



## SUMMARY OF NIGERIA 2004 ITN SURVEY AND COMPARISON WITH 2000 BASELINE SURVEY

### HIGHLIGHTS

In 2000, 7% of respondents were aware of treated nets  
In 2004, 60% of respondents were aware of treated nets

In 2000, 12% of households owned a net  
In 2004, 27% of households owned a net

In 2000, 0% of households owned a currently treated ITN\*  
In 2004, 9% of households owned a currently treated ITN\*

In 2000, 9% of children under five slept under a hanging net the prior night  
In 2004, 10% of children under five slept under a hanging net the prior night;  
18% slept under a hanging or baby net

In 2000, 0% of children under five slept under an ITN the prior night\*  
In 2004, 3% of children under five slept under an ITN the prior night\*

In 2000, 7% of pregnant women slept under a net the prior night  
In 2004, 14% of pregnant women slept under a net the prior night

In 2000, 0% of pregnant women slept under a currently treated ITN the prior night\*  
In 2004, 4% of pregnant women slept under a currently treated ITN the prior night\*

\*Roll Back Malaria Core Indicator; ITN=long lasting net or one treated within the prior 12 months



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## SUMMARY

### NIGERIA 2004 ITN SURVEY AND COMPARISON WITH 2000 BASELINE SURVEY

NetMark conducted a baseline survey on ITNs in Nigeria in 2000, and a follow-up survey in 2004. The baseline survey included 5 sites and the follow-up 9 sites, as the USAID Mission asked NetMark to collect data in additional sites. For comparison purposes, we report here only on the original 5 sites—both at baseline and follow-up. Findings for all 9 sites will be available separately. The same sampling procedure was used for both baseline and follow-up, and both were conducted at the same time of year: September-October.

## SAMPLE

- Sites: Lagos, Ibadan, Kano, Maiduguri, and Nsukka
- Sample size
  - In 2000: 1000 respondents (400 urban; 600 rural)
  - In 2004: 2000 respondents (800 urban; 1200 rural)
- Respondents: women aged 15-49 who were mothers or guardians of at least one child under the age of five

## KEY FINDINGS

### Net Ownership

- The percent of households owning at least one net has more than doubled: in 2000, it was 12%; in 2004, 27%. Ownership varied widely by site. In 2000, Ibadan was lowest at 2% and Nsukka highest at 19%. In 2004, Ibadan was lowest at 10% and Maiduguri highest at 51%.
- Net ownership has become more equitable by socio-economic status (SES). In 2000, ownership of at least one net was highest in the highest SES quintile. In 2004, ownership of at least one net was highest in the two lowest quintiles.
- There is little urban-rural difference in household net ownership, with 23% of urban and 29% of rural households owning at least one net.
- Among net-owning households, the average number of nets owned has increased. In 2000, the average number of nets owned in net-owning households was 1.3; in 2004 it was 1.7.
- Baby nets are very common: in 2004, 40% of households owned one<sup>1</sup>; 29% owned *only* a baby net and 11% also owned a hanging net. Baby net ownership was not asked about in 2000.
- In both 2000 and 2004 the top three reasons given for not owning a hanging bednet were lack of money, lack of availability and lack of need/use something else.

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<sup>1</sup> Baby nets are small umbrella-type nets that are not hung but are placed over an infant. They are not counted in household net coverage figures.

## ITN Awareness and Ownership

- Awareness of *treated* nets has increased dramatically, from only 7% in 2000 to 60% in 2004.
- There were virtually no treated nets in Nigeria 2000 (only 1 in the sample!). The percent of households owning an ITN (a currently treated net)<sup>2</sup> has increased from zero in 2000 to 9% in 2004. Ibadan had the lowest proportion of households with an ITN (5%) and Nsukka the highest (18%).
- Ownership of ever-treated and currently-treated nets was fairly even across SES quintiles.
- ITN-owning households averaged 1.3 ITNs per household in 2004. There were virtually no ITN-owning households in 2000.

