Malaria Behavior Survey

Zambia 2024

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Breakthrough ACTION FOR SOCIAL & BEHAVIOR CHANGE

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Alain Koffi, the Principal Investigator, developed the study protocol, supervised data collection, and led data analysis and reporting. Angela Acosta provided overall management support and technical assistance in the interpretation of the results, and Ashley Riley coordinated stakeholder engagement activities and report writing. Bervelin Lumesa contributed to data quality monitoring and analysis.

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Acronym List

ACT	Artemisinin-based combination therapies
ANC	Antenatal care
aOR	Adjusted odds ratio
CHW	Community health worker
DHS	Demographic and Health Survey
EA	Enumeration area
HMIS	Health management information system
IPTp	Intermittent preventive treatment of malaria in pregnancy
IPTp3+	Three or more doses of IPTp
IRB	Institutional Review Board
IRS	Indoor residual spraying
ITN	Insecticide-treated net
MBS	Malaria Behavior Survey
MIP	Malaria in Pregnancy
MIS	Malaria Indicator Survey
MRRS	Malaria Rapid Reporting System
NMEC	National Malaria Elimination Center
PMI	U.S. President's Malaria Initiative
SBC	Social and behavior change
SP	Sulfadoxine pyrimethamine
USAID	United States Agency for International Development
WHO	World Health Organization

Reading and Understanding Tables in the 2024 Zambia Malaria Behavior Survey

The Malaria Behavior Survey (MBS) consists of over 50 tables of data, the majority of which are in the report annex. Summary tables of important indicators for each section are displayed in the body of the text at the end of the ideational factors results narrative for each section and are referred to by their table number. Tables displaying the results of logistic regression models are available at the end of the behavior results for each section, referred to by their table number.

The MBS contains additional labeled figures in the form of maps, graphs, and other visuals throughout the document. These are meant to aid in interpreting the document and are referred to and discussed in the text by their figure number. Smaller, unlabeled, at-a-glance call-out boxes are also present throughout the results section. However, these are merely meant to summarize key results from each section and are not referred to in the body of the text.

Example of an at-a-glance box

	75% Comprehensive general knowledge about malaria
	94% Overall favorable perceptions of facility-based health providers
	91% Overall favorable perceptions of community-based health providers
	94% Perceived susceptibility
	99% Perceived severity
	47% Interpersonal communication with spouse/partner
	43% Interpersonal communication with friends/family

Example of a labeled figure

Example 1: Summary Tables

Table 5: Summary of Cross-Cutting Ideational Factors Related to Malaria				
Characteristic	Percent of respondents who report cross-cutting ideational factors related to malaria, by sociode Zambia Malaria Behavior Survey, 2024			
	Comprehensive general knowledge about malaria	Perceive susceptibility to malaria	Perceive severity of malaria	Reported interpersonal communication about malaria with spouse/partner
Transmission districts	***			
High	78.2	94.1	98.5	47.6
Moderate	64.2	92.9	98.8	44.7
Sex	ǂ			***
Female	75.9	93.7	98.7	43.8
Male	72.4	94.1	98.3	54.6
Age	*	ǂ		**
15–24	72.5	92.3	98.0	37.1
25–34	79.6	93.7	98.7	45.7
35–44	74.4	95.6	99.5	53.1
45 and above	72.1	95.0	98.4	55.0
Residence		***		ǂ
Rural	74.4	95.7	98.5	45.2
Urban	77.0	88.6	98.9	52.8
Level of education		***		**
None	71.6	93.1	94.4	43.1
Primary	73.8	96.1	98.5	44.7
Secondary or higher	78.7	88.5	98.8	55.5
Wealth quintile		***		**
Lowest	73.9	96.5	97.6	40.4
Second	74.6	96.5	98.7	40.7
Middle	73.8	93.7	98.6	50.4
Fourth	73.8	95.1	98.6	45.7
Highest	79.3	88.0	99.3	57.7
Total (%)	**75.1**	**93.8**	**98.6**	**46.3**
Total (N)	**2045**	**2045**	**2045**	**1533**

Notes: ǂ p<0.1; * p<0.05; ** p<0.01; *** p<0.001; n/a: not applicable

Highlight 1: The name of the indicator for that specific column and the number of observations in the sample. In this example, the first column pertains to comprehensive knowledge about malaria.

Highlight 2: The weighted percentage of the specific indicator in the sample. In this example, 75.1% of the weighted population had comprehensive general knowledge about malaria.

Highlight 3: The characteristics of interest and subgroups. In this example, the characteristic is respondent sex, and the subgroups are female and male.

Highlight 4: The asterisks indicate the level of significance for the differences between subgroups (no star denotes there is not a significant difference between subgroups). The commonly used cut off for determining statistically significant results is $p < 0.05$. By extension, lower p-values (such as $p < 0.01$ or $p < 0.001$) are considered highly significant, as they indicate there is a less than 1% or 0.1% chance that the differences observed between groups were due to random variation.

Highlight 5: The relative percentage of each subgroup with the indicator. For instance, 40.4% of respondents in the lowest wealth quintile reported interpersonal communication about malaria with a spouse or partner in the previous six months.

Example 2: Tables Displaying Logistic Regression Results

Results of the logistic regression exploring factors associated with reported care of ITNs by tying or folding it up when not in use – residents of households with at least one ITN		
Characteristic	**% Net care (Roll up or Tie up when not in use**	**Adjusted Odds Ratio (95% Confidence Interval)**
Age in years	‡	
15–24 (reference)	63.6	1.0
25–34	69.8	1.32 [1.00-1.74]
35–44	69.9	1.26 [0.90-1.76]
45 and above	61.5	0.87 [0.62-1.23]
Sex		
Female (reference)	66.3	
Male	68.2	
Level of education		
None (reference)	75.0	
Primary completed	66.4	
Secondary or higher	68.3	
Household wealth quintile		
Lowest (reference)	66.9	
Second	64.2	
Middle	65.4	
Fourth	71.7	
Highest	65.2	
Transmission districts	***	
High (reference)	64.1	1.0
Moderate	76.0	1.89 [1.37-2.61] ***
Residence		
Rural (reference)	68.4	
Urban	62.1	
Favorable Attitudes to the use of mosquito nets	*	
No (reference)	59.4	1.0
Yes	68.1	1.48 [1.08-2.03] *
Perceived severity of malaria		
No (reference)	58.0	
Yes	66.9	

Highlight 1: The name of the category used in analysis and the subgroups in it as separate rows. In this example, age group is included in the analysis with all four groups. Note that the first subgroup listed is always the reference for comparison with the other subgroups, so respondents aged 15–24 are the reference.

Highlight 2: The percentage of each row that is reporting the behavior or intention. In this example, 63.6% of respondents who are age 14–24 reported consistently using an insecticide-treated net (ITN) every night.

Highlight 3: The adjusted odds ratio (aOR). 1.0 denotes the reference row. In this example, the aOR is 1.89, meaning respondents in moderate transmission zone are 1.89 times more likely to sleep under an ITN every night in the past week compared to those in a high transmission zone.

Highlight 4: The 95% confidence interval for the aOR. In this example, respondents with favorable attitudes to the use of mosquito nets were 1.48 times more likely to use a net consistently compared to those without favorable attitudes. A 95% confidence interval (CI) of 1.08 to 2.03 indicates that the true effect of favorable attitudes on mosquito net use is likely within this range 95% of the time. Since the entire interval is above 1.0, this suggests that individuals with favorable attitudes are more likely to use a net consistently.

Zambia MBS Brief: Executive Summary

What Do the Data Mean?

INTRODUCTION

The 2022–2026 Zambia National Malaria Elimination Strategic Plan emphasizes social and behavior change (SBC) as a primary intervention to encourage the uptake and correct use of commodities and interventions. With funding from the U.S. President's Malaria Initiative, the Breakthrough ACTION project collaborated with the Zambia National Malaria Elimination Center and other stakeholders to implement a Malaria Behavior Survey (MBS).

The MBS is a standardized survey that has been implemented in 13 countries. In Zambia, the behaviors examined included net use, net care, prompt and appropriate care-seeking, antenatal care (ANC), receipt of intermittent preventive treatment of malaria in pregnancy medication (IPTp), and acceptance of indoor residual spraying (IRS). Data on respondents' exposure to malaria messages and media habits were also collected.

The study provides crucial information for designing effective SBC programs. The study, fielded in Luapula, Northern, Muchinga, and Eastern provinces in April and May 2024, used structured questionnaires administered to a random sample of residents. The analysis used robust statistical methods to identify the factors most associated with practicing the desired behaviors.

The survey sample included:

1,325 households

2,045 individuals
1,593 women
452 men

WHAT DO THE DATA MEAN?

This MBS brief summarizes the proportion of the population practicing a variety of recommended malaria behaviors and the demographic and psychosocial factors associated with practicing them. All results cited from logistic regressions are statistically significant at the $p<0.05$ level or less. The brief also uses these results to present recommendations for SBC programs for each of the malaria intervention areas. A complete report is available on the MBS Website.

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Malaria Case Management

BEHAVIORS AT-A-GLANCE

Among caregivers of children under five years of age with fever within the two weeks prior to the survey:

92%

of female caregivers with a febrile child under five sought care from a health facility or community health worker (CHW) first (appropriate care).

85%

of female caregivers sought care on the same or next day (prompt care).

84%

of caregivers sought both prompt and appropriate care for a child with fever.

SBC RECOMMENDATIONS

1 CHALLENGE: Maintain and increase prompt and appropriate care-seeking. At 84%, the rate of prompt and appropriate care-seeking—defined as seeking treatment the same day or the next day following fever onset for a child under five at a health facility or from a CHW—is high for the MBS survey area, compared to historic nationwide rates. However, 16% of caregivers did not seek prompt and appropriate care. To improve this, SBC activities can:

- **Improve knowledge of care-seeking recommendations.** Respondents with a comprehensive knowledge of care-seeking were **3.8 times more likely** to seek prompt and appropriate care. SBC programs should consider reinforcing the three key components of comprehensive knowledge: when to seek care, where to seek care, and the importance of malaria testing for diagnosis.

- **Normalize prompt and appropriate care-seeking.** Respondents who believed that people in their community sought care on the same day or the day after they developed a fever were **2.3 times more likely** to seek prompt and appropriate care. This suggests that SBC programs should promote the perception that prompt care-seeking is the norm, particularly among urban populations where this belief is less common. Testimonials from trusted opinion leaders and peers can highlight that most caregivers from these groups do, in fact, seek prompt treatment. SBC programs can leverage mass and digital media approaches since televisions, radios, and phones are widely used by these groups.

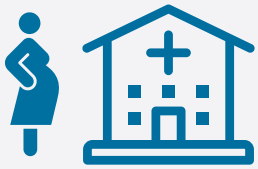
- **Increase attention to urban populations.** Although health services tend to be more geographically accessible in urban areas, urban respondents were **48% less likely** to seek prompt and appropriate care compared to rural respondents. Fewer urban respondents believed people in their community seek care on the same or next day following a fever (**80%** urban versus **85%** rural), seek a malaria test (**82%** versus **88%**), and believe that malaria treatments were effective (**53%** versus **64%**). SBC programs targeting urban caregivers can leverage the higher rates of radio, TV, and mobile phone use in urban populations. Messaging should normalize prompt and appropriate care-seeking in urban areas, emphasize the importance of malaria testing for all fevers, and, to counter skepticism about its efficacy, clarify that malaria treatment is highly effective when given early.

Antenatal Care and Intermittent Preventive Treatment During Pregnancy

BEHAVIORS AT-A-GLANCE

Of the women surveyed who reported a pregnancy during the previous two years:

ANC attendance



99%
attended at least one ANC visit.

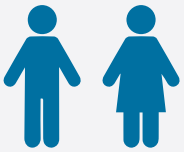
89%
had 4 or more ANC visits.

IPTp doses

99.6%
received at least one dose of IPTp.

87%
received at least 3 doses of IPTp.

Early ANC initiation



67%
started ANC in their first trimester.

87%
intend to start ANC early during a future pregnancy.

SBC RECOMMENDATIONS

1 CHALLENGE: Only 67% of pregnant women started ANC in the first trimester, though 87% intend to do so during a future pregnancy. With Zambia shifting its emphasis from at least three to four or more doses of IPTp, addressing the large gap between early ANC behavior and intention would create more opportunities for women to attend ANC and receive IPTp. To do so, SBC programs can:

- **Strengthen confidence in the need for ANC, even among healthy women.** Women with favorable attitudes toward malaria in pregnancy treatment (e.g., IPTp) were **3.89 times more likely** to attend ANC at least four times in a future pregnancy. However, only **15%** of respondents disagreed with the statement that if a pregnant woman feels healthy, she does not need to see a health provider. SBC programs can emphasize that early and frequent ANC is essential for both mother and baby, regardless of how healthy a woman feels. Messaging should highlight that malaria can be asymptomatic while still posing serious risks during pregnancy.

- **Reinforce the belief that starting ANC early is standard practice.** Women who believed that most women in their community start ANC in the first trimester were **2.2 times more likely** to start ANC early. Since most women (67%) already practice this behavior, SBC programs can highlight the fact that this is a common, recommended, and beneficial behavior.

- **Increase knowledge of malaria in pregnancy recommendations, particularly knowledge that ANC visits should begin during the first trimester.** Women who were knowledgeable about malaria in pregnancy recommendations were **2.15 times more likely** to intend to attend ANC at least four times during a future pregnancy and **1.90 times more likely** to intend to start ANC during their first trimester. However, knowledge of when a pregnant women should go to ANC for the first time was low among respondents **(52%)**. Similarly, only **76%** knew how many times a woman should receive IPTp during a pregnancy.

- **Foster trust in ANC services.** Women who perceived that most ANC providers treat women with respect were **1.86 times** more likely to intend to initiate ANC early in a future pregnancy. Many respondents thought if a pregnant women goes to a health facility without her husband/partner for ANC, the health provider would send her away **(62%)**. One-third **(37%)** of respondents believed that a health provider would only give a pregnant women the medicine to prevent malaria if she had eaten beforehand. Sharing testimonials and demonstrating positive ANC experiences can build trust in ANC services and encourage early ANC.

Insecticide-Treated Nets

BEHAVIORS AT-A-GLANCE

Net access[1]

1.1

was the use-to-access ratio in the Zambia MBS survey area. Among those with access to a net in their household, nearly all are using them. Additionally, this means households are using ITNs to protect more than two people per net.

Consistent use

86%

of respondents reported using a net every night of the week ("consistent use"). Women (85% versus 89% of men) and urban residents (80% versus 88% for rural) were less likely to use a net consistently.

Net care

53%

of all ITNs found in households were hung and tied over the sleeping space. This increases the longevity of ITNs.

66%

of ITNs had been washed with detergent or bleach.

40%

were dried in the sun, which can reduce insecticide effectiveness.

SBC RECOMMENDATIONS

1 CHALLENGE: Increase access to nets. While net use is high among those with access, overall access remains limited, with only 69% of the population having access to a net.

- **Use SBC to support the sustained acquisition of and access to nets.** SBC can promote household participation in mass and continuous distribution efforts and can encourage households to redistribute excess nets to other family members or neighbors with no nets. Similarly, strategic advocacy efforts are needed to mobilize government agencies, donors, and community and private sector leaders to prioritize the procurement and equitable distribution of ITNs.

2 CHALLENGE: Promote net care behaviors to increase the longevity of available nets. Room for improvement in easily adoptable net care behaviors is ample.

- **Promote ITN care through health facility staff and by SMS/chat/email.** Respondents who reported hearing a malaria message from a health facility and SMS/chat/email are **1.37 and 1.79 times more likely** to tie or fold up a net when not in use. The results suggest that facility-based and digital communication channels can effectively encourage net care behaviors.
- **Improve attitudes toward the use of mosquito nets.** In survey provinces, those who view nets positively **were 1.48 times more likely to** take care of them. In the MBS, sizable proportions of respondents appeared to have reservations about using nets in warm weather **(20%)**, unfolding the net every night **(25%)**, the smell of the net **(20%)**, and the safety of ITNs **(26%)**. SBC programs should consider specifically addressing these concerns.

3 CHALLENGE: While the net use-to-access ratio suggests that the population values using nets, the consistent practice of the behavior can be improved. Fourteen percent (14%) of respondents did not consistently use an ITN, defined as sleeping under an ITN every night of the week preceding the survey. To address this, SBC programs can:

- **Leverage health providers as effective messengers.** Those who reported hearing malaria messages from a health facility were **1.69 times more likely** to use a net every night. While SBC programs can continue encouraging providers to counsel clients about net use and net care, their limited reach within the health facility context can be expanded by featuring providers on mass and digital media.

[1] The use-to-access ratio indicates the ratio of people who slept under an insecticide-treated net (ITN) the previous night (use) to people who could have slept under a net, assuming each net in the household provides access for up to two people (access).

Indoor Residual Spraying

BEHAVIORS AT-A-GLANCE

Among respondents who reported that their households had been offered indoor residual spraying (IRS):

89% are willing to accept IRS in the future if offered.

85% of respondents trust spraying the inside walls of a house is an effective method to prevent malaria, whereas

99% of respondents trust ITNs.

SBC RECOMMENDATIONS

1 CHALLENGE: Sustain the high percentage of the population willing to accept IRS. Experience in other countries has shown that this can decrease with time. SBC activities can:

- **Improve attitudes toward IRS.** MBS results show that one in four respondents have concerns about IRS. Only **74%** agreed with the statement: "The benefits of having my house sprayed is worth the effort needed to move my belongings out so it can be sprayed." Only **76%** disagreed with the statement: "Many people develop skin problems (rashes, itching) after the walls inside their houses are sprayed with insecticide." SBC programs should provide clear information to address misconceptions about IRS, emphasizing that skin problems are not caused by IRS, and the benefits outweigh the effort involved.

- **Increase the population's confidence in their ability to practice IRS-related behaviors.** Related to the attitudinal beliefs described above, **83%** of respondents believe they can move furniture in preparation for spraying. SBC programs can increase perceived self-efficacy by providing practical strategies and encouraging communities to work together. SBC activities should begin as soon as IRS focus areas are identified so communities can anticipate and prepare for potential obstacles.

- **Strengthen trust in the effectiveness of IRS.** While **99%** of respondents believe ITNs are effective at preventing malaria, only **85%** agree that "spraying the inside walls of a house is an effective way to prevent malaria." SBC programs can highlight the effectiveness of IRS by sharing data from local and national malaria control efforts, demonstrating reductions in malaria cases in areas where IRS has been implemented. They can also show testimonials from community members who have experienced the benefits of IRS firsthand, as well as endorsements from local health officials, health providers, and opinion leaders.

Media Habits and Channels

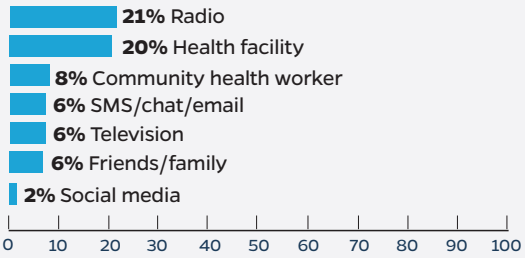
BEHAVIORS AT-A-GLANCE

48%
had heard a malaria message in the six months before the survey.

77%
own a mobile phone or tablet.

48%
listen to the radio at least once per week.

Sources of malaria messages



Note: Participants could select multiple options

25%
watch TV at least once a week.

4 pm to 8 pm
is the best time to reach both men and women through both TV and radio.

MEDIA RECOMMENDATIONS

- **Use a multi-channel strategy that includes mobile phones, radio, and television.** Only **25%** and **48%** of respondents, respectively, watch TV and radio at least once a week. While **77%** own a phone, very few had seen or heard a malaria message from social media **(2%)** or SMS/chat/email **(6%)** in the preceding six months. This suggests radio and TV alone would not reach a critical mass of the population and that mobile phones are underutilized. A multi-channel strategy can expand the reach and strengthen recall of malaria messages.

- **Ensure malaria messages air between 4 to 8 p.m.** One-half of radio **(47%)** and TV **(49%)** audiences tune in between 4–8 p.m., making this a key window for reaching large audiences. However, to maximize reach and reinforce messaging, SBC programs should consider additional airtime to engage different audience segments throughout the day.

- **Use mass and digital media to leverage the influence of health workers and promote positive perceptions of malaria services.** MBS results suggest that health providers can play a critical role in malaria SBC in Zambia. Exposure to malaria messages from health facility providers is linked to more consistent net use and care, and positive perceptions of providers increase the likelihood of early ANC initiation. In addition, **20%** of respondents already report seeing or hearing malaria messages from a health facility. However, providers interact with a limited number of clients every day. SBC programs can amplify providers' influence by using mass and digital media to increase trust in health services and reach audiences beyond clinic settings.

