

# Exposure to anti-malaria BCC messages: Fifth RBHS ITN dipstick survey

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## Liberia

### Rebuilding Basic Health Services (RBHS)

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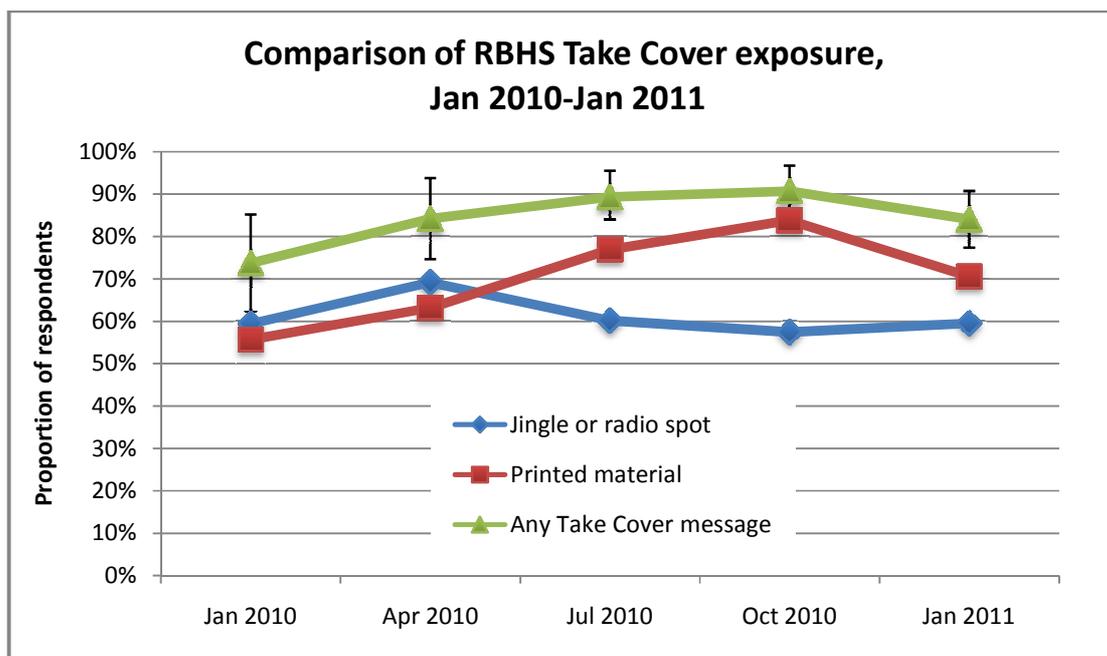
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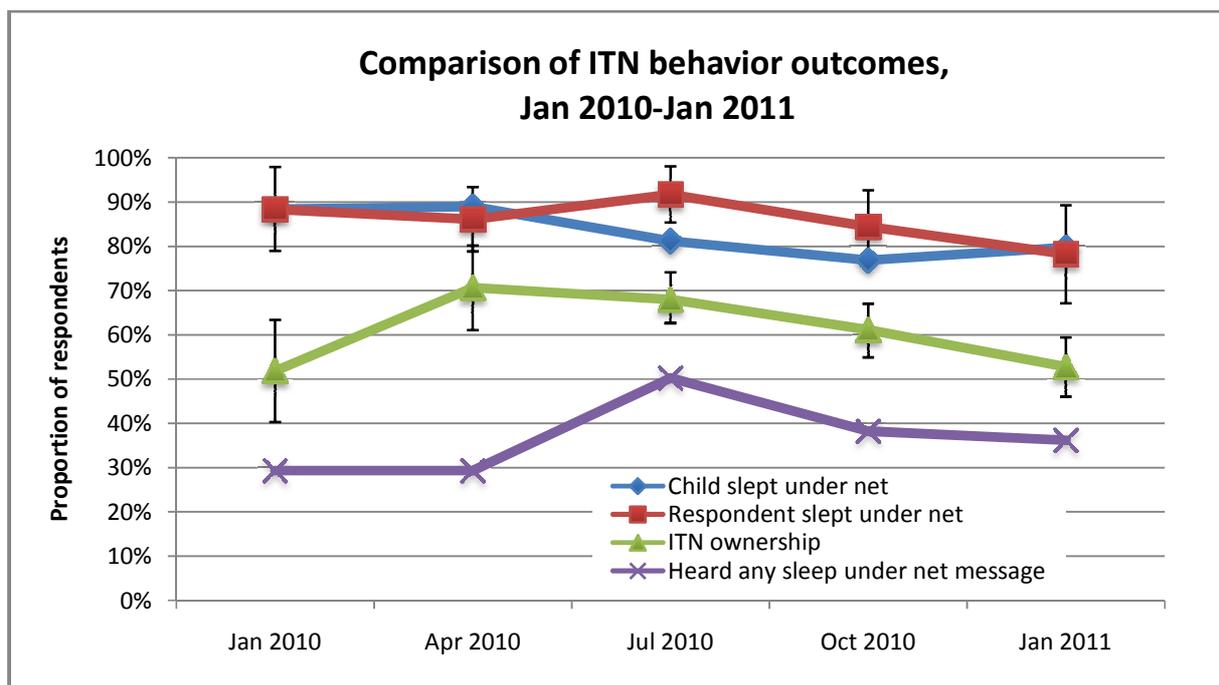
## Executive Summary

The Rebuilding Basic Health Services project (RBHS) is supporting the Ministry of Health and Social Welfare (MOHSW) to develop a comprehensive system of high-quality health services for all of Liberia through implementation of the National Health Plan and mobilization of communities. In collaboration with the National Malaria Control Program (NMCP), RBHS launched its first behavior change communication (BCC) campaign on 6 November 2009: “Take Cover” is designed to encourage people all over the country, but especially in RBHS coverage areas, to sleep under insecticide-treated mosquito nets (ITNs). The campaign concentrates where ITNs have already been distributed: Nimba, Lofa, Bong, Grand Cape Mount, and River Gee Counties. The campaign uses a variety of media to get across its message: UNMIL radio, community radio, bulk SMS texting, posters, brochures, stickers, and word of mouth. To maximize the campaign’s effectiveness, RBHS needs to quantify how many people are being reached by the message, and through which media.

This fifth “dipstick” survey’s primary objective was to measure how well the ITN campaign is reaching its target population through a very short and simple study: To find out what proportion of women with children under five have been exposed to the Take Cover message and through what media. The survey followed a cluster design, interviewing 162 mothers of children under five in 27 randomly selected communities in RBHS catchment areas in Grand Cape Mount, Lofa, Bong, Nimba, and River Gee Counties during the week 24-30 January 2011. Four teams of three or four people (two interviewers and one or two supervisors) conducted the survey using EpiSurveyor on Nokia E63 cell phones. Interviewers showed respondents posters, leaflets, and stickers, and also played clips of the Take Cover jingle and one radio spot to test recognition of campaign components.

The results, summarized in the two figures below, which compare key results from all five dipstick surveys, show that 84% of respondents have seen or heard some Take Cover message. Moreover, while most women and children who have nets are sleeping under them, only 53% of the households surveyed had a net present, limiting the effect of the campaign. On the other hand, it is encouraging that of people who remember hearing some message on malaria, the most common message reported is to sleep under a net. Community-level progress continues to be less than expected, with few people hearing messages from chiefs or from gCHVs, and when they do hear messages, it tends to be about keeping surroundings clean rather than sleeping under a net.





The survey reveals that already about a quarter of women report have heard a message about fever management, and of those, most have heard that they should take the children to a health facility or sponge/bathe the child with cold water, messages that are core to BCC campaigns. Moreover, most women – whether conscious of having heard such messages or not – already take the right actions when their children have a fever, which means that the RBHS BCC campaign can build on existing efforts and does not have to break many bad habits.