## Use of Nets and ITNs

### *Children under five*

- Among all households, there was a small rise in the percent of children under five sleeping under a hanging net the prior night, from 8.8% in 2000 to 10.3% in 2004. The proportion ranged from a low of 3% in Ibadan site to a high of 17% in Maiduguri site. In 2000, there was little difference by urban-rural, and no distinct pattern by SES; in 2004 a higher proportion of rural (13%) than urban (7%) under-fives slept under a net, and those in the 2 lower SES quintiles were more likely (15%) than those in the higher ones (6%-8%) to sleep under a net.
- When those sleeping under baby nets were included, 18% of children under five in all households slept under some type of net, ranging from a low of 8% in Ibadan site and 9% in Kano site, to a high of 30% in Maiduguri site. There was not much variation by urban-rural or by SES. (No data on baby nets was collected in 2000 and therefore no comparison can be made.)
- Among all households, there was a small increase in the percent of children under five sleeping under an ITN the prior night, from 0% in 2000 to 3.3% in 2004, ranging from a low of 1.2% in Maiduguri site to a high of 9.6% in Nsukka site.
- Within net-owning households, 36% of children under five slept under a net the prior night. This is a decrease from 2000, when 73% of under-fives in net-owning households slept under a net. When those sleeping under baby nets were included, 46% of under-fives in net-owning households slept under some kind of net. (No comparable figure is available for 2000.)
- Within net-owning households, younger under-fives were more likely than older ones to sleep under a net, when those sleeping under baby nets are included. When they are not, use among under-fives does not vary much by age.
- There was no gender bias in childhood net use; approximately equal proportions of male and female children slept under a net.

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<sup>2</sup> 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.

### *Pregnant women*

- Among all households, 14% of pregnant women in 2004 (7% in 2000) slept under a net the previous night. The lowest proportion was in Ibadan (0.0%) site and the highest in Maiduguri site (32%). A higher proportion of rural (17%) than urban (9%) of pregnant women slept under a net the prior night. There was little difference by SES.
- Among all households, 4.4% of pregnant women in 2004 (0% in 2000) slept under an ITN the prior night. No pregnant woman in the sample from Lagos or Ibadan sites slept under an ITN the prior night. The highest proportion was in Nsukka at 8%.
- Within net-owning households, in 2004 46% of pregnant women slept under a net the previous night. The number of pregnant women in net-owning households was too small in 2000 to permit meaningful comparison (7 out of 12 slept under a net.).

### *General patterns*

- Within net-owning households, the household members most likely to sleep under a net were children under five and women of reproductive age, including pregnant women. Males aged 15 and older were the least likely to sleep under a net.
- A large minority (44%) of nets owned were not used the prior night. Rates of non-use were highest in the three highest SES quintiles. The rate of non-use was only 9% in 2000.
- The average number of months during the year that nets were used was 5.9, down from 7.6 in 2000.

## **Characteristics of Nets<sup>3</sup>**

### *Net Treatment and Washing*

- There has been a tremendous increase in the proportion of nets that have been treated in Nigeria. In 2000, it was 0. In 2004, 31% of nets owned had ever been treated; 20% were already treated when they were acquired, and 18% had been treated since purchase, regardless of whether they were pretreated. Twenty-seven percent (27%) of nets were currently treated (ITNs). Ever-treated and currently-treated nets were most common in the highest SES quintile households.
- Twenty percent (20%) of nets owned came packaged (“bundled”) with an insecticide treatment.
- Among nets that were treated since acquired, 84% were treated at home by a member of the household the last time they were treated, 14% were treated somewhere else (usually by a health worker), and 2% were treated by someone who came to the house specifically to treat the net.
- The source of the treatment product for nets treated at home since acquired was predominantly commercial: 74% came bundled with the net, and 7% came from another commercial source. Ten percent (10%) of treatments used came from a non-commercial source, almost always a health facility.

