# Malaria Behavior Survey Liberia 2021

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For additional information, please contact CCP.

Data from the MBS in Liberia study will be available for download from the USAID Development Data Library. Please consult the Country Datasets section of the MBS website at https://malariabehaviorsurvey.org/all-resources/.

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## Acronyms

ACT	Artemisinin-based combination therapy				
ANC	Antenatal care				
aOR	Adjusted odds ratio				
ССР	Johns Hopkins Center for Communication Programs				
CDC	U.S. Centers for Disease Control and Prevention				
CHW	Community health worker				
CI	Confidence interval				
DHS	Demographic and Health Survey				
EA	Enumeration area				
FARA	Fixed Amount Reimbursement Agreement Activity				
HMIS	Health Management Information System				
ІРТр	Intermittent preventive treatment of malaria in pregnancy				
IRS	Indoor residual spraying				
ITN	Insecticide-treated net				
MBS	Malaria Behavior Survey				
MIS	Malaria Indicator Survey				
NMCP	National Malaria Control Program				
OR	Odds ratio				
PMI	U.S. President's Malaria Initiative				
RDT	Rapid diagnostic test				
RIH	Research and Innovations Hub				
SBC	Social and behavior change				
SMS	Short message service				
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SP	Sulfadoxine/pyrimethamine
STAIP activity	Technical Assistance for Improved Health System performance and Health Outcomes
UL-PIRE	University of Liberia Pacific Institute for Research and Evaluation
USAID	U.S. Agency for International Development
WHO	World Health Organization

## Preface

Over the years, the National Malaria Control Program (NMCP), with endorsement from the Ministry of Health, adopted the World Health Organization guidelines on the control and prevention of malaria in Liberia. Malaria is the leading cause of morbidity and mortality in Liberia, and it continues to remain a significant risk to the population, particularly for those most vulnerable, including pregnant women and children. Despite the progress being made in reducing the burden of malaria thus far, challenges still exist in the utilization of malaria control and prevention services, including knowledge, attitudes, and practice, thereby leading to falling short of the desired targets as set in the National Malaria Strategic Plan.

NMCP recognizes that the implementation of effective malaria control and prevention is hugely dependent on quality and effective interventions such as prompt care-seeking, diagnosis and treatment, mass net distribution, routine distribution of nets through antenatal care, use of insecticide-treated nets, and intermittent preventive treatment of malaria during pregnancy. Historically, the implementation of these interventions has been targeted to the health facility and community levels with limited concurrent social and behavior change (SBC), leading to under-utilization of key malaria services for the reduction of malaria incidence and mortality. The NMCP in partnership with the U.S. President's Malaria Initiative (PMI)/U.S. Agency for International Development (USAID) through Breakthrough ACTION Liberia provided support for SBC interventions as key drivers for the reduction of malaria.

To successfully implement SBC activities in Liberia, a need existed for both continued evidence-based messaging and expansion of SBC activities to include non-communication-based approaches to address real issues affecting community adoption of positive behavior change towards malaria control. Hence the Malaria Behavior Survey (MBS) was conducted in 2021–2022. The purpose of the MBS was both to understand the sociodemographic and ideational determinants associated with the uptake of malaria interventions in Liberia and to determine appropriate program activities to address specific behavioral determinants of malaria. The MBS was conducted in three regions, which included Greater Monrovia, South Central (Montserrado, Margibi, and Grand Bassa counties) and North Central (Bong, Nimba, and Lofa counties). This report highlights important gaps in key malaria prevention and treatment behaviors, particularly for consistent use of and care for available insecticide-treated nets, early and complete antenatal care, prevention of malaria in pregnancy, and prompt and appropriate care-seeking for children with fever. Key results from the study highlight the important relation between cognitive, social, and emotional factors and each key behavior mentioned above.

Members of the NMCP, Breakthrough ACTION, and PMI/USAID created an advisory group that reviewed and adopted the MBS protocol, contributed to the preparation and planning of the MBS data collection, and provided critical insight to the design and adaptation of the survey tools. The research firm University of Liberia Pacific Institute for Research and Evaluation was contracted to carry out the MBS data collection through direct supervision by the NMCP and Breakthrough ACTION Liberia. The NMCP and Breakthrough ACTION Liberia led the data collection training to ensure adherence to study protocol and efficient collection of accurate information.

The NMCP is grateful to PMI/USAID for the financial support to the study, Breakthrough ACTION Liberia for their key role, the Johns Hopkins Center for Communication Programs, and all the study participants in the successful implementation of the MBS. The results of this report will be used in designing and planning malaria SBC interventions as well as making future policy decisions.

Dr. Trokon Washington

Program Manager



## **Executive Summary**

The National Malaria Control Program (NMCP) continues to strategize effective malaria control interventions across Liberia. NMCP's integrated malaria interventions and strategies have been supported by multiple implementing partners, and donors, including the U.S. President's Malaria Initiative (PMI). Malaria control also depends in part on human behavior. Understanding populations' malaria-related knowledge, attitudes, and practices is key to optimizing social and behavior change (SBC) programs. The goal of the Malaria Behavior Survey (MBS) is to provide a better understanding of the sociodemographic and ideational characteristics associated with malaria-related behavioral outcomes in Liberia and to inform SBC strategies and activities designed to improve those outcomes.

The conceptual framework underlying the MBS is the ideation model. This model of behavior change focuses on ideational factors, defined as interrelated psychosocial variables that commonly influence individual behavior. Ideational factors include attitudes, beliefs, values, perceived risk, subjective norms, and self-efficacy, among others. Research has demonstrated a relationship between ideation and malaria behaviors.

From December 2021 to March 2022, the MBS was conducted in three of the six health regions of Liberia, based on endemicity categories: Greater Monrovia (low prevalence of malaria among children under five), South Central (moderate prevalence), and North Central (high prevalence). The survey team gathered, cleaned, and analyzed data from 3,719 households, including 4,677 female respondents (aged 15–49) and 1,145 male respondents (aged 18–59). Key findings are summarized below. In this Executive Summary as well as in the main report, only those findings that differed at a statistically significant level (p<0.05) by covariates<sup>1</sup> (region, sex, age, residence, level of education, household wealth) are mentioned in the text. Please see Annex A: Data Tables for more detailed findings.

## Results

#### **Household Characteristics**

- On average, households in the three study regions had 1.9 sleeping rooms and 1.8 people sleeping per room.
- Seventy-one percent of all respondents in North Central lived in rural areas, and 78% of all respondents in South Central lived in rural areas.

<sup>&</sup>lt;sup>1</sup> Please note that significance was defined for differences observed with p-values at least less than 0.05, however throughout the report, significance is also noted for differences that are statistically significant at p<0.05, p<0.01, and p<0.001.

- Overall, 43% of households were near a public health facility, 32% were near a private health facility, and 45% were near a pharmacy.<sup>2</sup> Households in Greater Monrovia had greater proximity to facilities than those in North and South Central.
- About 32% of all households had electricity, but most of these households were in Greater Monrovia, where 79% of participating households had electricity, compared with 27% of participating households in South Central and 13% in North Central.

#### **Respondent Characteristics**

- As expected for the MBS study design, 82% of respondents were female and 18% were male partners of interviewed women.
- Most (66%) were aged 34 or younger, with 37% between ages 15 and 24, and 29% between ages 25 and 34.
- Approximately half of the sample (51%) had completed junior high or more schooling.

#### **Cross-Cutting Ideational Factors**

- Fewer than a quarter of respondents (23%) reported correct comprehensive knowledge of malaria.<sup>3</sup> This factor was determined based upon respondent knowledge of fever as the primary symptom of malaria (71%), respondents not mentioning any incorrect cause of malaria (47%), and knowledge of at least one major malaria prevention measure.<sup>4</sup>
- Most (82%) perceived themselves and their children to be susceptible to malaria, but fewer (46%) perceived malaria to be severe.
- Few had discussed malaria with a spouse/partner (23%) or with a friend or family member (18%).
- Nearly all (92%) held favorable attitudes towards facility-based health workers, and most (81%) held favorable attitudes towards community-based health workers. Compared with respondents from North and South Central, fewer respondents from Greater Monrovia held favorable attitudes of facility- and community-based health workers.
- Nearly all respondents (98%) perceived boys and girls as having equal priority for net use and malaria treatment, indicating equitable gender norms related to malaria prevention and treatment.<sup>5</sup>

<sup>&</sup>lt;sup>2</sup> "Near" is defined as being located at a distance of five kilometers or less (30 minutes or less on foot, or 10 minutes or less by car).

<sup>&</sup>lt;sup>3</sup> Comprehensive knowledge of malaria was defined as an individual respondent correctly identifying fever as the primary symptom of malaria, not mentioning any incorrect causes of malaria, and knowing at least one major prevention measure. Full details of this measure can be found in Table A.2.1.

<sup>&</sup>lt;sup>4</sup> Major malaria prevention measures included use of treated or untreated nets, indoor residual spraying, and intermittent preventive treatment in pregnancy (IPTp).

<sup>&</sup>lt;sup>5</sup> Gender norms related to malaria prevention and treatment were assessed using five questions to determine whether respondents had a sex preference for use of insecticide-treated nets (ITNs) and care-seeking for fever in children, as well as comfort about women asking their partner to accompany them for ANC. Further detail is available in Annex Table A.2.7.

#### **Case Management for Fever in Children Under Five Years**

- Less than half (40%) of respondents had comprehensive knowledge of malaria care-seeking and treatment.<sup>6</sup>
- Nearly all respondents (91%) had favorable attitudes towards care-seeking and treatment and high perceived self-efficacy for malaria testing and treatment. Nearly all respondents (97%) also perceived equitable gender norms related to malaria treatment.<sup>7</sup>
- Approximately 6 in 10 respondents (64%) perceived malaria *testing* (by blood test) to be effective and 72% perceived malaria *treatment* to be effective.
- Only about one-third (34%) perceived that people in their community promptly seek malaria testing and treatment for a feverish child. Twenty-one percent of caregivers reported that a child under five had had a fever in the two weeks before the survey, and 86% of them sought some level of care for that fever.
  - Among those who had sought care, 70% reported that they did so within the recommended period (the same day or day following the onset of fever).
  - Sixty-six percent of caregivers with a feverish child reported seeking care first from recommended sources, including the health facility/clinic, health provider, or community health worker (CHW).
  - Sixty-three percent of caregivers with a feverish child reported that the child received a malaria test.

#### Malaria in Pregnancy

- Only 7% of respondents correctly answered all three knowledge questions about IPTp, including when a pregnant woman should first seek antenatal care (ANC) (11%), the number of recommended ANC visits (71%), and the number of doses of the prophylactic malaria drug sulfadoxine/pyrimethamine a pregnant woman should receive (61%).
- Most respondents (85%) saw malaria in pregnancy as a severe illness.
- However, only 36% felt that most pregnant women in their community take IPTp during pregnancy, suggesting a low descriptive community norm for IPTp.
- Only 12% felt that community members would approve of pregnant women taking IPTp (injunctive norm). Seven percent reported community member disapproval of IPTp; however, most (81%) respondents reported that they were uncertain about community approval of IPTp.<sup>8</sup>
- About 80% of respondents reported favorable perceptions of health providers (facility-based workers and CHWs) offering malaria in pregnancy care.

<sup>&</sup>lt;sup>6</sup> For more information, please see Table A.3.3.

<sup>&</sup>lt;sup>7</sup> Gender norms related to treatment for children under five were measured based upon whether or not individuals state that it is more important for a male or female child to receive treatment. Further detail is available in Table A.3.8.

<sup>&</sup>lt;sup>8</sup> Injunctive ("People think I should do") norm is from analysis of question W721B, "Generally, among all the people in your community, how many people would call you names if they know that you take the medicine to prevent malaria when you are pregnant? Would you say: (1) all people, (2) at least half of the people, (3) fewer than half of the people, (4) don't know."

- Approximately 7 in 10 respondents (69%) with a spouse or partner reported being involved in the decision making around ANC, but few (15%) reported having discussed ANC with their spouse or partner within the previous six months. Married or cohabitating women who were pregnant at the time of the study discussed ANC with their partners more frequently (55%) than those who were not pregnant at the time of the study (11%).
- Favorable attitudes towards IPTp use, perceived self-efficacy to take IPTp, ANC attendance
  perceived as a community norm, knowledge of recommended ANC attendance (four or more
  visits) and IPTp dosage (at least three), and exposure to malaria messages in the past six months
  were positively associated with intent to seek early ANC (within the first three months) in a
  future planned pregnancy.
- Perceived self-efficacy to use IPTp, perception that women should feel comfortable asking their spouse to go to the health facility for ANC, and knowledge of recommended ANC attendance and IPTp dosage were positively associated with intent to take IPTp during a future planned pregnancy.

#### **Mosquito Net Use and Care**

- Few respondents (26%) perceived community norms for ITN use; that is, 26% perceived that at least half of the community members who have nets use them nightly.<sup>9</sup>
- Knowledge of malaria prevention by using either ITNs or untreated nets was only 70% overall and was lower among respondents from Greater Monrovia (63%) than from North and South Central regions.<sup>10</sup>
- Two-thirds (66%) of households in the survey reported having at least one ITN. Ownership was markedly higher in North Central (76%) as compared with Greater Monrovia and South Central (both 50%).
- Eighty-nine percent of nets observed were ITNs (Table A.5.15); therefore, this report uses "nets" to refer to all the nets in the survey.
- Fifty-one percent of household members had access (defined as availability of at least one ITN for every two household members) to ITNs. Access to ITNs was highest in the North Central region (61%) and lowest in the South Central (36%) and Greater Monrovia (28%) regions.
- Use of ITNs by members in households with access to ITNs (i.e., use-to-access ratio) was 78%.
- Consistent net use was 72% among respondents in households with at least one net and was lower in Greater Monrovia (61%) than in South Central (74%) and North Central (75%).
- Favorable attitudes towards net use, perceived self-efficacy to use an ITN, perceived use of ITNs as a norm within one's community, and weekly radio listenership were positively associated with an individual's consistent use of nets.

<sup>&</sup>lt;sup>9</sup> Please see Table A.5.1. (summary) and Table A.5.8. (perceived community norms regarding nets) for more information. Many survey respondents replied "don't know/uncertain" for the questions used to inform these indicators. In the weighted distribution, this made up 50% of responses for descriptive norms and 79% of responses for injunctive norms. Fourteen percent stated community approval and the remaining 7% stated disapproval (at least half or all people would call them names).

<sup>&</sup>lt;sup>10</sup> Please see Table A.5.3. Measurement of correct knowledge was determined using question 503 from the women's and men's questionnaires. Respondents who stated that either ITNs or untreated nets can be used to prevent malaria were considered to have correct knowledge.

- About one-third of ITNs were reported to have been washed with detergent (38%) or dried outside in the sun (37%).
- Sixty-six percent of respondents reported that they tie or hang up their nets when not in use.

#### Media Consumption and Malaria Message Recall

- More than two-thirds (73%) of all participating households in all three regions have a simple mobile phone<sup>11</sup>: 83% in Greater Monrovia, 75% in South Central, and 69% in North Central.
- Many households have a smartphone or tablet: 61% of households in Greater Monrovia, 37% in South Central, and 23% in North Central (34% on average).
- A majority of respondents (63%) owned a mobile phone or tablet.
- Overall, 37% of all households owned a radio and 19% had a television. Many more households in Greater Monrovia had these assets compared with households in the other study regions, which was likely related to differential access to electricity.
  - Radio ownership: 53% of households in Greater Monrovia, 37% in South Central, and 30% North Central.
  - Television ownership: 54% of households in Greater Monrovia, 17% in South Central, and 4% in North Central.
- Less than half (47%) of all participants listened to the radio at least once a week, and about onefifth (21%) watched television at least once a week. Thirty-six percent of respondents reported seeing or hearing a malaria message in the six months preceding the survey.

### **Recommendations**

Key recommendations are provided below. Please see the full report for more detail, including recommendations for Media Mix for Messaging, in the Conclusions and Recommendations.

#### Malaria Case Management

- Improve the level of correct, comprehensive knowledge about malaria testing and treatment. Most respondents knew to seek care promptly (94%) and appropriately from a health facility or CHW (97%), but 57% failed to identify a blood test as the best way to test for malaria and 75% failed to identify artemisinin-based combination therapy (ACT) as the effective treatment for malaria.
- Increase perceived response efficacies of the malaria blood test and of malaria medicines (ACT) obtained from the health facility. The recommended methods of testing and treating should be perceived as more effective and more desirable than alternative methods of testing for and treating malaria, such as relying on parents to identify symptoms without a blood test or acquiring "medicine" from a market vendor.
- Increase supportive norms for prompt care-seeking with a health provider or CHW or at a health facility. Only 34% reported that members of the community seek care for a feverish child

<sup>&</sup>lt;sup>11</sup> As part of the MBS household survey, household heads were asked whether anybody in their household owns a simple mobile phone. Information on household ownership of a smartphone or tablet was captured separately in the household survey.

promptly at a health facility or with a CHW (descriptive norm), and only 9% of respondents felt that other community members expected the respondent to seek care promptly at a health facility for a feverish child (injunctive norm).

- Increase the perception of the potential severity of malaria, especially for children and pregnant women. Less than half of respondents felt that malaria is severe , although most felt susceptible to being infected with it.
- Identify and address barriers to prompt care-seeking and treatment with ACT for children with confirmed malaria. Less than half (48%) of children with confirmed malaria received ACT promptly.

#### **Malaria in Pregnancy**

- Increase comprehensive knowledge of malaria in pregnancy and, in particular, knowledge among both women and men—of when a pregnant woman should first seek an ANC visit.
- Increase normative support for malaria prevention in pregnancy, and specifically, for attending four or more ANC visits during pregnancy and for taking preventive medicine (IPTp) during pregnancy.
- Encourage spouses/partners to discuss early ANC attendance together. Involvement in decision making related to malaria in pregnancy was higher among those who communicated with their partner (78%) than those who did not (67%).
- To prevent malaria among pregnant women by increasing use of IPTp, increase the proportion
  of pregnant women who attend four or more ANC visits. Receiving two or three IPTp
  (sulfadoxine/pyrimethamine [Fansidar]) was more common among those who had attended the
  recommended number of ANC visits (four or more) than among those who attended only one to
  three appointments.
- Inculcate positive attitudes towards early ANC visit and towards IPTp uptake among women of reproductive age and their significant referents. Build self-efficacy for seeking ANC and IPTp among women of reproductive age.

#### Insecticide-Treated Net Use and Care

- Half of the population (49%) did not have access to an ITN. Further, 78% of the population with adequate access to an ITN used one the night before the survey. This finding highlights a need to couple programming focused on increased access with SBC approaches to ensure that individuals consistently use and care for the nets that they have.
- Frame net use as a socially desirable and common behavior to build the perception that it is a norm, particularly among males and those living in urban areas.
- Reinforce knowledge that mosquitoes are the cause of malaria and that mosquito nets can be used to prevent bites. This knowledge is particularly important among males and those in the youngest age group (15–24 years).
- Maintain positive attitudes by framing consistent net use as a social norm and emphasizing that it is easy to habitually use a net and care for it. Urban residents are a subpopulation of interest to reach with this messaging.

- Further research in the North Central region should be undertaken to better understand the negative correlation between perceived severity of malaria and consistent net use.
- Future programming must address harmful net care practices. Approximately one-third of nets were washed with harmful materials such as bleach and detergent and dried in the sun.
- Promotion of consistent net use and proper net care should not be done in isolation. The two behaviors are correlated and can benefit from being promoted together.

#### **Communication Channels**

- Low reported rates of exposure via text and social media present a potential opportunity to increase exposure to malaria messaging, although those most likely to be reached by these messages will be the more privileged within Liberia.
- Audience segmentation should be taken into account when deciding which messages are disseminated through various media, with particular focus on leveraging interpersonal communication channels to reach people in the lowest wealth quintiles.

## Introduction

### Malaria in Liberia

#### **Prevalence and Severity**

Malaria is the leading cause of morbidity and mortality in Liberia, where the disease is endemic and transmission is continuous throughout the year. The leading malaria parasite in 2020 was *Plasmodium falciparum*, which accounted for 95% of human *Plasmodium* collected.<sup>12</sup> The leading vector (mosquito) is *Anopheles gambiae s.l.*<sup>13</sup> In the 2018 Health Facility Survey, malaria accounted for 34% of all outpatient consultations and 48% of inpatient cases.<sup>14</sup> In 2019, malaria was also cited as the top cause of death in Liberia.<sup>15</sup> According to the 2022 World Malaria Report, malaria incidence declined from 392 to 358 per 1,000 population at risk from 2017 to 2020.<sup>16</sup> Despite these gains, much work remains to effectively eliminate malaria in Liberia.

#### Malaria Burden in Pregnant Women and Children Under Five

Data from the Liberian Health Management Information System (HMIS) suggests that malaria testing for pregnant women is improving: "Of the 213,525 pregnant women who had fever, 205,104 were tested for malaria giving a malaria testing rate of 96 percent, which is higher than the malaria test rates of 95 percent in 2019, 88 percent in 2018, and 80 percent in 2017. The HMIS data also show a declining malaria positivity rate among pregnant women from 55 percent in 2017, 53 percent in 2018, and 51 percent in 2019, and the rate was 49 percent in 2020" (p. 57).<sup>17</sup>

Children under five years of age accounted for 35% of all malaria cases and 34% of all inpatient deaths in 2018.<sup>18</sup> The 2022 Malaria Indicator Survey (MIS) found malaria in 17.7% of children aged 6–59 months, based on malaria rapid diagnostic test (RDT) and 10.3% through microscopy results. Regional variations in malaria prevalence by RDT among the Malaria Behavior Survey (MBS) study areas were the following: Greater Monrovia, 4.1%; South Central, 17.3%; and North Central, 22.2%.

<sup>&</sup>lt;sup>12</sup> *Plasmodium falciparum* multiplies rapidly in the blood, leading to severe malaria and severe blood loss (anemia). Infected parasites can clog small blood vessels, which can cause cerebral malaria and subsequent death (U.S. Centers for Disease Control and Prevention [CDC], 2020).

<sup>&</sup>lt;sup>13</sup> U.S. President's Malaria Initiative (2021).

<sup>&</sup>lt;sup>14</sup> U.S. President's Malaria Initiative. Liberia Malaria Operational Plan FY 2022 (2021, p.5).

<sup>&</sup>lt;sup>15</sup> GBD 2019 Diseases and Injuries Collaborators (2020).

<sup>&</sup>lt;sup>16</sup> World Health Organization (2021).

<sup>&</sup>lt;sup>17</sup> U.S. President's Malaria Initiative. Liberia Malaria Operational Plan FY 2022 (2021).

<sup>&</sup>lt;sup>18</sup> U.S. President's Malaria Initiative. Liberia Malaria Operational Plan FY 2022 (2021, p.5).

#### Table 1.

Malaria Prevalence by Geographic Region: Children Six to 59 Months of Age Who Tested Positive for Malaria by RDT (MIS 2022)

Malaria	National	Greater	North	South	South	South	North
Indicator		Monrovia	Western	Central	Eastern A	Eastern B	Central
Percentage of children aged six to 59 months with a positive RDT result	17.7	4.1	19.5	17.3	23.4	32.8	22.2

### Malaria Interventions in Liberia

Interventions to prevent malaria and to encourage seeking effective care are particularly important for girls and women of reproductive age and for children under five because of their vulnerability to morbidity and mortality attributable to malaria. A substantial proportion of pregnant women and caregivers of young children are adolescents. According to the 2019 Liberia Demographic and Health Survey (DHS), 30% of women aged 15–19 have begun childbearing. Teenage childbearing is higher in rural areas: 39% of women aged 15–19 have begun childbearing, as compared with 26% in urban areas.

The Ministry of Health and other stakeholders validated the National Malaria Control Program's (NMCP's) National Malaria Strategic Plan (2021–2025) in June 2020. Goals include reduction of national malaria prevalence to 11% by 2025, which is a decrease of 76% from the 2016 prevalence of 45%. Liberia's NMCP and the U.S. President's Malaria Initiative (PMI) have been in partnership since 2008. The partnership has helped to decrease child mortality rates by 21% from 42 to 33 deaths per 1,000 live births from 2013 to 2019–2020, respectively (DHS 2019–2020) through investments totaling almost \$203 million. At the national level, the Ministry of Health establishes the policy framework for health interventions implemented at the regional level.

The Government of Liberia and partners have invested in four key malaria control interventions: (a) insecticide-treated nets (ITNs), (b) intermittent preventive treatment in pregnancy (IPTp), (c) prompt and effective malaria case management, and (d) surveillance, monitoring, and evaluation.

The goal of the current National Malaria Strategic Plan (2021–2025) is to reduce Liberia's malaria burden by 75% from 2016 levels by the end of 2025. This goal represents a reduction from 45% prevalence in 2016 to 11% prevalence by 2025. By the end of 2025, the NMCP hopes to achieve the following objectives as described in the National Malaria Strategic Plan:

- Reduce malaria mortality rates by at least 75% (43/100,000 population) from the 2016 rate (172/100,000 population).
- Reduce malaria case incidence by at least 75% (95/1,000 population) from the 2016 rate (380/1,000 population). Malaria incidence is 177/1,000 in the general population and 418/1,000

in children under five, according to the HMIS 2021 and population estimate cited in the PMI Liberia Malaria Profile of April 2022 and in the Malaria Operational Plan FY 2023.<sup>19,20</sup>

- Promote and maintain a culture of evidence-based decision making to achieve malaria program performance at all levels.
- Strengthen and maintain capacity for program management, coordination, and partnership to achieve malaria program performance at all levels.<sup>21</sup>

One of the strategic interventions to reach this goal is to strengthen integrated vector management and malaria prevention during pregnancy and in infancy. Another key strategy developed to address the goals set out in the National Malaria Strategic Plan includes the Liberia National Malaria Social and Behavior Change Strategy.<sup>22</sup> Data from the current MBS can help to inform programming and decision making to prevent malaria during pregnancy and infancy. Specifically, the MBS data on ideational factors that have the propensity to trigger positive malaria behavioral outcomes is reflected under each section.

## Rationale for the MBS Study in Liberia

Research increasingly demonstrates the effective role of social and behavior change (SBC) communication programs in increasing the prevalence of positive health behaviors related to malaria prevention and treatment. Program messages must target specific malaria-related ideational variables (e.g., knowledge, attitudes, intention, self-efficacy, and social norms) related to malaria-related behaviors, such as prompt care-seeking and consistent ITN use, to effectively improve them. The 2016 MIS and the 2019 DHS in Liberia provided evidence on behavioral outcomes related to malaria, including use of mosquito nets, prompt and appropriate treatment of malaria in children, and IPTp. However, they largely focused on the prevalence of relevant behavioral indicators and provided limited information on behavioral determinants.

The primary focus of the current study is on such ideational, or *intermediate*, variables associated with malaria-related behaviors of interest. The study produced data focused on ideational antecedents that are not included in large national surveys. Such data can be used to estimate the prevalence of both behaviors and their ideational antecedents and to estimate the independent and combined effects of ideational characteristics on behavioral outcomes. This survey also incorporates several *structural* variables (e.g., educational attainment, access to bed nets, and wealth index) to measure key social determinants of health. These analyses will help malaria programs and policymakers create and prioritize audience segments and SBC messaging while also accounting for structural factors that may inhibit or enable individuals' ability to act.

## Goals and Objectives of the Liberia MBS

<sup>&</sup>lt;sup>19</sup> U.S. President's Malaria Initiative (2022a).

<sup>&</sup>lt;sup>20</sup> U.S. President's Malaria Initiative (2022b).

<sup>&</sup>lt;sup>21</sup> U.S. President's Malaria Initiative (2021, p.10).

<sup>&</sup>lt;sup>22</sup> National Malaria Control Program (2022).

The goal of this study is two-fold: to provide a better understanding of the sociodemographic and ideational characteristics associated with malaria-related behavioral outcomes in Liberia, and to determine the appropriate focus of programmatic activities designed to improve malaria-related ideational and behavioral outcomes. The specific objectives of the study are to understand the facilitating and inhibiting factors related to the behaviors of:

- Bed net use (hereafter clarified as untreated bed nets or ITNs) and care.
- Uptake of IPTp in pregnancy.
- Prompt and appropriate care-seeking for fevers in children under five.

The MBS provides direction for the focus of future programs designed to promote appropriate malaria prevention and treatment behaviors in Liberia.

### **Conceptual Model**

The conceptual framework underlying the MBS is the ideation model for strategic communication and behavior change. This model of behavior change focuses on the multiple, interrelated psychosocial variables that commonly influence individual behavior. As shown in Figure 1, the ideation model recognizes most behavioral decisions as being driven by multiple (often simultaneous) psychosocial factors. The model has three components, each comprising several variables: (a) cognitive elements such as attitudes, beliefs, values, perceived risk, subjective norms, and self-image; (b) emotional elements such as response, empathy, and self-efficacy; and (c) social elements such as support, influence, spousal communication, and personal advocacy. The component variables function like risk factors for disease but in a positive way: the more ideational variables that apply to a person, the more likely that individual is to adopt the behavior. Ideational variables are also influenced by communication (e.g., social interaction, mass media, or interpersonal), and they work both individually and synergistically to influence health outcomes. Research has demonstrated a relationship between ideation and malaria behavior, including ITN use, IPTp, and care-seeking for children under five.<sup>23,24,25,26,27,28</sup>

The model also includes environmental constraints, which are often underemphasized in SBC communication programming. The authors of this report recognize the central importance of social determinants of health, such as social class, income, race, ethnicity, education, occupation, gender, and access to health care, according to the World Health Organization (WHO).<sup>29</sup>

<sup>&</sup>lt;sup>23</sup> Babalola et al. (2022).

<sup>&</sup>lt;sup>24</sup> Kumoji et al. (2022).

<sup>&</sup>lt;sup>25</sup> Monroe et al. (2021).

<sup>&</sup>lt;sup>26</sup> Okoh et al. (2021).

<sup>&</sup>lt;sup>27</sup> Babalola et al. (2018).

<sup>&</sup>lt;sup>28</sup> Awantang et al. (2018).

<sup>&</sup>lt;sup>29</sup> WHO (2022).

**Figure 1.** Ideation Model of Strategic Communication and Behavior Change<sup>30</sup>



## Glossary of Terms Used in the MBS

- Perceived susceptibility is the belief that one is likely to be affected by malaria.
- Perceived severity is the perception that the consequences of malaria are severe.
- **Perceived response-efficacy** is the belief that recommended actions (e.g., prompt care-seeking, use and care of ITNs, acceptance of indoor residual spraying [IRS], uptake of IPTp) will help a person avoid or minimize the threat of malaria.
- **Perceived self-efficacy** is a belief in an individual's ability to take actions related to reducing malaria.
- **Descriptive norms** are the perceptions of what other people do.
- Injunctive norms are the perceptions of what is approved or disapproved of by others.
- Interpersonal communication is the discussion with others about malaria topics (e.g., prevention, care-seeking, and treatment).
- Decision-making autonomy is a person's active involvement in decisions related to malaria.

## Methodology

This section describes methodological elements of the study, including the design, sampling, data collection, data analysis, and research ethics.

## Survey Design

<sup>&</sup>lt;sup>30</sup> Kincaid et al. (2000).

This study used a cross-sectional design with a randomly selected sample of households. Household heads and women and men in the selected households were interviewed at one point in time using structured questionnaires. The study focused on three (of six) health regions of Liberia that were selected with input from stakeholders at the NMCP, Ministry of Health, PMI, and CDC. We estimated that these three health regions contribute 75% of Liberia's burden of malarial disease among children under five. Prevalence differs by region, and the study findings represent a high prevalence region (North Central), a moderate prevalence region (South Central), and low prevalence region (Greater Monrovia), as shown in Table 2.

#### Table 2.

Health Region	Counties	Population Under Five <sup>a</sup>	Malaria Prevalence in Children Under Five <sup>b</sup>	Expected Population Under Five With Malaria (Population × Prevalence)	% National Under- Five Children Disease Burden	
North Central (high prevalence)	Bong, Nimba, Lofa	210,473	0.617	129,862	45.7	
South Central (moderate prevalence)	Montserrado (excl. Monrovia), Margibi, Grand Bassa	113,380	0.521	59,305	20.9	
Greater Monrovia (low prevalence)	Monrovia	195,690	0.12	23,483	8.3	
<i>Notes:</i> <sup>a</sup> Population based on the 2008 Census + 2.1% annual growth rate. <sup>b</sup> Malaria prevalence from Malaria Indicator Survey (2016), children under five who tested positive for malaria by RDT, Table A.5.8, p. 67.						

#### Characteristics of Selected Health Regions

Each of the three health regions was divided into strata comprising urban or rural clusters (enumeration areas, EAs). EAs were selected from within each survey stratum with probability proportional to size, as described in greater detail below.

### Sampling

#### Sample Size and Justification

To determine the number of households required for this survey, we estimated the sample size needed to measure each of the relevant malaria-related outcomes, including caregivers' bed net use, incidence of fever among children under five, and prevalence of positive attitudes towards consistent use of bed nets. Estimates based on the indicator that produced the largest sample size, with a design effect of 2.0

at the regional level, and using data from the 2019 DHS and MIS 2016, are summarized in Table 2.<sup>31</sup> The following formula was used to estimate the required sample size:

$$n = d \times \frac{z^2 \underline{\alpha} \times P(1-P)}{\delta^2 \times R_h \times R_i \times CF}$$

Where:

- *n* is the required sample of households.
- Z is the Z value corresponding to the desired confidence level. In the analyses, we assumed Z=1.96, corresponding to the 95% confidence level.
- *d* is the design effect due to departure from simple random sampling (we assumed this to be 2.0).
- *P* is the estimated (expected) outcome indicator, such as the proportion of women of reproductive age that slept under a net on the night before the survey and the proportion of children under five that had fever in the last two weeks. For each outcome, we derived the required sample size under the assumption that p=0.5 (for maximum variability).
- $\delta$  is the desired margin of error. We derived the various sample sizes with  $\delta$ =5%.
- $R_h$  is the response rate for households. We assumed 90% for this parameter.
- *R<sub>i</sub>* is the response rate for women in selected households. We assumed 96% for this parameter, based on the DHS 2019 response rate for women aged 15–49.
- *CF* is the additional correction factor used to account for household ownership of at least one ITN, which was assumed to be 50% in South Central, 68% in North Central, and 38% in Greater Monrovia, as reported in the DHS 2019.

As summarized in Table 3, we estimated that a sample comprising 3,912 households, rounded to 4,000 households, 5,000 female respondents, and 1,400 male respondents would be sufficient for us to make relevant inferences. This sample size considers the potential nonresponse at the household and individual levels, provides a representative sample at the regional level, and allows valid estimation of key malaria behavioral and ideational indicators, including the proportion of women of reproductive age sleeping under bed nets.

<sup>&</sup>lt;sup>31</sup> For pregnant women's use of a bed net, percentage of children with fever within the two weeks preceding the survey, percentage of households with at least one net, and the individual response rate, we used data from the 2019 DHS. To estimate the per-household number of women, the number of women aged 15–49, and the number of children under the age of five, we used data from MIS 2016. Since there was no recent population-based publicly available estimate for the indicator of proportion of women with positive attitudes towards bed nets, we assumed this indicator to be 50%; this level of prevalence provided us with maximum variability and a more than adequate sample size.

#### Table 3.

Participants	Greater Monrovia (Low Prevalence)	South Central (Moderate Prevalence)	North Central (High Prevalence)	Overall
Enumeration areas (clusters)	79	63	48	190
Households (rounded to nearest 10)	1,660	1,330	1,010	4,000
Heads of household	1,660	1,330	1,010	4,000
Women	2,075	1,263	1,662	5,000
Men	581	466	353	1,400

Number of Required Households, Women and Men Participants per Region, Sample Design

#### **Participant Inclusion and Exclusion Criteria**

The inclusion criteria for participant selection were as follows:

- Aged 15–49 years for women and 18–59 years for men.
- A regular resident of the selected household.
- Ability to communicate in English or Colloqua.
- Male respondents must be the husband or partner of a recruited woman participant.

Participants were excluded if they had at least one of the following characteristics:

- Inability to consent to participate in the study.
- Inability to understand the questions or respond intelligibly.
- Ill at the time of data collection.
- Refused to complete or provide information on COVID-19 precaution checks, such as illness history and potential exposure.
- Females between the ages of 15 and 17, who are not emancipated minors, and whose parent or guardian is either unavailable or unwilling to give permission for her to participate.

#### **Selection of Clusters**

Within the study team, the research firm Research and Innovations Hub (RIH), based in Monrovia, led the selection of clusters in accordance with the overall MBS protocol. The study team obtained a comprehensive list of clusters (EAs) from the Liberia Institute of Statistics and Geo-Information Services. However, the most recent census in Liberia was conducted in 2008, so the information was somewhat out of date. EAs for each of the three health regions (described above) were divided into two strata: urban and rural. From each stratum, a number of EAs were selected using probability proportional to size. A total of 190 clusters or EAs were selected for inclusion in the study: 79 from Greater Monrovia, 63 from South Central, and 48 from North Central (eventually, 51 EAs in North Central were enumerated). For more detail on cluster selection, please see Annex B. The distribution of the sample is shown in Figure 2.

#### Figure 2.

Proportion of Sampled Households, by Region



#### **Selection of Households**

In each selected EA, the study team first obtained approval from community leaders and then created or updated a sketch map of the EA. The study team then conducted a census of households in the EA. EAs that were too large for complete household listing were sectioned into equal parts, with one section then being randomly selected. In EAs that had fewer than 247 households, an adjacent EA was selected and enumerated, and the remaining households required from the adjacent EA were randomly selected. Once household listing was complete, the study team selected 21 households from the list using the Random Number Generator app. For the purpose of this survey, a household was defined as a group of people who live in the same dwelling, share meals, and recognize one individual as the head of the household.

#### **Selection of Individuals**

Members of the field team visited each of the 21 randomly selected households, obtained informed consent, and then administered the household questionnaire to the household's head or their representative. Upon completion of the household questionnaire, the fieldworkers selected consenting females of reproductive age (15–49 years) who were members of the household to complete the women questionnaire. For unmarried women less than 18 years old, a parent's or guardian's permission was sought first. In every third selected household, a consenting spouse/partner of one of the women previously interviewed completed the men's questionnaire.

#### **Final Sample Obtained**

The intended sample size was 3,912 households, rounded to 4,000 households, as described above. The research team selected and interviewed the heads of 3,930 households, and conducted a total of 9,962 interviews (4,795 women, 1,237 men), which exceeded the minimum necessary sample (Table 4). Among households with eligible respondents available when the field team visited their community, less than 1% refused to participate.

In all, our sample collected included 3,930 households, with 4,795 women and 1,237 men participating. Nearly the entire sample of data was sufficiently clean for analysis. The final data for analysis included adults in 3,719 households, with 4,677 female respondents and 1,145 male respondents.

#### Table 4.

	Greater Monrovia (Low Prevalence)	South Central (Moderate Prevalence)	North Central (High Prevalence)	Overall (Total)			
Enumeration areas (clusters)	79	63	51	193			
Households enumerated	13,856	5,145	5,529	24,530			
Households eligible	9,852	4,058	3,675	17,585			
Households consented	3,814	3,255	2,893	9,962			
Households randomly selected from eligible enumerated households	1,544	1,322	1,064	3,930			
Surveys conducted							
Heads of household	1,544	1,322	1,064	3,930			
Women	1,838	1,485	1,472	4,795			
Men	432	448	357	1,237			
Total	3,814	3,255	2,893	9,962			
Note: <sup>a</sup> Data from University of Liberia Pacific Institute for Research and Evaluation (UL-PIRE, 2022, p. 9–10).							

Number of Households and Women and Men Participants per Region, Sample Obtained<sup>a</sup>

### Data Collection and Analysis

#### **Data Collection Tools**

The household questionnaire explored household characteristics such as asset ownership and a roster of all bed nets in use. Both women's and men's questionnaires included modules assessing net use, care, and disposal; perceptions of health services; and ideational factors including knowledge, perceived severity, perceived vulnerability, perceived efficacy of prescribed responses, attitudes, perceived self-

efficacy, norms, social interactions and influence, and emotional response related to malaria behaviors. Both questionnaires also explored recall of or participation in malaria-related communication interventions. Women's questionnaires also explored antenatal care (ANC) and receipt of IPTp among women who had a live birth within the past two years, as well as care-seeking and receipt of appropriate treatment for children who had a fever in the past two weeks.

#### **Data Collection**

Breakthrough ACTION hired the Liberian research firm UL-PIRE to undertake data collection in the study sites. UL-PIRE and Breakthrough ACTION created digital versions of the questionnaires using ODK Collect and loaded them on Android tablets. In November 2021, staff from UL-PIRE, Breakthrough ACTION Liberia, NMCP, and RIH co-facilitated a five-day training of 22 enumerators (seven adult women, 15 adult men), six supervisors, and 13 monitors. The training was followed by one day of pretesting the data collection instruments and procedures in two non-survey communities/EAs near Monrovia. Six teams collected data in Greater Monrovia from November 15 to December 22, 2021.

In February 2022, staff from UL-PIRE, Breakthrough ACTION Liberia, NMCP, and RIH co-facilitated a three-day refresher training of 55 enumerators/supervisors, of whom 51 (19 women and 32 men) were selected to continue; six (three women and three men) were designated as supervisors, and Breakthrough ACTION Liberia provided 10 monitors/back-checkers. Teams completed data collection in Greater Monrovia between February 18 and 21. Between February 23 and March 14, three teams (27 data collectors) collected data in the South Central region while three other teams (24 data collectors) collected data in the North Central region. Teams of data quality control agents (back-checkers) from RIH and Breakthrough ACTION visited about 10% of surveyed households and asked specific questions using a digital questionnaire designed to assess the accuracy of the original interview responses. There was a skip pattern error caught very early on during data collection in Monrovia. It did not have a significant impact on overall study data quality. The few tables that were minimally affected, namely those related to intention to uptake IPTp or attend ANC early in a future pregnancy, include a note about the Monrovia sample for readers to take into account. During both periods of data collection, Breakthrough ACTION and NMCP staff visited teams in the field to monitor their progress and provide needed support. At the end of data collection, UL-PIRE submitted three clean datasets, one each for households, women, and men to Johns Hopkins Center for Communication Programs (CCP). CCP worked with UL-PIRE to clean the data, which CCP then analyzed using Stata 16.0.

Throughout data collection, appropriate COVID-19 prevention protocols were implemented in adherence with the Liberian Ministry of Health guidelines, as follows:

- Daily temperature and COVID-19 symptom screening were to be conducted for all study staff during training and data collection.
- All respondents wore a face mask during data collection.
- All respondents were verbally screened for COVID-19 symptoms.
- Regular hand sanitizer use and physical distancing of at least two meters were ensured.

Table 5 summarizes household listing, eligibility, recruitment, and survey conducted across the regions.

#### Table 5.

	Households			Surveyed					
Region	Enumerate d	Eligible	Consenting	Households Heads	Men	Women	Total		
Greater Monrovia	13,856	9,852	3,814	1,544	432	1,838	3,814		
South Central	5,145	4,058	3,255	1,322	448	1,485	3,255		
North Central	5,529	3,675	2,893	1,064	357	1,472	2,893		
Total	24,530	17,585	9,962	3,930	1,237	4,795	9,962		
Note: <sup>a</sup> Data from UL-PIRE (2022).									

Enumerated, Eligible, Consenting, and Surveyed Households, by Region<sup>a</sup>

#### **Data Analysis Procedures**

Structural factors assessed in the analyses included gender, educational attainment, wealth index, access to health facilities, and urban/rural residence. Ideational factors explored included respondents' malaria knowledge, attitudes, threat perceptions (i.e., severity and susceptibility), response-efficacy and self-efficacy, community or gender norms, service delivery (community- and facility-based health workers as well as health facilities in general), and interpersonal communication regarding malaria.

Complete knowledge was defined as having correct responses to all relevant knowledge questions. For questions assessing attitudes or perceptions, variables were recoded as +1 for a positive perception, -1 for a lack of positive attitude, and 0 for "don't know" responses. Scores were then summed to obtain an index of perceptions and attitudes. Respondents with a score greater than zero were considered to have favorable perceptions or attitudes. Interpersonal communication was coded as "yes" if the respondent engaged in discussions related to malaria with a spouse/partner or family/friends.

Key behavioral outcomes were defined as follows:

- Use of available nets the previous night by household members.
- Consistent use of a net every night of the week.
- Care of nets by tying or folding them up when not in use and employing appropriate washing methods.
- Attendance at ANC among women who were pregnant in the past two years.
- Uptake of IPTp among women who were pregnant in the past two years.
- Intention to attend ANC early among women planning a future pregnancy.
- Intention to take IPTp among women planning a future pregnancy.
- Prompt and appropriate care-seeking for children who had a fever in the past two weeks, defined as seeking treatment the same day or next day following the onset of fever at a health facility or from a community health worker (CHW).

Cross-tabulations and multivariable regression analyses were used to examine relationships between structural factors, ideational factors, and outcomes of interest. Please note we use the term "structural factors" rather than sociodemographic characteristics because epidemiological analyses typically transmute relational and structural factors (e.g., social class, wealth, education, access to resources, and gender) into individual-level factors (referred to as background or sociodemographic characteristics), which places the onus on the individual rather than on the policies and systems that determine who has access to what and under what circumstances. SBC communication programming must address the structures that create disadvantages for some people and privileges for others. An initial step is to properly name these factors.

The study team analyzed descriptive statistics to examine structural, ideational, and behavioral covariates. Bivariate associations between the primary outcomes of interest and key explanatory variables of interest were first examined using simple logistic regressions and were included in multivariate models only when found to be significantly associated (p<0.2) with the outcome at the bivariate (unadjusted) level, which is in keeping with the 1 in 10 rule of statistics.<sup>32</sup> As described below, multivariate regression models were then conducted, and variables of significance (p≤0.05) are noted in this report. All data was analyzed using Stata 17 software.

These results are cross-sectional, which yields evidence of correlations but precludes causal conclusions. Based on the MBS Liberia data alone, a reader should not conclude that one factor definitively *causes* another factor, since the data from each respondent was collected at one point in time.

#### Calculation of Derived Variables

Measures of ideational variables (e.g., positive attitudes, perceived self-efficacy to take actions, perceived response-efficacy of malaria treatment) were derived based on relevant questions from the women's and men's questionnaires. Similar to the analytic procedure described in the Malaria SBCC Indicator Reference Guide,<sup>33</sup> responses for each item were scored, scores for items measuring the same construct added together, and the resulting sum collapsed into dichotomous measures. Most of the ideational variables were measured by asking respondents to indicate agreement or disagreement on a Likert scale with statements such as "A blood test for malaria is the only way to know if someone really has malaria or not." Respondents were asked whether they agreed or disagreed with each statement. For these variables, each respondent received a score for that question based on their response and the wording of the question. For example, if agreement with the statement corresponded to a favorable response, the respondents were scored -1 for disagree, 0 for don't know/not sure, and 1 for agree. If disagreement with the statement corresponded to a favorable response, the scoring for that particular statement was reversed. An index score<sup>34</sup> was calculated to reflect how each individual responded to

<sup>&</sup>lt;sup>32</sup> Harrell et al. (1984) and Sperandei (2014).

<sup>&</sup>lt;sup>33</sup> RBM Partnership to End Malaria (2017).

<sup>&</sup>lt;sup>34</sup> The index score was the sum of the individual question scores across all the questions for a given ideational factor. A binary variable was then created by splitting the index score at 0 to distinguish between those with and without the favorable ideational characteristic.

the set of questions for the same ideational construct. Favorable responses for ideational characteristics were defined as index scores greater than 0.

#### Multivariate Logistic Regressions

In addition to presenting the prevalence of recommended malaria behaviors and their psychosocial determinants, this report also presents the results of multivariable logistic regression to assess associations between outcomes and several background and ideational variables. The results presented in the tables show the relationships between the behavioral outcome and the predictor variables, expressed as odds ratios (OR) with 95% confidence intervals (CI). The multivariate regression models are useful to identify the potentially modifiable variables that programs could focus on in attempts to change behavioral outcomes. To inform the multivariate models, as described above, the research team first conducted bivariate regression tests in all regions, and statistically relevant variables (wherein  $p \le 0.2$ ) were retained and included.

### **Research Ethics**

Study protocols and tools received approval from the institutional review boards at the UL-PIRE Africa Center (Protocol 21-09-283) and the Johns Hopkins Bloomberg School of Public Health (Institutional Review Board 00014045). All project staff received training on approved study protocols and research ethics, including obtaining informed consent. All study participants provided signed informed consent after trained data collectors explained the purpose of the survey, the types of questions that would be asked, the potential risks associated with participating in the survey, and the actions the study team would take to protect the confidentiality of the participants. In addition, data collectors explained that participants did not have to participate in the study, that they could decide at any point to discontinue their interview, and that they did not need to answer any questions they did not want to. To protect the identity of participants, nicknames were used when possible, instead of legal names.

Respondents were interviewed outside the hearing range of others. We paid special attention to ensure that the respondent was not under any pressure from other household members to participate in the study. For example, individual potential male and female respondents were still at liberty to opt out of the study even if the head or other adult member of the household agreed to participate. Similarly, a woman was not obliged to participate in the survey simply because her husband had agreed to participate or vice versa. Each participant made an informed decision to participate or not.

## Results

This section summarizes the results of the MBS, including structural factors, cross-cutting ideational factors, case management for fever in children under five, malaria in pregnancy, ITNs, and media consumption and messages. This section also reviews the characteristics of participant households, including basic descriptions, physical characteristics, and household assets. Sociodemographic information about respondents, such as level of education and age category, are also presented. Some

data was not retained during the data cleaning process due to discrepancies observed across datasets. The final data for analysis included 5,822 adults respondents (4,677 females and 1,145 male) in 3,719 households.

All differences described in the narrative text of this report are statistically significant at the p≤0.05 level.

## Sample Description

#### **Household Characteristics**

On average, households in the three study regions had 1.9 sleeping rooms, and 1.8 people sleeping per room; these characteristics did not differ significantly by region, although all other household characteristics were significantly different by region. On average, 52% of households had finished walls<sup>35</sup> (29% for South Central), 95% had finished roofs,<sup>36</sup> and 58% had finished floors<sup>37</sup> (80% in Greater Monrovia). About 32% of households had electricity overall, but this varied greatly by region (79% in Greater Monrovia, 27% in South Central, and 13% in North Central).

Overall, 43% of households were near (located five kilometers or less, 30 minutes or less on foot, or 10 minutes or less by car) a public health facility, 32% were near a private health facility, and 45% were near a pharmacy/chemist, with substantial variation by region. A greater proportion of households in Greater Monrovia region were near these facilities than were households in South Central or North Central regions: 69% in Greater Monrovia were near a private health facility compared with only 11% in South Central; 75% in Greater Monrovia were near a private health facility compared with only 16% in North Central; and 78% in Greater Monrovia were near a pharmacy/chemist compared with only 24% in South Central (see Table A.1.1.).

<sup>&</sup>lt;sup>35</sup> Finished walls included those that were made of cement, brick, covered adobe, or wood planks/shingles.

<sup>&</sup>lt;sup>36</sup> Finished roofs included those that were constructed using metal.

<sup>&</sup>lt;sup>37</sup> Finished floors included those that were made of polished wood or cement.

Figure 3. Study Sample

Study Sample					
	3,719 households with 16,740 members				
Ť	1,145 Male respondents				
Ť	<b>4,677</b> Female respondents				

#### **Household Ownership of Selected Assets**

Asset ownership differed significantly between Greater Monrovia and the other two regions for all reported assets except motorcycles. More respondents from Greater Monrovia reported owning household assets than did respondents from North or South Central (see <u>Table A.1.2.</u>). Overall, 37% of households owned a radio and 19% had a television. Household ownership of a simple mobile phone was high, at 73%, and varied from 83% in Greater Monrovia to 69% in North Central. About one-third of households reported smartphone ownership, ranging from 23% in North Central to 61% in Greater Monrovia. On average, 14% of respondents owned motorcycles, with ownership being more common in South Central (18%) and North Central (17%) than in Greater Monrovia (7%).

#### **Population Characteristics**

Surveyed households comprised 16,740 individuals (see <u>Table A.1.3</u>). About half of the sample of household residents was under 18 years of age. Slightly more household members were women (55%) than men, and more (57%) were rural than urban.

Characteristics of the sample of respondents are presented in Table 5 (also see <u>Table A.1.4.</u>). The sample was designed to interview all women ages 15–49 who lived in the household, and one man in every third household. As anticipated, 82% of respondents were female and 18% were male. Approximately 37% of respondents were aged 15–24. While 55% of all respondents lived in rural areas, residency differed significantly by region: all of those in Greater Monrovia were urban, while 78% of South Central and 71% of North Central were rural.

Nearly a quarter (24%) of respondents had no education, a quarter (25%) had elementary education, a fifth (20%) had completed senior high school, and less than one-tenth (7%) had more than high school. While the household wealth quintiles are designed to be evenly distributed across the entire sample, significant differences were found by region, with 81% of the Greater Monrovia sample falling into the

highest two wealth quintiles, and 44% of South Central and 53% of North Central falling into the lowest two wealth quintiles (see <u>Table A.1.2.</u>).

#### Table 6.

	Greater Monrovia	South Central	North Central	Total		
	(n=2,206)	(n=1,871)	(n=1,745)	(n=5,822)		
Sex						
Female	82	79	82	82		
Male	18	21	18	18		
Age, years						
15–24	26	33	42	37		
25–34	38	30	26	29		
35–44	26	22	21	22		
≥45	10	15	11	11		
Residence						
Urban	100	22	29	45		
Rural	n/a	78	71	55		
Education						
No education	16	25	26	24		
Elementary	13	19	30	25		
Junior high	19	17	24	22		
Senior high	32	23	16	20		
Vocational/technical	2	1	1	1		
Higher	17	16	3	7		
Total, %	100	100	100	100		

Sociodemographic and Structural Characteristics of Respondents, by Region

## Supplemental Information

See the following tables in Annex A.1 for additional information on these indicators.

- <u>Table A.1.1. Housing Characteristics, by Region</u>
- Table A.1.2. Household Ownership of Assets and Wealth Quintiles, by Region
- Table A.1.3. Characteristics of Household Members, by Region
- Table A.1.4. Sociodemographic and Structural Characteristics of Respondents, by Region

## **Cross-Cutting Ideational Determinants**

Cross-cutting ideational factors related to malaria in Liberia included general comprehensive knowledge of malaria, perceived severity of—and susceptibility to—malaria, malaria-related interpersonal
communication, perceptions of facility- and community-based health workers, and perceived gender norms related to malaria.

#### Comprehensive knowledge of malaria

Proportion of respondents who have: (i) not mentioned any incorrect cause of malaria, (ii) have identified fever as the primary symptom of malaria, and (iii) who mention at least one major proven preventative measure (sleep under net, sleep under ITN, take preventative medications, or use IRS). *Sample:* All individual respondents

Specific sub-items are presented in Table A.2.1

Perceived equitable gender norms

Proportion of respondents who have favorable gender norms regarding malaria prevention and treatment.

Sample: All individual respondents

Specific sub-items are presented in Table A.2.7

#### Overall favorable perceptions of facility-based health providers

Proportion of respondents who have favorable perceptions of facility-based health care providers related to general care for malaria. *Sample:* All individual respondents

Specific sub-items are presented in Table A.2.5

#### Overall favorable perceptions of community-based health providers

Proportion of respondents who have favorable perceptions of community-based health care providers related to general care for malaria.

Sample: All individual respondents

Specific sub-items are presented in Table A.2.6

#### Perceived susceptibility

Proportion of respondents who perceive they are at risk from malaria. *Sample:* All individual respondents

Specific sub-items are presented in Table A.2.2

#### **Perceived severity**

Proportion of respondents who feel that consequences of malaria are serious. *Sample:* All individual respondents

Specific sub-items are presented in Table A.2.3

#### Interpersonal communication about malaria with spouse/partner

Proportion of respondents who report that they discussed malaria with their spouse or partner at any time within the six months preceding the survey.

Sample: All currently married or cohabitating individual respondents

#### Interpersonal communication about malaria with friends/family

Proportion of respondents who report that they discussed malaria with their family or friends at any time within the six months preceding the survey.

Sample: All individual respondents

#### Figure 4.

Malaria-Related Ideational Factors at a Glance\*

-`@	<b>23%</b> Comprehensive knowledge of malaria
<b>∱</b>   <b>∱</b>	98% Perceived equitable gender norms
Â	92% Overall favorable perceptions of facility-based health providers
	81% Overall favorable perceptions of community- based health providers
A.	82% Perceived susceptibility
<u>v</u>	46% Perceived severity
Ŕ	23% Interpersonal communication about malaria with spouse/partner
<b>ÅNAN</b>	<b>18%</b> Interpersonal communication about malaria with friends/family

\*Green (75-100%), Blue (60-74%), Yellow (45-60%), Red (<45%)

Table 7, at the end of this section, presents a summary of cross-cutting ideational factors. Reported comprehensive knowledge of malaria was low, at 23%, and varied by region and education.<sup>38</sup> Only 17% of respondents in Greater Monrovia had correct knowledge, compared with 25% of those in both North Central and South Central. The relationship between comprehensive knowledge and education was not linear: more of those with a senior high education had comprehensive knowledge (29%) compared with those with other educational backgrounds.

Equitable gender norms were close to universal (98%). Full details of the questions that compose this indicator are available in Table A.2.7. Nearly all respondents had favorable attitudes towards facility-based health workers (92%) and most had favorable attitudes towards CHWs (81%). These favorable attitudes included those also captured in subsections of this report (e.g., favorable attitudes towards facility-based workers regarding malaria treatment and care). Further information on favorable attitudes towards health workers can be found in Tables A.2.5, A.2.6, A.3.10, A.3.11, A.4.11, and A.4.12.

More than 80% of respondents reported believing they or their children were at risk of contracting malaria (perceived susceptibility, 82%). Perceived susceptibility was assessed by measuring a respondent's agreement with four related statements, covering perceptions of contracting malaria based on seasonality and perceived prevalence of malaria within their community (see Table A.2.2). However, the perceived severity of malaria was moderate (46%). Perceived severity was assessed by measuring a respondent's agreement with four related statements, primarily covering perceived consequences of contracting malaria (see Table A.2.3). Perceived susceptibility was slightly lower in Greater Monrovia (76%) than in South Central (87%) or North Central (83%). More men (87%) perceived themselves to be susceptible to malaria than did urban dwellers. Perceived malaria susceptibility was slightly more common with respondents who were older and from poorer households.

In contrast to the overall high levels of perceived susceptibility, less than half (46%) perceived malaria as potentially severe, with no statistically significant differences by structural covariates (e.g., gender, residence, region, age) in the overall sample. Within the South Central region, more of the respondents with higher levels of education perceived malaria to be severe than did those at lower levels of education, and this correlation was statistically significant.