Introduction

Context of Malaria in Zambia

Zambia is a landlocked country in southern Africa, bordered by eight countries: Angola, Botswana, the Democratic Republic of the Congo, Malawi, Mozambique, Namibia, Tanzania, and Zimbabwe. Zambia is divided into 10 provinces, of which four were included in the Zambia MBS: Luapula, Northern, Muchinga, and Eastern (**Figure 1**). Zambia's population was estimated to be 19,610,769 in 2022, with 60% (11,766,141) living in rural areas.[1]

Figure 1. *Zambia's 10 Provinces. The provinces in color were included in the MBS.*

The 2024 World Malaria Report notes Zambia as one of 21 countries in the World Health Organization (WHO) Africa Region that are not on track for achieving WHO's Global Technical Strategy for malaria 2016-2030 but are achieving reductions in malaria case incidence. As such, malaria remains a significant public health challenge in the country. Zambia recorded over 11.3 million malaria cases, with an estimated 561 cases for every 1,000 people, according to 2023 Zambia Health Management Information System (HMIS) and Malaria Rapid Reporting System (MRRS) data. The malaria mortality rate in Zambia is 8.5% per 100,000 population, according to the HMIS and MRRS 2023.

Malaria transmission occurs year-round and varies in transmission intensity across the country. The 2024 Malaria Indicator Survey (MIS) reported malaria prevalence by microscopy of over 20% in four of Zambia's provinces: North-Western (34%), Luapula (27.7%), Northern (31.5%), and Muchinga (21.3%). In contrast, Southern (0.3%) and Lusaka (1.3%) provinces boast the lowest rates in the country. Eastern province (12.8%) includes seven pre-elimination districts, known as 'moderate transmission districts' in the Zambia MBS. For the purposes of the Zambia MBS, moderate transmission district data are made distinct from high transmission district data to explore potential differences in ideational factors and malaria behaviors by transmission context.

Figure 2*. Malaria Prevalence by Microscopy At-A-Glance: Zambia MBS Provinces (Source: 2024 Zambia MIS)*

Malaria Prevalence by Microscopy in Zambia MBS Provinces (Source: 2024 Zambia MIS)			
27.7% Luapula	**31.5%** Northern	**21.3%** Muchinga	**12.8%** Eastern

[1] Zambia Statistics Agency. (2022). 2022 Census of Population and Housing. http://www.zamstats.gov.zm/wp-content/uploads/2023/12/2022-Census-of-Population-and-Housing-Preliminary.pdf

The 2024 MIS reported national malaria parasite prevalence (by microscopy) among children under five years of age at 13.8%, among children aged 48–59 months at 17.7%, and among children aged 6–11 months at 4.9%. The MIS reported higher parasite prevalence in rural areas (18%) than urban (6%) and highest in the lowest wealth quintile (25.8%) compared to the lowest (1.4%) in the highest wealth quintile.

Malaria Interventions in Zambia

Malaria elimination remains the national aspiration in Zambia, and the National Malaria Elimination Center (NMEC) continues to make progress in implementing evidence-based programming. According to the National Malaria Elimination Strategic Plan 2022–2026, the goals are: (1) to reduce malaria infection, disease and death in Zambia; (2) to increase the proportion of the population living in malaria-free Health Facility Catchment Areas; and (3) to maintain malaria-free status and prevent reintroduction and importation of malaria into areas where the disease has been eliminated.

The key interventions in the strategic plan include the following:

- **Vector control**: ITN distributions and indoor residual spraying (IRS)
  Case management: Timely diagnosis by rapid diagnostic tests and treatment and malaria in pregnancy (MIP) interventions
- **Parasite clearance:** Provision of mass drug administration in high-risk areas and reactive case investigation.
- **Health promotion:** Promotion of uptake and utilization of interventions and services

The Government of the Republic of Zambia has placed health promotion high on its agenda to prevent disease and promote health through a primary health care approach. Advocacy and social and behavior change (SBC) anchor health promotion efforts by utilizing household and community settings to increase and sustain malaria elimination efforts. The National Malaria Elimination Strategic Plan 2022–2026 made SBC a guiding principle and strategic objective, which contributes to the increased uptake of behaviors and correct use of key malaria interventions. The plan includes four specific objectives, summarized here:

1. Contribute to increasing the correct use of ITNs to at least 96% from the baseline in 2021 (46%).
2. Contribute to increasing the uptake of taking three or more doses of intermittent preventive treatment of MIP (IPTp3+) to at least 88% from the 2021 baseline (68%).
3. Improve early care seeking for children under five.
4. Increase national malaria message recall to least 78% from the 2021 baseline (48%).

Rationale for MBS Study in Zambia

Research increasingly demonstrates the effective role of SBC programs in increasing the prevalence of positive health behaviors related to malaria prevention and treatment. To be effective, SBC must take into consideration 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. Existing national and regional data, including that

provided by the Demographic and Health Surveys (DHS) and MIS, largely focuses on the prevalence of relevant behavioral indicators and provided limited information on behavioral determinants.

The 2022–2026 National Malaria Elimination Strategic Plan calls for the contribution to the increased uptake of behaviors and correct use of key malaria interventions. Among many strategies under this SBC strategic objective is strengthening the SBC evidence base. As a key intervention in Zambia, malaria SBC needs a strong evidence base that includes a comprehensive range of the factors that influence malaria behaviors. While Zambia has a wealth of malaria-related data, including the 2024 Zambia DHS, 2024 MIS (including the SBC Module), the 2023 Behavioral Barrier Analysis to Access and Use of Malaria Services, and the other regional surveys, these surveys have limited numbers of questions about factors that influence behaviors and do not analyze how strongly these factors are associated with behaviors.

The primary focus of the MBS is on the ideational, or intermediate, variables associated with malaria-related behaviors of interest, which are often not included in other surveys. Such data can be used to (1) estimate the prevalence of both behaviors and their ideational predictors and (2) estimate the effects of ideational characteristics on behavioral outcomes. These analyses will help malaria programs and policymakers create and prioritize audience segments and SBC communication messaging while also accounting for structural factors that may inhibit or enable individuals' ability to act.

With funding from the USAID and PMI through the Breakthrough ACTION project, the Johns Hopkins Center for Communication Programs worked with the NMEC and other governmental and nongovernmental partners to design and implement the 2024 MBS, a household behavioral determinants survey among a representative sample of households in the four PMI-focused provinces (Northern, Luapula, Muchinga, and Eastern). The survey is designed to provide a better understanding of the determinants of malaria-related behaviors and strengthen the evidence base for malaria control program activities.

Goals and Objectives of the Zambia MBS

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 four provinces of Zambia (Northern, Luapula, Muchinga, and Eastern) where PMI is active and determine the appropriate focus of programmatic activities designed to improve malaria-related ideational and behavioral outcomes. The specific objectives of the study are as follows:

1. To determine the ideational factors that are related to ITN use and care.
2. To identify the ideational factors related to the uptake of IPTp.
3. To highlight the ideational factors associated with prompt and appropriate treatment of malaria in children.
4. To assess the factors related to the acceptance of IRS.
5. To understand reasons for not adopting appropriate malaria prevention and treatment behaviors.
6. To make recommendations for the focus of future programs designed to promote appropriate malaria prevention and treatment behaviors in these provinces of Zambia.

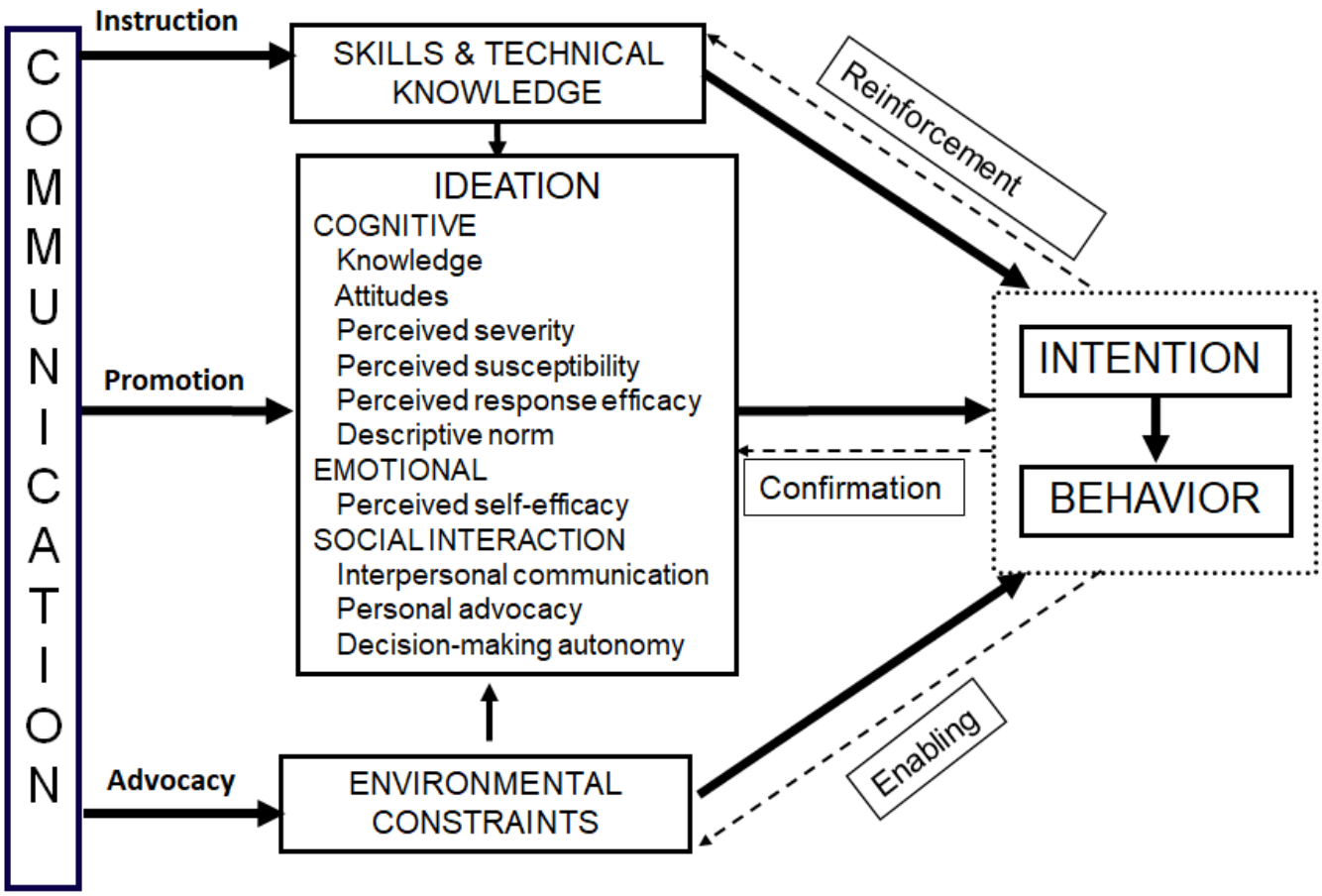
The scope of this study necessitates assessing the prevalence of malaria-related behaviors to measure the relationship between these ideational characteristics and behaviors. This includes use of ITNs,

attendance at antenatal care (ANC) and uptake of IPTp, prompt and appropriate treatment of malaria in children, and acceptance of IRS.

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, inter-related psychosocial variables that commonly influence individual behavior. As shown in **Figure 3,** the ideation model recognizes most behavioral decisions as driven by multiple (often simultaneous) psychosocial factors. The model has three components, each comprising several variables: (1) cognitive elements such as attitudes, beliefs, values, perceived risk, subjective norms, and self-image; (2) emotional elements such as response efficacy, empathy, and self-efficacy; and (3) 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 work both individually and synergistically to influence health outcomes. Research has demonstrated a relationship between ideation and malaria behavior, including ITN use and care, ANC and IPTp uptake, and care-seeking for children under five.

***Figure 3**. Ideation Model of Strategic Communication and Behavior Change.*
Adapted from: Kincaid, D. L. (2000). Mass media, ideation, and behavior: A longitudinal analysis of contraceptive change in the Philippines. *Communication Research, 27*, 723.



The model also includes environmental constraints, which are often under-emphasized in SBC 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 WHO.[2]

Glossary of Terms Used in the MBS

- **Ideational factors,** also known as psychosocial factors, include knowledge, attitudes, threat perceptions (e.g., severity and susceptibility), response and self-efficacy, and interpersonal communication about malaria.
- **Structural factors** refer to social, economic, and environmental conditions, systems, and policies that determine who has access to what and under what circumstance, including distance to a health facility, age, sex, geographic zone, wealth quintile, education, and access to a commodity (e.g., an ITN).

[2] World Health Organization. (n.d.). Social determinants of health. World Health Organization. Retrieved March 28, 2025, from https://www.who.int/health-topics/social-determinants-of-health#tab=tab_1.

- **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 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 about malaria** is the discussion with others about malaria topics (e.g., prevention, care-seeking, and treatment).
- **Decision-making participation** is a person's active involvement in decisions related to malaria.
- **Intention** refers to a person's commitment or motivation to engage in a specific behavior.
- **Behavioral outcomes** measured by the malaria behavior survey include but are not limited to prompt care-seeking, appropriate care-seeking, use and consistent use of ITNs, net care, early antenatal care attendance, recommended IPTp dose attainment, and more.

Methodology

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

Survey Design

This study used a cross-sectional design with a randomly selected sample of women and men interviewed at one point in time using a structured questionnaire. The respondents were selected through a multi-stage cluster-randomized sample of households across four provinces in Zambia: Northern, Luapula, Muchinga, and Eastern. These provinces were selected in consultation with the National Malaria Elimination Program and other malaria stakeholders. The four provinces were pooled into one zone (as seen in **Figure 4** and **Table 1**) which means that the survey was designed to be representative of the population of the four provinces as a whole. For this reason, all study results reflect the zone as a whole and results for individual provinces are not provided. Budget limitations did not allow for a larger sample that could be both nationwide and representative of each province. **Figure 5** shows the districts and transmission levels within the survey zone.

Figure 4. *MBS Survey Provinces in Zambia*

Figure 4*. Map of PMI-Supported Provinces and Districts*

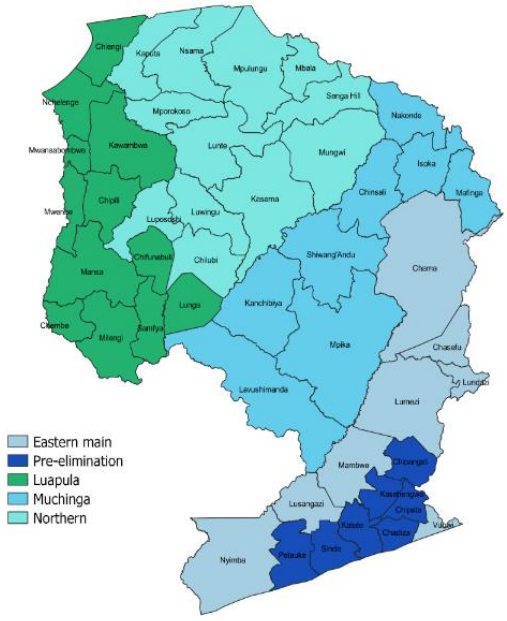


Table 1. Geographic zone and indicators used in sample size calculation				
Zone	**Provinces**	**Women of reproductive age sleeping under net (DHS 2018)**	**Women with positive attitudes towards consistent use of bed nets (No data, assumption)**	**Children with fever in last two weeks (DHS 2018)**
PMI Supported Provinces	Northern, Luapula, Muchinga, and Eastern	64.5%	50.0%	21.1%

Sampling

Sample Size and Justification

To determine the required sample size for this survey, the study team estimated the sample size needed to measure each of the relevant malaria-related outcomes including women of reproductive health use of bed net, positive attitudes towards consistent use of bed nets, and prevalence of fever in children under five. Since there was no population-based publicly available estimate for some of these indicators at the time the study team used the values in the table above to obtain a sample size that would allow the study to detect meaningful differences. Of note, the 2024 MBS was immediately right after a mass net distribution campaign planned for early 2024. The 2018 DHS followed the previous national net distribution campaign as well. This provided the rationale for using the 2018 DHS estimates rather than those of the 2021 MIS.

To determine the required sample size for this survey, the study team estimated the sample size needed to measure each of the relevant malaria-related outcomes including caregivers' bed net use, incidence of fever among under-five children, and prevalence of positive attitudes toward consistent use of bed nets. The team applied the following formula ***i*** to estimate the required sample size:

$$n = d * \frac{z^2_{1-\frac{\alpha}{2}} * p(1-p)}{\delta^2 * R_h * R_i}$$

In this formula, ***n*** is the required sample of individuals (e.g., women, heads of household); ***Z*** is the Z value corresponding to the desired confidence level (e.g., in the analyses, the team assumes Z-1.96, corresponding to a 95% confidence level); ***d*** is the design effect due to departure from simple random sampling (we assume this to be 3.0 based on secondary analysis of the 2018 DHS data); ***p*** is the estimated (expected) outcome indicator, such as the proportion of women of reproductive age that slept under a net the night before the survey or proportion of children under age five that had fever in the last two weeks; **δ** is the desired margin of error (sample sizes use δ = 5%); $\mathbf{R_h}$ is the response rate for households (assuming 90% for this parameter); and $\mathbf{R_i}$ is the response rate for women in selected households (assuming 95% for this parameter).

In the absence of estimates of malaria-related outcomes at the district or provincial level, the study team considered the four provinces as one zone, with Eastern province oversampled by 50% to account for the seven moderate transmission districts in Eastern Province. The sample size also considers the potential non-response at the household and individual levels and provides a representative sample at the zonal level (comprising the four provinces as one zone), allowing for valid estimation of key malaria

behavioral and ideational indicators. This approach used a sample size of 1,346 **households**, 1,556 **female respondents**, and 449 eligible **male respondents**. The study collected data from every eligible woman in the household to ensure that the data captured some pregnant women as well as some caregivers of children under the age of five. The study collected data from one man (the spouse/partner of one of the interviewed women) in every third household that was sampled. This constitutes a **total expected sample of 3,350 respondents**.

Participant Inclusion and Exclusion Criteria

The inclusion criteria for sample selection included the following:

- Aged 18–49 years for women and 18 to 59 years for men.
- Women aged 15–17 years who are not emancipated by marriage and parental permission to participate is granted.
- Women aged 15–17 years old who are emancipated by marriage.
- Usual resident of the selected household.
- Ability to communicate in English or other relevant local languages, including Bemba and Nyanja.

The inclusion criteria for the head of household include one adult male or female 15 years old or older in the household as the head, i.e., the person in the household who is acknowledged as such by members of the household and who is usually responsible for the upkeep and maintenance of the household.

Nota Bene:

- All eligible women in the household were interviewed (using the women's questionnaire).
- In every third interviewed household, a man was interviewed (using the men's questionnaire). The eligible man must be the husband/partner of an eligible woman.

Exclusion Criteria:

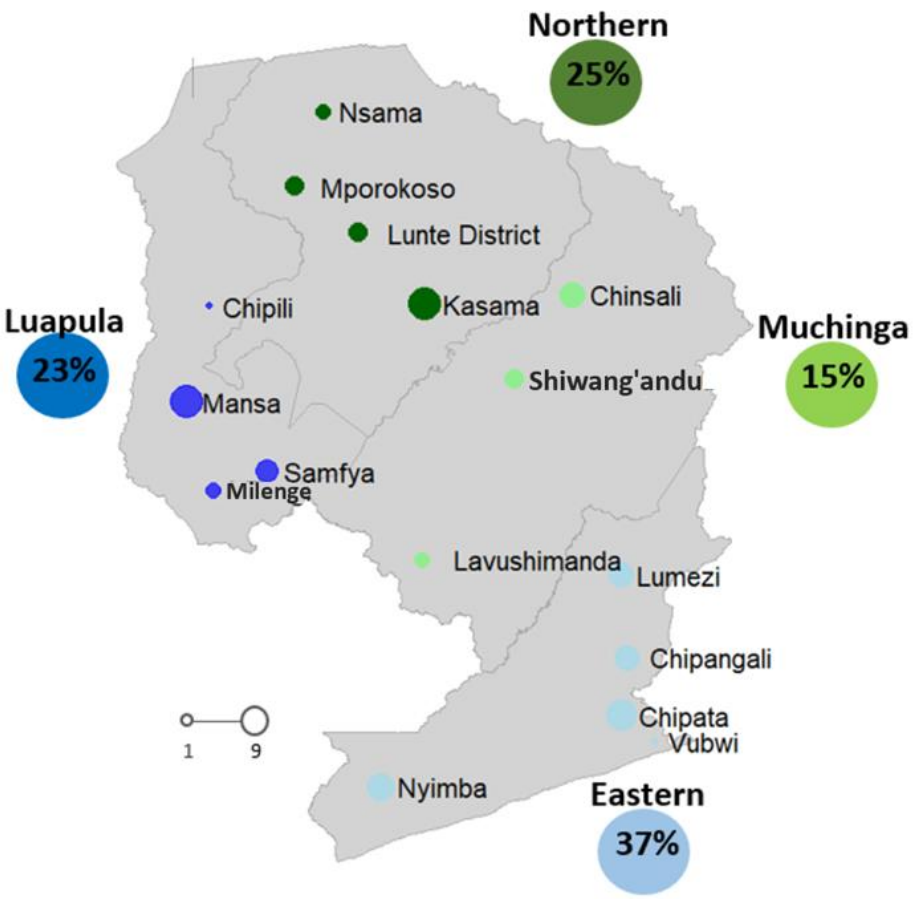
Eligible men and women or head of the household with the following characteristics were excluded from the study:

- Inability to consent to participate in the study.
- Parental permission not granted for non-emancipated women ages 15–17.
- Inability to understand the questions and/or respond intelligibly.