Measuring exposure to the upcoming campaign must take into account that almost a quarter of women reported having heard a jingle and radio spot that has never been aired on the radio. That result allows for calibration of future results, suggesting that that many people will falsely recognize anything, and that true recognition is substantially less than what survey results show. One caveat is that the jingle and spot played during this survey were not the final campaign productions, and were probably too generic to be distinctive, which may explain the high recognition.

## **1 Study context and justification**

The Rebuilding Basic Health Services project (RBHS) is supporting the MOHSW to develop a comprehensive system of high-quality health services for all of Liberia through implementation of the National Health Plan and mobilization of communities. RBHS uses a three-pronged strategic approach: 1) strengthening and extending health services to clinics and communities through performance-based contracts to NGO partners; 2) strengthening Liberia's health system in the areas of human resource management, infrastructure, policy development, and monitoring and evaluation; and 3) preventing disease and promoting more healthful behaviors through behavior change communication (BCC) and community mobilization.

Malaria remains the major cause of morbidity and mortality in Liberia. The RBHS approach to improving malaria prevention and control is closely linked to the Operational Plan of the President's Malaria Initiative (PMI) and has been designed following close consultation with the National Malaria Control Program (NMCP). It includes components that address BCC, clinical services at facility and community levels, training, and capacity building and management support of the NMCP. A particular focus is on preventing malaria in children under five and pregnant women, the populations for whom malaria can be most dangerous.

RBHS' first BCC campaign was launched with NMCP on 6 November 2009: "Take Cover" is designed to encourage people all over the country, but especially in RBHS coverage areas, to sleep under insecticide-treated mosquito nets (ITNs). The campaign initially concentrated where ITNs have already been distributed: Nimba, Lofa, Bong, and River Gee Counties. The campaign uses a variety of media to get across its message: UNMIL radio, community radio, bulk SMS texting in partnership with Cellcom, posters, brochures, stickers, and word of mouth. To maximize the campaign's effectiveness, RBHS needs to quantify how many people are being reached by the message, and through which media.

RBHS will be launching soon another BCC campaign on early case management of malaria to promote effective management of fever at the community level. Modules on early case management will be included on future dipstick surveys and were included in this survey to provide a baseline.

The first of the quarterly "dipstick" surveys was conducted in January 2010; the one described in this report is the fifth.

## **2 Objectives**

### **2.1 Main objective**

The study's primary objective was to measure how well the ITN campaign is reaching its target population over the coming year.

### **2.2 Study questions**

1. Of mothers with children under five in the study area, what percentages have been exposed to the Take Cover and early case management messages?
2. Of people who have been exposed to the messages, how have they been exposed (by what media)?
3. Of people who have been exposed, what percentages have understood the message?

Answers to the study questions will help RBHS to analyze the success of the campaign and modify activities to improve its effectiveness.

### 3 Methods

#### 3.1 Study population

The study population included all mothers of children under five living in the catchment areas of RBHS facilities in Grand Cape Mount, Lofa, Bong, Nimba, and River Gee Counties, the total catchment population being just under 600,000 people. Note that this is the third dipstick survey to cover Grand Cape Mount and River Gee Counties; the first two covered only Lofa, Bong, and Nimba Counties.

#### 3.2 Study design

The dipstick study is a two-stage cluster design, with 27 clusters and 6 samples within each cluster. (See sample size calculation below.) A cluster is a locality as defined during the 2008 Liberia Census. The study area consists of all localities within the catchment areas of RBHS-supported facilities. All communities within that area were listed, with their populations, and in the first stage of the survey, 27 were selected at random proportional to their populations. The 27 communities represent less than 1% of the total 3,099 localities in the study area, but almost 2% of the total population.

The household was the primary sampling unit and unit of analysis. In the second stage, within each cluster, six households were selected, giving a total of  $27 \times 6 = 162$  households.

#### 3.3 Sample size calculation

The sample size was calculated using the following formula:

$$n = \frac{EZ^2 p(1-p)}{d^2}$$

where

$E$  = design effect accounting for a cluster survey design,

$Z = 1.96$  (for 95% confidence interval),

$p$  = expected proportion with the characteristic of interest, and

$d$  = half the desired width of the confidence interval ( $\pm d$ ).

While the proportion of the population is known approximately from previous surveys, there are several indicators to be measured, all with different proportions; for the purposes of estimating sample sizes, the proportion will be taken to be the worst case, 50%. The desired precision is  $\pm 10\%$ . The design effect can vary greatly from survey to survey and even from question to question within the same survey. An average value from previous RBHS dipstick survey for key indicators is  $E = 1.65$ . (Note that the design effect specified here is often denoted as “deff”, which is the square of “deft”, also sometimes referred to as “design effect”.)

Using the above values, the sample size is calculated to be 159. Using six samples per cluster, as in past dipstick surveys, the minimum number of clusters is 27, which gives a total sample size of  $27 \times 6 = 162$ .

#### 3.4 Sampling method

As described above, 27 clusters were selected randomly proportional to population. Within each cluster, one household was selected at random from 2008 Census listings before field work began, then the other five were selected systematically (every third house encountered by walking in an initial random direction) once in the field. However, all study households had to include a woman with children under five, so each household was first screened for the presence of such women. If no such woman was a member of the household, another household was selected by visiting the next closest house. (And if no

woman at the closest neighbor was home, the next closest neighbor was visited, continuing until the team found someone at home.)

For households with multiple women having children under five, the sampling scheme included a third stage, in which from a given household a single woman was randomly selected from among those who had children under five. The interviewer wrote the names of all qualifying women on separate scraps of paper, then asked someone else to select one piece of paper without seeing the names. In such a case, the household may still be considered to be the unit of analysis, since there was exactly one woman interviewed per household.

One survey question related to children under five sleeping under an ITN. For that question, the study population is all children under five in the study area, but from each household only one child under five was selected. If there was only one such child in a household, that child was automatically the subject of the question. If there were two or more children under five, then one was selected randomly (using the same method as described above for selecting the respondent) and that child became the subject of the question.

### **3.5 Study period**

Data collection was done during the week 24-30 January 2011. The study questionnaire generally asked about exposure to messages in the past four weeks (fever in the past two weeks), with the exception of Take Cover materials; respondents were asked, for instance, if they had seen a displayed poster, without specifying a time period.

### **3.6 Data collection**

Data were collected by four teams of three or four trained people each: two interviewers and one or two supervisors. The teams covered two to 11 clusters each, depending on the number of clusters in each county, interviewing six households per community. The team members visited each community together, with each interviewer- pair going separately to individual houses. In teams with a single supervisor, the supervisor moved alternately from one interviewer to the other.

Interviewers used a structured questionnaire that was field-tested in a community in Bomi County. Written informed consent to be interviewed was obtained from each respondent before beginning the questions. Data were entered in the field using Nokia E63 cell phones loaded with an EpiSurveyor-based version of the questionnaire. The questionnaire was written in simple English, but was verbally translated by the interviewer into the local language if the respondent was not comfortable in English. It was not feasible to make written translations of the questionnaire into all possible local languages, nor can most people read local languages.