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<sup>3</sup> This section reports on proportions of *nets*, not on proportions of *households* owning nets.

- Brand awareness (aided) of net treatment product was moderately high: 48% of nets that were last treated at home were reportedly treated with Iconet and 11% with Solfac; 26% did not know the brand of treatment used.
- In 2004, 71% of nets had ever been washed; in 2000, 91% had ever been washed. (Note below that more nets are newer in 2004, so may not be ready to be washed.) In 2004, 35% of all nets were reportedly washed at least once a month; in 2000, 71% of nets were reportedly washed that frequently.

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

- A much greater proportion of nets owned are now manufactured rather than tailor-made: 38% of nets were tailor-made in 2000, compared with only 6% in 2004. However, 29% of nets in the Lagos site were stitched by local tailors.
- A far greater proportion of nets are now recently acquired—that is, nets are newer: In 2004, 49% of nets had been acquired within the prior 2 years. This compares in 2000 with 28%.
- Most nets (74%) were obtained from commercial sources, almost all from a market. Almost all non-commercial nets were obtained from a health facility. Lagos and Maiduguri sites had the highest proportion of nets from commercial sources: both 87%. Nsukka had by far the highest proportion of nets from a non-commercial source: 53%. There was not a large variation in source by SES.
- The brand was unknown for most (62%) commercially-made nets owned. The main brands identified by the respondent or a label were Iconet (13% overall, but 31% in Lagos) and Roll Back Malaria nets (9% overall; 24% in Kano).
- Reported net prices ranged considerably. The median price was 500 naira. [Note that because of potential problems with recall especially for older nets, and because of currency devaluations over time, these prices should be taken as very general estimates.] Over half (52%) did not know the cost of the net, and 11% of nets were obtained for free.
- Just over half (52%) of nets were obtained by the respondent's husband and about one-third (31%) by the respondent herself. There was much variation by site, with the respondent obtaining 15% of the nets in Kano, compared with 58% in Nsukka.

*Net size, shape, and color*

- People are purchasing larger nets: in 2000, 48% were double or triple/king; in 2004, 72% were.
- Almost all nets were rectangular-shaped in both years: 93% in 2000 and 96% in 2004.
- Most nets owned (62%) were white; the second most common color was green, at 14%.

## Net Preferences

- About half (51%) of respondents preferred rectangular-shaped nets and 40% preferred conical. (Although 40% preferred conical, only 3% owned a conical net.)
- There was a definitive preference for very large nets: 75% preferred triple/king nets and 18% doubles. (Although 75% preferred triple/king size, only 25% owned this size.)
- Preferred colors were white (20%), light blue (14%), and green (11%). Colors most disliked were black (46%) and the dark multi-color sample shown (30%); 14% disliked white. (Although only 20% prefer white and 14% dislike white, 62% of nets owned were white.)

## Brand awareness, and use and perceptions of other insect control products

- There is very little brand awareness in Nigeria: 6% could name a net/ITN brand unprompted, and a total of 33% recognized at least one brand after being shown a card with logos with associated brand names. Roll Back Malaria was the most recognized “brand”, at 8% (prompted and unprompted).
- Awareness of coils and aerosol insecticides was nearly universal. Use of these commercial insect control alternatives was common: 57% had used coils during the mosquito season in the past 12 months, and 57% had used aerosols. Use of coils was more common in lower SES households, and use of aerosols more common in upper SES households. These figures and trends are similar to those in 2000.
- Among various mosquito control products—coils, sprays, nets, and ITNs—ITNs are ranked highest on most attributes that people want in such products: “is a modern solution”, “is a long-term solution”, “is a high quality product”, and “reduces malaria.” Nets were ranked most highly on “is safe to use around children.” Sprays were ranked most highly on “kills mosquitoes”, “kills other insects”, “reduces malaria” and “is good value for the money”.