Selection of Clusters

The study team obtained a comprehensive list and sketch maps of clusters (i.e., enumeration areas [EAs]) for selected study from the Zambia Statistics Agency. Each of the four geographic zones (described above) was divided into two strata: urban and rural. From each stratum, the team selected some EAs using probability proportionate to size. A total of 65–70 clusters or EAs (1346/20) were selected for inclusion in the study. In each selected EA, the study first obtained the approval of community leaders and updated the sketch map with the help of these leaders. The distribution of the sample is shown in **Figure 6**.

Figure 5. *Proportion of Sampled Households, by Province, in Four PMI Provinces*



Selection of Households

The study team conducted a census of the households in the selected EAs using a household listing form. For the purpose of this survey, a household was defined as a group of people who regularly reside in the same dwelling units and share meals. Eligible households were those with a woman of reproductive age (15–49). Once household listing was complete, the study team randomly selected 20 households from the list of eligible households in the cluster, interviewing every "nth" household based on the number of households in the cluster and beginning with a computer-generated random number to begin the selection. A replacement list of six households was included in the event that some households refused to participate in the survey or remained unavailable despite attempts to reach them.

Selection of Individuals

For the household questionnaire, the interviewers identified a resident adult man or woman aged 18 or older who was knowledgeable about the household, obtained written informed consent and then administered the household questionnaire. For the individual questionnaire with women, all women ages 15–49 were selected for interviews. In every third household, the husband/partner of a woman was selected for an interview. In cases where there was more than one woman in-union, the interviewer randomly selected one husband/partner. If the woman was 15–17 years of age, was not married and did not have children, parental permission and minor assent were obtained.

Final Sample Obtained

While the target was set to collect information from 1,346 households per the sample size calculation above, the minimum necessary sample was 1,212 households. The research team was able to conduct 1,325 household interviews against a target of 1,346. This variance was largely due to the absence of people available for the interviews when approached. **The final survey sample comprised 1,325 households, 452 men and 1,593 women for a total of 2,045 *respondents* and 3,370 *questionnaires.*** These numbers were well within the necessary range given that the sample calculation assumed a 10% refusal rate at the household level and 5% at the individual level. Among households with eligible respondents available when the field team was in their community, less than 1% refused to participate.

Data Collection and Analysis

Data Collection Tools

The MBS utilizes three separate questionnaires by design—a questionnaire for the head of household, a women's questionnaire, and a men's questionnaire. 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; willingness to receive IRS, 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 participation in malaria-related communication interventions. Of note, women's questionnaires also explored 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 staff selected a local research firm, March Associates Limited, through a competitive bidding process. Data collection took place between April 23 and May 31, 2024. A team of 27 enumerators, four field supervisors, and three quality control agents from March Associates Limited were directly involved in the collection process. Enumerators had a minimum level of Baccalaureate plus two years of higher education (diploma) while supervisors and controllers had at least a university degree. The data was collected using portable electronic devices owned by March Associate. In addition, during the collection, teams composed of representatives of Breakthrough ACTION and the NMEC performed field visits. Each field visit team included two representatives from Breakthrough ACTION and four NMEC staff. Their aim was to check the collection process and provide advice to the collection teams.

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 attitudes, service delivery (community and facility-based workers as well as health facilities in general), and interpersonal communication about malaria. Question sets for

any ideational construct used a 10-point interval scale. Prior to generating the ideational indicators, and because the association between any given ideational construct and a behavior is sometimes specific to the country context, the study team conducted a scale validation exercise for each of them. Internal consistency (through reliability tests) and construct validity (through factor analysis) were used to provide insights into how well the scales, in conjunction with the 10-point response options, enhanced the overall performance of the measures. Cut-offs were set for Cronbach's alpha of ≥ 0.6[3] and exploratory factor analysis loadings of ≥ 0.4 to be considered acceptable to guide the recommendations for scale construction.[4] Results are shown for districts with high and moderate levels of malaria transmission as well as for the overall sample.

Table 2 shows scale and reliability statistics of some of the key ideational constructs that met the thresholds shown above for all two statistical tests.

Complete knowledge was defined as having correct responses to all relevant knowledge questions. For questions assessing attitudes or perceptions, variables with "DON'T KNOW" responses were recoded as the mid-point of the scale. The study team then summed the scores to obtain an index of perceptions and attitudes and divided them by the number of items. Lastly, the team split the score at 5. Respondents who had scores greater than 5 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 by respondents 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 who plan a future pregnancy.
- Intention to take IPTp among women who plan 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 day following the onset of fever at a health facility or from a community health worker (CHW).
- Acceptance of IRS.

[3] Hajjar, S. T. (2018). Statistical analysis: Internal-consistency reliability and construct validity. *International Journal of Quantitative and Qualitative Research Methods*, *6*(1), 27-38.

[4] Tavakol, M., & Wetzel, A. (2020). Factor Analysis: a means for theory and instrument development in support of construct validity. *International Journal of Medical Education, 11*, 245.

Table 2. Scale and reliability statistics					
Indicators	**Mean (sd)**	**Cronbach's Alpha**	**Items lists**	**Factor loading (Factor 1)**	**Uniqueness**
Perceived Susceptibility to Malaria	7.92 (1.630)	0.7	v508a	0.4001	0.8399
			v508	0.5316	0.7174
			v509	0.6517	0.5753
			v510	0.7490	0.439
			v510azm	0.7147	0.4892
			v510bzm	0.5919	0.6497
Perceived Severity of Malaria	8.92 (1.186)	0.7	v511	0.7064	0.5011
			v512	0.7155	0.4881
			v513	0.6690	0.5525
			v514a	0.7314	0.4651
			v514	0.5958	0.645
Attitudes Toward Malaria Care-Seeking and Treatment	7.85 (2.23)	0.8	V810	0.8567	0.2661
			V812zm	0.8468	0.2830
			v812azm	0.7298	0.4674
Perceived Response Efficacy of Malaria Testing[1]					
Perceived Response Efficacy of Malaria Treatment[1]					
Perceived Self-Efficacy for Malaria Testing and Treatment	6.09 (2.296)	0.8	v819	0.7449	0.3237
			v821	0.6344	0.4727
			v822	0.5844	0.5700
			v824	0.7145	0.3774
			v819azm	0.6733	0.0935
			v821azm	0.5994	0.0934
Attitudes Toward MIP	8.54 (1.458)	0.6218	v819	0.7449	0.3237
			v821	0.6344	0.4727
			v822	0.5844	0.5700
			v824	0.7145	0.3774
			v819azm	0.6733	0.0935
			v821azm	0.5994	0.0934
Perceived Severity of Malaria in Pregnancy[1]					
Perceived Response Efficacy of IPTp	6.94 (2.254)	0.6	v711a	0.6647	0.5582
			v712a	0.7057	0.5019
			v712b	0.7643	0.4159
Perceived Self-Efficacy for IPTp	8.77 (1.165)	0.7	v719	0.6705	0.5504
			v714	0.4350	0.8108
			v715	0.5922	0.6493
			v717	0.5632	0.6828
			v719a	0.6983	0.5123
			v719b	0.6756	0.5436

Table 2. Scale and reliability statistics					
Indicators	**Mean (sd)**	**Cronbach's Alpha**	**Items lists**	**Factor loading (Factor 1)**	**Uniqueness**
Favorable Attitudes Toward Nets	7.42 (2.04)	0.7	v603	0.6943	0.5179
			v604	0.6947	0.5173
			v605	0.7163	0.4870
			v606	0.6909	0.5226
			v610	0.5864	0.6562
Favorable Attitudes toward Nets Care and Repair	8.64 (1.314)	0.6681	v611	0.6970	0.5142
			v612	0.8106	0.3430
			v612c	0.7937	0.3701
			v612e	0.4867	0.7631
Perceived Response Efficacy of Nets	9.09 (1.132)	0.5805	v613zm	0.6332	0.5991
			v615	0.7725	0.4033
			v615zm	0.8037	0.3540
Perceived Self-Efficacy to Use Nets	8.87 (1.480)	0.8346	v616	0.8222	0.3239
			v617zm	0.8422	0.2907
			v617bzm	0.7679	0.4103
			v618	0.8547	0.2695
Attitudes Toward IRS	7.05 (1.850)	0.6	v1204	0.5571	0.4202
			v1206	0.6168	0.4782
			v1208	0.5090	0.5954
			v1205	0.5576	0.5298
			v1207	0.6954	0.4266
			v1209	0.5855	0.4214
Perceived Response Efficacy of IRS[1]					
[1] The scale did not pass the validity checks (either Cronbach's alpha < 0.6; and or item(s) in Factor loading < 0.4).					

Cross-tabulations and multivariable regression analyses were used to examine relationships between structural factors, ideational factors, and outcomes of interest. The MBS uses the term "structural factors" rather than "sociodemographic characteristics" because these factors (e.g., social class, wealth, education, access to resources, gender) are often analyzed as individual-level variables, which can overlook the influence of policies and systems that shape behavior. Framing these as structural factors allows SBC programs to consider how they might address the broader contexts that influence health behaviors and outcomes.

Descriptive statistics were analyzed 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 ($p < 0.1$) with the outcome at the bivariate (unadjusted) level, which is in keeping with the one in ten rule of statistics.[5,6] Multivariate regression models were then conducted, and variables of significance ($p < =0.05$) are noted in this report. Such multivariate regression models are useful to identify potentially modifiable variables that programs could prioritize to change behavioral outcomes. These results are cross-sectional, which yields evidence of correlations but precludes causal conclusions.

Research Ethics

Study protocols and tools received approval from the institutional review boards (IRBs): ERES Converge in Zambia (Ref No. 2024-Jan-010) and the Johns Hopkins Bloomberg School of Public Health (IRB#27175). The National Health Research Authority of Zambia (Ref No: NHRA1069/21/03/2024) also granted Breakthrough ACTION permission to conduct the study. All project staff received training on approved study protocols and research ethics. 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. The household listing sheet in a given EA was destroyed when data collection in the corresponding cluster finished. Signed consent/assent forms were kept in secure locations at all times.

Respondents were interviewed outside of the hearing range of others. We paid special attention to ensure that the respondent was not under any pressure from other household members to take part 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 take part. 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 whether to participate or not.

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[5] Harrell, F. E. Jr.; Lee, K. L.; Califf, R. M.; Pryor, D. B..; Rosati, R. A. (1984). Regression modelling strategies for improved prognostic prediction. *Statistics in Medicine, 3* (2): 143–52. Doi:10.1002/sim.4780030207

[6] Sperandei, S. (2014). Understanding logistic regression analysis. *Biochemia medica, 24*(1), 12-18.

Results

Household Characteristics

Table 3 presents a summary of the household characteristics in high-transmission districts, moderate-transmission districts, and the total sample. Households in the Zambia MBS had a median number of 2.5 sleeping rooms and 2.4 people per sleeping room. Multiplied, these numbers translate to a median household size of 6. One-third (37%) of households had electricity. One-half (51%) of households had finished roofs, and 34% had finished floors. Sixty-nine percent were near a public health facility (defined as located five kilometers or less, 30 minutes or less on foot, or ten minutes or less by car), 13% near a private health facility, and 36% near a pharmacy.[7] Households in moderate transmission districts were significantly more likely to be near a private health facility and a pharmacy/chemist, have finished floors, and finished roofs.

Table 3: Household characteristics in PMI provinces, by high/moderate transmission districts

Percent distribution of selected household characteristics in PMI provinces, by high/moderate transmission districts, Zambia MBS, 2024

Background characteristic	High trans. districts (%)	Moderate trans. districts (%)	Sig.	Total (%)
Average number of sleeping rooms	2.4	2.6	ǂ	2.5
Number of people per sleeping room	2.4	2.3		2.4
Percentage of households with electricity	36.6	38.3		37.0
Percentage of households near[1] a public health facility	68.5	72.1		69.3
Percentage of households near[1] a private health facility	7.9	29.7	***	12.6
Percentage of households near[1] a pharmacy/chemist	29.8	56.7	***	35.6
Percentage of households with finished floors	29.2	49.4	***	33.6
Percentage of households with finished roofs	45.5	71.1	***	51.0
Total (N)	**1,039**	**286**		**1,325**

[1]Near is defined as located within five kilometers, less than 30 minutes on foot, or less than 10 minutes by car.
Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a not applicable

Thirty-eight percent of all households owned a radio (see **Table A.1.2**) and 77% owned a mobile phone (see **Table A.7.5**). Very few owned a motorcycle (5%), car (3%), or computer (5%). Mobile phone ownership was significantly higher in the moderate transmission districts (85%) compared to the high transmission districts (75%). 41% of all respondents owned bicycles.

Population Characteristics

Surveyed households in the Zambia MBS had a total of 7,085 individuals (**Table A.1.3**). Household members were composed of slightly more women (51%) than men (49%). Three in four (77%) resided in

[7] Distance to a CHW was not measured in the household questionnaire

urban areas. The age distribution of household members reflected a young population with 54% under 18 years of age.

Sample Characteristics

Characteristics of study respondents by urban/rural residence are presented in **Table 4** (also see **Table A.1.4** in the Annex, which shows characteristics by transmission level). The sample was designed to interview all women ages 15 and older who lived in the household, and one man in every third household. Seventy-eight percent of all respondents in the Zambia MBS were from high-transmission districts, and 22% were from moderate-transmission districts. Similarly, 78% were female and 22% were male. Thirty-three percent were aged 15–24, and 32% were aged 25–34, 23% were aged 35–44, and 12% were 44 years old or older. Most respondents in the total sample (73%) lived in rural areas. The highest level of educational attainment was none or primary school for 70% of respondents and 30% had completed secondary or tertiary education. Respondents were evenly distributed across wealth quintile at 18–22% per quintile.

There were significant differences by urban vs. rural residence. Urban respondents were more likely to be female (81% in urban areas vs. 76% in rural areas). In rural areas 78% had no or only primary education (51% in urban areas). Finally, urban areas were more likely have an uneven distribution of wealth with 5% and 7% in the lowest two quintiles and 23% and 49% in the highest two quintiles**.**

Table 4. Sociodemographic Characteristics of the Respondents

Percent distribution of respondents by sociodemographic characteristics by Urban/Rural residence, Zambia MBS, 2024

Characteristic	Rural	Urban	Sig.	Total
Transmission districts				
High	81.2	70.1		78.3
Moderate	18.8	29.9		21.7
Sex			**	
Female	76.9	80.7		77.9
Male	23.1	19.3		22.1
Age				
15–24	33.3	33.6		33.4
25–34	31.7	31.3		31.6
35–44	23.5	21.7		23.0
45 and above	11.6	13.4		12.1
Level of education			***	
None or Primary	77.6	51.1		70.3
Secondary or higher	22.4	48.9		29.7
Wealth Quintiles			***	
Lowest	22.7	4.7		17.9
Second	23.1	7.3		18.9
Middle	21.8	16.2		20.3
Fourth	20.7	23.3		21.4
Highest	11.8	48.6		21.5
Total (%)	**73.4**	**26.6**		**100**
Total (N)	**1,445**	**600**		**2,045**

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a not applicable

Supplemental Information

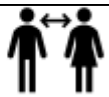
Additional data tables related to this section are presented in the annex.

Table A.1.1: Household Characteristics, by Malaria Transmission Districts
Table A.1.2: Household Assets and Wealth Quintile, by Transmission Districts
Table A.1.3: Sociodemographic Characteristics of Household Members, by Transmission Districts
Table A.1.4: Sociodemographic Characteristics of Respondents, by Transmission Districts

Cross-Cutting Ideational Factors

This section highlights cross-cutting ideational factors related to malaria in Zambia. These are ideational factors that may influence multiple malaria-related behaviors. This includes basic knowledge of malaria (transmission, symptoms, and prevention), perceived risk (i.e., severity and susceptibility) of malaria, interpersonal communication regarding malaria, and perceptions of health workers (CHWs and workers at health facilities). All the cross-cutting ideational factor results are from the individual questionnaires, and these were administered to both women and men. **Figure 7** and **Table 5** summarize the prevalence of these factors in the overall sample.

Figure 6. *Malaria-Related Ideational Factors At-A-Glance*

	**75%** Comprehensive general knowledge about malaria
	**94%** Perceived susceptibility
	**99%** Perceived severity
	**47%** Interpersonal communication with spouse/partner
	**43%** Interpersonal communication with friends/family
	**94%** Overall favorable perceptions of facility-based health providers
	**91%** Overall favorable perceptions of community-based health providers

Comprehensive general knowledge of malaria: "Comprehensive general knowledge of malaria," measured at 75%, is a composite indicator that refers to a respondent correctly responding to all three questions about the cause of malaria, the name of one prevention measure, and the symptoms of

malaria. Other elements of malaria-related knowledge (such as ANC/IPTp, and case management) are reported in the Malaria in Pregnancy and Malaria Case Management sections.

Knowledge that malaria is caused by a mosquito bite was highly prevalent (96%) as was knowledge of at least one major malaria prevention measure (96%) in the total sample. However, only 80% of all respondents knew that fever is a symptom of malaria, and this was more prevalent in the high transmission districts (83%) compared to the moderate transmission districts (70%) (see **Table A.2.1**).

Perceived susceptibility to malaria: 94% of respondents felt that they were at risk of getting malaria. There were significant differences in rates of perceived susceptibility by residence, level of education, and wealth quintile. Rural residents (96%) reported higher perceived susceptibility than urban residents (89%), as did respondents with no (93%) or primary (96%) level of educational attainment compared to those with secondary and tertiary education (89%).

Perceived severity of malaria: Rates of perceived severity of malaria was universally high; 99% of respondents felt that the consequences of malaria are serious and there were no significant differences by transmission intensity, sex, age, residence, level of education or wealth quintile.

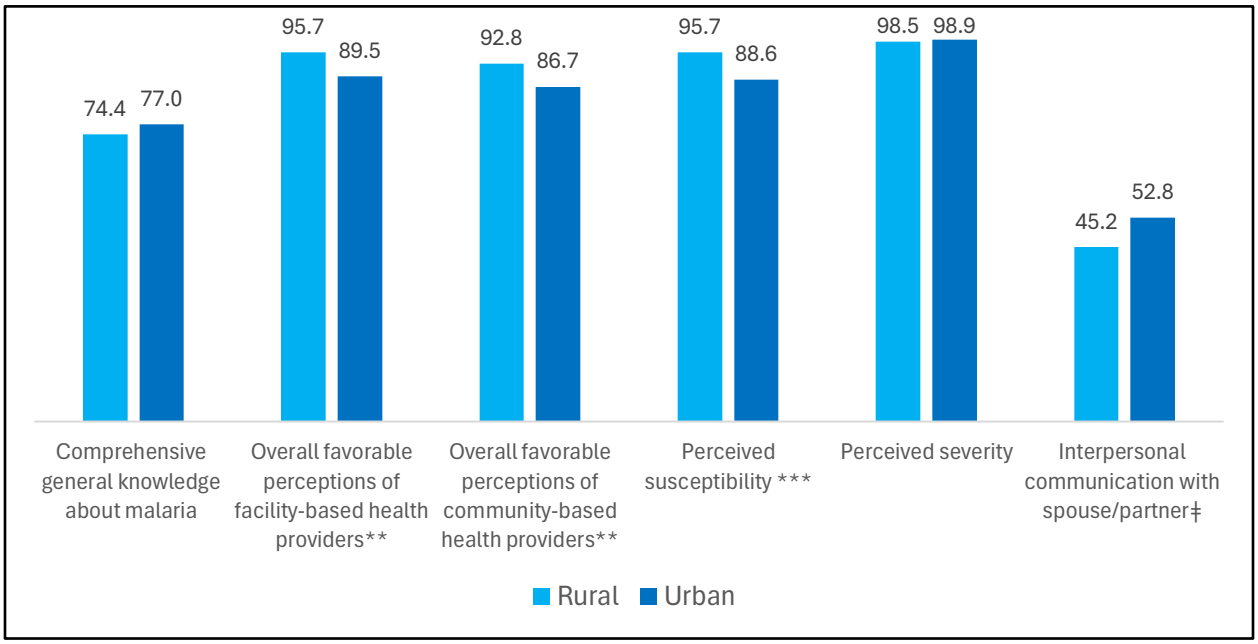
Communication with spouse/partner regarding malaria: 47% of respondents reported communicating with their spouse or partner about malaria in the past six months. This varied significantly by sex, age, level of education, and wealth quintile. Males (55%) communicated with their partners more frequently than females (44%), as did those with secondary or higher education (56%), and who were in the middle (50%) and highest wealth quintile (58%). While more than half of respondents aged 35–44 (53%) and 45+ (55%) reported communicating with a spouse/partner in the prior 6 months, younger respondents aged 15–24 (37%) and 25–34% (46%) were less likely to do so.

Rates of **interpersonal communication about malaria with friends or family** were low across the sample as only 42% had discussed malaria with a family member/friend in the past six months. Interpersonal communication about malaria is important for creating a supportive environment for behavioral adoption and maintenance. Interpersonal communication about malaria with friends or family was significantly less common among respondents under 25 years of age (35%), those no education (37%), and in the lowest wealth quintile (36%).

Overall favorable perceptions of facility-based health providers (Table A.2.5.a): Most respondents (94%) reported favorable perceptions of facility-based health workers. Favorable perceptions were widespread across sex and age groups and transmission district. They were slightly but significantly more common among those in rural areas (96%) compared to urban areas (90%), and among those with primary level of education (96%) compared to those with none or secondary education or higher (both 90%). A smaller proportion among the wealthiest quintile (90%) viewed facility-based providers favorably compared to lower wealth quintiles (95–96%).