Recall was assessed by first asking for unprompted responses to questions about malaria messages seen or heard. Only after recording answers did interviewers address recognition through use of multimedia supplementary material. For instance, to test recognition of a jingle and radio spot, interviewers played recordings from the cell phone. Interviewers played the jingle first; the much longer radio spot was played only after asking questions about the jingle. The radio spot led off with a few seconds of the jingle. While radio spots are broadcast in 11 different languages, the survey teams played only the version in the language for which the respondent was most comfortable. Similarly, for recognition of the posters, leaflet, and sticker, interviewers showed full-color, A4-size paper copies, including two posters that were not part of the Take Cover campaign. The posters and other material were displayed simultaneously, pasted on one large sheet of paper:

1. Old MOHSW ITN poster (not Take Cover)
2. Take Cover poster (pregnant woman alone under net)
3. "Fake" ITN poster, used in Ghana, but never in Liberia (not Take Cover)

4. Take Cover poster (couple under net)
5. Take Cover poster (four photos of different net placements)
6. Take Cover leaflet (brochure)
7. Take Cover sticker

### **3.7 Data analysis**

Data were uploaded from the cell phones into the Web-based Epi-Surveyor and exported into an Excel file to be analyzed using Stata/IC 11.0. Frequency distributions of all variables were produced to facilitate data cleaning, and then frequencies and confidence intervals were calculated with Stata. The confidence intervals were adjusted using robust variance estimates to account for the cluster design of the survey. For the questions about children under five and number of women sleeping under a net the previous night, responses were weighted based on the number of children under five and women, respectively, who slept in the household the previous night.

While extensive bivariate analysis could not be supported by the small sample size, some selected analysis was conducted for key factors such as county of residence using Stata's svy: logistic function, which adjusted p-values to reflect the cluster design. The same function was used to compare results from this survey with earlier dipstick surveys.

## **4 Ethical considerations**

No experimentation was carried out on human subjects. The questionnaire was brief and took an average of 10-15 minutes to administer to each household, causing a minimum of inconvenience for the respondents. No questions were likely to be emotionally disturbing, and there were no physically invasive examinations.

Respondents did not directly benefit from the survey, but the study results will be used to make current project activities more effective, which will benefit the entire study population.

Written informed consent was obtained from each study respondent. Confidentiality of responses will be assured by restricting access to the computer database to the two study investigators.

## 5 Results

No one declined to be interviewed. The total number of respondents was 163 (the planned 162, plus an extra interview in one community). A summary of the survey responses follows.

### 5.1 Household characteristics

Due to the intentionally quick and focused nature of this dipstick survey, few questions not related to malaria and ITNs were asked. Those characteristics are summarized in Table 1 below.

*Table 1: Household characteristics*

Characteristic	January 2011				
	n	Freq/ mean	%	95% confidence interval	
<b>Respondent's age in years (mean)</b>	163	29.2		28.0	30.4
<b>Number of children U5 who slept in HH previous night (mean)</b>	163	1.8		1.6	2.0
<b>Age of selected child in years (mean)</b>	163	2.6		2.4	2.8
<b>Pregnant respondents</b>	163	26	16%	10%	22%
<b>Distance from nearest health center</b>	163				
<b>1 hour or less</b>		64	39%		
<b>2 hours or less but more than 1</b>		54	33%		
<b>3 hours or less but more than 2</b>		18	11%		
<b>4 hours or less but more than 3</b>		13	8%		
<b>More than 4 hours</b>		0	0%		
<b>Do not know or no answer</b>		14	9%		
<b>Have radio in household</b>	163	56	34%	28%	41%

Although not important for the purposes of this survey, several results in the table have been consistent across all five surveys and may be valuable to inform other interventions. In particular, the percentage of respondents (i.e., women with children under five) who were pregnant has ranged between 12% and 16% through the five surveys, with a combined mean of 13.8% (95% confidence interval from 11.5% to 16.2%). The percentage of respondents living one hour or less from a health facility has ranged from 42% to 50% with a combined mean of 46.7% (95% CI from 37.3% to 56.2%). Finally, radio ownership has ranged from 25% to 34%, with a combined mean of 32.5% (95% CI from 28.1% to 37.0%); by comparison, the 2007 DHS survey found that 39.3% of rural households owned a radio; the 2009 Malaria Indicator Survey found 37.5%.

### 5.2 ITN ownership and message exposure

As seen from Table 2 below, only 53% of households had an ITN, down from the peak of 71% in April and 61% from the October survey. Most respondents and their children under five slept under a net if they had one (78% and 80%, respectively). Of the 26 pregnant women surveyed, just under half had an ITN in the household, and two-thirds of those slept under a net the previous night. Recent dipstick

surveys have found higher net ownership among pregnant women (63-68%), but the baseline in January 2010 had results very close to this one.

Table 2: ITN ownership and message exposure

Indicator	January 2011				
	n	Freq	%	95% confidence interval	
ITN in household	163	86	53%	42%	64%
Respondent slept under ITN last night (if owned)	86	68	78%	67%	89%
Under five child slept under ITN last night (if owned)	86	71	80%	67%	92%
Pregnant and have net	26	12	48%	26%	71%
Pregnant and slept under ITN last night (if owned)	12	8	60%	21%	99%
Heard any malaria message on radio in last 4 weeks	163	67	41%	30%	52%
Heard any malaria message from chief in the last 4 weeks	159	23	14%	8%	29%
Heard any malaria message from cultural troupe in last 4 weeks	159	9	7%	1%	13%
Heard malaria message from gCHV in last 4 weeks	162	28	20%	13%	28%
Heard or seen other malaria messages in last 4 weeks	163	22	15%	8%	22%
Heard any malaria message (unprompted)	163	94	58%	47%	69%

\*Note: Proportion for children sleeping under a net as well as that of respondents sleeping under a net are weighted by number of U5 in household and number of women in household, respectively.

No household characteristic factors were significantly associated with having a net or not, a change from previous surveys in which households in some counties were more likely to have ITNs than others.

As shown in Table 1, about a third of respondents had a radio in their household. From Table 2, one can also see that 41% of respondents had heard a message about malaria on the radio in the past four weeks, with Grand Cape Mount respondents far more likely than those in other counties to hear a message (OR=18.7, p=0.001) and River Gee respondents far less likely (OR=0.17, p<0.0005). As might be expected, people with radios were nearly three times as likely to have heard a message on the radio as those without (OR=2.74, p=0.0005). Owning a radio, however, does not ensure hearing a message, nor does it preclude hearing a message.

The proportions of respondents who heard a malaria message from a chief (19%) or cultural troupe (7%) are still low, as in previous surveys. Exposure varied by county, with respondents in Grand Cape Mount over 10 times as likely to have heard a message from a chief (58%) as those in Nimba, River Gee, Lofa and Bong (11%) (OR=11.6, p=0.001). This survey included for the first time explicit questions about gCHVs, but only 35% of respondents knew that they had a gCHV serving their community, and only 20% reported having heard a malaria message from a gCHV. Even when women heard malaria messages from one of these three sources, only a third of the time was the message to sleep under a net; the message heard by a majority of respondents was to keep their surroundings clean.

A few respondents reported hearing or seeing malaria messages from sources other than radio, chiefs, cultural troupes, or gCHVs; 64% of those got the message at a health facility and 64% said that the message was to sleep under a net. To summarize, over 60% of respondents who heard a message from the radio or a health facility said that the message was to sleep under a net; when hearing a message from chiefs, cultural troupes, or gCHVs, only a third of respondents reported the sleep-under-a-net message.

Combining responses from all five questions (radio, chief, cultural troupe, gCHV, other) shows that over half (58%) of respondents had seen or heard (without being prompted – that is, without the interviewer playing a radio spot or displaying a poster) some malaria message during the previous four weeks. The

messages they reported hearing, without being prompted, are shown graphically in Figure 1. (Note that the percentages add up to more than 100% because some respondents reported more than one message. Identical messages from the same respondent – i.e., for two different questions – are not counted twice.) Of those who heard messages, 63% reported having heard a sleep-under-the-net message, but 53% heard a message about keeping their surroundings clean.