Less than a quarter of study participants overall had discussed malaria with a spouse, partner, or friend within the six months prior to the survey. More men than women (35% versus 16%) reported that they had discussed malaria with their spouse.<sup>39</sup>

<sup>&</sup>lt;sup>38</sup> For more information, please see Table A.2.8. Reported knowledge of malaria is defined as "yes" for respondents who do not mention any incorrect cause of malaria, who name fever as the primary symptom of malaria, and who mention at least one major proven preventative measure (sleep under net, sleep under ITN, take preventative medications, or use IRS).

<sup>&</sup>lt;sup>39</sup> Men were recruited into the study because they were a spouse/partner to a woman who was also in the study. The substantial and statistically significant discordance in men's and women's recall of spousal communication

# Supplemental Information

See the following tables in Annex A.2 for additional information on these indicators.

- Table A.2.1. Correct Knowledge of Malaria, by Region
- <u>Table A.2.2. Perceived Susceptibility to Malaria</u>
- <u>Table A.2.3. Perceived Severity of Malaria</u>
- Table A.2.4. Interpersonal Communication Regarding Malaria
- Table A.2.5. Perceptions Regarding Facility-Based Health Workers
- Table A.2.6. Perceptions Regarding CHWs
- Table A.2.7. Gender Norms Related to Malaria
- Table A.2.8. Summary of Cross-Cutting Ideational Determinants

about malaria might be attributable to several factors, including women underreporting (or under-remembering) discussion with their spouse/partner and men overreporting (or over-remembering) discussion with their spouse/partner. Social desirability bias may play a role in individuals' responses.

### Table 7.

### Summary of Cross-Cutting Ideational Determinants<sup>a</sup>

	Reported Knowledge of Malaria (n=5,822)	Perceived Susceptibility to Malaria (n=5,822)	Perceived Severity of Malaria (n=5,822)	Reported Interpersonal Communication About Malaria with Spouse/Partner (n=4,134)	Reported Interpersonal Communication About Malaria with Friends/Family (n=5,822)	Hold Favorable Attitudes of Facility-Based Health Workers (n=5,822)	Hold Favorable Attitudes of CHWs (n=5,822)	Perceived Positive Gender Norms Related to Malaria (n=5,822)
Region	**	*			***	***	**	
Greater Monrovia	17	76	45	25	21	84	68	96
South Central	25	87	55	31	24	96	85	99
North Central	25	83	46	21	16 94		85	99
Sex		***		***			*	
Female	24	78	45	16	17	92	82	98
Male	22	87	49	35	21	91	79	99
Age, years		**		***	**		***	
15–24	21	77	42	12	13	91	81	97
25–34	20	82	44	24	16	91	80	98
35–44	27	84	49	28	22	91	82	99
≥45	26	86	53	36	26	94	83	100
Residence		*			***	***	**	
Urban	21	78	46	24	18	87	74	97
Rural	25	84	46	22	19	95	86	99
Education	**			***	***	***	*	
No education	24	79	46	16	13	95	88	99
Elementary	21	81	44	15	14	91	83	97
Junior high	20	80	46	19	17	91	81	96
Senior high	29	84	47	32	22	90	76	99

	Reported Knowledge of Malaria (n=5,822)	Perceived Susceptibility to Malaria (n=5,822)	Perceived Severity of Malaria (n=5,822)	Reported Interpersonal Communication About Malaria with Spouse/Partner (n=4,134)	Reported Interpersonal Communication About Malaria with Friends/Family (n=5,822)	Hold Favorable Attitudes of Facility-Based Health Workers (n=5,822)	Hold Favorable Attitudes of CHWs (n=5,822)	Perceived Positive Gender Norms Related to Malaria (n=5,822)
Vocational/ technical	12	84	40	39	23	92	55	94
Higher	17	84	54	44	36	90	74	97
Wealth quintile		*		*	***	***		
Lowest	23	86	49	18	18	96	90	99
Second	23	83	47	19	15	96	89	98
Middle	23	82	45	23	15	89	80	98
Fourth	27	79	43	25	20	88	75	98
Highest	17	77	49	32	27	88	70	97
Total, %	23	82	46	23	18	92	81	98

*Notes:* <sup>a</sup>Table values are percentages. For more information, please see Table A.2.8. Reported knowledge of malaria is defined as "yes" for respondents for whom the following are true: (1) the respondent does not mention any incorrect cause of malaria, (2) the respondent names fever as the primary symptom of malaria, and (3) the respondent mentions at least one major proven preventative measure (sleep under net, sleep under ITN, take preventative meds, or IRS). This formulation of the comprehensive knowledge score is different from some of the previous MBSs in other countries. Those MBSs considered knowledge as correctly identifying fever as the main symptom of malaria, not mentioning any incorrect causes of malaria, and identifying any of four major proven preventative measures for malaria, including use of mosquito nets, use of ITNs, IRS, or preventative medication for malaria. The approach taken here for the Liberia MBS is more robust with respect to missing data and indicator stability. Significance of differences: \*p≤0.05; \*\*p≤0.01; \*\*\*p≤0.001.

# Malaria Case Management for Children Under Five Years Old

This section describes the ideational factors related to malaria case management for children under five, the prevalence of relevant behaviors, and the associations between ideational factors, sociodemographic and structural factors, and the behavior using logistic regression. Questions were asked among female caregivers of children under five years of age. All differences reported in this section, unless otherwise noted, are statistically significant.

#### Knowledge of malaria care-seeking and treatment

Proportion of respondents who: (i) identify ACTs as medicine that can be used to treat malaria, (ii) identify the same or next day as the time period within which they should seek care for a child under five years old with a fever, (iii) identify a blood test as the best way to know if someone has malaria, and (iv) identify the health facility or community health worker as the best place to go if one has malaria.

Sample: All individual respondents

Specific sub-items are presented in Table A.3.3

#### Favorable attitudes towards care-seeking and treatment

Proportion of respondents who have favorable attitudes towards care-seeking and treatment for malaria.

Sample: All individual respondents

Specific sub-items are presented in Table A.3.4

#### Perceived self-efficacy to seek testing and treatment

Proportion of respondents who feel confident in their ability to seek malaria testing and treatment for a child with a fever.

Sample: All individual respondents

Specific sub-items are presented in Table A.3.7

#### Perceived response efficacy of malaria testing

Proportion of respondents with perceived response efficacy of malaria testing. *Sample:* All individual respondents

Specific sub-items are presented in Table A.3.5

#### Perceived response efficacy of malaria treatment

Proportion of respondents with perceived response efficacy of malaria treatment.

Sample: All individual respondents

Specific sub-items are presented in Table A.3.6

**Perception that most people seek prompt care for child** Proportion of respondents who believe the majority of caregivers in their community take their children to a health provider on the same day or day after they develop a fever. **Sample:** All individual respondents

#### Perceived equitable gender norms for malaria treatment

Proportion of respondents with positive gender norms related to the treatment of malaria in children. *Sample:* All individual respondents

Specific sub-items are presented in Table A.3.8

Favorable perceptions of health facilities regarding malaria care-seeking and treatment

Proportion of respondents with favorable perceptions of health facilities regarding their ability to test and treat malaria.

Sample: All individual respondents

Specific sub-items are presented in Table A.3.10

**Favorable perceptions of facility-based health workers regarding malaria testing and treatment** Proportion of respondents with favorable perceptions of facility-based health workers regarding their ability to test and treat malaria in children. **Sample:** All individual respondents

Specific sub-items are presented in Table A.3.11

**Favorable perceptions of community health workers regarding malaria testing and treatment** Proportion of respondents with favorable perceptions of community health workers regarding their ability to test and treat malaria in children. **Sample:** All individual respondents

Specific sub-items are presented in Table A.3.12

Involved in care-seeking decision when child has fever

Proportion of married or cohabiting respondents who are involved in making decisions about going to the health facility when their child has a fever.

Sample: All currently married or cohabitating individual respondents

**Involved in care-seeking decision when respondent has fever** Proportion of married or cohabiting respondents who are involved in the decision about what to do when they themselves are sick.

Sample: All currently married or cohabitating individual respondents

### **Ideational Variables Linked with Care-Seeking**

Ideational variables in this section focused on knowledge of care-seeking and treatment, favorable attitudes towards care-seeking and treatment, perceived response-efficacy of malaria testing and malaria treatment, perceived self-efficacy of malaria testing and treatment, supportive descriptive community norms regarding malaria testing and treatment, perceived equitable gender norms related to malaria treatment, perceived supportive injunctive community norms supporting care-seeking and treatment, and favorable perceptions of health facilities and service providers related to testing and treatment for malaria (Figure 5).

For several variables, more than 90% of respondents gave favorable responses: they had favorable attitudes towards care-seeking and treatment (91%) and self-efficacy to seek testing and treatment (91%) and perceived equitable gender norms related to treatment (97%). Results for other variables were more varied, as discussed below.

### Figure 5.

Malaria Care-S	eeking and Treatment: Ideational Factors at a Glance							
	40%							
	Knowledge of malaria care-seeking and treatment							
	91%							
	Favorable attitudes towards care-seeking and treatment							
¥	91%							
	Perceived self-efficacy to seek testing and treatment							
	64%							
	Perceived response efficacy of malaria testing							
2	72%							
	Perceived response efficacy of malaria treatment							
	34%							
	Perception that most people seek prompt care for child							
	97%							
<b>^</b>   <b>^</b>	Perceived equitable gender norms for malaria treatment							
•	72%							
	Favorable perceptions of health facilities regarding malaria							
	care seeking and treatment							
6	regarding malaria testing and treatment							
	56%							
	Favorable perceptions of community health workers regarding							
	malaria testing and treatment							
i i i i i i i i i i i i i i i i i i i	81%							
<u> </u>	Involved in care-seeking decision when child has fever							
	41%							
11 1	Involved in care-seeking decision when respondent has fever							

Malaria Care-Seeking and Treatment: Ideational Factors at a Glance\*

\*Green (75–100%), Blue (60–74%), Yellow (45–60%), Red (<45%)

### Figure 6.

Percentage of Respondents with Specific Knowledge of Malaria Care-Seeking and Treatment, by Region



# Percentage of respondents with specific knowledge of malaria care-seeking and treatment, by region, Liberia 2021

# Note: Significance noted in this graph represents statistical significance for a respective indicator across survey regions

Correct knowledge of care-seeking and treatment is a composite indicator that was measured by responses to four questions (Figure 6). Only 40% of respondents reported correct knowledge of malaria case management. Responses varied significantly by region, sex, and wealth. More respondents in South Central (51%) had correct knowledge than those in Monrovia (43%) or North Central (38%). More men (44%) than women (38%) had correct knowledge. Knowledge varied by wealth. More respondents from wealthier households knew correct information about care-seeking and treatment than those from poorer households: 47% of those in the highest wealth quintile reported correct knowledge of case management compared with only 27% of those in the lowest wealth quintile.

Perceived response-efficacy of the blood test for malaria is also a composite indicator that was measured by responses to three statements about the blood test. Overall, about 64% of respondents perceived the malaria blood test to be effective. More respondents (72%) perceived malaria treatment to be effective, as measured by responses to two statements about treatment. Nearly all respondents (97%) felt that the drugs obtained from a health facility are effective, but many (69%) also felt that drugs bought in the market are as good as those from a health facility.

Only 34% of respondents perceived that most people in their community seek care promptly at a health facility for a child with a fever, and this descriptive community norm differed by region, residence, education, and wealth. While 40% of respondents in North Central perceived a strong descriptive community norm for prompt care-seeking for fever, only 17% in South Central and 24% in Greater Monrovia did. The descriptive community norm was stronger in rural (39%) than urban (28%) areas, and stronger among those with less education and less household wealth. Only 9% of respondents perceived

an injunctive norm in support of prompt care-seeking and treatment, meaning that only 9% of respondents reported that they felt that most people in the community approve of prompt (within a day or next day of developing a fever) care-seeking for children with fever. This perception was measured by the respondent's agreement with a statement about what others think the respondent should do with a feverish child.

Most respondents (72%) had favorable perceptions of health facilities regarding care-seeking and treatment, and this perception was stronger in South Central (83%) than in the other study regions. Most respondents (61%) had favorable perceptions of facility-based health workers regarding care-seeking and treatment, and this varied by region, residence, level of education, and wealth. Only 36% of respondents in Greater Monrovia held favorable perceptions of facility-based health workers regarding malaria testing and treatment, as compared with more widely held regard in South Central (83%) and North Central (71%). Overall, just over half (56%) of all respondents had favorable perceptions of CHWs regarding malaria testing and treatment, and this also varied by region, residence, education, and wealth. Only 39% of those in Greater Monrovia had a favorable perception of CHWs regarding care-seeking and treatment, compared with 64% in South Central and 61% in North Central.

### **Relevant Behaviors and Outcomes**

Female respondents who were caregivers of children under five were asked about relevant malaria case management behaviors (Table 8). Twenty-one percent of caregivers (n=2,391) reported that at least one of their children under five years old had a fever in the two weeks prior to the survey. More respondents in Greater Monrovia (29%) reported a child under five with a fever than did respondents in South Central (25%) or North Central (18%). Reported fever prevalence varied by wealth quintile but the relationship is nonlinear.

Among caregivers who reported an episode of fever among their children under five in the two weeks preceding the study, the results indicated the following:

- Eighty-six percent sought care for the fever.
- Seventy percent reported that they sought treatment on the same day or the next day.
- Sixty-six percent reported that they first sought treatment for the child from a health facility or community worker.
- Sixty-three percent reported that the child was tested for malaria.

Care-seeking for fever as well as being tested for malaria was no more likely for those who lived near a facility than for those who lived farther from a facility—any differences were not statistically significant (Table A.3.15.)

#### Figure 48





Of the caregivers who reported that their child was tested for malaria, 80% reported that the child had a positive malaria test. Among children with confirmed malaria, their caregivers reported that 65% received any artemisinin-based combination therapy (ACT) and 48% reported receiving ACT promptly. Caregivers of children aged 12–23 months more frequently reported that their children received ACT than those of children under 12 months or over two years. Among caregivers of children with confirmed malaria who were aged 12–23 months, only 39% reported that their child received ACT promptly, compared with 49% of those with children younger than a year and 50% of those with children older than two years.

#### **Advanced Analysis**

Adjusted logistic regression analysis was used to explore ideational factors related to prompt and appropriate care-seeking by female caretakers (n=609) for children under five who had had a fever in the two weeks prior to the survey. Prompt and appropriate care is defined as care-seeking within one day of the onset of the child's fever from a health facility or community-based health provider. The ideational factors explored in this advanced analysis are listed in Table 9 (end of this section) and Figure 8.

For the purposes of our analysis, we observed two components of knowledge related to prompt and appropriate care-seeking: knowledge of appropriate care-seeking (naming the health facility or CHW as the best place to go if one thinks somebody has malaria) and knowledge of prompt care-seeking (stating that one should seek care for a child with fever the same or next day after onset). Respondents who know the importance of seeking care promptly were **eight times more likely** to report that they took a sick child for prompt and appropriate care within the past two weeks, as compared with other caregivers with a sick child (adjusted odds ratio [aOR]: 8, 95% CI: 3.0–21.3). Knowing what appropriate care is (aOR: 3.1, 95% CI: 1.2–7.9) and perceiving that the care is effective (aOR: 1.7, 95% CI: 1.1–2.6) were also associated with promptly taking a sick child for care. Being in the middle or fourth wealth quintile was associated with less prompt and appropriate care-seeking.

Figure 49





# **Supplemental Information**

See the following tables in Annex A.3 for additional information on these indicators.

- Table A.3.1. Ideational Variables Related to Malaria Case Management
- <u>Table A.3.2. Regression Exploring Factors Associated with Prompt and Appropriate Care-Seeking</u> for Fever in Children Under Five Years in the Past Two Weeks
- Table A.3.3. Knowledge of Malaria Care-Seeking and Treatment
- Table A.3.4. Attitudes Towards Malaria Care-Seeking and Treatment
- Table A.3.5. Perceived Response-Efficacy of Malaria Testing
- Table A.3.6. Perceived Response-Efficacy of Malaria Treatment
- <u>Table A.3.7. Perceived Self-Efficacy for Malaria Testing and Treatment</u>
- Table A.3.8. Gender Norms Related to Malaria Treatment
- Table A.3.9. Perceived Community Norms Regarding Malaria Testing and Treatment
- Table A.3.10. Perceptions of Health Facilities Regarding Malaria Care-Seeking and Treatment
- <u>Table A.3.11. Perceptions of Facility-Based Health Workers Regarding Malaria Care-Seeking and</u> <u>Treatment</u>

- Table A.3.12. Perceptions of CHWs Regarding Malaria Care-Seeking and Treatment
- <u>Table A.3.13. Decision Making for Malaria Care and Treatment Among Respondents with</u> <u>Spouses/Partners</u>
- Table A.3.14. Care-Seeking and Testing of Children with Fever in the Past Two Weeks
- Table A.3.15. Treatment of Children with Fever
- <u>Table A.3.16. Logistic Regression Exploring Factors Associated with Prompt and Appropriate</u> <u>Care-Seeking for Fever in Children Under Five Years in the Past Two Weeks</u>

### Table 8.

### Summary of Ideational Variables Related to Malaria Case Management<sup>a</sup>

	Knowledge of Malaria Care- Seeking and Treatment	Favorable Attitudes Towards Care- Seeking and Treatment	Perceived Response- Efficacy of Malaria Testing	Perceived Response- Efficacy of Malaria Treatment	Perceived Self- Efficacy of Malaria Testing and Treatment	Perceived Supportive Descriptive Community Norms Regarding Malaria Testing and Treatment	Perceived Equitable Gender Norms Related to Malaria Treatment	Perceived Supportive Injunctive Community Norms Supporting Care- Seeking and Treatment	Favorable Perceptions of Health Facilities Regarding Care- Seeking and Treatment	Favorable Perceptions of facility Health Workers Regarding Care- Seeking and Treatment	Favorable Perceptions of CHWs Regarding Care- Seeking and Treatment
Region	*	*			*	***			***	***	***
Greater Monrovia	43	87	65	76	93	24	96	10	73	36	39
South Central	51	88	66	78	97	17	98	6	83	51	64
North Central	38	63	63	71	89	40	97	9	71	71	61
Sex	**										
Female	38	91	65	71	91	35	97	10	73	60	57
Male	44	92	62	74	92	33	96	8	71	61	56
Age, years					*			*			
15–24	38	90	65	68	87	34	95	11	73	61	56
25–34	39	90	63	71	92	33	97	7	71	63	56
35–44	44	91	61	77	93	35	97	10	71	60	58
≥45	40	93	67	76	95	37	97	7	77	58	57
Residence		***				**				***	***
Urban	43	88	65	69	91	28	96	10	70	46	47
Rural	39	94	63	75	91	39	97	9	74	72	64
Education				***	*	*	**			***	***
No education	35	91	61	64	92	37	99	9	72	70	64
Elementary	39	91	63	73	87	39	93	11	69	65	59

	Knowledge of Malaria Care- Seeking and Treatment	Favorable Attitudes Towards Care- Seeking and Treatment	Perceived Response- Efficacy of Malaria Testing	Perceived Response- Efficacy of Malaria Treatment	Perceived Self- Efficacy of Malaria Testing and Treatment	Perceived Supportive Descriptive Community Norms Regarding Malaria Testing and Treatment	Perceived Equitable Gender Norms Related to Malaria Treatment	Perceived Supportive Injunctive Community Norms Supporting Care- Seeking and Treatment	Favorable Perceptions of Health Facilities Regarding Care- Seeking and Treatment	Favorable Perceptions of facility Health Workers Regarding Care- Seeking and Treatment	Favorable Perceptions of CHWs Regarding Care- Seeking and Treatment
Junior high	38	90	62	71	90	36	97	8	75	62	59
Senior high	45	92	66	77	93	30	98	8	73	53	50
Vocational/technical	42	97	65	64	95	26	93	2	83	41	29
Higher	50	92	68	83	95	26	97	10	72	45	47
Wealth quintile	**					***				***	***
Lowest	27	94	66	69	94	44	96	7	82	74	72
Second	37	93	62	69	87	40	96	9	70	78	69
Middle	42	90	62	70	92	38	98	10	69	57	52
Fourth	46	89	65	81	92	24	97	9	70	48	45
Highest	47	90	68	76	94	24	95	10	77	39	43
Total	40	91	64	72	91	34	97	9	72	61	56
Notes: "Table values ar	re percentage	es; n=5,822 f	or all variabl	es. *p<0.05;	**p<0.01; *	**p<0.001.					

### Table 9.

Logistic Regression Exploring Factors Associated with Prompt and Appropriate Care-Seeking for Fever in Children Under Five Years of Age in the Past Two Weeks

	Percentage (n=609)	aOR	95% Confidence Interval
Age of caregiver in years			
15–24 (reference)	55	1.00	n/a
25–34	54	0.75	0.49–1.13
35–44	53	0.80	0.49–1.32
≥45	63	0.87	0.35–2.19
Education			
No education (reference)	53	1.00	n/a
Elementary	47	0.94	0.58–1.53
Junior high	63	1.14	0.66–1.98
Senior high	57	0.62†	0.35–1.09
Vocational/technical	59	1.25	0.23–6.73
Higher	61	0.91	0.42-1.98
Household wealth quintile			
Lowest	60	1.00	
Second	56	0.81	0.46-1.43
Middle	52	0.24–0.86	
Fourth	49	0.37**	0.18–0.77
Highest	57	0.50†	0.23–1.08
Region			
Greater Monrovia (reference)	49	1.00	n/a
South Central	50	0.86	0.44–1.71
North Central	59	0.96	0.48–1.92
Residence			
Urban (reference)	52	1.00	
Rural	58	0.70	0.37–1.32
Near a public or private facility			
Not near (reference)	54	1.00	
Near	55	1.44	0.93–2.23
Perceived severity			
No (reference)	47	1.00	
Yes	63	1.28	0.91–1.80
Perceived care-seeking and testing effectiveness			
No (reference)	48	1.00	
Yes	58	1.71*	1.12-2.59

	Percentage (n=609)	aOR	95% Confidence Interval
Perceived self-efficacy care-seeking			
No (reference)	33	1.00	
Yes	57	2.14†	0.98–4.68
Knowledge of prompt care-seeking			
No (reference)	8	1.00	
Yes	59	8.02***	3.02-21.31
Knowledge of appropriate care-seeking			
No (reference)	28	1.00	
Yes	56	3.13*	1.24–7.88
Favorable attitudes towards care-seeking and treatment			
No (reference)	44	1.00	
Yes	56	1.30	0.75–2.27
Care-seeking and testing perceived as the norm in the community			
No (reference)	52	1.00	n/a
Yes	61	1.12	0.77–1.65
Heard a message about malaria on the media			
No (reference)	52	1.00	n/a
Yes	58	1.34	0.93–1.91
Notes: Pseudo-R <sup>2</sup> =0.0904, †p<0.10; *p<0.05; **p<0.01; ***p<0.0	01. n/a, not applic	able.	

# Malaria in Pregnancy

This section describes the ideational factors related to malaria in pregnancy and the prevalence of relevant behavioral outcomes and intentions, as well as the associations between ideational factors and behavioral intentions using logistic regression. Ideational factors related to malaria in pregnancy explored in the MBS include knowledge, favorable attitudes, perceived severity, perceived response-efficacy, perceived self-efficacy (for men and women separately), perceived supportive community norms, perceived equitable gender norms, favorable perceptions of health workers, involvement in decision making, and interpersonal communication. Relevant outcomes explored include ANC attendance and receipt of IPTp. The specific behavioral intentions explored included intention to attend ANC or receive IPTp in a future pregnancy. All differences reported in this section, unless otherwise noted, are statistically significant ( $p \le 0.05$ ).

#### Comprehensive knowledge of ANC/IPTp

Proportion of respondents who state that: (i) the first trimester is when a pregnant woman should go for their first ANC appointment, (ii) women should attend ANC at least four times during their pregnancy, and (iii) pregnant women should receive at least three doses of IPTp (sulfadoxine/pyrimethamine [SP]) during their pregnancy. **Sample:** All individual respondents

Specific sub-items are presented in Table A.4.3

#### Favorable attitudes towards ANC/IPTp

Proportion of respondents who have favorable attitudes towards ANC and IPTp. *Sample:* All individual respondents

Specific sub-items are presented in Table A.4.4

#### Perceived malaria in pregnancy as severe

Proportion of respondents who believe malaria in pregnancy has severe consequences. *Sample:* All individual respondents

Specific sub-items are presented in Table A.4.5

#### Perceived response-efficacy of IPTp

Proportion of respondents who believe that the medicine given to pregnant women to prevent malaria is effective.

Sample: All individual respondents

Specific sub-items are presented in Table A.4.6

#### Women's self-efficacy regarding ANC/IPTp

Proportion of women who are confident in their ability to go to ANC and take medicine to prevent malaria during pregnancy.

Sample: All female respondents

Specific sub-items are presented in Table A.4.7

#### Perceived supportive community norm for ANC

Proportion of respondents who believe the majority of women in their community go to ANC at least four times when they are pregnant.

Sample: All individual respondents

# **Perceived supportive community norm for malaria preventative medicine during pregnancy** Proportion of respondents who believe the majority of women in their community take IPTp when pregnant.

*Sample:* All individual respondents

#### Favorable perceptions of facility-based health providers regarding ANC/IPTp

Proportion of respondents with favorable perceptions of facility-based health providers regarding ANC and the provision of IPTp.

Sample: All individual respondents

Specific sub-items are presented in Table A.4.12

#### Women involved in decision making regarding ANC

Proportion of currently married or cohabiting respondents who are usually involved in making decisions regarding ANC attendance.

Sample: All currently married or cohabitating individual respondents

#### Discussed ANC attendance with spouse/partner

Proportion of currently married or cohabiting respondents who discussed ANC attendance with their spouse/partner in the last six months.

Sample: All currently married or cohabitating individual respondents

**Favorable perceptions of community health workers regarding malaria in pregnancy** Proportion of respondents with favorable perceptions of community health workers regarding their ability to provide care for malaria in pregnancy. *Sample:* All individual respondents

Specific sub-items are presented in Table A.4.11

**Perceived equitable gender norms regarding ANC** Proportion of respondents who agree that a pregnant woman should feel comfortable asking her husband/spouse to go to the health facility for a prenatal consultation. **Sample:** All individual respondents

Perceived community approval of IPTp Proportion of respondents who perceive that community members approve of pregnant women taking IPTp. Sample: All individual respondents

Specific sub-items are presented in Table A.4.9

#### Ideational Variables Linked with ANC Attendance and IPTp Use

Table 10 summarizes the ideational factors related to malaria in pregnancy, including ANC and IPTp. Respondents who knew (a) when a pregnant woman should first seek ANC, (b) the number of recommended ANC visits, and (c) the number of IPTp doses a pregnant woman should receive were counted among those with correct or comprehensive knowledge. With only 7% of respondents able to answer all three questions correctly, comprehensive knowledge was rare. Women (10%) were more likely to answer correctly than men (3%), and this difference was statistically significant.

More than 90% of respondents had favorable attitudes towards IPTp, with slight variation by region, sex, age, and residence. A substantial majority of respondents (85%) perceived malaria in pregnancy as severe. Perceived severity of malaria in pregnancy was somewhat lower in Greater Monrovia (77%) than in South Central (87%) or in North Central (88%), and somewhat lower (78%) among those in the highest wealth quintile than among those in lower wealth quintiles. Nearly all (99%) respondents perceived IPTp to be efficacious. Nearly all respondents (96%) felt capable (perceived self-efficacy) to use IPTp to prevent malaria in pregnancy: 95% of women felt they could use IPTp, and 97% of men felt they could support their spouse to use IPTp.

Descriptive (perceptions about the uptake of IPTp among other pregnant women in one's community) and injunctive norms (perceived community approval of pregnant women taking IPTp) supporting IPTp are far from universal. Less than half of respondents (42%) perceived making at least four ANC visits to be the norm for pregnant women in their community, with variation by region (30% in Greater Monrovia, 20% in South Central, and 49% in North Central). Slightly more of those respondents with less education reported the four ANC visit norm. The norm around attending ANC four times was also more

common among the poorest wealth quintile than those with more wealth—54% in the lowest wealth quintile and 29% in the highest wealth quintile reported the norm.

About one-third (36%) perceived that most pregnant women take medicine to prevent malaria during pregnancy. This norm varied markedly by region, residence, and wealth. Only 17% of those in South Central perceived the norm, compared with 26% in Greater Monrovia and 42% in North Central, and 28% of urbanites compared with 42% of those living in rural areas. The norm was more commonly held among those in the lower wealth quintiles than among those in the higher wealth quintiles. Furthermore, only 12% of respondents reported perceiving that most people in their community approve of pregnant women taking medicine to prevent malaria. This norm was especially rare in the South Central region (6%).

A substantial majority (82%) reported that pregnant women should feel comfortable asking their husband or partner to go to the health facility for a prenatal consultation (gender-equitable norm related to malaria in pregnancy), with little variation by region, residence, education, or wealth. Women were somewhat less likely than men to report equitable gender norms (80% compared with 86%). Fewer of the youngest respondents (15–20 years of age) reported equitable gender norms (77%).

Most respondents had favorable perceptions of CHWs (88%) and of facility-based health workers (82%) related to provision of services for malaria in pregnancy. Perceptions were slightly lower in Greater Monrovia than in the South Central or the North Central region.

Many respondents in partnerships were involved in decision making related to ANC. Specifically, 69% of all respondents with partners noted that decisions regarding ANC were made by themselves or jointly with their partners, with 63% of women and 74% of men reporting that they were involved. However, only 15% reported discussing ANC attendance with their spouse or partner in the six months preceding the survey, and these results were similar among women (16%) and men (15%). More respondents living in the South Central region (26%) reported discussing ANC with their spouse than did those in other regions (10% Greater Monrovia and 15% North Central). Communication about ANC also differed significantly among married or cohabitating female respondents based on pregnancy status at the time of the survey, with those who were pregnant at the time of the survey reporting more frequent couple communication (55%) about ANC than those who were not currently pregnant (11%). Couple communication among currently pregnant married and cohabitating women did not differ significantly across region, sex, age, education, or wealth.

×	7%								
-@-	Comprehensive knowledge of ANC/IPTp								
	93%								
I	Favorable attitudes towards ANC/IPTp								
<b>*</b> <sup>1</sup>	85%								
<b>7</b>	Perceived malaria in pregnancy as severe								
<b>Z</b>	99%								
	Perceived response-efficacy of IPTp								
	96%								
Ä	Women's self-efficacy regarding ANC/IPTp								
	42%								
	Perceived supportive community norms for ANC								
	36%								
Ŧ	Perceived supportive community norm for malaria preventative medicine								
	during pregnancy								
	82%								
	Favorable perceptions of facility-based health providers regarding ANC/IPTp								
.*	<b>69%</b>								
<b>†</b>	Women involved in decision-making regarding ANC								
	15%								
17 17	Discussed ANC attendance with spouse/partner								
•	88%								
e de la companya de l	Favorable perceptions of community health workers regarding MIP								
	82%								
<b>1</b>   <b>1</b>	OZ70 Perceived equitable gender norms regarding ANC								
2121	12%								
	Perceive community approval of IP1p								

**Figure 59** *Malaria in Pregnancy: Ideational Figures at a Glance\** 

\*Green (75–100%), Blue (60–74%), Yellow (45–60%), Red (<45%)



### **Figure 60.** Percentage of Respondents with Specific Knowledge of Malaria in Pregnancy, by Region

Note: Significance noted in this graph represents statistical significance for a respective indicator across survey regions

#### **ANC Attendance**

Nearly all women (99%) with a live birth in the two years preceding the survey reported that they had attended at least one ANC visit, and this varied by region: 99% in Greater Monrovia, 95% in South Central, and 100% in North Central. Most (81%) attended at least four ANC visits. Less than half (38%) of women with a live birth in the previous two years reported attending at least one ANC visit accompanied by their spouse. More than half (62%) reported attending at least one ANC visit and receiving an ITN. This varied by region: more women in North Central (69%) reported attending at least one ANC visit ANC and receiving an ITN than did women in Greater Monrovia (43%) or South Central (54%) (Table A.4.16).

**Figure 61.** ANC Attendance Frequency, by Region



#### Figure 12.

Percentage of Women with a Live Birth in the Past Two Years Who Received an ITN During Their Last Pregnancy, by Region



#### **IPTp Receipt**

Nearly all (95%) of women aged 15–49 with a live birth in the two years preceding the survey reported having received one or more doses of SP/Fansidar, with some variation by region: 92% in Greater Monrovia, 91% in South Central, and 97% in North Central. Receiving two (72%) or three (51%) doses of SP/Fansidar was less common and was related to the number of ANC visits: more respondents who attended four or more ANC visits received two or three doses of SP/Fansidar, as compared with those who attended less than four ANC visits. More respondents living in North Central reported receiving two or more doses of SP/Fansidar as compared with Greater Monrovia or South Central. Only 33% of respondents in South Central reported receiving three or more doses. Only 33% of those who attended one to three ANC visits reported receiving three or more doses of SP/Fansidar, as compared to those who had attended four or more ANC visits (56%).



Figure 13.

Percentage of Women with a Live Birth in the Past Two years Receiving IPTp, by Dosage and Region

*Note: Significance levels: \*p<0.05, \*\*p<0.01, \*\*\*p<0.001. Significance noted in this graph represents statistical significance for a respective indicator across survey regions.* 

The study team conducted analyses on the IPTp dropout rates (i.e., those who took one dose but did not complete three or more doses). Differences were not statistically different across any demographic factors for the full sample. The dropout rate across all regions was 45% and was above average in the Monrovia (51%) and South Central (58%) regions, and below average in the North Central region (40%).

Advanced Analysis

Preventing malaria during pregnancy is essential to protect a mother and her child. While frequency of ANC attendance and completion of recommended doses of IPTp reduce the risk of malaria in pregnancy, the success of these measures is often influenced by early attendance for ANC. Logistic regression analysis was applied to explore ideational factors related to intentions to attend ANC in the first trimester, and also to explore ideational factors related to intentions to use IPTp in a future pregnancy among women who anticipated a future pregnancy.

As shown in Figure 14, the socioeconomic factors that had a positive and statistically significant association with intention to seek early ANC included age, rural residence, and parity. The odds of expressing the intention to seek early ANC were positively and significantly associated with the following ideational factors: favorable IPTp attitudes, IPTp self-efficacy, ANC community norm, knowing correct IPTp dosage, knowing correct ANC attendance, and malaria message exposure within the previous six months.



#### Figure 14.

Significant Factors Associated with Intention for Early ANC

## Figure 15.



Significant Factors Associated with Intention to Take IPTp

# Supplemental Information

- Table A.4.1. Logistic Regression Exploring Factors Associated with Intention for Early ANC
- <u>Table A.4.2. Logistic Regression Exploring Factors Associated with Intention to Take IPTp in a</u> <u>Future Pregnancy</u>
- Table A.4.3. Knowledge of IPTp
- Table A.4.4. Attitudes Towards IPTp
- Table A.4.5. Perceived Severity of Malaria in Pregnancy
- Table A.4.6. Perceived Response-Efficacy of IPTp
- Table A.4.7. Perceived Self-Efficacy for IPTp—Women
- Table A.4.8. Perceived Self-Efficacy for IPTp—Men
- Table A.4.9. Perceived Community Norms Regarding IPTp
- Table A.4.10. Perceived Gender Norms Regarding Malaria in Pregnancy
- Table A.4.11. Perceptions of CHWs Regarding Malaria in Pregnancy
- Table A.4.12. Perceptions of Facility-Based Health Workers Regarding Malaria in Pregnancy
- <u>Table A.4.13. Decision Making Regarding ANC</u>
- Table A.4.14. Interpersonal Communication Regarding ANC

- Table A.4.15. Intention to Use IPTp
- Table A.4.16. ANC Attendance
- Table A.4.17. Use of IPTp by Women During Pregnancy
- Table A.4.18. Source of IPTp
- Table A.4.19. Summary of Ideational Variables Related to Malaria in Pregnancy

### Table 10.

### Summary of Ideational Variables Related to Malaria in Pregnancy<sup>a</sup>

	Knowledge of IPTp Recomme- ndations (n=5,822)	Favorable Attitudes Towards IPTp (n=5,822)	Perceived Malaria in Pregnancy as Severe (n=5,822)	Perceived Response- Efficacy of IPTp (n=5,822)	Perceived Self- Efficacy Regarding IPTp (n=5,822)	Perceived that Most in Community Attend ANC at Least Four Times During Pregnancy (n=5,822)	Perceived that Most Take Malaria Preventat- ive Medicine During Pregnancy (n=5,822)	Perceived that Most People in Community Approve of Pregnant Women Taking Medicine to Prevent Malaria (n=5,822)	Perceived Equitable Gender Norms Regarding ANC (n=5,822)	Favorable Perceptions of CHWs (n=5,822)	Favorable Perceptions of Facility- Based Health Workers (n=5,822)	Involved in Decision Making Regarding ANC (n=4,134)	Discussed ANC Attendance with Spouse/ Partner (n=4,134)
Region		**	***	**		***	***	*		***	*	*	**
Greater Monrovia	5	89	77	97	95	30	26	11	82	78	76	74	10
South Central	9	92	87	98	99	20	17	6	88	91	87	68	26
North Central	7	94	88	99	96	49	42	13	82	90	83	67	15
Sex	***	***		*	*				**			***	
Female	10	91	84	98	95	42	36	12	80	88	82	63	16
Male	3	96	86	99	97	42	36	10	86	86	81	74	15
Age, years		**		***	**				*	*	*	*	**
15–24	7	90	84	97	91	40	32	14	77	83	77	60	22
25–34	6	94	84	99	97	41	37	9	85	88	83	70	18
35–44	7	94	87	99	98	44	38	12	84	88	83	67	9
≥45	9	95	87	100	99	43	37	10	87	90	85	78	14
Residence		**	**	***		**	**			***	**		
Urban	6	90	82	97	95	33	28	13	82	81	77	70	15
Rural	8	95	87	100	96	49	42	11	83	92	85	68	15
Education			*	*					***	*			***
No education	11	93	89	99	95	44	37	14	86	92	84	66	13

	Knowledge of IPTp Recomme- ndations (n=5,822)	Favorable Attitudes Towards IPTp (n=5,822)	Perceived Malaria in Pregnancy as Severe (n=5,822)	Perceived Response- Efficacy of IPTp (n=5,822)	Perceived Self- Efficacy Regarding IPTp (n=5,822)	Perceived that Most in Community Attend ANC at Least Four Times During Pregnancy (n=5,822)	Perceived that Most Take Malaria Preventat- ive Medicine During Pregnancy (n=5,822)	Perceived that Most People in Community Approve of Pregnant Women Taking Medicine to Prevent Malaria (n=5,822)	Perceived Equitable Gender Norms Regarding ANC (n=5,822)	Favorable Perceptions of CHWs (n=5,822)	Favorable Perceptions of Facility- Based Health Workers (n=5,822)	Involved in Decision Making Regarding ANC (n=4,134)	Discussed ANC Attendance with Spouse/ Partner (n=4,134)
Elementary	7	92	83	97	92	47	39	13	75	86	81	63	14
Junior high	6	91	86	99	96	40	35	10	81	87	81	72	15
Senior high	4	95	83	99	98	39	35	11	85	85	81	72	24
Vocational/techn ical	8	91	88	100	97	29	22	6	73	78	86	82	4
Higher	7	95	83	99	99	36	31	10	89	84	78	74	7
Wealth quintile			*			***	**			***	**		
Lowest	6	95	87	99	96	54	40	14	82	92	85	65	13
Second	7	94	86	99	97	48	45	11	82	92	86	71	17
Middle	8	92	86	98	95	42	35	13	82	84	78	72	17
Fourth	7	94	85	98	95	34	29	10	83	84	81	65	16
Highest	8	91	78	98	96	29	26	11	83	81	78	71	9
Total (%)	7	93	85	99	96	42	36	12	82	88	82	69	15
Notes: <sup>a</sup> Table value	es are perce	ntages. *p<	<0.05; **p<	0.01; ***p<	0.001.								

# Mosquito Net/ITN Use

This subsection describes the ideational factors related to mosquito net/ITN use, including data related to knowledge, attitudes towards net use and net care, perceived response-efficacy, perceived self-efficacy, perceived supportive community norms, and perceived equitable gender norms. Other variables reported in this section include the prevalence of relevant ITN and/or net use outcomes, and the associations between the ideational factors and the relevant outcomes using logistic regression. These relevant outcomes include household-level net and ITN ownership, population-level net access and use, ITN use-to-access ratio, characteristics and use of existing nets in the household, net care practices, and consistent net use by respondents.

**Knowledge of malaria prevention using nets** Proportion of respondents who know that bed nets can prevent malaria. *Sample:* All individual respondents

### Favorable attitudes towards net use

Proportion of respondents with favorable attitudes towards net use. *Sample:* All individual respondents

Specific sub-items are presented in Table A.5.4

#### Perceived response-efficacy of nets

Proportion of respondents who believe that sleeping under a bed net will reduce their risk of malaria. *Sample:* All individual respondents

Specific sub-items are presented in Table A.5.6

#### Perceived self-efficacy to use nets

Proportion of respondents who are confident in their ability to sleep under nets. *Sample:* All individual respondents

Specific sub-items are presented in Table A.5.7

#### Perceived community norms for net use Proportion of respondents who perceive that net use is the norm in their community. *Sample:* All individual respondents

#### Perceived equitable gender norms for net use

Proportion of respondents that have favorable gender norms regarding net use. *Sample:* All individual respondents

Specific sub-items are presented in Table A.5.9

**Favorable attitudes towards net care and repair** Proportion of respondents with favorable attitudes towards net care and repair. *Sample:* All individual respondents

Specific sub-items are presented in Table A.5.5

### Ideational Variables Linked with ITN Use and Care

Table 11 at the end of this section highlights the ideational factors related to ITN use and care. Many of the ideational factors are highly prevalent (above 80%) among survey respondents. Two ideational factors, knowledge of malaria prevention using mosquito nets (70% among participants) and perceived community norms around ITN use (26% among participants), were relatively low among study respondents.

#### Figure 16.

Ideational factors associated with net use and care

ITN Use: Ideational Factors at a Glance								
- <u>`</u>	70% Knowledge of malaria prevention using nets							
14	91% Favorable attitudes towards net use							
	84% Perceived response-efficacy of nets							
Ť	85% Perceived self-efficacy to use nets							
<b>*</b>	26% Perceived community norms for nets							
⋔⋕	97% Perceived equitable gender norms for net use							
14	97% Favorable attitudes towards net care and repair							

\*Green (75-100%), Blue (60-74%), Yellow (45-60%), Red (<45%)

Knowledge of malaria prevention using mosquito nets was lowest in Monrovia (63%), followed by the North Central (71%) and South Central (76%) regions. Men (76%) reported higher rates of knowledge than women (66%). Further, a significant difference in knowledge existed across wealth quintiles, with

respondents in the lowest and highest wealth quintiles reporting the lowest levels of knowledge about malaria prevention using mosquito nets.

Perceived community norms regarding ITNs were low across the study, with a survey average of 26%. Norms regarding ITNs were markedly higher in the North Central region (32%) than in Monrovia (15%) and the North Central (12%) region. Further, women (28%) reported higher rates of perceived community norms regarding ITN use than men (24%). Respondents living in rural areas (32%) reported higher rates of perceived community ITN use than their counterparts living in urban areas (19%). A mostly negative gradient of wealth with perceived norms seemed to exist around ITN use, with those in the fourth (16%) and highest (17%) wealth quintiles reporting ITN use norms much lower than those in the middle and bottom two wealth quintiles.

While knowledge and norms related to ITN use were lowest among the ideational factors related to ITN use and care, variation was also present between regions within other factors. Of particular note, lower favorable attitudes towards ITNs were found in Monrovia (82%) than in the North (94%) and South Central (93%) regions. Additionally, those in the oldest age group (≥45) had the most favorable attitudes towards ITNs across the study, with 95% of individuals in this age group reporting favorable attitudes. Respondents in urban areas (86%) reported lower favorable attitudes than those in rural areas (94%). Additionally, a significant difference existed across wealth quintiles regarding favorable attitudes towards ITNs, with respondents in the wealthiest quintile reporting the lowest rates of favorable attitudes at 80%. Similar trends were observed for perceived self-efficacy to use ITNs. The only additional observation for this ideational factor was that men (88%) reported higher rates of self-efficacy than women (84%).

All these differences were statistically significant (p<0.01). Further details on all ideational factors related to ITN use and care are available in Annex A.5.

#### **ITN Access and Use**

#### Household ITN ownership

Proportion of households with one reported ITN at the time of the survey. *Sample:* All households

#### **Population ITN access**

Proportion of de facto household members that could sleep under an ITN if each ITN in the household was used by up to two people. This outcome is calculated by dividing the potential ITN users in a household by the number of de facto members for each household and determining the overall sample mean of that fraction.

Sample: De facto household population

#### **Population ITN use**

Proportion of de facto household members who stayed in the household the night preceding the survey that slept under an ITN the previous night.

Sample: De facto household population that stayed in the household the night preceding the survey

#### Population ITN use-to-access ratio

Proportion of the de facto household members who stayed in the household the night preceding the survey that slept under an ITN the previous night, among those who have access to an ITN within their household.

*Sample:* De facto household population with access to an ITN who stayed in the household the night preceding the survey

#### Consistent net use

The proportion of respondents in household with at least one treated or untreated net who report that they sleep under a mosquito net every night of the week **Sample:** All individual respondents in households with at least one treated or untreated net

Figure 17 highlights household possession of ITNs (at least one), as well as the percentage of the survey population with access (at least one ITN per two household members) to ITNs, the percentage who stayed in the household and used them the night before the survey, and the percentage with access who used an ITN the night preceding the study (use-to-access ratio). Additionally, a key individual-level outcome of interest included in Figure 18 is consistent net use (use of a net each day of the week) among respondents in households with at least one ITN. Multivariate analysis of this outcome is explored in further detail later in this section.

Two-thirds (66%) of households in the survey reported ownership of at least one ITN. Ownership of at least one ITN was similar in Monrovia and the South Central region (both 50%), but it was markedly higher among households in the North Central region (76%). While household ownership of at least one net is an important indicator, it does not provide a full picture of access to nets for members within each household.

When assessing the percentage of the population with access to an ITN, we find that only 51% of the survey population had adequate access. Further, we find that the highest rate of access was in the North Central region (61%), followed by the South Central region (36%) and Monrovia (28%). Approximately half (51%) of the population captured in the study had access to an ITN, which also differed by urban (41%) and rural (58%) residence (Table A.5.8).
Use of ITNs<sup>40</sup> among those who stayed in surveyed households the night preceding the interview was 40%, with the highest rates of ITN use in the North Central region (48%), followed by the South Central region (36%) and Monrovia (28%).

When exploring ITN use the previous night among those with sufficient access to ITNs (use-to-access ratio), we find that 78% of respondents used ITNs the night preceding the study, with similar rates (78%) in Monrovia and the North Central region and the highest rate of ITN use given access in the South Central region (86%).

Consistent net use (self-reported use of an ITN or untreated net each night of the week) was 72% among study participants in households with at least one net. Rates of consistent net use were similar in the South Central (74%) and North Central (75%) regions, but notably lower in Monrovia (61%).

All differences between regions highlighted in Figure 18 and mentioned above are statistically significant (p<0.001). Further information on these indicators is available in Tables A.5.11, A.5.12, A.5.13, and A.5.14, as well as the regression in Table 13 at the end of this section.



### Figure 17.

Ownership, Access, and Use of ITNs

Note: Significance noted in this graph represents statistical significance for a respective indicator across survey regions. Significance levels: \*p<0.05; \*\*p<0.01; \*\*\*p<0.001

<sup>&</sup>lt;sup>40</sup> Use of an ITN the previous night was calculated for each de facto member of the household (i.e., those present in the house the previous night).

#### **Net Characteristics**

Figure 18 highlights the characteristics of nets observed in the study, primarily the percentage of nets that were identified as ITNs, as well as the percentage of nets that were obtained for free. Eighty-nine percent of nets observed in the study were identified as ITNs. This varied significantly by region, with the North Central (94%) region having the highest rate of nets being identified as ITNs (as compared with untreated nets), followed by Greater Monrovia and the South Central regions (both 74%).

Figure 19 shows the distribution of sources through which nets were obtained. Most nets (93%) were also obtained for free. Obtaining nets for free did not differ significantly by region. The majority (82%) of respondents received their nets from the most recent mass net distribution campaign, while an additional 9% received nets from a prenatal consultation (6%) or child immunization appointment (3%). The remaining 9% of nets were either obtained in shops and markets (6%) or other unspecified sources. The median cost of nets that were purchased was 500 LD (approximately 3.25 USD).



#### Figure 18.

Summary of Net Characteristics, by Region (n=3,568)

*Note: Significance noted in this graph represents statistical significance for a respective indicator across survey regions. Significance levels: \*p<0.05; \*\*p<0.01; \*\*\*p<0.001* 

**Figure 19.** *Distribution of Nets by Procurement Source (n=3,568)* 



#### Net Care and Repurposing

Figure 20 highlights key net care behaviors, including tying and rolling up of nets when not in use (both observed and self-reported), washing ITNs with harmful products, and drying ITNs in the sun after their last wash. A key individual-level outcome of interest included in Figure 20 is the percentage of respondents reporting that they tie or roll up their nets when not in use, among respondents in households with at least one ITN. Multivariate analysis of this outcome is explored in further detail later in this section.

Seventy-four percent of respondents in households with at least one net reported that they hang or tie their nets when not in use, with the least number of respondents reporting hanging or tying up their nets in the North Central region (73%) and Monrovia (75%). Practice of this behavior was most prevalent in the South Central (89%) region.

WHO recommends washing nets gently with only cold water and mild soap (WHO, 2011). Further research by WHO highlights that use of harmful materials such as detergent or bleach for washing ITNs can increase the degradation of their protective layer (WHO, 2011). Use of bleach and detergent for net washing was highest in Monrovia (64%) and the South Central region (65%), with significantly lower rates in the North Central region (32%). Thirty-eight percent of ITNs observed in the study were washed with harmful materials during their last wash. Prevalence of nets being dried outdoors in the sun after their last wash was 37% across the study, with the highest rates in Monrovia (53%) and the South

Central region (47%), and the lowest being in the North Central region (33%). All reported differences in net care behaviors were significant (p<0.001).



#### Figure 20.

Summary of Net Care Behavior, by Region

Twenty-six percent of respondents repurposed nets that were no longer useful for sleeping under. Among those who repurposed their old nets, the most common purposes of reuse were for bedding or padding in the household (32%), as rope for tying (8%), cover for crops (6%), and fishing (6%). The primary reasons nets were reused were that they had too many holes (74%) and respondents thought the nets were worn out (16%). Nets no longer needing to be used (6%) and nets being too dirty (2%) were the next most popular responses provided by respondents.

#### Advanced Analysis

To explore ideational, structural, and access factors related to consistent net use, adjusted logistic regressions were run. Several of the strongest associations with consistent net use were ideational. Figure 21 highlights the statistically significant (p<0.05) results from the logistic regression of demographic and ideational factors of interest on consistent net use. Respondents age 25–34 (odds ratio [OR]: 1.6, 95% confidence interval [CI]: 1.3–1.9), 35–44 (OR: 1.3, 95% CI: 1.0–1.7), and  $\geq$ 45 (OR: 1.4, 95% CI: 1.0–1.9) were more likely than those in the youngest age group (15–24 years old) to consistently use nets. Respondents in rural areas (OR: 1.5, 95% CI: 1.1–1.9) were more likely than those in urban areas to consistently use nets. Conversely, individuals living in the wealthiest households (OR: 0.6, 95% CI: 0.4–0.9) were less likely than those living in the poorest households to consistently use nets.

Favorable attitudes towards net use (OR: 2.1, 95% CI: 1.6–2.7), perceived self-efficacy to use ITNs (OR: 7.4, 95% CI: 5.8–9.5), perceived norms around ITN use (OR: 1.4, 95% CI: 1.1–1.6), and weekly radio listenership (OR: 1.6, 95% CI: 1.3–1.9) were positively associated with consistent net use across the survey regions. Conversely, we found that perceived severity of malaria (OR: 0.8, 95% CI: 0.7–0.9) was

negatively associated with consistent net use, which may conversely indicate that those who sleep under nets consistently feel that their malaria risk is lower.

Additional models were run for each region (Figure 22). These results show that trends of higher likelihood of consistent net use among those aged 25–34 and age 35–44 were the same in Monrovia and the North Central region; however, this effect did not exist among respondents in the South Central region. Higher likelihood of consistent net use among those aged ≥45 only remained in the North Central region. Positive association of rural residence with consistent net use remained only within the North Central region. Negative association of those living in the wealthiest households with consistent net use remained for Monrovia and the South Central region.

Favorable attitudes towards ITN use remained positively associated with consistent net use in Monrovia and the North Central region. Perceived self-efficacy remained the most positive correlate with consistent net use across all survey regions. Perceived norms related to ITN use were positively associated with consistent net use in Monrovia and the South Central region; however, they were not positively correlated with the outcome in the North Central region. Weekly radio listenership was positively associated with consistent net use in the South Central and North Central regions.

**Figure 77.** *Results (Odds Ratio) from Logistic Regression for Consistent Net Use* 



#### Figure 78.



Results (Odds Ratio) from Region-Specific Logistic Regression Models for Consistent Net Use

Figure 23 highlights the statistically significant (p<0.05) results of a regression of demographic and ideational factors of interest on respondent self-reported net care behaviors (hanging or tying up nets when not in use). Respondents in the South Central region (OR: 1.7, 95% CI: 1.2–2.4) were more likely than respondents in Monrovia to report tying or folding their nets when not in use. Respondents aged 35–44 (OR: 1.4, 95% CI: 1.1–1.8) were more likely than those in the youngest age group (aged 15–24) to report tying or hanging their nets when not in use. Each additional net present in the household was correlated with increased likelihood of self-reported net care (OR: 1.1, 95% CI: 1.0–1.2). Increase in household size (OR: 0.9, 95% CI: 0.9–1.0) was negatively correlated with self-reported net care among respondents in the survey.

Knowledge that ITNs can prevent malaria (OR: 1.3, 95% CI: 1.1–1.6), favorable attitudes towards net use (OR: 2.1, 95% CI: 1.7–2.8) and net care (OR: 2.3, 95% CI: 1.2–4.3), and self-reported consistent net use (OR: 1.7, 95% CI: 1.4–2.1) were positively associated with positive net care behavior among respondents in the study. Additional information on ideational factors considered for analysis are available in Tables 10 and 11 at the end of this section.

Additional models were run to explore the significance of these demographic and ideational factors by region; Figure 24 presents the results. Significance of age was retained in models using subgroups from

Monrovia and the South Central region, but this variable was not significant in the model for the North Central region. The correlation with net supply (number of nets in the household) retained positive correlation in the South Central region; however, this covariate lost significance in the models for Monrovia and the North Central region. The negative correlation of household size with self-reported net care behavior remained in the South and North Central regions, but it was not significant in the model for Monrovia.

Knowledge that ITNs can prevent malaria was only significant in the North Central regional model; it was not significant in models for Monrovia and the South Central region. Favorable attitudes towards both net use and net care were significant in the model for Monrovia. Favorable attitudes towards net use also retained positive correlation with net care in the North Central region, but they did not remain significant in the South Central region. Conversely, favorable attitudes towards net care were still positively correlated with net care behaviors in the South Central region, but they did not remain significant in the model for the North Central region. Consistent net use remained positively correlated with self-reported net care behavior across all regional models.

#### Figure 23.





#### Figure 24.



Results (Odds Ratio) from Region-Specific Logistic Regression Models for Net Care

# **Supplemental Information**

See the following tables in Annex A.5. for additional information on these indicators.

- Table A.5.1. Summary of Ideational Variables Related to Net Use
- Table A.5.2. Logistic Regression Exploring Factors Associated with Consistent Net Use
- Table A.5.3. Knowledge of Malaria Prevention Using Mosquito Nets
- Table A.5.4. Favorable Attitudes Towards Mosquito Net Use
- Table A.5.5. Favorable Attitudes Towards Net Care
- Table A.5.6. Perceived Response-Efficacy of Nets
- <u>Table A.5.7. Perceived Self-Efficacy of Net Use</u>
- <u>Table A.5.8. Perceived Community Norms Regarding Nets</u>
- <u>Table A.5.9. Perceived Gender Norms Regarding Nets</u>
- Table A.5.10. Household Possession of Mosquito Nets
- Table A.5.11. Access to an ITN
- Table A.5.12. Use of Mosquito Nets by Persons in the Household
- Table A.5.13. ITN Use-to-Access Ratio

- Table A.5.14. Use of Existing Nets
- Table A.5.15. Net Characteristics
- Table A.5.16. Net Care Practices and Repurposing
- Table A.5.17. Sleep Pattern and Outdoor Sleeping the Previous Night
- Table A.5.18. Seasonality in Outdoor Sleeping
- Table A.5.19. Logistic Regression Exploring Factors Associated with Consistent Net Use

Table 11. Summary of Ideational Variables Related To Net Use <sup>a</sup>	Knowledge of Malaria Prevention Using Mosquito Nets	Favorable Attitudes Towards Using Mosquito Nets	Favorable Attitudes Towards Net Care	Perceived Response- Efficacy of Nets	Perceived Self- Efficacy to Use Nets	Perceived Community Norms Regarding Nets <sup>b</sup>	Perceived Equitable Gender Norms Related to Net Use
Region		***	***	**	***	***	**
Greater Monrovia	63	82	92	80	74	15	95
South Central	76	94	97	80	91	12	98
North Central	71	93	99	86	89	32	98
Sex	***				**	*	
Female	66	95	97	83	84	28	97
Male	76	91	97	85	88	24	98
Age, years	***						***
15–24	63	84	97	84	83	28	95
25–34	73	96	97	82	84	24	97
35–44	73	97	97	87	86	26	98
≥45	72	99	98	82	92	28	100
Residence			* * *			* * *	*
Urban	68	97	95	82	82	19	96
Rural	71	92	99	85	88	32	98
Education	**	* * *	* * *				**
No education	64	96	98	84	88	27	98
Elementary	68	95	98	88	86	31	96
Junior high	70	98	97	82	84	26	97
Senior high	77	85	97	83	85	24	99
Vocational/technical	61	92	94	90	79	10	94
Higher	72	98	93	80	82	22	96
Wealth quintile			* * *		*	* * *	
Lowest	64	95	98	85	88	32	98
Second	70	95	99	87	89	37	97
Middle	72	95	98	85	87	26	98
Fourth	71	95	96	81	85	16	97

Malaria Behavior Survey: Liberia 2022

Highest	68	87	92	80	76	17	95
Total	70	91	97	84	85	26	97
<i>Notes:</i> <sup>a</sup> Table values are percentages; n=5,822 for all variables. *p<0.05; **p<0.01; ***p<0.001. <sup>b</sup> Perceived community norms regarding nets refer to descriptive							
norms regarding ITN use and do not take into account injunctive norms towards ITN use.							