Overall favorable perceptions of CHWs (Table A.2.7.a): Most respondents (91%) have favorable perceptions of CHWs, with similar rates across sex and age groups and transmission districts. Rural residents (93%) are more likely to view CHWs positively than urban residents (87%). Respondents with the highest education (88%) and were less likely to express favorable view of community-based health providers.

Figure 7. *Malaria-Related Ideational Factors At-A-Glance, By Urban/ Rural Residence*



Notes: ‡ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Figure 8 compares the rates of cross-cutting malaria-related ideational factors by urban or rural residence. Perceptions of facility and community-based providers and perceived susceptibility to malaria were significantly lower in urban areas.

Supplemental Information

Additional data tables related to this section are presented in the annex.

Table A.2.1: Correct Knowledge of Malaria, by Transmission District
Table A.2.2: Perceived Susceptibility to Malaria, by Transmission District
Table A.2.3: Perceived Severity of Malaria, by Transmission District
Table A.2.4: Communication with Others Regarding Malaria, by Transmission District
Table A.2.5.a: Perceptions Regarding Facility-Based Health Workers, by Transmission District
Table A.2.5.b: Perceptions Regarding Facility-Based Health Workers, by Transmission District
Table A.2.6.c: Perceptions Regarding Facility-Based Health Workers, by Transmission District
Table A.2.7.a: Perceptions Regarding Community Health Workers, by Transmission District
Table A.2.7.b: Perceptions Regarding Community Health Workers, by Transmission District

Table 5: Summary of Cross-Cutting Ideational Factors Related to Malaria					
Characteristic	**Percent of respondents who report cross-cutting ideational factors related to malaria, by sociodemographic characteristics, Zambia MBS, 2024**				
	Comprehensive general knowledge about malaria	**Perceive susceptibility to malaria**	**Perceive severity of malaria**	**Reported interpersonal communication about malaria with spouse/partner**	**Reported interpersonal communication about malaria with friends/family**
Transmission districts	***				
High	78.2	94.1	98.5	47.6	42.2
Moderate	64.2	92.9	98.8	44.7	46.0
Sex	‡			***	
Female	75.9	93.7	98.7	43.8	42.6
Male	72.4	94.1	98.3	54.6	44.6
Age	*	‡		**	***
15–24	72.5	92.3	98.0	37.1	34.6
25–34	79.6	93.7	98.7	45.7	45.2
35–44	74.4	95.6	99.5	53.1	50.7
45 and above	72.1	95.0	98.4	55.0	46.4
Residence		***		‡	‡
Rural	74.4	95.7	98.5	45.2	41.6
Urban	77.0	88.6	98.9	52.8	47.1
Level of education		***		**	***
None	71.6	93.1	94.4	43.1	36.7
Primary	73.8	96.1	98.5	44.7	40.2
Secondary or higher	78.7	88.5	98.8	55.5	52.5
Wealth quintile		***		**	**
Lowest	73.9	96.5	97.6	40.4	35.8
Second	74.6	96.5	98.7	40.7	36.3
Middle	73.8	93.7	98.6	50.4	46.4
Fourth	73.8	95.1	98.6	45.7	45.7
Highest	79.3	88.0	99.3	57.7	49.2
Total (%)	**75.1**	**93.8**	**98.6**	**46.9**	**43.1**
Total (N)	**2,045**	**20,45**	**2,045**	**1,533**	**2,045**

Notes: ‡ $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; n/a: not applicable

Malaria Case Management for Children Under Five Years Old

Key findings

- 84% of female caregivers of a child under five with fever in the two weeks preceding the survey sought prompt and appropriate care.
- Facilitators of prompt and appropriate care were having comprehensive knowledge of care-seeking and treatment (3.81 times more likely) and believing that most people in their community sought care promptly (2.33 times more likely).
- A barrier to prompt and appropriate care was urban residence (48% less likely).

Summary of Ideational Variables: Case Management for Children Under 5 Years Old

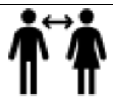
This section describes the ideational factors related to malaria case management for children under five with descriptive analyses and logistic regression, as well as the prevalence of care-seeking behavior. Ideational factors related to malaria care-seeking and treatment explored in the MBS include knowledge, favorable attitudes, perceived response efficacy, perceived self-efficacy, perceived supportive community norms, perceived equitable gender attitudes, favorable perceptions of health workers, involvement in decision making, and interpersonal communication.

The specific case management behaviors that were explored included any care-seeking, appropriate (from a health facility or a CHW) care-seeking, and prompt (on the same day as the onset of fever or the next day) care-seeking. Additional outcomes measured included malaria testing, confirmed cases of malaria, and the proportion of confirmed malaria cases given ACT.

Figure 9 summarizes the prevalence of ideational factors related to care-seeking. These and additional cross-cutting factors that may impact case management behaviors can be found in **Table 6.1 and 6.2**.

Figure 8. *Malaria Care-Seeking and Treatment: Ideational Factors At-A-Glance*

	**91%** Comprehensive knowledge of malaria care-seeking and treatment
	**87%** Favorable attitude for care seeking and treatment
	**60%** Perceived response efficacy of malaria testing (disagree that parents can diagnose malaria by symptoms as well as a blood test)
	**61%** Perceived response efficacy of malaria treatment

	**73%** Perceived self-efficacy to seek testing and treatment
	**82% and 86%** Perception most people seek prompt care and testing, respectively, for a child with fever
	**91%** Perception most people approve of prompt care for a child with fever
	**82% and 89%** Favorable perception that health facilities always have malaria treatments and tests, respectively
	**75%** Favorable perceptions of CHWs regarding malaria care-seeking, testing, and treatment
	**99.6%** Favorable perceptions of facility-based health workers regarding malaria care-seeking and treatment
	**92%** Female caregiver involved in the decision to go to the health facility when child has malaria

Comprehensive knowledge of malaria care-seeking and treatment (also see Table A.3.1): Most (91%) of participants had comprehensive knowledge of malaria care-seeking and treatment, which included knowing all three components: when to seek care (97%), where to seek care (99.5%), and that a test is the only way to diagnose malaria (94%). Respondents from moderate-transmission districts were significantly less likely to have correct comprehensive knowledge of malaria care-seeking and treatment (87%) compared to respondents from high-transmission districts (93%).

Favorable attitudes toward malaria care-seeking and treatment (also see Table A.3.2): Most respondents (87%) scored as having favorable attitudes toward malaria care-seeking and treatment. 90% correctly responded that when a child might have malaria, the only reliable source of care is a health worker or CHW. This was significantly more common in the high transmission districts (92%) than moderate transmission districts (83%). Most participants also correctly disagreed with the statements that it is best to start treatment by giving any medicine one has at home (83%). Most also correctly disagreed with the statement that they preferred to first seek advice from someplace other than a CHW or health facility when their child has a fever (85%). Respondents as a whole appeared ambivalent toward injections, with one-half (47%) preferring to receive malaria treatment by injection than by pills.

Perceived response efficacy (also see Table A.3.3.a, Table A.3.3.b, and Table A.3.4): The MBS assessed respondents' perceptions of the effectiveness of malaria tests and treatment. The desired response for all three questions was "disagree." Most (81%) disagreed with the statement that a person should still take malaria medicine even with a negative malaria test result. This was significant by residence (rural: 84% and urban: 72%. Only 60% disagreed with the statement "parents can diagnose malaria by a

person's symptoms just as well as a blood test for malaria," with significant differences among wealth quintile (55% for the lowest quintile up to 67% for the highest wealth quintile). Similarly, 61% of all respondents disagreed that malaria medicines from the market are as good as the ones from the health facility.

Perceived self-efficacy (also see Table A.3.5): Three in four (73%) had perceived self-efficacy to seek testing and treatment. There were significant differences by sex, age, level of education, and wealth quintile. Self-efficacy was much higher for men (94%) than women (66%) and for respondents aged 45+ (82%) compared to youth aged 15–24 (66%). It was also higher for those with secondary or higher education (77%) compared to no education (71%) and for respondents from the highest (80%) compared to the lowest wealth quintile (61%). This indicator assessed multiple dimensions of self-efficacy, including the ability to find money to take a child to a health facility at the first sign of malaria obtain permission from a husband or family member, bring a child to a health facility on the same or next day, request a blood test, ensure the child takes all the medicine, and obtain money to pay for the medication. The rates of the desired response for each dimension of self-reported self-efficacy ranged from 78% for making sure a child takes all the medicine, to 93% for getting permission from one's husband or family member.

Community norms (also see Table A.3.6): The majority of respondents (83%) believed that seeking prompt care for a child and malaria testing (86%) was common in their community (descriptive norm). This perception was significantly more common in rural areas. 91% of respondents also believed that community members approved of prompt care-seeking (injunctive norm), and this perception was significantly more widespread among men (94%) than women (90%), among those with higher education (90–92% versus 69%), and those in the four higher wealth quintiles (91–94% vs 85% for the lowest wealth quintile).

Perceptions of health facilities regarding testing and treatment (also see Table A.3.7.a): Eighty-two percent agreed that facilities always have malaria medication and 89% agreed that they always have malaria tests. Respondents from high-transmission districts were more likely to agree that facilities always have malaria medication (84%) compared to those from moderate-transmission districts (76%).

Perceptions of CHWs regarding care-seeking, testing, and treatment (also see Table A.3.8): At 75%, positive perceptions of CHWs were also common though not as common as favorable perceptions of health facilities. There were no significant differences in this indicator by sociodemographic characteristics. In addition to measuring the perceived availability of services from CHWs, this indicator measured perceptions of CHWs behaviors and abilities. A breakdown of this indicator's components shows that 59% agreed that CHWs always have malaria medications and 69% agreed that CHWs always have a malaria test. Eighty-two percent agreed that CHWs know how to treat malaria in children and 94% disagreed that CHWs make parents pay for malaria medication.

Perceptions of facility-based health providers regarding malaria care-seeking and treatment (also see Table A.3.9): At 99.6%, respondents had universally positive perceptions of facility-based health providers' case management behaviors, with 98% disagreeing that providers make parents pay for malaria medications and tests for children. The vast majority believed that providers treat patients with respect (94%) and know how to treat malaria in children (96%).

Involvement in decision making (also see Table A.3.10): Finally, there were notable differences in decision making, with only 89% and 85% of female respondents saying they were involved in the decision to go to the health facility and to purchase medicine, respectively. This contrasted sharply with men, of whom 99% and 100% said they were involved in both decisions. Wealth, age, urban or rural residence, or level of education was not significantly associated with decision making for malaria care.

Care-seeking Behaviors and Intention

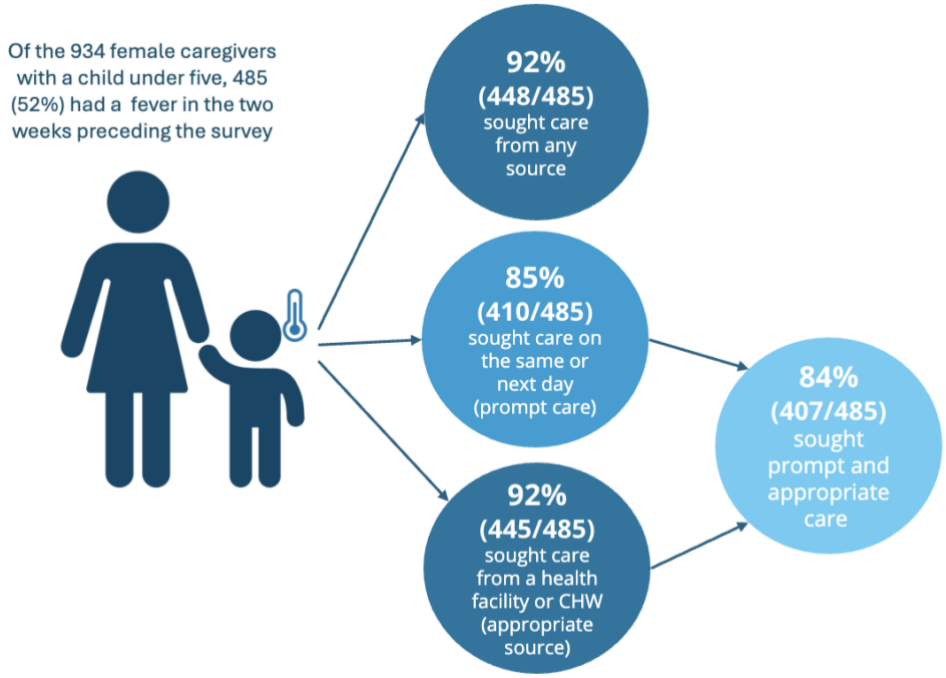
Figure 10 illustrates care-seeking behaviors. Female respondents who were caregivers of children under five (N = 934) were asked about malaria case management behaviors. One-half (52%) noted that at least one of their children under five had an episode of fever in the two weeks preceding the survey (N = 485), and this was significantly more likely for rural residents (55%) and respondents from the lowest wealth quintile (65%).

Among caregivers who reported a recent episode of fever among their children under five, 92% sought advice or treatment from **any source**. Only 85% of caregivers reported seeking advice or treatment on the same or next day (**prompt care**) (**Table A.3.11.a**).

Ninety-two percent of caregivers who sought care for the fever did so from an **appropriate source** (defined as seeking care from a health facility or from a CHW as a first recourse) (**Table A.3.11.a**). Appropriate care was more likely among respondents living in moderate-transmission districts (95% versus 91%) and rural areas (93% versus 87%).

Finally, **84%** of caregivers with a febrile child under five sought **both prompt and appropriate care**, which includes both care-seeking within one day of the onset of the child's fever from a health facility or from a CHW first and the recommended behavior (**Table A.3.11.b**). Of those who sought care from any source, 24% care was sought from CHW first.

Figure 9. *Care-seeking behaviors among female caregivers of children under five with a fever in the two weeks preceding the survey, Zambia MBS 2024 (N = 934)*



Logistic Regression Analysis

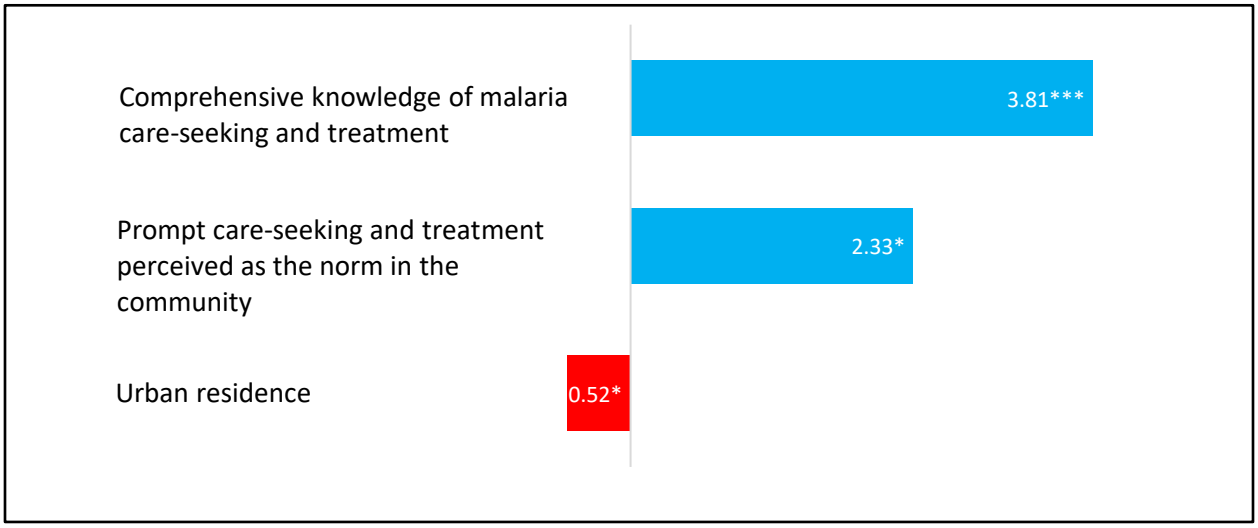
Table A.3.13/Figure 11 presents the results of a **logistic regression analysis**. Logistic regression is used to predict the likelihood of a binary outcome—in this case, whether or not a child received **prompt and appropriate care** for a fever in the two weeks before the survey. Logistic regression analysis controls for multiple **socio-demographic** and **ideational factors** simultaneously, allowing analysts to isolate the unique contribution of each factor while accounting for the others. This makes logistic regression a powerful tool for understanding the determinants of behavior.

According to **Table A.3.13 /Figure 11**, two ideational factors significantly increased the likelihood that respondents would seek care promptly and appropriately:

- **Comprehensive knowledge of care-seeking**: Respondents who correctly answered all three questions—regarding when to seek care, appropriate sources of care, and that a test is the only way to diagnose malaria—were 3.81 times more likely to seek care promptly and appropriately [aOR 3.81; 95% CI: 1.86–7.82***].
- **Perception of prompt care-seeking as a community norm (descriptive norm)**: Respondents who believed that most people in their community sought care promptly were 2.3 times more likely to do so themselves [aOR 2.33; 95% CI: 1.22–4.43*].

In contrast, one structural factor was significantly associated with a reduced likelihood of seeking prompt and appropriate care: **Urban residency**. Urban residents were 48% less likely to seek care promptly and appropriately compared to rural residents [aOR 0.52; 95% CI: 0.27–0.99*].

Figure 10. *Factors significantly associated with Prompt and Appropriate Care-Seeking and their Adjusted Odds Ratios, MBS Zambia 2024 (N = 485)*



Notes: ǂ p < 0.1 * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Table 6.1: Summary of Ideational Variables Related to Case Management for Children Under 5							
Characteristic	**Percent of respondents who report ideational determinants related to case management, by sociodemographic characteristics, Zambia MBS, 2024**						
	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 to for malaria testing and treatment**	**Perceived supportive descriptive community norms regarding malaria treatment**	**Perceived supportive descriptive community norms regarding malaria testing**
Transmission districts	***			ǂ			
High	92.7	87.3	60.6	59.1	71.9	82.5	85.6
Moderate	86.6	86.9	59.0	67.5	74.4	85.5	89.1
Sex		**			***		
Female	91.4	86.9	60.3	60.3	66.3	82.5	86.3
Male	91.3	88.4	60.0	63.2	94.3	85.4	86.6
Age					***		
15–24	90.5	85.4	59.0	59.9	66.4	83.0	84.8
25–34	91.3	88.6	59.7	57.7	71.5	82.3	84.9
35–44	91.9	88.7	63.7	65.7	77.6	84.3	88.7
45 and above	93.2	85.5	58.6	62.9	82.2	83.6	90.2
Residence				**		*	**
Rural	91.0	87.3	59.6	63.7	71.1	84.5	88.1
Urban	92.3	86.9	62.0	53.3	76.3	79.5	81.7
Level of education	ǂ				*		
None	82.1	78.7	63.1	48.9	70.7	88.0	94.4
Primary	90.8	87.3	60.2	62.2	71.9	83.9	86.6
Secondary or higher	93.8	88.2	62.5	59.1	77.2	80.3	84.5
Wealth quintile		*	*		***	ǂ	
Lowest	89.7	83.1	55.4	59.9	61.1	87.1	87.0
Second	91.2	90.2	55.9	63.4	71.7	83.7	88.3
Middle	91.9	84.0	62.2	63.5	75.9	82.3	84.5
Fourth	91.8	87.5	59.6	59.8	71.8	85.2	87.7
Highest	91.9	90.6	67.0	58.2	80.2	78.1	84.5
Total (%)	**91.4**	**87.2**	**60.3**	**60.9**	**72.5**	**83.2**	**86.3**
Total (N)	**2,045**	**2,045**	**2,045**	**2,045**	**2,045**	**2,045**	**2,045**
Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable							

Table 6.2: Summary of Ideational Variables Related to Case Management for Children Under 5					
Characteristic	**Percent of respondents who report ideational determinants, by respondent sociodemographic characteristics, Zambia, 2024**				
	Perceived injunctive community norms supporting prompt care-seeking and treatment	**Favorable perceptions of health facilities regarding testing and treatment (health facilities always have the medication to treat malaria)**	**Favorable perceptions of health facilities regarding testing and treatment (health facilities always have a blost test to tell if a person has malaria)**	**Favorable perceptions of facility health workers regarding care-seeking, testing, and treatment**	**Favorable perceptions of CHWs regarding care-seeking, testing, and treatment**
Transmission districts		**			
High	90.4	84.1	88.7	99.6	75.1
Moderate	91.6	75.6	88.0	99.5	72.5
Sex	*	ǂ			
Female	89.7	83.0	88.7	99.7	74.6
Male	93.9	79.4	88.1	99.3	74.2
Age					
15–24	88.7	83.7	89.9	99.7	73.4
25–34	91	81.4	86.2	99.4	72.8
35–44	91.8	81.7	89.8	99.7	76.3
45 and above	92.7	81.2	88.8	99.5	78.9
Residence		**			
Rural	90.8	84.4	89.1	99.6	75.7
Urban	90.1	76.2	87.1	99.5	71.3
Level of education	**				
None	68.6	83.4	87.4	93.7	88.0
Primary	92.4	82.9	88.4	99.8	73.2
Secondary or higher	90.4	78.8	87.2	99.5	74.7
Wealth quintile	**	**			
Lowest	84.5	87.8	86.5	99.4	75.7
Second	93.9	85.6	91.5	99.8	73.6
Middle	91.7	81.0	88.0	99.6	79.2
Fourth	91.0	81.8	89.1	100.0	73.7
Highest	91.6	76.4	87.7	99.3	70.8
Total (%)	**90.6**	**82.2**	**88.6**	**99.6**	**74.5**
Total (N)	**2,045**	**2,045**	**2,045**	**2,045**	**2,045**

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Supplemental Information

Detailed tables on the following indicators are presented in the Annex.