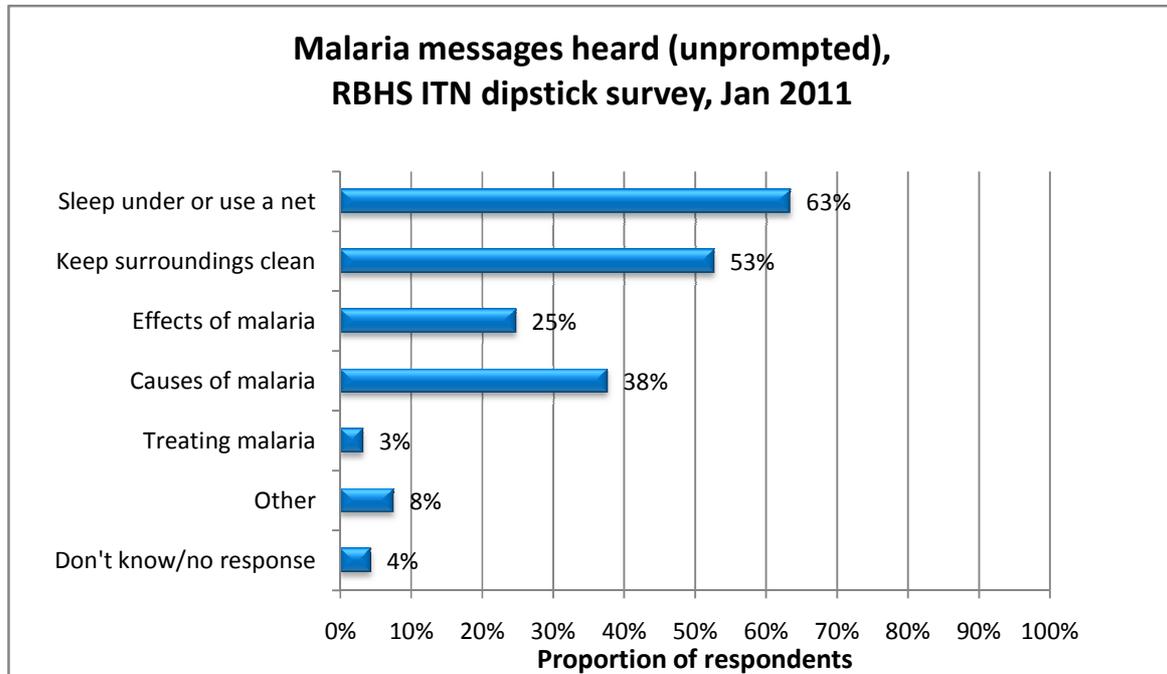


Figure 1

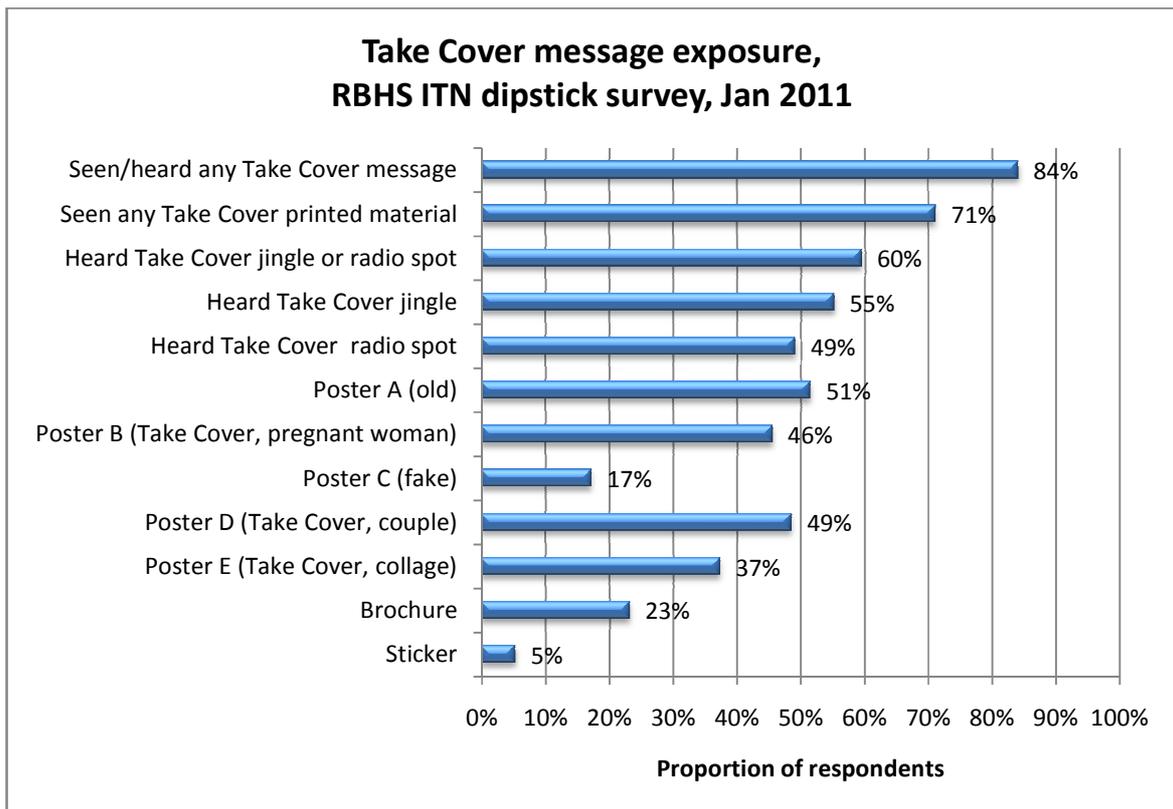
### 5.3 Exposure to Take Cover messages

Table 3 and Figure 2 below summarize exposure to the Take Cover jingle, radio spot, three posters, brochure, and sticker, as well as the two non-RBHS posters. (The questions addressing these materials did not specify “in the past four weeks”, so were effectively assessing whether respondents had ever been exposed to them.) Overall exposure remained high (84%), though a drop in poster recognition suggests that the 14-month display of posters may be fading into the background for many women, losing its effectiveness. By far the most common place to have seen printed material was in health facilities (83%). Although not part of the survey, interviewers often asked to see the poster if a respondent said it was in her own house, and invariably it was in fact a Take Cover poster.

Table 3: Take Cover message exposure

Question	n	Freq	%	95% confidence interval	
Heard Take Cover jingle	163	90	55%	43%	67%
Heard Take Cover radio spot	163	80	49%	37%	61%
Heard Take Cover jingle or radio spot	163	97	60%	48%	71%
Recognized any poster	163	134	82%	75%	89%
Poster A (old)	134	69	51%	39%	64%
Poster B (Take Cover, pregnant woman)	134	61	46%	35%	56%

Question	n	Freq	%	95% confidence interval	
Poster C (fake)	134	23	17%	10%	25%
Poster D (Take Cover, couple)	134	65	49%	40%	57%
Poster E (Take Cover, collage)	134	50	37%	27%	48%
Brochure	134	31	23%	14%	32%
Sticker	134	7	5%	0%	10%
Seen any Take Cover printed material	163	116	71%	61%	81%
Location of last poster seen	134				
Health facility		118	88%		
Neighbor's or own house		0	0%		
Market		1	1%		
Palava hut		0	0%		
gCHV/TTM		5	4%		
Other		10	7%		
Don't know/no answer		3	2%		
Seen/heard any Take Cover message	163	137	84%	77%	91%



*Figure 2*

Take Cover material recognition was uniformly high across all counties (ranging from 77% in River Gee to 100% in Grand Cape Mount), but radio coverage was much lower in River Gee than the other counties, with River Gee respondents over five times less likely to have heard the Take Cover jingle or radio spot

than women in the other counties (OR=0.18, p<0.0005). Poster recognition ranged from 63% in Nimba to 100% in Grand Cape Mount.