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## Table 12.

Logistic Regression Exploring Factors Associated with Consistent Net Use

	Percentage (n=3,468)	aOR	95% CI
Age, years			
15–24 (reference)	67	1.00	
25–34	74	1.57***	1.27–1.94
35–44	45	1.31*	1.04–1.65
≥45	42	1.40*	1.03–1.91
Sex			
Male (reference)	73	1.00	
Female	72	1.24†	0.98–1.56
Education			
No education (reference)	78	1.00	
Elementary	74	1.01	0.79–1.29
Junior high	69	0.97	0.74–1.27
Senior high	71	0.82	0.62-1.08
Vocational/technical	54	0.59	0.30–1.18
Higher	69	0.73†	0.52–1.03
Religion			
Christian (reference)	73	1.00	
Islam	59	1.04	0.73–1.46
Traditional/other	69	1.11	0.45–2.75
Residence			
Urban (reference)	61	1.00	
Rural	79	1.45**	1.10-1.90
Wealth quintile			
Lowest (reference)	67	1.00	
Second	79	1.64**	1.13–2.39
Middle	70	1.59**	1.13–2.24
Fourth	73	1.34*	1.00-1.80
Highest	63	1.16	0.89–1.51
Region			
Greater Monrovia (reference)	61	1.00	
South Central	74	0.80	0.58–1.10
North Central	75	0.86	0.64–1.16
Attitudes favorable to the use of mosquito nets			

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	Percentage (n=3,468)	aOR	95% CI
No (reference)	37	1.00	
Yes	75	2.09***	1.60-2.72
Attitudes favorable to the care of mosquito nets			
No (reference)	32	1.00	
Yes	73	1.90†	0.97–3.73
Perceived severity			
No (reference)	76	1.00	
Yes	68	0.76**	0.65–0.90
Perceived vulnerability			
No (reference)	75	1.00	
Yes	72	0.85	0.69–1.04
Talked about malaria with others in the last six months			
No (reference)	72	1.00	
Yes	74	1.18†	0.97–1.44
Perceived mosquito net effectiveness			
No (reference)	70	1.00	
Yes	73	1.03	0.81-1.31
Perceived self-efficacy for mosquito net use			
No (reference)	39	1.00	
Yes	76	7.39***	5.75–9.50
Use of mosquito nets perceived as the norm in the community			
No (reference)	48	1.00	
Yes	70	1.36**	1.13–1.64
Mentioned at least one incorrect method of transmitting malaria			
No (reference)	78	1.00	
Yes	68	0.92	0.77–1.09
Heard a message about malaria on the media			
No (reference)	70	1.00	
Yes	76	1.12	0.93–1.35
Household size (mean)	n/a	1.02	0.97-1.08
Net sufficiency			
No (reference)	72	1.00	

	Percentage (n=3,468)	aOR	95% CI		
Yes	72	1.21	0.95–1.53		
Total	72	n/a	n/a		
<i>Notes:</i> †p<0.10; *p<0.05; **p<0.01; ***p<0.001. n/a, not applicable; Pseudo-R <sup>2</sup> =0.143.					

## Table 13.

Logistic Regression Exploring Factors Associated with Net Care

	Percentage (n=3,468)	Adjusted Odds Ratio	95% Confidence Interval
Age, years			
15–24 (reference)	67	1.00	
25–34	77	1.13	0.92–1.39
35–44	74	1.43**	1.13–1.81
≥45	83	1.33†	0.97–1.81
Sex			
Male (reference)	79	1.00	
Female	71	0.97	0.77–1.22
Education			
No education (reference)	72	1.00	
Elementary	70	1.06	0.84–1.34
Junior high	76	1.14	0.88-1.48
Senior high	78	1.29†	0.98–1.69
Vocational/technical	79	1.38	0.64–2.99
Higher	82	1.13	0.79–1.62
Residence			
Urban (reference)	73	1.00	
Rural	75	0.87	0.66–1.15
Wealth quintile			
Lowest (reference)	67	1.00	
Second	74	1.02	0.80-1.31
Middle	75	1.29†	0.97–1.70
Fourth	76	1.41*	1.00-1.99
Highest	77	1.19	0.82–1.73
Region			
Greater Monrovia (reference)	75	1.00	
South Central	89	1.69**	1.19–2.38
North Central	73	0.75†	0.55–1.03
Attitudes favorable to the use of mosquito nets			
No (reference)	53	1.00	
Yes	76	2.14***	1.67–2.76
Attitudes favorable to the care of mosquito nets			
No (reference)	40	1.00	

	Percentage (n=3,468)	Adjusted Odds Ratio	95% Confidence Interval		
Yes	75	2.25*	1.19–4.25		
Perceived susceptibility					
No (reference)	70	1.00			
Yes	75	1.20†	0.99–1.46		
Talked about malaria with others					
No (reference)	74	1.00			
Yes	74	1.06	0.88–1.29		
Perceived self-efficacy for mosquito net use					
No (reference)	70	1.00			
Yes	75	1.21	0.94–1.57		
Use of mosquito nets perceived as the norm in the community					
No (reference)	73	1.00			
Yes	77	1.09	0.91–1.30		
Mentioned at least one incorrect method of transmitting malaria					
No (reference)	72	1.00			
Yes	76	1.11	0.94–1.32		
Heard a message about malaria on the media					
No (reference)	72	1.00			
Yes	78	1.04	0.87–1.24		
Perceived positive gender norms towards net use					
No (reference)	61	1.00			
Yes	75	1.50*			
Household size (mean)	n/a	0.95**	0.91–0.99		
Number of nets	n/a	1.11	1.03–1.21		
Consistent net use					
No (reference)	65	1.00			
Yes	78	1.75	1.46–2.11		
Total	74	n/a	n/a		
<i>Notes:</i> <sup>†</sup> p<0.10; <sup>*</sup> p<0.05; <sup>**</sup> p<0.01; <sup>***</sup> p<0.001. n/a, not applicable; Pseudo-R <sup>2</sup> =0.065					

# Media Consumption and Message Exposure

### **Media Consumption**

Table 14 (end of this section) presents a summary of variables related to media consumption and malaria messaging. The differences noted in the text below are statistically significant.

A majority of respondents (63%) owned a mobile phone or tablet. Ownership varied by region, sex, age, residence, education, and wealth. Mobile phone ownership was more common among urban (76%) than rural (53%) respondents and more common among those with more education and those in wealthier households.

Almost half (47%) of all participants listened to the radio at least once a week, with listenership positively and significantly associated with greater age, education, and household wealth, and more common among urban (53%) than rural (43%) respondents. Among participants who listened to the radio at least weekly, their preferred times for listening were all throughout the morning (4:00 a.m. to noon) and evening (4:00 p.m. to midnight).<sup>41</sup> Preferences did not vary significantly by region, sex, wealth, or other covariates. Few respondents preferred to listen at night (2%) or afternoon (8%) (Table A.6.3).

About one-fifth (21%) of respondents reported watching television at least once a week. Weekly television viewership was more common among those in urban areas (33%) than rural (11%), among those with more education, and those in wealthier households. Weekly television viewership was much more common in Greater Monrovia (45%) than in South Central (20%) or North Central (12%). Among those who watched television weekly, the end of the evening was by far (60%) the preferred time for watching, as opposed to early morning (3%), end of morning (7%), afternoon (9%), early evening (13%), and night (3%) (Table A.6.5). This finding of one preferred time for television viewership differs from findings for several preferred times for radio listenership.

<sup>&</sup>lt;sup>41</sup> Early morning (4:00–8:00 a.m.), late morning (8:00 a.m. to 12:00 noon), afternoon (12:00 noon to 4:00 p.m.), early evening (4:00–8:00 p.m.), late evening (8:00 p.m. to 12:00 midnight), night (12:00 midnight to 4:00 a.m.).

#### Figure 25.

Media Access and Consumption at a Glance				
	Radio listenership	47%		
Č	TV viewership	21%		
	Mobile phone ownership	63%		

Media Access and Consumption at a Glance\* (n=5,822)

\*Green (75–100%), Blue (60–74%), Yellow (45–60%), Red (<45%)

#### **Recall of Malaria Messages**

About one-third of respondents (36%) stated they had seen or heard a malaria message in the six months prior to the survey, with no statistically significant variation by region (Greater Monrovia, 35%; South Central ,42%; North Central , 36%). More men (40%) than women (33%) recalled having seen or heard a message about malaria. Recall of malaria messages was more prevalent among respondents who were older and among those with more education.

About 44% of respondents could complete a campaign slogan, such as "Sleep under a mosquito net every night everywhere." More urban respondents (49%) than rural respondents (41%) correctly completed the slogan (Table A.6.7).

Only 13% of respondents could identify a malaria campaign logo upon being asked by interviewers whether they could identify the NMCP logo among a set of three visual interview aids. Logo recall was associated with age, but the relationship was nonlinear.

#### Table 14.

	Listens to Radio at Least Once a Week	Watches TV at Least Once a Week	Owns Mobile Phone or Tablet	Seen or Heard Message About Malaria in Past Six Months	Identified a Campaign Logo <sup>b</sup>
Region	***	***	***		
Greater Monrovia	59	45	84	35	15
South Central	48	20	74	42	17
North Central	43	12	54	36	12
Sex	***		***	**	
Female	39	21	56	33	13
Male	61	20	75	40	14
Age, years	***		***	**	

Summary of Variables Related to Media Consumption<sup>a</sup>

15–24	35	18	50	30	13		
25–34	45	21	67	34	14		
35–44	54	23	68	41	10		
≥45	63	21	2	44	17		
Residence	**	***	***				
Urban	53	33	76	35	15		
Rural	43	11	53	37	12		
Education	***	***	***	***	*		
No education	38	12	47	31	11		
Elementary	40	17	48	29	9		
Junior high	44	17	63	37	12		
Senior high	54	25	79	39	16		
Vocational/technica I	65	45	88	58	12		
Higher	74	40	94	54	23		
Wealth quintile	***	***	***				
Lowest	31	4	34	31	11		
Second	40	10	49	32	12		
Middle	44	13	67	39	13		
Fourth	60	26	78	38	15		
Highest	63	61	89	41	17		
Total	47	21	63	36	13		
Notes: <sup>a</sup> Values are pe	Notes: <sup>a</sup> Values are percentages: n=5.822 unless otherwise noted. *p<0.05: **p<0.01: ***p<0.001. <sup>b</sup> n=4.637.						

*Notes:* <sup>a</sup>Values are percentages; n=5,822 unless otherwise noted. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001. <sup>a</sup>n=4,637 Interviewers asked respondents whether they identified only the NMCP logo among a set of three visual interview aids.

Respondents who stated that they heard or saw a malaria message in the last six months were additionally asked from which source(s) they were exposed to messages. Table 14 shows the distribution of these responses. Respondents reported the highest rates of exposure to malaria messages via radio (56%), health centers and hospitals (47%), CHWs (20%), and friends or family (16%).

Information was also captured regarding the functions available on phones and tablets that respondents reported owning. Most respondents reported that their devices were capable of receiving audio files (96%), videos (82%), and short message service (SMS)/phone calls (74%). The results from both tables highlight that a majority of respondents currently receive malaria messaging through mass media and interpersonal interactions, while less than 1 in 20 reported seeing or hearing malaria messages on social media or via SMS, chat, or email.

Notably, yet unsurprisingly, there seemed to be a trend showing higher rates of exposure through interpersonal relationships among the poorest respondents in the sample, as compared with

respondents in the other four wealth categories. Conversely, exposure from mass media, social media, and via SMS/chat/email was higher among those in the richer quintiles (Table 15).

#### Table 15.

Sources of Malaria Messages Seen or Heard in the Last Six Months (Multiple Response)<sup>a</sup>

Message Source	Survey Total (n=2,000)	Poorest	Top Four Wealth Quintiles
Radio***	55.7	41.4	56.9
Health center/hospital***	47.2	51.4	41.8
Community health worker***	19.6	31.9	24.1
Friends/family***	15.9	12.9	9.8
Posters/billboards*	4.5	2.5	3.9
Workplace***	4.3	1.6	1.1
Peer educators***	4.3	2.3	4.7
SMS/chat/email***	4.0	1.8	3.4
Drama groups***	3.5	1.4	4.8
Television***	3.1	0.0	2.1
Social media***	2.9	0.0	3.7
Community leaders	2.7	0.6	3.5
Mosque/church	1.1	0.0	0.6
Newspaper	0.4	0.0	0.4
Notes: aValues are percentages. *p<0.05; **p<0.	01; ***p<0.001.		

#### Table 16.

Functionality of Mobile Phones and Tablets (Multiple Response)

Phone Function	Percentage (n=3,710)
Audio files	96.3
Videos	81.6
SMS/phone calls	74.1
Pictures	4.9

# Supplemental Information

- Table A.6.1. Variables Related to Media Consumption
- Table A.6.2. Radio Listenership at Least Once a Week
- <u>Table A.6.3. Preferred Time to Listen to Radio Among Those Who Listen to Radio at Least</u> <u>Weekly</u>
- Table A.6.4. Television Viewership at Least Once a Week
- Table A.6.5. Preferred Time to Watch Television Among Those Who Watch at Least Once a Week
- Table A.6.6. Mobile Phone or Tablet Ownership

• Table A.6.7. Exposure to Malaria Messages

# **Conclusions and Recommendations**

The findings of this study conclude with respective recommendations across the major outcomes: crosscutting ideational factors, case management for fever in children under five, malaria in pregnancy, ITNs, and media consumption and messages. The conclusions and recommendations have specific program implications, as well as policy and for future research.

# **Cross-Cutting Ideational**

Findings from the study show generally low (23%) correct, comprehensive knowledge of malaria across Liberia.<sup>42</sup> Particular gaps in general comprehensive knowledge about malaria existed for knowledge that fever is the main symptom of malaria (71%) and mention of incorrect causes of malaria (51%). Programs and malaria activities in Liberia should prioritize increasing correct, comprehensive knowledge of malaria among households and communities. One approach to consider for increased knowledge of malaria lies in continued joint collaboration between the ministries of health and education to include health promotion in the school curriculum. These ministries have signed memorandums of understanding on COVID-19 and net distribution campaigns in schools in the past and could leverage this relationship to further incorporate malaria-specific health education and promotion into the school curriculum. This relationship is also a key channel identified in the National Malaria Social and Behavior Change Strategy.<sup>43</sup> The study found strong support for two cross-cutting ideational factors, equitable gender norms (98% perceived equitable gender norms) and perceptions of facility-based health providers (92% reported favorable impressions). Many

<sup>&</sup>lt;sup>42</sup> Correct knowledge was calculated from a combination of factors, including that the respondent does not mention any incorrect cause of malaria, the respondent names fever as the primary symptom of malaria, and the respondent mentions at least one major proven preventative measure (sleep under net, sleep under ITN, take preventative medications, or use IRS).

<sup>&</sup>lt;sup>43</sup> National Malaria Control Program (n.d.).

respondents (81%) also had overall favorable perceptions of community-based health providers. Respondents' favorable perceptions of health care workers suggests that both demand generation interventions and expanded provision of services for preventing malaria that are delivered by community-based health workers may be well received by women of reproductive age and their husbands/partners. Recommendations

Please see Annex D for general program recommendations for ideational variables. Based on findings from the Liberia MBS, we recommend the following considerations for policy and programming.

#### **Malaria Case Management**

- Improve correct, comprehensive knowledge about malaria testing and treatment. Most respondents knew to seek care promptly from a health facility, but many failed to identify a blood test as the best way to test for malaria, and quite a few failed to identify ACT as the effective treatment for malaria (Table A.3.3).<sup>44</sup> Key channels that may be leveraged to operationalize this include radio messaging and community engagement (including community dialogue and promotion by community leaders and CHWs).
- Increase perceived response efficacies of the malaria blood test and of malaria medicines (ACT) obtained from the health facility. The recommended methods of testing and treating should be perceived as more effective and more desirable than alternative methods of testing for and treating malaria, such as relying on parents to identify symptoms without a blood test or acquiring "medicine" from a market vendor (Table A.3.5 and Table A.3.6). One potential method to address perceived response-efficacy may include client testimonials that could be disseminated via radio, social media, and community engagement such as dialogues and town hall meetings.
- Increase supportive norms for prompt care-seeking at a health facility. Only 34% of respondents reported that members of the community seek care promptly at a health facility (descriptive norm), and only 9% of respondents felt that other community members expected them (the respondent) to seek care promptly at a health facility for a feverish child (injunctive norm). Amplifying influential voices, such as those of radio announcers, community leadership, parent-teacher associations, and the National Community Health Program (Community Health Services Supervisor, Community Health Assistant, Community Health Program, Health Facility

<sup>&</sup>lt;sup>44</sup> The DHS (2019–2020, p. 235–236) notes that respondents may have mistakenly told interviewers that their child received amodiaquine when the child actually received the drug combination artesunate/amodiaquine. Despite the data collectors' use of cards depicting images of medications, the MBS may have had some similar misidentification of children's malaria treatments, resulting in underreported use of ACT.

Development Committee, etc.) to raise awareness and urgency of key actions may help address perceived norms related to care-seeking.

- Increase the perception of potential severity of malaria, especially for children and pregnant women. Less than half of respondents felt that malaria is severe (Table A.2.3), although most felt susceptible to being infected with it. Similar to points raised above, programs could leverage community-based channels and amplification of influential voices to address perceived severity of malaria.
- Identify and address barriers to prompt care-seeking, particularly in the South Central region. Although many respondents know to seek care promptly for a feverish child, only 70% of those caregivers whose child had had a fever recently had sought care the same day or next day.
- **Identify and address barriers to prompt treatment with ACT** for children with confirmed malaria. Less than half (48%) of children with confirmed malaria received ACT promptly.
- Malaria care-seeking knowledge (40%) was about twice the comprehensive knowledge of malaria, but with 34% reporting the perception that most people seek prompt care for a child. Although there are high percentages (91%) of favorable attitudes of care-seeking and perceived self-efficacy to seek testing and treatment, malaria programs and activities should focus on increasing knowledge of where to seek prompt care and the recommended procedures when seeking prompt care for children—targeting households, communities, and service providers. This need could be addressed by the Ministry of Health through focused promotion of their services, which could include visual reminders posted in key locations within communities (e.g., posters, decals, and murals).

#### **Malaria in Pregnancy**

- Increase normative support for malaria prevention in pregnancy; specifically for attending four or more ANC visits during pregnancy and for taking preventive medicine (IPTp) during pregnancy.
- Encourage spouses/partners to **discuss early ANC attendance** together. Radio messaging, such as that included under the Healthy Life umbrella campaign, can be expanded to model spousal communication. The benefit of this action is that spousal communication can be modeled and promoted across related health areas to malaria (e.g., maternal health).
- To prevent malaria among pregnant women by increasing use of IPTp, increase the proportion
  of pregnant women who attend four or more ANC visits. Receiving two or three IPTp
  (SP/Fansidar) was more common among those who had attended the recommended number of
  ANC visits (four or more) than among those who attended only one to three appointments.
  Improve perceptions of health facilities, health facility workers, and CHWs so that people see
  them as valuable partners for testing and treating malaria. Respondents, including all male and
  female respondents, from Greater Monrovia were particularly pessimistic about CHWs, as
  compared with those from North and South Central.
- Inculcate positive attitudes towards early ANC and towards IPTp among women of reproductive age and their significant referents.
- Build self-efficacy for seeking ANC and IPTp among women of reproductive age.

#### Insecticide-Treated Net Use and Care

- Half of the population (49%) did not have adequate access to ITNs, but 78% of the population with adequate access to ITNs used them the night before the survey. This finding highlights a need to integrate validated SBC approaches into future mass net distribution, school-based distribution, and routine distribution campaigns.
- Net use should be framed as a socially desirable and common behavior to build the perception that it is a norm, particularly among males and those living in urban areas. A key channel that may be leveraged for this aim could be radio programs such as the Healthy Life umbrella campaign.
- Reinforcing knowledge that mosquitoes are the cause of malaria and that mosquito nets can be used to prevent bites is needed. This is particularly important among males and those in the youngest age group (15–24). The target population for reinforced knowledge could be reached through school-based activities such as school-based net distribution activities, as well as inschool curriculum. As with other recommendations, radio may also be an effective way to reach this population.
- Positive attitudes can be maintained by framing consistent net use as a social norm and emphasizing that it is easy to habitually use a net and care for it. Urban residents are a subpopulation of interest to reach with this messaging.
- Further research in the North Central region should be undertaken to better understand the negative correlation between perceived severity of malaria with consistent net use.
- The frequency with which nets are washed with bleach and detergent and dried in the sun is high and needs to be addressed by future programming. This could be operationalized at the community level through net care demonstrations done by CHWs.
- Promotion of consistent net use and proper net care should not be done in isolation. The two behaviors are correlated and can benefit from being promoted together.

#### Media Mix for Messaging for malaria prevention

Less than a quarter of respondents reported watching TV weekly, and less than half reported listening to radio at least once weekly. This varied significantly by wealth quintile and residence. Among respondents who reported hearing or seeing a malaria message in the past six months (36%), the most common sources of exposure were radio (56%), health centers and hospitals (47%), CHWs (20%), and friends or family (16%).

However, the data highlights notable differences in exposure sources between those in the lowest wealth quintile and respondents in the higher four wealth quintiles, suggesting that those in the worst economic situations, perhaps unsurprisingly, predominantly receive information through interpersonal networks (e.g., familial, clinical, peer) at higher rates than those who were not among the poorest wealth quintile. Those not in the poorest wealth quintile reported being exposed via mass media, phone, and television at significantly higher rates than those in the poorest wealth category.

Respondents who own phones or tablets (63%) reported that most of these devices can receive audio files (96%), videos (82%), and SMS/phone calls (74%). It is worth noting here again that phone ownership increased significantly with wealth. Both current and future malaria interventions should

consider more various mediums of message penetration. Two important considerations come out of this data:

- Low reported rates of exposure via text and social media seem to present a potential opportunity to increase exposure to malaria messaging, although the people most likely to be reached by social media messages will be the wealthier within Liberia, particularly those residing in predominantly urban areas such as Greater Monrovia. Nonetheless, this particular group still reports low rates of exposure to messaging via text/phone and social media and is the most likely to have access to these channels.
- Exposure to malaria messaging via interpersonal networks was significantly more commonplace among those in the poorest wealth quintile, while exposure via mass and social media, as well as via SMS/chat were significantly lower than those in the other wealth quintiles. These data highlight the important role that audience segmentation will take when deciding which messages are disseminated through various media, particularly demonstrating that interpersonal networks should be leveraged to reach the most vulnerable.

#### **Refine Measurement Models**

For future implementation of MBS Liberia, it could be helpful to test and refine measurement of some of the ideational variables. For example, results of data about some injunctive norms ("people in my community think that *I should do*...") seemed somewhat inconsistent with other findings.

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# **Annex A: Data Tables**

- A.1. Sample Characteristics
- A.2. Cross-Cutting Ideational Determinants
- A.3. Malaria Case Management
- A.4. Malaria in Pregnancy
- A.5. Insecticide-Treated Net Use
- A.6. Media Consumption and Message Exposure

# A.1 Sample Characteristics

This subsection provides results for the 2021 Liberia MBS, including sample characteristics, disaggregated by region.

#### Table A.1.1.

Housing Characteristics, by Region<sup>a</sup>

	Greater Monrovia (n=1,454)	South Central (n=962)	North Central (n=1,303)	Total (n=3,719)
Average number of sleeping rooms	1.6	1.8	2.1	1.9
Number of people per sleeping room	2.0	1.9	1.7	1.8
Percentage of households with electricity***	79	27	13	32
Percentage of households near a public health facility***	69	11	38	43
Percentage of households near <sup>b</sup> a private health facility***	75	21	16	32
Percentage of households near <sup>b</sup> a pharmacy/chemist***	78	24	34	45
Percentage of households with finished floors***	80	52	50	58
Percentage of households with finished roofs***	95	93	96	95
Percentage of households with finished walls***	50	29	57	52

*Notes:* <sup>a</sup>Table values are percentages. <sup>b</sup>Near is defined as located five kilometers or less, less than 30 minutes on foot, or less than 10 minutes by car. Significance of differences between regions: \*p<0.05; \*\*p<0.01; \*\*\*p<0.001.

### Table A.1.2.

Household Ownership of Assets and Wealth Quintiles, by Region<sup>a</sup>

	Greater Monrovia	South Central (n=962)	North Central (n=1,303)	Total (n=3,719)
	(n=1,454)			
Radio***	53	37	30	37
Television***	54	17	4	19
Mobile phone***	83	75	69	73
Smartphone/tablet***	61	37	23	34
Refrigerator***	28	6	2	10
Bicycle**	8	7	2	4
Motorcycle***	7	18	17	14
Car***	8	7	2	4
Wealth quintile	***	***	***	***
Lowest	0	23	18	14
Second	2	21	36	26
Third	17	21	31	26
Fourth	39	19	12	20
Highest	42	15	3	14
Total	100	100	100	100

*Notes:* <sup>a</sup>Table values are percentages. Significance of differences between regions: \*p<0.05; \*\*p<0.01; \*\*\*p<0.001.

## Table A.1.

	Greater Monrovia (n=6,361)	South Central (n=4,171)	North Central (n=6,208)	Total (n=16,740)
Sex	*	*	*	*
Female	57	51	55	55
Male	43	49	45	45
Residence	***	***	***	***
Urban	100	24	25	43
Rural	0	76	75	57
Age, years	*	*	*	*
0-4	12	16	14	14
5–17	36	35	37	37
≥18	52	49	49	50
Total	100	100	100	100

Characteristics of Household Members, by Region<sup>a</sup>

*Notes:* <sup>a</sup>Table values are percentages. Significance of differences between regions: \*p<0.05; \*\*p<0.01; \*\*\*p<0.001.

#### Table A.1.

Socioucinographic and Scructural Characteristics of Respondents, by Region	Sociodemographic and	Structural	Characteristics of	<sup>F</sup> Respondents,	by Region <sup>a</sup>
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	Greater Monrovia (%) (n=2,206)	South Central (%) (n=1,871)	North Central (%) (n=1,745)	Total (%) (n=5,822)
Sex***				
Female	82	79	82	82
Male	18	21	18	18
Age, years				
15–24	26	33	42	37
25–34	38	30	26	29
35–44	26	22	21	22
≥45	10	15	11	11
Residence***				
Urban	100	22	29	45
Rural	n/a	78	71	55
Education***				
No education	16	25	26	24
Elementary	13	19	30	25
Junior high	19	17	24	22
Senior high	32	23	16	20
Vocational/technical	2	1	1	1
Higher	17	16	3	7
Total	100	100	100	100

*Notes:* <sup>a</sup>Table values are percentages. These data are not survey-weighted and reflect the unaltered distribution of individual survey respondents. Significance of differences between regions: \*p<0.05; \*\*p<0.01; \*\*\*p<0.001.
# A.2. Cross-Cutting Ideational Determinants

This subsection of the Annex provides all data tables related to cross-cutting ideational determinants. These include knowledge of malaria, perceived susceptibility and severity of malaria, gender norms related to malaria, perceptions regarding health workers and malaria, and interpersonal communication related to malaria. The tables herein summarize the prevalence of ideational determinants and may be duplicative of tables in the main body of the report.

#### Table A.2.1

## Correct Knowledge of Malaria, by Region<sup>a</sup>

	Greater Monrovia (n=2,206)		South	h Central (n=1,871) North			orth Central (n=1,745)		Total (n=5,822)			
	Know Fever is the Main Symptom of Malaria	Mention at Least One Incorrect Cause of Malaria	Know at Least One Malaria Major Prevention Measure	Know Fever Is the Main Symptom of Malaria	Mention at Least One Incorrect Cause of Malaria	Know at Least One Malaria Major Prevention Measure	Know Fever Is the Main Symptom of Malaria	Mention at Least One Incorrect Cause of Malaria	Know at Least One Malaria Major Prevention Measure	Know Fever Is the Main Symptom of Malaria	Mention at Least One Incorrect Cause of Malaria	Know at Least One Malaria Major Prevention Measure
Sex	***		**			**			***	***		***
Female	78	52	77	74	52	80	77	51	75	77	51	76
Male	13	58	84	65	63	86	76	56	89	61	55	87
Age	***		*		**				**			***
15–24	70	49	74	65	39	81	76	51	73	74	50	74
25–34	54	56	82	69	57	84	73	60	81	67	58	82
35–44	50	55	82	77	45	80	82	48	86	73	50	84
≥45	33	55	78	70	53	86	75	53	87	65	53	85
Residence										**		
Urban	53	54	79	74	54	84	80	55	84	65	55	81
Rural	n/a	n/a	n/a	69	57	82	76	52	80	75	51	80
Level of education	***	*	*		***	***		*	**	*	***	***
No education	67	44	74	68	29	62	73	45	74	72	43	73
Elementary	58	51	74	69	35	70	73	53	79	71	52	78
Junior high	57	60	76	71	54	92	78	61	80	74	61	80
Senior high	52	55	81	70	58	91	85	50	90	72	52	87
Vocational/tech nical	53	60	81	85	66	93	100	77	86	74	67	84
Higher	40	55	85	73	64	98	75	61	92	57	59	90

	Greater Monrovia (n=2,206)			South	South Central (n=1,871) North Central (			Central (n=	=1,745) T		otal (n=5,822)	
	Know Fever is the Main Symptom of Malaria	Mention at Least One Incorrect Cause of Malaria	Know at Least One Malaria Major Prevention Measure	Know Fever Is the Main Symptom of Malaria	Mention at Least One Incorrect Cause of Malaria	Know at Least One Malaria Major Prevention Measure	Know Fever Is the Main Symptom of Malaria	Mention at Least One Incorrect Cause of Malaria	Know at Least One Malaria Major Prevention Measure	Know Fever Is the Main Symptom of Malaria	Mention at Least One Incorrect Cause of Malaria	Know at Least One Malaria Major Prevention Measure
Wealth quintile					**	***			*	***		*
Lowest	n/a	n/a	n/a	69	38	68	76	46	70	75	45	70
Second	40	55	84	71	36	74	78	58	80	77	56	80
Middle	52	51	80	70	43	79	75	54	85	71	53	84
Fourth	52	52	77	77	74	97	78	42	85	66	49	82
Highest	55	57	81	64	54	96	70	74	87	58	59	84
Total	53	54	79	70	48	83	77	53	81	71	53	81

*Notes:* <sup>a</sup>Table values are percentages. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001. n/a, not applicable.

## Table A.2.2.

Perceived Susceptibility to Malaria<sup>a</sup>

	Greater Monrovia	South Central	North Central	Total (n=5.822)
DISAGREE	58	64	69	66
People in this community only catch malaria during the rainy season.**				
AGREE	66	74	74	72
Almost every year, a person in this community catches severe malaria.**				
AGREE	81	89	88	86
When your child has a fever, you're almost always afraid it's malaria.**				
DISAGREE	69	81	71	72
During the rainy season, you are afraid almost every day that a member of your family will suffer from malaria.*				
Sex	**		**	***
Female	73	86	79	78
Male	81	87	89	87
Age, years			**	**
15–24	70	90	77	77
25–34	77	83	83	82
35–44	77	87	87	84
≥45	79	86	88	86
Residence				*
Urban	70	90	77	77
Rural	77	83	83	82
Education				
No education	72	81	81	79
Elementary	73	81	82	81
Junior high	74	89	81	80
Senior high	77	92	87	84
Vocational/technical	87	79	80	84
Higher	81	89	85	84
Wealth quintile		*		*
Lowest	n/a	80	87	86
Second	71	83	83	83
Middle	76	83	83	82
Fourth	78	94	79	80

	Greater Monrovia (n=2,206)	South Central (n=1,871)	North Central (n=1,745)	Total (n=5,822)
Highest	75	92	75	77
Total	76	87	83	82

*Notes:* <sup>a</sup>Table values are percentages. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001. n/a, not applicable.

# Table A.2.3.

Perceived Severity of Malaria<sup>a</sup>

	Greater Monrovia	South Central (n=1,871)	North Central (n=1,745)	Total (n=5,822)
	(n=2,206)			
DISAGREE	49	49	45	46
treated easily.				
DISAGREE	77	82	78	78
Only weak children can die of malaria.				
AGREE	41	54	42	43
Each case of malaria can potentially lead to death.**				
DISAGREE	68	63	65	66
When someone you know has malaria, you usually expect them to recover completely within a few days.				
Sex	***			
Female	41	57	44	45
Male	52	53	48	49
Age, years	**			
15–24	34	73	41	42
25–34	47	44	43	44
35–44	47	59	49	49
≥45	52	44	55	53
Residence				
Urban	45	51	47	46
Rural	n/a	57	45	46
Education		***		
No education	36	48	48	46
Elementary	44	49	43	44
Junior high	48	58	44	46
Senior high	45	53	46	47
Vocational/technical	52	70	19	40
Higher	48	71	55	54
Wealth quintile				
Lowest	n/a	54	48	49
Second	36	52	47	47
Middle	46	58	44	45
Fourth	43	39	44	43
Highest	47	73	37	49

	Greater Monrovia (n=2,206)	South Central (n=1,871)	North Central (n=1,745)	Total (n=5,822)
Total	45	55	45	46

*Notes:* <sup>a</sup>Table values are percentages. The level of perceived severity was based on respondents' level of agreement with several statements. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001. n/a, not applicable.

#### Table A.2.4.

## Interpersonal Communication Regarding Malaria<sup>a</sup>

	Greater Monrovia (n=2,206)		South Central (n=1,871)		North Centr	al (n=1,745)	Total (n=5,822)	
	Talked About Malaria with Their Spouse/Partner in the Previous Six Months (n=1,445)	Spoke of Malaria with a Friend or Family Member in the Previous Six Months (n = 2,206)	Talked About Malaria with Their Spouse/Partner in the Previous Six Months (n=1,518)	Spoke of Malaria with a Friend or Family Member in the Previous Six Months (n = 1,871)	Talked About Malaria with Their Spouse/Partner in the Previous Six Months (n=1,171)	Spoke of Malaria with a Friend or Family Member in the Previous Six Months (n = 1,745)	Talked About Malaria with Their Spouse/Partner in the Previous Six Months (n=4,134)	Spoke of Malaria with a Friend or Family Member in the Previous Six Months (n = 5,822)
Sex	***				***		* * *	
Female	19	20	28	25	13	15	16	17
Male	35	23	33	22	35	19	35	21
Age, years	***		*	*	***	*	***	**
15–24	14	19	13	11	11	12	12	13
25–34	28	20	31	17	22	14	24	16
35–44	28	23	30	25	27	20	28	22
≥45	30	23	54	50	32	23	36	26
Residence								
Urban	25	21	30	21	21	13	24	18
Rural	n/a	n/a	31	25	21	18	22	19
Education	***	**	***	**	***		***	***
No education	14	13	14	13	17	13	16	13
Elementary	19	18	22	16	13	13	15	14
Junior high	19	21	29	26	18	15	19	17
Senior high	28	21	27	13	35	24	32	22
Vocational/technical	33	16	65	60	44	26	39	23
Higher	37	30	63	57	47	34	44	36
Wealth quintile			**	**		**	*	
Lowest	n/a	n/a	22	19	18	18	18	18

	Greater Monrovia (n=2,206)		South Central (n=1,871)		North Central (n=1,745)		Total (n=5,822)	
	Talked About Malaria with Their Spouse/Partner in the Previous Six Months	Spoke of Malaria with a Friend or Family Member in the Previous Six Months	Talked About Malaria with Their Spouse/Partner in the Previous Six Months	Spoke of Malaria with a Friend or Family Member in the Previous Six Months	Talked About Malaria with Their Spouse/Partner in the Previous Six Months	Spoke of Malaria with a Friend or Family Member in the Previous Six Months	Talked About Malaria with Their Spouse/Partner in the Previous Six Months	Spoke of Malaria with a Friend or Family Member in the Previous Six Months
Second	40	36	21	17	19	15	19	15
Middle	18	14	19	12	23	15	23	15
Fourth	22	20	42	25	26	19	25	20
Highest	30	23	52	48	25	24	32	27
Total	25	21	31	24	21	16	23	18

Notes: <sup>a</sup>Table values are percentages. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001. n/a, not applicable.

# Table A.2.5.

Perceptions Regarding Facility-Based Health Workers<sup>a</sup>

	Greater Monrovia (n=2,206)	South Central (n=1,871)	North Central (n=1,745)	Total (n=5,822)
Positive general perceptions towards health workers***	79	87	91	88
Positive perceptions towards health workers providing case management***	75	90	87	84
Positive perceptions towards health workers providing care for malaria in pregnancy***	78	91	90	87
Percent of respondents with favorable perceptions regarding facility-based health workers***	84	96	94	92
Sex				
Female	84	96	95	92
Male	83	95	93	91
Age, years		**		
15–24	83	97	92	91
25–34	83	93	95	91
35–44	83	95	94	91
≥45	88	99	95	94
Residence				***
Urban	84	93	91	87
Rural	n/a	97	95	95
Education				
No education	84	92	98	95
Elementary	83	98	92	91
Junior high	78	95	95	91
Senior high	86	98	91	90
Vocational/technical	86	100	100	92
Higher	85	97	95	90
Wealth quintile			*	***
Lowest	n/a	94	97	96
Second	83	96	97	96
Middle	81	93	90	89
Fourth	82	99	92	88
Highest	86	98	89	88
Total	84	96	94	92

*Notes:* <sup>a</sup>Table values are percentages. Health workers include health workers in general, those providing case management, those providing seasonal malaria chemoprevention, and those providing care for malaria in pregnancy. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001. n/a, not applicable.

# Table A.2.6.

Perceptions Regarding CHWs<sup>a</sup>

	Greater Monrovia (n=2,206)	South Central (n=1,871)	North Central (n=1,745)	Total (n=5,822)
Positive general perceptions towards health workers***	48	63	80	71
Positive perceptions towards health workers providing case management***	75	86	83	82
Positive perceptions towards health workers providing care for malaria in pregnancy***	68	85	85	81
Percentage of respondents with favorable perceptions regarding CHWs	68	85	85	81
Sex				
Female	69	88	86	82
Male	66	80	83	79
Age				
15–24	64	83	84	81
25–34	70	87	83	80
35–44	66	79	89	82
≥45	73	92	84	83
Residence				***
Urban	68	84	81	74
Rural	n/a	85	86	86
Education		*	***	***
No education	72	84	92	88
Elementary	63	86	85	83
Junior high	66	84	85	81
Senior high	71	79	79	76
Vocational/technical	69	56	37	55
Higher	65	96	76	74
Wealth quintile			***	***
Lowest	n.a.	86	91	90
Second	70	86	89	89
Middle	69	80	82	80
Fourth	69	78	81	75
Highest	67	95	62	70
Total	68	85	85	81

*Notes:* <sup>a</sup>Table values are percentages. Community health workers include CHWs in general, those providing case management, those providing seasonal malaria chemoprevention, and those providing care for malaria in pregnancy. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001. n/a, not applicable.

## Table A.2.7.

Gender Norms Related to Malaria<sup>a</sup>

	Greater Monrovia	South Central (n=1,871)	North Central (n=1,745)	Total (n=5,822)
	(n=2,206)			
DISAGREE When there are not enough nets, it is more important that female children sleep under the available nets rather than male children.***	92	93	96	95
DISAGREE When there are not enough nets, it is more important that male children sleep under the available nets rather than female children.**	94	97	96	96
AGREE A pregnant woman should feel comfortable asking her husband/spouse to go to the health facility for a prenatal consultation.	82	88	82	82
DISAGREE When there is not enough money, it is more important that male children with fever get medicine rather than female children.	94	97	95	95
DISAGREE When there is not enough money, it is more important that female children with fever get medicine rather than male children.*	92	96	96	95
Sex			**	*
Female	97	99	98	98
Male	96	99	100	99
Age, years	**		**	***
15–24	94	98	97	97
25–34	97	100	99	98
35–44	96	99	100	99
≥45	100	99	100	100
Residence				**
Urban	96	99	97	97
Rural	n/a	99	99	99
Education			***	*
No education	96	99	100	99
Elementary	97	98	97	97
Junior high	95	99	98	96
Senior high	97	99	100	99

	Greater Monrovia (n=2,206)	South Central (n=1,871)	North Central (n=1,745)	Total (n=5,822)
Vocational/technical	99	100	87	94
Higher	95	99	100	97
Wealth quintile			*	
Lowest	n/a	99	99	99
Second	94	98	98	98
Middle	96	99	99	98
Fourth	96	99	100	98
Highest	97	99	94	97
Total	96	99	99	98

*Notes:* <sup>a</sup>Table values are percentages. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001. n/a, not applicable.

# Table A.2.8.

	Reported Knowledge of Malaria <sup>b</sup> (n=5,822)	Perceived Susceptibili ty to Malaria (n=5,822)	Perceived Severity of Malaria (n=5,822)	Reported Interperson al Communica tion About Malaria with Spouse/Par tner (n = 4,134)	Reported Interperson al Communica tion About Malaria with Friends/Fa mily (n=5,822)	Hold Favorable Attitudes of Facility- Based Health Workers (n=5,822)	Hold Favorable Attitudes of CHWs (n=5,822)	Perceived Equitable Gender Norms Related to Malaria (n=5,822)
Region	**	*			***	***	**	
Greater Monrovia	17	76	45	25	21	84	68	96
South Central	25	87	55	31	24	96	85	99
North Central	25	83	46	21	16	94	85	99
Sex		***		***			*	
Female	24	78	45	16	17	92	82	98
Male	22	87	49	35	21	91	79	99
Age, years		**		***	**		***	
15-24	21	77	42	12	13	91	81	97
25–34	20	82	44	24	16	91	80	98
35–44	27	84	49	28	22	91	82	99
≥45	26	86	53	36	26	94	83	100
Residence		*			***	***	* *	
Urban	21	78	46	24	18	87	74	97
Rural	25	84	46	22	19	95	86	99
Education	**			***	***	***	*	
No education	24	79	46	16	13	95	88	99
Elementary	21	81	44	15	14	91	83	97
Junior high	20	80	46	19	17	91	81	96
Senior high	29	84	47	32	22	90	76	99
Vocational/t echnical	12	84	40	39	23	92	55	94
Higher	17	84	54	44	36	90	74	97
Wealth quintile		*		*	***	***		

Summary of Cross-Cutting Ideational Determinants<sup>a</sup>

	Reported Knowledge of Malaria <sup>b</sup> (n=5,822)	Perceived Susceptibili ty to Malaria (n=5,822)	Perceived Severity of Malaria (n=5,822)	Reported Interperson al Communica tion About Malaria with Spouse/Par tner (n = 4,134)	Reported Interperson al Communica tion About Malaria with Friends/Fa mily (n=5,822)	Hold Favorable Attitudes of Facility- Based Health Workers (n=5,822)	Hold Favorable Attitudes of CHWs (n=5,822)	Perceived Equitable Gender Norms Related to Malaria (n=5,822)
Lowest	23	86	49	18	18	96	90	99
Second	23	83	47	19	15	96	89	98
Middle	23	82	45	23	15	89	80	98
Fourth	27	79	43	25	20	88	75	98
Highest	17	77	49	32	27	88	70	97
Total	23	82	46	23	18	92	81	98

*Notes:* <sup>a</sup>Table values are percentages. <sup>b</sup>Reported knowledge of malaria is defined as "yes" for respondents who did not mention any incorrect cause of malaria, named fever as the primary symptom of malaria, and mentioned at least one major proven preventative measure (sleep under net, sleep under ITN, take preventative meds, or IRS). This formulation may be different from previous MBSs in other countries which considered knowledge as correctly identifying fever as the main symptom of malaria, not mentioning any incorrect causes of malaria, and identifying any of four major proven preventative measures for malaria, including use of mosquito nets, use of ITNs, IRS, or preventative medication for malaria. The approach taken here for the Liberia MBS is more robust with respect to missing data and indicator stability. Significance of differences: \*p≤0.05; \*\*p≤0.01; \*\*\*p≤0.001.

# A.3 Malaria Case Management for Children Under Five Years Old

This subsection summarizes results for the 2021 Liberia MBS for items related to malaria care-seeking and treatment, particularly for children under five years old, including behavior and ideation factors (e.g., knowledge, attitudes, perceived response-efficacy, perceived self-efficacy, gender norms, and perceived community norms). Where appropriate, results are disaggregated by region. Tables may be duplicated in the main body of the report.

#### Table A.3.1.

## Ideational Variables Related to Malaria Case Management

	Knowledge of Malaria Care- Seeking and Treatment	Favorable Attitudes Towards Care- Seeking and Treatment	Perceived Response- Efficacy of Malaria Testing	Perceived Response- Efficacy of Malaria Treatment	Perceived Self- Efficacy of Malaria Testing and Treatment	Perceived Supportive Descriptive Community Norms Regarding Malaria Testing and Treatment	Perceived Equitable Gender Norms Related to Malaria Treatment	Perceived Supportive Injunctive Community Norms Supporting Care- Seeking and Treatment	Favorable Perceptions of Health Facilities Regarding Care- Seeking and Treatment	Favorable Perceptions of Facility- Based Health Workers Regarding Care- Seeking and Treatment	Favorable Perceptions of CHWs Regarding Care- Seeking and Treatment
Region	*	*			*	***			***	***	***
Greater Monrovia	43	87	65	76	93	24	96	10	73	36	39
South Central	51	88	66	78	97	17	98	6	83	51	64
North Central	38	63	63	71	89	40	97	9	71	71	61
Sex	**										
Female	38	91	65	71	91	35	97	10	73	60	57
Male	44	92	62	74	92	33	96	8	71	61	56
Age, years					*			*			
15–24	38	90	65	68	87	34	95	11	73	61	56
25–34	39	90	63	71	92	33	97	7	71	63	56
35–44	44	91	61	77	93	35	97	10	71	60	58
≥45	40	93	67	76	95	37	97	7	77	58	57
Residence		***				**				***	***
Urban	43	88	65	69	91	28	96	10	70	46	47
Rural	39	94	63	75	91	39	97	9	74	72	64
Education				***	*	*	**			***	***

	Knowledge of Malaria Care- Seeking and Treatment	Favorable Attitudes Towards Care- Seeking and Treatment	Perceived Response- Efficacy of Malaria Testing	Perceived Response- Efficacy of Malaria Treatment	Perceived Self- Efficacy of Malaria Testing and Treatment	Perceived Supportive Descriptive Community Norms Regarding Malaria Testing and Treatment	Perceived Equitable Gender Norms Related to Malaria Treatment	Perceived Supportive Injunctive Community Norms Supporting Care- Seeking and Treatment	Favorable Perceptions of Health Facilities Regarding Care- Seeking and Treatment	Favorable Perceptions of Facility- Based Health Workers Regarding Care- Seeking and Treatment	Favorable Perceptions of CHWs Regarding Care- Seeking and Treatment
No education	35	91	61	64	92	37	99	9	72	70	64
Elementary	39	91	63	73	87	39	93	11	69	65	59
Junior high	38	90	62	71	90	36	97	8	75	62	59
Senior high	45	92	66	77	93	30	98	8	73	53	50
Vocational/technical	42	97	65	64	95	26	93	2	83	41	29
Higher	50	92	68	83	95	26	97	10	72	45	47
Wealth quintile	**					***				***	***
Lowest	27	94	66	69	94	44	96	7	82	74	72
Second	37	93	62	69	87	40	96	9	70	78	69
Middle	42	90	62	70	92	38	98	10	69	57	52
Fourth	46	89	65	81	92	24	97	9	70	48	45
Highest	47	90	68	76	94	24	95	10	77	39	43
Total	40	91	64	72	91	34	97	9	72	61	56

*Notes:* <sup>a</sup>Table values are percentages; n=5,822. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001.

#### Table A.3.2.

Regression Exploring Factors Associated with Prompt and Appropriate Care-Seeking for Fever in Children Under Five Years in the Past Two Weeks

	Percentage (n=609)	aOR	95% CI
Age of caregiver, years			
15–24 (reference)	55	1.00	n/a
25–34	54	0.75	0.49–1.13
35–44	53	0.80	0.49–1.32
≥45	63	0.87	0.35–2.19
Education			
No education (reference)	53	1.00	n/a
Elementary	47	0.94	0.58–1.53
Junior high	63	1.14	0.66–1.98
Senior high	57	0.62+	0.35–1.09
Vocational/technical	59	1.25	0.23-6.73
Higher	61	0.91	0.42-1.98
Household wealth quintile			
Lowest (reference)	60	1.00	n/a
Second	56	0.81	0.46-1.43
Middle	52	0.46*	0.24–0.86
Fourth	49	0.37**	0.18-0.77
Highest	57	0.50†	0.23-1.08
Region			
Greater Monrovia (reference)	49	1.00	n/a
South Central	50	0.86	0.44–1.71
North Central	59	0.96	0.48–1.92
Residence			
Urban (reference)	52	1.00	n/a
Rural	58	0.70	0.37–1.32
Near a public or private facility			
Not near (reference)	54	1.00	n/a
Near	55	1.44	0.93–2.23
Perceived severity			
No (reference)	47	1.00	n/a
Yes	63	1.28	0.91-1.80
Perceived care-seeking and testing effectiveness			

	Percentage (n=609)	aOR	95% CI
No (reference)	48	1.00	n/a
Yes	58	1.71*	1.12–2.59
Perceived self-efficacy care-seeking			
No (reference)	33	1.00	n/a
Yes	57	2.14†	0.98–4.68
Knowledge of prompt care-seeking			
No (reference)	8	1.00	n/a
Yes	59	8.02***	3.02-21.31
Knowledge of appropriate care-seeking			
No (reference)	28	1.00	n/a
Yes	56	3.13*	1.24–7.88
Favorable attitudes towards care-seeking and treatment			
No (reference)	44	1.00	n/a
Yes	56	1.30	0.75–2.27
Care-seeking and testing perceived as the norm in the community			
No (reference)	52	1.00	n/a
Yes	61	1.12	0.77–1.65
Heard a message about malaria on the media			
No (reference)	52	1.00	n/a
Yes	58	1.34	0.93-1.91

*Notes:* Pseudo-R<sup>2</sup>=0.0904, †p<0.10; \*p<0.05; \*\*p<0.01; \*\*\*p<0.001. n/a, not applicable.

# Table A.3.3.

Knowledge of Malaria Care-Seeking and Treatment<sup>a</sup>

	Greater Monrovia (n=2,206)	South Central (n=1,871)	North Central (n=1,745)	Total (n=5,822)
Identified ACT as medicine that can be used to effectively treat malaria	78	80	74	75
Identified SAME DAY OR NEXT DAY as time period when one should seek advice or treatment after a child under five years old develops a fever*	92	96	95	94
Identified BLOOD TEST as the best way to know if someone has malaria*	58	67	54	57
Identified HEALTH FACILITY or CHW as the best place to go in the community if one has malaria*	95	98	97	97
Sex			**	**
Female	41	53	35	38
Male	45	49	42	44
Age, years	*			
15–24	37	55	37	38
25–34	45	57	34	39
35–44	47	47	42	44
≥45	37	46	40	40
Residence				
Urban	43	58	41	43
Rural	n/a	50	37	38
Education		**		
No education	45	45	32	35
Elementary	35	37	39	39
Junior high	39	48	36	38
Senior high	45	59	43	45
Vocational/technical	33	77	50	42
Higher	47	65	48	50
Wealth quintile		*	*	**
Lowest	n/a	35	25	26
Second	56	45	36	37
Middle	42	58	41	42
Fourth	45	49	48	47
Highest	41	71	54	47
Total	43	51	38	40

*Notes:* <sup>a</sup>Table values are percentages. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001; n/a, not applicable.

# Table A.3.4.

Attitudes Towards Malaria Care-Seeking and Treatment<sup>a</sup>

	Greater Monrovia (n=2,206)	South Central (n=1,871)	North Central (n=1,745)	Total (n=5,822)
AGREE	98	97	98	98
The health provider is always the best person to talk to when you think your child may have malaria.				
DISAGREE	70	77	82	78
One does not need to continue taking all the medicine doses against malaria if the patient is already cured.***				
DISAGREE	65	70	68	68
A parent should ask for an injection from the health provider or community health worker if they think their child has malaria.				
DISAGREE	52	61	62	60
I prefer that my child receive the medicine to treat malaria by injection rather than swallow it.*				
AGREE	88	92	86	87
A person should only take malaria medicine if a health provider says that their fever really is caused by malaria.				
DISAGREE	75	72	76	75
If a health provider says a person does not have malaria, the patient should ask for a malaria medication just in case they need it.				
DISAGREE	60	70	64	64
When my child has a fever, it is better to start by giving them any malaria medicine I have at home.				
AGREE	95	96	97	97
It is important to take all the antimalaria pills prescribed to ensure a complete recovery.				
DISAGREE	62	75	73	71
When my child has a fever, I do not go directly to the health facility, I first go elsewhere to buy them medicine.*				
Sex				
Female	88	90	92	91
Male	87	86	94	92
Age, years				
15–24	86	89	92	90
25–34	87	88	92	90

	Greater Monrovia (n=2,206)	South Central (n=1,871)	North Central (n=1,745)	Total (n=5,822)
35–44	88	86	93	91
≥45	89	91	95	93
Residence			*	***
Urban	87	84	89	88
Rural	n/a	90	94	94
Education				
No education	90	82	92	91
Elementary	84	83	92	91
Junior high	85	88	92	90
Senior high	88	92	95	92
Vocational/technical	97	92	98	97
Higher	87	95	98	92
Wealth quintile		*		
Lowest	n/a	84	96	95
Second	90	85	93	93
Middle	89	81	91	90
Fourth	87	95	90	89
Highest	87	98	99	90
Total	87	88	93	91

*Notes:* <sup>a</sup>Table values are percentages. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001; n/a, not applicable.

# Table A.3.5.

Perceived Response-Efficacy of Malaria Testing<sup>a</sup>

	Greater Monrovia (n=2,206)	South Central (n=1,871)	North Central (n=1,745)	Total (n=5,822)
AGREE	69	73	70	70
A blood test for malaria is the only way to know if someone really has malaria or not.				
DISAGREE	80	80	75	77
A person should still take malaria medicine even if the malaria test result says that the fever is not due to malaria.				
DISAGREE	35	48	37	38
Parents can diagnose malaria by a person's symptoms just as well as a blood test for malaria.				
Sex		**		
Female	64	70	65	65
Male	67	60	61	62
Age, years	*			
15–24	62	73	65	65
25–34	61	68	63	63
35–44	69	62	58	61
≥45	70	57	68	67
Residence				
Urban	65	65	66	66
Rural	n/a	66	62	63
Education				
No education	66	67	59	61
Elementary	62	66	63	63
Junior high	62	58	62	62
Senior high	70	65	65	66
Vocational/technical	72	70	56	65
Higher	60	73	85	70
Wealth quintile				
Lowest	n/a	62	65	65
Second	76	64	61	62
Middle	64	65	61	62
Fourth	63	63	68	65
Highest	67	75	70	68

	Greater Monrovia (n=2,206)	South Central (n=1,871)	North Central (n=1,745)	Total (n=5,822)
Total	65	66	63	64

*Notes:* <sup>a</sup>Table values are percentages. Perceived response-efficacy is calculated based on a participant's agreement or disagreement with several statements related to testing: a blood test for malaria is the only way to know if someone really has malaria or not (AGREE); a person should still take malaria medicine even if the malaria test result says that the fever is not due to malaria (DISAGREE); and parents can diagnose malaria by their child's symptoms just as well as a blood test for malaria. (DISAGREE). \*p<0.05; \*\*p<0.01; \*\*\*p<0.001; n/a, not applicable.

## Table A.3.

Perceived Response-Efficacy of Malaria Treatment<sup>a</sup>

	Greater Monrovia (n=2,206)	South Central (n=1,871)	North Central (n=1,745)	Total (n=5,822)
AGREE	95	98	97	97
The malaria drugs obtained from the health facility are effective in treating malaria.*				
DISAGREE	74	72	67	69
The malaria medicines that you buy in the market are as good as the ones distributed at the health facility.				
Sex				
Female	75	80	69	71
Male	76	75	73	74
Age, years				
15–24	71	85	66	68
25–34	74	64	70	71
35–44	79	80	75	76
≥45	77	85	75	77
Residence			**	
Urban	75	77	59	69
Rural	n/a	78	75	76
Education		**	**	***
No education	71	69	63	65
Elementary	72	73	73	73
Junior high	71	84	69	70
Senior high	78	76	77	77
Vocational/technical	80	73	41	64
Higher	80	91	84	83
Wealth quintile		*		
Lowest	n/a	68	70	70
Second	67	76	68	68
Middle	77	79	68	70
Fourth	77	73	85	81
Highest	74	95	73	76
Total	76	78	71	72

*Notes:* <sup>a</sup>Table values are percentages. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001; n/a, not applicable.

## Table A.3.

Perceived Sel	f-Ffficacy	for Malaria	Testina a	nd Treatment <sup>a</sup>
I CICCIVCU JCI		101 101010110	i county u	

	Greater Monrovia (n=2,206)	South Central (n=1,871)	North Central (n=1,745)	Total (n=5,822)
Percentage of respondents that believe they <u>could</u> :				
Find the money to take their child to the health facility at the first sign of malaria.*	89	95	85	87
Get permission from their husband or other family member to take their child to the health facility/health provider when the child has a fever.***	66	45	76	71
Take their child to the health facility the same day they develop a fever or the next day.	90	95	88	89
Request a blood test at the health facility when they think their child might have malaria.***	65	91	68	69
Make sure their child takes the full dose of medicine that they are prescribed for malaria.*	96	98	95	96
Find the money to pay for the medication the health provider recommends to treat malaria.**	93	98	87	90
Sex	*			
Female	91	97	90	91
Male	95	98	89	92
Age, years	***			*
15–24	86	96	86	87
25–34	94	97	90	91
35–44	94	98	91	93
≥45	96	99	94	95
Residence				
Urban	93	96	87	91
Rural	n/a	98	90	91
Education				*
No education	91	98	91	92
Elementary	92	94	85	87
Junior high	93	98	89	90
Senior high	95	98	91	93
Vocational/technical	96	100	93	95
Higher	90	99	100	95
Wealth quintile				
Lowest	n/a	96	94	94

	Greater Monrovia (n=2,206)	South Central (n=1,871)	North Central (n=1,745)	Total (n=5,822)
Second	97	96	85	86
Middle	92	98	91	92
Fourth	91	100	91	92
Highest	94	98	91	94
Total	93	97	89	91

*Notes:* <sup>a</sup>Table values are percentages. Perceived self-efficacy is calculated based on a participant's agreement or disagreement with several statements related to testing. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001; n/a, not applicable.

