred by 52% of respondents, while 41% preferred rectangular. In urban areas, respondents preferred conical nets over rectangular by 60% to 34%.

- Green was the favorite net color for 20% of respondents (40% in Bahir Dar), followed by turquoise (13%) and white (11%). Black was the most disliked color (27%) followed by white (11%).

Net/ITN brand awareness

- There is very little brand awareness in Ethiopia: 4% could name a net/ITN brand unprompted, and a total of 35% claimed to recognize at least one brand after being shown a card with logos with associated brand names. "UNICEF" was by far the most recognized name, at 32% (prompted and unprompted combined).

Use of other insect control products

- Use of other mosquito control products is low. Coils are generally not known in Ethiopia and 64% had ever heard of aerosol insecticides. Of those, 34% (or 22% of entire sample) had used an aerosol in the past year.

- Aerosols were most commonly purchased in local kiosks (58%).

Knowledge of malaria and perceptions of nets

- Recognition of the Amharic term for malaria—*woba*—was nearly universal at 99%.

- Knowledge of the symptoms of *woba* was fair. The main symptoms named were chills (70%), fever (66%), and headache/body ache/pain (42%). Given that the defining symptom of malaria is fever, the proportion mentioning fever was rather low (particularly in Dire Dawa, where only 49% of respondents mentioned fever.) Only 1% mentioned convulsions, a symptom of severe malaria.

- Knowledge of the cause of malaria is poor: 37% named mosquitoes as the cause. Other causes named were dirty surroundings (51%), cold or dirty food or water (21%) and the weather (13%).

- Knowledge of vulnerable groups was somewhat low: 58% correctly selected both the youngest children and pregnant women as the most vulnerable family members when asked to select from drawings of a man, a woman, a pregnant woman, a child of three years and a child of six years.

- Among respondents who had heard of nets, 93% named advantages of a *child under five sleeping under an untreated net*. The main advantages mentioned were avoid mosquito bites (48%), avoid *woba* (39%) and avoid being bothered by other insects (29%). Most (73%) who had heard of nets said there were no disadvantages or they did not know of any for a child under five to sleep under an untreated net. Those who mentioned disadvantages said that mosquitoes can still bite through the net (14%) or still enter the net (10%).

- The most commonly named advantages of a *child under five sleeping under a treated net* were that they kill mosquitoes (46%) and work better than an untreated net (41%). Most respondents (81%) did not mention any disadvantages for a child under five to sleep under an ITN. The disadvantages mentioned by the others were that ITNs smell bad (11%) and chemical can be dangerous (5%) or cause cough or irritation (3%).

- The great majority (90%) of respondents who had heard of nets named advantages for *pregnant woman to sleep under a treated net.* The main advantages mentioned were that it kills mosquitoes

(40%), works better than an untreated net (39%), and is better at preventing *woba* (19%). A minority (18%) named a disadvantage: 10% said an ITN would smell bad and 6% said it could be dangerous for the woman or fetus.

Communication

- Less than half (42%) of respondents said they had heard or seen information about treated nets in the last 12 months, ranging from a low of 23% in the Dessie site to a high of 52% in Bahir Dar site. A higher proportion of urban (59%) than rural (30%) respondents reported exposure to information about ITNs. There was a strong association with SES, with only 9% of those in the lowest category reporting exposure, compared to 74% of those in the highest.

- Among those who had heard or seen information about treated nets in the last 12 months, mass media was the main source: 57% heard information on the radio and 41% saw something on TV. Interpersonal sources were far less common: 17% mentioned friends/family and 15% mentioned health staff.

- The main messages remembered were "mosquitoes kill" (23%), and prevent *woba*, kill mosquitoes, and protect against bites/*woba* (all 15%).

SUMMARY OF FAVORABLE FACTORS AND CHALLENGES

There is not yet a culture of net use in Ethiopia, but the household survey data suggest opportunities and challenges for ITN promotion in Ethiopia.

Favorable factors include:

- Where nets and ITNs have been made available (e.g., Bahir Dar) they have been readily accepted.

- Although our sampling procedures differ from those of the DHS, our data suggest that net and ITN ownership and use are increasing from the time the DHS was implemented in 2000.

- The low level of familiarity with nets and especially with treated nets means that there may be fewer preconceptions to counter in order to encourage ownership. There may be an opportunity to position ITNs as a new and desirable product.

- The rather low awareness and use of alternative insect control products mean that nets/ITNs can fill the need for malaria and insect protection with little competition; there is no need to position ITNs against other mosquito control products.

- In net-owning households, the youngest children are given preference for sleeping under a net and it should be easy to reinforce and expand this practice.

- There is an extremely high level of perceived advantages of net and ITN use by vulnerable groups and extremely low level of perceived disadvantages; in particular few have concerns about the insecticide.

- Although nets in Ethiopia have been principally donor-supplied, most nets owned came from commercial sources, indicating that people are willing to purchase nets at market prices.

- The Amharic term for malaria (*woba*) is universally recognized, and promotional messages can use this term and be widely understood.

- Since men are the main procurers of nets/ITNs, promotional efforts to encourage families to obtain ITNs much include them as a primary target group.

Main challenges to ITN promotion are:

- A substantial minority of people have not even heard of nets, so there is much basic work to be done just to initiate awareness.

- Perceived (and actual) high cost of nets means that ownership is currently concentrated in the highest SES households; targeted subsidy programs must be instituted for the poorest and most vulnerable, with safeguards to prevent leakage.

- Current efforts to deliver low-cost or free ITNs have helped increase coverage, but the poorest segments of the population have not benefited. Significant quantities of untargeted free and heavily subsidized nets are found in upper SES households and undermine the development of the commercial market. Efforts to better coordinate and target subsidized products are essential in order to ensure that subsidies are not wasted on those who can afford commercial prices and to help develop a sustainable supply of ITNs through growth of the commercial market.

- There is limited access to ITNs in some areas. Where the commercial market can fill this gap, it should be encouraged to do so. In contexts where it is not appropriate for the commercial sector to fill the void, alternative approaches (e.g., through NGOs) should be employed.

- There is lack of variety in net size, shape, and color; and mismatch between the size, shape and colors people have and what they prefer. With consumer price-point sensitivity in mind, efforts should be made to provide consumers with the type of product they prefer.

- The rather low education levels have implications for communication approaches and for comprehension of product use and treatment instructions.

- Net branding is weak. Commercial firms should be encouraged to develop and build their own brands.

- The health sector has been a major source of nets and insecticide treatments, and even people who can afford to pay for these products may continue to expect to get them from the government.

- Pregnant women are not given preference for net net/ITN use. This should be addressed in behavior change communication campaigns.

- There is inadequate knowledge about the cause of malaria that may limit the perception of ITNs as a solution to malaria.