The purpose of exposing people to the Take Cover campaign is ultimately to result in changed behavior (increased sleeping under ITNs). Are there any signs of such change? More precisely, is there any association with Take Cover exposure and sleeping under a net? The answer appears to be no: Unlike previous dipsticks, this survey found no significant association between exposure to Take Cover messages and ITN utilization. Actually respondents who were exposed to Take Cover messages were less likely to sleep under nets – as were their children – than those who had not been exposed, though the effects were not statistically significant (OR=0.30, p=0.141 and OR=0.11, p=0.056, respectively). This sort of result, like the positive results from previous surveys, is unstable because of the small number of respondents who were not exposed to Take Cover; changes for just two or three people can completely reverse the effect.

#### 5.4 Comparison of survey results over time

Two factors make it difficult to make accurate comparisons among the five dipstick surveys conducted so far: 1) subtle improvements in the way some questions are asked since the first survey and 2) the addition of two new counties to the two surveys since April. The first factor is relatively minor, since addressing it means simply not being able to compare results for certain questions. The second factor is more problematic, since the study populations changed, and differences in survey results may be due at least in part to differences in the study populations, but in fact restricting the results of this survey to just the original three counties (Bong, Nimba, and Lofa) reveals virtually no difference.

Table 4 shows a detailed comparison across surveys for key variables. When the odds ratio (OR) and p-value (p) are shown, the reference group is always the baseline dipstick survey in January 2010.

Table 4: Comparison of indicators over time

Indicator	n	Freq	%	OR	p
<b>Seen any Take Cover print material</b>					
Jan-10	133	75	56%		
Apr-10	133	84	63%	1.33	0.396
Jul-10	169	130	77%	2.58	0.001
Oct-10	161	135	84%	3.87	0.000
Jan-11	163	116	71%	1.91	0.045
<b>Heard Take Cover jingle or radio spot</b>					
Jan-10	133	79	59%		
Apr-10	133	92	69%	1.53	0.263
Jul-10	168	101	60%	1.03	0.932
Oct-10	162	93	57%	0.92	0.822
Jan-11	163	97	60%	1.00	0.990
<b>Seen/heard any Take Cover message</b>					
Jan-10	133	98	74%		
Apr-10	133	112	84%	1.90	0.131
Jul-10	169	151	89%	2.82	0.010
Oct-10	162	147	91%	3.26	0.009

Indicator	n	Freq	%	OR	p
Jan-11	163	137	84%	1.88	0.086
<b>Have ITN in house</b>					
Jan-10	133	69	52%		
Apr-10	133	94	71%	2.24	0.017
Jul-10	169	115	68%	1.98	0.048
Oct-10	162	99	61%	1.46	0.263
Jan-11	163	86	53%	1.04	0.914
<b>Respondent slept under net</b>					
Jan-10	69	61	88%		
Apr-10	94	81	86%	0.82	0.703
Jul-10	109	100	92%	1.46	0.524
Oct-10	99	82	84%	0.63	0.376
Jan-11	86	68	78%	0.50	0.199
<b>Heard any sleep under net message (unprompted)</b>					
Jan-10	133	39	29%		
Apr-10	133	39	29%	1.00	1.000
Jul-10	169	85	50%	2.44	0.007
Oct-10	162	62	38%	1.49	0.211
Jan-11	163	59	36%	1.37	0.339

The three main Take Cover exposure indicators are compared in Figure 3 below for each of the five dipstick surveys to date; vertical bars show 95% confidence intervals. Overall exposure remains higher than the January 2010 baseline – though not significantly so (OR=1.88, p=0.084) – albeit down somewhat from October, though not significantly so. The decline was driven by a drop in poster recognition, though respondents still recognized posters at a level significantly above the baseline (OR=1.85, p=0.050).

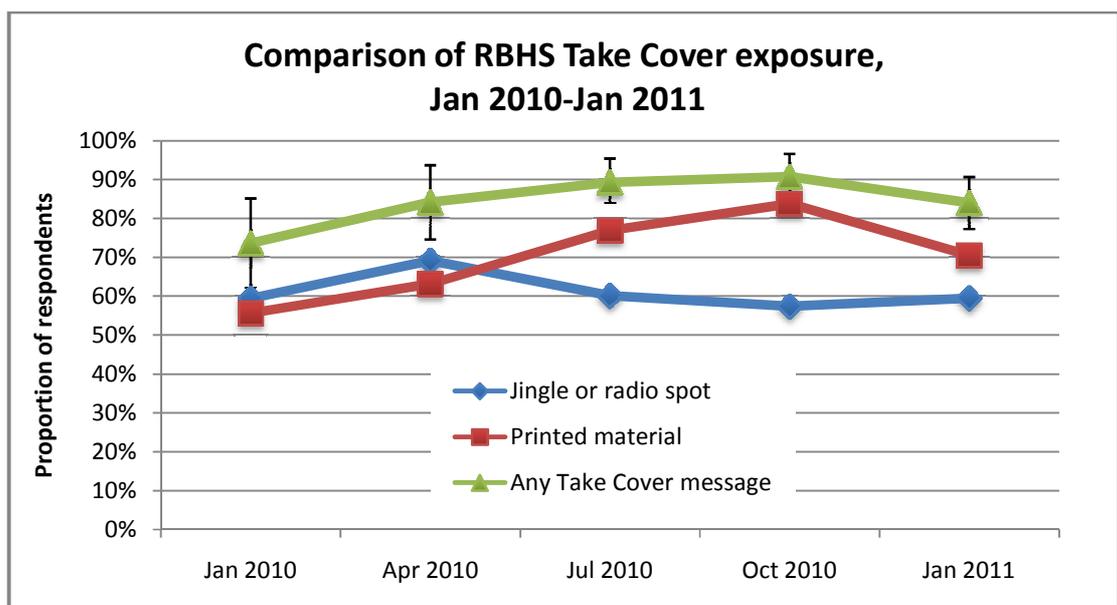


Figure 3

Figure 4 illustrates trends over time in key behaviors, though the Take Cover campaign primarily addresses only sleeping under nets, not ITN ownership. However, it is important to note the (significant) decline in ITN ownership over the past year. Though it is not a behavior, also plotted on the graph is the trend in proportion of respondents who – unprompted – reported having heard the sleep-under-a-net message, for visual comparison with the trends in behavior.