## Table A.3.8.

Gender Norms Related to Malaria Treatment<sup>a</sup>

	Greater Monrovia (n=2,206)	South Central (n=1,871)	North Central (n=1,745)	Total (n=5,822)
DISAGREE	94	97	95	95
When there is not enough money, it is more important that male children with a fever get medicine rather than female children.				
DISAGREE When there is not enough money, it is more important that female children with a fever get medicine rather than male children.*	92	96	96	95
Sex				
Female	96	98	97	97
Male	95	99	96	96
Age, years	*			
15–24	92	98	96	95
25–34	97	98	96	97
35–44	95	99	98	97
≥45	97	98	97	97
Residence				
Urban	96	99	95	96
Rural	n/a	98	97	97
Education			**	**
No education	95	99	99	99
Elementary	95	98	92	93
Junior high	95	98	98	97
Senior high	97	98	99	98
Vocational/technical	99	98	84	93
Higher	95	99	99	97
Wealth quintile				
Lowest	n/a	99	96	96
Second	93	97	96	96
Middle	96	98	98	98
Fourth	95	100	98	97
Highest	96	99	90	95
Total	96	98	97	97

*Notes:* <sup>a</sup>Table values are percentages. Equitable gender norms are calculated based on a participant's agreement or disagreement with several statements related to malaria and gender. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001; n/a, not applicable.

#### Table A.3.9.

Perceived Community Norms Regarding Malaria Testing and Treatment<sup>a</sup>

, , , , , , , , , , , , , , , , , , , ,			
	Community Norm	Most Children in the	Most People in the
	Supports Prompt	Community Taken	Community
	Care-Seeking	to a Health Facility	Approve of Prompt
		Tested for Malaria	Children with Fever
Region	***	* * *	
Greater Monrovia	24	25	10
South Central	17	17	6
North Central	40	41	9
Sex			
Female	35	34	10
Male	33	36	8
Age, years			*
15–24	34	35	11
25–34	33	35	7
35–44	35	36	10
≥45	37	34	7
Residence	**	**	
Urban	28	29	10
Rural	39	40	9
Education	*		
No education	37	37	9
Elementary	39	39	11
Junior high	36	37	8
Senior high	30	32	8
Vocational/technical	26	25	2
Higher	26	27	10
Wealth quintile	***	* * *	
Lowest	43	46	7
Second	41	43	9
Middle	38	36	10
Fourth	24	23	9
Highest	24	25	10
Total	34	34	9

*Notes:* <sup>a</sup>Table values are percentages; n=5,822. Perceived community norms were assessed based on participants' responses to a series of questions asking about the proportion of members in their community who promptly take

their own children to a health provider and/or approve of them (the respondent) taking this action. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001.

## Table A.3.143

Perceptions of Health Facilities Regarding Malaria Care-Seeking and Treatment<sup>a</sup>

	Greater Monrovia (n=2,206)	South Central (n=1,871)	North Central (n=1,745)	Total (n=5,822)
AGREE Health facilities always have the medication to treat malaria.*	76	85	72	74
AGREE Health facilities in this community always have the blood test kit to tell if a person has malaria.**	79	91	86	85
Sex				
Female	73	87	72	73
Male	72	78	70	71
Age, years				
15–24	73	91	72	73
25–34	71	74	70	71
35–44	72	78	69	71
≥45	79	92	74	77
Residence				
Urban	73	87	65	70
Rural	n/a	82	73	74
Education		*		
No education	71	80	72	72
Elementary	69	90	67	69
Junior high	70	89	75	75
Senior high	73	72	73	73
Vocational/technical	81	99	83	83
Higher	75	92	58	72
Wealth quintile		*		
Lowest	n/a	82	82	82
Second	88	85	69	70
Middle	74	91	66	69
Fourth	69	62	72	70
Highest	74	94	78	77
Total***	73	83	71	72

*Notes:* <sup>a</sup>Table values are percentages. Favorable perceptions were assessed based on participants' responses to a series of questions asking whether they agree or disagree with a statement. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001; n/a, not applicable.
#### Table A.3.144

Perceptions of Facility-Based Health Workers Regarding Malaria Care-Seeking and Treatment<sup>a</sup>

	Greater Monrovia (n=2,206)	South Central (n=1,871)	North Central (n=1,745)	Total (n=5,822)
AGREE Health providers in health facilities in this community treat their patients with respect.***	79	87	91	88
AGREE Health providers at the health facilities in this community know about how to treat malaria in children.*	91	90	94	93
DISAGREE Health providers at the health facility in this community make parents pay for the medication to treat malaria in children less than five years old.***	23	42	61	50
DISAGREE Health facility providers in this community make parents of children less than five years old pay for the blood test to see if the child has malaria.***	23	46	60	50
Sex	*			
Female	32	49	72	60
Male	39	53	70	61
Age, years			*	
15–24	43	45	66	61
25–34	35	50	78	63
35–44	32	54	72	60
≥45	38	58	65	58
Residence		*		***
Urban	64	40	59	46
Rural	n/a	54	75	72
Education		**		***
No education	41	60	77	70
Elementary	40	52	70	65
Junior high	39	61	69	62
Senior high	35	41	67	53
Vocational/technical	21	53	65	41
Higher	33	48	64	45
Wealth quintile		*	***	***
Lowest	n/a	57	77	74

	Greater Monrovia (n=2,206)	South Central (n=1,871)	North Central (n=1,745)	Total (n=5,822)
Second	34	59	80	78
Middle	29	49	63	57
Fourth	28	52	58	48
Highest	37	38	48	39
Total	36	51	71	61

*Notes:* <sup>a</sup>Table values are percentages; n=5,822. Favorable perceptions were assessed based on participants' responses to a series of questions asking whether they agree or disagree with a statement. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001; n/a, not applicable.

# Table A.3.12.

Perceptions of CHWs Regarding Malaria Care-Seeking and Treatment<sup>a</sup>

	Greater Monrovia (n=2,206)	South Central (n=1,871)	North Central (n=1,745)	Total (n=5,822)
AGREE	39	55	49	47
CHWs always have the medication to treat malaria.***				
AGREE	38	55	46	45
CHWs in this community always have the blood test kit to tell if a person has malaria.**				
AGREE CHWs in this community know how to treat malaria in children.***	50	63	65	61
DISAGREE	16	37	52	42
CHWs in this community make parents pay for the medication to treat malaria in children less than five years old.***				
DISAGREE	17	40	52	43
CHWs in this community make parents of children less than five years old pay for the blood test to see if the child has malaria.***				
Sex				
Female	40	61	62	57
Male	38	68	60	56
Age, years				
15–24	39	60	59	56
25–34	40	69	61	56
35–44	40	61	64	58
≥45	37	66	61	57
Residence				***
Urban	39	62	56	47
Rural	n/a	64	63	64
Education		*	***	***
No education	46	67	67	64
Elementary	31	67	62	59
Junior high	42	57	64	59
Senior high	40	64	53	50
Vocational/technical	35	25	21	29
Higher	37	65	53	47

	Greater Monrovia (n=2,206)	South Central (n=1,871)	North Central (n=1,745)	Total (n=5,822)
Wealth quintile			* * *	***
Lowest	n/a	74	72	72
Second	52	63	69	69
Middle	33	63	54	52
Fourth	40	52	48	45
Highest	41	67	35	43
Total	39	64	61	56

*Notes:* <sup>a</sup>Table values are percentages. Favorable perceptions were assessed based on participants' responses to a series of questions asking whether they agree or disagree with a statement. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001; n/a, not applicable.

#### Table A.3.13.

### Decision Making for Malaria Care and Treatment Among Respondents with Spouses/Partners<sup>a</sup>

	Greater Monrovia (n=1,445)			South Central (n=1,518)			North Central (n=1,171)		
	Decision to Go to the Health Facility when Child Has Malaria	Decision to Purchase Medicine when Child Is Sick with Fever	Decision About What to Do When Respondent Is Sick	Decision to Go to the Health Facility When Child Has Malaria	Decision to Purchase Medicine When Child Is Sick with Fever	Decision About What to Do When Respondent Is Sick	Decision to Go to the Health Facility When Child Has Malaria	Decision to Purchase Medicine When Child Is Sick with Fever	Decision About What to Do When Respondent Is Sick
Sex	*	***	***	*		**		***	***
Female	66	62	67	63	60	62	60	53	55
Male	75	28	30	82	51	51	70	19	18
Age, years		*		**	***	***			
15–24	61	42	49	54	40	42	60	38	39
25–34	71	41	46	69	45	47	65	31	31
35–44	73	45	47	81	56	58	61	31	32
≥45	73	57	59	83	84	84	75	45	48
Residence									
Urban	71	45	48	68	51	54	61	35	34
Rural	n/a	n/a	n/a	74	57	58	66	35	37
Education		*	**						
No education	66	58	63	63	49	51	67	37	39
Elementary	71	49	53	71	44	48	58	36	37
Junior high	67	41	46	75	58	62	69	36	34
Senior high	75	40	43	75	59	58	63	27	30
Vocational/technical	61	39	39	45	40	51	85	30	33
Higher	73	44	47	79	69	69	71	52	54
Wealth quintile									
Lowest	n/a	n/a	n/a	72	51	53	68	30	30

	Greater Monrovia (n=1,445)			South Central (n=1,518)			North Central (n=1,171)		
	Decision to Go to the Health Facility when Child Has Malaria	Decision to Purchase Medicine when Child Is Sick with Fever	Decision About What to Do When Respondent Is Sick	Decision to Go to the Health Facility When Child Has Malaria	Decision to Purchase Medicine When Child Is Sick with Fever	Decision About What to Do When Respondent Is Sick	Decision to Go to the Health Facility When Child Has Malaria	Decision to Purchase Medicine When Child Is Sick with Fever	Decision About What to Do When Respondent Is Sick
Second	76	38	39	68	40	41	65	34	33
Middle	70	37	43	72	53	53	68	37	42
Fourth	71	44	47	89	78	81	56	40	42
Highest	71	49	52	62	61	61	61	41	39
Total	71	45	48	72	56	57	65	35	36

Notes: <sup>a</sup>Table values are percentages. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001; n/a, not applicable.

#### Table A.3.150

	Children Under Age Five (n=2,391)	Children Under Age Five with Fever (n=607)				
	Had Fever in the Two Weeks Preceding the Survey	Advice or Treatment Was Sought <sup>b</sup>	Advice or Treatment Was Sought the Same or Next Day <sup>b</sup>	Advice or Treatment Was Sought from a Health Facility or CHW First <sup>b</sup>	Received a Malaria Test	
Region	***					
Greater Monrovia	29	89	72	62	60	
South Central	25	79	59	69	70	
North Central	18	87	71	67	63	
Age, months						
<12	n/a	88	72	70	63	
12–23	n/a	89	60	53	63	
≥24	n/a	83	71	67	63	
Residence	*					
Urban	25	87	71	63	60	
Rural	19	86	68	69	66	
Wealth quintile	**					
Lowest	32	89	76	68	62	
Second	16	83	73	60	72	
Middle	18	89	62	74	60	
Fourth	23	83	63	62	54	
Highest	25	89	74	66	66	
Proximity to public or private facility <sup>c</sup>						
Not near	n/a	82	66	64	58	
Near	n/a	90	73	68	68	
Total	21	86	70	66	63	

Care-Seeking and Testing of Children with Fever in the Past Two Weeks<sup>a</sup>

*Notes:* <sup>a</sup>Table values are percentages. <sup>b</sup>Includes advice or treatment from the following sources: public medical sector, private medical sector, or CHW. Excludes advice or treatment from a traditional practitioner or a shop, market, or itinerant drug seller. <sup>c</sup>Near was defined as respondents living in a household that is located five kilometers or less, less than 30 minutes on foot, or less than 10 minutes by vehicle from a public or private health facility. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001; n/a, not applicable.

Table A.3.1	51
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Treatment of Children with Fever <sup>a</sup>	Children Under Five Tested for Malaria (n=381)	Children Under Five with Confirmed Malaria (n=333)		
	Confirmed Malaria	Receiving ACT	Receiving ACT Promptly	
Region				
Greater Monrovia	82	76	59	
South Central	57	67	42	
North Central	85	60	43	
Age, months		*	**	
<12	83	67	49	
12–23	78	60	39	
≥24	78	65	50	
Residence				
Urban	84	63	51	
Rural	77	67	45	
Wealth quintile				
Lowest	94	52	46	
Second	83	60	43	
Middle	79	68	38	
Fourth	69	80	61	
Highest	73	78	61	
Proximity to public or private facility				
Not near	n/a	62	52	
Near <sup>b</sup>	n/a	68	48	
Total	80	65	48	

*Notes:* <sup>a</sup>Table values are percentage of children under five who had confirmed cases of malaria in the two weeks preceding the survey, the percentage of these children receiving ACT, and percentage receiving ACT promptly (same or next day). Sample for this table only includes one child (per mother/caregiver) who most recently had a fever in the two-week period before the survey and got tested for malaria. <sup>b</sup>Near is defined as respondents living in a household that is located five kilometers or less, less than 30 minutes on foot, or less than 10 minutes by vehicle from a public or private health facility. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001; n/a, not applicable.

# A.4 Malaria in Pregnancy

This subsection provides all data tables related to malaria in pregnancy for the 2021 Liberia MBS. Where appropriate, results are disaggregated by region. The following tables may have been duplicated or referenced in the main body of the report.

#### Table A.4.1.

Logistic Regression Exploring Factors Associated with Intention for Early ANC

	Percentage	aOR	95% CI
Age, years			
15–24, (reference)	67	1.00	n/a
25–34,	69	0.88	0.72-1.08
35–44,	66	0.72**	0.57–0.91
≥45	58	0.55***	0.40-0.76
Education			
No education (reference)	65	1.00	n/a
Elementary	60	1.03	0.83–1.27
Junior high	73	1.18	0.93–1.51
Senior high	71	1.12	0.86–1.45
Vocational/technical	80	1.21	0.53–2.76
Higher	70	1.13	0.77–1.65
Household wealth quintile			
Lowest (reference)	79	1.00	n/a
Second	63	1.04	0.83–1.31
Middle	66	0.86	0.67–1.11
Fourth	64	0.87	0.64–1.20
Highest	67	0.97	0.69–1.36
Region			
Greater Monrovia (reference)	62	1.00	n/a
South Central	73	1.26	0.94–1.69
North Central	67	1.26	0.96–1.66
Marital Status			
Not currently married/cohabitating (reference)	65	1.00	n/a
Married/cohabitating	68	1.02	0.85–1.22
Residence			
Urban (reference)	61	1.00	n/a
Rural	70	1.47**	1.17–1.86
Near a public or private facility			

	Percentage	aOR	95% CI
Not near (reference)	65	1.00	n/a
Near	69	1.15	0.96–1.37
Pregnancy			
Not first pregnancy (reference)	65	1.00	n/a
First pregnancy	76	1.47***	1.17–1.84
Know recommended ANC attendance frequency			
No (reference)	44	1.00	n/a
Yes	73	2.40***	1.96–2.95
Know recommended IPTp dosage			
No (reference)	54	1.00	
Yes	72	1.38***	1.15–1.65
Perceived severity of malaria in pregnancy			
No (reference)	58	1.00	
Yes	68	1.10	0.90–1.35
Perceived IPTp effectiveness			
No (reference)	19	1.00	
Yes	67	1.28	0.68–2.43
Perceived self-efficacy for ANC and IPTp			
No (reference)	39	1.00	n/a
Yes	68	2.89***	1.86-4.48
ANC 4+ community norm			
No (reference)	63	1.00	n/a
Yes	72	1.26*	1.0–1.62
IPTp community norm			
No (reference)	65	1.00	
Yes	71	0.88	0.68–1.13
Favorable attitudes towards ANC and IPTp			
No (reference)	53	1.00	
Yes	68	1.69***	1.30-2.20
Positive gender norm related to malaria in pregnancy			
No (reference)	63	1.00	
Yes	68	1.01	0.83–1.22
Favorable attitude of facility-based health workers			
No (reference)	64	1.00	
Yes	67	0.98	0.73–1.31

	Percentage	aOR	95% CI
Favorable attitude of CHWs			
No (reference)	58	1.00	
Yes	68	1.02	0.73–1.44
Heard a message about malaria on the media			
No (reference)	62	1.00	
Yes	75	1.43 ***	1.21-1.69

*Notes:* †p<0.10; \*p<0.05; \*\*p<0.01; \*\*\*p<0.001; n/a, not applicable. n=3,623. Pseudo-R<sup>2</sup>=0.086.

### Table A.4.2.

1 ~	victic Do	araccian	Eveloring	Factors	Accordented	i+h	Intontion to	Takal	nt. :.	a a <i>Futura</i>	Draananau
1 ()(	MSHICRPI	UTPSSION.	$r \times m m m m m m$	FOUTORS	Αςςοιμπρα	wiin	memonio	ΤΟΚΡ Π	P I D II	10 FUIIIIE	Preamanav
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	Percentage	aOR	95% Cl
Age, years			
15–24 (reference)	84	1.00	
25–34	88	0.95	0.70–1.28
35–44	85	0.60**	0.44–0.83
≥45	85	0.48***	0.31–0.73
Education			
No education (reference)	86	1.00	
Elementary	79	0.99	0.74–1.32
Junior high	89	1.20	0.86–1.68
Senior high	90	1.36	0.94–1.98
Vocational/technical	70	0.53	0.20-1.38
Higher	92	1.42	0.79–2.58
Household wealth quintile			
Lowest (reference)	89	1.00	
Second	87	0.95	0.69–1.32
Middle	83	0.61**	0.43–0.87
Fourth	83	0.61*	0.40-0.94
Highest	88	0.92	0.57–1.47
Region			
Greater Monrovia (reference)	86	1.00	
South Central	86	0.79	0.53–1.19
North Central	85	0.77	0.53–1.11
Marital status			
Not currently married/cohabitating (reference)	81	1.00	
Married/cohabitating	89	1.55***	1.21–1.99
Residence			
Urban (reference)	84	1.00	
Rural	86	1.20	0.89–1.63
Near a public or private facility			
Not near (reference)	83	1.00	
Near	89	1.09	0.86-1.39
Parity/pregnancy			
Not first pregnancy (reference)	85	1.00	

First pregnancy	90	1.70**	1.19–2.43
Know recommended ANC attendance frequency			
No (reference)	74	1.00	
Yes	89	1.61***	1.23–2.11
Know recommended IPTp dosage			
No (reference)	77	1.00	
Yes	89	1.76***	1.37–2.25
Perceived severity of malaria in pregnancy			
No (reference)	78	1.00	
Yes	87	1.16	0.88-1.53
Perceived IPTp effectiveness			
No (reference)	57	1.00	
Yes	86	1.34	0.67–2.65
Perceived self-efficacy for ANC and IPTp			
No (reference)	52	1.00	
Yes	87	4.26***	2.75-6.61
ANC 4+ community norm			
No (reference)	85	1.00	
Yes	86	1.12	0.79–1.59
IPTp community norm			
No (reference)	85	1.00	
Yes	86	0.87	0.61-1.24
Favorable attitudes towards ANC and IPTp			
No (reference)	77	1.00	
Yes	86	1.16	0.82-1.63
Positive gender norm related to malaria in pregnancy			
No (reference)	74	1.00	
Yes	88	1.74***	1.37–2.22
Favorable attitude of facility-based health workers			
No (reference)	76	1.00	
Yes	87	1.17	0.80-1.74
Favorable attitude of community-based health workers			
No (reference)	79	1.00	
Yes	87	1.28	0.82-1.98
Heard a message about malaria on the media			
No (reference)	83	1.00	

Yes	90	1.15	0.91–1.46		
<i>Notes:</i> <sup>+</sup> p<0.10; *p<0.05; **p<0.01; ***p<0.001. n/a, not applicable. n=3,623. Pseudo-R <sup>2</sup> =0.135.					

# Table A.4.3.

Knowledge of IPTp<sup>a</sup>

	Greater Monrovia (n=2,206)	South Central (n=1,871)	North Central (n=1,745)	Total (n=5,822)
Respondents that correctly answered the following questions:				
When should a pregnant woman go for pregnancy care for the first time?	9	14	11	11
How many times should a woman receive a check-up during one pregnancy?*	68	81	71	71
How many times during her pregnancy should a woman receive medicine to keep her from getting malaria?***	50	73	63	61
Percentage of respondents with comprehensive knowledge of IPTp	5	9	7	7
Sex	**	**	***	***
Female	6	15	10	10
Male	3	2	3	3
Age, years				
15–24	5	13	6	7
25–34	4	7	6	6
35–44	5	4	8	7
≥45	6	17	9	9
Residence		**		
Urban	5	5	7	6
Rural	n/a	11	7	8
Education		*	**	
No education	4	8	13	11
Elementary	7	5	7	7
Junior high	4	8	6	6
Senior high	4	7	4	4
Vocational/technical	12	0	3	8
Higher	6	22	1	7
Wealth quintile		**		
Lowest	n/a	7	5	6
Second	1	6	7	7
Third	4	7	8	8
Fourth	4	11	8	6

	Greater Monrovia (n=2,206)	South Central (n=1,871)	North Central (n=1,745)	Total (n=5,822)
Highest	6	16	8	8

*Notes:* <sup>a</sup>Table values are percentages. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001. n/a, not applicable.

# Table A.4.4.

Attitudes Towards IPTp

	Greater Monrovia (n=2,206)	South Central (n=1,871)	North Central (n=1,745)	Total (n=5,822)
AGREE				
It is okay for pregnant women to take the medicine to prevent malaria on empty stomach.*	97	99	98	98
DISAGREE				
Even if a woman thinks she may be pregnant, she should wait a few months before she sees a health provider.	95	97	97	96
DISAGREE				
A woman who has given birth before does not need to see a health provider as soon as she thinks she might be pregnant.***	96	98	99	98
AGREE				
The medications given to pregnant women to prevent them from getting malaria are safe for them and their babies.	97	99	99	98
AGREE				
A pregnant woman must take several doses of the medicine to prevent malaria during pregnancy.**	94	97	96	96
Percentage of respondents with favorable attitudes towards IPTp**	89	92	94	93
Sex			***	***
Female	89	93	92	91
Male	89	91	99	96
Age, years	*		**	**
15–24	84	94	91	90
25–34	91	93	96	94
35–44	89	92	95	94
≥45	93	90	97	95
Residence				**
Urban	89	90	92	91
Rural	n/a	93	95	95
Education			*	
No education	87	89	95	93
Elementary	88	92	92	92

	Greater Monrovia (n=2,206)	South Central (n=1,871)	North Central (n=1,745)	Total (n=5,822)
Junior high	86	89	93	91
Senior high	90	96	98	95
Vocational/technical	94	91	86	91
Higher	92	96	99	95
Wealth quintile		*		
Lowest	n/a	91	96	95
Second	89	88	94	94
Third	89	89	92	92
Fourth	89	98	97	94
Highest	90	97	91	91

*Notes:* <sup>a</sup>Table values are percentages. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001. n/a, not applicable.

### Table A.4.5.

Perceived Severity of Malaria in Pregnancy<sup>a</sup>

	Greater Monrovia (n=2,206)	South Central (n=1,871)	North Central (n=1,745)	Total (n=5,822)
AGREE with the following statements:				
When a pregnant woman gets malaria, the effect on her and her unborn child is very serious.	96	97	98	97
Pregnant women are more likely to die from malaria compared with women who are not pregnant.***	91	93	92	92
Percentage of respondents with perceived severity of malaria in pregnancy.***	77	87	88	85
Sex				
Female	76	88	86	84
Male	77	85	90	97
Age, years				
15–24	73	89	85	84
25–34	78	89	86	84
35–44	76	78	93	87
≥45	82	91	88	87
Residence				**
Urban	77	84	90	82
Rural	n/a	88	87	87
Education				*
No education	82	83	91	89
Elementary	83	84	83	83
Junior high	76	92	89	86
Senior high	75	86	88	83
Vocational/technical	78	91	100	88
Higher	73	91	93	83
Wealth quintile				*
Lowest	n/a	83	89	88
Second	68	80	86	86
Third	80	85	88	86
Fourth	79	98	89	85
Highest	74	89	90	78

*Notes:* <sup>a</sup>Table values are percentages. Perceived severity is calculated based on the respondents' agreement or disagreement with certain statements. p<0.05; p<0.01; p<0.01: n/a, not applicable.

# Table A.4.6.

Perceived Response-Efficacy of IPTp<sup>a</sup>

	Greater Monrovia (n=2,206)	South Central (n=1,871)	North Central (n=1,745)	Total (n=5,822)
AGREE with the following statements:				
Consulting health facility providers during pregnancy is a way to make sure the baby and mother are healthy.**	96	97	98	98
The medicine given to pregnant women to prevent malaria works well to keep the mother healthy.**	96	97	99	98
Pregnant women should still take the medicine that is meant to keep them from getting malaria even if they sleep under nets every night.*	94	97	97	96
Respondents with perceived response- efficacy of IPTp**	97	98	99	99
Sex			**	*
Female	97	97	98	98
Male	97	99	100	99
Age, years	**		**	***
15–24 years	94	98	98	97
25–34 years	97	97	100	99
35–44 years	98	98	100	99
≥45	100	99	100	100
Residence		**	***	***
Urban	97	95	98	97
Rural	n/a	99	100	99
Education				*
No education	97	97	99	99
Elementary	97	97	97	97
Junior high	96	95	100	99
Senior high	98	99	100	99
Vocational/technical	100	100	100	100
Higher	98	100	100	99
Wealth quintile				
Lowest	n/a	97	100	99
Second	94	98	99	99

	Greater Monrovia (n=2,206)	South Central (n=1,871)	North Central (n=1,745)	Total (n=5,822)
Third	97	97	99	98
Fourth	98	99	98	98
Highest	97	99	99	98

*Notes:* <sup>a</sup>Table values are percentages. Perceived response-efficacy is calculated based on a participant's agreement or disagreement with several statements related to IPTp. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001 for statistically significant differences between survey regions. n/a, not applicable.

# Table A.4.7.

Perceived Self-Efficacy for IPTp-Women<sup>a</sup>

	Greater Monrovia (n=1,809)	South Central (n=1,444)	North Central (n=1,424)	Total (n=4,677)
AGREE with the following statements:				
Go for ANC as soon as I think I might be pregnant	91	97	91	91
Convince my spouse/partner to accompany me to the health facility for ANC**	82	93	80	81
Go to at least four ANC appointments at the health facility*	93	98	93	94
Go for ANC even if my religious leader does not agree	90	92	92	92
Take the medicine to prevent malaria at least three times during pregnancy	94	98	95	95
Request the medicine that helps to prevent malaria when I go for ANC**	73	92	73	75
Female respondents with perceived self- efficacy for IPTp*	94	99	94	96
Age, years	***			
15–24	86	98	91	91
25–34	97	99	96	97
35–44	97	99	98	98
≥45	96	99	99	98
Residence				**
Urban	94	98	95	95
Rural	n/a	99	94	94
Education				*
No education	95	98	97	97
Elementary	90	97	90	90
Junior high	92	99	95	95
Senior high	95	98	97	96
Vocational/technical	93	100	93	94
Higher	96	100	100	98
Wealth quintile		*		
Lowest	n/a	98	94	94
Second	98	97	96	96

	Greater Monrovia (n=1,809)	South Central (n=1,444)	North Central (n=1,424)	Total (n=4,677)
Third	94	99	92	93
Fourth	93	100	94	94
Highest	94	99	94	95

*Notes:* <sup>a</sup>Table values are percentages. Perceived self-efficacy is calculated based on a participant's agreement or disagreement with several statements related to IPTp care seeking and treatment. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001 for statistically significant differences between survey regions. n/a, not applicable.

# Table A.4.8.

Perceived Self-Efficacy for IPTp-Men<sup>a</sup>

	Greater Monrovia (n=397)	South Central (n=427)	North Central (n=321)	Total (n=1,145)
AGREE with the following statements				
Support my spouse/partner to go for ANC as soon as she thinks she might be pregnant.	95	96	97	97
Accompany my spouse to the health facility for ANC.	83	91	89	88
Support my spouse/partner to go for at least four ANC appointments at the health facility during pregnancy.	95	98	98	97
Support my spouse/partner to go for ANC even if my religious leader does not agree.*	92	93	97	95
Support my spouse/partner to take the medicine to prevent malaria at least three times during pregnancy.*	95	99	99	98
Support my spouse/partner to request the medicine that helps to prevent malaria when she goes for ANC.	87	96	89	89
Male respondents with perceived self- efficacy for IPTp	96	98	98	97
Age, years	*			
15–24	82	99	92	92
25–34	97	98	96	96
35–44	96	98	100	99
≥45	98	98	99	99
Residence				
Urban	96	96	96	96
Rural	n/a	99	98	98
Education		*		
No education	88	95	91	91
Elementary	97	99	96	97
Junior high	93	95	100	98
Senior high	97	100	99	99
Vocational/technical	100	100	100	100
Higher	98	100	100	99
Wealth quintile				

	Greater Monrovia (n=397)	South Central (n=427)	North Central (n=321)	Total (n=1,145)
Lowest	n/a	100	100	100
Second	90	97	97	97
Third	97	96	99	99
Fourth	94	100	95	95
Highest	98	100	100	99

*Notes:* <sup>a</sup>Table values are percentages. Perceived self-efficacy is calculated based on a participant's agreement or disagreement with several statements related to IPTp care-seeking and treatment. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001 for statistically significant differences between survey regions. n/a, not applicable.

### Table A.4.9.

	Agree Most Women in the Community go to ANC at Least Four Times When They Are Pregnant	Agree Most Women in the Community Take Medicine to Prevent Malaria When They Are Pregnant	Agree Most People in the Community Approve of Pregnant Women Taking the Medicine to Prevent Malaria
Region	***	***	*
Greater Monrovia	30	26	11
South Central	20	17	6
North Central	49	42	12
Sex			
Female	42	36	12
Male	42	36	10
Age, years	*		
15–24	40	32	14
25–34	41	37	9
35–44	44	38	12
≥45	42	37	10
Residence	**	**	
Urban	33	28	13
Rural	48	42	11
Education			
No education	44	37	14
Elementary	47	39	13
Junior high	40	35	9
Senior high	39	35	11
Vocational/technical	29	22	6
Higher	36	31	10
Wealth quintile	***	**	
Lowest	52	40	12
Second	49	45	11
Third	42	35	13
Fourth	34	29	10
Highest	29	26	11
Total	42	36	12

Perceived Community Norms Regarding IPTp<sup>a</sup>

Notes: <sup>a</sup>Table values are percentages. n=5,822. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001. n/a, not applicable.

### Table A.4.10.

Derecived Conder N	orme Degarding	Malaria in	Drognonova
Perceivea Genaer N	orms Regurang	iviaiaria m	pregnancy

	Greater Monrovia (n=2,206)	South Central (n=1,871)	North Central (n=1,745)	Total (n=5,822)
AGREE with the following statement:				
A pregnant woman should feel comfortable asking her husband/spouse to go to the health facility for a prenatal consultation.	82	88	82	82
Sex			*	**
Female	81	87	80	80
Male	84	89	85	85
Age, years	**			*
15–24	74	86	76	77
25–34	84	88	85	85
35–44	83	87	83	84
≥45	87	90	86	86
Residence				
Urban	82	85	81	82
Rural	n/a	88	82	83
Education		*	***	***
No education	80	82	88	86
Elementary	82	83	73	75
Junior high	80	82	81	81
Senior high	83	94	85	85
Vocational/technical	86	86	55	73
Higher	85	95	94	89
Wealth quintile		*		
Lowest	n/a	83	83	83
Second	86	82	82	82
Third	85	87	81	82
Fourth	79	91	85	83
Highest	84	96	64	83
Total	82	88	82	82

Notes: <sup>a</sup>Table values are percentages. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001. n/a, not applicable.

# Table A.4.11.

Perceptions of CHWs Regarding Malaria in Pregnancy<sup>a</sup>

	Greater Monrovia (n=2,206)	South Central (n=1,871)	North Central (n=1,745)	Total (n=5,822)
AGREE with the following statements:				
In this community, providers at the health facility make pregnant women pay for SP/Fansidar/Maloxine, the medicine to prevent malaria.***	31	60	63	56
Prenatal health providers in this community generally treat pregnant women with respect.***	73	83	83	81
Favorable perceptions of health workers giving malaria-specific pregnancy care. ***	85	95	96	93
Sex				
Female	86	95	95	93
Male	84	95	98	95
Age, years			*	*
15–24	79	94	91	89
25–34	86	93	98	94
35–44	86	95	98	95
≥45	92	97	100	98
Residence			*	***
Urban	85	92	94	89
Rural	n/a	96	97	97
Education				*
No education	86	93	98	96
Elementary	82	95	94	93
Junior high	84	91	95	93
Senior high	86	97	97	93
Vocational/technical	87	100	86	87
Higher	87	98	99	93
Wealth quintile			*	***
Lowest	n/a	95	97	97
Second	90	93	98	98
Middle	86	92	93	92
Fourth	84	97	96	91

	Greater Monrovia (n=2,206)	South Central (n=1,871)	North Central (n=1,745)	Total (n=5,822)
Highest	86	98	86	88

*Notes:* <sup>a</sup>Table values are percentages. The table summarizes data from respondents who hold favorable perceptions of CHWs regarding malaria in pregnancy, based on respondents' agreement with several statements. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001. n/a, not applicable.

#### Table A.4.12.

Perceptions of Facility-Based Health Workers Regarding Malaria in Pregnancy<sup>a</sup>

	Greater Monrovia (n=2,206)	South Central (n=1,871)	North Central (n=1,745)	Total (n=5,822)
AGREE				
Health providers at the health facility in this community always offer the medicine to prevent malaria to pregnant women.**	71	88	80	79
DISAGREE				
Health providers at the health facilities in this community always give pregnant women the medicine to prevent malaria only if she's eaten beforehand.*	10	10	7	8
DISAGREE				
If a woman goes to the health facility during the first two months of her pregnancy, the health providers will send her away.**	81	89	89	87
DISAGREE				
If a pregnant woman goes to the health facility without her husband/partner, the health providers will send her away.***	86	94	92	91
Percentage of respondents with favorable perceptions of facility health workers*	76	87	83	82
Sex				
Female	84	87	83	82
Male	85	86	82	81
Age, years	*	*		*
15–24	79	84	78	77
25–34	85	85	87	83
35–44	85	86	85	83
≥45	90	94	85	85
Residence				**
Urban	84	83	78	77
Rural	n/a	88	85	85
Education				
No education	83	84	87	84
Elementary	83	81	82	81
Junior high	85	87	82	81
Senior high	85	90	82	81

	Greater Monrovia (n=2,206)	South Central (n=1,871)	North Central (n=1,745)	Total (n=5,822)
Vocational/technical	96	83	82	86
Higher	84	90	78	78
Wealth quintile			*	**
Lowest	n/a	85	86	85
Second	89	82	86	86
Middle	86	87	78	78
Fourth	83	86	85	81
Highest	85	93	74	78

*Notes:* <sup>a</sup>Table values are percentages. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001. n/a, not applicable.

### Table A.4.13.

Decision Making Regarding ANC<sup>a</sup>

	Greater Monrovia (n=1,445)	South Central (n=1,518)	North Central (n=1,171)	Total (n=4,134) <sup>b</sup>
Sex	*		***	***
Female	70	66	60	63
Male	77	71	74	74
Age, years	**	*		*
15–24	58	54	61	60
25–34	76	64	68	70
35–44	76	69	63	67
≥45	74	86	78	78
Residence				
Urban	74	68	63	69
Rural	n/a	69	68	69
Education		*		
No education	73	62	65	66
Elementary	72	71	61	63
Junior high	71	70	72	72
Senior high	76	59	72	72
Vocational/technical	76	99	86	82
Higher	74	86	67	74
Wealth quintile				
Lowest	n/a	71	64	66
Second	82	63	71	70
Third	75	71	71	72
Fourth	72	68	56	65
Highest	75	70	49	71
Spoke with partner about malaria in last six months		***	**	*
Yes	78	58	84	78
No	73	72	64	67
Total	74	68	67	69

*Notes:* <sup>a</sup>Table values are percentages. <sup>b</sup>Sample for this table only includes respondents who are married or living as if married (n=4,134). <sup>†</sup>p<0.10; \*p<0.05; \*\*p<0.01; \*\*\*p<0.001. n/a, not applicable.

#### Table A.4.14.

Interpersonal Communication Regarding ANC<sup>a</sup>

	Greater Monrovia (n=1,445)	South Central (n=1,518)	North Central (n=1,171)	Total (n=4,134)
Sex				
Female	10	26	16	16
Male	11	26	15	15
Age, years	*		*	**
15–24	13	28	23	22
25–34	13	35	18	18
35–44	7	25	8	9
≥45	7	15	17	14
Residence				
Urban	10	27	21	15
Rural	n/a	26	14	16
Education		**	**	***
No education	9	18	13	13
Elementary	9	25	13	14
Junior high	9	29	16	16
Senior high	13	43	25	23
Vocational/technical	7	11	0	4
Higher	9	9	3	7
Wealth quintile		*		
Lowest	n/a	17	14	14
Second	8	15	18	17
Third	8	31	17	17
Fourth	12	59	10	16
Highest	9	13	6	9
Currently pregnant (n=3,010) <sup>b</sup>	***	***	***	***
No	6	23	11	11
Yes	63	57	53	55
Spoke with spouse/partner about ANC in last six months	10	26	15	15

*Notes:* <sup>a</sup>Table values are percentages. <sup>b</sup>This sample includes only married or cohabitating female respondents. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001. n/a, not applicable.

#### Table A.4.15

Interpersonal Communication Regarding ANC Among Currently Pregnant Women<sup>a</sup>

	Total, % (n=327)			
Region				
Greater Monrovia	63			
South Central	57			
North Central	53			
Age, years				
15–24	62			
25–34	54			
≥35	43			
Residence				
Urban	44			
Rural	62			
Education				
No education	44			
Any education	61			
Wealth quintile				
Lowest	50			
Second	68			
Third	55			
Fourth	48			
Highest	52			
Spoke with spouse/partner about ANC in last six months	55			

*Notes:* <sup>a</sup>This sample includes only female respondents who were currently pregnant and married or cohabitating at the time of the study. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001. n/a, not applicable.

#### Table A.4.16.

Intention to Use IPTp<sup>a,b</sup>

	Intend to Use IPTp in Next Pregnancy				Intend to Attend at Least Four ANC Visits				Intend to Attend ANC First Trimester			
	Greater Monrovia (n=755)	South Central (n=1,444)	North Central (n=1,424)	Total (n=3,623)	Greater Monrovia (n=755)	South Central (n=1,444)	North Central (n=1,424)	Total (n=3,623)	Greater Monrovia (n=755)	South Central (n=1,444)	North Central (n=1,424)	Total (n=3,623)
Age, years	*											*
15–24	86	88	84	84	93	91	79	81	63	82	67	67
25–34	90	90	88	88	98	91	86	89	64	65	71	69
35–44	78	80	87	85	92	89	81	84	54	73	67	66
≥45	82	84	86	85	99	82	77	79	72	69	55	58
Residence						*		*		*		
Urban	86	85	83	84	95	83	80	85	62	64	61	61
Rural	n/a	87	86	86	n/a	92	81	82	n/a	73	69	70
Education			***	**			*	*			*	**
No education	80	76	88	86	89	86	82	83	53	68	66	65
Elementary	90	86	78	79	95	86	75	77	68	74	58	60
Junior high	80	92	89	89	97	94	83	85	63	87	73	73
Senior high	89	88	91	90	96	92	86	89	61	71	74	71
Vocational/technical	100	86	37	70	100	96	100	99	64	61	100	80
Higher	85	93	96	92	97	92	98	95	64	71	75	70
Wealth quintile		*										
Lowest	n/a	86	89	89	n/a	86	89	88	n/a	68	80	79
Second	96	84	88	87	100	85	78	79	56	69	63	63
	Intend	to Use IPTp	in Next Preg	gnancy	Intend t	o Attend at I	east Four Al	NC Visits	Intend	l to Attend A	nd ANC First Trimester	
--	--------------------------------	-------------------------------	-------------------------------	--------------------	--------------------------------	-------------------------------	-------------------------------	--------------------	--------------------------------	-------------------------------	-------------------------------	--------------------
	Greater Monrovia (n=755)	South Central (n=1,444)	North Central (n=1,424)	Total (n=3,623)	Greater Monrovia (n=755)	South Central (n=1,444)	North Central (n=1,424)	Total (n=3,623)	Greater Monrovia (n=755)	South Central (n=1,444)	North Central (n=1,424)	Total (n=3,623)
Middle	88	81	82	83	99	90	80	82	51	81	66	66
Fourth	83	82	84	83	95	89	83	87	62	65	65	64
Highest	86	97	82	88	93	92	72	88	65	79	59	67
Proximity to public or private facility <sup>c</sup>	*		*	*	*							*
Near	79	86	82	83		87	85	87	65	71	70	69
Not near	87	87	90	89		91	78	80	50	74	64	65
Parity	*	*		*	*		**	***	***	***	***	***
First pregnancy	91	93	89	90	70	99	91	93	70	77	77	76
Not first pregnancy	84	84	85	85	59	87	79	81	59	72	65	65
Total	86	86	85	86	95	95	81	83	62	73	67	67

*Notes:* <sup>a</sup>Table values are percentages. <sup>b</sup>Among women who intend to have more children. In Monrovia, some women were only asked these questions if they had given birth in the last two years and expressed intent for a future pregnancy. North Central and South Central samples include all surveyed women with intent for a future pregnancy. <sup>c</sup>Near is defined as respondents living in a household that is located five kilometers or less, less than 30 minutes on foot, or less than 10 minutes by vehicle from a public or private health facility. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001 for statistically significant differences between survey regions.

#### Table A.4.17.

Intention to use IPTp

*Results of the logistic regression exploring factors associated with intention of women of reproductive age to seek ANC in the first trimester of a future pregnancy* 

	Percentage	aOR	95% CI
Age, years			
15–24 (reference)	67	1.00	n/a
25–34	69	0.88	0.72-1.08
35–44	66	0.72**	0.57–0.91
≥45	58	0.55***	0.40-0.76
Education			
No education (reference)	65	1.00	n/a
Elementary	60	1.03	0.83–1.27
Junior high	73	1.18	0.93–1.51
Senior high	71	1.12	0.86–1.45
Vocational/technical	80	1.21	0.53–2.76
Higher	70	1.13	0.77–1.65
Household wealth quintile			
Lowest (reference)	79	1.00	n/a
Second	63	1.04	0.83–1.31
Middle	66	0.86	0.67–1.11
Fourth	64	0.87	0.64–1.20
Highest	67	0.97	0.69–1.36
Region			
Greater Monrovia (reference)	62	1.00	n/a
South Central	73	1.26	0.94–1.69
North Central	67	1.26	0.96–1.66
Marital Status			
Not currently married/cohabitating (reference)	65	1.00	n/a
Married/cohabitating	68	1.02	0.85-1.22
Residence			
Urban (reference)	61	1.00	n/a
Rural	70	1.47**	1.17-1.86
Near a public or private facility			
Not near (reference)	65	1.00	n/a

	Percentage	aOR	95% CI
Near	69	1.15	0.96–1.37
Pregnancy			
Not first pregnancy (reference)	65	1.00	n/a
First pregnancy	76	1.47***	1.17–1.84
Know recommended ANC attendance frequency			
No (reference)	44	1.00	n/a
Yes	73	2.40***	1.96–2.95
Know recommended IPTp dosage			
No (reference)	54	1.00	
Yes	72	1.38***	1.15–1.65
Perceived severity of malaria in pregnancy			
No (reference)	58	1.00	
Yes	68	1.10	0.90–1.35
Perceived IPTp effectiveness			
No (reference)	19	1.00	
Yes	67	1.28	0.68–2.43
Perceived self-efficacy for ANC and IPTp			
No (reference)	39	1.00	n/a
Yes	68	2.89***	1.86-4.48
ANC 4+ community norm			
No (reference)	63	1.00	n/a
Yes	72	1.26*	1.0–1.62
IPTp community norm			
No (reference)	65	1.00	
Yes	71	0.88	0.68–1.13
Favorable attitudes towards ANC and IPTp			
No (reference)	53	1.00	
Yes	68	1.69***	1.30-2.20
Positive gender norm related to malaria in pregnancy			
No (reference)	63	1.00	
Yes	68	1.01	0.83–1.22
Favorable attitude of facility-based health workers			
No (reference)	64	1.00	
Yes	67	0.98	0.73-1.31
Favorable attitude of community-based health workers			

	Percentage	aOR	95% CI
No (reference)	58	1.00	
Yes	68	1.02	0.73–1.44
Heard a message about malaria on the media			
No (reference)	62	1.00	
Yes	75	1.43***	1.21-1.69

*Notes:* †p<0.10; \*p<0.05; \*\*p<0.01; \*\*\*p<0.001. n/a, not applicable. n=3,623. Pseudo-R<sup>2</sup>=0.086.

## Table A.4.18.

ANC Attendance<sup>a</sup>

	Attending at Least One ANC Visit	Attending at Least Four ANC Visits	Attending first ANC Visit in the First Trimester	Attending at Least One ANC Visit	Attending at Least One ANC Visit and
	(n=1,528)	(n=1,528)	of Pregnancy (n=1,528)	Accompanied by Spouse (n=1,528)	Receiving an ITN (n=1,528)
Region	***		**		***
Greater Monrovia	99	78	66	32	43
South Central	95	74	50	37	54
North Central	100	83	71	40	69
Age, years					
15–24	98	80	71	42	61
25–34	99	80	72	37	56
35–44	100	86	54	31	74
≥45	100	73	57	34	74
Residence					
Urban	99	82	64	41	58
Rural	99	80	69	36	65
Education					
No education	99	80	58	35	67
Elementary	99	82	73	35	66
Junior high	100	85	69	42	59
Senior high	97	73	72	41	55
Vocational/technical	100	94	67	13	18
Higher	99	83	70	36	61
Wealth quintile					
Lowest	99	82	73	40	65
Second	99	78	71	31	69
Third	98	80	67	46	59
Fourth	99	83	55	35	64
Highest	99	83	71	40	46
Proximity to public or private facility <sup>b</sup>					
Not near	98	80	63	41	67
Near	99	81	72	35	57
Parity					
First pregnancy	99	83	69	41	65

	Attending at Least One ANC Visit (n=1,528)	Attending at Least Four ANC Visits (n=1,528)	Attending first ANC Visit in the First Trimester of Pregnancy (n=1,528)	Attending at Least One ANC Visit Accompanied by Spouse (n=1,528)	Attending at Least One ANC Visit and Receiving an ITN (n=1,528)
Not first pregnancy	98	80	67	37	61
Total	99	81	67	38	62

*Notes:* <sup>a</sup>All respondents for this table were women with a live birth in the past two years. Table values are percentages. <sup>b</sup>Near is defined as respondents living in a household that is located 5 kilometers or less, less than 30 minutes on foot, or less than 10 minutes by vehicle from a public or private health facility. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001. n/a, not applicable.

# Table A.4.19.

Use of IPTp by Women During Pregnancy<sup>a</sup>

	Received One or More Doses of SP/Fansidar (n=1,528)	Received Two or More Doses of SP/Fansidar (n=1,528)	Received Three or More Doses of SP/Fansidar (n=1,528)
Region	***		
Greater Monrovia	92	67	41
South Central	91	56	33
North Central	97	77	57
Age, years			
15–24	95	77	55
25–34	95	72	50
35–44	97	68	48
≥45	97	50	36
Residence			
Urban	96	73	50
Rural	95	72	52
Education			
No education	95	70	50
Elementary	96	81	58
Junior high	94	75	55
Senior high	98	68	45
Vocational/technical	93	59	14
Higher	95	48	32
Wealth quintile			
Lowest	94	78	56
Second	97	72	56
Third	94	78	56
Fourth	97	64	39
Highest	93	66	41
Proximity to public or private facility <sup>b</sup>			
Not near	95	73	49
Near	96	72	54
Parity			
First pregnancy	94	76	55
Not first pregnancy	96	71	49
Number of ANC visits	**	**	***

	Received One or More Doses of SP/Fansidar (n=1,528)	Received Two or More Doses of SP/Fansidar (n=1,528)	Received Three or More Doses of SP/Fansidar (n=1,528)
1–3	87	63	33
≥4	97	76	56
Total	95	72	51

*Notes:* <sup>a</sup>Respondents were women aged 15–49 with a live birth in the two years preceding the survey who, during the pregnancy that resulted in the last live birth, received one or more doses of SP/Fansidar. Table values are percentages. <sup>b</sup>Near is defined as respondents living in a household that is located five kilometers or less, less than 30 minutes on foot, or less than 10 minutes by vehicle from a public or private health facility. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001. n/a, not applicable.

### Table A.4.20.

Source of IPTp<sup>a</sup>

		Sources SP/Fansidar Doses Among Those Who Received at Least One Dose (n=1.425) <sup>b</sup>						
	Received One or More Doses of SP/Fansidar (n=1,528)	ANC Visit	Non-ANC Visit at Facility	Pharmacy				
Region								
Greater Monrovia	92	86	56	6				
South Central	91	77	49	6				
North Central	97	90	54	5				
Age, years			*					
15–24	95	93	46	4				
25–34	95	87	57	7				
35–44	97	83	65	2				
≥45	97	67	61	9				
Residence								
Urban	96	85	49	6				
Rural	95	89	57	4				
Education								
No education	95	83	62	6				
Elementary	96	94	55	5				
Junior high	94	87	48	3				
Senior high	98	91	47	6				
Vocational/technical	93	96	54	4				
Higher	95	69	53	4				
Wealth quintile		***						
Lowest	94	94	53	3				
Second	97	93	48	7				
Third	94	93	60	6				
Fourth	97	74	62	3				
Highest	93	76	44	4				
Total	95	88	54	5				

*Notes:* <sup>a</sup>Table values are percentages. <sup>b</sup>Common sources of IPTp among women who gave birth in the two years prior to the study. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001. n/a, not applicable.

#### Table A.4.21.

#### Summary of Ideational Variables Related to Malaria in Pregnancy<sup>a</sup>

	Knowledge of IPTp Recommendations (n=5,822)	Favorable Attitudes Towards IPTp (n=5,822)	Perceived Malaria in Pregnancy as Severe (n=5,822)	Perceived Response- Efficacy of IPTp (n=5,822)	Perceived Self- Efficacy Regarding IPTp (n=5,822)	Perceived That Most in Community Attend ANC at Least Four Times During Pregnancy (n=5,822)	Perceived That Most Take Malaria Preventative Medicine During Pregnancy (n=5,822)	Perceived That Most People in Community Will Approve of Pregnant Women Taking Medicine to Prevent Malaria (n=5,822)	Perceived Equitable Gender Norms Regarding ANC (n=5,822)	Favorable Perceptions of CHWs (n=5,822)	Favorable Perceptions of Facility- Based Health Workers (n=5,822)	Involved in Decision Making Regarding ANC (n=4,134)	Discussed ANC Attendance with Spouse/Partner (n=4,134)
Region		**	***	**		***	***	*		***	*	*	**
Greater Monrovia	5	89	77	97	95	30	26	11	82	78	76	74	10
South Central	9	92	87	98	99	20	17	6	88	91	87	68	26
North Central	7	94	88	99	96	49	42	13	82	90	83	67	15
Sex	***	***		*	*				**			***	
Female	10	91	84	98	95	42	36	12	80	88	82	63	16
Male	3	96	86	99	97	42	36	10	86	86	81	74	15
Age, years		**		***	**				*	*	*	*	**
15–24	7	90	84	97	91	40	32	14	77	83	77	60	22
25–34	6	94	84	99	97	41	37	9	85	88	83	70	18
35–44	7	94	87	99	98	44	38	12	84	88	83	67	9
≥45	9	95	87	100	99	43	37	10	87	90	85	78	14
Residence		**	**	***		**	**			***	**		
Urban	6	90	82	97	95	33	28	13	82	81	77	70	15
Rural	8	95	87	100	96	49	42	11	83	92	85	68	15

	Knowledge of IPTp Recommendations (n=5,822)	Favorable Attitudes Towards IPTp (n=5,822)	Perceived Malaria in Pregnancy as Severe (n=5,822)	Perceived Response- Efficacy of IPTp (n=5,822)	Perceived Self- Efficacy Regarding IPTp (n=5,822)	Perceived That Most in Community Attend ANC at Least Four Times During Pregnancy (n=5,822)	Perceived That Most Take Malaria Preventative Medicine During Pregnancy (n=5,822)	Perceived That Most People in Community Will Approve of Pregnant Women Taking Medicine to Prevent Malaria (n=5,822)	Perceived Equitable Gender Norms Regarding ANC (n=5,822)	Favorable Perceptions of CHWs (n=5,822)	Favorable Perceptions of Facility- Based Health Workers (n=5,822)	Involved in Decision Making Regarding ANC (n=4,134)	Discussed ANC Attendance with Spouse/Partner (n=4,134)
Education			*	*					***	*			* * *
No education	11	93	89	99	95	44	37	14	86	92	84	66	13
Elementary	7	92	83	97	92	47	39	13	75	86	81	63	14
Junior high	6	91	86	99	96	40	35	10	81	87	81	72	15
Senior high	4	95	83	99	98	39	35	11	85	85	81	72	24
Vocational/technica	8	91	88	100	97	29	22	6	73	78	86	82	4
Higher	7	95	83	99	99	36	31	10	89	84	78	74	7
Wealth quintile			*			***	**			***	**		
Lowest	6	95	87	99	96	54	40	14	82	92	85	65	13
Second	7	94	86	99	97	48	45	11	82	92	86	71	17
Middle	8	92	86	98	95	42	35	13	82	84	78	72	17
Fourth	7	94	85	98	95	34	29	10	83	84	81	65	16
Highest	8	91	78	98	96	29	26	11	83	81	78	71	9
Total	7	93	85	99	96	42	36	12	82	88	82	69	15

# A.5 Insecticide-Treated Net Use

This subsection provides all data tables related to ITN use for the 2021 Liberia MBS, including data related to respondent knowledge of malaria prevention using ITNs; attitudes towards ITNs in general; attitudes towards ITN care and repair; perceived response-efficacy and perceived self-efficacy of ITNs; respondents' perceived community norms and gender norms regarding ITNs; household possession, access, and use of ITNs; ITN characteristics; ITN care and repurposing behavior; and sleep patterns, including seasonality of outdoor sleeping. Where appropriate, results are disaggregated by region. The following tables and/or figures may have been duplicated or referenced in the main body of the report.

Summary of Ideational Variables Related to Net Use<sup>a</sup>

	Knowledge of Malaria Prevention Using Mosquito Nets	Favorable Attitudes Towards Using Mosquito Nets	Favorable Attitudes Towards Net Care	Perceived Response- Efficacy of Nets	Perceived Self- Efficacy to Use Nets	Perceived Community Norms Regarding Nets <sup>b</sup>	Perceived Equitable Gender Norms Related to Net Use
Region		***	***	**	***	***	**
Greater Monrovia	63	82	92	80	74	15	95
South Central	76	94	97	80	91	12	98
North Central	71	93	99	86	89	32	98
Sex	***				**	*	
Female	66	95	97	83	84	28	97
Male	76	91	97	85	88	24	98
Age, years	***						***
15–24	63	84	97	84	83	28	95
25–34	73	96	97	82	84	24	97

	Knowledge of Malaria Prevention Using Mosquito Nets	Favorable Attitudes Towards Using Mosquito Nets	Favorable Attitudes Towards Net Care	Perceived Response- Efficacy of Nets	Perceived Self- Efficacy to Use Nets	Perceived Community Norms Regarding Nets <sup>b</sup>	Perceived Equitable Gender Norms Related to Net Use
35–44	73	97	97	87	86	26	98
≥45	72	99	98	82	92	28	100
Residence			***			***	*
Urban	68	97	95	82	82	19	96
Rural	71	92	99	85	88	32	98
Education	**	***	***				**
No education	64	96	98	84	88	27	98
Elementary	68	95	98	88	86	31	96
Junior high	70	98	97	82	84	26	97
Senior high	77	85	97	83	85	24	99

	Knowledge of Malaria Prevention Using Mosquito Nets	Favorable Attitudes Towards Using Mosquito Nets	Favorable Attitudes Towards Net Care	Perceived Response- Efficacy of Nets	Perceived Self- Efficacy to Use Nets	Perceived Community Norms Regarding Nets <sup>b</sup>	Perceived Equitable Gender Norms Related to Net Use
Vocational/technical	61	92	94	90	79	10	94
Higher	72	98	93	80	82	22	96
Wealth quintile			***		*	***	
Lowest	64	95	98	85	88	32	98
Second	70	95	99	87	89	37	97
Middle	72	95	98	85	87	26	98
Fourth	71	95	96	81	85	16	97
Highest	68	87	92	80	76	17	95
Total	70	91	97	84	85	26	97

*Notes:* <sup>a</sup>Table values are percentages; n=5,822 for all variables. <sup>b</sup>At least half of the community members who have nets use them nightly. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001. n/a, not applicable.

Logistic Regression Exploring Factors Associated with Consistent Net Use

	Percentage (n=3,468)	aOR	95% CI
Age, years			
15–24 (reference)	67	1.00	
25–34	74	1.57***	1.27–1.94
35–44	45	1.31*	1.04–1.65
≥45	42	1.40*	1.03–1.91
Sex			
Male (reference)	73	1.00	
Female	72	1.24†	0.98–1.56
Education			
No education (reference)	78	1.00	
Elementary	74	1.01	0.79–1.29
Junior high	69	0.97	0.74–1.27
Senior high	71	0.82	0.62–1.08
Vocational/technical	54	0.59	0.30-1.18
Higher	69	0.73†	0.52–1.03
Religion			
Christian (reference)	73	1.00	
Islam	59	1.04	0.73–1.46
Traditional/other	69	1.11	0.45–2.75
Residence			
Urban (reference)	61	1.00	
Rural	79	1.45**	1.10-1.90
Wealth quintile			
Lowest (reference)	67	1.00	
Second	79	1.64**	1.13–2.39
Middle	70	1.59**	1.13–2.24
Fourth	73	1.34*	1.00-1.80
Highest	63	1.16	0.89–1.51
Region			
Greater Monrovia (reference)	61	1.00	
South Central	74	0.80	0.58–1.10
North Central	75	0.86	0.64–1.16

	Percentage (n=3,468)	aOR	95% Cl
Attitudes favorable to the use of mosquito nets			
No (reference)	37	1.00	
Yes	75	2.09***	1.60-2.72
Attitudes favorable to the care of mosquito nets			
No (reference)	32	1.00	
Yes	73	1.90†	0.97–3.73
Perceived severity			
No (reference)	76	1.00	
Yes	68	0.76**	0.65–0.90
Perceived vulnerability			
No (reference)	75	1.00	
Yes	72	0.85	0.69–1.04
Talked about malaria with others in the last six months			
No (reference)	72	1.00	
Yes	74	1.18†	0.97–1.44
Perceived mosquito net effectiveness			
No (reference)	70	1.00	
Yes	73	1.03	0.81-1.31
Perceived self-efficacy for mosquito net use			
No (reference)	39	1.00	
Yes	76	7.39***	5.75–9.50
Use of mosquito nets perceived as the norm in the community			
No (reference)	48	1.00	
Yes	70	1.36**	1.13–1.64
Mentioned at least one incorrect method of transmitting malaria			
No (reference)	78	1.00	
Yes	68	0.92	0.77-1.09
Heard a message about malaria on the media			
No (reference)	70	1.00	
Yes	76	1.12	0.93–1.35

	Percentage (n=3,468)	aOR	95% CI
Household size (mean)	n/a	1.02	0.97–1.08
Net sufficiency			
No (reference)	72	1.00	
Yes	72	1.21	0.95–1.53
Total	72	n/a	n/a

*Notes:* \*p<0.05; \*\*p<0.01; \*\*\*p<0.001. n/a, not applicable; Pseudo-R<sup>2</sup>=0.143.