## Knowledge of malaria and perceptions of nets

### *Recognition of and knowledge about malaria*

- Recognition of the English term “malaria” is now nearly universal, increasing from 94% in 2000 to 99% in 2004.
- Knowledge of the symptoms of malaria was good but has improved. The main symptoms named were fever (72%), headaches/body aches (56%) weakness/tiredness (39%), and chills (31%). All of these percentages are higher than in 2000. However, only 2% mentioned convulsions (1% in 2000), a symptom of severe malaria.
- When asked what causes malaria, 86% mentioned mosquitoes, up slightly from 81% in 2000. Most people also mentioned other causes such as cold or dirty water or food (22%), the weather (22%), dirty surroundings (18%), and overwork (13%).
- The proportion of respondents knowing both vulnerable groups (children under five and pregnant women) increased from 55% in 2000 to 64% in 2004.

### *Perceived advantages and disadvantages of nets and ITNs for young children and pregnant women*

- Almost all respondents named advantages for a child under five to sleep under a net, chiefly to avoid mosquito bites (75%), sleep better (41%) and prevent malaria (32%). These were the top three advantages of a net named in 2000 as well.
- Nets for young children are now viewed more favorably: in 2000, 68% of respondents named a disadvantage for a child under five to sleep under a net; in 2004, 49% did so. The most common disadvantages named were that the net is hot to sleep under (16%), there is little air or the child might suffocate (14%), that the child can still be bothered by the mosquito noise (12%), and that mosquitoes still get in the net (10%) or bite through the net (9%).
- The most mentioned advantages for a child under five to sleep under an ITN were that it works better or child gets fewer bites than with a net (55%), it kills mosquitoes (43%), and is better at preventing malaria (37%). These were also the top three advantages of an ITN named in 2000.
- ITNs for young children are now viewed more favorably: in 2000, 62% named a disadvantage for a child under five to sleep under an ITN; in 2004 33% did so. The disadvantages most frequently cited were that the ITN could be dangerous if the child sucked on it (12%), that it smells bad (8%) or could cause irritation or cough (8%). Levels of fear about the dangers of treated nets for young children were much higher in 2000.
- Advantages most mentioned for a pregnant woman to sleep under an ITN were that it works better or she gets fewer bites than with a net (50%), it is better at preventing malaria (38%), it kills mosquitoes (33%) and the woman sleeps better (33%). In 2000, the top two advantages were that an ITN works better or she gets fewer bites than with an untreated net and it kills mosquitoes; far fewer cited any other advantage.
- ITNs for pregnant women are now viewed more favorably: in 2000, 65% named a disadvantage for a pregnant woman to sleep under an ITN; in 2004, 36% did so. The disadvantages most frequently cited were that the ITN could be dangerous to the fetus, or cause nausea or vomiting in the woman (12%), that the ITN smells bad (12%), and could cause irritation or cough (9%). Levels of fear about the dangers of treated nets for pregnant women were much higher in 2000.

### **Communication**

- The percent of respondents who had seen or heard information about nets treated with insecticide in the prior 12 months was moderate at 57%. In 2000, respondents were asked whether they had heard information about avoiding malaria in the prior 12 months; 40% said they had.
- Among those who had seen or heard information on ITNs in the last 12 months, the main sources of information were radio (33%) and health staff (33%). Other important sources were friends/ neighbors/ relatives (26%) and TV (24%). TV was most important in urban Lagos (63%), in urban areas generally (35%), and increased in importance with SES.
- Among those who had seen or heard information on ITNs in the last 12 months, the ideas that were remembered most were: Kill mosquitoes (part of the NetMark slogan) (43%), prevent malaria (34%); protect against mosquito bites (25%), and treat your net (23%).