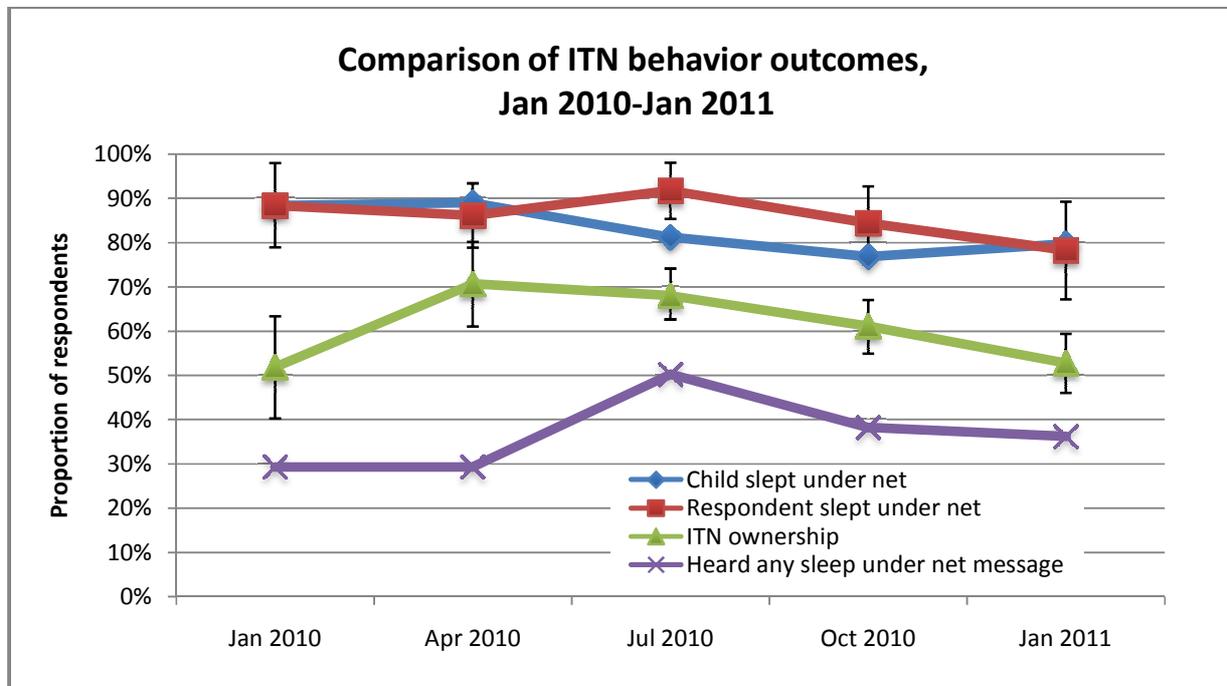


Figure 4

## 5.5 Early case management

This is the first time the dipstick survey has measured exposure to RBHS early case management messages; since the campaign had not yet begun at the time of the survey in January, these results, shown in Table 5 below, will set a baseline for comparison with future survey results. The table shows only the most common responses, excluding responses given by only a few respondents.

Table 5: Early malaria case management

Question	n	Freq	%*	95% confidence interval*	
<b>Heard advice on fever management</b>	163	39	24%	15%	33%
Take child to health facility	39	27	69%	52%	87%
Sponge or bathe child with cold water	39	22	56%	36%	76%
<b>Child ill with a fever at any time in the last 2 weeks</b>	163	84	52%	41%	62%
<b>How to know that child has a fever?</b>					
By feeling skin/ skin was hot	84	44	52%	40%	64%
Jerking/shivering	84	10	12%	4%	20%
Vomiting	84	6	7%	1%	13%
Running stomach or watery stool	84	5	6%	0%	12%

Question	n	Freq	%*	95% confidence interval*	
<b>First thing done for child's fever</b>					
Sponged or bathed child with cold water	84	33	39%		
Took child to health facility	84	33	39%		
Gave anti-malaria drug	84	6	7%		
<b>Sought treatment for fever from any source?</b>	84	32	38%	26%	50%
Within one day (within 24 hrs)	32	19	59%		
2 days	32	10	31%		
3 to 5 days	32	2	6%		
More than 5 days	32	1	3%		
<b>Where treatment was obtained</b>					
Health facility	32	25	78%	62%	94%
Drug store/ pharmacy	32	5	16%	0%	31%
Home-based care	32	1	3%	0%	16%
Black bagger	32	1	3%	0%	16%
<b>Got help from a gCHV for child's illness</b>	84	6	7%	1%	13%
<b>Child took drugs for the illness</b>	84	73	87%	80%	94%
Within one day (within 24 hrs)	73	43	59%		
2 days	73	20	27%		
3 to 5 days	73	7	10%		
More than 5 days	73	1	1%		
<b>Drug taken</b>					
ACT	73	38	52%	40%	64%
Antipyretic drug	73	33	45%	34%	57%
Chloroquine	73	7	10%	2%	17%
Artesunate	73	3	4%	0%	10%
Quinine	73	3	4%	1%	12%
Fansidar	73	1	1%	0%	7%
Other anti-malaria drug	73	2	3%	0%	10%
<b>Child completed treatment</b>	71	57	80%	70%	91%
<b>Fever treated with 24 hours of onset</b>	84	43	48%	35%	61%
<b>Fever treated with ACT</b>	84	38	49%	35%	64%
<b>Fever treated with ACT within 24 hrs</b>	84	23	28%	18%	39%
<b>Heard case management jingle or radio spot</b>	163	37	23%	14%	31%

*\*Responses weighted by number of children in household*

As with the Take Cover campaign assessment, most early case management questions were asked without any mention of the BCC campaign; in fact, the data in Table 5 were all collected without mentioning the specific RBHS campaign, except the last row, giving the proportion of respondents who had heard the campaign's jingle or radio spot – 23% said that they had heard one or the other, despite the fact that neither one had been aired at the time of the survey. Nonetheless, about a quarter of the respondents reported having heard some message on malaria case management, and virtually all of them had heard either that they should take the child to a health facility or sponge/bathe the child with cold water.

More important, when asked what the first thing they had actually done for a child who had fever in the past two weeks, almost 80% of respondents said they followed exactly those two points of advice, even

though most of them had not reported hearing those messages. (Indeed, having heard advice on fever management was not significantly associated with key behaviors.) Of respondents who treated their feverish children with drugs, over half treated them within 24 hours and over half with ACT. When all children are considered – not just those who were given drugs – about half were treated within 24 hours and half with ACT, but not generally the same children; only 28% were treated both within 24 hours and with ACT.

Also of interest is whether children who sleep under ITNs are less likely to have fever. From the data in this survey, the answer is that there is no association between having slept under a net the previous night and having had fever within the past two weeks (OR=0.83, p=0.626).

## **6 Discussion**

### **6.1 Exposure to ITN messages**

The five counties covered by this survey were selected because mass ITN distribution had been done there within the past two years. However, the slow decline in reported ITN ownership – almost back to baseline – suggests that nets are wearing out and not being replaced, which continues to impose a limitation on the potential impact of the Take Cover campaign and sleep-under-a-net messages in general. Nonetheless, it is encouraging that high proportions of women and children continue to sleep under nets if they are present in the household. More disappointing is that the proportion of pregnant women who slept under a net if there was one in the household dropped to 60%; previous surveys found proportions ranging from 85% to 100%. However, since so few women were pregnant and owned nets – only 12 in this survey – the sample size is too small to draw any conclusions.

While nearly two-third of respondents who had heard some malaria message had heard a sleep-under-a-net message, it remains disturbing that so many women –over half of the respondents – are continuing to hear the clean-your-surroundings message.

### **6.2 Exposure to Take Cover campaign**

The Take Cover campaign continues to be effective in reaching large numbers of people through radio and posters, though the effectiveness of both those media has naturally declined over time as the same messages fade into the background. It is unlikely that the current campaign can achieve more than the 91% reached in October, and it is possible that exposure will continue to decline over time. It remains clear that to increase both exposure and the effectiveness of that exposure, more personal channels must predominate now that the foundation has been solidly laid.

Few people to date have reported hearing messages from chiefs, cultural troupes, or gCHVs, and when they do hear messages, it tends to be about keeping surroundings clean rather than sleeping under a net. By the end of March 2011, RBHS, with Crusaders for Peace and the National Tradition Council, completed ITN advocacy meetings in all 15 counties; the next step is to ensure that such advocacy filters down to the community level. The involvement of gCHVs has been delayed by difficulties in printing community health education packages called CHEST kits, but those are now scheduled to be printed and disseminated within the next two months, and should lead to more people sleeping under nets.

### **6.3 Early case management**

This survey has provided a baseline for future assessments of early case management campaigns, revealing that already about a quarter of women report having heard a message about fever management, and of those, most have heard that they should take the children to a health facility or sponge/bathe the child with cold water, messages that are core to BCC campaigns. Moreover, most women – whether conscious of having heard such messages or not – already take the right actions when their children have a fever, which means that the RBHS BCC campaign can build on existing efforts and does not have to break many bad habits.