Table A.3.1: Knowledge of Malaria Care-Seeking and Treatment
Table A.3.2: Attitudes Toward Malaria Care-Seeking and Treatment
Table A.3.3.a: Perceived Response Efficacy of Malaria Testing
Table A.3.3.b: Perceived Response Efficacy of Malaria Testing
Table A.3.4: Perceived Response Efficacy of Malaria Treatment
Table A.3.5: Perceived Self-Efficacy for Malaria Testing and Treatment
Table A.3.6: Perceived Community Norms Regarding Malaria Testing and Treatment
Table A.3.7.a: Perceptions of Health Facilities Regarding Malaria Testing and Treatment
Table A.3.7.b: Perceptions of Health Facilities Regarding Malaria Testing and Treatment
Table A.3.8: Perceptions of Community Health Workers Regarding Malaria Care-Seeking and Treatment
Table A.3.9: Perceptions of Facility Health Workers Regarding Malaria Care-Seeking and Treatment
Table A.3.10: Decision making for Malaria Care and Treatment
Table A.3.11: Care-Seeking and Testing of Children with Fever in the Past Two Weeks
Table A.3.12: Treatment of Children with Fever
Table A.3.13: Logistic Regression Exploring Factors Associated with Prompt and Appropriate Care-Seeking for Fever in Children Under Five Years in the Past Two Weeks

Malaria in Pregnancy

Key findings

- 89% had at least four ANC visits
- 67% attended ANC during the first trimester.
- 87% received at least three doses of IPTp.
- Factors positively associated with the intention to attend ANC at least four times in a future pregnancy were having favorable attitudes toward IPTp (3.89 times more likely to intend ANC4+) and comprehensive knowledge of MIP recommendations (2.15 times more likely to intend ANC4+). Women from the middle to the highest wealth quintile were less likely to intend to go to ANC four times in a future pregnancy (65 to 78% less likely).
- Factors associated with the intention to start ANC in the first trimester were having comprehensive knowledge of MIP recommendations (1.90 times more likely), positive descriptive community norms (2.22 times more likely), and perceiving that most antenatal providers treat pregnant women with respect (1.86 times more likely). The most common reasons for delayed ANC were not knowing they were pregnant (29%) and having no one to accompany them (18%).

Malaria infection during pregnancy is a leading cause of maternal and neonatal deaths in Zambia. Pregnant women are especially vulnerable, as malaria during pregnancy can result in miscarriage, premature delivery, low birth weight, congenital infections, and perinatal death.

The NMEC addresses this issue through a comprehensive policy that includes:

1. Free IPTp: At least four doses of sulfadoxine-pyrimethamine (SP) during pregnancy.
2. Free ITNs (also called long-lasting insecticide treated nets).
3. Free prompt diagnosis and treatment of clinical malaria.

This malaria prevention and treatment package is integrated into routine ANC. Early initiation of ANC is crucial to ensure pregnant women can access these malaria control services, protecting both maternal and neonatal health.

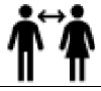
Ideational Variables Linked with Antenatal Care Attendance and IPTp Use

This section describes the ideational factors related to MIP, the prevalence of MIP-related behaviors and intentions, as well as the associations between ideational factors and behavioral intentions using logistic regression. Ideational factors related to MIP explored in the MBS include knowledge, favorable attitudes, perceived severity, perceived response efficacy, perceived self-efficacy to attend ANC and receive IPTp-SP (or to support a pregnant partner to do so, for male respondents), perceived supportive community norms, perceived equitable gender attitudes, favorable perceptions of health workers, involvement in decision making, and IPC.

The MIP-related outcomes explored include ANC attendance and receipt of IPTp-SP among women who had a pregnancy in the two years prior to the survey. The specific behavioral intentions explored included intention to attend ANC or receive IPTp-SP in a future pregnancy among women who intended to have a future pregnancy.

Figure 12 presents a summary of ideational factors related to MIP including ANC and IPTp. These and additional cross-cutting factors that may impact MIP behaviors can be found in **Table 7**.

Figure 11. *Malaria in Pregnancy Related Ideational Factors At-A-Glance*

	**39%** Comprehensive knowledge of MIP
	**98%** Favorable attitudes towards ANC/IPTp
	**95%** Perceived MIP as severe
	**77%** Perceived response-efficacy of IPTp
	**99%** Women's self-efficacy regarding IPTp
	**87%** Descriptive norms for IPTp
	**86%** Descriptive norms for ANC4
	**77%** Women involved in decision making regarding ANC
	**89%** Discussed ANC attendance with spouse/partner

Factors that may influence both ANC and IPTp:

- **Comprehensive knowledge of MIP** (also see Table A.4.2): Only 39% of respondents had comprehensive knowledge of MIP, defined as correctly answering all three knowledge questions—when a pregnant woman should first seek ANC, the number of recommended ANC visits, and the number of doses of the prophylactic malaria drug (SP) a pregnant woman should receive. While almost all respondents knew how many times a woman should receive a check-up during pregnancy (95%) and 76% correctly answered how many times a woman should receive IPTp during pregnancy, only 52% knew when a woman should go for the first visit. Comprehensive knowledge of MIP was significantly more common among females (43%) than males (24%) and rural residents (41% versus 31%).
- **Favorable attitudes towards ANC/IPTp** (also see Table A.4.3): 98% of respondents had favorable attitudes towards IPTp. These perceptions were slightly more common among women (99% versus 96%) and, in the high-transmission districts, increased with wealth quintile (99% highest

quintile versus 96% lowest). Favorable attitudes were assessed using five statements. Only fifteen percent of respondents disagreed with the statement, "If a pregnant woman feels healthy, she does not need to see a health provider (nurse, doctor)." This suggests that the vast majority—85%—either agreed with or were unsure about the necessity of seeking ANC when no immediate health issues are perceived.

- **Perceived severity of malaria in pregnancy** (also see Table A.4.4): Almost all (95%) of respondents agreed that pregnant women are more likely to die from malaria compared to women who are not pregnant. This perception was slightly more widespread among male respondents (97% for men and 95% for women) and respondents over 45 years of age (98%).
- **Perceptions of health workers regarding malaria in pregnancy** (also see Table A.4.10)**:** Perceptions of health workers was assessed using four questions scored as individual items and not as a scale. Individual questions' scores ranged widely, with only 38% disagreeing that "If a pregnant woman goes to the health facility without her husband/partner, the health providers will send her away," 63% disagreeing that "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," 83% disagreeing that "If a pregnant woman goes to the health facility without her husband/partner, the health providers will send her away, and 88% agreeing that "Health providers at the health facility in this community always offer the medicine to prevent malaria to pregnant women."

Factors specific to IPTp:

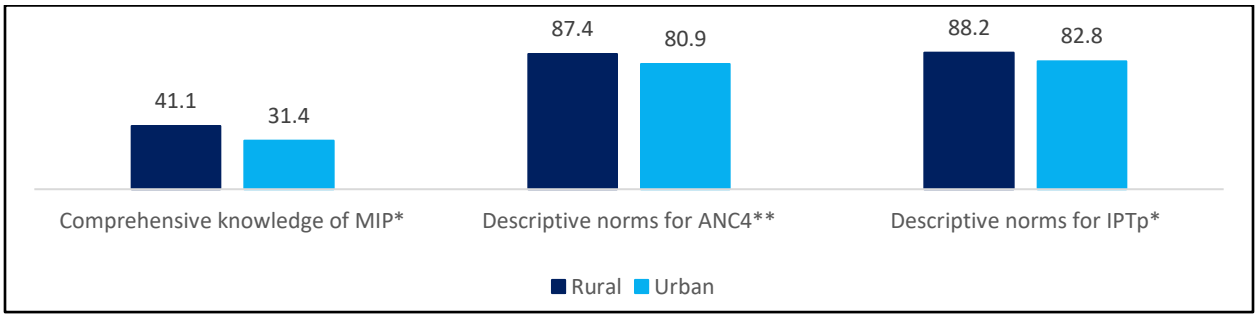
- **Perceived response-efficacy of IPTp**, or the belief that IPTp is effective in preventing malaria, was reported by 77% of all respondents (also see Table A.4.5). This belief was more common in moderate transmission districts (84% versus 75% in high transmission districts) and increased with wealth quintile (82% in the highest quintile versus 69% in the lowest). Perceived response efficacy is calculated based on a participant's agreement or disagreement with five statements. Three statements had lower rates of the desired response. Only 64% of all respondents disagreed with the statement that "It does not matter when a pregnant woman attends antenatal care for the first time." Similarly, only 76% disagreed with the statement that "The chances of getting malaria during pregnancy are the same whether or not a pregnant woman takes medicine to prevent malaria." The rates for these two statements were significantly higher in moderate transmission districts. Lastly, only 69% of all respondents disagreed with the statement that "Taking Fansidar to prevent malaria during pregnancy will not improve the health of the baby."
- **Women's self-efficacy regarding IPTp** (also see Tables A.4.6 and A.4.7) : 99% of women surveyed reported self-efficacy for IPTp. This was measured using six statements. Almost all respondents agreed with statements related to going to their ability to go to ANC, accept IPTp, and ask questions about IPTp (95–98%), however, only 90% felt they could request Fansidar during ANC, and only 86% felt they could go for ANC as soon as they think they are pregnant. Rates of perceived self-efficacy for IPTp (involving supporting their partner) were similarly high among men.

Factors specific to ANC:

- **Descriptive norms for ANC** (also see Table A.4.8): Most (86%) respondents believed that most women in their community go to ANC at least four times when they are pregnant. This perception was less common among younger respondents (15–34 years old) and urban residents (81 versus 87% rural). About three-fourths (74%) believe that most women in their community go to ANC within the first three months of pregnancy. Women in moderate-transmission districts (69% moderate vs. 75% high), aged 15–24 (69%), and urban residents (69%) were less likely to believe that early ANC was the norm in their community.
- **Women's involvement in decision making regarding ANC** (also see Table A.4.11): Three-fourths (76%) of all respondents reported that they were involved in the decision to seek ANC (77% of females and 75% of males). Males in moderate-transmission districts were less likely to be involved in this decision (62% versus 76% females), as were respondents from high-transmission districts with no formal education (56%).
- **Discussed ANC attendance with spouse/partner** (also see Table A.4.12): This was widespread (89% across all respondents). There were no statistically significant differences across socio-demographic groups.

Figure 12 shows three ideational factors that significantly differ by urban and rural residence. Compared to rural residents, urban residents were less likely to report comprehensive knowledge of malaria in pregnancy (31% vs. 41%), believe that more than half of women in their community go to ANC at least four times during pregnancy (81% vs. 87%), and take IPTp (83% vs. 88%).

Figure 12. *Malaria in Pregnancy: Related Ideational Factors at a Glance, with Significant Differences by Urban/Rural Residence*



Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Malaria in Pregnancy Behaviors

Antenatal Care Attendance and Intention to Seek ANC

Table A.4.13 shows ANC behaviors among women who had a live birth in the past two years. Almost all (99%) attended at least one ANC visit, 89% had at least four ANC visits, 78% had at least one ANC visit

where they were accompanied by their spouse or partner, and 72% attended at least one ANC visit where they received an ITN. Sixty-seven percent had at least one ANC visit in the first trimester and 87% intend to attend ANC early in a future pregnancy. Having at least four ANC visits was significantly more common among rural respondents (91% versus 83%). Receipt of an ITN during ANC increased with wealth quintile (86% highest versus 60% lowest). Intention to attend ANC early was higher in women from high-transmission districts (89% vs. 82%) and rural areas)89% vs. 83%), and lower in women from the highest wealth quintile (82%).

Figure 14 shows reasons for not attending ANC earlier in pregnancy. By far the most common reason cited by female respondents was not knowing that she was pregnant (29%), followed by not having a partner to accompany her (18%). Ten percent said the health facility was too far, 9% did not have time, and 9% did not want others to know she was pregnant. 16% cited other reasons.

Figure 12. *Reasons for Not Going Earlier to ANC During Pregnancy*

IPTp Receipt and Intention to Use IPTp

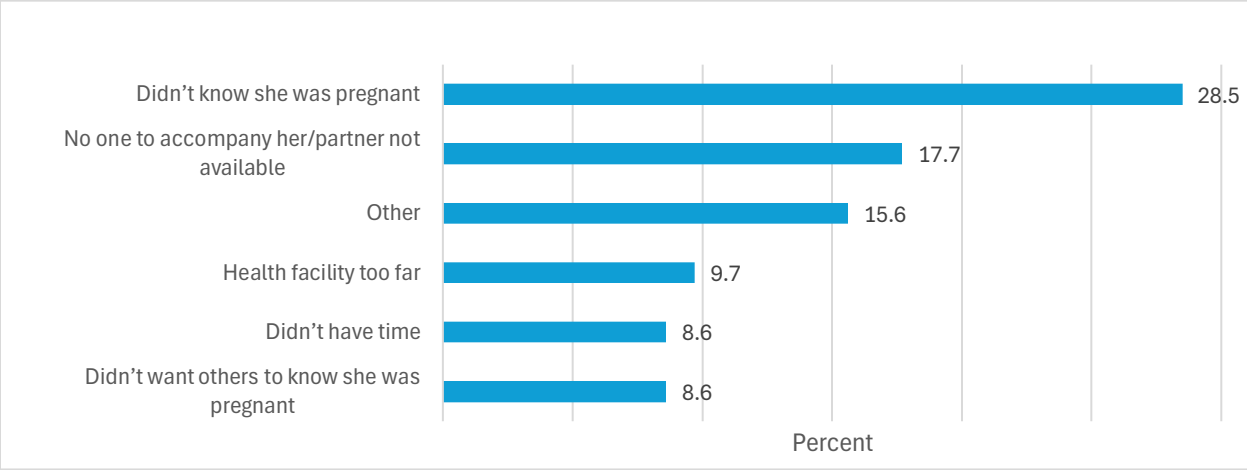


Table A.4.14 shows IPTp behaviors among women who had a live birth in the past two years. Almost all (99.6%) had received at least one dose of IPTp, 95% had received two doses, and 87% had received three or more doses.[8] Women over 45 years of age were much less likely to receive three or more doses (53% versus 87–89%) as well women in the lowest wealth quintile (79%). Importantly, receipt of three or more doses of IPTp was significantly associated with having four or more ANC visits (90% versus 64% for those with zero to three visits). According to **Table A.4.15**, the most common source of IPTp doses was ANC (99%), followed distantly by non-antenatal visits at facilities (7%).

[8] Due to the way responses were coded in the data capture software, all doses greater than three were automatically classified as three or more. For this reason, differentiating the number of four or more IPTp doses is not currently possible but recommended in future Zambia Malaria Behavior Surveys.

Table 7: Summary of Ideational Variables Related to Malaria in Pregnancy (continued on next page)							
Characteristic	**Percent of respondents who report ideational determinants, by respondent sociodemographic characteristics, Zambia MBS 2024**						
	Comprehensive knowledge of MIP recommendations	**Favorable attitudes towards MIP**	**Perceived malaria in pregnancy as severe**	**Perceived response-efficacy of IPTp**	**Perceived self-efficacy regarding IPTp (men and women)**	**Perceived that most in community go to ANC care at least 4 times during pregnancy**	**Perceived that most take malaria preventative medicine during pregnancy**
Transmission districts				**			
High	38.6	98.0	95.2	75.2	99.3	85.8	86.5
Moderate	38.2	98.4	94.5	84.1	99.3	85.1	87.7
Sex	***	**	*				
Female	42.6	98.6	94.5	76.8	99.4	85.3	87.1
Male	24.1	96.1	97.1	78.3	98.9	86.8	85.6
Age	*		**			**	**
15–24	36.4	98.5	92.8	75.5	99.4	82.1	80.6
25–34	41.6	97.4	95.1	76.9	98.9	85.1	88.1
35–44	41.5	98.3	96.7	81.5	99.5	89.5	92.1
45 and above	30.8	98.2	97.8	73.9	99.7	89.9	90.5
Residence	*					**	**
Rural	41.1	97.8	95.3	77.0	99.3	87.4	88.2
Urban	31.3	98.9	94.3	77.4	99.2	80.9	82.8
Level of education	**		ǂ		*		
None	24.4	93.7	100.0	72.2	93.7	83.3	85.6
Primary	41.0	97.8	94.2	77.1	99.4	85.3	87.7
Secondary or higher	30.9	98.8	96.8	79.7	99.2	86.3	84.0
Wealth quintile	**		ǂ	**			**
Lowest	38.4	96.1	92.1	69.2	99.1	82.8	82.2
Second	42.7	97.6	95.5	79.0	99.4	86.9	91.4
Middle	42.2	98.9	96.1	74.1	98.9	87.3	89.0
Fourth	40.7	99.0	95.8	79.9	99.6	87.4	86.3
Highest	29.3	98.5	95.2	82.1	99.3	83.7	84.8
Total (%)	**38.5**	**98.1**	**95.0**	**77.1**	**99.3**	**85.7**	**86.8**
Total (N)	**2045**						
Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable							

Table 7: Summary of Ideational Variables Related to Malaria in Pregnancy (continued from previous page)					
Characteristics	**Percent of respondents who report ideational determinants, by respondent sociodemographic characteristics, Zambia MBS 2024**				
	Perceived that most people in community will approve of pregnant women taking medicine to prevent malaria	**Perceived equitable gender attitudes regarding ANC**	**Favorable perceptions of health workers Regarding MIP**	**Involved in decision making regarding ANC**	**Discussed ANC attendance with spouse/partner**
Transmission districts				ǂ	
High	91.5	97.9	85.4	77.5	89.1
Moderate	89.0	99.3	85.7	72.1	86.4
Sex			***		
Female	91.4	98.3	83.5	77.1	88.4
Male	89.3	97.8	92.5	74.6	88.6
Age	*				ǂ
15–24	88.1	98.1	85.9	72.3	87.9
25–34	91.1	98.0	85.2	75.4	91.2
35–44	93.2	98.5	86.3	79.8	87.0
45 and above	94.1	98.3	83.6	78.9	85.5
Residence	*		***		
Urban	91.8	98.1	88.0	75.8	88.5
Rural	88.4	98.5	78.6	78.1	88.6
Level of education	*				
None	90.5	93.7	89.9	62.9	89.5
Primary	92.7	98.3	86.6	77.2	89.5
Secondary or higher	89.1	98.0	82.5	76.3	87.8
Wealth quintile	*	ǂ			
Lowest	90.5	96.3	86.7	75.2	88.6
Second	95.3	98.7	86.0	73.2	89.5
Middle	91.4	99.1	84.8	75.1	85.7
Fourth	87.0	98.0	86.3	80.1	89.2
Highest	90.9	98.6	83.9	78.0	89.5
Total (%)	**90.3**	**98.2**	**85.5**	**76.3**	**88.5**
Total (N)	**2,045**				
Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable					

Logistic Regression Analysis

This study employed logistic regression analysis to examine ideational factors influencing intentions related to MIP during a future pregnancy. The key outcomes of interest were the intention to attend ANC in the first trimester and the intention to attend at least four ANC visits in future pregnancies. The MBS does not assess the relationship between ideation and past MIP behavior because recall data on perceptions held up to two years prior would not have been reliable.

Instead, the survey looks for associations between current perceptions and intentions. Since the intention to obtain three or more doses of IPTp is closely linked to these two behaviors, a separate regression analysis for the intention to obtain IPTp3+ was not conducted. However, ideational factors related to IPTp were included in the analyses.

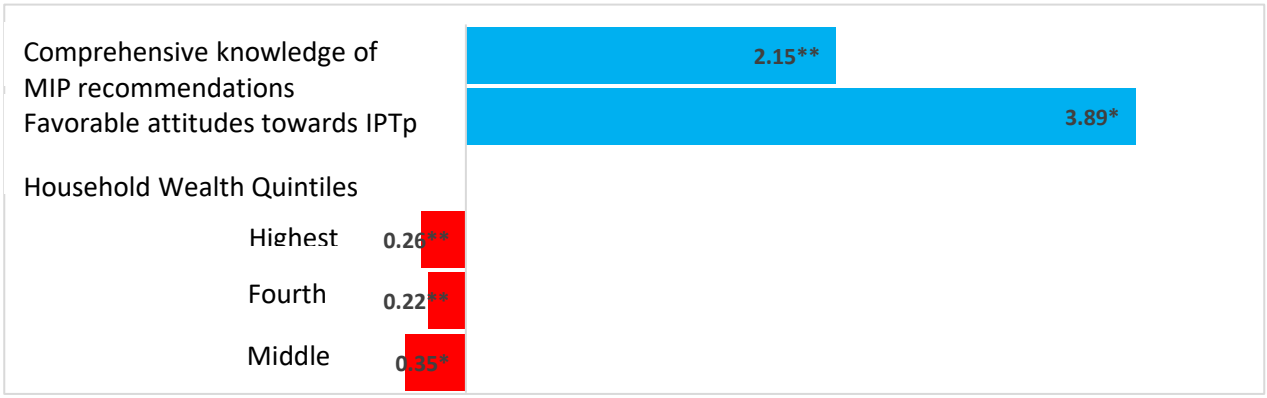
Antenatal Care Attendance and Intention to Seek ANC

According to **Table A.4.13**/**Figure 15**, Total 91.9% of respondents intend to attend ANC at least four times in a future pregnancy. Two ideational factors significantly increased the likelihood that women would intend to take IPTp in a future pregnancy:

- **Comprehensive knowledge of MIP recommendations**: Women who were knowledgeable about MIP recommendations were 2.15 times more likely to attend ANC at least four times in a future pregnancy [aOR 2.15; 95% CI: 1.21–3.81**].
- **Favorable attitudes toward IPTp**: Women who held favorable attitudes toward IPTp were 3.89 times more likely to intend to attend ANC at least four times in a future pregnancy [aOR 3.89; 95% CI: 1.07–14.17*].