Table	A.5.
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Knowledge	of Malaria	Prevention	Usina	Mosauito	<b>Nets</b> <sup>a</sup>
Kilowicage		110000000000000000000000000000000000000	O Shing	wiosquito	14015

	Greater Monrovia (n=2,206)	South Central (n=1,871)	North Central (n=1,745)	Total (n=5,822)
Sex		*	***	***
Female	62	74	66	66
Male	66	79	79	76
Age, years	*		***	***
15–24	61	75	62	63
25–34	68	77	75	73
35–44	63	74	77	73
≥45	56	80	75	72
Residence				
Urban	63	76	73	68
Rural	n/a	76	70	71
Education		***	*	**
No education	64	55	65	64
Elementary	60	58	70	68
Junior high	60	85	71	70
Senior high	67	86	82	77
Vocational/technical	59	87	60	61
Higher	64	96	70	72
Wealth quintile		***		
Lowest	n/a	56	65	63
Second	74	67	70	70
Third	65	72	73	72
Fourth	63	96	76	72
Highest	62	92	78	68
Total	63	76	71	70

Favorable Attitudes Towards Mosquito Net Use<sup>a</sup>

	Greater Monrovia (n=2,206)	South Central (n=1,871)	North Central (n=1,745)	Total (n=5,822)
AGREE				
It is easier to get a good night's sleep when I sleep under a mosquito net.***	76	93	94	90
DISAGREE				
It is not easy to sleep under a net because every night you have to unfold it and cover the sleeping space.***	48	71	68	64
DISAGREE				
I do not like sleeping under a mosquito net when the weather is too warm.***	41	48	56	52
DISAGREE				
Sleeping under a net is an inconvenience for a couple that wants to make children.**	67	84	76	74
DISAGREE				
The smell of the insecticide makes it uncomfortable for me to sleep under a mosquito net.***	43	53	56	53
AGREE				
Mosquito nets are generally easy to use for sleeping.***	80	92	94	91
AGREE				
Insecticide-treated nets do not pose a risk to one's health.	57	60	57	58
AGREE	05	08	00	09
Mosquito nets are very useful.***	35	58	55	50
DISAGREE				
More expensive mosquito nets are more effective than cheaper or free mosquito nets.	68	76	72	71
<u>DISAGREE</u> with the following statement: Treated mosquito nets attract bed bugs	63	74	72	70
and other insects.*				
AGREE with the following statement:				
I would use a net to sleep under regardless of its shape.**	69	87	81	79
Percentage of respondents with favorable attitudes towards ITNs***	82	94	93	91
Sex				

	Greater Monrovia (n=2,206)	South Central (n=1,871)	North Central (n=1,745)	Total (n=5,822)
Female	82	95	93	95
Male	82	91	94	91
Age, years		**		
15–24	80	84	92	84
25–34	81	96	91	96
35–44	82	97	96	97
≥45	86	99	98	99
Residence				
Urban	82	97	91	97
Rural	n.a.	92	94	92
Education	*	**		***
No education	86	96	93	96
Elementary	88	95	93	95
Junior high	84	98	92	98
Senior high	79	85	96	85
Vocational/technical	78	92	81	92
Higher	80	98	96	98
Wealth quintile		**		
Lowest	n.a.	95	92	95
Second	97	95	94	95
Middle	83	95	93	95
Fourth	84	95	95	95

	Greater Monrovia (n=2,206)	South Central (n=1,871)	North Central (n=1,745)	Total (n=5,822)
Highest	79	87	83	87
Total	82	94	93	91

Favorable Attitudes Towards Net Care<sup>a</sup>

	Greater Monrovia (n=2,206)	South Central (n=1,871)	North Central (n=1,745)	Total (n=5,822)
<u>AGREE</u> with the following statement: There are actions I can take to help my mosquito net last long.***	86	95	98	95
<u>AGREE</u> with the following statement: I can protect my family against malaria by taking care of my mosquito net.***	88	97	98	96
<u>AGREE</u> with the following statement: Other people in this community take care of their mosquito nets. ***	43	46	70	61
<u>AGREE</u> with the following statement: I am confident I can fold or tie up the nets in my home every day after using them. ***	79	93	94	90
<u>AGREE</u> with the following statement: It is worth taking time to care for my mosquito net.***	89	94	98	96
<u>AGREE</u> with the following statement: I am confident that I can prevent children from playing with the net.***	85	97	96	94
<u>AGREE</u> with the following statement: An old net can still protect against malaria if it is well cared for.***	77	89	88	85
Percentage of respondents with favorable attitudes towards ITNs (characteristic)***	92	97	99	97
Sex				
Female	93	98	99	97
Male	91	97	99	97
Age, years				
15–24	92	98	98	97
25–34	93	96	99	97
35–44	92	97	99	97
≥45	90	99	100	98
Residence				***
Urban	92	97	99	95
Rural	n/a	97	99	99

	Greater Monrovia (n=2,206)	South Central (n=1,871)	North Central (n=1,745)	Total (n=5,822)
Education	*			***
No education	92	95	100	98
Elementary	95	96	99	98
Junior high	94	97	98	97
Senior high	93	99	99	97
Vocational/technical	89	100	100	94
Higher	88	100	99	93
Wealth quintile		**	*	***
Lowest	n/a	94	98	98
Second	94	97	99	99
Middle	94	97	99	98
Fourth	93	100	99	96
Highest	91	100	95	92

Perceived Response-Efficacy of Nets<sup>a</sup>

	Greater Monrovia (n=2,206)	South Central (n=1,871)	North Central (n=1,745)	Total (n=5,822)
DISAGREE				
Mosquito nets only prevent mosquito bites when used on a bed.***	47	50	36	40
DISAGREE				
My chances of getting malaria are the same whether or not I sleep under a mosquito net.***	62	47	75	69
AGREE				
Sleeping under a mosquito net every night is the best way to avoid getting malaria.***	90	98	97	95
Percentage of respondents with perceived response efficacy of ITNs**	80	80	86	84
Sex		*		
Female	80	74	85	83
Male	80	89	87	85
Age, years		*		
15–24	79	73	86	84
25–34	79	80	85	82
35–44	82	87	89	87
≥45	79	81	83	82
Residence				
Urban	80	76	86	82
Rural	n/a	81	86	85
Education				
No education	80	79	86	84
Elementary	80	82	89	88
Junior high	78	74	84	82
Senior high	81	90	84	83
Vocational/technical	82	100	100	90
Higher	78	71	88	80
Wealth quintile				
Lowest	n/a	85	86	86
Second	85	82	87	87
Middle	81	73	87	85

	Greater Monrovia (n=2,206)	South Central (n=1,871)	North Central (n=1,745)	Total (n=5,822)
Fourth	79	80	82	81
Highest	79	81	83	80

Perceived Self-Efficacy of Net Use<sup>a</sup>

	Greater Monrovia (n=2,206)	South Central (n=1,871)	North Central (n=1,745)	Total (n=5,822)
AGREE Sleep under a mosquito net for the entire night when there are lots of mosquitoes. ***	83	98	96	93
AGREE Sleep under a mosquito net for the entire night when there are few mosquitoes.***	78	90	93	89
AGREE Sleep under a mosquito net every night of the year.***	63	87	82	78
AGREE Get all of your children to sleep under a mosquito net every night of the year.**	76	92	85	84
Percentage of respondents with perceived self-efficacy to use ITNs ***	74	91	89	85
Sex				**
Female	73	89	87	84
Male	77	93	91	88
Age, years		***		
15–24	74	82	85	83
25–34	74	92	88	84
35–44	75	93	90	86
≥45	76	98	95	91
Residence				
Urban	74	95	90	82
Rural	n/a	89	88	88
Education	**			
No education	79	91	89	88
Elementary	83	88	87	86
Junior high	78	91	85	84
Senior high	72	89	92	85
Vocational/technical	66	73	97	79
Higher	69	97	96	82
Wealth quintile				*

	Greater Monrovia (n=2,206)	South Central (n=1,871)	North Central (n=1,745)	Total (n=5,822)
Lowest	n/a	90	88	88
Second	88	91	88	88
Middle	76	89	89	87
Fourth	77	89	92	85
Highest	71	95	80	76

## Perceived Community Norms Regarding Nets<sup>a</sup>

	Greater I (n=2	Greater MonroviaSouth Central(n=2,206)(n=1,871)		North Central (n=1,745)		Total (n=5,822)		
	At Least Half of the Community Members Who Have Nets Use Them Nightly	At Least Half of the Community Members Approve of Using a Net Every Night	At Least Half of the Community Members Who Have Nets Use Them Nightly	At Least Half of the Community Members Approve of Using a Net Every Night	At Least Half of the Community Members Who Have Nets Use Them Nightly	At Least Half of the Community Members Approve of Using a Net Every Night	At Least Half of the Community Members Who Have Nets Use Them Nightly	At Least Half of the Community Members Approve of Using a Net Every Night
Sex			*				*	
Female	16	13	13	6	34	16	28	14
Male	14	14	10	7	30	14	24	13
Age, years				***				
15–24	15	15	11	7	33	19	28	18
25–34	15	14	13	10	30	12	24	13
35–44	16	12	13	5	33	13	26	12
≥45	16	14	8	2	36	14	28	13
Residence				*			***	
Urban	15	13	7	3	26	20	19	15
Rural	n/a	n/a	13	7	35	14	32	13
Education			*					
No education	14	8	20	8	31	15	27	13
Elementary	19	12	16	6	34	16	31	15
Junior high	15	16	12	5	31	14	26	14
Senior high	14	15	5	6	34	19	24	16
Vocational/technical	14	8	20	8	31	15	10	13
Higher	19	12	16	6	34	16	22	15
Wealth quintile			***		*		* * *	

	Greater I (n=2	Monrovia ,206)	South Central (n=1,871)		North Central (n=1,745)		Total (n=5,822)	
	At Least Half of the Community Members Who Have Nets Use Them Nightly	At Least Half of the Community Members Approve of Using a Net Every Night	At Least Half of the Community Members Who Have Nets Use Them Nightly	At Least Half of the Community Members Approve of Using a Net Every Night	At Least Half of the Community Members Who Have Nets Use Them Nightly	At Least Half of the Community Members Approve of Using a Net Every Night	At Least Half of the Community Members Who Have Nets Use Them Nightly	At Least Half of the Community Members Approve of Using a Net Every Night
Lowest	n/a	n/a	26	7	33	21	32	19
Second	10	4	14	7	40	12	37	11
Middle	12	9	8	6	31	17	26	15
Fourth	15	13	3	4	20	14	16	13
Highest	17	16	7	7	24	16	17	15
Total	15	13	12	6	33	15	26	14

Perceived Gender Norms Regarding Nets<sup>a</sup>

	Greater I (n=2	Monrovia ,206)	South (n=1	Central ,871)	North ( (n=1,	Central 745)	To (n=5	tal ,822)
Percentage of respondents who disagree that when there are not enough nets	It is more important that female children sleep under the available nets rather than male children.	It is more important that male children sleep under the available nets rather than female children	It is more important that female children sleep under the available nets rather than male children.	It is more important that male children sleep under the available nets rather than female children	It is more important that female children sleep under the available nets rather than male children.	It is more important that male children sleep under the available nets rather than female children	It is more important that female children sleep under the available nets rather than male children.	It is more important that male children sleep under the available nets rather than female children
Sex					***		**	
Female	92	93	92	97	95	96	94	95
Male	92	94	95	98	99	97	97	97
Age, years	***	*	*		***	*	***	**
15–24	86	91	88	98	92	94	91	94
25–34	92	94	95	97	97	96	95	95
35–44	93	94	95	98	99	99	97	98
≥45	97	97	97	97	100	98	99	98
Residence							**	*
Urban	92	94	96	99	94	95	93	94
Rural	n.a.	n.a.	93	97	97	97	96	97
Education					***		**	
No education	90	92	96	96	98	98	97	97
Elementary	91	91	93	96	93	95	93	94
Junior high	92	94	90	98	96	97	94	96
Senior high	94	96	93	98	99	96	96	96

	Greater I (n=2	AonroviaSouth CentralNorth Central,206)(n=1,871)(n=1,745)		South Central (n=1,871)		South CentralNorth Central(n=1,871)(n=1,745)		orth Central Total (n=1,745) (n=5,822)		tal 822)
Percentage of respondents who disagree that when there are not enough nets	It is more important that female children sleep under the available nets rather than male children.	It is more important that male children sleep under the available nets rather than female children	It is more important that female children sleep under the available nets rather than male children.	It is more important that male children sleep under the available nets rather than female children	It is more important that female children sleep under the available nets rather than male children.	It is more important that male children sleep under the available nets rather than female children	It is more important that female children sleep under the available nets rather than male children.	It is more important that male children sleep under the available nets rather than female children		
Vocational/technical	90	97	82	98	87	89	88	94		
Higher	89	92	95	99	98	98	93	95		
Wealth quintile			*	*		*	*			
Lowest	n.a.	n.a.	97	98	97	98	97	98		
Second	93	94	94	95	96	95	96	95		
Middle	91	92	89	97	97	97	96	97		
Fourth	92	94	98	99	97	98	95	96		
Highest	92	94	91	99	88	87	91	93		
Total	92	94	93	97	96	96	95	96		

Household Possession of Mosquito Nets<sup>a</sup>

	Households with at Least One ITN (n=3,719)	Households with at Least One ITN for Every Two People Who Stayed in the Household Previous Night (n=3,719)
Region	***	***
Greater Monrovia	50	26
South Central	50	32
North Central	76	59
Residence	**	**
Urban	58	38
Rural	73	56
Wealth quintile	***	***
Lowest	67	54
Second	80	64
Middle	68	48
Fourth	57	36
Highest	52	28
Total	66	48

*Notes:* <sup>a</sup>Table values are percentages. An insecticide-treated net (ITN) is a factory-treated net that does not require any further treatment. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001. n/a, not applicable.

Access to an ITN<sup>a</sup>

	Greater Monrovia (n=6,358)	South Central (n=4,166)	North Central (n=6,208)	Total (n=16,732)
Residence				**
Urban	28	31	60	41
Rural	28	38	61	58
Wealth quintile				***
Lowest	n.a.	37	60	56
Second	27	40	66	64
Middle	26	20	58	51
Fourth	27	44	61	43
Highest	29	40	36	32
De facto population with access to an ITN <sup>b</sup>	28	36	61	51

*Notes:* <sup>a</sup>Table values are percentages. <sup>b</sup>De facto household population who could sleep under an ITN if each ITN in the household were used by up to two people. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001. n/a, not applicable.

Use of Mosquito Nets by Persons in the Household<sup>a</sup>

	Greater Monrovia (n=6,144)	South Central (n=4,111)	North Central (n=6,002)	Total (n=16,257)
Sex	*			
Female	23	31	48	41
Male	21	30	47	39
Age, years	*	**	***	***
15–24	27	36	55	47
25–34	21	27	39	34
35–44	19	29	45	39
≥45	23	32	54	43
Residence		**		**
Urban	22	24	44	31
Rural	n/a	33	49	47
Wealth quintile		*		***
Lowest	n/a	31	46	44
Second	25	32	53	51
Middle	22	16	45	39
Fourth	20	34	50	34
Highest	23	38	25	26
Number of ITNs in household	***	***	***	***
<1 net per two people	0	0	2	1
≥1 net per two people	78	84	78	78
Total	22	31	48	40

*Notes:* <sup>a</sup>Percentage of the de facto household population who slept under an ITN the night before the survey. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001. n/a, not applicable.

ITN Use-to-Access Ratio<sup>a</sup>

	Greater Monrovia (n=2,006)	South Central (n=1,719)	North Central (n=3,165)	Total (n=6,890)
Residence		**	***	***
Urban	0.78	0.80	0.73	0.75
Rural	n/a	0.87	0.79	0.80
Wealth quintile	***	***	***	***
Lowest	n/a	0.83	0.78	0.79
Second	0.90	0.81	0.76	0.77
Middle	0.81	0.82	0.77	0.77
Fourth	0.75	0.81	0.82	0.80
Highest	0.80	0.98	0.77	0.82
Total	0.78	0.86	0.78	0.78

*Notes:* <sup>a</sup>Table values are the percentages of de facto household population who could sleep under an ITN if each ITN in the household is used by up to two people. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001. n/a, not applicable.
Use of Existing Nets<sup>a</sup>

	Greater Monrovia (n=1,137)		South Central (n=1,016)		North Central (n=1,415)		Total (n=3,568)	
	ITNs Used the Previous Night	ITNs Used Every Night of the Previous Week	ITNs Used the Previou s Night	ITNs Used Every Night of the Previou s Week	ITNs Used the Previous Night	ITNs Used Every Night of the Previous Week	ITNs Used the Previous Night	ITNs Used Every Night of the Previous Week
Residence						*		***
Urban	59	47	66	58	81	57	71	53
Rural	n/a	n/a	73	66	74	66	74	66
Wealth quintile				*		*	**	*
Lowest	n/a	n/a	66	60	67	49	67	50
Second	78	59	57	53	79	66	78	66
Middle	67	61	63	52	76	65	75	64
Fourth	63	51	83	69	80	75	74	66
Highest	54	42	91	90	61	50	59	49

*Notes:* <sup>a</sup>Table values are percentages. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001. n/a, not applicable.

Net Characteristics<sup>a</sup>

	Greater Monrovia (n=1,137)	South Central (n=1,016)	North Central (n=1,415)	Total (n=3,568)
Nets that are an ITN <sup>b</sup>	74	74	94	89
ITNs obtained for free	83	95	96	93
Source of ITN				
Distribution campaign	73	81	84	82
ANC visit	3	10	6	6
Immunization	1	2	4	3
Other	23	7	6	9
ITNs ≥3 years old	3.4	11.8	0.7	2.1

*Notes:* <sup>a</sup>Table values are percentages. <sup>b</sup>An ITN is a factory-treated net that does not require any further treatment. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001. n/a, not applicable.

Net Care Practices and Repurposing<sup>a</sup>

	Greater Monrovia (n=2,206)	South Central (n=1,871)	North Central (n=1,745)	Total (n=5,822)
ITNs ever washed	59	65	75	71
Product used to wash ITN	***	***	***	***
Soap	30	33	45	42
Powder soap/liquid soap/ Iron soap (caustic soap)	2	2	22	19
Nothing	2	0	0	1
Bleach or detergent	63	65	32	38
Where ITN was dried				
Out in the shade	47	52	65	62
Out in the sun	53	48	33	37
Other	0	0	2	2
Location of ITN	*	*	*	*
Suspended at sleeping place	12	9	12	12
Suspended, folded, and tied	70	82	79	78
Not suspended but not stowed	7	6	5	6
Unpacked but stowed	8	3	3	4
Still stowed under packaging	2	0	1	1
Respondents who practice net care behavior <sup>b</sup>	61	74	75	72
Respondents who repurpose nets <sup>c</sup>	16	21	30	26

*Notes:* <sup>a</sup>Table values are percentages. <sup>b</sup>This captures whether respondents reported hanging or tying up their nets when not in use, among those in households with at least one net (n=3,470). <sup>c</sup>This was asked of all respondents (n=5,822). \*p<0.05; \*\*p<0.01; \*\*\*p<0.001. n/a, not applicable.

	Time Respondents Went to Sleep (n=3,550)	Time Respondents Woke Up (n=3,550)	Percentage of Respondents Who Slept Outdoors the Previous Night (n=5,822)
Region			
Greater Monrovia	19:58	7:48	1
South Central	20:26	7:47	1
North Central	20:19	7:32	1
Sex			
Female	20:13	7:35	0
Male	20:22	7:37	2
Age, years			
15–24	20:19	7:36	0
25–34	19:47	7:35	1
35–44	20:32	7:47	1
≥45	20:39	7:20	1
Residence			
Urban	20:14	7:38	0
Rural	20:19	7:35	1
Wealth quintile			
Lowest	19:38	7:33	2
Second	20:22	7:37	1
Middle	20:26	7:23	1
Fourth	20:19	7:48	0
Highest	20:22	7:46	0

Sleep	Pattern	and	Outdoor	Sleepina	the	Previous	Niaht
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*Notes:* \*p<0.05; \*\*p<0.01; \*\*\*p<0.001. n/a, not applicable.

	Greater Monrovia (n=2,206)	South Central (n=1,871)	North Central (n=1,745)	Total (n=5,822)
January	0	1	1	1
February	1	2	3	2
March	1	2	4	2
April	0	0	1	0
Мау	0	0	0	0
June	0	0	0	0
July	1	1	0	1
August	1	1	0	0
September	0	0	0	0
October	0	0	0	0
November	0	0	0	0
December	0	0	0	0

Seasonality in Outdoor Sleeping<sup>a</sup>

*Notes:* <sup>a</sup>Table values are percentages. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001. n/a, not applicable.

Logistic Regression Exploring Factors Associated with Net Care

	Percentage (n=3,468)	aOR	95% Cl
Age, years			
15–24 (reference)	67	1.00	
25–34	77	1.13	0.92–1.39
35–44	74	1.43**	1.13–1.81
≥45	83	1.33†	0.97–1.81
Sex			
Male (reference)	79	1.00	
Female	71	0.97	0.77–1.22
Education			
No education (reference)	72	1.00	
Elementary	70	1.06	0.84-1.34
Junior high	76	1.14	0.88-1.48
Senior high	78	1.29†	0.98–1.69
Vocational/technical	79	1.38	0.64–2.99
Higher	82	1.13	0.79–1.62
Residence			
Urban (reference)	73	1.00	
Rural	75	0.87	0.66–1.15
Wealth quintile			
Lowest (reference)	67	1.00	
Second	74	1.02	0.80-1.31
Middle	75	1.29†	0.97–1.70
Fourth	76	1.41*	1.00-1.99
Highest	77	1.19	0.82-1.73
Region			
Greater Monrovia (reference)	75	1.00	
South Central	89	1.69**	1.19–2.38
North Central	73	0.75†	0.55-1.03
Attitudes favorable to the use of mosquito nets			
No (reference)	53	1.00	
Yes	76	2.14***	1.67-2.76

	Percentage (n=3,468)	aOR	95% CI
Attitudes favorable to the care of mosquito nets			
No (reference)	40	1.00	
Yes	75	2.25*	1.19–4.25
Perceived susceptibility			
No (reference)	70	1.00	
Yes	75	1.20†	0.99–1.46
Talked about malaria with others			
No (reference)	74	1.00	
Yes	74	1.06	0.88–1.29
Perceived self-efficacy for mosquito net use			
No (reference)	70	1.00	
Yes	75	1.21	0.94–1.57
Use of mosquito nets perceived as the norm in the community			
No (reference)	73	1.00	
Yes	77	1.09	0.91–1.30
Mentioned at least one incorrect method of transmitting malaria			
No (reference)	72	1.00	
Yes	76	1.11	0.94–1.32
Heard a message about malaria on the media			
No (reference)	72	1.00	
Yes	78	1.04	0.87–1.24
Perceived positive gender norms towards net use			
No (reference)	61	1.00	
Yes	75	1.50*	
Household size (mean)	n.a.	0.95**	0.91-0.99
Number of nets	n.a.	1.11	1.03–1.21
Consistent net use			
No (reference)	65	1.00	
Yes	78	1.75	1.46-2.11
Total	74	n.a.	n.a.

*Notes: Notes:* \*p<0.05; \*\*p<0.01; \*\*\*p<0.001. n/a, not applicable. n=3,468; Pseudo-R<sup>2</sup>=0.065.

# A.6 Media Consumption and Message Exposure

This subsection provides all data tables related to media consumption and exposure to malaria messages for the 2021 Liberia MBS. Where appropriate, results are disaggregated by region. The following tables may have been duplicated or referenced in the main body of the report.

#### Table A.6.1.

Variables Related to Media Consumption<sup>a</sup>

	Listens to Radio at Least Once a Week (n=5,8222)	Watches TV at Least Once a Week (n=5,8222)	Owns Mobile Phone (n=5,8222)	Seen or Heard Message About Malaria in Past Six Months (n=5,8222)	Identified a Campaign Logo (n=4,637) <sup>b</sup>
Region	***	***	***		
Greater Monrovia	59	45	84	35	15
South Central	48	20	74	42	17
North Central	43	12	54	36	12
Sex	***		***	**	
Female	39	21	56	33	13
Male	61	20	75	40	14
Age, years	***		***	**	
15–24	35	18	50	30	13
25–34	45	21	67	34	14
35–44	54	23	68	41	10
≥45	63	21	2	44	17
Residence	**	***	***		
Urban	53	33	76	35	15
Rural	43	11	53	37	12
Education	***	***	***	***	*
No education	38	12	47	31	11
Elementary	40	17	48	29	9
Junior high	44	17	63	37	12
Senior high	54	25	79	39	16
Vocational/technical	65	45	88	58	12
Higher	74	40	94	54	23
Wealth quintile	***	***	***		
Lowest	31	4	34	31	11
Second	40	10	49	32	12
Middle	44	13	67	39	13
Fourth	60	26	78	38	15
Highest	63	61	89	41	17
Total	47	21	63	36	13

*Notes:* <sup>a</sup>Table values are percentages. <sup>b</sup>Interviewers asked respondents whether they identified only the NMCP logo among a set of three visual interview aids. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001. n/a, not applicable.

#### Table A.6.2

# Radio Listenership at Least Once a Week<sup>a</sup>

	Greater Monrovia		South Central		North Central		Total	
	All (n=2,206)	In Household with Radio (n=1,244)	All (n=1,871)	In Household with Radio (n=694)	All (n=1,745)	In Household with Radio (n=583)	All (n=5,822)	In Household with Radio (n=2,521)
Sex	***	***			***	***	***	***
Female	49	67	40	71	35	57	39	61
Male	73	90	60	92	57	85	61	87
Age, years		***			***	***	***	***
15–24	44	59	34	70	33	51	35	54
25–34	58	78	51	81	38	66	45	72
35–44	63	80	57	90	50	77	54	79
≥45	70	85	53	80	63	89	63	87
Residence	***			**		*	**	
Urban	59	76	60	91	45	60	53	71
Rural	n/a	n/a	45	77	43	73	43	74
Education	***	**	***	*	**	*	***	***
No education	42	65	40	73	37	64	38	65
Elementary	53	72	48	87	37	60	40	64
Junior high	55	74	49	64	41	67	44	69
Senior high	58	77	42	86	54	77	54	77
Vocational/technical	65	78	88	85	62	100	65	87
Higher	76	84	64	87	78	93	74	87
Wealth quintile			***		***	*	***	*
Lowest	n/a	n/a	40	73	29	77	31	75

	Greate	er Monrovia	So	South Central North Centra		North Central		otal
Second	53	91	56	85	38	67	40	69
Middle	47	84	52	87	43	60	44	64
Fourth	54	74	41	73	69	82	60	78
Highest	67	77	51	84	58	66	63	76
Total	59	76	48	81	43	69	47	73

*Notes:* <sup>a</sup>Table values are percentages. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001. n/a, not applicable.

#### Table A.6.3.

Preferred Time to Listen to Radio Among Those Who Listen to Radio at Least Weekly<sup>a</sup>

	Early in the Morning	End of Morning (n=2,623)	Afternoon (n=2,623)	Early in the Evening	End of Evening (n=2,623)	Night (n=2,623)
Docion	(n=2,023)			(n=2,623)		
Region	20	47	0	10	24	
	29	1/	8	16	24	4
South Central	38	9	/	19	24	1
North Central	25	20	7	18	27	1
Sex						
Female	27	18	8	17	25	2
Male	28	17	7	17	26	2
Age, years						
15–24	21	25	8	14	27	2
25–34	24	16	10	21	24	2
35–44	31	13	4	19	28	3
≥45	32	21	8	13	23	1
Residence						
Urban	30	19	8	13	26	3
Rural	24	17	8	21	26	2
Education						
No education	27	20	5	16	29	1
Elementary	30	18	8	17	23	2
Junior high	23	23	10	17	23	1
Senior high	28	11	8	22	26	3
Vocational/technical	20	28	2	13	21	0
Higher	30	19	8	12	28	2
Wealth quintile						
Lowest	17	17	7	34	18	3
Second	28	23	7	12	27	0
Middle	33	14	7	17	26	2
Fourth	23	16	8	20	28	4
Highest	29	20	8	14	24	3
Total	27	18	8	17	26	2

*Notes:* <sup>a</sup>Table values are percentages. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001. n/a, not applicable. No statistical differences among covariates.

#### Table A.6.4.

# Television Viewership at Least Once a Week<sup>a</sup>

	Great	ter Monrovia	So	outh Central	No	orth Central	1	rotal 🛛
	All (n=2,206)	In Household with Television (n=1,200)	All (n=1,871)	In Household with Television (n=182)	All (n=1,745)	In Household with Television (n=108)	All (n=5,822)	Number (n=1,490)
Sex		*						
Female	46	65	17	53	12	60	21	63
Male	42	58	24	82	12	60	20	61
Age, years								
15–24	43	67	17	50	13	64	18	64
25–34	45	64	10	38	10	69	21	64
35–44	44	57	28	85	13	54	23	59
≥45	47	64	27	63	12	51	21	62
Residence				**	**		***	
Urban	45	62	18	50	20	70	33	63
Rural	n/a	n/a	21	68	9	51	11	59
Education	*	*	***	*		*	***	**
No education	36	59	4	27	8	32	12	51
Elementary	43	60	13	43	13	51	17	57
Junior high	40	59	12	23	12	51	17	57
Senior high	46	59	25	81	13	69	25	62
Vocational/technic al	47	93	61	93	40	100	45	94
Higher	53	70	43	58	19	93	40	70
Wealth quintile		**	***		***	*	***	***

	Great	er Monrovia	So	South Central North Central		Total		
Lowest	n/a	n/a	6	0	4	0	4	0
Second	18	100	14	35	9	0	10	4
Middle	18	47	12	0	12	100	13	61
Fourth	34	51	23	75	19	51	26	54
Highest	64	66	46	62	61	82	61	68
Total	45	62	20	64	12	60	21	62

Notes: aTable values are percentages. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001. n/a, not applicable.

#### Table A.6.

Preferred Time to Watch Television Among Those Who Watch at Least Once a Week<sup>a</sup>

	Fault sin the	Final of	Afternasan	Foulstin	Final of	Nicht
	Early in the Morning (n=1,479)	End of Morning (n=1,479)	Afternoon (n=1,479)	Early in the Evening (n=1,479)	End of Evening (n=1,479)	Night (n=1,479)
Region						
Greater Monrovia	4	7	8	16	61	2
South Central	3	12	6	3	64	2
North Central	2	7	11	12	57	4
Sex**						
Female	3	6	8	15	63	3
Male	4	10	11	10	54	3
Age,* years						
15–24	3	6	12	16	55	4
25–34	4	5	6	14	58	1
35–44	4	8	9	13	60	5
≥45	2	9	9	8	70	1
Residence**						
Urban	4	7	7	16	62	2
Rural	2	7	14	7	54	5
Education						
No education	4	5	6	6	74	1
Elementary	3	6	10	13	62	2
Junior high	3	8	5	14	56	4
Senior high	3	11	11	12	57	1
Vocational/technical	2	0	5	37	49	0
Higher	5	4	10	17	56	7
Wealth quintile*						
Lowest	13	19	2	11	53	2
Second	4	2	7	14	52	3
Middle	1	10	13	15	55	2
Fourth	3	9	10	10	60	4
Highest	4	6	8	15	64	2
Total	3	7	9	13	60	3

*Notes:* <sup>a</sup>Table values are percentages. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001. n/a, not applicable.

# Table A.6.

Mobile Phone or Tablet Ownership<sup>a</sup>

	Greater Monrovia (n=2,206)	South Central (n=1,871)	North Central (n=1,745)	Total (n=5,822)
Sex	***		***	***
Female	80	72	45	56
Male	90	78	69	75
Age, years	***	***	***	***
15–24	69	60	44	50
25–34	86	73	58	67
35–44	88	81	58	68
≥45	91	87	64	2
Residence		***	***	***
Urban	84	89	64	76
Rural	n/a	70	50	53
Education	***	***	***	***
No education	77	50	40	47
Elementary	72	57	43	48
Junior high	76	85	58	63
Senior high	87	82	74	79
Vocational/technical	87	90	89	88
Higher	98	99	85	94
Wealth quintile		***	***	***
Lowest	n/a	44	33	34
Second	72	69	47	49
Middle	74	79	64	67
Fourth	80	96	73	78
Highest	92	86	80	89
Total	84	74	54	63

Notes: <sup>a</sup>Table values are percentages. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001. n/a, not applicable.

#### Table A.6.7.

#### Exposure to Malaria Messages<sup>a</sup>

	Greater Monrovia (n=2,206)		South Central (n=1,871)			North Central (n=1,745)			Total (n=5,822)			
	Can Complete a Campaign Slogan (n=1,019) <sup>b</sup>	Recalls Malaria Message in Past Six Months	Identified Campaign Logo (n=1,021) <sup>b</sup>	Can Complete a Campaign Slogan	Recalls Malaria Message in Past Six Months	Identified Campaign Logo	Can Complete a Campaign Slogan	Recalls Malaria Message in Past Six Months	Identified Campaign Logo	Can Complete a Campaign Slogan (n=4,635)	Recalls Malaria Message in Past Six Months	Identified Campaign Logo (n=4,637)
Sex		*	**				*	*			**	
Female	50	32	21	46	43	17	41	33	11	43	33	13
Male	44	39	11	42	41	18	47	41	14	46	40	14
Age, years		*						*			**	
15–24	50	26	17	33	35	13	44	30	12	44	30	13
25–34	46	37	13	54	31	19	40	33	13	43	34	14
35–44	48	38	16	38	44	13	42	42	8	43	41	10
≥45	53	37	14	54	63	27	47	44	16	49	44	17
Residence										*		
Urban	48	35	15	47	46	20	49	33	14	49	35	15
Rural	n/a	n/a	n/a	44	41	17	41	37	11	41	37	12
Education		***		***	***	**		***		*	***	*
No education	43	21	16	45	38	13	41	32	10	42	31	11
Elementary	41	29	9	37	30	10	37	29	9	37	29	9
Junior high	47	30	11	38	51	20	43	37	12	43	37	12
Senior high	48	37	17	38	28	7	50	42	18	48	39	16
Vocational/tech nical	40	47	9	24	55	9	53	74	15	45	58	12

	Gr	eater Monro (n=2,206)	ter Monrovia South Cen n=2,206) (n=1,87			North Central (n=1,745)				Total (n=5,822)		
	Can Complete a Campaign Slogan (n=1,019) <sup>b</sup>	Recalls Malaria Message in Past Six Months	Identified Campaign Logo (n=1,021) <sup>b</sup>	Can Complete a Campaign Slogan	Recalls Malaria Message in Past Six Months	Identified Campaign Logo	Can Complete a Campaign Slogan	Recalls Malaria Message in Past Six Months	Identified Campaign Logo	Can Complete a Campaign Slogan (n=4,635)	Recalls Malaria Message in Past Six Months	Identified Campaign Logo (n=4,637)
Higher	56	46	17	68	71	43	61	59	18	61	54	23
Wealth quintile				*	**	**		*				
Lowest	n/a	n/a	n/a	38	36	8	52	30	12	50	31	11
Second	53	35	0	40	36	13	39	31	12	39	32	12
Middle	45	25	12	50	46	14	46	41	13	46	39	13
Fourth	48	34	17	38	32	22	41	43	12	43	38	15
Highest	48	38	15	55	59	31	41	38	10	48	41	17
Total	48	35	15	44	42	17	43	36	12	44	36	13

*Notes:* <sup>a</sup>Table values are percentages. <sup>b</sup>Some respondents in Monrovia were only asked these questions if they mentioned hearing or seeing any malaria message in the past six months. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001. n/a, not applicable.

# **Annex B: Sample Selection**

This annex describes the multistage sample selection process used to select the sample for MBS Liberia. This process was proposed by RIH, based in Monrovia, and agreed with the study team.

#### Stage One

In the first stage, we chose the number of EAs to sample from each county based on the county's EA population proportion to the health regions' total EA population. Counties with EAs carried more weight.

#### Stage Two

We randomly selected 25% of districts within each county as primary districts and another 10% as replacements. This way, we ensured that the data collection process was logistically efficient while at the same time our samples remained truly random.

#### **Stage Three**

In each district, where EAs have less than 20 households, we combined two or more EAs into one to meet the desired number of surveys per category per EA.

We placed EAs into urban and rural categories based on the last digits of their EA codes. All EA codes ending with 1 were coded "urban" while those ending with 2 were coded "rural." This was the only clear rural/urban classification as per the Liberia Institute of Statistics and Geo-Information Services (LISGIS)

We then chose the number of EAs to sample from each district based on the county's proportion to the desired sample size per health region. Based on the derived county sample size, we derived a district-level EA sample size proportional to the derived county sample size. Districts with more EAs carried more weight; that is, they were allotted more EAs based on their proportion of the overall county EAs.

For the probability sample, the proposed number of EAs for each district was selected based on the proportion of the district's rural/urban composition.

Finally, we randomly selected another 10% from each district sample size following the above guidelines as replacement EAs.

#### Table B.

Study Regions/Counties	Total No. of EAs	No. of Urban EAs	% Urban	No. of Rural EAs	% Rural
North Central	2,067	538	26.0	1,529	74.0
Bong	927	256	27.6	671	72.4
Lofa	501	136	27.2	365	72.8
Nimba	781	173	22.2	608	77.8
South Central	1,182	376	31.8	806	68.2
Montserrado; excluding Monrovia	283	101	35.7	182	64.3
Margibi	431	146	33.9	285	66.1
Grand Bassa	468	129	27.6	339	72.4
Total	3,249	914	28.1	2,335	71.9

An Analysis of Rural/Urban Classification, by County<sup>a</sup>

<sup>a</sup>About 28% of EAs were considered urban across all two health regions with the exception of the Greater Monrovia district, which was 100% urban.

## Table B.

Study Regions/Counties	Total No. of EAs	% Rural
North Central	2,209	100.0
Bong	927	41
Lofa	501	22.7
Nimba	781	35.3
South Central	1,182	100.0
Montserrado; excluding Monrovia	283	23.9
Margibi	431	36.5
Grand Bassa	468	39.6
Total (North and South Central)	5,600	100

County EA Level Proportion to Health Region

## Table B.

An Anal	vsis n	f Rural	/I Irhan	Classi	fication	hν	<b>District</b> <sup>a</sup>
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Study Regions/Counties	No. of Districts	Districts	No. of Urban EAs	% of Urban EAs	No. of Rural EAs	% of Rural EAs	Total No. of EAs
North Central							
Bong	12	Boinsen	0	0.0	21	100.0	21
		Fuamah	21	30.0	49	70.0	70
		Jorquelleh	119	50.0	119	50.0	238
		Kokoyah	0	0.0	10	100.0	10
		Крааі	9	16.7	45	83.3	54
		Panta	24	54.5	20	45.5	44
		Salala	30	24.0	95	76.0	125
		Sanoyeah	0	0.0	98	100.0	98
		Suakoko	37	42.5	50	57.5	87
		Tukpahblee	0	0.0	21	100.0	21
		Yeallequelleh	7	6.6	99	93.4	106
		Zota	8	15.1	45	84.9	53
Lofa	7	Foya	25	18.4	111	81.6	136
		Kolahun	15	15.5	82	84.5	97
		Quardu Boundi	7	22.6	24	77.4	31
		Salayea	6	15.0	34	85.0	40
		Vahun	5	45.4	6	54.6	11
		Voinjama	34	37.0	58	63.0	92
		Zorzor	44	46.8	50	53.2	94
		Boe and Quilla	0	0.0	5	100.0	5
		Buu-Yao	0	0.0	48	100.0	48

		Doe	0	0.0	10	100.0	10
Nimba	17	Garr-Bain	58	67.4	28	32.6	86
		Gbehlay-Geh	19	25.0	57	75.0	76
		Gbi and Doru*	0	0.0	17	100.0	17
		Gbor	0	0.0	14	100.0	14
		Kparblee*	0	0.0	17	100.0	17
		Leewehpea-Mahn	0	0.0	35	100.0	35
		Meinpea-Mahn	0	0.0	35	100.0	35
		Saniquellie Mahn	21	46.7	24	53.3	45
		Twan River	4	4.6	83	95.4	87
		Wee-Gbehyi-Mahn	22	41.5	32	58.5	53
		Yarmein	9	24.3	28	75.7	37
		Yarpea Mahn	0	0.0	30	100.0	30
		Yarwein Mehnsonnoh	0	0.0	35	100.0	35
		Zoe-Gbao	13	30.2	30	69.8	43
South Central							
Montserrado;	4	Careysburg	31	54.4	26	45.6	57
		Commonwealth	0	0.0	19	100.0	19
		St. Paul River	70	53.4	61	46.6	131
		Todee	0	0.0	76	100.0	76
Margibi	4	Firestone	45	56.2	35	43.8	80
		Gibi	0	0.0	37	100.0	37
		Kakata	77	32.8	158	67.2	235
		Mambah Kaba	24	30.4	55	69.6	79
Grand Bassa	8	Commonwealth	80	100.0	0	0.0	80

	District 1	0	0.0	56	100.0	56
	District 2	0	0.0	49	100.0	49
	District 3	14	16.1	73	83.9	87
	District 4	0	0.0	72	100.0	72
	Neekreen	31	47.0	35	53.0	66
	Owensgrove	4	10.8	33	89.2	37
	St. John River City	0	0.0	21	100.0	21

<sup>a</sup>Liberia 2008 population census.

# Annex C: Photos of Training and Data Collection



NMCP former Program Director leading a section in MBS data collection training



NMCP team member, local research firm-UL-PIRE and Breakthrough ACTION Liberia M&E Advisor conducting field pilot of MBS tool



Photo credit: NMCP's Driver-March 5, 2022: Victor Koko/NMCP and UL-PIRE Supervisor sorting and verifying eligible participants



Photo credit: UL-PIRE enumerator-March 4, 2022: Breakthrough ACTION Liberia Malaria Specialist; Jamesetta in Totota, Bong county discussing in-field plan with UL-PIRE supervisor

# Annex D: Program Recommendations for Ideational Variables

The following program recommendations correspond to ideational variables measured by Malaria Behavior Surveys in general and are not specific to Liberia. These recommendations are part of the MBS Dashboard project, which is under construction as of November 2022.

Behavior	Behavioral Factor	Behavioral Factor Definition	Recommendation if Behavior is High	Recommendation if Behavior is Low
Consistent net use	Positive attitude towards ITNs	Attitudes are positive or negative perceptions or feelings about a behavior. People who view a behavior favorably are more likely to adopt it.	Maintain positive attitudes by framing consistent net use as a social norm and emphasizing that it is easy to habitually use a net. If the vast majority of respondents report this, prioritize other predictive factors.	Demonstrate the non- health benefits of consistent net use, such as a peaceful night's sleep and using a net for privacy in a crowded house. Counter negative beliefs, such as perceived danger of insecticide on nets.
Consistent net use	ITN response- efficacy	Perceived effectiveness is the belief that a recommended behavior will be effective in reducing a perceived threat. People may be more likely to adopt a behavior if they believe that it will prevent a negative outcome or cause a positive one.	If people believe nets are effective against malaria but are not using them, evaluate access to nets. If access is a barrier, raise awareness about where people may obtain nets and leverage the high trust people have in this intervention.	Emphasize the quality and safety of the insecticide and stress that nets prevent malaria by reducing mosquito bites. Frame net use as community prevention: preventing infection in one person helps prevent mosquitoes from transmitting malaria to others.

Behavior	Behavioral Factor	Behavioral Factor Definition	Recommendation if Behavior is High	Recommendation if Behavior is Low
Consistent net use	ITN self-efficacy	People adopt behaviors that seem feasible in their own lives. If a behavior appears difficult, costly, or uncomfortable, they might not take action. Expressing confidence in one's ability to perform a behavior, given their own context, is positive self- efficacy. Expressing doubt is negative self-efficacy.	If respondents report high self-efficacy, prioritize other predictive factors. Programs may also emphasize supply-side factors, as it is important to also ensure net access when focusing on improving net use.	Demonstrate how easy or desirable it is to use nets. Model net use by using positive deviants, community theater, or role- playing. This is especially effective when it is modeled by those with whom community members identify.
Consistent net use	ITN use descriptive and injunctive norms	Social norms are beliefs about what others do and what others think people should do. SBC programs can portray behaviors as socially unacceptable or desirable to influence their uptake.	If net use is perceived as a norm, maintain this perception. If the vast majority of respondents report this, prioritize other predictive factors.	Frame net use as a socially desirable and common behavior to build the perception that it is a norm.
Consistent net use	Perceived gender- equitable norms regarding malaria prevention and treatment	Favorable gender norms regarding malaria prevention and treatment refer to holding beliefs that no family members are prioritized for malaria prevention or treatment based on their gender, or that pregnant women should feel comfortable asking a partner to attend prenatal consultations.	Gender dynamics often communication and dec Encourage spousal and malaria and net use.	influence household ision making. family discussion of

Behavior	Behavioral Factor	Behavioral Factor Definition	Recommendation if Behavior is High	Recommendation if Behavior is Low
Consistent net use	Malaria interpersonal communication with spouse	In many contexts, net use is more common among people who have communicated with a spouse about malaria.	Encourage discussion about malaria and net use among spouses/partners. Role modeling through community drama or entertainment education can be leveraged to encourage two way partner dialogue as a normative behavior If the vast majority of respondents report this prioritize other predictive factors.	
Consistent net use	Malaria interpersonal communication with family or friend	In many contexts, net use is more common among people who have communicated with others, such as a family member, or friend, about malaria.	Encourage discussion about malaria and net use among families and within communities Influential individuals, community groups, a health workers can be leveraged to initiate a guide discussions around consistent net use normative behavior. Take care to encourage two-way dialogue and not one-way instruct If the vast majority of respondents report th prioritize other predictive factors.	
Consistent net use	Malaria interpersonal communication with spouse or others	In many contexts, net use is more common among people who have communicated with others, such as a spouse, family member, or friend, about malaria.	Encourage discussion about malaria and net use among families and within communities. Influential individuals, community groups, an health workers can be leveraged to initiate a guide discussions around consistent net use a normative behavior. Take care to encourage two-way dialogue and not one-way instructio If the vast majority of respondents report thi prioritize other predictive factors.	
Consistent net use	Correct knowledge of malaria transmission	Knowing that malaria is transmitted only by a mosquito bite can give individuals the motivation to consistently use mosquito nets.	Include messaging that focuses on areas unrelated to building malaria knowledge. If the vast majority of respondents report this, prioritize other predictive factors.	Typically, knowledge is low because other causes are incorrectly believed to cause malaria in addition to the bite of an infected mosquito. Counter such misinformation with reputable messengers and emphasize that net use is one of the best ways to prevent malaria.

Behavior	Behavioral Factor	Behavioral Factor Definition	Recommendation if Behavior is High	Recommendation if Behavior is Low
Consistent net use	Incorrect knowledge	Respondents may cite mosquito bites as a form of transmission, but if they also cite at least one way that someone may contract malaria that is not the bite of a mosquito, this is considered incorrect knowledge. Incorrect knowledge may be the product of local myths or misunderstandings about malaria.	Incorrect knowledge about malaria transmission is typically driven by the belief in other causes of malaria in addition to mosquito bites. Counter such misinformation with reputable messengers and emphasize why net use is one of the best ways to prevent malaria. Efforts directed at any other cause will be ineffective.	If incorrect knowledge about malaria transmission is low, ensure that correct knowledge about mosquito-borne transmission is high, so that people are fully informed. If correct knowledge is also high, focus on other predictive factors of net use.
Consistent net use	Perceived severity	People may be more likely to act if they feel that the consequences of malaria are serious. The belief that a disease could cause serious harm or death is high perceived severity; conversely, the belief that the consequences are not serious is low perceived severity.	If the majority of respondents report high perceived severity, prioritize other predictive factors. Be sure to emphasize that nets are highly effective ways to prevent malaria and build self- efficacy to use nets consistently.	Pair messages about malaria severity with information on the high effectiveness of net use so people are empowered with feasible calls to action. Increasing fear of malaria severity without emphasizing the effectiveness of net use may lead to inaction.

Behavior	Behavioral Factor	Behavioral Factor Definition	Recommendation if Behavior is High	Recommendation if Behavior is Low
Consistent net use	Perceived susceptibility	Perceived susceptibility refers to the belief that one is at risk of contracting a disease. People with high perceived susceptibility to malaria may be more likely to take protective action, and those who believe they are not at risk of contracting malaria have low perceived susceptibility and may be less likely to take action.	If people believe they are highly susceptible to malaria but are not using nets, determine if perceived severity is low. If it is, potential net users may know they can get malaria but feel its consequences are not serious. If so, increase both perceived severity of malaria and self- efficacy to use nets. If the vast majority of respondents report high susceptibility, prioritize other predictive factors.	Communicate about the risk of contracting malaria as well as the efficacy of regular net use to prevent it. Malaria transmission rates also influence risk perception. In endemic areas, focus on year-round net use. In lower transmission areas, communicate about net use in specific higher risk scenarios.

Behavior	Behavioral Factor	Behavioral Factor Definition	Recommendation if Behavior is High	Recommendation if Behavior is Low
Early ANC attendance	Favorable attitude towards IPTp	Attitudes are positive or negative perceptions or feelings about a behavior. People who view a behavior favorably are more likely to adopt it.	If most respondents report positive attitudes, prioritize other predictive factors. Be sure to address access, gender issues, and supply-side factors such as service provider behavior that may be barriers to ANC.	Unfavorable attitudes towards IPTp can influence a woman's intention to attend ANC early in the future via her perceptions of the quality of services offered. Emphasize the welcome and support she will receive, as well as the health benefits of ANC attendance and IPTp. Behavioral economics approaches that modify structural factors (such as the health facility environment) may be effective when pregnant women doubt IPTp or the quality of ANC.
Early ANC attendance	IPTp injunctive norm	Social norms are beliefs about what others do and what others think people should do. SBC programs can portray behaviors as socially unacceptable or desirable to influence their uptake.	People may be more likely to attend ANC visits early and regularly if they feel this behavior is a norm. If early ANC visits are perceived as normative, maintain this perception. If the vast majority of respondents report this, prioritize other predictive factors.	Frame care as a socially desirable and common behavior.

Behavior	Behavioral Factor	Behavioral Factor Definition	Recommendation if Behavior is High	Recommendation if Behavior is Low
Early ANC attendance	Perceived gender- equitable norms regarding malaria prevention and treatment	Favorable gender norms regarding malaria prevention and treatment refer to holding beliefs that no family members are prioritized for malaria prevention or treatment based on their gender, or that pregnant women should feel comfortable asking a partner to attend prenatal consultations.	Gender dynamics often communication and dec Encourage spousal and f malaria and early ANC a men's support of their p ANC.	influence household ision making. family discussion of ttendance. Encourage artners to attend early
Early ANC attendance	Correct knowledge	The respondent's awareness of their country's recommended number of IPTp doses, ANC visit frequency, and importance of attending ANC in the first trimester of pregnancy.	If this knowledge is high, prioritize other predictive factors. Regardless of knowledge levels, assess whether access, gender or structural barriers in the specific context of interest may affect a woman's intent to access ANC early in the future. Mobilize male support for ANC and IPTp and strengthen ANC provider interpersonal communication skills to build an enabling environment at community and facility levels.	If correct knowledge about preventing malaria in pregnancy is low, work with trusted community messengers, mass media, and health care providers to raise awareness about ANC and IPTp. Explain why multiple doses are ideal and emphasize the safety and efficacy of IPTp. Secondary audiences who support pregnant women should also be targeted for correct knowledge about IPTp.

Behavior	Behavioral Factor	Behavioral Factor Definition	Recommendation if Behavior is High	Recommendation if Behavior is Low
Intention to use IPTp during next pregnancy	Favorable attitude towards IPTp	Attitudes are positive or negative perceptions or feelings about a behavior. People who view a behavior favorably are more likely to adopt it.	If most respondents report positive attitudes, prioritize other predictive factors. Address access, gender issues, and supply-side factors such as service provider behavior that may be barriers to IPTp uptake.	Unfavorable attitudes towards IPTp can influence intention to take IPTp. Inform women of reproductive age about IPTp benefits. Work with service providers to communicate IPTp safety and benefits with clients. Encourage interpersonal communication between experienced mothers who have positive attitudes about IPTp and women in their first pregnancy to reach those who have no previous experience with ANC.
Intention to use IPTp during next pregnancy	IPTp descriptive norm	Social norms are beliefs about what others do and what others think people should do. SBC programs can portray behaviors as socially unacceptable or desirable to influence their uptake.	People are more likely to accept IPTp if they feel this behavior is a norm. If receiving IPTp at ANC is perceived as normative, maintain this perception. If the vast majority of respondents report this, prioritize other predictive factors.	Frame care as a socially desirable and common behavior.

Behavior	Behavioral Factor	Behavioral Factor Definition	Recommendation if Behavior is High	Recommendation if Behavior is Low
Intention to use IPTp during next pregnancy	IPTp self-efficacy	People often adopt behaviors that seem feasible in their own lives. If a behavior appears difficult, costly, or uncomfortable, they might not take action. Expressing confidence in one's ability to perform a behavior, given their own context, is positive self- efficacy. Expressing doubt is negative self-efficacy.	Examine supply-side factors such as service provider behaviors. If the vast majority of respondents report high self-efficacy, prioritize other predictive factors. Timely resupply of SP and confidence of health care providers that IPTp is safe and effective are necessary prerequisites to consistent provision.	Model pregnant women expressing their intent to take IPTp. Demonstrating how easy or desirable taking IPTp is can increase self-efficacy, especially when pregnant women see it being performed by others with whom they identify. To model these intentions, consider positive deviants, community theater, and role-playing. IPTp uptake often depends more on its provision than demand or acceptance by pregnant women, so care should be taken to also model positive provide behavior.
Behavior	Behavioral Factor	Behavioral Factor Definition	Recommendation if Behavior is High	Recommendation if Behavior is Low
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Intention to use IPTp during next pregnancy	Correct knowledge	The respondent's awareness of their country's recommended number of IPTp doses, ANC visit frequency, and importance of attending ANC in the first trimester of pregnancy.	If this knowledge is high, prioritize other predictive factors. Regardless of knowledge levels, it is important to assess whether access, gender, or structural barriers in the specific context of interest may affect a woman's intent to take IPTp in the future. Mobilize male support for ANC and IPTp and strengthen ANC provider interpersonal communication skills to build an enabling environment at community and facility levels.	Work with trusted community messengers, mass media, and health care providers to raise awareness about ANC and IPTp. Explain why multiple doses are ideal and emphasize the safety and efficacy of IPTp. Secondary audiences who support pregnant women should also be targeted for correct knowledge about IPTp.
Net care	Positive attitude towards ITNs	Attitudes are positive or negative perceptions or feelings about a behavior. People who view a behavior favorably are more likely to adopt it.	Maintain positive attitudes by framing consistent net use and care as a social norm and emphasizing that it's easy to habitually use and care for a net. If the vast majority of respondents report this, prioritize other predictive factors.	Improve attitudes by demonstrating the non-health benefits of consistent net use, such as a peaceful night's sleep and using a net for privacy in a crowded house. Counter negative beliefs, such as perceived danger of insecticide on nets.

Behavior	Behavioral Factor	Behavioral Factor Definition	Recommendation if Behavior is High	Recommendation if Behavior is Low
Net care	Positive attitudes towards net care	Attitudes are positive or negative perceptions or feelings about a behavior. People who view a behavior favorably are more likely to adopt it.	Maintain positive attitudes by framing net care as a social norm and encourage tying nets up when not in use to keep them out of reach of playing children. If the vast majority of respondents report this, prioritize other predictive factors. Encourage households to continue using their nets until new ones are available as even damaged nets can provide some protection.	Improve attitudes towards net care by focusing on the benefits of folding up nets when not in use, such as keeping the nets clean and effective or out of the reach of playing children.
Net care	ITN response- efficacy	Perceived effectiveness is the belief that a recommended behavior will be effective in reducing a perceived threat. People may be more likely to adopt a behavior if they believe that it will prevent a negative outcome or cause a positive one.	If people perceive that folding up nets when they are not in use helps them last longer, but are not doing so, consider building self- efficacy with demonstrations and modeling. People may adopt this behavior if shown it is feasible. If the vast majority of respondents report this, prioritize other predictive factors.	Emphasize that tying up nets when not in use and keeping nets out of the reach of playing children are the most effective ways to keep a net clean, functional, and lasting as long as possible.

Behavior	Behavioral Factor	Behavioral Factor Definition	Recommendation if Behavior is High	Recommendation if Behavior is Low
Net care	ITN self-efficacy	People adopt behaviors that seem feasible in their own lives. If a behavior appears difficult, costly, or uncomfortable, they might not take action. Expressing confidence in one's ability to perform a behavior, given their own context, is positive self- efficacy. Expressing doubt is negative self-efficacy.	Maintain high self- efficacy by modeling the ease of net use. If the vast majority of respondents report this, prioritize other predictive factors. Emphasize supply-side factors, gender roles, or social norms. It is important to also ensure net access when focusing on improving use.	To increase self- efficacy, demonstrate how easy or desirable it is to use nets. Modeling net use can be done by using positive deviants, community theater, or role-playing, and it is especially effective when it is modeled by those with whom community members identify.
Net care	ITN use descriptive norm	Social norms are beliefs about what others do and what others think people should do. SBC programs can portray behaviors as socially unacceptable or desirable to influence their uptake.	People are more likely to care for their net if they feel this is a norm. Maintain this perception. If the vast majority of respondents report this, prioritize other predictive factors.	Frame care as a socially desirable and common behavior.
Net care	ITN injunctive norm	Social norms are beliefs about what others do and what others think people should do. SBC programs can portray behaviors as socially unacceptable or desirable to influence their uptake.	People are more likely to care for their net if they feel this is a norm. Maintain this perception. If the vast majority of respondents report this, prioritize other predictive factors.	Frame care as a socially desirable and common behavior.