Measuring exposure to the upcoming campaign must take into account that almost a quarter of women reported having heard a jingle and a radio spot that have never been broadcast. That result allows for calibration of future results, suggesting that that many people will falsely recognize anything, and that true recognition is substantially less than what survey results show. One caveat is that the jingle and spot played during this survey were not the final campaign productions, and were probably too generic to be distinctive, which may explain the high recognition.

## **6.4 Study limitations**

The primary limitation of this study is the same as that of any study assessing message exposure: People may claim to remember seeing a poster or hearing a radio spot just to satisfy the interviewer or because it indeed seems familiar to them, but they may have it mixed up with a non-RBHS message. To mitigate that problem, the dipstick questionnaire included several questions along the lines of “Have you heard any message and what was it?” before presenting posters and radio jingles, to test what respondents could recall, not just recognize. Moreover, while three Take Cover posters were included, so too were an older non-RBHS poster and a “fake” poster that has never been used in a campaign in Liberia. As noted in section 5.4, the fact that only 17% of respondents report having seen the fake poster versus 46%, 49% and 37% for the three Take Cover posters, suggests that people are truly distinguishing among different posters.

## **6.5 Conclusions**

The dipstick survey was effective in answering questions about people’s use of bed nets, exposure to the message to sleep under nets, and providing baseline data for a BCC early case management campaign. Exposure to the Take Cover campaign seems to have reached its peak and is not likely to increase with radio and posters as the primary channels. It is critical to roll out activities at the community level, especially with chiefs and gCHVs.

## **Annex: Questionnaire and consent form**

*[see next pages]*

**RBHS ITN dipstick survey, form updated 16 December 2010**

<b>COUNTY</b>	<b>DISTRICT</b>	<b>COMMUNITY/SETTLEMENT</b>	<b>DATE (DD/MM/YY):</b>
<b>INTERVIEWER :</b>		<b>EA Code:</b>	<b>HOUSEHOLD ID#</b>
<i>Team Supervisor must sign below to confirm that the questionnaire is satisfactorily completed</i>			
<b>RESPONDENT INFORMATION</b>			
NAME		NAME	SIGNATURE E
DATE (DD/MM/YY)			

*Respondent must be a mother with children under five; if there are more than one available to be interviewed, select one at random.*

#	Interview Question	Answers
0	How many women with children less than five years slept in this household last night?	1= One    2= Two    3= Three    4= Four 5= Five    6=Six    7=Seven or more    9= Don't know/No answer
<i>Ask for the names of each of those women with under five, and select one at random; If she does consent to being interviewed, ask her the following questions:</i>		
1.0	How old are you?	_____ years
2.0	How many children under five slept in this household last night?	0= Zero/none    1= One    2= Two    3=Three    4=Four 5= Five    6=Six    7=Seven or more    9= Don't know/No answer
<i>Ask for the names of each of those children under five, and select one at random; use his or her name in Questions 3.0 and 5.2</i>		
3.0	How old is [NAME]?	1= Less than 12 months    2= 12 to 23 months    3=24 to 35 months 4=36 to 47 months    5=48 to 59 months    9= Don't know/No answer
4.0	Are you pregnant now?	0= No    1= Yes    9= Don't know/No answer
5.0	Do you have any treated mosquito nets in this household?	0= No ⇒ <b>Q#6</b> 1= Yes    9= Don't know/No answer
5.1	Did you sleep under a treated mosquito net last night?	0= No    1= Yes    9= Don't know/No answer
5.2	Did [NAME] sleep under a treated mosquito net last night?	0= No    1= Yes    9= Don't know/No answer
6.0	How long does it take to get from your house to the nearest health clinic or hospital?	1= 1 hour or less    2= 1-2 hours (incl. 2, not 1)    3=2-3 hours (incl. 3, not 2) 4=3-4 hours (incl. 4, not 3)    5=more than 4 hours    9= Don't know/No answer
7.0	Do you have a radio in your household?	0= No    1= Yes    9= Don't know/No answer
8.0	Have you heard any information about malaria on any radio in the past four weeks?	0= No ⇒ <b>Q#9</b> 1= Yes    9= Don't know/No answer
8.1	What was the last message you heard on the radio? <i>(multiple responses allowed)</i>	1=Sleep under or use a mosquito net    2= Keep surrounding clean    3=Effects of malaria 4= Causes of malaria    5=Treating malaria    8=Other    9= Don't know/No answer
8.2	<i>(If Other, write specific response)</i>	
9.0	Have you heard any message on malaria from a chief in the past four weeks?	0= No ⇒ <b>Q#9a.0</b> 1= Yes    9= Don't know/No answer
9.1	What was the last message you heard from a chief? <i>(multiple responses allowed)</i>	1=Sleep under or use a mosquito net    2= Keep surrounding clean    3=Effects of malaria 4= Causes of malaria    5=Treating malaria    8=Other    9= Don't know/No answer
9.2	<i>(If Other, write specific response)</i>	
9a.0	Have you heard any message on malaria from a cultural troupe in the past four weeks?	0=NO ⇒ <b>Q#10</b> 1=Yes    9= Don't know/No answer
9a.1	What was the last malaria message you heard from a troupe? <i>(multiple responses allowed)</i>	1=Sleep under or use a mosquito net    2= Keep surrounding clean    3=Effects of malaria 4= Causes of malaria    5=Treating malaria    8=Other    9= Don't know/No answer
9a.2	<i>(If Other, write specific response)</i>	
<i>Play jingle, then ask respondent question 10</i>		
10.0	Have you heard this song before?	0= No ⇒ <b>Q#11</b> 1= Yes    9= Don't know/No answer
10.1	On what radio station did you hear this song? <i>(multiple responses allowed)</i>	1= Radio Nimba    2 = Radio Life    3 = Voice of Reconciliation    4 = Radio Piso 5 = Voice of Tappita    6 = Radio Gbarnga    7 = Radio Cape Mount    8 = Other radio stations 9= Don't know/No answer    10 = UNMIL    11=ELBC    12=Radio Gee    13= Kehkema 14=Canvas of Peace    15=Radio Kitomma    16=Super Bongie
<i>Play radio spot, then ask respondent question 11</i>		
11.0	Have you heard this message before?	0= No ⇒ <b>Q#11a</b> 1= Yes    9= Don't know/No answer
11.1	On what radio station did you hear this message? <i>(multiple responses allowed)</i>	1= Radio Nimba    2 = Radio Life    3 = Voice of Reconciliation    4 = Radio Piso 5 = Voice of Tappita    6 = Radio Gbarnga    7 = Radio Cape Mount    8 = Other radio stations 9= Don't know/No answer    10 = UNMIL    11=ELBC    12=Radio Gee    13= Kehkema 14=Canvas of Peace    15=Radio Kitomma    16=Super Bongie
11a.0	Are there gCHVs or community health workers or jacket people in your community?	0= No    1= Yes    9= Don't know/No answer
11a.1	Have you heard any message on malaria from a gCHV (community health worker, jacket person) in the past four weeks?	0= No ⇒ <b>Q#12</b> 1= Yes    9= Don't know/No answer
11a.2	What was the last message you heard from a gCHV? <i>(multiple responses allowed)</i>	1=Sleep under or use a mosquito net    2= Keep surrounding clean    3=Effects of malaria 4= Causes of malaria    5=Treating malaria    8=Other    9= Don't know/No answer
12.0	Have you seen or heard any message about malaria in the last four weeks other than what you've already told me about?	0= No ⇒ <b>Q#14</b> 1= Yes    9= Don't know/No answer
12.1	What was the last message? <i>(multiple responses allowed)</i>	1=Sleep under or use a mosquito net    2= Keep surrounding clean    3=Effects of malaria 4= Causes of malaria    5=Treating malaria    8=Other    9= Don't know/No answer
12.2	From what source did you last see or hear it? <i>(multiple responses allowed)</i>	1= Health facility    2= School    3= Market 4= Video club    5= SMS text message    6= Poster, flier, sticker, etc 8= Other    9= Don't know/No answer
12.3	<i>(If Other, write specific response)</i>	