## CONCLUSIONS

Since the baseline in 2000 in Nigeria, significant increases have occurred in net and ITN ownership, equitability of net/ITN ownership across socio-economic segments, and the number of nets/ITNs per net-owning household. A tremendous increase in the proportion of nets that are treated has occurred in the past four years. Additionally, since 2000, a higher proportion of children and pregnant women slept under nets and ITNs the prior night. The perception of nets/ITNs has become much more positive in the public mind.

The situation is extremely favorable for further expanding ITN ownership and use. The focus now should be on increasing availability and variety; on reducing the cost of ITNs, especially for vulnerable groups; and on using motivational keys to convert non-owners to owners—by more directly competing with other mosquito control products, including baby nets. Special attention should be given to net treatment—especially treatments that convert nets to long-lasting insecticide-treated nets (LLINs)—given the large quantity of untreated nets in some sites. Additionally, special effort is needed to assure that nets owned are used, and that young children and pregnant women sleep under an ITN on a more regular basis.

Favorable factors and trends include:

- There are the beginnings of a “net culture” in much of Nigeria: nets/ITNs are used across SES groups, in urban and rural households, and are generally favorably viewed. These measures have all improved since 2000.
- The majority of people have heard of ITNs, compared with very few in 2000. People differentiate between nets and ITNs, perceiving ITNs to be more effective against mosquitoes and malaria. The proportion of people with negative perceptions of the insecticide has greatly decreased since 2000.
- A high proportion of nets (much higher than in 2000) were obtained in the past 1-2 years, indicating that recent promotion and distribution efforts have been effective.
- A large minority of households own a baby net, indicating a commitment to the idea of protecting their children against mosquitoes and/or other insects. ITNs can be shown as a better investment, since the treatment makes them much more effective, they provide protection for the baby for many more years, and it can protect other household members as well.
- Most nets/ITNs are from the commercial sector, suggesting that people see nets/ITNs as a valued commodity that is worth the price. While the commercial sector has expanded since 2000, the share of nets from the commercial sector has decreased, given increased net/ITN distribution from health centers.
- There is fairly high and frequent use of aerosols and very frequent use of coils, suggesting that people see mosquitoes (and other insects) as a problem and find it worthwhile to pay to combat the problem.
- ITNs are more favorably viewed than aerosols and coils on many desired attributes; people may be open to substituting ITNs for aerosols and coils.
- Within 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.
- In 2004, more people had purchased larger nets, indicating greater availability of this preferred size.

Main barriers to overcome are:

- There is still relatively low awareness of ITNs – only 60% of respondents had heard of them. Although this is a great increase from the 7% in 2000, lack of awareness limits market expansion. Only 57% had heard or seen a message on ITNs in the prior year.
- Many nets owned – a much higher proportion than in 2000—were not used the previous night, so family members in net-owning households do not benefit from the protection nets/ITNs afford.
- Net treatment practices are inadequate, especially in Maidurugi; people need to know and act on the fact that they can convert nets to ITNs, and have easy access to treatment.
- Within net-owning households, pregnant women are not much more likely than other women to sleep under a net/ITN; incentives are needed to translate knowledge of vulnerable groups into practice.
- The perceived (and real) cost of nets is still high for many households – especially among a population largely paid on an occasional basis.
- There is still a perceived lack of availability in some areas, especially in rural areas, in Lagos and Maiduguri sites, and for households in the lowest SES segments.
- There is lack of variety in net size, shape, and color; and mismatch between features of net/ITN products available and those that consumers want.
- Commercial ITNs face weak brand recall, strong competition from free and subsidized nets, and continued frequent use of both coils and aerosols.
- As the great majority of nets were post-treated using treatment kits that came with the net, there is little experience in acquiring single treatments commercially for re-treating.
- Misconceptions about causes of malaria other than mosquitoes may limit the perception of ITNs as a solution to malaria.
- The idea that nets are not needed is a barrier to increased use, particularly in urban and upper SES households, where use of window and door screens or aerosols is common. However, the idea is also prevalent in Maiduguri, where neither use of screens nor use of other insect control products is particularly high.

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