One structural factor was significantly associated with a decrease in intention to attend ANC 4+ times in a future pregnancy. Women from the middle-to-highest wealth quintile 65%–78% less likely to intend to attend ANC at least four times in a future pregnancy compared to women in the lowest wealth quintile.

Figure 13. *Factors significantly associated with the intention to attend antenatal care at least four times in a future pregnancy, and their adjusted odds ratios, MBS Zambia 2024 (N = 1,016)*



Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Intention to Seek ANC Early

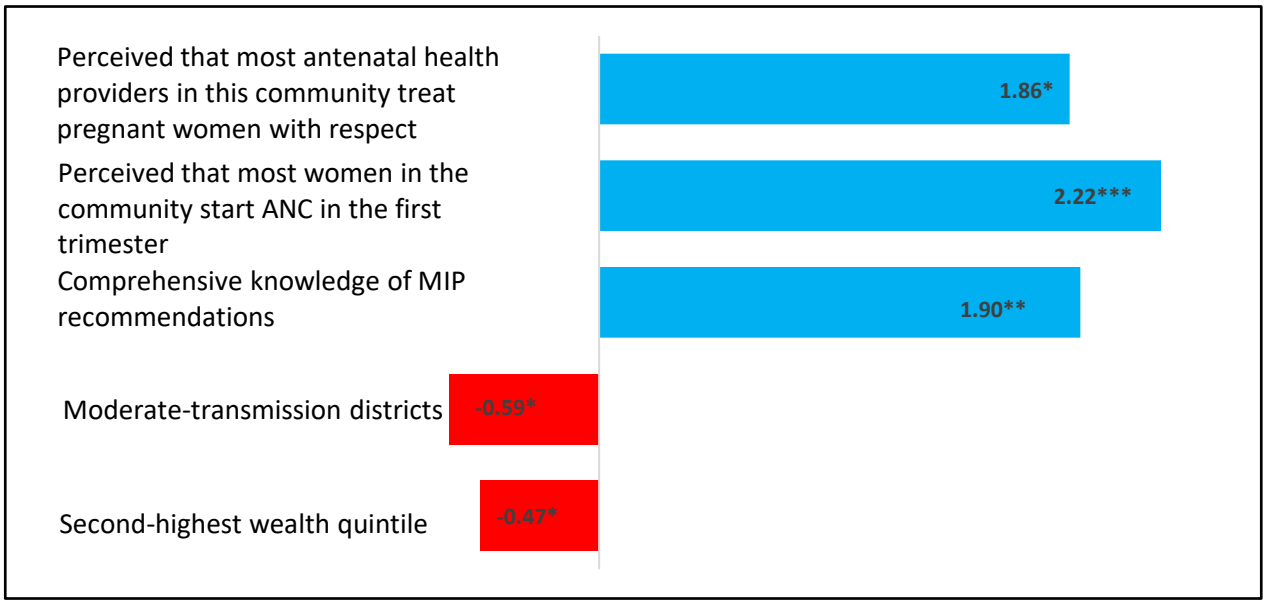
According to **Table A.4.13,** 87% of respondents intend to attend ANC in the first trimester. A few ideational factors significantly increased this likelihood (**Table A.4.17.Figure 16)**:

- **Positive descriptive community norms** towards early ANC: Women who perceived that most people in their community go to ANC within the first three months of pregnancy were 2.22 times more likely to intend attend ANC in the first trimester [aOR 2.22; 95% CI: 1.45–3.40***].
- **Positive perceptions of health providers regarding ANC/IPTp services:** Women who perceived that most antenatal health providers in this community treat pregnant women with respect were 1.86 times more likely to intend to attend ANC in the first trimester [aOR 1.86; 95% CI: 1.11–3.11*].
- **Comprehensive knowledge of MIP recommendations:** Women who were knowledgeable about MIP recommendations were 1.9 times more likely to intend to attend ANC in the first trimester [aOR 1.90; 95% CI: 1.22–2.95**].

However, two factors were associated with a reduced likelihood of intending to attend ANC in the first trimester:

- **Moderate-transmission districts**: Women living in moderate-transmission districts were 41% less likely to intend to attend ANC in the first trimester compared to those in higher transmission areas [aOR 0.59; 95% CI: 0.37–0.94*].
- **Second-highest wealth quintile**: Women in the second wealth quintile were 53% less likely to intend to attend ANC in the first trimester compared to those in the lowest wealth quintile [aOR 0.47; 95% CI: 0.24–0.92*].

Figure 14*. Factors significantly associated with the intention to attend ANC in the first trimester in a future pregnancy, and their adjusted odds ratios, Zambia MBS 2024 (N = 999)*



Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Supplemental Information

Detailed tables on the following indicators are presented in the annex.

Table A.4.1: Summary of Ideational Variables Related to Malaria in Pregnancy
Table A.4.2: Comprehensive Knowledge of Malaria in Pregnancy
Table A.4.3: Attitudes Toward ANC/IPTp
Table A.4.4: Perceived Severity of Malaria in Pregnancy
Table A.4.5: Perceived Response Efficacy of IPTp
Table A.4.6: Perceived Self-Efficacy for IPTp: Women
Table A.4.7: Perceived Self-Efficacy for IPTp: Men
Table A.4.8: Perceived Community Norms Regarding IPTp
Table A.4.9: Gender Attitudes Regarding Malaria in Pregnancy
Table A.4.10: Perceptions of Facility-Based Health Workers Regarding Malaria in Pregnancy
Table A.4.11: Decision making Regarding Antenatal Care
Table A.4.12: Interpersonal Communication Regarding Antenatal Care
Table A.4.13: Antenatal Care Attendance
Table A.4.14: Use of IPTp by Women during Pregnancy
Table A.4.15: Source of IPTp
Table A.4.16: Logistic Regression Results Exploring Factors Associated with the Intention to Attend ANC in a Future Pregnancy
Table A.4.17: Logistic Regression Results Exploring Factors Associated with the Intention to Attend ANC in the First Trimester

Insecticide-Treated Net Use

Key findings

- 93% of households had at least one ITN (93% rural, and 92% urban), but only 56% had sufficient nets (defined as having at least one ITN for every two people; 57% rural, 52% urban).
- When assuming that each net is used by two people, the percentage of the population in the study area with access to a net was 69% overall (71% rural and 65% urban).
- The majority of respondents (86%) used a net every night of the week before the survey (consistent use). Three-fourths (77%) of household members used a net the night before the survey.
- The use-to-access ratio was 1.1, suggesting that people with access to a net are using them, and that slightly more than two people used each net the night before.
- Those who heard malaria messages from a health facility were 1.69 times more likely to use ITNs more consistently
- Respondents aged 25–34 were 1.81 times more likely to use ITNs consistently, compared to those aged 15–24.
- Urban residents were 41% less likely to use ITNs consistently compared to rural residents.

This section describes the ideational factors related to ITN use, the prevalence of ITN use and care behaviors, and the associations between ideational factors and those behaviors using logistic regression. Ideational factors related to ITN use explored in the MBS include knowledge, favorable attitudes toward ITN use and care, perceived response efficacy, perceived self-efficacy, perceived supportive community norms, and perceived equitable gender attitudes. The behaviors examined include population-level ITN access and use, ITN use-to-access ratio, consistent ITN use by respondents, and net care.

Ideational Variables Linked with ITN Use

Figure 17 presents a summary of ideational factors related to ITN use. Additional cross-cutting factors that may also impact ITN use (such as perceived severity and susceptibility) can be found in **Table 8**.

- **Knowledge of preventing malaria by using mosquito nets** (also see Table A.5.2): Almost all respondents (95%) knew that ITNs are methods of malaria prevention. Rates were significantly higher in urban areas (98% versus 93%), and among the highest wealth quintile (98% versus 92% lowest quintile). Respondents with only a primary-level education were slightly less likely to cite this knowledge (93%) compared to respondents who had no formal education (100%) or secondary or higher education (98%).
- **Favorable attitudes toward net use** (also see Table A.5.3.a): Most viewed ITN use positively (84%); however, a review of responses to individual questions in the scale showed that sizable proportions of respondents appeared to have reservations about using nets in warm weather (30%), unfolding the net every night (25%), the smell of the net (30%), and the safety of ITNs

(26%). There were also a few significant differences between low and high transmission areas. Only 62% of respondents from moderate transmission districts disagreed with the statement that "The smell of the insecticide makes it uncomfortable for you to sleep under a mosquito net" (versus 72% from high transmission districts) and 65% disagreed with the statement that "More expensive mosquito nets are more effective than cheaper or free mosquito nets" (versus 79% from high transmission districts).

- **Perceived response-efficacy of ITNs** (also see Table A.5.5): Almost all (99%) believed that nets were effective at preventing mosquito bites and malaria, regardless of whether they slept on a mat or a bed (95%). Only 26% of respondents disagreed with the statement, "The chances of getting malaria are the same whether or not someone sleeps under a mosquito net," indicating that the majority (74%) either believe there is no difference in malaria risk based on net use or are unsure.
- **Perceived self-efficacy to use nets** (also see Table A.5.6.a) Almost all (98%) believed they could sleep under a mosquito net for the entire night during rainy season, during the cold season (96%), and every night of the year (94%). While fewer, the majority still felt they could sleep under a mosquito net for the entire night during the hot season (89%). Respondents from moderate transmission districts were slightly less confident in their ability to use a net throughout the year (92% versus 95%).
- **Perceived consistent bed net use by community members (**also see Table A.5.7): The majority of respondents (83%) believed that at least half community members who have nets use them nightly (descriptive norm). This perception was more common in rural areas (86% versus 77%), and among the lowest, second, and fourth wealth quintiles (86–88%). Even more (93%) believe that most community members approve of using a net every night (injunctive norm).

Figure 15. *Net Use: Ideational Factors Related to ITN Use At-A-Glance*

	**95%** Knowledge of malaria prevention using mosquito nets
	**84%** Favorable attitudes toward net use
	**99%** Favorable attitudes toward net attributes (such as shape and color)
	**99%** Perceived response-efficacy of ITNs
	**98%** Perceived self-efficacy to use nets
	**83%** Perceived consistent bed net use by community members

Table 8: Summary of Ideational Variables Related to ITN Use							
Characteristic	**Percent of respondents who report ITN ideational determinants, by respondent sociodemographic characteristics, Zambia MBS, 2024**						
	Knowledge of malaria prevention using mosquito nets	**Favorable attitudes toward net use**	**Favorable attitudes toward ITN attributes (color, shape)**	**Favorable attitudes towards ITN care and repair**	**Perceived response-efficacy of ITNs**	**Perceived self-efficacy to use ITNs**	**Perceived community norms regarding ITNs (descriptive norm)**
Transmission districts						ǂ	
High	95.0	85.2	98.6	98.5	99.4	98.2	82.9
Moderate	93.5	80.3	99.3	98.4	99.7	96.9	85.1
Sex							
Female	94.8	84.2	98.6	98.4	99.3	97.7	83.0
Male	94.2	83.9	99.3	98.8	99.7	98.7	84.8
Age			*				ǂ
15–24	94.1	83.8	98.0	97.8	99.6	97.8	80.6
25–34	95.2	83.7	99.3	98.3	99.0	98.0	83.2
35–44	93.7	86.5	98.4	99.2	99.7	98.4	85.9
45 and above	97.0	81.9	100.0	99.2	99.4	97.3	86.9
Residence	***						***
Rural	93.4	85.6	99.0	98.5	99.6	98.1	85.8
Urban	98.1	80.2	98.1	98.2	99.0	97.3	76.8
Level of education	***	ǂ		*	*		
None	100.0	84.3	100.0	89.9	93.7	96.3	78.8
Primary	93.4	85.9	99.0	98.6	99.5	98.2	84.4
Secondary or higher	98.3	79.9	98.6	98.4	99.3	97.7	80.6
Wealth quintile	*						**
Lowest	92.0	81.4	99.5	98.2	99.7	97.7	85.6
Second	94.5	88.8	98.2	98.8	99.1	97.6	86.1
Middle	93.3	81.8	98.7	98.9	99.7	97.7	80.2
Fourth	95.6	86.1	99.1	98.9	99.7	99.2	88.1
Highest	97.5	82.7	98.4	98.6	99.1	97.4	77.4
Total (%)	**94.7**	**84.2**	**99.0**	**99.0**	**99.4**	**97.9**	**83.4**
Total (N)	**2,045**						
Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable							

ITN Ownership and Use

ITN Ownership, Access, and Characteristics

Ninety-three percent of households had at least one ITN, but only 56% had sufficient nets (defined as having at least one ITN for every two persons who stayed in the household the previous night; **Table A.5.8**). Fewer households in the lowest wealth quintile had sufficient nets (47%) compared to households from wealthier quintiles (56–61%).

Approximately 69% of the population had access to ITNs (based on the assumption that a net can be used by two people in a household; **Table A.5.9**). Populations in urban areas (65% versus 71%) and in the lowest wealth quintile (63% versus 69–73%) had lower access to ITNs.

Almost all (98%) of nets were ITNs, and all (100%) were obtained for free (**Table A.5.13**). The most common source of nets by far was mass distribution campaigns (91%) followed distantly by ANC (5%), immunization (2%) and other (3%). Most nets were white (97%).

ITN Use, Consistent Use, and the ITN use-to-access ratio

Three-fourths (77%) **of household members** used a net the night before the survey (**Table A.5.10**). Net use was significantly higher among households with more than one net for every two people (87% versus 65% for those with < 1 net per two people), the middle and fourth quintiles (80%), children under five (83%) and individuals over 25 (80%), rural residents (79% versus 70% urban), and females (78% versus 75% males).

The ITN use-to-access ratio is a metric that estimates the proportion of a population that uses an ITN among those who have access to one. It assumes that two people in a household would use a net. The use-to-access ratio in the Zambia MBS was 1.1, suggesting that more than two people share each net (**Table A.5.11**).

While almost all (97%) **of ITNs** were used the night before the survey (**Table A.5.12**), only 76% were used every night of the previous week. The percentage of available nets in use the previous night was slightly lower in urban areas (93% versus 98%) and the highest wealth quintile (93%).

The majority **of respondents** (86%) used a net **every night of the week** before the survey (consistent use; **Table A.5.15**). Females (85% vs. 89% males) and urban residents (80% vs. 88% rural) were less likely to use a net consistently.

ITN Care and Repurposing

Ideational Variables Linked with ITN Care

- **Favorable attitudes towards ITN care and repair** (also see Table A.5.4): Almost all participants viewed net care favorably (99%), with almost all believing that there are actions they can take to make their nets last longer (92%), that they can protect their family by taking care of nets (97%), and that net care is worth the time (98%). Most believed that old nets can protect against malaria if well cared-for (89%). There were no significant differences according to sociodemographic characteristics.

- **Descriptive norms for net care** (also see Table A.5.4): Three-fourths believed that other people in their community take care of nets (76%). This perception was significantly less common in the highest wealth quintile (62%).
- **Net care self-efficacy** (also see Table A.5.7): Similar to attitudes, almost all respondents expressed confidence in their ability to care for nets (98%), and was slightly more common among women (98% vs. 96% men) and rural residents (98% vs. 96% urban).

Figure 16. *Net Care: Ideational Factors At-A-Glance*

	**99%** Favorable attitudes towards ITN care and repair
	**76%** Descriptive norms for net care
	**98%** Net care self-efficacy

ITN Care Behaviors: Hanging, Drying, and Washing

Interviewers asked individual survey respondents about specific actions they take to care for nets. The results suggest there is substantial room to improve in net care behaviors. Only one-half (52%) of nets observed were hanging and folded up or tied (desired behavior). Forty-two percent hung loose over sleeping spaces, leaving them more vulnerable to dirt and damage. Sixty-four percent of nets had been washed with detergent (which is considered too harsh for nets), 2% with bleach (also considered too harsh), and only 21% with bar soap (desired behavior). Finally, 40% of nets were dried in the sun, which can damage the insecticide.

Logistic Regression Analysis

This survey used logistic regressions to explore ideational factors related to consistent ITN use as well as the specific ITN care behavior of rolling up ITNs when not in use.

Consistent Use of ITNs

The logistic regression analysis (**Table A.5.17** and **Figure 19)** identified several facilitators of consistent ITN use (net use every night of the week preceding the survey:

- **Heard malaria messages from a health facility:** Individuals who heard malaria messages from a health facility were 1.69 times more likely to use ITNs more consistently [aOR 1.69; 95% CI: 1.06–2.68*] compared to those who had not.
- **Age**: Respondents aged 25–34 were 1.81 times more likely to use ITNs consistently [aOR 1.81; 95% CI: 1.20–2.73**] compared to youth aged 15-24.

One factor was associated with a lower rate of consistent ITN use:

- **Urban residency**: Urban residents were 41% less likely to use ITNs consistently compared to rural residents [aOR 0.59; 95% CI: 0.41–0.86**].

Figure 17. *Factors significantly associated with consistent use of ITNs among residents of households with at least one ITN, and their aORs, Zambia MBS 2024 (N = 1,890)*

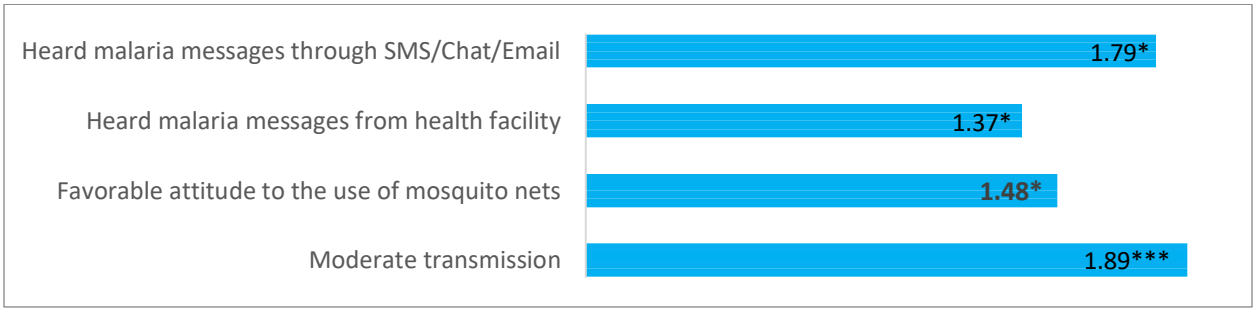
Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Tying or folding up ITNs when not in use

The logistic regression analysis (**Table A.5.18** and **Figure 20**) was also used to examine factors associated with reported care of ITNs by tying or folding them up when not in use. The population assessed were residents of households with at least one ITN. Facilitators of ITN care included:

- **Heard malaria messages through SMS/Chat/Email**: Respondents who heard of malaria messages through SMS/Chat/Email were 1.79 times more likely to report proper ITN care [aOR 1.79; 95% CI: 1.13–2.83*].
- **Heard malaria messages from health facility**: Respondents who heard malaria messages from a health facility were 1.37 times more likely to report proper ITN care [aOR 1.37; 95% CI: 1.04–1.81*].
- **Favorable attitudes toward mosquito net use**: Those who held positive attitudes regarding the use of mosquito nets were 1.48 times more likely to engage in proper ITN care [aOR 1.48; 95% CI: 1.08–2.03*].
- **Moderate transmission districts**: Residents in moderate transmission districts were significantly more likely to report proper ITN care, with an aOR of 1.89 [95% CI: 1.37–2.61***] .

Figure 18. Factors significantly associated with reported care of ITNs by tying or folding them up when not in use, among residents of households with at least one ITN, and their aORs, Zambia MBS 2024 (N = 1,890)



Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Supplemental Information

Detailed tables on the following indicators are presented in the annex.