<b>Show simultaneously all five posters, the brochure, and the sticker, then ask respondent question 14</b>			
13.0	Have you seen any of these before?	0= No ⇒ <b>Q#14</b>	1= Yes 9= Don't know/No answer
13.1	Which ones have you seen before? (multiple responses allowed)	1=Poster A 5=Poster E	2=Poster B 6=Brochure 7= Sticker 9= Don't know/NA
13.2	Which was the last one you saw?	1=Poster A 5=Poster E	2=Poster B 6=Brochure 7= Sticker 9= Don't know/NA
13.3	Where did you see it? (multiple responses allowed)	1= Health facility 4= Video club 7= gCHV or TTM	2= School 5=Palava hut 8= Other
13.4	(If Other, write specific response)	3= Market 6=Friend's/neighbor's/own house 9= Don't know/No answer	
<b>Part II. Case Management</b>			
14.0	In the last four weeks, have you seen or heard any message or advice from any source telling you what to do when a child has fever?	0= No ⇒ <b>Q#15</b>	1= Yes 9= Don't know/No answer
14.1	What was the message or advice?	1=Sponge or bathe child with cold water 5=Treat with herbs 9= Don't know/NA	2=Take child to health facility 6=Keep child warm gCHV
14.2	(If Other, write specific response)	3= Give anti-malaria drug 7=Contact 8=Other	4=Give antipyretic
15.0	I am going to ask some questions now about [NAME]: Has [NAME] been ill with a fever at any time in the last 2 weeks?	0= No ⇒ <b>Q#21</b>	1= Yes 9= Don't know/No answer
16	How did you know that [NAME] had a fever? (multiple responses allowed)	1=by feeling skin/skin hot 4=loss of body weight 8=Other	2=loss of appetite 5=red eyes 9= Don't know/NA
16.1	(If Other, write specific response)	3=vomiting 6=child cried 7=didn't sleep	
17.0	What did you do first when you discovered that [NAME] had a fever?	1=sponged the child with cold water 4= observed further 8=Other	2=Take child to health facility 5=Treat with herbs 9= Don't know/NA
17.1	(If Other, write specific response)	3=Give anti-malaria drug 6=Keep child warm 7= Contact gCHV 10=Nothing	
18.0	Did you seek advice or treatment for [NAME]'s fever from any source?	0= No ⇒ <b>Q#19</b>	1= Yes 9= Don't know/No answer
18.1	After the fever started, how long did it take for you to carry [NAME] for advice or treatment?	1=within one day (within 24 hrs) 4= more than 5 days	2= 2 days 3=3 to 5 days 9= Don't know/NA
18.2	Where did you get treatment from? (multiple responses allowed)	1=drug store/ pharmacy 4=home-based care 7=black bagger	2=country /native doctor 5=gCHVs or TTM 8=Other
18.3	(If Other, write specific response)	3=health facility 6=No treatment received 9= Don't know/No answer	
18.4	Where did you first go for advice or treatment?	1=drug store/ pharmacy 4=home-based care 7=black bagger	2=country /native doctor 5=gCHVs or TTM 8=Other 9= Don't know/No answer
18.5	(If Other, write specific response)		
19	While [NAME] was sick, did you get any assistance from a gCHV (community health worker or jacket person)?	0= No ⇒ <b>Q#20</b>	1= Yes 9= Don't know/No answer
19.1	What help or support did you get from the gCHV?	1=Gave drugs 9=Don't know/No answer	2=Referred to health facility 3=Advised to buy drugs 8=Other
20.0	At any time during the illness, did [NAME] take any drugs for the illness?	0= No ⇒ <b>Q#21</b>	1= Yes 9= Don't know/No answer
20.1	How long after the fever started did [NAME] start drugs?	1=within one day (within 24 hrs) 4= more than 5 days	2= 2 days 3=3 to 5 days 9= Don't know/NA
20.2	What drugs did [NAME] take?	1=Chloroquine 6= Other anti-malaria drug	2=Quinine 7=Pain reliever (ASA, Paracetamol, Panadol, Brufin, etc)
20.3	Did [NAME] complete the treatment?	0= No	1= Yes ⇒ <b>Q#21</b> 9= Don't know/No answer
20.4	Why didn't [NAME] complete treatment? (multiple responses allowed)	1=Got well soon 4=Fear of discomfort	2=Missed timing 4=Took another drug 9= Don't know/NA
20.5	(If Other, write specific response)		
<b>Play case-management jingle, then ask respondent question 22</b>			
21	Have you heard this song in the past four weeks?	0= No ⇒ <b>Q#22</b>	1= Yes 9= Don't know/No answer
21.1	On what radio station did you hear song? (multiple responses allowed)	1= Radio Nimba 5= Voice of Tappita 9= Don't know/No answer	2= Radio Life 6= Radio Gbarnga 10= UNMIL
<b>Play case-management radio spot, then ask respondent question 23</b>			
22	Have you heard this message in the past four weeks?	0= No ⇒ <b>Q#26</b>	1= Yes 9= Don't know/No answer
22.1	On what radio station did you hear the message? (multiple responses allowed)	1= Radio Nimba 5= Voice of Tappita 9= Don't know/No answer	2= Radio Life 6= Radio Gbarnga 10= UNMIL
23	In the past four weeks, have you seen any poster advising what to do if a child has fever?	0= No ⇒ <b>END</b>	1= Yes 9= Don't know/No answer
<b>Show the case-management poster, then ask respondent question 25</b>			
25	Have you seen this poster in the past four weeks?	0= No ⇒ <b>END</b>	1= Yes 9= Don't know/No answer
28.1	Where did you see it? (multiple responses allowed)	1= Health facility 4= Video club 7= gCHV or TTM	2= School 5=Palava hut 8= Other
28.2	(If Other, write specific response)	3= Market 6=Friend's/neighbor's/own house 9= Don't know/No answer	



## Consent form for RBHS dipstick survey

*last updated 16 December 2010*

Hello, my name is \_\_\_\_\_. We are here on behalf of a USAID-funded project called RBHS to conduct a survey aimed at learning about the health knowledge and status of people in selected communities. RBHS is working closely with the Ministry of Health and Social Welfare in Liberia to rebuild basic health services.

Data we will collect in this survey will help the Ministry of Health and Social Welfare to plan and implement appropriate health services. It will also help us to increase the effectiveness of some of our activities. As part of our survey, I would like to ask you some questions regarding health messages you may have seen or heard.

If you agree to participate, it may take us about 15 minutes. Whatever answer you give will be kept strictly confidential and not shared with anyone else.

You do not have to answer any questions at all. Even if you agree to take part in the survey, you may choose to stop answering questions at any time.

Would you be willing to take part in this interview?

No            Yes

Community/settlement name \_\_\_\_\_

District \_\_\_\_\_ County \_\_\_\_\_

Name of respondent (print) \_\_\_\_\_

I have read this consent form or someone has explained it to me. I freely agree to be in the survey.

\_\_\_\_\_  
Signature or fingerprint of subject

\_\_\_\_\_  
Interviewer signature

Date \_\_\_\_/\_\_\_\_/\_\_\_\_  
          dd        mm        yyyy