Behavior	Behavioral Factor	Behavioral Factor Definition	Recommendation if Behavior is High	Recommendation if Behavior is Low
Net care	Perceived gender- equitable norms regarding malaria prevention and treatment	Favorable gender norms regarding malaria prevention and treatment refer to holding beliefs that no family members are prioritized for malaria prevention or treatment based on their gender, or that pregnant women should feel comfortable asking a partner to attend prenatal consultations.	Gender dynamics often communication and dec Encourage spousal and f malaria and net care, pa responsibility of tying up is a gendered household	influence household ision making. family discussion of irticularly where the o nets when not in use I role.
Net care	Malaria interpersonal communication with spouse	In many contexts, malaria prevention behaviors are more common among people who have communicated with a spouse about malaria.	Encourage discussion ab care among spouses/pa through community dra education can be levera way partner dialogue as	oout malaria and net rtners. Role modeling ma or entertainment ged to encourage two- a normative behavior.
Net care	Malaria interpersonal communication with family or friend	In many contexts, malaria prevention behaviors are more common among people who have communicated with others, such as a family member or friend, about malaria.	Encourage discussion ab care among families and Influential individuals, ca health workers can be le guide discussions around behavior. Take care to e dialogue and not one-wa	bout malaria and net d within communities. community groups, and everaged to initiate and d net care as normative ncourage two-way ay instruction.
Net care	Malaria interpersonal communication with spouse or others	In many contexts, malaria prevention behaviors are more common among people who have communicated with others, such as a spouse, family member, or friend, about malaria.	Encourage discussion ab care among families and Influential individuals, co health workers can be le guide discussions aroun behavior. Take care to e dialogue and not one-wa	bout malaria and net d within communities. community groups, and everaged to initiate and d net care as normative ncourage two-way ay instruction.

Behavior	Behavioral Factor	Behavioral Factor Definition	Recommendation if Behavior is High	Recommendation if Behavior is Low
Net care	Correct knowledge of malaria transmission	Knowing that malaria is transmitted only by a mosquito bite can give individuals the motivation to care for mosquito nets habitually.	Determine if there are positive attitudes towards nets and net care. Where attitudes are not positive, emphasize the health and non-health benefits of net use and care.	Typically, knowledge is low because other causes are incorrectly believed to cause malaria in addition to the bite of an infected mosquito. Counter such misinformation with reputable messengers and emphasize that net care is important to prevent malaria.
Net care	Incorrect knowledge	Respondents may cite mosquito bites as a form of transmission, but if they also cite at least one way that someone may contract malaria that is not the bite of a mosquito, this is considered incorrect knowledge. Incorrect knowledge may be the product of local myths or misunderstandings about malaria.	Incorrect knowledge about malaria transmission is typically driven by the belief in other causes of malaria in addition to mosquito bites. Counter such misinformation with reputable messengers and emphasize why taking care of nets is important to prevent malaria. Efforts directed at any other cause will be ineffective.	If incorrect knowledge about malaria transmission is low, ensure that correct knowledge about mosquito-borne transmission is high, so that people are fully informed. If correct knowledge is also high, focus on other predictive factors of net care.

Behavior	Behavioral Factor	Behavioral Factor Definition	Recommendation if Behavior is High	Recommendation if Behavior is Low
Net care	Perceived severity	People may be more likely to act if they feel that the consequences of malaria are serious. The belief that a disease could cause serious harm or death is high perceived severity and conversely, the belief that the consequences are not serious is low perceived severity.	If respondents report high perceived severity, prioritize other predictive factors. In addition, emphasize improving self-efficacy to tie up nets when not in use and that it is an effective way to keep them intact. Balance fear with confidence to act, as fearful people lacking confidence to act are unlikely to care for nets.	Balance messages about the severity of malaria with feasible calls to action. Increasing fear of malaria severity without emphasizing the effectiveness of net care may lead to inaction.
Net care	Perceived susceptibility	Perceived susceptibility refers to the belief that one is at risk of contracting a disease. People with high perceived susceptibility to malaria may be more likely to take protective action, and those who believe they are not at risk of contracting malaria have low perceived susceptibility and may be less likely to do take action.	Examine attitudes about net use and care. If people feel they will likely get malaria and do not value nets, they are unlikely to care for them. Emphasize net efficacy to prevent malaria as well as non- health benefits, such as a peaceful night's sleep. If the vast majority of respondents report high perceived susceptibility, prioritize other predictive factors.	Communicate about the risk of contracting malaria as well as the efficacy of net care to extend their lifespan. Foster positive attitudes towards net use and care as effective prevention measures.

Behavior	Behavioral Factor	Behavioral Factor Definition	Recommendation if Behavior is High	Recommendation if Behavior is Low
Net care	Consistent ITN use	Consistent net use refers to the reported behavior of sleeping under a mosquito net every night of the week.	Using a net consistently care of it when people v benefits as well as the p they provide. Maintain t majority of respondents other predictive factors.	may lead to greater alue nets for the health eaceful night's sleep this behavior. If the vast report this, prioritize
Prompt and appropriate care- seeking for children under five with fever	Knowledge of malaria care- seeking and treatment	Knowing that advice or treatment for fever should be sought on the same or next day, that a malaria test is the best way to know if someone has malaria, and that the best place to go for suspected malaria is a health facility, constitutes correct knowledge about fever care- seeking.	Avoid exclusively knowledge-based messaging. If the vast majority of respondents report high knowledge, prioritize other predictive factors.	Counter misinformation with reputable messengers. Focus on the benefits of seeking care from a health facility or CHW when one's child has a fever and the risks of going without treatment.
Prompt and appropriate care- seeking for children under five with fever	Correct knowledge of ACTs to treat malaria	Correct knowledge about malaria treatment includes knowing that an ACT is the correct and most effective treatment for malaria.	Avoid exclusively knowledge-based messaging. Focus on building self-efficacy, establishing ACT use as a norm, promoting ACT benefits, and completing the full course of ACT. If the vast majority of respondents report correct knowledge, prioritize other predictive factors.	Counter misinformation about ACTs with reputable messengers. Focus on the benefits of using ACTs to treat malaria and the risks of going without treatment.

Behavior	Behavioral Factor	Behavioral Factor Definition	Recommendation if Behavior is High	Recommendation if Behavior is Low
Prompt and appropriate care- seeking for children under five with fever	Positive attitudes towards prompt care-seeking	Attitudes are positive or negative perceptions or feelings about a behavior. People who view a behavior favorably are more likely to adopt it.	Leverage positive attitudes by framing prompt care-seeking as a social norm and emphasize the feasibility to obtain malaria testing and treatment quickly. If the vast majority of respondents report this, prioritize other predictive factors. Address access issues and supply-side factors such as service provider behavior.	Negative attitudes towards care-seeking often stem from seeing malaria as inevitable. Demonstrating the economic benefits of avoiding costly treatment of malaria may be persuasive. Other factors that influence attitudes include perceptions that health workers are the best people to talk to when a child is sick, that facilities will have supplies in stock, and beliefs that children should only be treated for malaria once diagnosed by a provider.
Prompt and appropriate care- seeking for children under five with fever	Malaria interpersonal communication with spouse	In many contexts, care-seeking for fever is more common among people who have communicated with a spouse about malaria.	Encourage discussion ab care-seeking among spo modeling through comn entertainment educatio encourage two-way par negotiation of the care-s	oout malaria and fever puses/partners. Role nunity drama or n can be leveraged to tner dialogue and seeking decision.
Prompt and appropriate care- seeking for children under five with fever	Malaria interpersonal communication with family or friend	In many contexts, care-seeking for fever is more common among people who have communicated with others, such as a family member or friend, about malaria.	Encourage discussion at care-seeking among fam communities. Influentia community groups, and leveraged to initiate and around care-seeking for behavior. Take care to e dialogue and not one-w	bout malaria and fever nilies and within I individuals, health workers can be guide discussions fever as normative ncourage two-way ay instruction.

Behavior	Behavioral Factor	Behavioral Factor Definition	Recommendation if Behavior is High	Recommendation if Behavior is Low
Prompt and appropriate care- seeking for children under five with fever	Malaria interpersonal communication with spouse or others	In many contexts, care-seeking for fever is more common among people who have communicated with others, such as a spouse, family member, or friend, about malaria.	Encourage discussion about malaria and fever care-seeking among families and within communities. Influential individuals, community groups, and health workers can be leveraged to initiate and guide discussions around care-seeking for fever as normative behavior. Take care to encourage two-way dialogue and not one-way instruction.	
Prompt and appropriate care- seeking for children under five with fever	Decision making for care-seeking involvement (jointly or independently)	Proportion of married or cohabitating respondents involved in making decisions to go to the health facility when their child has a fever	Decisions about when to seek care from a health provider are complex and involve multiple influences, as well as gender dynamic between parents. Use group, one-on-one activities, or entertainment education to mode negotiating this decision with other family members, especially to empower young mothers. Engage fathers to be supportive of their partner's opinion in care-seeking decisions. Work with secondary audiences who influence parent decisions, such as mothers-in law and religious leaders, to support prompt and appropriate fever care-seeking.	
Prompt and appropriate care- seeking for children under five with fever	Care-seeking descriptive norm	Social norms are beliefs about what others do and what others think people should do. The descriptive norm reflects what people think the majority of others in their community do.	People may be more likely to promptly seek care after onset of fever in their children if the believe that others in the community also do so. SBC programs can portray behaviors as socially unacceptable or desirable to influence their uptake. If the vast majority of respondents report this is normative, prioritiz other predictive factors.	

Behavior	Behavioral Factor	Behavioral Factor Definition	Recommendation if Behavior is High	Recommendation if Behavior is Low
Prompt and appropriate care- seeking for children under five with fever	Care-seeking injunctive norm	Social norms are beliefs about what others do and what others think people should do. The injunctive norm reflects whether people think that others would approve of their actions.	People may be more likely to promptly seek care after onset of fever in their children if they believe that others in the community will approve of them doing so. SBC programs can portray care-seeking as accepted by others. If the vast majority of respondents report this is normative, prioritize other predictive factors.	Frame prompt and appropriate care- seeking as a socially desirable and common behavior using opinion leaders and role modeling.
Prompt and appropriate care- seeking for children under five with fever	Perceived that drugs are always available at the health center	If people have positive beliefs about health facility workers—for example, that they will be treated with respect, or that antimalarial drugs will be in supply— they may be more likely to visit these facilities for a fever or for ANC.	If people trust that drugs will be available at the health center but care-seeking is low, access may be a barrier. If the vast majority of respondents report drugs are available, prioritize other predictive factors. Shift focus to service provider behaviors and building an enabling environment at the community and/or facility level. Understand the financial, distance, or other barriers operating at the community level and address them. Consider community- based malaria testing and treatment services.	Leverage local testimonials to build trust in the availability and quality of malaria treatment at the health facility. Amplifying community voices may counter the perception that these services are not available. Ensuring consistent supply of ACTs at the health facility and provider issuance of malaria medication consistent with test results will create a positive feedback loop to improve trust.

Behavior	Behavioral Factor	Behavioral Factor Definition	Recommendation if Behavior is High	Recommendation if Behavior is Low
Prompt and appropriate care- seeking for children under five with fever	Perceived that community/facility health workers know how to treat malaria in children	If people have positive beliefs about health facility workers—for example, that they will be treated with respect, or that antimalarial drugs will be in supply— they may be more likely to visit these facilities for a fever or for ANC.	If people trust that health workers know how to treat malaria in children but care- seeking is low, access may be a barrier. If the vast majority of respondents report that health workers know how to treat malaria in children, prioritize other predictive factors. Shift focus to service provider behaviors and building an enabling environment at the community and/or facility level. Understand the financial, distance, or other barriers operating at the community level and address them. Consider community- based malaria testing and treatment services.	Leverage local testimonials to build trust in the effectiveness of CHWs to manage malaria and counter negative perceptions. Ensure proper training of CHWs in fever management and regular mentoring and supervision. Make clear which malaria services CHWs can and cannot provide to manage the expectations of community members. Quality experiences with CHWs will create a positive feedback loop.

Behavior	Behavioral Factor	Behavioral Factor Definition	Recommendation if Behavior is High	Recommendation if Behavior is Low
Prompt and appropriate care- seeking for children under five with fever	Care-seeking self- efficacy	People often adopt behaviors that seem feasible in their own lives. If a behavior appears difficult, costly, or uncomfortable, they might not take action. Expressing confidence in one's ability to perform a behavior, given their own context, is positive self- efficacy. Expressing doubt is negative self-efficacy.	Emphasize improving any supply-side factors such as service provider behavior or even proposing changes to community or health facility environments (transportation systems, facility consultation structure, etc.). If the vast majority of respondents report high self-efficacy to seek care, prioritize other predictive factors.	Model prompt care- seeking. Demonstrating how easy or desirable it is can increase self- efficacy, especially when people see the behavior being performed by others with whom they identify. Ways to model prompt care- seeking include positive deviants, community theater, and role-playing.

# Annex E: Questionnaires

IRB #14045

DENTIFICATION PAGE						
	IDENTIFICATION					
Liberia						
University of Liberia – Pa	cific Institute for Research &	Evaluation (UL-PIRE) Africa	Center			
TYPE OF PLACE OF RESIDE	NCE: URBAN	1	RURAL	2		
NAME OF County:						
NAME OF District:						
Town/community:						
CLUSTER NUMBER	CLUSTER NUMBER                       HOUSEHOLD NUMBER					
LINE NUMBER OF RESPON	DENT IN HOUSEHOLD SCHED	ULE		<u>  </u>		
		INTERVIEWER VISITS				
	12		105	10.000 (2000) 20.000 (20.000) (20.000)		
	1	2	3	FINAL VISIT		
DATE		2	3	FINAL VISIT           DAY                       MONTH                       YEAR		
DATE INTERVIEWER'S NAME	1 	2	3	FINAL VISIT           DAY                       MONTH                       YEAR                       INT. NUMBER		
DATE INTERVIEWER'S NAME RESULT*		2		FINAL VISIT           DAY                       MONTH                       YEAR                       INT. NUMBER                       RESULT		
DATE INTERVIEWER'S NAME RESULT* NEXT VISIT DATE TIME		2	3	FINAL VISIT         DAY                   MONTH                   YEAR                   INT. NUMBER                      RESULT                  TOTAL NUMBER OF VISITS =		
DATE INTERVIEWER'S NAME RESULT* NEXT VISIT DATE TIME *RESULT CODES 1 COMPLE' 2 NOT AT H 3 POSTPON 7 OTHER	TED 4 REFUSED HOME 5 PARTLY CO NED 6 INCAPACIT (specify)	Z	3	FINAL VISIT         DAY                   MONTH                   YEAR                   INT. NUMBER                      RESULT                  TOTAL NUMBER OF VISITS =		

HOUSE	HOUSEHOLD SCHEDULE								
LINE NO.	USUAL RESIDENTS AND VISITORS	SEX	RESID	DENCE	AGE	CHILDREN AGES 0-4	LINE NUMBER OF MOTHER	LINE NUMBER OF FATHER	SELECTED FOR INDIVIDUAL INTERVIEW*
1	2	3	4	5	6	7	8	9	10
	Please give me the nick names or first names <b>only</b> of the persons who usually live in your household and guests of the household who stayed here last night, starting with the respondent.	Is (NAME) female or male?	Does (NAME) usually live here?	Did (NAME) stay here last night?	How old is (NAME)? IF 65 OR MORE, RECORD '65'	CIRCLE LINE NUMBER OF ALL CHILDREN AGES 0-4 (0-59 months of age)	FOR EACH CHILD AGES 0-4, WRITE IN THE LINE NUMBER OF THAT CHILD'S MOTHER.	FOR EACH CHILD AGES 0- 4, WRITE IN THE LINE NUMBER OF THAT CHILD'S FATHER	
01		F = 1 M = 2	Y = 1 N = 2	Y = 1 N = 2	III	01	III	111	
02		F = 1 M = 2	Y = 1 N = 2	Y = 1 N = 2	اا	02	III	III	
03		F = 1 M = 2	Y = 1 N = 2	Y = 1 N = 2	III	03	III	111	
04		F = 1 M = 2	Y = 1 N = 2	Y = 1 N = 2	III	04	III		
05		F = 1 M = 2	Y = 1 N = 2	Y = 1 N = 2		05	III	II	
06		F = 1 M = 2	Y = 1 N = 2	Y = 1 N = 2	اا_	06	اا	II	
07		F = 1 M = 2	Y = 1 N = 2	Y = 1 N = 2	III	07	II	III	
08		F = 1 M = 2	Y = 1 N = 2	Y = 1 N = 2	III	08	اــــا	1	
09		F = 1 M = 2	Y = 1 N = 2	Y = 1 N = 2	II	09	ll	II	

10	F = 1 M = 2	Y = 1 N = 2	Y = 1 N = 2	III	10	111	II	
11	F = 1 M = 2	Y = 1 N = 2	Y = 1 N = 2	III	11	III	III	
12	F = 1 M = 2	Y = 1 N = 2	Y = 1 N = 2	اا	12	III	II	
13	F = 1 M = 2	Y = 1 N = 2	Y = 1 N = 2	III	13	III	111	
14	F = 1 M = 2	Y = 1 N = 2	Y = 1 N = 2	II	14	III	III	
15	F = 1 M = 2	Y = 1 N = 2	Y = 1 N = 2	III	15	اا_	III	
16	F = 1 M = 2	Y = 1 N = 2	Y = 1 N = 2	III	16	III	III	
17	F = 1 M = 2	Y = 1 N = 2	Y = 1 N = 2	III	17	III	III	
18	F = 1 M = 2	Y = 1 N = 2	Y = 1 N = 2	اا	18	اا	اا	
19	F = 1 M = 2	Y = 1 N = 2	Y = 1 N = 2	اا	19	اا	11	
20	F = 1 M = 2	Y = 1 N = 2	Y = 1 N = 2	III	20	II	II	

CHECK COLUMN 6: ALL WOMEN AGED 18 – 49 YEARS WILL BE SELECTED FOR INDIVIDUAL INTERVIEW IN ONE THIRD OF HOUSEHOLDS, IN ADDITION TO ALL ELIGIBLE WOMEN, THE HUSBAND OF ONE OF THE ELIGIBLE WOMEN, AGED 18 – 59 YEARS, WILL BE RANDOMLY SELECTED FOR INDIVIDUAL INTERVIEW.

BACKGROUND INFORMATION: HOUSEHOLD CHARACTERISTICS							
NO.	QUESTION	CODING CATEG	ORIES			SKIP TO	
101.	How many rooms do members of this household usually use for sleeping?	NUMBER OF ROOM	۸S	······	5		
102.	Main material of the dwelling floor. RECORD OBSERVATION. IF DIFFERENT ROOMS HAVE DIFFERENT FLOOR MATERIAL, CIRCLE THE CODE FOR THE MOST COMMON, I.E., WHAT COVERS THE LARGEST AREA.	NATURAL FLOOR EARTH / SAND/MU DUNG RUDIMENTARY FLO WOOD PLANKS PALM/BAMBOO FINISHED FLOOR PARQUET OR POLIS VINYL OR ASPAHLT CERAMIC TILES CONCRETE, CEMEN OTHER (specify)	D DOR SHED WOOD STRIPS	11 12 21 22 31 32 33 33 34 96			
103.	Main material of the roof. Record observation. If observation is not possible, ask the respondent to determine the material of the roof.	NATURAL ROOFIN NO ROOF THATCH / PALM LE SOD RUDIMENTARY RO RUSTIC MATS PALM / BAMBOO WOOD PLANKS CARDBOARD FINISHED ROOFING ZINC, METAL WOOD CALAMINE / CEME CONCRETE, CEMEN ASBESTOS SHEETS, OTHER (specify)	G AF IOFING G T IT SHINGLES	11 12 13 21 22 23 24 24 24 31 32 33 34 35 96			
104.	Please tell me how far away from your house are the following and how long does it take to get there by walking and by car or bus?	STRUCTURE NEAREST GOVT HOSPITAL	DISTANCE IN KILOMETERS	TIME IN MINUTES WALKING	TIME BY CA	IN MINUTES AR/BUS	
	POR THE TIME IN MINUTES WALKING, PUT 9998 IF THE PERSON SAYS IT IS TOO FAR TO WALK;	NEAREST GOVT HEALTH CENTER					
	FOR ALL MODALITIES, IT THE PERSON DOES NOT KNOW, PUT 9999	NEAREST GOVT CLINIC					
		NEAREST PRIVATE HOSPITAL/ CLINIC					

#### Household characteristics

		NEAREST PRIVATE HEALTH CENTER
		NEAREST PRIVATE NURSING/ MATERNITY HOME
		NEAREST PHARMACY
		NEAREST CHEMIST/PMV
105.	Main material of the exterior walls. Record observation.	NATURAL WALLS           NO WALLS
106.	Are the eaves of the house or building occupied by this household open or closed?	COMPLETELY OPEN
107.	Does the part of the house or building occupied by the household have a ceiling?	NO, NONE
108.	Are the windows and any airbrick gaps in the house or building boarded up, glazed or screened against mosquito entry with netting?	YES, COMPLETELY
109.	What is the <u>primary</u> material used to board up, glaze or screen windows or airbrick gaps?	WOODEN BOARDS         1           GLASS         2           METAL NETTING         3           FABRIC NETTING         4           PLASTIC NETTING         5           POLYESTER         6

110.	Does your household have electricity?	YES	
111	Does your household have the following	YES NO	-
	items which are in good working order?	RADIO 1 2	
		TELEVISION 1 2	
	ASK ABOUT EACH TIEM SEPARATELY.	COMPUTER 1 2	
	[*add additional items as applicable]	ACCESS TO INTERNET 1 2	
		ELECTRIC FAN	
		AIR CONDITIONER	
112.	Does any member of your household own:	YES NO	
		WATCH	
		SIMPLE MOBILE PHONE	
	ASK ABOUT EACH TIEM SEPARATELY	SMARTPHONE/TABLET	
	[*add additional items as applicable]	MOTORCYCLE / SCOOTER 1 2	
		CAR / TRUCK / VAN	
		BOAT WITH MOTOR	
113.	Does any member of your household own	YES1	-
	agricultural land?	NO	→115
114.	How many hectares of agricultural land do	HECTARES	
	members of this household own?	95 OR MORE	
	If less than 1, record '00'.	DON'T KNOW	
115.	Does this household own any livestock,	YES1	
	herds, other farm animals, or poultry?	NO 2	→117
116.	How many of the following animals does	NUMBER	
	this household have?		
	SEPARATELY	GOATS	
	SERVICE	SHEEP	
	**[include additional animals as	CHICKENS OR OTHER POULTRY	
	applicable]	PIGS	
	If none, record '00', If 95 or more, record		
	'95'.		
	If unknown, record '98'.		
117.	QUESTIONS 118 – 122 ARE ONLY RELEVANT	IN AREAS WITH IRS PROGRAM AND HAVE BEEN DELETED	69
123.	When was the last time that any house in	LESS THAN THREE MONTHS AGO 1	
	this community was sprayed?	3 – 5 MONTHS AGO 2	
		6 – 11 MONTHS AGO	
			1
		UNE TEAR OR MORE 4	
		NEVER	

124.	Does your household have any mosquito nets that can be used while sleeping?	YES1 NO2	<b>→</b> 125B
125.	How many mosquito nets does your household have?	NUMBER OF MOSQUITO NETS	
125A.	Did your household receive mosquito nets from the last mass distribution campaign?	YES1 NO2 DON'T KNOW8	
125B.	How many mosquito nets did your household receive from the last mass campaign?	NUMBER OF MOSQUITO NETS	

#### Net roster

	ITN: NET ROSTER					
13	5. Ask the respondent to show	you all the nets in the household. If r	nore than 3 nets, use additional que	stionnaire.		
		1 <sup>st</sup> NET	2 <sup>ND</sup> NET	3 <sup>RD</sup> NET		
Α.	INDICATE WHETHER YOU ARE ABLE TO PHYSICALLY OBSERVE THE NET OR NOT.	OBSERVED 1 NOT OBSERVED 2	OBSERVED 1 NOT OBSERVED 2	OBSERVED1 NOT OBSERVED2		
В.	How many months ago did your household get the bed net? If less than one month, record '00'.	MONTHS AGO	MONTHS AGO	MONTHS AGO		
C.	Observe or ask the brand/type of bed net. If brand is unknown and you cannot observe the net, show pictures of typical net brand/types to the respondent [THE RESPONSE OPTIONS TO THIS QUSTIONS SHOULD BE ADAPTED TO REFLECT LOCALLY AVAILABLE BED NETS]	ITN           PERMANET         10           DAWA PLUS         11           OLYSET         12           NETPROTECT         13           INTERCEPTOR         14           DURANET         15           YORKOOL         16           MAGNET         17           ROYAL SENTRY         18           OTHER ITN BRAND         19           UNTREATED NET         31           OTHER BRAND         96           (specify)         DON'T KNOW BRAND	ITN           PERMANET         10           DAWA PLUS         11           OLYSET         12           NETPROTECT         13           INTERCEPTOR         14           DURANET         15           YORKOOL         16           MAGNET         17           ROYAL SENTRY         18           OTHER ITN BRAND         19           UNTREATED NET         31           OTHER BRAND         96           (specify)         DON'T KNOW BRAND	ITN           PERMANET         10           DAWA PLUS         11           OLYSET         12           NETPROTECT         13           INTERCEPTOR         14           DURANET         15           YORKOOL         16           MAGNET         17           ROYAL SENTRY         18           OTHER ITN BRAND         19           UNTREATED NET         31           OTHER BRAND         96           (specify)         DON'T KNOW BRAND		
D.	Did you get the net through a [local name of] mass distribution campaign, during an antenatal care visit, or during an immunization visit? [Revise responses 1-3 per local context]	YES, NAME OF CAMPAIGN. 1→H YES, ANC2→H YES, IMMUNIZATION VISIT 3→H NO, THE NET IS FROM ANOTHER SOURCE4	YES, NAME OF CAMPAIGN .1→H YES, ANC	YES, NAME OF CAMPAIGN . 1→H YES, ANC		

LIDERIA MALARIA DENAVIOR SURVET . HOUSEHOLD QUESHONNAIRI	LIBERIA M	ALARIA	BEHAVIOR	SURVEY	: HOUSEHOLD	QUESTIONNAIRE
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_				
E.	Where did you get the net?	GOVERNMENT HEALTH           FACILITY01           PRIVATE HEALTH FACILITY02           PHARMACY03           SHOP / MARKET /           STREET VENDOR04           COMMUNITY HEALTH           WORKER05           RELIGIOUS INSTITUTION06           SCHOOL	GOVERNMENT HEALTH           FACILITY	GOVERNMENT HEALTH           FACILITY         01           PRIVATE HEALTH FACILITY         02           PHARMACY         03           SHOP / MARKET /         03           STREET VENDOR         04           COMMUNITY HEALTH         05           RELIGIOUS INSTITUTION         06           SCHOOL         07           FRIEND/RELATIVE         08           OTHER         96           DK         98
F.	Did you pay any money for this net?	YES1 NO2→J DK / NOT SURE8	YES1 NO2→J DK / NOT SURE8	YES1 NO2→J DK / NOT SURE8
G.	How much did you pay? (Record in local currency)	COST	COST	COST
<u>н</u> .	Did anyone sleep under this bed net last night?	YES1 NO2→M DK / NOT SURE8	YES1 NO2→M DK / NOT SURE8	YES1 NO2→M DK / NOT SURE8
l.	Was the net used indoors or outdoors last night?	INDOORS1 OUTDOORS2	INDOORS1 OUTDOORS2	INDOORS1 OUTDOORS2
J.	Who slept under this bed net last night?	NAME #1	NAME #1	NAME #1
	number from the LIST OF HOUSEHOLD MEMBERS.	NAME #2	NAME #2	NAME #2
	If someone not in the LIST OF HOUSEHOLD	LINE NUMBER	LINE NUMBER	LINE NUMBER
	MEMBERS slept under the bed net, record '00' for LINE NUMBER.	NAME #3	NAME #3	NAME #3
	Go to "L" after entering name/line # of the last	NAME #4	NAME #4	NAME #4
	user	LINE NUMBER	LINE NUMBER	LINE NUMBER

LIBERIA MALARIA BEHAVIOR SURVEY : HOUSEH	<b>OLD QUESTIONNAIRE</b>
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К.	What is the main reason	NO MOSQUITOES 1	NO MOSQUITOES1	NO MOSQUITOES1
	that nobody slept under	THERE IS NO MALARIA 2	THERE IS NO MALARIA2	THERE IS NO MALARIA2
	this bed net last night?	ТОО НОТ 3	TOO HOT3	TOO HOT3
	RECORD ONE ANSWER	DON'T LIKE SMELL 4	DON'T LIKE SMELL4	DON'T LIKE SMELL 4
		FEEL 'CLOSED IN' 5	FEEL 'CLOSED IN'5	FEEL 'CLOSED IN'5
		NET TOO OLD OR TORN 6	NET TOO OLD OR TORN6	NET TOO OLD OR TORN 6
		NET TOO DIRTY 7	NET TOO DIRTY7	NET TOO DIRTY7
		NET NOT AVAILABLE LAST NIGHT	NET NOT AVAILABLE LAST NIGHT	NET NOT AVAILABLE LAST NIGHT
		(WASHING) 8	(WASHING)8	(WASHING)8
		USUAL USER DID NOT SLEEP HERE	USUAL USER DID NOT SLEEP	USUAL USER DID NOT SLEEP HERE
		LAST NIGHT 9	HERE LAST NIGHT9	LAST NIGHT9
		NET WAS NOT NEEDED LAST	NET WAS NOT NEEDED LAST	NET WAS NOT NEEDED LAST NIGHT
		NIGHT10	NIGHT10	
		NO PLACE TO HANG IT 11	NO PLACE TO HANG IT 11	NO PLACE TO HANG IT 11
		OTHER (specify)96	OTHER (specify)96	OTHER (specify)
		DON'T KNOW98	DON'T KNOW98	DON'T KNOW 98
L.	Where was the net found?	HANGING LOOSE OVER SLEEPING	HANGING LOOSE OVER	HANGING LOOSE OVER SLEEPING
	(Reference observation of	PLACE1→P	SLEEPING PLACE1→P	PLACE1→P
	net location in the HH)	HANGING AND FOLDED UP AND	HANGING AND FOLDED UP AND	HANGING AND FOLDED UP AND
		TIED2→P	TIED2→P	TIED2 → P
		NOT HANGING BUT NOT	NOT HANGING BUT NOT	NOT HANGING BUT NOT STORED
		STORED 3	STORED3	3
		STORED AWAY UNPACKED 4	STORED AWAY UNPACKED4	STORED AWAY UNPACKED 4
		STORED AWAY STILL IN	STORED AWAY STILL IN	STORED AWAY STILL IN PACKAGE
		PACKAGE 5	PACKAGE5	5
M	What is the reason the net	NET TOO DIFFICULT TO HANG . A	NET TOO DIFFICULT TO HANG . A	NET TOO DIFFICULT TO HANG A
	is not hanging for sleeping	THE NET IS TOO SHORT B	THE NET IS TOO SHORTB	THE NET IS TOO SHORTB
		NO SPACE TO HANG NET C	NO SPACE TO HANG NETC	NO SPACE TO HANG NET C
		NO ONE TO HANG NET D	NO ONE TO HANG NET D	NO ONE TO HANG NETD
		WILL HANG IT LATERE	WILL HANG IT LATERE	WILL HANG IT LATER E
		WE ONLY HANG IT AT NIGHT F	WE ONLY HANG IT AT NIGHT F	WE ONLY HANG IT AT NIGHT F
		SAVING A NEW NET UNTIL OTHERS ARE WORN G	SAVING A NEW NET UNTIL OTHERS ARE WORN G	SAVING A NEW NET UNTIL OTHERS ARE WORNG
		OTHER X	OTHERX	OTHERX
		DON'T KNOWY	DON'T KNOWY	DON'T KNOWY

Ν.	How many nights has this	ALL NIGHTS 1	ALL NIGHTS1	ALL NIGHTS1
	net been used in the last	MOST NIGHTS (5-6) 2	MOST NIGHTS (5-6)2	MOST NIGHTS (5-6) 2
	week!	SOME NIGHTS (1-4) 3	SOME NIGHTS (1-4)3	SOME NIGHTS (1-4)3
		NOT USED LAST WEEK 4	NOT USED LAST WEEK4	NOT USED LAST WEEK4
		NET IS NOT USED AT ALL 5	NET IS NOT USED AT ALL5	NET IS NOT USED AT ALL5
		DON'T KNOW98	DON'T KNOW98	DON'T KNOW 98
0.	What is the color of the	WHITE1	WHITE1	WHITE1
	net?	BLUE2	BLUE2	BLUE 2
		GREEN3	GREEN3	GREEN 3
		BLACK4	BLACK4	BLACK 4
		OTHER COLOR6	OTHER COLOR6	OTHER COLOR 6
		(SPECIFY)	(SPECIFY)	(SPECIFY)
Ρ.	Has this net ever been	YES 1	YES1	YES1
	washed?	NO 2	NO2	NO2
		DON'T KNOW 8	DON'T KNOW8	DON'T KNOW 8
		IF 2 OR 8 →V	IF 2 OR 8 →V	IF 2 OR 8 →V
Q.	How many times has this net been washed in the last six months? IF NONE, ENTER 00	NUMBER OF TIMES   _	NUMBER OF TIMES  _ _	NUMBER OF TIMES   _
1000				
R.	For the last wash, what was	BAR SOAP 1	BAR SOAP1	BAR SOAP1
R.	For the last wash, what was used in addition to water?	BAR SOAP 1 DETERGENT 2	BAR SOAP1 DETERGENT2	BAR SOAP1 DETERGENT2
R.	For the last wash, what was used in addition to water?	BAR SOAP 1 DETERGENT	BAR SOAP1 DETERGENT2 BLEACH3	BAR SOAP1 DETERGENT2 BLEACH
R.	For the last wash, what was used in addition to water?	BAR SOAP 1 DETERGENT 2 BLEACH 3 MIX (specify) 4	BAR SOAP	BAR SOAP
R.	For the last wash, what was used in addition to water?	BAR SOAP	BAR SOAP	BAR SOAP
R. S.	For the last wash, what was used in addition to water? Where was the net dried	BAR SOAP         1           DETERGENT         2           BLEACH         3           MIX (specify)         4           NOTHING         5           OUTSIDE IN THE SHADE         1	BAR SOAP         1           DETERGENT         2           BLEACH         3           MIX (specify)         4           NOTHING         5           OUTSIDE IN THE SHADE         1	BAR SOAP
R. S.	For the last wash, what was used in addition to water? Where was the net dried	BAR SOAP         1           DETERGENT         2           BLEACH         3           MIX (specify)         4           NOTHING         5           OUTSIDE IN THE SHADE         1           OUTSIDE IN THE SUN         2	BAR SOAP         1           DETERGENT         2           BLEACH         3           MIX (specify)         4           NOTHING         5           OUTSIDE IN THE SHADE         1           OUTSIDE IN THE SUN         2	BAR SOAP
R.	For the last wash, what was used in addition to water? Where was the net dried	BAR SOAP         1           DETERGENT         2           BLEACH         3           MIX (specify)         4           NOTHING         5           OUTSIDE IN THE SHADE         1           OUTSIDE IN THE SUN         2           INSIDE         3	BAR SOAP	BAR SOAP
R.	For the last wash, what was used in addition to water? Where was the net dried	BAR SOAP	BAR SOAP	BAR SOAP
R. S.	For the last wash, what was used in addition to water? Where was the net dried	BAR SOAP         1           DETERGENT         2           BLEACH         3           MIX (specify)         4           NOTHING         5           OUTSIDE IN THE SHADE         1           OUTSIDE IN THE SUN         2           INSIDE         3           OTHER (specify)         5           YES         1	BAR SOAP	BAR SOAP
R. S.	For the last wash, what was used in addition to water? Where was the net dried Is there another net? Probe for any nets not	BAR SOAP         1           DETERGENT         2           BLEACH         3           MIX (specify)         4           NOTHING         5           OUTSIDE IN THE SHADE         1           OUTSIDE IN THE SUN         2           INSIDE         3           OTHER (specify)         5           YES         1           Next Net	BAR SOAP         1           DETERGENT         2           BLEACH         3           MIX (specify)         4           NOTHING         5           OUTSIDE IN THE SHADE         1           OUTSIDE IN THE SUN         2           INSIDE         3           OTHER (specify)         5           YES         1 \varphi Next Net	BAR SOAP
R. S.	For the last wash, what was used in addition to water? Where was the net dried Is there another net? Probe for any nets not currently used or in	BAR SOAP         1           DETERGENT         2           BLEACH         3           MIX (specify)         4           NOTHING         5           OUTSIDE IN THE SHADE         1           OUTSIDE IN THE SHADE         2           INSIDE         3           OTHER (specify)         5           YES         1           NOX         2           NO         2	BAR SOAP         1           DETERGENT         2           BLEACH         3           MIX (specify)         4           NOTHING         5           OUTSIDE IN THE SHADE         1           OUTSIDE IN THE SUN         2           INSIDE         3           OTHER (specify)         5           YES         1         2           NO.         2         2	BAR SOAP.       1         DETERGENT.       2         BLEACH       3         MIX (specify).       4         NOTHING       5         OUTSIDE IN THE SHADE       1         OUTSIDE IN THE SUN       2         INSIDE       3         OTHER (specify).       5         YES.       1         NO       Next Net         NO       2

DENTIFICATION PAGE				
		IDENTIFICATION		
Liberia				
University of Liberia – Pac	ific Institute for Research & I	Evaluation (UL-PIRE) Africa (	Center	
TYPE OF PLACE OF RESIDE	NCE: URBAN	1	RURAL	2
NAME OF County				
NAME OF District:				
Town/community:				
ENUMERATION AREA (EA) HOUSEHOLD NUMBER LINE NUMBER OF RESPON	NUMBER	ULE	l	ایــا اـــا اـــا اــــا اــــا ــــا اــــا ــــا
		INTERVIEWER VISITS		
	1	2	3	FINAL VISIT
DATE INTERVIEWER'S NAME RESULT*				DAY   _  MONTH   _  YEAR   _   INT. NUMBER     RESULT
NEXT VISIT DATE TIME				TOTAL NUMBER OF VISITS =
*RESULT CODES 1 COMPLE 2 NOT AT 3 POSTPO 7 OTHER	ETED 4 REFUSED HOME 5 PARTLY CC INED 6 INCAPACI (specify)	OMPLETED TATED		
		SUPERVISOR		
NAME	I	II		

	SECTION I: RESPON	NDENT'S CHARACTERISTICS	
NO.	QUESTION	CODING CATEGORIES	SKIP TO
101.	How old were you at your last birthday?	AGE IN COMPLETED YEARS	
102.	Have you ever attended formal school?	YES	→Q104
103.	What is the highest level of education that you attained?	ELEMENTARY         1           JUNIOR HIGH         2           SENIOR HIGH         3	
		VOCATIONAL/TECHNICAL	
104.	What is your religion?	CHRISTIAN         1           ISLAM         2           TRADITIONAL RELIGION         3           OTHER (specify)         8	
105.	What is your current marital status?	NEVER MARRIED/SINGLE	
106.	Have you ever given birth?	YES1 NO2	→Q111
107.	How many live births have you ever had?	NUMBER OF LIVE BIRTHS    IF NONE	
108.	Among these live births, how many are still alive?	NUMBER CURRENTLY ALIVE                      IF NONE, WRITE	
109.	Now, I would like to ask you about more recent births. How many live births have you had in the past five years?	NUMBER OF LIVE BIRTHS           NONE	
110	Have you had a live birth in the last two years?	YES	
111	Are you pregnant now?	YES	

NET USE INSIDE AND OUTSIDE THE HOUSE				
NO.	QUESTION	CODING CATEGORIES	SKIP TO	
201.	On average, how many nights in a week do you sleep under a mosquito net?	EVERY NIGHT		

	NET USE INSIDE AND OUTSIDE THE HOUSE				
NO.	QUESTION	CODING CATEGORIES	SKIP TO		
202.	Approximately at what time did you go to sleep yesterday?	TIME IN HOURS:			
	ROUND TO THE NEAREST HOUR				
203.	Approximately at what time did you wake up today?	TIME IN HOUR:HH OTHER (SPECIFY)			
	ROUND TO THE NEAREST HOUR	DON'T KNOW			
204.	Did you sleep indoors or outdoors?	ONLY INDOORS1 ONLY OUTDOORS2 PARTLY BOTH3	<b>→</b> Q207		
205.	What time did you go indoors for the evening? ROUND TO THE NEAREST HOUR	TIME IN HOUR:HH           OTHER (SPECIFY)			
206.	What time did you go outdoors for the morning?	TIME IN HOUR:HH OTHER (SPECIFY)			
207	ROUND TO THE NEAREST HOOR	DON 1 KNOW			
207.	from your home for any reason? In the fields or traveling, for example?	YES         1           NO         2           DON'T KNOW         99	→Q211 →Q211		
208.	How many nights have you spent away from your home during the last two weeks?	RECORD NIGHTS			
209.	On the nights that you were away from home, did you sleep indoors, outdoors, or both indoors and outdoors?	INDOORS			
210.	Did you sleep under a mosquito net during the nights that you were away from home?	YES, EVERY NIGHT OF THE TRIP			
	If yes, ASK: "EVERY NIGHT, MOST NIGHTS OF THE TRIP, OR ONLY SOME/A FEW NIGHTS"?	ONLY SOME/A FEW NIGHTS         3           NO NIGHTS         4           DON'T KNOW         9			
211.	During which (if any) months of the year do you generally sleep outside (on a porch, roof, or courtyard or elsewhere outside the house)?	JANUARY         A           FEBRUARY         B           MARCH         C           APRIL         D           MAY         E			
	MULTIPLE RESPONSES POSSIBLE. RECORD ALL RESPONSES MENTIONED	JULY			
	PROBE ONCE: Anything else?	OCTOBERJ NOVEMBERK DECEMBERL			
		EVERY MONTH M NO MONTHS	<b>→</b> Q213		

	WOMEN'S QUESTIONNAIRE				
	NET USE INSIDE	E AND OUTSIDE THE HOUSE			
NO.	QUESTION	CODING CATEGORIES	SKIP TO		
212.	How often do you use ITNs when sleeping outside?	EVERY NIGHT			

# LIBERIA MALARIA BEHAVIOR SURVEY

#### Net purchasing and replacement

ITN: PURCHASING NETS AND NET REPLACEMENT				
NO.	QUESTION	CODING CATEGORIES	SKIP TO	
213.	Do you know of a place in your community where you could purchase a mosquito net?	YES1 NO2		
213B.	How long do you typically use your mosquito nets for before replacing them?	# OF MONTHS DON'T KNOW		
214.	When you receive new free nets from mass campaign or elsewhere, do you prefer to keep using your old nets, or do you start using the new net immediately?	PREFER TO KEEP USING OLD NETS UNTIL THEY ARE WORN OUT		
		DON'T KNOW9		

#### Net repurposing and disposal

ITN REPURPOSING AND DISPOSAL				
NO.	QUESTION	CODING CATEGORIES	SKIP TO	
215.	The last time you had a net that was not useful for sleeping under, what did you do with it? MULTIPLE RESPONSES POSSIBLE CIRCLE ALL RESPONSES	REUSED FOR OTHER PURPOSE       A         BURIED IT       B         GARBAGE OR REFUSE DUMP.       C         BURNED IT       D         OTHER (specify)       8         DON'T KNOW       Y	Q218	
	PROBE ONCE: Anything else?	NOT APPLICABLE (DID NOT HAVE NET)Z		

	ITN REPURPOSING AND DISPOSAL			
NO.	QUESTION	CODING CATEGORIES	SKIP TO	
216.	What was the mosquito net/netting material used for?	FISHINGA DRYING FISHB		
	MULTIPLE RESPONSES POSSIBLE	COVERING/PROTECTION SEEDLINGS/CROPSC		
	CIRCLE ALL RESPONSES	CURTAINS/SCREENS FOR WINDOWS/DOORS/EAVES /CEILINGD		
	PROBE ONCE: Anything else?	CLOTHING		
		(specify) DON'T KNOW Z		
217.	What was the main reason you used the net for another purpose?	TOO MANY HOLES         1           TOO DIRTY.         2           WORN OUT         3           NO ONE USING IT ANYMORE.         4           NEEDED IT MORE FOR OTHER USES THAN SLEEPING.         5           OTHER (specify)         88		

#### Net care

ITN- CARE AND PREFERENCE			
NO.	QUESTION	CODING CATEGORIES	SKIP TO
218.	What, if anything, do you do at home to prevent nets	KEEP AWAY FROM CHILDREN A	
	from tearing or getting holes?	KEEP AWAY FROM PESTSB	
		ROLL UP OR TIE UP WHEN NOT IN USEC	
	MULTIPLE RESPONSES POSSIBLE	HANDLE NETS WITH CARE D	
	CIRCLE ALL RESPONSES	DO NOT SOIL WITH FOODE	
		KEEP AWAY FROM FLAME OR FIREF	
		WASH GENTLY G	
	PROBE ONCE: Anything else?	WASH WITH BAR SOAP H	
		WASH ONLY WHEN DIRTYI	
		INSPECT NETS REGULARLY FOR HOLES J	
		REPAIR SMALL HOLES QUICKLYK	
		DO NOTHINGL	
		DON'T HAVE ANY MOSQUITO NETS M	
		OTHER (specify)X	
		DON'T KNOWZ	

#### SECTION III: USE OF HEALTH SERVICES

	ANC/IPTp: ACCESS AND USE				
301.	CHECK Q110 HAS HAD AT LEAST ONE CHILD IN LAST TWO YEARS	DID NOT HAVE A CHILD IN LAST TWO YEAR <del>S</del>	→ Q319		

202			
302.	Now I would like to ask you some questions	YES1	→Q303
	about the time that you were pregnant with	NO 2	→Q311
	your youngest child.	DON'T KNOW	
	When you were pregnant with your		
	youngest child, did you see anyone for a		
	checkup (antenatal care) for this pregnancy?		
302B	For what reason(s) did you not go for a	DIDN'T HAVE TIMEA	
	checkup during your pregnancy?	HEALTH FACILITY TOO FAR B	
		NO MONEY FOR TRANSPORT TO FACILITY C	
	MULTIPLE RESPONSES POSSIBLE	NO MONEY FOR ANCD	
	CIRCLE ALL RESPONSES	DIDN'T THINK IT WAS NECESSARY	
		SPOUSE DID NOT GIVE PERMISSION G	
	PROBE ONCE: Anyone else?		- 311
			511
		WAS NOT HER EIRST DRECHANCY	
		WAS NOT HER FIRST PREGNANCYL	
		COVID-19 PANDEMIC M	
		OTHER	
		(SPECIFY)	_
		DON'T KNOWZ	
303.	Whom did you see?	HEALTH PERSONNEL	
		DOCTOR	
	MULTIPLE RESPONSES POSSIBLE		
	CIRCLE ALL RESPONSES	TRADITIONAL BIRTH ATTENDANT	
		OTHER X	
	PROBE ONCE: Anyone else?	(SPECIFY)	
		DON'T KNOWZ	
304			
504.	where did you <u>mainly</u> go to for antenatal	GOVERNMENT HOSPITAL 11	-
	care during this pregnancy?	GOVERNMENT HEALTH CENTER	>305
		GOVERNMENT CLINIC 13	_
		COMMUNITY HEALTH WORKER (CHW) 14	→304A
		OTHER PUBLIC SECTOR 15	
		(SPECIFY)	
		PRIVATE HOSPITAL/CLINIC 22	
		PRIVATE HEALTH CENTER	
		NURSING/MATERNITY HOME	
		TRADITIONAL BIRTH ATTENDANT	
		PHARMACY 26	
		STREET MEDICINE VENDOR 27	→305
		OTHER PRIVATE	
		(SPECIFY)	
		VIHER SOURCE	
		MOBILE CLINIC 32	
		CHURCH/MOSOUF 24	
		TRADITIONAL HEALER/HERBALIST	
		OTHER	
		(SPECIFY)	
		DON'T KNOW99	

10101010	WON		
304A.	What kind of Community Health Worker (CHW) did you mainly go to during this pregnancy?	COMMUNITY HEALTH ASSISTANT (CHA)         1           COMMUNITY HEALTH VOLUNTEER (CHV)         2           COMMUNITY HEALTH SERVICE SUPERVISORS (CHSS)         3           COMMUNITY SURVEILLANCE OFFICER         4           OTHER EPI OFFICER         5           Other CHW        6           (SPECIFY)         DON'T KNOW	
305.	How many prenatal consultations/checkups did you have for this pregnancy?	NUMBER OF PRENATAL VISITS    DON'T KNOW	
306.	During which month of your pregnancy did you first go for a prenatal visit?	MONTH OF PREGNANCY    DON'T KNOW	IF >2, ->Q307, ELSE-> 308
307.	For what reason(s) did you not go earlier in your pregnancy? MULTIPLE RESPONSES POSSIBLE CIRCLE ALL RESPONSES PROBE ONCE: Anyone else?	DIDN'T HAVE TIMEA HEALTH FACILITY TOO FARB NO MONEY FOR TRANSPORT TO FACILITYC NO MONEY FOR ANCD DIDN'T KNOW SHE WAS PREGNANTF DIDN'T WANT OTHERS TO KNOW SHE WAS PREGNANTF SPOUSE DID NOT GIVE PERMISSIONG OTHER FAMILY MEMBER DID NOT GIVE PERMISSIONH NO ONE TO ACCOMPANY HER1 WAS NOT FEELING SICKJ WAS NOT HER FIRST PREGNANCYK COVID-19 PANDEMICL OTHERX (SPECIFY) DON'T KNOWZ	
308.	During this pregnancy, did your husband/partner accompany you to the health facility for antenatal care at any time?	YES	
309.	Did you receive a mosquito net at a prenatal visit for this pregnancy?	YES	→Q311 →Q311
310.	During which month(s) of your pregnancy did you first receive a bed net?	MONTH OF PREGNANCY    DON'T KNOW	
311.	During this pregnancy, did you take SP/Fansidar (3 pills)** to <u>keep you from</u> <u>getting</u> malaria? **Adjust this question to match the local SP products, then delete this note	YES	→Q313 →Q317
	EMPHASIZE 'KEEP YOU FROM GETTING". DO NOT CIRCLE 1 IF SHE WAS ONLY GIVEN DRUGS BECAUSE SHE HAD MALARIA.		