Table A.5.1 Summary of Ideational Variables Related to Malaria Prevention Using Mosquito Nets
Table A.5.2 Knowledge of Malaria Prevention Using Mosquito Nets
Table A.5.3.a: Favorable Attitudes toward Nets: Perceived Barriers to Net Use Sub-Scale
Table A.5.3.b: Favorable Attitudes toward Nets—Positive Attributes subscale
Table A.5.4: Favorable Attitudes toward Net Care and Repair
Table A.5.5: Perceived Response Efficacy of Nets
Table A.5.6.a: Perceived Self-Efficacy to Use Nets
Table A.5.6.b: Perceived Self-Efficacy to Net Care
Table A.5.7: Perceived Community Norms Regarding Nets
Table A.5.8: Household Possession of Mosquito Nets
Table A.5.9: Access to an ITN
Table A.5.10: Use of Mosquito Nets by Persons in the Household
Table A.5.11: ITN Use-to-Access Ratio
Table A.5.12: Use of Existing Nets
Table A.5.13 Net Characteristics
Table A.5.14: Net Care and Repurposing
Table A.5.15: Consistent Net Use
Table A.5.16: Sleep Pattern and Outdoor Sleeping the Previous Night
Table A.5.17: Results of the Logistic Regression Exploring Factors Associated with Use of Mosquito Nets Every Night—Residents of Households with at Least One ITN
Table A.5.18: Results of the logistic regression exploring factors associated with reported care of ITNs by tying or folding it up when not in use—residents of households with at least one ITN

Indoor Residual Spraying

Key findings

- There were high levels of awareness of IRS programs (91%).
- There were high levels of favorable attitudes towards IRS (90%). Having favorable attitudes was more common in areas with a previous history of IRS (93% versus 89%).
- Most (85%) believed IRS is effective at preventing malaria, and 83% were confident they could move their furniture out of the house before spraying and sleep in the house the night after it is sprayed.

This section describes the ideational factors related to willingness to accept IRS, IRS coverage, and bivariate associations between ideational factors and sociodemographic characteristics. All differences reported in this section, unless otherwise noted, are statistically significant.

Logistic regression is used to predict the likelihood of a binary outcome—such as whether a household is willing to accept IRS if offered. However, the MBS does not conduct logistic regressions for IRS because acceptance rates tend to be very high. This limits the effectiveness of logistic regression due to a lack of sample size in the non-accepting group.

Ideational Variables Linked with Acceptance of IRS

The MBS collected data on the following ideational variables: awareness of IRS, favorable attitudes toward IRS, perceived response-efficacy of IRS; and perceived self-efficacy to take actions related to IRS (**Figure 21** and **Table 9**). This data may help inform refinements to IRS programs.

Knowledge-related questions were asked of men and women in the study sample. Surveyors only posed behavior questions to those who were aware of the IRS program.

- **Awareness of the IRS program** was high across the surveyed population, with 91% of respondents reporting knowledge of the program (Table A.6.2). However, awareness of IRS was significantly higher in moderate transmission districts (97%) compared to high transmission areas (89%). Awareness was lower (85%) among youth aged 15–24 compared to older age groups (93–94%).
- **Favorable attitudes towards IRS** (also see Table A.6.3): The percentage of respondents with favorable attitudes towards IRS was 90%. Having favorable attitudes was more common in areas with a previous history of IRS (93% versus 89%). Favorable attitudes toward IRS were measured using seven questions. The vast majority disagreed (desirable answer) with the statement that "people have problems with bugs/bed bugs after the walls are sprayed (89%). This question had the highest rate of desired answers. The attitudes with the lowest rates of desired responses were agreement with the statement that, "The benefits of having my house sprayed is worth the effort needed to move my belongings out so it can be sprayed (74%)," and "Many people

develop skin problems (rashes, itching) after the walls inside their houses are sprayed with insecticide (76%)."

- **Response efficacy** (also see Table A.6.4.a and Table A.6.4.b): Approximately 85% believed that "Spraying the inside walls of a house is an effective way to prevent malaria," and 76% believe that people who live in houses that have been sprayed are less likely to get malaria.
- **Self-efficacy** (also see Table A.6.4.a and Table A.6.4.b): This is defined as confidence in one's ability to take actions required for IRS. A large majority (83%) felt capable of preparing their homes (e.g., moving furniture) for spraying, with higher confidence levels among rural residents (84%) than urban residents (78%). Additionally, 91% of respondents expressed confidence in their ability to sleep in a house the night it was sprayed, indicating a strong willingness to comply with key aspects of the IRS process.

Acceptance of IRS

The Zambia MBS measured the percentage of individuals willing to accept IRS in their home if offered, and those who accepted it in the past 12 months. The vast majority (89%) expressed a willingness to accept IRS. Willingness was much higher among those with prior knowledge of the IRS program (92% versus 66%).

Supplemental Information

This study presents detailed tables on the following indicators in the annex.

Table A.6.1: Summary of Ideational Variables Related to IRS
Table A.6.2: Awareness of the Indoor Residual Spraying Program
Table A.6.3: Favorable Attitudes Toward Indoor Residual Spraying
Table A.6.4: Perceived Response Efficacy of Indoor Residual Spraying
Table A.6.5.a: Perceived Self-Efficacy Regarding Indoor Residual Spraying
Table A.6.5.b: Perceived Self-Efficacy Regarding Indoor Residual Spraying
Table A.6.6: Willingness to Accept Indoor Residual Spraying
Table A.6.7: Indoor Residual Spraying Coverage

Figure 19. *Ideational variables related to IRS, Zambia MBS 2024*

	**91%** Awareness of IRS programs
	**90%** Favorable attitudes towards IRS
	**85%** Perceived response-efficacy of IRS: Believes spraying the inside walls of a house is an effective way to prevent malaria
	**76%** Perceived response-efficacy of IRS: Believes people who live in sprayed houses are less likely to get malaria
	**83%** Perceived self-efficacy to move furniture in preparation for spraying
	**91%** Perceived self-efficacy to sleep in house the night it is sprayed

Table 9. Summary of Ideational Variables Related to IRS						
Characteristic	**Percent of respondents who report ideational determinants, by respondent sociodemographic characteristics, Zambia MBS 2024**					
	Awareness of the IRS program	**Favorable attitudes towards IRS**	**Perceived IRS as effective: Believes that IRS is effective way to prevent malaria**	**Perceived IRS as effective: Believes people who lived in sprayed houses are less likely to get malaria**	**Perceived self-efficacy of IRS- Self-efficacy to move furniture in preparation for spraying**	**Perceived self-efficacy of IRS- Self-efficacy to sleep in house the night it is sprayed**
Transmission districts	***	ǂ	ǂ			
High	89.2	91.6	86.1	76.5	82.5	92.0
Moderate	96.7	87.0	81.5	75.1	83.4	89.3
Sex	ǂ					
Female	90.2	90.6	84.7	76.4	82.8	91.0
Male	93.2	90.6	86.0	75.3	82.2	92.9
Age	***				ǂ	
15–24	85.2	92.6	86.4	78.3	86.2	91.1
25–34	93.5	90.7	83.3	75.6	80.1	91.0
35–44	94.3	89.2	85.4	74.5	82.7	91.7
45 and above	93.0	88.2	85.4	75.6	80.4	92.7
Residence		ǂ			*	
Urban	91.5	91.6	86.7	79.3	78.3	89.8
Rural	89.0	87.6	84.4	75.1	84.2	92.0
Level of education						
None	89.8	85.2	74.2	74.8	70.5	95.8
Primary	91.1	90.5	83.6	74.4	82.4	91.6
Secondary or higher	92.0	90.3	87.0	78.8	81.7	90.2
Wealth quintile		ǂ		**		
Lowest	88.7	86.5	84.7	74.4	82.4	90.0
Second	93.3	91.5	86.9	74.7	81.6	92.6
Middle	89.2	94.5	88.6	85.1	84.9	92.9
Fourth	90.6	90.6	80.9	72.5	80.0	90.8
Highest	92.2	89.3	84.4	74.5	84.4	90.8
Total (%)	**90.8**	**90.6**	**85.0**	**76.2**	**82.7**	**91.4**
Total (N)	**2,045**	**1,862**	**1,862**	**1,862**	**1,862**	**1,862**

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable.

Media Consumption and Message Exposure

Figure 22 displays media access and consumption. **Table 10** summarizes common sources where people may receive malaria messages, and **Table 11** presents a summary of variables related to media consumption and malaria messaging exposure. Additional detail is provided in **Tables A.7.1** through **A.7.6** in the Annex.

Figure 20. *Media Access, Consumption, and Malaria Message Exposure*

	**48%** Radio listenership at least once a week
	**25%** TV viewership at least once a week
	**77%** Mobile phone ownership
	**48%** Exposure to malaria messages within the past six months

Media consumption

Radio listenership

Nearly one-half (48%) of all male and female respondents listened to the radio at least once a week (Table A.7.1). This increased to 77% in households that owned a radio. Radio listenership varied significantly across all social and demographic groups. It was higher in areas with moderate malaria transmission (63% versus 44% in areas with high transmission). Among males, the radio listenership rate was 58% compared to 46% in females. In older age groups, it ranged from 52–57% as opposed to 42% in youth aged 15–24. Urban residents had a higher listenership rate at 68% compared to 41% among rural residents. 46-59% of those with at least a primary or secondary education percentages listened to the radio at least once a week compared to 40% among those with no education. Different wealth quintiles also displayed variations, with radio listenership rates ranging from 53–69% among the middle to highest quintiles compared to 20–32% in the bottom two.

About one-half (47%) of respondents in households with a radio said they were most likely to listen to the radio in the early evening (4–8 p.m.; Table A.7.2). The end of the evening (8 p.m. to midnight) ranked as a distant second at 20%, followed by afternoon (noon to 4 p.m.; 13%), end of the morning (8 a.m. to noon; 11%), and early morning (4 a.m. to 8 a.m.; 10%).

Television viewership

One-quarter (25%) of all respondents watched television (TV) at least once a week, and almost everyone residing in homes that owned a TV did so (99%) (Table A.7.3). TV viewership rates varied significantly by

urbanicity, education level, and wealth quintile. TV viewership was higher among urban residents (53% versus 15% among rural residents), among those with secondary or higher educational attainment (43% versus 14–19% among those with no or only primary education), and 71% among those in the highest wealth quintile. The fourth wealth quintile followed distantly at 26%, and the lowest three wealth quintiles displayed the lowest rates of TV viewership across sociodemographic groups, at 3–13%.

About one-half (49%) of all respondents said they were most likely to watch TV in the early evening (4–8 p.m.; Table A.7.4). The end of the evening (8 p.m. to midnight) ranked as the next preferred time at 30%, followed by afternoon (noon to 4 p.m.; 10%), end of the morning (8 a.m. to noon; 8%), and early morning (4 a.m. to 8 a.m.; 2%).

Table 10. Common sources of malaria messages (N=2,045)

Source of malaria message	Total %
Radio	21
Health facility	20
Community health worker	8
SMS/chat/email	6
Television	6
Friends/family	5
Social media	2
Community leaders	1.2
Community change agents	1.0
Peer educators	0.6
Workplace	0.6
Posters/billboards	0.5
Village meeting	0.4
Drama groups	0.3
Newspaper	0
Political leaders	0
Other (specify)	0
Don't know	0

Mobile phone or tablet ownership

Three-quarters (77%) of all respondents owned a mobile phone or table (Table A.7.5). Mobile phone or tablet ownership was significantly higher among those from moderate-transmission districts (85% versus 75%), urban areas (91% versus 73%), secondary or higher education (90% versus 64% among those with no education). Mobile phone or table ownership was high across the three highest wealth quintiles (84–98%), and 39% and 64% in the lowest and second lowest wealth quintile, respectively.

Malaria Message Exposure

About one-half (48%) of all respondents (N=2,045) reported seeing or hearing a malaria message within the past six months (Table A.7.6). When shown three logos, 25% correctly recognized the current national malaria campaign logo. 11% of all respondents were able to correctly add the second phrase to the campaign slogan, "Malaria Ends with Me, Malaria Ends with You, Together We Can Beat Malaria." This increased to 14% among those who listened to the radio at least once a week (among all respondents), the channel where the full-length slogan was used. [9]

[9] *This finding is based on additional analysis and is not presented in the supplemental tables.*

The primary source of malaria messages in the past six months was the radio (21%; Table 10), closely followed by health facilities (20%). Only 8% of respondents reported hearing malaria messages from CHWs.

Supplemental Information

This study presents detailed tables on the following indicators in the Annex.

Table A.7.1: Radio Listenership at Least Once a Week
Table A.7.2: Preferred Time to Listen to Radio
Table A.7.3: Television Viewership at Least Once a Week
Table A.7.4: Preferred Time to Watch Television
Table A.7.5: Mobile Phone or Tablet Ownership
Table A.7.6: Exposure to Malaria Messages

Table 11. Summary of Variables Related to Media Consumption					
Percentage of respondents who report media consumption, by type of media and sociodemographic characteristics, Zambia MBS 2024					
Characteristics	**Listens to the radio at least once a week**	**Watches TV at least once a week**	**Owns a mobile phone**	**Completed a campaign slogan**	**Saw or heard a message about malaria in the past six months**
Transmission districts	***	ǂ	*	***	
High	44.4	22.0	75.3	8.9	47.0
Moderate	62.5	35.9	84.9	18.0	53.8
Sex	***			ǂ	ǂ
Female	45.5	24.9	77.2	10.2	47.2
Male	58.1	25.2	77.7	13.3	52.7
Age Group	***			*	**
15–24	41.6	25.6	75.6	8.1	41.2
25–34	49.7	22.4	78.3	13.4	52.9
35–44	51.6	25.8	77.1	10.6	51.5
≥ 45	56.7	28.8	80.1	12.4	51.0
Residence	***	***	***	**	***
Rural	41.0	15.0	72.6	9.0	43.6
Urban	68.4	52.6	90.5	16.1	61.8
Education	**	***	***	***	***
No	40.4	13.7	64.4	5.1	22.4
Primary	45.9	22.0	75.3	6.6	47.0
Secondary or higher	58.8	19.4	74.2	22.6	42.1
Wealth quintile		***		***	***
Lowest	20.3	3.3	38.8	5.8	36.7
Second	32.2	4.6	64.1	7.9	37.3
Middle	52.8	13.0	84.2	6.9	49.3
Fourth	60.4	26.3	94.2	11.2	49.9
Highest	69.4	71.0	97.8	21.1	65.8
Total (%)	**48.3**	**25.0**	**77.3**	**10.9**	**48.4**
Total (N)	**2,045**	**2,045**	**2,045**	**2,045**	**2,045**
Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable					

Conclusions and Recommendations

Malaria control and elimination largely depends on the adoption of behaviors for preventing and treating malaria and appropriate policies and interventions. Understanding malaria-related behaviors and the factors that influence those behaviors can improve malaria SBC programs. The 2024 Zambia MBS—particularly the results from the logistic regression analyses—is a key resource which can help focus programmatic and policy decisions.

This section discusses the significant findings and actionable implications of the 2024 Zambia MBS. Recommendations were developed in collaboration with attendees of two workshops focused on interpreting the 2024 Zambia MBS data for SBC programming.

Care-Seeking for Fever in Children Under Five Years

The 2024 Zambia MBS demonstrated strong rates of malaria care-seeking for fever in children under five years. Of the 485 female caregivers with a child under five who had a fever in the two weeks preceding the survey, 92% sought care from any source, 85% sought prompt care, 92% sought appropriate care, and 84% sought both prompt and appropriate care.

The multivariate regression analysis revealed that after controlling for the influence of a variety of sociodemographic, structural, and ideational factors, two ideational factors that significantly increased the likelihood that respondents would seek prompt and appropriate care: comprehensive knowledge of care-seeking [aOR 3.81; 95% CI: 1.86–7.82***] and the perception of prompt care-seeking as a community norm [aOR 2.33; 95% CI: 1.22–4.43**].

Similarly, one structural factor significantly associated with reduced likelihood of prompt and appropriate care-seeking was urban residency, with urban residents being 48% less likely to seek care promptly and appropriately compared to rural residents [aOR 0.52; 95% CI: 0.27–0.99].

SBC Recommendations

Maintain and increase prompt and appropriate care-seeking. At 84%, the rate of prompt and appropriate care-seeking is high for the MBS survey area compared to historic nationwide rates. However, 16% of caregivers did not seek prompt and appropriate care. To improve this, SBC activities can:

- **Improve knowledge of care-seeking recommendations**. Respondents with a comprehensive knowledge of care-seeking recommendations were 3.8 times more likely to seek prompt and appropriate care. SBC programs should consider reinforcing the three key components of comprehensive knowledge: when to seek care, where to seek care, and the importance of malaria testing for diagnosis.

- **Normalize prompt and appropriate care-seeking.** Respondents who believed that people in their community sought care on the same day or the day after they developed a fever were 2.3 times more likely to seek prompt and appropriate care. This suggests that SBC programs should promote the perception that prompt care-seeking is the norm, particularly among urban populations where this belief is less common. Testimonials from trusted opinion leaders and

peers can highlight that most caregivers from these groups do, in fact, seek prompt treatment. SBC programs can leverage mass and digital media approaches since televisions, radios, and phones are widely used by these groups.

- **Increase attention to urban populations**. Although health services tend to be more geographically accessible in urban areas, urban respondents were 48% less likely to seek prompt and appropriate care compared to rural respondents. Fewer urban respondents believed people in their community seek care on the same or next day following a fever (80% urban versus 85% rural), seek a malaria test (82% versus 88%), and believe that malaria treatments were effective (53% versus 64%). SBC programs targeting urban caregivers can leverage the higher rates of radio, TV, and mobile phone use in urban populations. Messaging should normalize prompt and appropriate care-seeking in urban areas, emphasize the importance of malaria testing for all fevers, and, to counter skepticism about its efficacy, clarify that malaria treatment is highly effective when given early.

Malaria in Pregnancy

Nearly all women (99%) who had a live birth in the past two years attended at least one ANC visit, and 89% had at least four visits. Almost all (99.6%) received at least one dose of IPTp, and 87% received at least three doses. Only 67% had at least one ANC visit in the first trimester while 87% intend to attend ANC early in a future pregnancy.

The multivariate regression analysis revealed that after controlling for the influence of a variety of sociodemographic, structural, and ideational factors, two ideational factors were associated with the intention to attend antenatal care at least four times in a future pregnancy:

- Favorable attitudes toward IPTp [aOR 3.89; 95% CI: 1.07–14.17; p = 0.040]*], and
- Comprehensive knowledge of MIP recommendations [aOR 2.15; 95% CI: 1.21–3.81**].

As for barriers, wealth quintile was inversely associated with the intention to attend antenatal care at least four times in a future pregnancy, with aORs of 0.35 [0.14–0.85]*, 0.22 [0.09–0.54]**, and 0.26 [0.10–0.65]** for the middle, fourth, and highest quintiles respectively, indicating a consistent negative association across different wealth quintiles.

Several ideational factors were associated with the intention to attend ANC in the first trimester:

- Comprehensive knowledge of MIP recommendations [aOR 1.90; 95% CI: 1.22–2.95**]
- Positive descriptive community norms [aOR 2.22; 95% CI: 1.45–3.40***], and
- Perception that most antenatal health providers in this community treat pregnant women with respect [aOR 1.86; 95% CI: 1.11–3.11*].

However, women from moderate-transmission districts [aOR 0.59; 95% CI: 0.37–0.94**] and the second-highest wealth quintile [aOR 0.47; 95% CI: 0.24–0.92*] were less likely to intend to attend ANC in the first trimester. The number one reason a woman cited for not attending ANC earlier in pregnancy was because she “did not know she was pregnant” (29%) followed by “no one to accompany her/partner” (18%).

SBC Recommendations

Decrease the gap between early ANC behavior and intention. Only 67% of pregnant women started ANC in the first trimester, though 87% intend to do so during a future pregnancy. With Zambia shifting its emphasis from at least three to four or more doses of IPTp, addressing the large gap between early ANC behavior and intention would create more opportunities for women to attend ANC and receive IPTp. To do so, SBC programs can:

- **Strengthen confidence in the need for ANC, even among healthy women**. Women with favorable attitudes toward IPTp were 3.89 times more likely to attend ANC at least four times in a future pregnancy. However, only 15% of respondents disagreed with the statement that if a pregnant woman feels healthy, she does not need to see a health provider. SBC programs can emphasize that early and frequent ANC is essential for both mother and baby, regardless of how healthy a woman feels. Messaging should highlight that malaria can be asymptomatic while still posing serious risks during pregnancy.

- **Reinforce the belief that starting ANC early is standard practice**. Women who believed that most women in their community start ANC in the first trimester were 2.2 times more likely to start ANC early. Since most women (67%) already practice this behavior, SBC programs can highlight the fact that this is a common, recommended, and beneficial behavior.

- **Increase knowledge of MIP recommendations, particularly knowledge that ANC visits should begin during the first trimester**. Women who were knowledgeable about MIP recommendations were 2.15 times more likely to attend ANC at least four times during a future pregnancy and 1.82 times more likely to start ANC during their first trimester. However, knowledge of when a pregnant women should go to ANC for the first time was low among all female respondents (52%). Similarly, only 76% knew how many times a woman should receive IPTp during a pregnancy.

- **Foster trust in ANC services**. Women who perceived that most ANC providers treat women with respect were 1.9 times more likely to intend to initiate ANC early in a future pregnancy. Many women appeared to lack confidence in their ability to access care from an ANC provider without a husband/partner present (62%) or unless they had assured the provider that they had eaten (37%). Additionally, sharing testimonials and demonstrating positive ANC experiences can build trust in ANC services and encourage early ANC.

Insecticide-Treated Nets

ITN Use

Zambia holds a strong culture of ITN use. Almost all (97%) of ITNs were used the night before the survey. The ITN Use-to-Access Ratio in the four survey provinces is calculated at 1.1 (76.6% of people slept under an ITN the night before the survey divided by 63.3% of people who had access to an ITN). A Use-to-Access ratio of 1.1 means among those with access to a net in their household, all are using them and

that households are using ITNs to protect more than two people per net. The majority of respondents (86%) used a net every night of the week before the survey (defined as consistent use).