## LIBERIA MALARIA BEHAVIOR SURVEY

	WOM	MEN'S QUESTIONNAIRE	
312.	WON Why did you not take any medicine to prevent you from getting malaria? MULTIPLE RESPONSES POSSIBLE CIRCLE ALL RESPONSES PROBE ONCE: Anything else?	MEN'S QUESTIONNAIRE         NONE AVAILABLE AT HEALTH FACILITY         PROVIDER DID NOT OFFER MEDICINE         B         PROVIDER REFUSED TO GIVE MEDICINE         C         MEDICINE WAS NOT FREE         D         NO WATER AT FACILITY TO TAKE WITH MEDICINE         E         NO CUP AT FACILITY TO TAKE WITH MEDICINE         F         AFRAID OF EFFECTS ON MY HEALTH         G         AFRAID OF EFFECTS ON FETUS HEALTH         H         DI NOT GO FOR PRENATAL CONSULTATION         I         COVID-19 PANDEMIC	€Q317
		(SPECIFY) DON'T KNOW	J
313.	How many times did you take the medication SP/Fansidar (3 pills)** to prevent malaria during this pregnancy? **Adjust this question to match the local SP	NUMBER OF TIMES    DON'T KNOW	
	products, then delete this note		
314.	Where did you get this medicine? ASK ABOUT EACH SOURCE OF THE MEDICINE WITH THE QUESTIONS BELOW		
314A.	During any prenatal care Visit?	YES1 NO0	
314B.	During another visit to a health facility?	YES1 NO0	
314C.	In a pharmacy?	YES1 NO0	
314D.	In the market/store?	YES1 NO0	
314E.	Other Place	(specify)	
СН	IECK IF EITHER 314A OR 314B ARE 1 AND PROCEED	D TO Q315A, Q315 AND Q316. IF BOTH 314A AND 314B ARE 0, SKIP 1	O Q317
315A	CHECK 313 for number of doses Where did you take the SP dose or doses?	ALWAYS AT THE HEALTH FACILITY	
		DON'T KNOW/DON'T REMEMBER	

315.	IF MEDICINE OBTAINED DURING ANTENATAL VISIT OR ANOTHER FACILITY VISIT, ASK: Did you pay for the medicine to keep you from getting malaria? NOTE THAT THIS QUESTION IS ABOUT PAYMENT FOR THE ACTUAL SP /Fansidar or SP (3 pills) TO PREVENT MALARIA AND NOT FOR AN ANC CARD OR OTHER MEDICAL FEES How much did you pay for SP/Fansidar (the three pills)** to keep you from getting malaria?	YES       .1         NO       .2         DON'T KNOW       .9         COST in Local Currency	<ul> <li>→ Q317</li> <li>→ Q317</li> <li>→ Q317</li> </ul>
	**Adjust this question to match the local SP products, then delete this note		
	Q317, Q317B, Q317C and Q318 are FOR ALL WOMEN		
317.	Do you intend to have any more children?	YES	
317B.	If you become pregnant during the next two years, how many times do you think you would go to the health facility for antenatal care?	NUMBER OF TIMES	If 0 or 99 skip to 318
317C.	At what month in your pregnancy would you intend to go for your first antenatal visit?	MONTH OF PREGNANCY	
318.	If you become pregnant during the next two years, do you think you would take SP/Fansidar (3 tablets)** to keep you from getting malaria?	YES	
	**Adjust this question to match the local SP products, then delete this note		
	MAL	LARIA CASE MANAGEMENT	
319.	Now I would like to ask you some questions about the children that are less than five years old who live in this household and who are either your own children or the children for whom you are the primary caretaker.	NUMBER OF THEIR CHILDREN/CHILDREN FOR WHOM THEY ARE RESPONSIBLE <5 YEARS    NONE00	→Q340
	How many of your own children or children for whom you are the primary caretaker are less than five years old?		
320.	Have any of these children been sick with fever in the past two weeks? NOTE THAT THIS QUESTION CONCERNS THE	YES	→Q340 →Q340

### LIBERIA MALARIA BEHAVIOR SURVEY

	WHOM SHE IS PRIMARILY RESPONSIBLE AND WHO LIVE IN THE HOUSEHOLD.		
321.	How many of these children have been sick with fever in this household in the last two weeks? NOTE THAT THIS QUESTION CONCERNS THE	NUMBER OF UNDER-5 CHILDREN SICK WITH FEVER IN LAST TWO WEEKS    DON'T KNOW99	
	CHILDREN OF THE WOMAN OR THOSE FOR WHOM SHE IS PRIMARILY RESPONSIBLE AND WHO LIVE IN THE HOUSEHOLD.		
322.	Of those children who have had fever in the last two weeks, what is the name of the child who has had the fever most recently?	CHILD'S NAME :	
	NOTE THAT THIS QUESTION CONCERNS THE CHILDREN OF THE WOMAN OR THOSE FOR WHOM SHE IS PRIMARILY RESPONSIBLE AND WHO LIVE IN THE HOUSEHOLD.		
323.	How old is " <u>CHILD'S NAME</u> "?	AGE OF CHILD:	
	RECORD THE AGE OF THE CHILD USING ONLY ONE UNIT: WEEKS, MONTHS OR YEARS. PLEASE DO NOT MIX THE UNITS. FOR EXAMPLE, IF THE WOMAN SAYS ONE AND A HALF YEARS, CONVERT TO MONTHS AND RECORD 18 MONTHS	IN WEEKS    IN MONTHS    IN YEARS	
324.	When "CHILD'S NAME" had the fever most recently, did you seek any advice or treatment for the illness?	YES1 NO2	→Q325 →Q324B
3248.	Why did you not seek any advice or treatment for the illness?	DIDN'T HAVE TIMEA HEALTH FACILITY TOO FARB NO MONEY FOR TRANSPORT TO FACILITYC NO MONEY FOR ANCD DIDN'T KNOW TO SEEK CAREE DIDN'T WANT OTHERS TO KNOWF SPOUSE DID NOT GIVE PERMISSIONH NO ONE TO ACCOMPANYI WAS NOT FEELING SICKJ COVID-19 PANDEMICK OTHERX	<b>→</b> Q340
325.	How long after the fever started did you seek treatment for "CHILD'S NAME"?	SAME DAY         1           NEXT DAY         2           TWO OR MORE DAYS AFTER FEVER         3           DON'T KNOW         8	

	W	DMEN'S QUESTIONNAIRE	
326.	From where did you seek advice or treatment? MULTIPLE RESPONSES POSSIBLE CIRCLE ALL RESPONSES	PUBLIC SECTOR GOVERNMENT HOSPITALA GOVERNMENT HEALTH CENTERB GOVERNMENT CLINICC COMMUNITY HEALTH WORKER (CHW)D OTHER PUBLIC SECTORE	→327 →326A
	PPOPE ONCE: Anywhere also?	(SPECIFT)	
	PROBE ONCE. Anywhere else:	PRIVATE MEDICAL SECTOR	
		FAITH-BASED, CHURCH, MISSION HOSPITAL/CLINICF         PRIVATE HOSPITAL/CLINICG         PRIVATE HEALTH CENTER         H         NURSING/MATERNITY HOME         ITRADITIONAL BIRTH ATTENDANT         J         PHARMACY	>→327
		OTHERX (SPECIFY)	_
326A	From what kind of Community Health Worker(s) (CHW) did you seek advice? MULTIPLE RESPONSES POSSIBLE CIRCLE ALL RESPONSES	COMMUNITY HEALTH ASSISTANT (CHA)	

# LIBERIA MALARIA BEHAVIOR SURVEY

	WO	MEN'S QUESTIONNAIRE	
327.	Which of the places you mentioned above	PUBLIC SECTOR	Sec. process
5271	did you go to first to seek advice or	GOVERNMENT HOSPITAL 11	
	treatment?	GOVERNMENT HEALTH CENTER 12	>>328
		GOVERNMENT CLINIC 13	
		COMMUNITY HEALTH WORKER (CHW)	→327A
		OTHER PUBLIC SECTOR	
		(SPECIFY)	
		PRIVATE MEDICAL SECTOR	
		FAITH-BASED CHURCH MISSION HOSPITAL/CUNIC 21	
		PRIVATE HEALTH CENTER 23	
		NURSING/MATERNITY HOME 24	
		STREET MEDICINE VENDOR	→328
		01HER PRIVATE	
		(SPECIFY)	
		WORKSITE CLINIC	
		MUBILE CLINIC	
		CHURCH/MOSQUE	
		TRADITIONAL HEALER/HERBALIST	
		OTHER88	
		(SPECIFY)	
		DON'T KNOW	_
327A	Which kind of Community Health Worker	COMMUNITY HEALTH ASSISTANT (CHA) 1	
	(CHW) did you go to first to seek advice or	COMMUNITY HEALTH VOLUNTEER (CHV) 2	
	treatment?	COMMUNITY HEALTH SERVICE SUPERVISORS (CHSS) 3	
		COMMUNITY SURVEILLANCE OFFICER 4	
		OTHER EPI OFFICER5	
		Other CHW8	
		(SPECIFY)	
		DON'T KNOW9	
278	At any time during the illness, did you ask	VEC 1	
520.	that your child be given an injection to treat for malaria?	NO	
		NO 2	
		DON'T KNOW9	
329.	At any time during the sickness, did your	YES1	
	child have a drop of blood taken from his/her finger, heel or elsewhere to do a test?	NO 2	<b>→Q</b> 331
		DON'T KNOW	<b>→Q</b> 331
330.	What was the result of the blood test – was the fever caused by malaria or was the fever not caused by malaria?	FEVER CAUSED BY MALARIA 1	
		FEVER NOT CAUSED BY MALARIA	
		DON'T KNOW/NOT TOLD	
331.	At any time during this sickness, did "CHILD'S NAME" take any medicine?	YES	
		NO	→0340
			20240
222	More the drugs that "CUII D's NAME" to all		7(340
332.	tablets or injection?		
		INJECTION ONLY	
		TABLET AND INJECTION	
	WON	IEN 5 QUESTIONNAIRE	
------	---	--	-------
333.	What medicine did he or she take?	SP/FANSIDAR/MALOXINEA	
		CHLOROQUINE/NIVAQUINE B	
	MULTIPLE RESPONSES POSSIBLE	QUININE/ATEQUININE C	
	CIRCLE ALL RESPONSES	ACT (COARTEM, AMARTEM/ARTHEMETER-LUMEFANTRINE,	
		COARSUCAM, CAMOSUNATE/ARTESUNATE-AMODIAQUINE,	
	PROBE ONCE: Anything else?	ARTEQUICK/ DUOCOTEXIN /DIHYDROARTEMISININ-PIPERAQUINE,	
	2.94. Physics Physics Physics and Physics P	ARTEQUIN/ARTESUNATE-MEFLOQUINE)D	
	IF THE RESPONDENT DOES NOT REMEMBER	ARTESUNATE INJECTION E	
	THE NAME OF THE MEDICINE GIVEN TO THE	OTHER INJECTION F	
	CHILD, SHOW HER THE PICTURES** OF THE	ARTESUNATE (NOT INJECTED)G	
	LOCALLY AVAILABLE ACT, THEN ASK:	ASPIRINH	
		DOLIPRANE/PARACETOMOLI	
	Do any of the medicines on these pictures	IBUPROFENJ	
	look like the medicine that your child took?	OTHERX	
	If yes, show me which ones?	(SPECIFY)	
		DON'T KNOW Z	
	**This question requires obtaining images of		
	the packaging of the ACTs available in the		
	country		-
334.	CHECK Q329: ACT GIVEN	CODE D CIRCLED 1	
		CODE D NOT CIRCLED 2	→Q340
335.	From where did you receive the ACT?	PUBLIC SECTOR	_
		GOVERNMENT HOSPITAL	336
		GOVERNMENT CLINIC 13	
		COMMUNITY HEALTH WORKER (CHW)	→335A
		OTHER PUBLIC SECTOR15	
		(SPECIFY)	
		PRIVATE MEDICAL SECTOR	
		PAILE-BASED, CHURCH, MISSION HOSPITAL/CLINIC 21	
		PRIVATE HEALTH CENTER 23	
		NURSING/MATERNITY HOME	
		TRADITIONAL BIRTH ATTENDANT	
		PHARMACY	
		STREET MEDICINE VENDOR 27	→336
		OTHER PRIVATE	
		WORKSITE CLINIC 32	
		MOBILE CLINIC	
		CHURCH/MOSQUE	
		TRADITIONAL HEALER/HERBALIST	
		OTHER	
		(SPECIFY)	
2254	From what kind of Community Health		
335A	Worker (CHW) did you receive the ACT?	COMMUNITY HEALTH VOLUNTEFR (CHV)	
	steller, striff and you receive the herr	COMMUNITY HEALTH SERVICE SUPERVISORS (CHSS) 3	
		COMMUNITY SURVEILLANCE OFFICER 4	
		OTHER EPI OFFICER5	
		Other CHW6	
		(SPECIFY)	
		DON 1 MIOW	

# LIBERIA MALARIA BEHAVIOR SURVEY

336.	How much did the ACT medication cost?	COST IN Local (	Currency			
	NOTE THAT THIS QUESTION IS ABOUT PAYMENT FOR THE ACTUAL MEDICATION TO TREAT MALARIA AND NOT FOR A HEALTH CARD, CONSULTATION, OR OTHER MEDICAL FEES	FREE DK/NOT SURE			0000 9999	
337.	How long after the fever started did he or	SAME DAY			1	
	she first take the ACT?	NEXT DAY			2	
		TWO OR MORE	DAYS AFTER FEV	ER	3	
		DON'T KNOW			9	
338.	Did he or she finish all the ACT medication	YES			1	→Q340
	that was given?	NO			2	
		THE CHILD STIL	L TAKING THE ME	DICATION	3	→Q340
339.	Why did he or she not finish the ACT	HE/SHE STARTE	D TO FEEL BETTE	R BEFORE THE END	O OF THE	
	medication that was given?	TREATMENT		••••••	A	
	MULTIPLE RESPONSES POSSIBLE	WANTED TO SA	VE SOME OF THE	MEDICATION FOR	THE NEXT TIME	
	CIRCLE ALL RESPONSES				В	
		DID NOT LIKE THE TASTEC				
	PROBE ONCE: Anything else?	KEPT VOMITTING ITD THE DRUGS HAD UNPLEASANT SIDE EFFECTSE OTHER (SPECIFY)X DON'T KNOW/REMEMBER7				
					7	
240	In the past six months, to what extent has			Τ	<u> </u>	
540.	the COVID-19 pandemic in [ENTER COUNTRY] affected your ability to do the following?	IT AT ALL	SOME FENT	A GREAT TENT	N'T OW/REMEN	
	Read out all options	ON N	EX 10		ER DO	
340A.	Use ITNs every night	1	2	3	9	
340B.	Go to the health facility for services when you need them	1	2	3	9	
340C.	Obtain a malaria test for you or someone in your household within 24 hours of onset of fever	1	2	3	9	
340D.	Get prompt treatment for malaria for you or someone in your household	1	2	3	9	
340E.	[Ask ONLY If currently pregnant]** Attend antenatal care **Note: add appropriate check for pregnancy when tablet is programmed	1	2	3	9	If not currently pregnant, do not ask and skip to 340G
340F.	[Ask ONLY if currently pregnant]** Get the medicine to prevent malaria in pregnancy **Note: add appropriate check for pregnancy when tablet is programmed	1	2	3	9	
340G.	Pay for malaria related health services	1	2	3	9	
340H.	Pay for transportation to get health services	1	2	3	9	

#### LIBERIA MALARIA BEHAVIOR SURVEY WOMEN'S QUESTIONNAIRE SECTION IV: SEASONAL MALARIA CHEMOPREVENTION

		POLICY ON SMC]	UNINT
N°	QUESTION	CODING CATEGORIES	SKIP TO
401	Have you heard of a medicine given to children under 5 years old to prevent malaria during the rainy season?	YES	<b>→</b> 501
402	During the past six months, has this medication been distributed in your community either at home by community health workers or in health facilities by health providers?	YES	→ 501 → 501
403	CHECK Q315-3: THE WOMAN HAS CHILDREN UNDER 5 YEARS OLD IN HER CARE	AT LEAST ONE CHILD <5 YEARS IN HER CARE	→ 501
	HOUSEHOLD	DISTRIBUTION THIS RAINY SEASON	
404	Have community health workers come to your household duri this rainy season to distribute medication that prevents malaria?	ng YES1 NO2 DON'T KNOW9	$\rightarrow$ 423 $\rightarrow$ 423
405	When is the last time this rainy season the community health worker came? Specify the month.	JULY         .1           AUGUST         .2           SEPTEMBER         .3           OCTOBER         .4           OTHER (SPECIFY)         .8           DON'T KNOW         .9	
406	Were you present during a community health worker househo visit this rainy season?	Id YES1 NO2	
107	During the last visit of the community health workers, did they leave the medicine that prevents malaria with you or someone else for children for whom you are responsible? EMPHASIZE "PREVENTING" NOT TREATING MALARIA	YES, THEY LEFT IT WITH YOU OR WITH SOMEONE ELSE FOR YOUR CHILDREN1 YES, THEY LEFT IT WITH SOMEONE ELSE FOR YOUR CHILDREN2 NEITHER3 DON'T KNOW9	$\rightarrow 409$ $\rightarrow 416$ $\rightarrow 423$
408	What is the main reason why community health workers did n leave the medicine that prevents malaria for the children unde 5 years old in your care?	NIA         DON'T KNOW         9           did not under         NO ONE WAS AT MY HOME TO RECEIVE THEM         1           ASCS HAD NO MORE MEDICATION         2           ASCS TOLD ME NONE OF MY CHILDREN WERE ELIGLBE         3           OTHER (SPECIFY)         8	
409	CHECK THAT "YES" IS SELECTED FOR 406— RESPONDENT WA PRESENT DURING THE MOST RECENT COMMUNITY HEALTH WORKER VISIT	F         YES	→ 412
410	Did the community health workers tell you about the undesirable effects that this medication can cause in children?	YES1 NO2 DON'T KNOW	

-	WOWE		1 1
411	What undesirable effects did the community health workers tell	VOMITTING A	
	you that this medication can cause in children?	FEVERB	
		SKIN RASHC	
	MULTIPLE RESPONSES POSSIBLE	DIARRHEAD	
		STOMACH ACHEE	
		LETHARGY/FATIGUEF	
		LOSS OF APPETITEG	
	PROBE ONCE: Anything else?	HEADACHEH	
		OTHERX	
		(SPECIFY)	
		DON'T KNOWZ	
412	I want to ask you a few questions about the last time the community health workers visited to give the medication that prevents malaria for your child during this rainy season.		
	what is the name of the youngest child under the age of 5 years in this household for whom you are responsible?	NAME	
413	How old is "CHILD'S NAME" ?	AGE IN MONTHS	
	RECORD THE AGE IN MONTHS		
414	Did the community health workers observe this child take a	YES, OBSERVED THE CHILD TAKE A DOSE OF THE MEDICATION	→418
	dose of the medication that prevents malaria, or did they leave	YES, LEFT THE MEDICATION2	→416
	the medication with you?	NEITHER	
			→ <b>118</b>
			7410
415	What is the main reason they did not leave the medication or	THE AGENTS DID NOT HAVE ANY MORE MEDICATION1	
	observe the child take the medication?	THE PROVIDERS TOLD ME NONE OF MY CHILDREN WERE ELIGLBE	
		DID NOT HAVE TIME TO RECEIVE THE COMMUNITY HEALTH WORKER3	
		REFUSED THE MEDICATION FOR THE CHILD	+423
		OTHER 5	
		(appare)	
		(SPECIFY)	
		DON'T KNOW9	7
416	Did the child take the <u>first</u> dose of medication that the	YES1	→418
	community health workers left?	NO2	
			→418
			7410
417	What is the reason(s) one or more of your children did not take	CHILD WAS NOT PRESENT WHEN THE AGENTS CAMEA	
	the medication from the community health workers?	FORGOTB	
		LOST THE FIRST DOSE ASC LEFTC	
	MULTIPLE RESPONSES POSSIBLE	SENT CHILDREN AWAY SO THEY WOLLD NOT RECEIVE THE MEDICATION D	
	INDICATE ALL RESPONSES		
	PROPE ONCE: Anything alog?	NU FOOD TO TAKE MEDICATIONF	
	PRODE ONCE: Anything else?	CHILD VOMITTED TABLETS AFTER SWALLOWING THEM	
		DIFFICULTY CRUSHING THE TABLETS H	
		CHILD FELL SICK AFTER TAKING A PREVIOUS DOSE OF THIS MEDICATION I	
		HEARD OF OR SAW BAD SECONDARY EFFECTS IN OTHER CHILDREN	
		DID NOT KNOW ENOUGH ABOUT THE MEDICATION	
		DON'T TRUST PEOPLE WHO DISTRIBUTE OR ADMINISTER THE MEDICATION	
		N	
		OTHERX	
		(SPECIFY)	
410		DON'T KNOWZ	
418	did the child take the other doces of the mediantian?	DIDIN I TAKE ANY MEDICATION AFTER THEIR VISIT	
	and the child take the other doses of the medication?	1 DAY AFIER	
		2 DAYS AFTER2	→ 420
1		3 DAYS AFTER 3	$\rightarrow 420$

	1	DK	→ 420
/19	Why didn't this child take all the other doses of the medication?	CHILDREN NOT AT THE HOUSE A	
415	why dan e this cline take an the other doses of the medication.	FORGOT	
		CHILD TOOK ALL THE OTHER DOSES IN ONE DAY	
		NO WATER TO TAKE THE MEDICATION	
	PROBE ONCE: Anything else?		
	TROBE ONCE. Anything clack	DID NOT HAVE TIME	
		DIFFICULTY CRUSHING THE TABLETS	
		HEARD OR SAW BAD SECONDARY EFFECTS IN OTHER CHILDREN	
		DON'T TRUST REOPLE WHO DISTRIBUTE OR ADMINISTER THE MEDICATION	
		OTHER X	
		(SPECIFY)	
		DON'T KNOW	
420	Did the medication have any undesirable effects in this shild?	VES	+
420		NO	->123
			→423
	2 8:0 E		7425
421	If yes, which ones?	FEVER B	
		SKIN RASHC	
	MULTIPLE RESPONSES POSSIBLE	DIARRHEAD	
	INDICATE ALL RESPONSES	STOMACH ACHEE	
		LETHARGY/FATIGUE	
	PROBE ONCE: Anything else?	LOSS OF APPETITE	
		OTHERX	
		(SPECIFY)	
		DON'T KNOWZ	
422	What did you do when this child had these undesirable effects?	SOUGHT ADVICE OR TREATMENT FROM A HEALTH PROVIDERA	
		SOUGHT ADVICE OR TREATMENT SOMEWHERE ELSE	
	MULTIPLE RESPONSES POSSIBLE	GAVE CHILD OTHER MEDICATIONS	
	INDICATE ALL RESPONSES	TOOK CARE OF CHILD AT HOME	
		WAITED FOR CHILD TO GET BETTERE	
	PROBE ONCE: Anything else?	OTHERX	
		(SPECIFY)	
		DON'T KNOWZ	
	HEALTH FACILITY D	ISTRIBUTION THIS RAINY SEASON	-
423	During this rainy season, did you or someone else take one of	YES LTOOK THEM 1	T
123	your children under the age of 5 years in this household that	VES SOMEONE ELSE	→427
	you are primarily responsible for who did not receive the		→127
	medication at the house to a health facility to receive the		→437
	medication to prevent malaria this rainy season?		7457
	EMPHASIZE "PREVENTING" NOT TREATING MALARIA		-
424	During this visit, did the health providers tell you about the	YES	
	undesirable effects that this medication can cause in children?	NO2	→426
		DON'T KNOW9	→426
425	What side effects did the health provider tell you that this	VOMITTINGA	
	medication can cause in children?	FEVERB	
		SKIN RASH	
	MULTIPLE RESPONSES POSSIBLE	STOMACH ACHE	

91	WOM	EN'S QUESTIONNAIRE	
	CIRCLE ALL RESPONSES	LETHARGY/FATIGUEF	
		LOSS OF APPETITEG	
	PROPE ONCE: Anything also?	HEADACHE H	
	PROBE ONCE: Anything else?	OTHERX	
		(SPECIFY)	
		DON'T KNOWZ	
426	What is the name of the youngest child under the age of 5 year in this household who did not receive the medication at the house that you or someone else took to a health facility to receive the medication to <u>prevent</u> malaria this rainy season?	s NAME	
427	How old is "CHILD's NAME"?	AGE IN MONTHS	
	RECORD THE AGE IN MONTHS		
428	When you took your child to the health facility, did a health	YES	→ 430
	that prevents malaria?	NO2	
429	If no, what was the main reason the provider did not give your	PROVIDER NOT AVAILABLE	٦
	child or handed over to you the medication that prevents	THEY HAD NO MORE MEDICATION	
	malaria??	PROVIDERS SAID THE CHILD WAS NOT ELIGLBLE	
		OTHER 4	→438
		(SDECIEV)	100
197722726	The second	BON T KNOW	-
430	During this visit, did the health providers observe your child tak	YES, OBSERVED THE CHILD TAKE THE MEDICATION	→ 433
	the first dose of the medication to prevent malaria or did they	YES, GAVE ME THE MEDICATION2	
	give you the <u>mst</u> dose for your child?	NEITHER	→ 438
		DON'T KNOW9	→ 438
431	Did this child take the first dose of medication that the health	YES	→ 433
	provider gave you?	NO	
		DON'T KNOW	→ 438
132	What is the reason this child did not take this medication from		
452	the health providers?	FORGOT B	
	MULTIPLE RESPONSES POSSIBLE		
		NO FOOD TO TAKE THE MEDICATION	
	INDICATE ALL RESPONSES	CHILD TOOK ALL THE OTHER DOSES IN ONE DAYE	
		CHILD VOMITTED TABLETS AFTER SWALLOWING THEMF	
	PROBE ONCE: Anything else?	DIFFICULTY CRUSHING THE TABLETS G	
		CHILD PREVIOUSLY FELL SICK AFTER TAKING THIS MEDICATION	
		HEARD OF OR SAW BAD SIDE EFFECTS IN OTHER CHILDRENI	
		MEDICATION DOES NOT PREVENT MALARIAJ	
		MY CHILD WAS NOT SICKK	
		DID NOT KNOW ENOUGH ABOUT THE MEDICATIONL	
		DON'T TRUST PEOPLE WHO DISTRIBUTE OR ADMINISTER THE MEDICATION	
		OTHERX	
		(SPECIFY)	
		DON'T KNOWZ	
433	After this visit to the health facility, for how many days did	DIDN'T TAKE THE OTHER DOSES AFTER THE FACILITY VISIT0	
	this child take the other doses of the medication?	1 DAY AFTER	
		2 DAYS AFTER	→ 435
		3 DAYS AFTER	→ 435
		DON'T KNOW9	→ 435
434	Why did the child not take the other doses of the		
434	medication?	FORGOT R	
		LOST THE DOSES OF MEDICATION	
	MULTIPLE RESPONSES POSSIBLE		
	INDICATE ALL RESPONSES		
		NO WATER TO TAKE MEDICATION	

# LIBERIA MALARIA BEHAVIOR SURVEY

	WO	MEN'S QUESTIONNAIRE	
		NO FOOD TO TAKE MEDICATIONE	22
	PROBE ONCE: Anything else?	HAD NO TIMEF	
		CHILD VOMITTED TABLETS AFTER SWALLOWING THEM	
		CHILD FELL SICK AFTER FIRST DOSE	
		DIFFICULTY CRUSHING THE TABLETSI	
		HEARD OF OR SAW BAD SECONDARY EFFECTS FROM IN OTHER CHILDRENJ	
		MEDICATION DOES NOT PREVENT MALARIAK	
		MY CHILD WAS NOT SICKL	
		DID NOT KNOW ENOUGH ABOUT THE MEDICATION	
		DON'T TRUST PEOPLE WHO DISTRIBUTE OR ADMINISTER THE MEDICATION N	
		OTHER X	
		(SPECIFY)	
435	Did the medication have any undesirable effects in this	YES	
	child?	NO	→438
		DON'T KNOW	→438
436	If yes, which undesirable effects did it cause in the child?	VOMITINGA	2
450	in yes, which and estrable effects did it cause in the child?	FEVERB	
		SKIN RASHC	
		DIARRHEA D	
	INDICATE ALL RESPONSES	STOMACH ACHE	
	PROBE ONCE: Anything else?	HEADACHE	
		OTHERX	
		SPECIFY	
		DON'T KNOWZ	
437	What did you do when this child had these undesirable	SOUGHT ADVICE OR TREATMENT FROM A HEALTH PROVIDERA	
	effects?	SOUGHT ADVICE OR TREATMENT SOMEWHERE ELSE	
		GAVE CHILD OTHER MEDICATIONSC	
	MULTIPLE RESPONSES POSSIBLE	I TOOK CARE OF CHILD AT HOMED	
	INDICATE ALL RESPONSES	WAITED FOR CHILD TO GET BETTER E	
		OTHERX	
	PROBE ONCE: Anything else?	(SPECIFY)	
		DON'T KNOWZ	
438	Would you be willing to have your children take this	YES1	
	medicine to prevent malaria next year?	NO	
		DON'T KNOW	

# LIBERIA MALARIA BEHAVIOR SURVEY

# SECTION V: IDEATION - GENERAL PERCEPTIONS ABOUT MALARIA

# General malaria knowledge

GENERAL MALARIA: KNOWLEDGE				
NO.	QUESTION	CODING CATEGORIES	SKIP TO	
501.	What signs or symptoms would lead you to think that a person has malaria?	FEVER		
	MULTIPLE RESPONSES POSSIBLE CIRCLE ALL RESPONSES	BODY PAIN		

NO.	QUESTION	CODING CATEGORIES	SKIP TO
		BITTER TASTE IN THE MOUTHI	
		SEIZURE/CONVULSIONSK	
		GOES UNCONCIOUSL	
		DIZZINESSM	
		MOUTH SOBES N	
		(CDECIEV)	
		(SPECIFY)	
5024	Do you know what causes malaria?	VES 1	6
502A	bo you know what causes mataria:	NO	2504
		DON'T KNOW9	7504
502.	What causes malaria?	MOSQUITO BITESA	
		EATING DIRTY FOODB	
		EATING UNRIPE FRUITC	
	MULTIPLE RESPONSES POSSIBLE	BEING MALNOURISHEDD	
	CIRCLE ALL RESPONSES	NOT HAVING A HEALTHY DIET E	
		DRINKING DIRTY WATERG	
	PROBE ONCE: Anything also?	DIRTY SURROUNDINGSH	
	r Nobe once. Anything else:	DRINKING BEER	
		GETTING SOAKED WITH RAINJ	
		COLD OR CHANGING WEATHER	
		IEETHING	
		OTHER (specify) X	
		DON'T KNOW 7	
503	What are the things that people can do to stop them from	SLEEP LINDER & MOSOLIITO NET A	
505.	getting malaria?	SLEEP UNDER AN INSECTICIDE-TREATED MOSOUITO NET B	
	Secting malana.	USE MOSQUITO REPELLANT (LOTION, SPRAY)	
		AVOID MOSQUITO BITESD	
		TAKE PREVENTIVE MEDICATION E	
	MULTIPLE RESPONSES POSSIBLE	SPRAY HOUSE WITH INSECTICIDE F	
	CIRCLE ALL RESPONSES	USE MOSQUITO COILS (LIKE MOONTIGER) AGAINST	
		MOSQUITOESG	
	PROBE ONCE: Anything else?	CUT THE GRASS AROUND THE HOUSE	
		DRY OUT PUDDLES/STAGNANT WATER I	
		KEEP HOUSE SURROUNDINGS CLEANJ	
		BURN LEAVES K	
		DON'T DRINK DIRTY WATERL	
		DON'T EAT BAD FOOD (IMMATURE FRUITS/LEFTOVER FOOD)	
		M	
		PUT SCREENS ON THE WINDOWS	
		TRADITIONAL MEDECINEO	
		AVOID THE SUNP	
		AVOID CONSUMING OILQ	
		OTHER (specify)X	
F04	What modifies on he used to ffortion to too 1.1.2	DUN T KNUW	
504.	what medicines can be used to effectively treat malaria?	SP/FANSIDAR/MALOXINE/AMALARA	
		CHLOROQUINE/NIVAQUINEB	
		QUININE/ATEQUININEC	
	CINCLE ALL RESPONSES		

GENERAL MALARIA: KNOWLEDGE				
NO.	QUESTION	CODING CATEGORIES	SKIP TO	
	PROBE ONCE: Anything else? SHOW HER THE PICTURES OF THE LOCALLY AVAILABLE ACT, THEN ASK: Do any of the medications on these photos look like the medicine used to effectively treat malaria?	ACT (COARTEM, AMARTEM/ARTHEMETER-LUMEFANTRINE, COARSUCAM, CAMOSUNATE/ARTESUNATE-AMODIAQUINE, ARTEQUICK/ DUOCOTEXIN /DIHYDROARTEMISININ- PIPERAQUINE, ARTEQUIN/ARTESUNATE-MEFLOQUINE)D ARTESUNATE INJECTION		

# Interpersonal communication about malaria

MALARIA IN GENERAL : INTERPERSONAL COMMUNICATION				
N°	QUESTION	CODING CATEGORIES	SKIP TO	
505.	In the last six months, did you talk about malaria with your spouse or partner?	YES1 NO2		
506.	In the last six months, did you talk about malaria with your friends or relations?	YES1 NO2		

# Perceived threat of malaria

	GENERAL MALARIA IDEATION: PERCIEVED THR	REAT					
l am g	I am going to read a series of statements or questions to you and I would like you to tell me if you agree or disagree with the statement.						
Intervi	ewer: do not read 'DONT KNOW/UNCERTAIN' response and only use if respondent is not	able to provide	another answer.				
		AGREE	DISAGREE	DON'T KNOW/ UNCERTAIN			
PERCE	IVED SUSCEPTIBILITY						
507.	People in this community only get malaria during rainy season	1	2	9			
508.	Nearly every year, someone in this community gets a serious case of malaria	1	2	9			
509.	When your child has a fever, you almost always worry that it might be malaria	1	2	9			
510	During the rainy season, you worry almost every day that someone in your family will get malaria	1	2	9			
PERCE	IVED SEVERITY						
511.	You do not worry about malaria because it can be easily treated	1	2	9			
512.	Only weak children can die from malaria	1	2	9			
513.	Every case of malaria can potentially lead to death	1	2	9			
514.	When someone you know gets malaria, you usually expect them to completely recover in a few days	1	2	9			

# SECTION VI: IDEATION - INSECTICIDE TREATED NETS (ITNs)

#### Attitudes

	BED NETS: COLOR PREFERENCES				
601.	Which color of mosquito nets do you prefer?	WHITE       .1         BLUE       .2         GREEN       .3         PINK       .4         BLACK       .5         OTHER COLOR       .8         (SPECIFY)         COLOR DOES NOT MATTER TO ME       .10			

#### **BED NETS- ATTITUDES** I am going to read a series of statements or questions to you and I would like you to tell me if you agree or disagree with the statement. Interviewer: do not read 'DONT KNOW/UNCERTAIN' response and only use if respondent is not able to provide another answer AGREE DISAGREE DON'T KNOW/ NO. QUESTION UNCERTAIN 602. It is easier to get a good night's sleep when I sleep under a mosquito net 1 2 9 603. It is not easy to sleep under a net because every night you have to unfold it and 1 2 9 cover the sleeping space 604 1 2 9 I do not like sleeping under a mosquito net when the weather is too warm 605. Sleeping under a net is an inconvenience for a couple that wants to make children 1 2 9 606. The smell of the insecticide makes it uncomfortable for me to sleep under a 2 1 9 mosquito net 607. Mosquito nets are generally easy to use for sleeping 1 2 9 608. Insecticide-treated nets does not pose a risk to one's health 1 2 9 9 609. Mosquito nets are very useful 2 More expensive mosquito nets are more effective than cheaper or free mosquito 610. 1 2 9 nets 611 There are actions I can take to help my mosquito net last long 2 9 1 612. 9 I can protect my family against malaria by taking care of my mosquito net 1 2 612A. Other people in this community take care of their mosquito nets 1 2 9 612B. I am confident I can fold or tie up the nets in my home every day after using them 1 2 9 612C. It is worth taking time to care for my mosquito net 9 1 2 612D. I am confident that I can prevent children from playing with the net 2 9

#### Perceived response efficacy

An old net can still protect against malaria if it is well cared for

Treated mosquito nets attract bed bugs and other insects

I would use a net to sleep under regardless of its shape

612E.

.612F.

612G.

	ITN- PERCEIVED RESPONSE EFFICACY					
I am g	ping to read a series of statements or questions to you and I would like you to tell me if	you agree or dis	agree with the	statement.		
Intervi	ewer: do not read 'DONT KNOW/UNCERTAIN' response and only use if respondent is no	t able to provide	another answ	er.		
NO.	QUESTION	AGREE	DISAGREE	DON'T KNOW/ UNCERTAIN		
613.	Mosquito nets prevent mosquito bites only when used on a bed	1	2	9		
614.	The chances of getting malaria are the same whether or not one sleeps under a mosquito net	1	2	9		
615.	Sleeping under a mosquito net every night is a good way to avoid getting malaria	1	2	9		

1

1

1

1

2

2

9

9

# Perceived self-efficacy

	ITN- PERCEIVED SELF EFFICACY						
l am g succes	I am going to ask you about a series of actions you could take and I would like you to tell me if you think you could or could not do each action						
Intervi	ewer: Do not read 'DONT KNOW/UNCERTAIN' response and only use if respondent is no	t able to pro	vide another answer.				
NO.	QUESTION	COULD	COULD NOT	DON'T KNOW/ UNCERTAIN			
616.	Sleep under a mosquito net for the entire night when there are lots of mosquitoes	1	2	9			
617.	Sleep under a mosquito net for the entire night when there are few mosquitoes	1	2	9			
618.	Sleep under a mosquito net every night of the year	1	2	9			
619.	Get all of your children to sleep under a mosquito net every night of the year	1	2	9			

# **Perceived Norm**

	ITN- PERCEIVED NORM						
NO.	QUESTION	CODING CATEGORIES	SKIP TO				
620.	Generally, among the people in your community who have nets, how many sleep under them every night? Would you say READ OPTIONS ALOUD BUT DO NOT READ "DON'T KNOW".	ALL PEOPLE         1           AT LEAST HALF OF THE PEOPLE         2           FEWER THAN HALF OF THE PEOPLE         3           DON'T KNOW         9					
621.	Generally, among all the people in your community, how many people would call you names if they know that you sleep under a net every night? Would you say	ALL PEOPLE         1           AT LEAST HALF OF THE PEOPLE         2           FEWER THAN HALF OF THE PEOPLE         3           DON'T KNOW         9					
	READ OPTIONS ALOUD BUT DO NOT READ "DON'T KNOW".						

# SECTION VII: INTERMITTENT PREVENTIVE TREATMENT IN PREGNANCY (IPTp)

# Knowledge

	ANC/IPTp: KNOWLEDGE				
NO.	QUESTION	CODING CATEGORIES	SKIP TO		
701.	When should a pregnant woman go for pregnancy care for the first time?	AS SOON AS SHE KNOWS SHE IS PREGNANT         1           WHEN THE BABY STARTS TO MOVE         2           IN THE FIRST TRIMESTER         3           START OF 4 <sup>TH</sup> MONTH OR 2 <sup>ND</sup> TRIMESTER         4           ANY TIME DURING PREGNANCY         5           OTHER ( <i>specify</i> )         8           DON'T KNOW         9			
702.	How many times should a woman go for a prenatal visit during one pregnancy?	NUMBER OF TIMES			
703.	How many times during her pregnancy should a woman receive medicine to keep her from getting malaria?	NUMBER OF TIMES			

# Perceived threat of malaria in pregnancy

l am go Intervie	I am going to read a series of statements or questions to you and I would like you to tell me if you agree or disagree with the statement. Interviewer: do not read 'DONT KNOW/UNCERTAIN' response and only use if respondent is not able to provide another answer.					
NO.	QUESTION	AGREE	DISAGREE	DON'T KNOW/ UNCERTAIN		
704.	When a pregnant woman gets malaria, the effect on her and her unborn child is very serious.	1	2	9		
705.	Pregnant women are more likely to get malaria compared to women who are not pregnant.	1	2	9		

# Attitudes towards ANC/IPTp

	ANC/IPTp: ATTITUDES						
l am go Intervi	ving to read a series of statements or questions to you and I would like you to tell me if you agree wer: do not read 'DONT KNOW/UNCERTAIN' response and only use if respondent is not able to p	e or disagro provide and	ee with the st other answer.	atement.			
NO.	QUESTION	AGREE	DISAGREE	DON'T KNOW/ UNCERTAIN			
706.	It is okay for pregnant women to take the medicine on empty stomach to prevent malaria	1	2	9			
707.	Even if a woman thinks she may be pregnant, she should wait a few months before she sees a health provider	1	2	9			
708.	A woman who has given birth before does not need to see a health provider as soon as she thinks she might be pregnant.	1	2	9			
709.	The medications given to pregnant women to prevent them from getting malaria are safe for them and their babies	1	2	9			
710.	A pregnant woman must take several doses of the medicine to prevent malaria during pregnancy	1	2	9			

# Perceived response efficacy

	ANC/IPTp: RESPONSE EFFICACY					
l am go Intervie	I am going to read a series of statements or questions to you and I would like you to tell me if you agree or disagree with the statement. Interviewer: do not read 'DONT KNOW/UNCERTAIN' response and only use if respondent is not able to provide another answer.					
NO.	QUESTION	AGREE	DISAGREE	DON'T KNOW/ UNCERTAIN		
711.	Consulting health facility providers during pregnancy is a way to make sure the baby and mother are healthy	1	2	9		
712.	The medicine given to pregnant women to keep them from getting sick from malaria works well to keep the mother healthy	1	2	9		
713.	Pregnant women should still take the medicine that is meant to keep them from getting sick from malaria even if they sleep under nets every night	1	2	9		

# Perceived self-efficacy

#### ANC/IPTp: PERCEIVED SELF-EFFICACY

I am going to ask you about a series of actions you could take, and I would like you to tell me if you think you could or could not do each action successfully. Interviewer: do not read 'DONT KNOW/UNCERTAIN' response and only use if respondent is not able to provide another answer.

			8	
NO.	QUESTION		IS NOT ABLE TO	DON'T KNOW/ UNCERTAIN
714.	Go for antenatal care as soon as I think I might be pregnant	1	2	9
715.	Convince my spouse to accompany me spouse/partner to the health facility for antenatal care	1	2	9
716.	Go at least four** antenatal care appointments at the health facility **Adapt based on current country policy	1	2	9
717.	Go for antenatal care even if my religious leader does not agree	1	2	9
718.	Take the medicine to prevent malaria at least three** times during pregnancy **Adapt to reflect country policy	1	2	9
719.	Request the medicine that helps to prevent malaria when I go for antenatal care	1	2	9

#### Norms

	ANC/IPTp: NORMS					
NO.	QUESTION	CODING CATEGORIES	SKIP TO			
720.	Generally, how many women in your community go to antenatal care at least four times when they are pregnant? Would you say READ OPTIONS ALOUD BUT DO NOT READ "DON'T KNOW".	ALL WOMEN				
721.	Generally, how many women in your community take medicine to <u>prevent</u> malaria when they are pregnant? Would you say READ OPTIONS ALOUD BUT DO NOT READ "DON'T	ALL WOMEN				
	KNOW".					
721B.	Generally, among all the people in your community, how many people would call you names if they know that you take at medicine to prevent malaria when you are pregnant? Would you say	ALL PEOPLE				
	READ OPTIONS ALOUD BUT DO NOT READ "DON'T KNOW".					

#### **Decision-making**

	ANC/IPTp- DECISION-MAKING				
NO.	QUESTION	CODING CATEGORIES	SKIP TO		
CHECK	Q105: CURRENT MARITAL STATUS	CODE 1 OR 2 CIRCLE	<b>→Q8</b> 01		

	ANC/IPTp- DEC	CISION-MAKING	
NO.	QUESTION	CODING CATEGORIES	SKIP TO
722.	In your household, who usually makes decisions about going for antenatal care at the health facility when you are pregnant – you, your spouse/partner, you and your spouse/partner, or someone else?	RESPONDENT	
723.	Have you and your spouse/partner ever spoken about going to prenatal care?	YES	→Q801 →Q801
724.	When did you last discuss going to a prenatal consultation with your spouse/partner?	DURING THE LAST SIX MONTHS	
725.	During this discussion, was there any disagreement between you and your spouse/partner about going to a prenatal consultation?	YES	
726.	During this discussion, did your spouse/partner ask you for your opinion about going to the prenatal consultation?	YES	
727.	During the discussion, did you share with your spouse/partner your opinion about going to the prenatal consultation?	YES	<ul> <li>→Q729</li> <li>→Q729</li> </ul>
728.	Do you think that your spouse/partner appreciated the opinion you shared during the discussion?	YES	
729.	In that discussion, who had the final word on the decision made? READ OPTIONS ALOUD BUT DO NOT READ "DON'T KNOW"	RESPONDENT	

# SECTION VIII: IDEATION - CARE-SEEKING AND TREATMENT

# Knowledge

NO.	QUESTION	CODING CATEGORIES	SKIP TO
801.	How soon after a child develops fever should you take a	SAME DAY AS FEVER'S ONSET	8
	child under five years old to get advice or treatment for	THE DAY AFTER THE FEVER'S ONSET	
	the fever?	THE DAY AFTER THE DAY FOLLOWING THE FEVER'S ONSET	
	Should you do it as soon as the child's fever is detected	OTHER (specify) 8	
	the same or pext day as the child's fever begins, or two or		
	more days after the fever begins?	DON'T KNOW	
302.	What is the <u>best</u> way to know if someone has malaria?	TAKE BLOOD FOR MALARIA TEST	
		SIGNS AND SYMPTOMS	
		OTHER (specify)8	
		DON'T KNOW9	
303.	In your community, where is the <u>best</u> place to go if you	PUBLIC SECTOR	-
	think you have malaria?	GOVERNMENT HOSPITAL	
		GOVERNMENT HEALTH CENTER	700
		GOVERNMENT CLINIC	→803A
		COMMUNITY HEALTH WORKER (CHW)	_
		OTHER PUBLIC SECTOR	
		(SPECIFY)	
		PRIVATE MEDICAL SECTOR	
		FAITH-BASED, CHURCH, MISSION HOSPITAL/CLINIC 21	
		PRIVATE HOSPITAL/CLINIC	
		PRIVATE HEALTH CENTER	_
		NURSING/MATERNITY HOME	
		TRADITIONAL BIRTH ATTENDANT	
		PHARMACY	
		STREET MEDICINE VENDOR 27	
		OTHER PRIVATE	
		(SPECIFY)	
		OTHER SOURCE	> →80
		WORKSITE CLINIC	
		MOBILE CLINIC	
		CHURCH/MOSQUE	
		TRADITIONAL HEALER/HERBALIST	
		OTHER	
		(SPECIFY)	
		DON'T KNOW	1
303A	What kind of Community Health Worker (CHW) is the best	COMMUNITY HEALTH ASSISTANT (CHA) 1	
	place to go if you think you have malaria?	COMMUNITY HEALTH VOLUNTEER (CHV) 2	
		COMMUNITY HEALTH SERVICE SUPERVISORS (CHSS) 3	
		COMMUNITY SURVEILLANCE OFFICER 4	
		OTHER EPI OFFICER 5	
		Other CHW6	
		(SPECIFY)	
		DON'T KNOW9	

	CARE-SEEKING AND TREATMENT ATTITUDES			
l am g	oing to read a series of statements or questions to you and I would like you to tell me if you agre	e or disagre	e with the stat	tement.
Interv	ewer: do not read 'DONT KNOW/UNCERTAIN' response and only use if respondent is not able to	provide and	other answer.	
		AGREE	DISAGREE	DON'T KNOW/ UNCERTAIN
804.	The health provider is always the best person to talk to when you think your child may have malaria	1	2	9
805.	One does not need to continue taking all the medicine doses against malaria if the patient is already cured	1	2	9
806.	A parent should ask for an injection from the health provider or community health worker if they think his/her child has malaria	1	2	9
807.	I prefer that my child receive the medicine to treat malaria by injection rather than swallow it	1	2	9
808.	A person should only take malaria medicine if a health provider says that his/her fever really is caused by malaria	1	2	9
809.	If a health provider says a person does not have malaria, the patient should ask for a malaria medication just in case s/he needs it	1	2	9
810.	When my child has a fever, it is better to start by giving him/her any malaria medicine I have at home.	1	2	9
811.	It is important to take all the antimalaria pills prescribed to ensure a complete recovery	1	2	9
812.	When my child has a fever, I do not go directly to the health facility, I first go elsewhere to buy him/her medicine	1	2	9

# Perceived response efficacy

1

	CARE-SEEKING AND TREATMENT PERCEIVED RESPONSE EFFIC	ACY			
l am g Intervi	oing to read a series of statements to you and I would like you to tell whether you agree or disa iewer: do not read 'DONT KNOW/UNCERTAIN' response and only use if respondent is not able to	gree with ea	ch statement. ther answer.		
NO.	D. QUESTION AGREE DISAGREE DON'T KNOW UNCERTAIN				
813.	A blood test for malaria is the only way to know if someone really has malaria or not	1	2	9	
814.	[purposely left empty]	1	2	9	
815.	A person should still take malaria medicine even if the malaria test result says that the fever is not due to malaria	1	2	9	
816.	Parents can diagnose malaria by a person's symptoms just as well as a blood test for malaria	1	2	9	
817.	The malaria drugs obtained from the health facility are effective in treating malaria	1	2	9	
818.	The malaria medicines that you buy in the market are as good as the ones distributed at the health facility	1	2	9	

# Perceived self-efficacy

	CARE-SEEKING AND TREATMENT SELF-EFFICACY					
I am g succes	I am going to ask you about a series of actions you could take, and I would like you to tell me if you think you could or could not do each actior successfully. Interviewer: do not read 'DONT KNOW/UNCERTAIN' response and only use if respondent is not able to provide another answer.					
NO.	QUESTION	COULD	COULD NOT	DON'T KNOW/ UNCERTAIN		
819.	Find the money to take your child to the health facility at the first sign of malaria.	1	2	9		

	CARE-SEEKING AND TREATMENT SELF-EFFICACY					
I am g succes	am going to ask you about a series of actions you could take, and I would like you to tell me if you think you could or could not do each action iccessfully.					
NO.	QUESTION	COULD	COULD NOT	DON'T KNOW/ UNCERTAIN		
820.	Get permission from your husband or other family member to take your child to the health facility/health provider when your child has fever	1	2	9		
821.	Take your child to the health facility the same day or next day s/he develops a fever	1	2	9		
822.	Request a blood test at the health facility when you think your child might have malaria	1	2	9		
823.	Make sure your child takes the full dose of medicine that s/he is prescribed for malaria	1	2	9		
824.	Find the money to pay for the medication the health provider recommends to treat malaria	1	2	9		

# Norms

	CARE-SEEKING AND TREATMENT: NORMS			
NO.	QUESTION	CODING CATEGORIES	SKIP TO	
825.	Generally, how many people in your community take their children to a health provider on the same day or day after they develop a fever? Would you say READ OPTIONS ALOUD BUT DO NOT READ "DON'T KNOW".	ALL PEOPLE         1           AT LEAST HALF         2           FEWER THAN HALF         3           DON'T KNOW         9		
826.	Generally, how many children in your community with fever are taken to a health facility to get tested for malaria? Would you say READ OPTIONS ALOUD BUT DO NOT READ "DON'T KNOW".	ALL CHILDREN1 AT LEAST HALF2 FEWER THAN HALF3 DON'T KNOW9		
827.	Generally, among all the people in your community, how many people would would laugh at you/condemn you if they know that you take your children to a health provider on the same day or day after they develop a fever? Would you say 	ALL PEOPLE1 AT LEAST HALF OF THE PEOPLE2 FEWER THAN HALF OF THE PEOPLE3 DON'T KNOW9		
	READ OPTIONS ALOUD BUT DO NOT READ "DON'T KNOW".			

# **Decision-making**

	CARE-SEEKING AND TREATMENT: DECISION-MAKING				
NO.	QUESTION	CODING CATEGORIES	SKIP TO		
0	CHECK: CURRENT MARITAL STATUS at Q105	CURRENTLY MARRIED/LIVING WITH SOMEONE1 NOT CURRENTLY MARRIED2	→Q901		

	CARE-SEEKING AND TREATMENT: DECISION-MAKING			
NO.	QUESTION	CODING CATEGORIES	<b>SKIP TO</b>	
828.	In your household, who usually makes decisions to go to the health facility when your child has malaria? Would you say READ OPTIONS ALOUD BUT DO NOT READ "DON'T KNOW".	RESPONDENT		
829.	In your household, who usually makes decisions to purchase medicine when your child is sick with fever? Would you say  READ OPTIONS ALOUD BUT DO NOT READ "DON'T KNOW".	RESPONDENT		
830.	In your household, who usually makes decisions about what to do when you are sick? Would you say READ OPTIONS ALOUD BUT DO NOT READ "DON'T KNOW".	RESPONDENT		

# Intention

	CARE-SEEKING AND TREATMENT: Intention				
NO.	QUESTION	CODING CATEGORIES	SKIP TO		
831.	Check care giver status (AT LEAST ONE CHILD UNDER FIVE YEARS FOR WHOM RESPONDENT IS RESPONSIBLE)	YES	→Q901		
832.	Imagine that one of your children under five years has fever <u>today</u> , how soon after you notice the fever would you take the child to seek advice or treatment for your child?	TODAY         1           TOMORROW         2           THE DAY AFTER TOMORROW OR LATER         3           WILL NOT AT ALL SEEK ADVICE OR TREATMENT         4           DON'T KNOW         8	<b>→</b> Q901		

	CARE-SEEKING AND TREATMENT: Intention		
NO.	QUESTION	CODING CATEGORIES	SKIP TO
833.	Where would you take the child <u>first</u> to seek advice or treatment?	PUBLIC SECTOR GOVERNMENT HOSPITAL	→834 →833A
833A	What kind of Community Health Worker (CHW) is the <u>best</u> place to go if you think you have malaria?	PRIVATE MEDICAL SECTOR FAITH-BASED, CHURCH, MISSION HOSPITAL/CLINIC	> →834

# SECTION IX: IDEATION - SEASONAL MALARIA CHEMOPREVENTION

# Knowledge of SMC

	SMC : KNOWLEDGE			
NO.	QUESTION	CODING CATEGORIES	SKIP TO	
901	During the rainy season, for how many <u>months</u> should children take the medication that prevents malaria in children?	NUMBER OF MONTHS		

	SMC : KNOWLEDGE				
NO.	QUESTION	CODING CATEGORIES	SKIP TO		
902	How many days a <u>month</u> should children take the medicine that prevents malaria in children?	1 DAY			

# **SMC** Attitudes

	ATTITUDES RELATED TO SMC					
I am goi	ng to read a series of statements to you and I would like you to tell whether you agree or disagre	ee with each sta	atement.			
Interview	ver: do not read 'DONT KNOW/UNCERTAIN' response and only use if respondent is not able to p	rovide another o	answer.			
	AGREE DISAGREE DON'T KNOW/ NOT SURE					
903	Door-to-door distribution of the medicine to prevent malaria in children during the rainy season is more convenient for me than distribution at the health facility.	1	2	9		
904	Leaders in my community support the distribution of the medication that prevents malaria in children during the rainy season.	1	2	9		
905	Religious leaders in my community support the distribution of the medication to prevent malaria in children during the rainy season.	1	2	9		
906	The community health workers who distribute the medication that prevents malaria in children in my community force parents to accept the medication.	1	2	9		
907	I do not trust the people who distribute or administer the drug to prevent malaria in children.	1	2	9		
908	Healthy children do not need to take the medication to prevent malaria in children during the rainy season.	1	2	9		
909	The medication given to prevent malaria during the rainy season can harm children.	1	2	9		
910	One does not pay for the medications that prevent malaria in children during the rainy season.	1	2	9		

# **Response efficacy**

	RESPONSE EFFICACY OF SMC					
l am going Interviewe	I am going to read a series of statements to you and I would like you to tell whether you agree or disagree with each statement. Interviewer: do not read 'DONT KNOW/UNCERTAIN' response and only use if respondent is not able to provide another answer.					
N°	QUESTION	AGREE	DISAGREE	DON'T KNOW/ NOT SURE		
911	The medication given to children to prevent malaria during the rainy season is effective in preventing malaria.	1	2	9		
912	If all the children in my community take the medication to prevent malaria, there will be fewer cases of malaria.	1	2	9		
913	A child has the same chance of getting malaria whether or not s/he takes the medication given to prevent malaria during the rainy season	1	2	9		

# Perceived self-efficacy

914	VERIFY Q315-3: THE WOMAN HAS CHILDREN UNDER 5 YEARS OLD IN HER CARE	HAS AT LEAST ONE CHILD UNDER 5 HAS NO CHILDREN UNDER 5 IN HER	IN HER CARE CARE	1 2	→Q803		
	SELF-EFFICACY RELATED TO SMC						
I am going to ask you about a series of actions you could take, and I would like you to tell me if you think you could or could not do each action successfully.							
N°	QUESTION		COULD	COULD NOT	DON'T KNOW/ NOT SURE		
915	5 Make sure that your children under 5 years old take the medication that prevents malaria during the rainy season.		1	2	9		
916	16 Find the money to take your child to a health facility when you have missed the door-to-door distribution of the medication that prevents malaria in children.		1	2	9		
917	17 Obtain your husband or another family member's permission to give the medication that prevents malaria to your children.		1	2	9		
918	Make sure your child takes all he doses of the medication giv and third days.	en to prevent malaria on the second	1	2	9		

#### Norms

	SMC : NORMS					
N°	QUESTION	CODING CATEGORIES	SKIP TO			
919	Generally, in your community how many children take the medication to prevent malaria during the rainy season? Would you say READ THE OPTIONS OUT LOUD, BUT DO NOT READ "DON'T KNOW	ALL CHILDREN				
920	Generally, how many people in your community (entourage) take their children to the health facility to receive the medication that prevents malaria if they miss a household visit? Would you say READ THE OPTIONS OUT LOUD, BUT DO NOT READ "DON'T KNOW	EVERYONE       1         AT LEAST HALF OF PEOPLE       2         FEWER THAN HALF OF PEOPLE       3         DON'T KNOW       9				

	SMC : NORMS					
N°	QUESTION	CODING CATEGORIES	SKIP TO			
921	After receiving medication from a community health worker or facility health provider at the health facility, how many people, generally, in your community (entourage) give the medication to their children for the next two days? Would you say	EVERYONE         1           AT LEAST HALF OF PEOPLE         2           FEWER THAN HALF OF PEOPLE         3           DON'T KNOW         9				
	READ THE OPTIONS OUT LOUD, BUT DO NOT READ "DON'T KNOW					

# **Decision-making**

	SMC : DECISION-MAKING					
N°	QUESTION	CODING CATEGORIES	SKIP TO			
922	VERIFY Q105 : CURRENT MARITAL STATUS	CURRENTLY MARRIED/LIVING WITH SOMEONE	→ Q1001			
923	In your household, who generally makes the decision to obtain the preventative treatment for malaria in children during the rainy season? Would you say READ THE OPTIONS OUT LOUD, BUT DO NOT READ "DON'T KNOW"	RESPONDENT       1         SPOUSE/PARTNER OF RESPONDENT       2         JOINT DECISION WITH SPOUSE/PARNTER       3         MOTHER OF RESPONDENT       4         MOTHER IN LAW OF RESPONDENT       5         SOMEONE ELSE       6         DON'T MAKE THIS KIND OF DECISION       7         DON'T KNOW       9         NO CHILDREN       9				

# SECTION X: IDEATION – PERCEPTIONS OF PROVIDERS, COMMUNITY HEALTH WORKERS, AND HEALTH FACILITIES

PERCEPTIONS OF PROVIDERS, COMMUNITY HEALTH WORKERS, AND HEALTH FACILITIES						
l am go Intervi	I am going to read a series of statements or questions to you and I would like you to tell me if you agree or disagree with the statement. Interviewer: do not read 'DONT KNOW/UNCERTAIN' response and only use if respondent is not able to provide another answer.					
No.		AGREE	DISAGREE	DON'T KNOW/ UNCERTAIN		
GENER	AL PERCEPTIONS					
1001.	Community health workers in your community treat their patients with respect	1	2	9		
1002.	Health providers in health facilities in this community treat their patients with respect	1	2	9		
PERCEI	PTIONS RELATED TO MALARIA CASE MANAGEMENT					
1003.	Community health workers always have the medication to treat malaria.	1	2	9		
1004.	Health facilities always have the medication to treat malaria.	1	2	9		
1005.	Community health workers in this community always have the blood test kit to tell if a person has malaria.	1	2	9		
1006.	Health facilities in this community always have the blood test kit to tell if a person has malaria.	1	2	9		
1007.	Community health workers in this community know how to treat malaria in children	1	2	9		
1008.	Health providers at the health facilities in this community know about how to treat malaria in children	1	2	9		
1009.	Community health workers in your community make parents pay for the medication to treat malaria in children less than five years old. NOTE THAT THIS QUESTION IS ABOUT PAYMENT FOR THE ACTUAL MEDICINE NOT FOR THE HEALTH CARD OR OTHER RELATED FEES. INTERVIEWER SHOULD ENSURE THAT THE RESPONDENT CLEARLY UNDERSTANDS THIS QUESTION.	1	2	9		
1010.	Health providers at the health facility in your community make parents pay for the medication to treat malaria in children less than five years old. NOTE THAT THIS QUESTION IS ABOUT PAYMENT FOR THE ACTUAL MEDICINE NOT FOR THE HEALTH CARD OR OTHER RELATED FEES. INTERVIEWER SHOULD ENSURE THAT THE RESPONDENT CLEARLY UNDERSTANDS THIS QUESTION.	1	2	9		
1011.	Community health workers in your community make parents of children less than five years old pay for the blood test to see if the child has malaria. NOTE THAT THIS QUESTION IS ABOUT PAYMENT FOR THE ACTUAL TEST NOT FOR A HEALTH CARD OR OTHER RELATED FEES. INTERVIEWER SHOULD ENSURE THAT THIS IS CLEAR TO THE RESPONDENT	1	2	9		

PERCE	PERCEPTIONS OF PROVIDERS, COMMUNITY HEALTH WORKERS, AND HEALTH FACILITIES					
I am go	ing to read a series of statements or questions to you and I would like you to tell me if yo	u agree or disagi	ree with the stat	ement.		
Intervi	ewer: do not read 'DONT KNOW/UNCERTAIN' response and only use if respondent is no	ot able to provide	e another answe	er.		
	Health facility providers in your community make parents of children less than five					
	years old pay for the blood test to see if the child has malaria.					
1012		1	2	9		
1012.	NOTE THAT THIS QUESTION IS ABOUT PAYMENT FOR THE ACTUAL TEST NOT FOR A	-	-	2		
	HEALTH CARD OR OTHER RELATED FEES. INTERVIEWER SHOULD ENSURE THAT THIS					
	IS CLEAR TO THE RESPONDENT					
	PERCEPTIONS RELATED TO SMC					
	Community health workers in your community come several times during the rainy					
1013.	season to give the medication that prevents malaria in children less than five years	1	2	9		
	old.	-				
1014.	In your community, health facilities always have the medication that prevents malaria	1	2	9		
	in children during the rainy season					
	ANC/IPTp					
	In your community, providers at the health facility make pregnant women pay for					
	SP/Fansidar SP (3 pills), the medicine to prevent malaria.					
1015.		1	2	9		
	NOTE THAT THIS QUESTION IS ABOUT PAYMENT FOR THE ACTUAL MEDICINE NOT					
	FOR THE ANC CARD OR OTHER ATTENDANT FEES. INTERVIEWER SHOULD ENSURE					
1010	THAT THIS IS CLEAR TO THE RESPONDENT					
1016.	Prenatal health providers in this community generally treat pregnant women with	1	2	9		
1017	respect					
1017.	Health providers at the health facility in this community always offer the medicine to	1	2	9		
1010	prevent malaria to pregnant women					
1018.	Health providers at the health facilities in this community always give pregnant		2	0		
	women the medicine the medication to prevent malaria only if she's eaten	1	2	9		
1010	beforenand.					
1019.	If a woman goes to the health facility during the first two months of her pregnancy,	1	2	9		
1020	the nearth providers will send her away		-	-		
1020.	If a pregnant woman goes to the health facility without her husband/partner, the	1	2	9		
	nealth providers will send her away.					

# **Gender Norms**

Gender norms						
I am going to read a series of statements or questions to you and I would like you to tell me if you agree or disagree with the statement. Interviewer: do not read 'DONT KNOW/UNCERTAIN' response and only use if respondent is not able to provide another answer.						
		AGREE	DISAGREE	DON'T KNOW/ UNCERTAIN		
1021.	When there are not have enough nets, it is more important that <u>female</u> children sleep under the available nets rather than <u>male</u> children.	1	2	9		
1022.	When there are not have enough nets, it is more important that <u>male</u> children sleep under the available nets rather than <u>female</u> children.	1	2	9		
1023.	A pregnant woman should feel comfortable asking her husband/spouse to go to the health facility for a prenatal consultation.	1	2	9		
1024.	When there is not enough money, it is more important that <u>male</u> children with fever get medicine rather than <u>female</u> children.	1	2	9		
1025.	When there is not enough money, it is more important that <u>female</u> children with fever get medicine rather than <u>male</u> children.	1	2	9		

# SECTION XI: RECALL OF MALARIA MESSAGES

GENERAL MALARIA: EXPOSURE TO MALARIA MESSAGES						
NO.	QUESTION	CODING CATEGORIES	SKIP TO			
1101.	How frequently do you listen to the radio? Would you say four or more times a week, two or three times a week, once a week, less than once a week or never? READ OPTIONS ALOUD	4 OR MORE TIMES A WEEK	<b>→</b> Q1103			
1102.	What time of day are you <u>most likely</u> to listen to the radio – early morning, late morning, afternoon, early evening, late evening or night?	EARLY MORNING (4AM TO 8AM)				
2	READ OPTIONS ALOUD BUT DO NOT READ "DON'T KNOW".	LATE EVENING (8PM TO 12 MIDNIGHT)5 NIGHT (12 MIDNIGHT TO 4AM)				
1103.	How frequently do you watch television? Would you say four or more times a week, two or three times a week, once a week, less than once a week or never?	4 OR MORE TIMES A WEEK	<b>→</b> Q1105			
1104.	What time of day are you <u>most likely</u> to watch television – early morning, late morning, afternoon, early evening, late evening or night?	EARLY MORNING (4AM TO 8AM)				
	READ OPTIONS ALOUD BUT DO NOT READ "DON'T KNOW".	LATE EVENING (8PM TO 12 MIDNIGHT)5 NIGHT (12 MIDNIGHT TO 4AM)6 DON'T KNOW9				
1105.	Do you personally have a mobile device like a phone or tablet?	YES1 NO2	→Q1108			
1106.	Do you share this mobile device with someone else?	YES1 NO2				
1107.	On this mobile device, which of the following can you receive: <ol> <li>Chat, text or email messages?</li> <li>Pictures?</li> <li>Videos?</li> <li>Audio files?</li> </ol> <li>ASK ABOUT EACH TYPE OF MEDIA SEPARTELY</li>	YES         NO         DK           CHAT/TEXT/EMAIL         1         0         9           PICTURES         1         0         9           VIDEOS         1         0         9           AUDIO FILES         1         0         9           OTHER MEDIA         0         9         0				
1108.	In the past 6 months, have you seen or heard any messages about malaria?	YES	→01111			
1109.	Where did you see or hear the messages or information?	HEALTH CENTER/HOSPITAL	- QIIII			
	CIRCLE ALL RESPONSES PROBE ONCE: Anything else?	WORKPLACE D DRAMA GROUPSE PEER EDUCATORS				
	REVISE RESPONSES PER LOCAL CONTEXT	POSTERS/BILLBOARDS				

2	Women's do		1
		SOCIAL MEDIA	
		OTHER ( <i>SPECIFY</i> )X	
		DON'T KNOWZ	
1110.	What messages about malaria did you hear or see?**	SLEEP UNDER A TREATED MOSQUITO NET A	
		EVERYONE SHOULD SLEEP UNDER A TREATED	
		MOSQUITO NET EVERY NIGHTB	
	MULTIPLE RESPONSES POSSIBLE	EVERYONE SHOULD SLEEP UNDER A TREATED	
	CIRCLE ALL RESPONSES	MOSQUITO NET EVERY WHEREC	
		PREGNANT WOMEN SHOULD GO FOR SEVERAL	
	PROBE ONCE: Anything else?	ANTENATAL VISITS D	
		PREGNANT WOMEN SHOULD TAKE MEDICINE TO	
		PREVENT THEM FROM GETTING MALARIAE	
	**Review response options with country team to	ANYONE WITH FEVER SHOULD GO TO A HEALTH	
	contextualize	FACILITY FOR TESTING AND TREATMENTF	
		CHILDREN WITH FEVER SHOULD BE TAKEN TO THE	
		HEALTH FACILITY WITHOUT DELAY G	
		RAPID DIAGNOSTIC TEST HELPS TO KNOW IF A FEVER	
		IS CAUSED BY MALARIA	
		FREE ACT TREATMENT	
		ENSURE CHILDREN RECEIVE THE MEDICATION THAT	
		PREVENTS MALARIA DURING THE RAINY SEASON	
		GO TO A HEALTH FACILITY IF YOU MISS A COMMUNITY	
		HEALTH AGENT'S HOME VISIT TO GET THE	
		MEDICATION THAT PREVENTS MALARIA IN	
		CHILDRENI DURING THE RAINY SEASON	
		EIRST DOSE	
		THE MEDICATION GIVEN TO CHILDREN DORING THE	
		RAINY SEASON HELPS PREVENT MALARIA	
		SLEEP UNDER A NET EVERY NIGHT TO AVOID	
		HOW TO INSTALL BED NETS	
		HOW TO WASH A BED NET	
		HOW TO SLEEP UNDER A BED NET	
		WHERE TO GET FREE BED NETSR	
		CHILDREN LESS THAN 5 YRS SHOULD SLEEP UNDER A	
		BED NET TO AVOID MOSQUITO BITESS	
		CLEAN UP SURROUNDINGST	
		OTHER	
		(SPECIFY)	
		DON'T KNOW/CAN'T REMEMBERZ	
1111A.	Can you complete the following phrase?	CORRECTLY COMPLETED1	
	" Sleep under a mosquito net every night everywhere]"	INCORRECTLY COMPLETED2	→Q1112A
		DON'T KNOW9	→Q1112A
	**Review tagline with country team to contextualize		
1111B.	Where did you see or hear this phrase?	GOVERNMENT HEALTH FACILITY A	
		COMMUNITY HEALTH WORKERB	
	MULTIPLE RESPONSES POSSIBLE	FRIENDS/FAMILYC	
		WORKPLACE D	
	PROMPT: Anywhere else?	COMMUNITY EVENT/DRAMA GROUPSE	
		PEER EDUCATORSF	
		POSTERS/BILLBOARDSG	
	**Review response options with country team to	TELEVISIONH	
	contextualize	RADIOI	
		NEWSPAPERJ	
		MOSQUE/CHURCHK	
		COMMUNITY LEADERSL	

WOMEN'S QUESTIONNAIRE				
		SOCIAL MEDIA M		
		(SPECIEV)		
		DON'T KNOW 7		
1113.	Which of these logos /pictures do you recognize?	CAMPAIGN LOGO ONLY		
000-00000000		CAMPAIGN LOGO AND ANOTHER2	→Q1201	
	INTERVIEWER SHOWS 3 IMAGES INCLUDING THE LOGO THAT	OTHER LOGOS ONLY	→Q1201	
	WAS USED IN THE MOST RECENT COMMUNICATION	DID NOT RECOGNIZE ANY LOGOS	→Q1201	
	CAMPAIGN; THE TWO OTHERS THAT ARE MADE UP			
1114.	Where did you see the logos/pictures?	GOVERNMENT HEALTH FACILITY A		
		COMMUNITY HEALTH WORKERB		
	MULTIPLE RESPONSES POSSIBLE	FRIENDS/FAMILYC		
		WORKPLACE D		
	PROMPT: Anywhere else?	COMMUNITY EVENT/DRAMA GROUPSE		
		PEER EDUCATORSF		
	**Review response options with country team to	POSTERS/BILLBOARDS G		
	contextualize	TELEVISION H		
		NEWSPAPER J		
		MOSQUE/CHURCHK		
		COMMUNITY LEADERS L		
		SOCIAL MEDIA M		
		OTHERX		
		(SPECIFY)		
		DON'T KNOWZ		

LIBERIA MALARIA BEHAVIOR SURVEY

Thank respondent for her time and patience.

**IDENTIFICATION PAGE** 

IDENTIFICATION
Liberia
University of Liberia – Pacific Institute for Research & Evaluation (UL-PIRE) Africa Center
TYPE OF PLACE OF RESIDENCE: URBAN
NAME OF County
NAME OF District:
Town/Community
ENUMERATION AREA (EA) NUMBER
HOUSEHOLD NUMBER
LINE NUMBER OF RESPONDENT IN HOUSEHOLD SCHEDULE

INTERVIEWER VISITS								
	1 2 3 FINAL VISIT							FINAL VISIT
DATE	NAME							DAY    MONTH    YEAR     INT. NUMBER
NEXT VISIT DATE TIME								TOTAL NUMBER OF VISITS =
*RESULT CODES 1 COMPLETED 4 REFUSED 2 NOT AT HOME 5 PARTLY COMPLETED 3 POSTPONED 6 INCAPACITATED 7 OTHER (specify)								
	SUPERVISOR							
NAME			I	_[]				

#### LIBERIA MALARIA BEHAVIOR SURVEY MEN'S QUESTIONNAIRE SECTION I: RESPONDENT'S CHARACTERISTICS

	SECTION I: RESPON	IDENT'S CHARACTERISTICS	
NO.	QUESTION	CODING CATEGORIES	SKIP TO
101.	How old were you at your last birthday?	AGE IN COMPLETED YEARS	
102.	Have you ever attended formal school?	YES1 NO2	→Q104
103.	What is the highest level of education that you attained?	ELEMENTARY	
104.	What is your religion?	HIGHER	
		TRADITIONAL RELIGION	
105.	What is your current marital status?	NEVER MARRIED/SINGLE	
106.	Have you ever had a child born to you? **Question only relevant if the sample includes men who have never had a child born to them	YES	→Q201
107.	How many children have ever been born to you? INTERVIEWER: NOTE THAT THIS NUMBER INCLUDES ALL CHILDREN EVER BORN WHETHER OR NOT THEY ARE ALIVE AT THE TIME OF THE SURVEY	NUMBER OF CHILDREN                      IF NONE         00	
108.	The last time your spouse/partner was pregnant, did you accompany her to the health facility for antenatal care?	YES	

# SECTION II: USE, PURCHASING, REPURPOSING AND DISPOSAL OF NETS

#### NET USE INSIDE AND OUTSIDE THE HOUSE NO. QUESTION CODING CATEGORIES SKIP TO 201. On average, how many nights in a week do you sleep under EVERY NIGHT ...... 1 a mosquito net? 3 – 6 NIGHTS A WEEK..... ..... 2 RARELY/NEVER ...... 4 202. TIME IN HOURS: \_\_\_\_\_HH Approximately at what time did you go to sleep yesterday? OTHER (SPECIFY) ......8888 ROUND TO THE NEAREST HOUR

	NET USE INSIDE AND OUTSIDE THE HOUSE				
NO.	QUESTION	CODING CATEGORIES	SKIP TO		
203.	Approximately at what time did you wake up today? ROUND TO THE NEAREST HOUR	TIME IN HOUR:HH OTHER (SPECIFY)8888 DON'T KNOW			
204.	Did you sleep indoors or outdoors?	ONLY INDOORS         1           ONLY OUTDOORS         2           PARTLY BOTH         3	→Q207		
205.	What time did you go indoors for the evening? ROUND TO THE NEAREST HOUR	TIME IN HOUR:			
206.	What time did you go outdoors for the morning? ROUND TO THE NEAREST HOUR	TIME IN HOUR:			
207.	In the past two weeks, have you spent any nights away from your home for any reason? In the fields or traveling, for example?	YES	→Q211 →Q211		
208.	How many nights have you spent away from your home during the last two weeks?	RECORD NIGHTS                      DON'T KNOW			
209.	On the nights that you were away from home, did you sleep indoors, outdoors, or both indoors and outdoors?	INDOORS			
210.	Did you sleep under a mosquito net during the nights that you were away from home?	YES, EVERY NIGHT OF THE TRIP			
	If yes, ASK: "EVERY NIGHT, MOST NIGHTS OF THE TRIP, OR ONLY SOME/A FEW NIGHTS"?	NO NIGHTS			
211.	During which (if any) months of the year do you generally sleep outside (on a porch, roof, or courtyard or elsewhere outside the house)?	JANUARY			
	MULTIPLE RESPONSES POSSIBLE. RECORD ALL RESPONSES MENTIONED	JUNE			
	PROBE ONCE: Anything else?	OCTOBERJ           NOVEMBER         K           DECEMBER         L           EVERY MONTHM         M           NO MONTHSN         N	<b>→</b> Q213		
212.	How often do you use ITNs when sleeping outside?	EVERY NIGHT			

# Net purchasing and replacement

	ITN: PURCHASING NETS AND NET REPLACEMENT					
NO.	QUESTION	CODING CATEGORIES	SKIP TO			
213.	Do you know of a place in your community where you could purchase a mosquito net?	YES1 NO2				
213B.	How long do you typically use your mosquito nets for before replacing them?	# OF MONTHS DON'T KNOW				
214.	When you receive new free nets from mass campaign or elsewhere, do you prefer to keep using your old nets, or do you start using the new net immediately?	PREFER TO KEEP USING OLD NETS UNTIL THEY ARE WORN OUT				
		DON'T KNOW				

# Net repurposing and disposal

ITN REPURPOSING AND DISPOSAL				
NO.	QUESTION	CODING CATEGORIES	<b>SKIP TO</b>	
215.	The last time you had a net that was not useful for sleeping under, what did you do with it?	REUSED FOR OTHER PURPOSE A BURIED IT	]	
	MULTIPLE RESPONSES POSSIBLE	OTHER (specify)8	Q218	
	CIRCLE ALL RESPONSES	DON'T KNOWY		
		NOT APPLICABLE (DID NOT HAVE NET)Z		
	PROBE ONCE: Anything else?		·	
216	What was the mosquito net/netting material used for?	FISHINGA		
		DRYING FISH B		
	MULTIPLE RESPONSES POSSIBLE	COVERING/PROTECTION SEEDLINGS/CROPS C		
	CIRCLE ALL RESPONSES	CURTAINS/SCREENS FOR WINDOWS/DOORS/EAVES		
		/CEILING D		
	PROBE ONCE: Anything else?	CLOTHINGE		
		BEDDING/PADDINGF		
		PATCH FOR OTHER NETS G		
		FENCING H		
		ROPE/TYING THINGSI		
		PROTECT DOMESTICATED ANIMALS		
		OTHERX		
		(specify)		
		DON'T KNOWZ		
217.	What was the main reason you used the net for another	TOO MANY HOLES1		
	purpose?	TOO DIRTY2		
		WORN OUT		
		NO ONE USING IT ANYMORE4		
		NEEDED IT MORE FOR OTHER USES THAN SLEEPING5		
		OTHER (specify)88		

#### Net care

	ITN- CARE AND PREFERENCE					
NO.	QUESTION	CODING CATEGORIES	SKIP TO			
218.	What, if anything, do you do at home to prevent nets from tearing or getting holes? MULTIPLE RESPONSES POSSIBLE CIRCLE ALL RESPONSES PROBE ONCE: Anything else?	KEEP AWAY FROM CHILDREN       A         KEEP AWAY FROM PESTS       B         ROLL UP OR TIE UP WHEN NOT IN USE       C         HANDLE NETS WITH CARE       D         DO NOT SOIL WITH FOOD       E         KEEP AWAY FROM FLAME OR FIRE       F         WASH GENTLY       G         WASH WITH BAR SOAP       H         WASH WITH BAR SOAP       H         WASH ONLY WHEN DIRTY       I         INSPECT NETS REGULARLY FOR HOLES       J         REPAIR SMALL HOLES QUICKLY       K         DO NOT HING       L         DON'T HAVE ANY MOSQUITO NETS       M         OTHER (specify)       X         DON'T KNOW       Z				

# SECTIONS III AND IV NOT INCLUDED IN MEN'S QUESTIONNAIRE

# SECTION V: IDEATION - GENERAL PERCEPTIONS ABOUT MALARIA

# General malaria knowledge

	GENERAL MALARIA: KNOWLEDGE				
NO.	QUESTION	CODING CATEGORIES	SKIP TO		
501.	What signs or symptoms would lead you to think that a person has malaria? MULTIPLE RESPONSES POSSIBLE CIRCLE ALL RESPONSES PROBE ONCE: Anything else?	FEVER         A           CHILLS         B           HEADACHE         C           JOINT PAIN         D           BODY PAIN         E           POOR APPETITE         F           NOT ABLE TO EAT.         G           TIREDNESS         H           BITTER TASTE IN THE MOUTH         I           SEIZURE/CONVULSIONS         J           GOES UNCONCIOUS         K           DIZZINESS         L           MOUTH SORES         M			
502A	Do you know what causes malaria?	OTHER	Norm		

	GENERAL MALA		
NO.	QUESTION	CODING CATEGORIES	SKIP TO
502.	What causes malaria?	MOSQUITO BITESA	8
		EATING DIRTY FOODB	
		EATING UNRIPE FRUITC	
	MULTIPLE RESPONSES POSSIBLE	BEING MALNOURISHEDD	
	CIRCLE ALL RESPONSES	NOT HAVING A HEALTHY DIET E	
		DRINKING DIRTY WATERG	
	PROPE ONCE Another store	DIRTY SURROUNDINGSH	
	PROBE ONCE: Anything else?	DRINKING BEERI	
		GETTING SOAKED WITH RAINJ	
		COLD OR CHANGING WEATHER K	
		WITCHCRAFT L	
		TEETHINGM	
		INDIGESTIONN	
		SUN	
		EATING OILP	
		HEAVY WORKQ	
		OTHER (specify)X	
		DON'T KNOWZ	
503.	What are the things that people can do to stop them from	SLEEP UNDER A MOSQUITO NETA	
	getting malaria?	SLEEP UNDER AN INSECTICIDE-TREATED MOSQUITO NET B	
		USE MOSQUITO REPELLANT (LOTION, SPRAY)C	
		AVOID MOSQUITO BITESD	
		TAKE PREVENTIVE MEDICATION	
	MULTIPLE RESPONSES POSSIBLE	SPRAY HOUSE WITH INSECTICIDE F	
	CIRCLE ALL RESPONSES	USE MOSQUITO COILS (LIKE MOONTIGER) AGAINST	
		MOSQUITOESG	
	PROBE ONCE: Anything else?	CUT THE GRASS AROUND THE HOUSE	
		DRY OUT PUDDLES/STAGNANT WATER	
		KEEP HOUSE SURROUNDINGS CLEAN	
		BURN LEAVES	
		DON'T EAT BAD FOOD (IMMATURE FRUITS/LEFTOVER	
		PUT SCREENS ON THE WINDOWS	
		AVOID THE SUNP	
		AVOID CONSOIVING OIL	
		DON'T KNOW	
504.	What medicines can be used to effectively treat malaria?	SP/FANSIDAR/MALOXINF/AMALAR A	
		CHLOBOOLIINE /NIVAOLIINE B	
	MULTIPLE RESPONSES POSSIBLE		
	CIRCLE ALL RESPONSES		
		ACT (COARTEM, AMARTEM/ARTHEMETER-LUMEFANTRINE,	
	PROBE ONCE: Anything else?	CUAKSUCAM, CAMOSUNATE/ARTESUNATE-AMODIAQUINE,	
		AKTEQUICK/ DUOCOTEXIN /DIHYDROARTEMISININ-	
	SHOW HIM THE PICTURES OF THE LOCALLY AVAILABLE ACT,	PIPERAQUINE, ARTEQUIN/ARTESUNATE-MEFLOQUINE)D	
	THEN ASK:	ARTESUNATE INJECTIONE	
		OTHER INJECTIONF	
	Do any of the medicines on these nictures look like the	ARTESUNATE (NOT INJECTED)G	
	medicine that your child took?	ASPIRIN H	
	medicine that your thild took?		
		IBUPROFENJ	
		HERBAL/TRADITIONAL MEDICINEK	
		OTHER Y	

GENERAL MALARIA: KNOWLEDGE				
NO.	NO. QUESTION CODING CATEGORIES			
	(SPECIFY)			
		DON'T KNOW Z		

# Interpersonal communication about malaria

	MALARIA IN GENERAL : INTERPERSONAL COMMUNICATION				
N°	QUESTION	CODING CATEGORIES	SKIP TO		
505.	In the last six months, did you talk about malaria with your spouse or partner?	YES1 NO2			
506.	In the last six months, did you talk about malaria with your friends or relations?	YES			

# Perceived threat of malaria

	GENERAL MALARIA IDEATION: PERCIEVED THR	EAT		
I am go	ping to read a series of statements or questions to you and I would like you to tell me if yo	ou agree or disa	gree with the sta	tement.
Intervi	ewer: do not read 'DONT KNOW/UNCERTAIN' response and only use if respondent is not c	able to provide a	nother answer.	
		AGREE	DISAGREE	DON'T KNOW/ UNCERTAIN
	PERCEIVED SUSCEPTIBILITY			
507.	People in this community only get malaria during rainy season	1	2	9
508.	Nearly every year, someone in this community gets a serious case of malaria	1	2	9
509.	When your child has a fever, you almost always worry that it might be malaria	1	2	9
510	During the rainy season, you worry almost every day that someone in your family will get malaria	1	2	9
	PERCEIVED SEVERITY			
511.	You do not worry about malaria because it can be easily treated	1	2	9
512.	Only weak children can die from malaria	1	2	9
513.	Every case of malaria can potentially lead to death	1	2	9
514.	When someone you know gets malaria, you usually expect them to completely recover in a few days	1	2	9

# SECTION VI: IDEATION - INSECTICIDE TREATED NETS (ITNs)

# Attitudes

	BED N	ETS: COLOR PREFERENCES	
601.	Which color of mosquito nets do you prefer?	WHITE         1           BLUE         2           GREEN         3           PINK         4           BLACK         5           OTHER COLOR         8           (SPECIFY)         50	

#### LIBERIA MALARIA BEHAVIOR SURVEY MEN'S QUESTIONNAIRE BED NETS- ATTITUDES

	BED NETS- ATTITUDES			
I am goi	ng to read a series of statements or questions to you and I would like you to tell me if you	agree or disagr	ee with the sta	atement.
Intervie	wer: do not read 'DONT KNOW/UNCERTAIN' response and only use if respondent is not ab	le to provide an	other answer.	-
NO.	QUESTION	AGREE	DISAGREE	DON'T KNOW/ UNCERTAIN
602.	It is easier to get a good night's sleep when I sleep under a mosquito net	1	2	9
603.	It is not easy to sleep under a net because every night you have to unfold it and cover the sleeping space	1	2	9
604.	I do not like sleeping under a mosquito net when the weather is too warm	1	2	9
605.	Sleeping under a net is an inconvenience for a couple that wants to make children	1	2	9
606.	The smell of the insecticide makes it uncomfortable for me to sleep under a mosquito net	1	2	9
607.	Mosquito nets are generally easy to use for sleeping	1	2	9
608.	Insecticide-treated nets does not pose a risk to one's health	1	2	9
609.	Mosquito nets are very useful	1	2	9
610.	More expensive mosquito nets are more effective than cheaper or free mosquito nets	1	2	9
611.	There are actions I can take to help my mosquito net last long	1	2	9
612.	I can protect my family against malaria by taking care of my mosquito net	1	2	9
612A.	Other people in this community take care of their mosquito nets	1	2	9
612B.	I am confident I can fold or tie up the nets in my home every day after using them	1	2	9
612C.	It is worth taking time to care for my mosquito net	1	2	9
612D.	I am confident that I can prevent children from playing with the net	1	2	9
612E.	An old net can still protect against malaria if it is well cared for	1	2	9
612F.	Treated mosquito net attracts bed bugs and other insects	1	2	9
612G.	I would use a net to sleep under regardless of its shape	1	2	9

# Perceived response efficacy

	ITN- PERCEIVED RESPONSE EFFICACY					
l am go Intervi	am going to read a series of statements or questions to you and I would like you to tell me if you agree or disagree with the statement. nterviewer: do not read 'DONT KNOW/UNCERTAIN' response and only use if respondent is not able to provide another answer.					
NO.	NO. QUESTION AGREE DISAGREE DON'T KNOW/ UNCERTAIN					
613.	Mosquito nets prevent mosquito bites only when used on a bed	1	2	9		
614.	The chances of getting malaria are the same whether or not one sleeps under a mosquito net	1	2	9		
615.	Sleeping under a mosquito net every night is a good way to avoid getting malaria	1	2	9		

# Perceived self-efficacy

	ITN- PERCEIVED SELF EFFICACY			
l am g succes Intervi	ping to ask you about a series of actions you could take and I would like you to tell me i sfully. ewer: Do not read 'DONT KNOW/UNCERTAIN' response and only use if respondent is no	f you think yo t able to prov	u could or could not ide another answer.	t do each action
NO.	QUESTION	COULD	COULD NOT	DON'T KNOW/ UNCERTAIN
616.	Sleep under a mosquito net for the entire night when there are lots of mosquitoes	1	2	9
617.	Sleep under a mosquito net for the entire night when there are few mosquitoes	1	2	9
618.	Sleep under a mosquito net every night of the year	1	2	9
619.	Get all of your children to sleep under a mosquito net every night of the year	1	2	9

# **Perceived Norm**

	ITN- PERCEIVI	ED NORM	
NO.	QUESTION	CODING CATEGORIES	SKIP TO
620.	Generally, among the people in your community who have nets, how many sleep under them every night? Would you say	ALL PEOPLE	

11	MEN 3 QUES	DIONNAIRE
	READ OPTIONS ALOUD BUT DO NOT READ "DON'T KNOW".	AT LEAST HALF OF THE PEOPLE
621.	Generally, among all the people in your community, how many people would call you names if they know that you sleep under a net every night? Would you say	ALL PEOPLE         1           AT LEAST HALF OF THE PEOPLE         2           FEWER THAN HALF OF THE PEOPLE         3           DON'T KNOW         9
	READ OPTIONS ALOUD BUT DO NOT READ "DON'T KNOW".	

# SECTION VII: INTERMITTENT PREVENTIVE TREATMENT IN PREGNANCY (IPTp)

# Knowledge

	ANC/IPTp: KNOWLEDGE						
NO.	QUESTION	CODING CATEGORIES	SKIP TO				
701.	When should a pregnant woman go for pregnancy care for the first time?	AS SOON AS SHE KNOWS SHE IS PREGNANT					
702.	How many times should a woman go for a prenatal visit during one pregnancy?	NUMBER OF TIMES DON'T KNOW					
703.	How many times during her pregnancy should a woman receive medicine to keep her from getting malaria?	NUMBER OF TIMES					

# Perceived threat of malaria in pregnancy

l am goi Intervie	am going to read a series of statements or questions to you and I would like you to tell me if you agree or disagree with the statement. Interviewer: do not read 'DONT KNOW/UNCERTAIN' response and only use if respondent is not able to provide another answer.			
NO.	QUESTION	AGREE	DISAGREE	DON'T KNOW/ UNCERTAIN
704.	When a pregnant woman gets malaria, the effect on her and her unborn child is very serious.	1	2	9
705.	Pregnant women are more likely to get malaria compared to women who are not pregnant.	1	2	9

# Attitudes towards ANC/IPTp

	ANC/IPTp: ATTITUDES						
l am go Intervie	am going to read a series of statements or questions to you and I would like you to tell me if you agree or disagree with the statement. nterviewer: do not read 'DONT KNOW/UNCERTAIN' response and only use if respondent is not able to provide another answer.						
NO.	NO. QUESTION AGREE DISAGREE DON'T KNOW, UNCERTAIN						
706.	It is okay for pregnant women to take the medicine on an empty stomach to prevent malaria	1	2	9			
707.	Even if a woman thinks she may be pregnant, she should wait a few months before she sees a health provider	1	2	9			
708.	A woman who has given birth before does not need to see a health provider as soon as she thinks she might be pregnant.	1	2	9			
709.	The medications given to pregnant women to prevent them from getting malaria are safe for them and their babies	1	2	9			

	ANC/IPTp: ATTITUDES						
l am goi Intervier	I am going to read a series of statements or questions to you and I would like you to tell me if you agree or disagree with the statement. Interviewer: do not read 'DONT KNOW/UNCERTAIN' response and only use if respondent is not able to provide another answer.						
NO.	QUESTION	AGREE	DISAGREE	DON'T KNOW/ UNCERTAIN			
710.	A pregnant woman must take several doses of the medicine to prevent malaria during pregnancy	1	2	9			

# Perceived response efficacy

	ANC/IPTp: RESPONSE EFFICACY						
l am go Intervie	am going to read a series of statements or questions to you and I would like you to tell me if you agree or disagree with the statement. nterviewer: do not read 'DONT KNOW/UNCERTAIN' response and only use if respondent is not able to provide another answer.						
NO.	O. QUESTION AGREE DISAGREE DON'T KNOW/ UNCERTAIN						
711.	Consulting health facility providers during pregnancy is a way to make sure the baby and mother are healthy	1	2	9			
712.	The medicine given to pregnant women to prevent malaria works well to keep the mother healthy	1	2	9			
713.	Pregnant women should still take the medicine that is meant to keep them from getting malaria even if they sleep under nets every night	1	2	9			

# Perceived self-efficacy

	ANC/IPTp: PERCEIVED SELF-EFFICACY						
l am go succes Intervio	am going to ask you about a series of actions you could take, and I would like you to tell me if you think you could or could not do each action uccessfully. nterviewer: do not read 'DONT KNOW/UNCERTAIN' response and only use if respondent is not able to provide another answer.						
NO.	0. QUESTION IS ABLE IS NOT DON'T KNOW TO ABLE TO UNCERTAIN						
714.	Support my spouse/partner to go to antenatal care visit as soon as I think she might be pregnant	1	2	9			
715.	Accompany my spouse/partner to the health facility for antenatal care	1	2	9			
716.	Support my spouse/partner to go to at least four/eight** antenatal care appointments at the clinic **Select one option based on current country policy	1	2	9			
717.	Support my spouse/partner to go for antenatal care even if my religious leader does not agree	1	2	9			
718.	Support my spouse/partner to take the medicine to prevent malaria at least three** times during pregnancy **Adapt to reflect country policy	1	2	9			
719.	Encourage my partner to request for the medicine that helps to prevent malaria when she goes for antenatal care	1	2	9			
## Norms

ANC/IPTp: NORMS			
QUESTION	CODING CATEGORIES	SKIP TO	
Generally, how many women in your community go to antenatal care at least four times when they are pregnant? Would you say READ OPTIONS ALOUD BUT DO NOT READ "DON'T KNOW".	ALL WOMEN		
Generally, how many women in your community (entourage) take medicine to <u>prevent</u> malaria when they are pregnant? Would you say <b>READ OPTIONS ALOUD BUT DO NOT READ "DON'T</b> KNOW".	ALL WOMEN		
Generally, among all the people in your community, how many people would call you names if they know that you support your wife to take the medicine to prevent malaria during pregnancy? Would you say	ALL PEOPLE		
	QUESTION         Generally, how many women in your community go to antenatal care at least four times when they are pregnant? Would you say         READ OPTIONS ALOUD BUT DO NOT READ "DON'T KNOW".         Generally, how many women in your community (entourage) take medicine to prevent malaria when they are pregnant? Would you say         READ OPTIONS ALOUD BUT DO NOT READ "DON'T KNOW".         Generally, how many women in your community (entourage) take medicine to prevent malaria when they are pregnant? Would you say         READ OPTIONS ALOUD BUT DO NOT READ "DON'T KNOW".         Generally, among all the people in your community, how many people would call you names if they know that you support your wife to take the medicine to prevent malaria during pregnancy? Would you say	ANC/IPTp: NORMS         QUESTION       CODING CATEGORIES         Generally, how many women in your community go to antenatal care at least four times when they are pregnant? Would you say       ALL WOMEN	

# **Decision-making**

	ANC/IPTp- DECISION-MAKING				
NO.	QUESTION	CODING CATEGORIES	SKIP TO		
CHECK	Q105: CURRENT MARITAL STATUS	CODE 1 OR 2 CIRCLE1 CODE 1 OR 2 NOT CIRCLED2	<b>→Q8</b> 01		
722.	In your household, who usually makes decisions about going for antenatal care at the health facility when your spouse/partner is pregnant – you, your spouse/partner, you and your spouse/partner, or someone else?	RESPONDENT			
723.	Have you and your spouse/partner ever spoken about going to prenatal care?	YES	→Q801 →Q801		
724.	When did you last discuss going to a prenatal consultation with your spouse/partner?	DURING THE LAST SIX MONTHS         1           BETWEEN 7 AND 11 MONTHS AGO         2           1 – 2 YRS AGO         3           MORE THAN 2 YRS AGO         4           DON'T KNOW         9           DID NOT DISCUSS GOING TO ANC         10			
725.	During this discussion, was there any disagreement between you and your spouse/partner about going to a prenatal consultation?	YES			

	ANC/IPTp- D	DECISION-MAKING	
NO.	QUESTION	CODING CATEGORIES	SKIP TO
726.	During this discussion, did you ask your spouse/partner for her opinion about going to the prenatal consultation?	YES	
727.	During the discussion, did your spouse/partner share with you her opinion about going to the prenatal consultation?	YES	<ul> <li>→Q729</li> <li>→Q729</li> </ul>
728.	Did you appreciate the opinion that your spouse/partner shared during the discussion?	YES	
729.	In that discussion, who had the final word on the decision made? READ ALL OPTIONS ALOUD BUT DO NOT READ "DON'T KNOW"	RESPONDENT       1         SPOUSE/PARTNER       2         JOINT DECISION WITH SPOUSE/PARNTER       3         MOTHER OF THE RESPONDENT       4         MOTHER IN LAW OF THE RESPONDENT       5         SOMEONE ELSE       6         DON'T MAKE THIS KIND OF DECISION       7	

# SECTION VIII: IDEATION - CARE-SEEKING AND TREATMENT

# Knowledge

	CARE-SEEKING AND TREATMENT: KNOWLEDGE				
NO.	QUESTION	CODING CATEGORIES	SKIP TO		
801.	How soon after a child develops fever should you take a child under five years old to get advice or treatment for the fever?	SAME DAY AS FEVER'S ONSET			
	Should you do it as soon as the child's fever is detected, the same or next day as the child's fever begins, or two or more days after the fever begins?	OTHER ( <i>specify</i> )8 DON'T KNOW9	~		
802.	What is the <u>best</u> way to know if someone has malaria?	TAKE BLOOD FOR MALARIA TEST         1           SIGNS AND SYMPTOMS         2           OTHER (specify)         8           DON'T KNOW         9			
803.	In your community, where is the <u>best</u> place to go if you think you have malaria?	PUBLIC SECTOR       11         GOVERNMENT HOSPITAL       11         GOVERNMENT HEALTH CENTER       12         GOVERNMENT CLINIC       13         COMMUNITY HEALTH WORKER (CHW)       14         OTHER PUBLIC SECTOR       15         (SPECIFY)       14	→804 →803A		
		PRIVATE MEDICAL SECTOR FAITH-BASED, CHURCH, MISSION HOSPITAL/CLINIC 21 PRIVATE HOSPITAL/CLINIC	→804		

	CARE-SEEKING AND	TREATMENT: KNOWLEDGE			
NO.	IO. QUESTION CODING CATEGORIES				
		NURSING/MATERNITY HOME       24         TRADITIONAL BIRTH ATTENDANT       25         PHARMACY       26         STREET MEDICINE VENDOR       27         OTHER PRIVATE       28         (SPECIFY)       0         OTHER SOURCE       32         MOBILE CLINIC       33         CHURCH/MOSQUE       34         TRADITIONAL HEALER/HERBALIST       35         OTHER       (SPECIFY)         DON'T KNOW       99	→804		
803A	What kind of Community Health Worker (CHW) is the best place to go if you think you have malaria?	COMMUNITY HEALTH ASSISTANT (CHA)			

# **Care-seeking Attitudes**

	CARE-SEEKING AND TREATMENT ATTITUDES				
l am g Intervi	ping to read a series of statements or questions to you and I would like you to tell me if you agree or c ewer: do not read 'DONT KNOW/UNCERTAIN' response and only use if respondent is not able to provid	lisagree wi de another	th the stateme answer.	ent.	
NO. QUESTION AGREE DISAGREE DON'T KNC UNCERTAIN					
804.	The health provider is always the best person to talk to when you think your child may have malaria	1	2	9	
805.	One does not need to continue taking all the medicine doses against malaria if the patient is already cured	1	2	9	
806.	A parent should ask for an injection from the health provider or community health worker if they think his/her child has malaria	1	2	9	
807.	I prefer that my child receive the medicine to treat malaria by injection rather than swallow it	1	2	9	
808.	A person should only take malaria medicine if a health provider says that his/her fever really is caused by malaria	1	2	9	
809.	If a health provider says a person does not have malaria, the patient should ask for a malaria medication just in case s/he needs it	1	2	9	
810.	When my child has a fever, it is better to start by giving him/her any malaria medicine I have at home.	1	2	9	
811.	It is important to take all the antimalaria pills prescribed to ensure a complete recovery	1	2	9	
812.	When my child has a fever, I do not go directly to the health facility, I first go elsewhere to buy him/her medicine	1	2	9	

# Perceived response efficacy

	CARE-SEEKING AND TREATMENT PERCEIVED RESPONSE EFFICACY				
l am g Intervi	oing to read a series of statements to you and I would like you to tell whether you agree or disagre iewer: do not read 'DONT KNOW/UNCERTAIN' response and only use if respondent is not able to pr	ee with each ovide anothe	statement. er answer.		
NO.	NO. QUESTION AGREE DISAGREE DON'T KNO' UNCERTAIN				
813.	A blood test for malaria is the only way to know if someone really has malaria or not	1	2	9	
814.	[This question purposely left empty]				
815.	A person should still take malaria medicine even if the malaria test result says that the fever is not due to malaria	1	2	9	
816.	Parents can diagnose malaria by a person's symptoms just as well as a blood test for malaria	1	2	9	
817.	The malaria drugs obtained from the health facility are effective in treating malaria	1	2	9	
818.	The malaria medicines that you buy in the market are as good as the ones distributed at the health facility	1	2	9	

## **Perceived self-efficacy**

	CARE-SEEKING AND TREATMENT SELF-EFFICACY						
I am g succes	I am going to ask you about a series of actions you could take, and I would like you to tell me if you think you could or could not do each action successfully. Interviewer: do not read 'DONT KNOW/UNCERTAIN' response and only use if respondent is not able to provide another answer.						
NO.	NO. QUESTION						
819.	Find the money to take your child to the health facility at the first sign of malaria.	1	2	9			
820.	Get permission from your husband or other family member to take your child to the health facility/health provider when your child has fever	1	2	9			
821.	Take your child to the health facility the same day or next day s/he develops a fever	1	2	9			
822.	Request a blood test at the health facility when you think your child might have malaria	1	2	9			
823.	Make sure your child takes the full dose of medicine that s/he is prescribed for malaria	1	2	9			
824.	Find the money to pay for the medication the health provider recommends to treat malaria	1	2	9			

## Norms

	CARE-SEEKING AND TREATMENT: NORMS				
NO.	QUESTION	CODING CATEGORIES	SKIP TO		
825.	Generally, how many people in your community (entourage) take their children to a health provider on the same day or day after they develop a fever? Would you say 	ALL PEOPLE1           AT LEAST HALF2           FEWER THAN HALF3           DON'T KNOW			
	READ OPTIONS ALOUD BUT DO NOT READ "DON'T KNOW".				
826.	Generally, how many children in your community (entourage) with fever are taken to a health facility to get tested for malaria? Would you say READ OPTIONS ALOUD BUT DO NOT READ "DON'T KNOW".	ALL CHILDREN1 AT LEAST HALF2 FEWER THAN HALF			
827	Generally, among all the people in your community, how many people would would laugh at you/condemn you if they know that you take your children to a health provider on the same day or day after they develop a fever? Would you say	ALL PEOPLE1 AT LEAST HALF2 FEWER THAN HALF			
	READ OPTIONS ALOUD BUT DO NOT READ "DON'T KNOW".				

# **Decision-making**

CARE-SEEKING AND TREATMENT: DECISION-MAKING				
NO.	QUESTION	CODING CATEGORIES	SKIP TO	
	CHECK: CURRENT MARITAL STATUS at Q105	CURRENTLY MARRIED/LIVING WITH SOMEONE	→Q901	
828.	In your household, who usually makes decisions to go to the health facility when your child has malaria? Would you say READ OPTIONS ALOUD BUT DO NOT READ "DON'T KNOW".	RESPONDENT		
829.	In your household, who usually makes decisions to purchase medicine when your child is sick with fever? Would you say READ OPTIONS ALOUD BUT DO NOT READ "DON'T KNOW".	RESPONDENT.       1         SPOUSE/PARTNER OF RESPONDENT.       2         JOINT DECISION WITH SPOUSE/PARTNER       3         MOTHER OF RESPONDENT.       4         MOTHER IN LAW OF RESPONDENT.       5         SOMEONE ELSE.       6         DON'T MAKE THIS KIND OF DECISION.       7         DON'T KNOW       9		

	CARE-SEEKING AND TREATMENT: DECISION-MAKING				
NO.	QUESTION	CODING CATEGORIES	SKIP TO		
830.	In your household, who usually makes decisions about what to do when you are sick? Would you say READ OPTIONS ALOUD BUT DO NOT READ "DON'T KNOW".	RESPONDENT			

## SECTION IX: IDEATION - SEASONAL MALARIA CHEMOPREVENTION

## **Knowledge of SMC**

	SMC : KNOWLEDGE				
N°	QUESTION	CODING CATEGORIES	SKIP TO		
901	During the rainy season, for how many <u>months</u> should children take the medication that prevents malaria in children?	NUMBER OF MONTHS			
902	How many days a <u>month</u> should children take the medicine that prevents malaria in children?	1 DAY			

## **SMC Attitudes**

	ATTITUDES RELATED TO SMC					
I am goin	am going to read a series of statements to you and I would like you to tell whether you agree or disagree with each statement.					
Interview	er: do not read 'DONT KNOW/UNCERTAIN' response and only use if respondent is not able to pr	ovide another o	answer.			
	AGREE DISAGREE DON'T KNOW/ NOT SURE					
903	Door-to-door distribution of the medicine to prevent malaria in children during the rainy season is more convenient for me than distribution at the health facility.	1	2	9		
904	Leaders in my community support the distribution of the medication that prevents malaria in children during the rainy season.	1	2	9		
905	Religious leaders in my community support the distribution of the medication to prevent malaria in children during the rainy season.	1	2	9		
906	The community health workers who distribute the medication that prevents malaria in children in my community force parents to accept the medication.	1	2	9		
907	I do not trust the people who distribute or administer the drug to prevent malaria in children.	1	2	9		
908	Healthy children do not need to take the medication to prevent malaria in children during the rainy season.			9		
909	The medication given to prevent malaria during the rainy season can harm children.	1	2	9		
910	One does not pay for the medications that prevent malaria in children during the rainy season.	1	2	9		

# **Response efficacy**

	RESPONSE EFFICACY OF SMC				
I am going	to read a series of statements to you and I would like you to tell whether you agree or disagree	with each s	tatement.		
Interviewe	r: do not read 'DONT KNOW/UNCERTAIN' response and only use if respondent is not able to pro	vide another	r answer.		
N°	QUESTION	AGREE	DISAGREE	DON'T KNOW/ NOT SURE	
911	The medication given to children to prevent malaria during the rainy season is effective in preventing malaria.	1	2	9	
912	If all the children in my community take the medication to prevent malaria, there will be fewer cases of malaria.	1	2	9	
913	A child has the same chance of getting malaria whether or not s/he takes the medication given to prevent malaria during the rainy season	1	2	9	

# Perceived self-efficacy

914	VERIFY Q315-3: THE WOMAN HAS CHILDREN UNDER 5 YEARS OLD IN HER CARE	HAS AT LEAST ONE CHILD UNDER 5 HAS NO CHILDREN UNDER 5 IN HER	IN HER CARE CARE	1 2	→Q803		
	SELF-EFFICACY RELATED TO SMC						
I am going to ask you about a series of actions you could take, and I would like you to tell me if you think you could or could not do each action successfully. Interviewer: do not read 'DONT KNOW/UNCERTAIN' response and only use if respondent is not able to provide another answer.							
N°	QUESTION			COULD NOT	DON'T KNOW/ NOT SURE		
915	Make sure that your children under 5 years old take the medication that prevents malaria during the rainy season.			2	9		
916	916 Find the money to take your child to a health facility when you have missed the door-to-door distribution of the medication that prevents malaria in children.			2	9		
917	917 Obtain your husband or another family member's permission to give the medication that prevents malaria to your children.		1	2	9		
918	Make sure your child takes all he doses of the medication given to prevent malaria on the second and third days.			2	9		

#### Norms

SMC : NORMS				
N°	QUESTION	CODING CATEGORIES	SKIP TO	
919	Generally, in your community (entourage) how many children take the medication to prevent malaria during the rainy season? Would you say READ THE OPTIONS OUT LOUD, BUT DO NOT READ "DON'T KNOW	ALL CHILDREN		
920	Generally, how many people in your community (entourage) take their children to the health facility to receive the medication that prevents malaria if they miss a household visit? Would you say	EVERYONE         1           MOST PEOPLE         2           AT LEAST HALF OF PEOPLE         3           LESS THAN HALF OF PEOPLE         4		
	READ THE OPTIONS OUT LOUD, BUT DO NOT READ "DON'T KNOW	DON'T KNOW		

	SMC : NORMS					
N°	QUESTION	CODING CATEGORIES	SKIP TO			
921	After receiving medication from a community health worker or facility health provider at the health facility, how many people, generally, in your community (entourage) give the medication to their children for the next two days? Would you say	EVERYONE         1           MOST PEOPLE         2           AT LEAST HALF OF PEOPLE         3           LESS THAN HALF OF PEOPLE         4				
	READ THE OPTIONS OUT LOUD, BUT DO NOT READ "DON'T KNOW	DON'T KNOW9				

## **Decision-making**

SMC : DECISION-MAKING					
N°	QUESTION	CODING CATEGORIES	SKIP TO		
922	VERIFY Q105 : CURRENT MARITAL STATUS	CURRENTLY MARRIED/LIVING WITH SOMEONE1 NOT CURRENTLY MARRIED2	→ Q1001		
923	In your household, who generally makes the decision to obtain the preventative treatment for malaria in children during the rainy season? Would you say READ THE OPTIONS OUT LOUD, BUT DO NOT READ "DON'T KNOW"	RESPONDENT       1         SPOUSE/PARTNER OF RESPONDENT.       2         JOINT DECISION WITH SPOUSE/PARNTER.       3         MOTHER OF RESPONDENT.       4         MOTHER IN LAW OF RESPONDENT.       5         SOMEONE ELSE       6         DON'T MAKE THIS KIND OF DECISION       7         DON'T KNOW       9         NO CHILDREN       9			

# SECTION X: IDEATION – PERCEPTIONS OF PROVIDERS, COMMUNITY HEALTH WORKERS, AND HEALTH FACILITIES

PERCE	PERCEPTIONS OF PROVIDERS, COMMUNITY HEALTH WORKERS, AND HEALTH FACILITIES					
l am go Intervi	I am going to read a series of statements or questions to you and I would like you to tell me if you agree or disagree with the statement. Interviewer: do not read 'DONT KNOW/UNCERTAIN' response and only use if respondent is not able to provide another answer.					
NO.	NO. AGREE DISAGREE DON'T KNO UNCERTAIN					
	GENERAL PERCEPTIONS					
1001.	Community health workers in your community treat their patients with respect	1	2	9		
1002.	Health providers in health facilities in this community treat their patients with respect	1	2	9		
	PERCEPTIONS RELATED TO MALARIA CASE MANAGEMEN	г				
1003.	Community health workers always have the medication to treat malaria.	1	2	9		
1004.	Health facilities always have the medication to treat malaria.	1	2	9		
1005.	Community health workers in this community always have the blood test kit to tell if a person has malaria.	1	2	9		

	MEN 6 QUED HONNAILLE			
PERCE	PTIONS OF PROVIDERS, COMMUNITY HEALTH WORKERS, AND HEALTH FACILITIES			
l am go Intervi	oing to read a series of statements or questions to you and I would like you to tell me if you agr ewer: do not read 'DONT KNOW/UNCERTAIN' response and only use if respondent is not abl	ee or disag e to provid	ree with the st e another ans	atement. wer.
1006.	Health facilities in this community always have the blood test kit to tell if a person has malaria.	1	2	9
1007.	Community health workers in this community know how to treat malaria in children	1	2	9
1008.	Health providers at the health facilities in this community know about how to treat malaria in children	1	2	9
		AGREE	DISAGREE	DON'T KNOW/ UNCERTAIN
1009.	Community health workers in your community make parents pay for the medication to treat malaria in children less than five years old.	1	2	9
	THE HEALTH CARD OR OTHER RELATED FEES. INTERVIEWER SHOULD ENSURE THAT THE RESPONDENT CLEARLY UNDERSTANDS THIS QUESTION.			
	Health providers at the health facility in your community make parents pay for the medication to treat malaria in children less than five years old.			
1010.	NOTE THAT THIS QUESTION IS ABOUT PAYMENT FOR THE ACTUAL MEDICINE NOT FOR THE HEALTH CARD OR OTHER RELATED FEES. INTERVIEWER SHOULD ENSURE THAT THE RESPONDENT CLEARLY UNDERSTANDS THIS QUESTION.	1	2	9
1011.	Community health workers in your community make parents of children less than five years old pay for the blood test to see if the child has malaria.			
	NOTE THAT THIS QUESTION IS ABOUT PAYMENT FOR THE ACTUAL TEST NOT FOR A HEALTH CARD OR OTHER RELATED FEES. INTERVIEWER SHOULD ENSURE THAT THIS IS CLEAR TO THE RESPONDENT	1	2	9
	Health facility providers in your community make parents of children less than five years old pay for the blood test to see if the child has malaria.			
1012.	NOTE THAT THIS QUESTION IS ABOUT PAYMENT FOR THE ACTUAL TEST NOT FOR A HEALTH CARD OR OTHER RELATED FEES. INTERVIEWER SHOULD ENSURE THAT THIS IS CLEAR TO THE RESPONDENT	1	2	9
	PERCEPTIONS RELATED TO SMC	83	-	0,
1013.	Community health workers in your community come several times during the rainy season to give the medication that prevents malaria in children less than five years old.	1	2	9
1014.	In your community, health facilities always have the medication that prevents malaria in children during the rainy season	1	2	9
	ANC/IPTp			
	In your community, providers at the health facility make pregnant women pay for SP/Fansidar, the medicine to prevent malaria.			
1015.	NOTE THAT THIS QUESTION IS ABOUT PAYMENT FOR THE ACTUAL MEDICINE NOT FOR THE ANC CARD OR OTHER ATTENDANT FEES. INTERVIEWER SHOULD ENSURE THAT THIS IS CLEAR TO THE RESPONDENT	1	2	9
1016.	Prenatal health providers in this community generally treat pregnant women with respect	1	2	9
1017.	Health providers at the health facility in this community always offer the medicine to prevent malaria to pregnant women	1	2	9
1018.	Health providers at the health facilities in this community always give pregnant women the medicine the medication to prevent malaria only if she's eaten beforehand.	1	2	9

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PERCEPTIONS OF PROVIDERS, COMMUNITY HEALTH WORKERS, AND HEALTH FACILITIES				
I am going to read a series of statements or questions to you and I would like you to tell me if you agree or disagree with the statement. Interviewer: do not read 'DONT KNOW/UNCERTAIN' response and only use if respondent is not able to provide another answer.			atement. <b>ver.</b>	
1019.	If a woman goes to the health facility during the first two months of her pregnancy, the health providers will send her away	1	2	9
1020.	If a pregnant woman goes to the health facility without her husband/partner, the health providers will send her away.	1	2	9

# Gender Norms

I am going to read a series of statements or questions to you and I would like you to tell me if you agree or disagree with the statement.
Interviewer: do not read 'DONT KNOW/UNCERTAIN' response and only use if respondent is not able to provide another answer.

NO.		AGREE	DISAGREE	DON'T KNOW/ UNCERTAIN
1021.	When there are not enough nets, it is more important that <u>female</u> children sleep under the available nets rather than <u>male</u> children.	1	2	9
1022.	When there are not enough nets, it is more important that <u>male</u> children sleep under the available nets rather than <u>female</u> children.	1	2	9
1023.	A pregnant woman should feel comfortable asking her husband/spouse to go to the health facility for a prenatal consultation.	1	2	9
1024.	When there is not enough money, it is more important that <u>male</u> children with fever get medicine rather than <u>female</u> children.	1	2	9
1025.	When there is not enough money, it is more important that <u>female</u> children with fever get medicine rather than <u>male</u> children.	1	2	9

## SECTION XI: RECALL OF MALARIA MESSAGES

	GENERAL MALARIA: EXPOSURE TO MALARIA MESSAGES					
NO.	QUESTION	CODING CATEGORIES	SKIP TO			
1101.	How frequently do you listen to the radio? Would you say four or more times a week, two or three times a week, once a week, less than once a week or never? READ OPTIONS ALOUD	4 OR MORE TIMES A WEEK	<b>→</b> Q1103			
1102.	What time of day are you <u>most likely</u> to listen to the radio – early morning, late morning, afternoon, early evening, late evening or night? READ OPTIONS ALOUD BUT DO NOT READ "DON'T KNOW".	EARLY MORNING (4AM TO 8AM)         1           LATE MORNING (8AM TO 12 NOON)         2           AFTERNOON (12 NOON TO 4 PM)         3           EARLY EVENING (4PM TO 8PM)         4           LATE EVENING (8PM TO 12 MIDNIGHT)         5           NIGHT (12 MIDNIGHT TO 4AM)         6           DON'T KNOW         8				
1103.	How frequently do you watch television? Would you say four or more times a week, two or three times a week, once a week, less than once a week or never? READ OPTIONS ALOUD	4 OR MORE TIMES A WEEK	<b>→</b> Q1105			

	MEN'S QUESTIONNAIRE					
1104.	What time of day are you most likely to watch television –	EARLY MORNING (4AM TO 8AM)1				
	early morning, late morning, afternoon, early evening, late	LATE MORNING (8AM TO 12 NOON)				
	evening or night?					
		EARLY EVENING (4PIVI TO 6PIVI)				
	READ OPTIONS ALOUD BUT DO NOT READ "DON'T KNOW".	LATE EVENING (8PM TO 12 MIDNIGHT)				
		NIGHT (12 MIDNIGHT TO 4AM)6				
		DON'T KNOW9				
1105.	Do you personally have a mobile device like a phone or	YES1	a constant			
	tablet?	NO2	→Q1108			
1106.	Do you share this mobile device with someone else?	YES1				
		NO2				
1107.	On this mobile device, which of the following can you	YES NO DK				
	receive:	CHAT/TEXT/EMAIL9				
	1. Chat, text or email messages?	PICTORES				
	2. Pictures?	VIDEOS				
	3. Videos?	AUDIO FILES				
	4. Audio files?	OTHER MEDIA				
	ASK ABOUT FACH TYPE OF MEDIA SEPARTELY	(SPECIFT)				
1109	In the past 6 months, have you soon or heard any messages	VES 1				
1106.	about malaria?	NO 2				
1100	Where did you see or hear the messages or information?		Vulli			
1105.	where did you see of hear the messages of informations	COMMUNITY HEALTH WORKER B				
		WORKPLACE				
		DRAMA GROUPS				
	PROBE ONCE: Anything else?	PEER EDUCATORS				
	those offer highling elser	POSTERS/BILLBOARDS				
	REVISE RESPONSES PER LOCAL CONTEXT	TELEVISION				
		RADIOI				
		NEWSPAPERJ				
		MOSQUE/CHURCHK				
		COMMUNIT LEADERS L				
		SMS/CHAT/EMAILM				
		INTERNETN				
		OTHER (SPECIFY)X				
		DON'T KNOWZ				
1110	What messages about malaria did you hear or see?	SLEEP UNDER A TREATED MOSQUITO NET A				
		EVERYONE SHOULD SLEEP UNDER A TREATED				
		MOSQUITO NET EVERY NIGHT B				
	MULTIPLE RESPONSES POSSIBLE	EVERYONE SHOULD SLEEP UNDER A TREATED				
	CIRCLE ALL RESPONSES	MOSQUITO NET EVERY WHERE				
	PROPE ONCE: Anothing also	PREGNANT WOMEN SHOULD GO FOR SEVERAL				
	PROBE ONCE: Anything else?	ANTENATAL VISITS				
		FACILITY FOR TESTING AND TREATMENT				
		CHILDREN WITH FEVER SHOULD BE TAKEN TO THE				
		HEALTH FACILITY WITHOUT DELAY				
		RAPID DIAGNOSTIC TEST HELPS TO KNOW IF A FFVFR IS				
		CAUSED BY MALARIA				
		FREE ACT TREATMENTI				
		ENSURE CHILDREN RECEIVE THE MEDICATION THAT				
		PREVENTS MALARIA DURING THE RAINY SEASON J				
		GO TO A HEALTH FACILITY IF YOU MISS A COMMUNITY				
		HEALTH AGENT'S HOME VISIT TO GET THE				
		MEDICATION THAT PREVENTS MALARIA IN CHILDREN				
		DURING THE RAINY SEASONK				

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-			
		ENSURE CHILD RECEIVES MEDICATION THAT PREVENTS	
		MALARIA FOR TWO DAYS AFTER THE FIRST DOSE L	
		THE MEDICATION GIVEN TO CHILDREN DURING THE	
		MOSOLITO DITES	
		HOW TO INSTALL BED NETS	
		HOW TO WASH A BED NETP	
		HOW TO SLEEP UNDER A BED NETQ	
		WHERE TO GET FREE BED NETSR	
		CHILDREN LESS THAN 5 YRS SHOULD SLEEP UNDER A	
		BED NET TO AVOID MOSQUITO BITESS	
		CLEAN UP SURROUNDINGST	
		OTHERX	
		(SPECIFY)	
		DON'T KNOW/CAN'T REMEMBER	
1111	Can you complete the following phrase?	CORRECTLY COMPLETED "Sleep under a mosquito net	
	"Sleen under a mosquito net every night everywhere "	eveny night evenywhere "	→011124
	sieep under a mosquito net every multice every where.	INCORRECTLY COMPLETED 2	-011124
			2 QIIIZA
1112	Where did you see as hear this phrase?		0
1112.	where did you see of hear this phrase?		
		CONIVIONITY HEALTH WORKERS	
		FRIENDS/FAIVILY	
	MULTIPLE RESPONSES POSSIBLE	WORKPLACE	
		COMMUNITY EVENT/DRAMA GROUPS	
	PROMPT: Anywhere else?	PEER EDUCATORSF	
		POSTERS/BILLBOARDSG	
	**Review response options with country team to	TELEVISION H	
	contextualize	RADIOI	
		NEWSPAPERJ	
		MOSQUE/CHURCHK	
		COMMUNITY LEADERSL	
		SOCIAL MEDIA M	
		OTHERX	
		(SPECIFY)	
		DON'T KNOWZ	
1113.	Which of these logos /pictures do you recognize?	CAMPAIGN LOGO ONLY1	
54.340-54.156.540	and dependencial and an and the Alexandra and an an an and an an an an an and a	CAMPAIGN LOGO AND ANOTHER	→Q1201
	INTERVIEWER SHOWS 3 IMAGES INCLUDING THE LOGO	OTHER LOGOS ONLY	→Q1201
	THAT WAS USED IN THE MOST RECENT COMMUNICATION	DID NOT RECOGNIZE ANY LOGOS	→Q1201
	CAMPAIGN: THE TWO OTHERS THAT ARE MADE UP		
1114.	Where did you see the logos/pictures?	HEALTH FACILITY A	8
		COMMUNITY HEALTH WORKER B	
	MULTIPLE RESPONSES POSSIBLE	FRIENDS/FAMILY C	
		WORKPLACE	
	PROMPT: Anywhere else?		
	rionir I. Anywhere else:	DEED EDUCATORS	
		TELEVISION	
		NEWSPAPERJ	
		MUSQUE/CHURCHK	
		COMMUNITY LEADERSL	
		SOCIAL MEDIA M	
		OTHERX	
		(SPECIFY)	
1	1	I DON'T KNOW	I

RECORD THE TIME	HOURS	II
	MINUTES	II

Thank respondent for his time and patience.