ITN care is crucial for malaria prevention, especially considering that only 69% of the population had access to ITNs. Existing ITNs must be properly cared for to protect the effectiveness of ITNs and ensure existing ITNs last as long as possible so they can continue to be used. The Zambia MBS demonstrated that 64% of respondents reported washing ITNs with detergent and 2% used bleach, both of which are harmful to nets. Forty percent dried their ITNs in the sun, which is also harmful to nets. Only 53% of ITNs were hanging and folded up and tied above a sleeping space and thus out of the way during the day, keeping the net safe from dirt and damage.

The multivariate regression analysis revealed that after controlling for the influence of a variety of sociodemographic, structural, and ideational factors, several factors were associated with consistent ITN use: having heard malaria messages from a health facility [aOR 1.69; 95% CI: 1.06–2.68*], and being aged 25-34 [aOR 1.81; 95% CI: 1.20–2.73**]. On the other hand, urban residents were less likely to use ITNs consistently compared to rural residents [aOR 0.59; 95% CI: 0.41–0.86**].

Several factors significantly increased care of ITNs by tying or folding them up when not in use, a key behavior associated with increased net longevity. These were: having heard malaria messages through SMS/chat/email [aOR 1.79; 95% CI: 1.13–2.83*], having favorable attitudes toward ITN use [aOR 1.48; 95% CI: 1.08–2.03*], having heard malaria messages from a health facility [aOR 1.37; 95% CI: 1.04–1.81*], and residence in a moderate transmission district [aOR of 1.89; 95% CI: 1.37–2.61***]

SBC Recommendations

Support efforts to increase access to nets. While net use is high among those with access, overall access remains limited, with only 69% of the population having access to a net. SBC programs can promote household participation in mass and continuous distribution efforts and can encourage households to redistribute excess nets to other family members or neighbors with no nets. Similarly, strategic advocacy efforts are needed to mobilize government agencies, donors, and community and private sector leaders to prioritize the procurement and equitable distribution of ITNs.

Promote net care behaviors to increase the longevity of available nets. MBS results reveal that there is ample room for improvement in net care behaviors. These behaviors are easy to adopt and crucial in contexts where future access to nets is not guaranteed. This can be done by:

- **Promoting ITN care through health facility staff and by SMS, chat, or email**. Respondents who reported hearing a malaria message from a health facility and SMS/chat/email are 1.37 and 1.79 times more likely to tie or fold up a net when not in use. The results suggest that facility-based and digital communication channels can effectively encourage net care behaviors.

- **Improving attitudes toward the use of mosquito nets**. In survey provinces, those who view nets positively were 1.48 times more likely to take care of them. Sizable proportions of respondents appeared to have reservations about using nets in warm weather (30%), unfolding the net every night (25%), the smell of the net (30%), and the safety of ITNs (26%). SBC programs should consider specifically addressing these concerns.

- **Emphasize consistency in net use and leverage the influence of health providers to encourage this behavior.** While the net use-to-access ratio suggests that the population values using nets, the consistent practice of the behavior can be improved. Fourteen percent (14%) of respondents did not consistently use an ITN, defined as sleeping under an ITN every night of the week preceding the survey. To address this, SBC programs can use health providers as effective messengers. The MBS found that those who reported hearing malaria messages from a health facility were 1.7 times more likely to use a net every night. While SBC programs can continue encouraging providers to counsel clients about net use and net care, their limited reach within the health facility context can be expanded by featuring providers on mass and digital media.

Indoor Residual Spraying

The Zambia MBS demonstrated high rates of awareness of the IRS program, with 91% of respondents reporting knowledge of the program. The vast majority (89%) expressed willingness to accept IRS if offered. However, fewer people trust IRS (85%) as an effective method to prevent malaria compared to the percentage of people who trust the effectiveness of ITNs (99%).

SBC Recommendations

Sustain the high percentage of the population willing to accept IRS. Experience in other countries has shown that this can wane with time. To do so, SBC activities can:

- **Improve attitudes toward IRS**. MBS results show that one in four respondents have concerns about IRS. Only 74% agreed with the statement that, "The benefits of having my house sprayed is worth the effort needed to move my belongings out so it can be sprayed (74%)," and "Many people develop skin problems (rashes, itching) after the walls inside their houses are sprayed with insecticide (76%)." SBC programs should provide clear information to address misconceptions about IRS, emphasizing that skin problems are not caused by IRS, and the benefits outweigh the effort involved.

- **Increase the population's confidence in their ability to practice IRS-related behaviors**. Related to the attitudinal beliefs described above, only 75% of respondents believe they can move furniture in preparation for spraying. SBC programs can increase perceived self-efficacy by providing practical strategies and encouraging communities to work together. SBC activities should begin as soon as IRS focus areas are identified so communities can anticipate and prepare for potential obstacles.

- **Strengthen trust in the effectiveness of IRS**. While 99% of respondents believe ITNs are effective at preventing malaria, only 84% believe that IRS is an effective way to prevent malaria. SBC programs can highlight the effectiveness of IRS by sharing data from local and national malaria control efforts, demonstrating reductions in malaria cases in areas where IRS has been implemented. They can also show testimonials from community members who have

experienced the benefits of IRS firsthand, as well as endorsements from local health officials, health providers, and opinion leaders.

Media Consumption and Exposure

Nearly one-half (48%) of all male and female respondents listened to the radio at least once a week (77% in households that owned a radio. One-quarter (25%) of all respondents watched television (TV) at least once a week, and almost everyone residing in homes that owned a TV did so (99%). About one-half of all respondents said they were most likely to listen to the radio or watch TV in the early evening (4–8 p.m.). The end of the evening (8 p.m. to midnight) ranked as a distant second (20% radio and 30% TV).

Seventy-seven percent of respondents owned a mobile phone or tablet. As expected, mobile phone/tablet ownership was significantly higher among respondents with access to resources, education, and wealth.

About one-half (48%) of all respondents reported seeing or hearing a malaria message within the past six months. The primary source of malaria messages in the past six months was the radio (21%), closely followed by health facilities (20%). Only 8% of respondents reported hearing malaria messages from CHWs. Only 2% of respondents reported seeing malaria messages on social media.

SBC Recommendations

- **Use a multi-channel strategy that includes mobile phones, radio, and television**. Only 25% and 48% of respondents, respectively, watch TV and radio at least once a week. While 77% own a phone, very few had seen or heard a malaria message from social media (2%) or SMS/chat/email (6%) in the preceding six months. This suggests radio and TV alone would not reach a critical mass of the population and that mobile phones are underutilized. A multi-channel strategy can expand the reach and strengthen recall of malaria messages.

- **Ensure malaria messages air between 4–8 p.m**. One-half of radio (47%) and TV (49%) audiences tune in between 4–8 p.m., making this a key window for reaching large audiences. However, to maximize reach and reinforce messaging, SBC programs should consider additional airtimes to engage different audience segments throughout the day.

- **Use mass and digital media to leverage the influence of health workers and promote positive perceptions of malaria services**. MBS results suggest that health providers can play a critical role in malaria SBC in Zambia. Exposure to malaria messages from health facility providers is linked to more consistent net use and care, and positive perceptions of providers increase the likelihood of early ANC initiation. In addition, 20% of respondents already report seeing or hearing malaria messages from a provider. However, providers interact with a limited number of

clients every day. SBC programs can amplify providers' influence by using mass and digital media to increase trust in health services and reach audiences beyond clinic settings.

Implications for Future Research

The Zambia MBS results show high rates of behavioral adoption compared to historical national data, potentially reflecting investments made by NMEC and its partners in the surveyed areas. However, since the MBS was conducted in only four of Zambia's ten provinces, future research could explore whether similar trends hold in other regions. Expanding the MBS to additional provinces may help identify areas where further interventions or adjustments to existing strategies are needed. A variation of this could include integrating MBS questions into other planned studies.

Additional research priorities can include:

- Monitoring progress toward the objectives described in the Zambia National SBC Strategy and National Malaria Elimination Strategic Plan.
- Investigating the reasons why women say they did not attend ANC because they did not know they were pregnant, including exploring whether women fail to recognize the signs of pregnancy.
- Identifying effective interventions that increase early ANC initiation rates (which was 67% in the MBS).
- Identifying drivers of vaccine uptake, potential sources of misinformation, potential barriers to uptake, and more, in preparation for the adoption of the malaria vaccine.
- Assessing community and facility-based provider performance (such as adherence to guidelines); the ideational, and structural determinants of these behaviors; and identification of promising interventions.

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Annex: Data Tables

This annex provides all data tables for the Zambia MBS 2024 that were not included in the main body of the report. A brief description of the purpose of each table is provided. Data presented in these tables are often disaggregated by study zone and/or respondent or household sociodemographic characteristics.

Data tables pertaining to the specific subsections can be found by utilizing the table of contents at the beginning of this report or the links below:

A.1 Sample Characteristics

A.2 Cross-Cutting Ideational Determinants

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

A.4 Malaria in Pregnancy

A.5 Insecticide-Treated Net Use

A.7 Indoor Residual Spraying

A.8 Media Consumption and Message Exposure

A.1 Sample Characteristics

This subsection provides results for the 2024 Zambia MBS, including sample characteristics. Tables may be also included or referenced in the main body of the report.

Table A.1.1: Household Characteristics, by Malaria Transmission Districts

Percent Distribution of Selected Household Characteristics by transmission level, Zambia MBS 2024				
Characteristic	**High trans. districts (%)**	**Moderate trans. districts (%)**	**Sig.**	**Total (%)**
Average number of sleeping rooms	2.4	2.6	ǂ	2.5
Number of people per sleeping room	2.4	2.3		2.4
Percentage of households with electricity	36.6	38.3		37.0
Percentage of households near^ a public health facility	68.5	72.1		69.3
Percentage of households near^ a private health facility	7.9	29.7	***	12.6
Percentage of households near^ a pharmacy/chemist	29.8	56.7	***	35.6
Percentage of households with finished floors	29.2	49.4	***	33.6
Percentage of households with finished roofs	45.5	71.1	***	51.0
Percentage of households with finished walls	80.9	81.6		81.0
Total (N)	**1,066**	**259**		**1325**
^ Located 5 kilometers or less, less than 30 minutes on foot, or less than 10 minutes by car ǂ p < 0.1; *p < 0.05; **p < 0.01; ***p < 0.001				

Table A.1.2: Household Assets and Wealth Quintile, by Transmission Districts

Percent Distribution of Household Assets and Wealth Quintile by transmission level, Zambia MBS 2024				
Percent of households with assets	**High trans. districts (%)**	**Moderate trans. districts (%)**	**Sig.**	**Total (%)**
Asset				
Radio	35.9	43.7		37.5
Bicycle	41.9	39.0		41.3
Motorcycle	4.9	5.4		5.0
Car	2.8	5.4		3.3
Computer	3.2	9.7	ǂ	4.6
Wealth Quintile			*	
Lowest	22.5	12.2		20.3
Second	21.9	12.6		19.9
Third	20.5	17.6		19.9
Fourth	18.8	28.9		21.0
Highest	16.2	28.7		18.9
Total (N)	**1,066**	**259**		**1,325**
Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable				

Table A.1.3: Sociodemographic Characteristics of Household Members, by Transmission Districts

Percent Distribution of Sociodemographic Characteristics of Household Members by transmission districts, Zambia MBS 2024				
Percent of households with assets	**High trans. districts (%)**	**Moderate trans. Districts (%)**	**Sig.**	**Total (%)**
Sex				
Female	51.5	51.1		51.4
Male	48.5	48.9		48.6
Residence				
Urban	79.3	66.4		76.5
Rural	20.7	33.6		23.5
Age Distribution				
0–4	15.6	15.4		15.6
5–17	38.6	37.0		38.2
18 and above	45.8	47.7		46.2
Average age	19.6	20.6		19.8
Total (N)	**5,716**	**1,369**		**7,085**
Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable				

Table A.1.4: Sociodemographic Characteristics of Respondents, by Transmission Districts

Percent Distribution of Sociodemographic Characteristics of Respondents, by transmission districts, Zambia MBS 2024				
Percent of households with assets	**High trans. districts (%)**	**Moderate trans. districts (%)**	**Sig.**	**Total (%)**
Sex				
Female	77.8	78.1		77.9
Male	22.2	21.9		22.1
Age				
15–24	33.8	31.8		33.4
25–34	32.2	29.2		31.6
35–44	22.8	23.6		23.0
45 and above	11.1	15.3		12.1
Residence				
Rural	76.2	63.4		73.4
Urban	23.8	36.6		26.6
Level of education				
None	0.8	1.8		1.0
Primary	70.9	63.8		69.3
Secondary or higher	28.3	34.4		29.7
Married or co-habituating with partner				
Yes	75.5	75.1		75.4
No	24.5	21.7		24.61
Total (N)	**1,645**	**400**		**2,045**
Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable				

A.2 Cross-Cutting Ideational Factors

This subsection provides data tables related to cross-cutting ideational factors. These include knowledge of malaria, perceived susceptibility and severity of malaria, gender attitudes related to malaria, perceptions regarding health workers and malaria, and interpersonal communication related to malaria. Where appropriate, results are disaggregated by high and moderate transmission district. Tables may be also included or referenced in the main body of the report.

Table A.2.1: Correct Knowledge of Malaria, by Transmission District

Percent Respondents with Correct Malaria Knowledge by transmission district, Zambia MBS 2024									
Characteristic	High transmission districts			Moderate transmission districts			Total		
	Know fever is the main symptom of malaria	Know malaria is caused by mosquito bite	Know at least one malaria major prevention measure	Know fever is a symptom of malaria	Know malaria is caused by mosquito bite	Know at least one malaria major prevention measure	Know fever is a symptom of malaria	Know malaria is caused by mosquito bite	Know at least one malaria major prevention measure
Sex	*						*		
Female	83.8	96.6	96.3	71.2	93.6	93.2	81.1	95.9	95.6
Male	79.3	98.0	94.5	64.7	93.6	96.7	76.2	97.1	95.0
Age	***	*			*		***	‡	
15–24	80.9	97.0	95.8	69.2	87.2	91.8	78.5	94.9	95.0
25–34	89.0	95.4	96.0	70.5	97.0	96.8	85.3	95.7	96.1
35–44	78.9	97.5	95.2	75.1	96.0	90.7	78.1	97.2	94.2
45 and above	78.7	99.6	97.2	61.2	96.0	98.3	73.9	98.8	97.5
Residence			*			**			***
Rural	83.0	96.6	95.2	66.7	92.9	91.3	79.9	95.9	94.5
Urban	82.3	97.7	98.1	75.1	95.0	98.6	80.1	96.9	98.2
Level of education		**	‡			*		**	**
None	93.1	83.8	100.0	63.2	90.0	100.0	81.4	86.3	100.0
Primary	81.6	96.7	95.4	69.5	92.7	91.3	79.2	95.9	94.5
Secondary or higher	84.3	98.7	98.3	73.5	96.8	98.5	81.5	98.2	98.3
Wealth quintile			*						
Lowest	84.8	95.6	93.4	64.0	93.5	95.0	82.2	95.3	93.6
Second	82.9	97.6	95.7	61.9	87.9	91.7	79.8	96.2	95.1
Middle	81.4	96.3	94.8	65.6	86.8	94.2	78.5	94.6	94.7
Fourth	82.5	96.5	97.8	65.9	96.0	92.0	77.6	96.4	96.1
Highest	82.7	98.5	98.0	80.8	97.6	96.3	82.1	98.2	97.5
Total (%)	**82.8**	**96.9**	**95.9**	**69.7**	**93.6**	**94.0**	**80.0**	**96.2**	**95.5**
Total (N)	**1,601**	**1,061**	**1,061**	**400**	**400**	**400**	**2,045**	**2,045**	**2045**
Notes: ‡ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable									

Table A.2.2: Perceived Susceptibility to Malaria, by Transmission District

Table A.2.2 summarizes the distribution of perceived susceptibility to malaria, based on responses to specific statements. Results are presented by participants' sociodemographic characteristics and are disaggregated by transmission district.

Percent of Respondents with Specific Perceived Susceptibility to Malaria by transmission district, Zambia MBS 2024				
Percent of respondents that agree/disagree with the following statements:	**High trans. districts (%)**	**Moderate trans. districts (%)**	**Sig.**	**Total (%)**
Every month, someone in your household gets a serious case of malaria (AGREE)	48.0	40.1		46.3
Nearly every year, someone in this community gets a serious case of malaria (AGREE)	87.3	92.5	***	88.4
When your child has a fever, you almost always worry that it might be malaria (AGREE)	89.4	90.8		89.7
During the rainy season, you worry almost every day that someone in your family will get malaria (AGREE)	91.0	89.6		90.7
During the cold season, you worry almost every day that someone in your family will get malaria (AGREE)	85.9	81.4		84.9
During the hot season, you worry almost every day that someone in your family will get malaria (AGREE)	85.9	81.4		84.9
Percent of respondents who perceive susceptibility to malaria	**94.1**	**92.9**		**93.8**
Sex				
Female	93.8	93.6		93.7
Male	95.2	90.2		94.1
Age				ǂ
15–24	92.6	91.0		92.3
25–34	93.8	93.2		93.7
35–44	95.7	95.3		95.6
45 and above	96.0	92.3		95.0
Residence	**	*		***
Rural	95.5	96.5		95.7
Urban	89.4	86.6		88.6
Level of education	**	**		***
None	88.7	100.0		93.1
Primary	95.9	97.0		96.1
Secondary or higher	89.9	84.4		88.5
Wealth quintile	**			***
Lowest	96.6	96.0		96.5
Second	96.2	98.3		96.5
Middle	93.7	93.6		93.7
Fourth	95.4	94.5		95.1
Highest	88.1	87.6		88.0
Total (N)	**1,645**	**400**		**2,045**
Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable				

Table A.2.3: Perceived Severity of Malaria, by Transmission District

Table A.2.3 presents the distribution of participants' perceived severity of malaria. An individual's level of perceived severity is based on their level of agreement with several statements. Results are presented by participants' sociodemographic characteristics and are disaggregated by transmission district.

Percent of Respondents with Specific Perceived Severity to Malaria by transmission level, Zambia MBS 2024				
Percent of respondents that agree/disagree with the following statements:	**High trans. districts (%)**	**Moderate trans. districts (%)**	**Sig.**	**Total (%)**
Even a healthy person can get very sick from malaria (AGREE)	91.7	94.5	ǂ	92.3
Getting malaria could make you very sick (AGREE)	95.1	96.3		95.4
If you get malaria, it can affect your ability to work or take care of your family (AGREE)	96.7	95.2		96.4
Even a healthy child can get very sick from malaria (AGREE)	94.3	97.7	*	95.0
If not treated quickly, malaria in children could lead to death (AGREE)	96.9	98.8	ǂ	97.3
Percent of respondents who perceive malaria severity	**98.6**	**98.8**		**98.6**
Sex				
Female	98.7	98.7		98.7
Male	98.1	99.0		98.3
Age				
15–24	97.8	98.5		98.0
25–34	98.5	99.4		98.7
35–44	100.0	97.6		99.5
45 and above	97.8	100.0		98.4
Residence				
Rural	98.4	99.0		98.5
Urban	99.1	98.4		98.9
Level of education				
None	90.7	100.0		94.4
Primary	98.4	98.8		98.5
Secondary or higher	98.9	98.5		98.8
Wealth quintile				
Lowest	97.5	98.4		97.6
Second	98.5	100.0		98.7
Middle	98.7	98.5		98.6
Fourth	98.3	99.2		98.6
Highest	99.8	98.1		99.3
Total (N)	**1,601**	**400**		**2,045**
Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable				

Table A.2.4: Communication with Others Regarding Malaria, by Transmission District

Table A.2.4 presents data regarding participants' reporting of IPC regarding malaria in the six months prior to data collection. This includes reports of an individual talking about malaria with their spouse or friend/family member. Results are presented by participants' sociodemographic characteristics and are disaggregated by transmission district.

Percent of Respondents Reporting Communication with Others Regarding Malaria in the Previous Six months, by Transmission Districts, Zambia MBS 2024						
Characteristic	High transmission districts		Moderate transmission districts		Total	
	% who talked about malaria with their spouse/ partner	% who spoke of malaria with a friend or family member	% who talked about malaria with their spouse/ partner	% who spoke of malaria with a friend or family member	% who talked about malaria with their spouse/ partner	% who spoke of malaria with a friend or family member
Sex	***				***	
Female	43.8	41.6	43.4	46.2	43.8	42.6
Male	56.5	44.5	47.7	45.2	54.6	44.6
Age	*	**	**	*	**	***
15–24	40.6	35.2	23.6	32.0	37.1	34.6
25–34	45.0	42.9	48.5	54.4	45.7	45.2
35–44	54.5	51.0	48.6	49.5	53.1	50.7
45 and above	53.9	43.7	57.9	53.6	55.0	46.4
Residence	*	ǂ			ǂ	ǂ
Rural	45.8	40.7	42.3	45.5	45.2	41.6
Urban	54.8	47.2	48.9	46.9	52.8	47.1
Level of education	ǂ	*	*	*	*	***
None	32.1	38.2	60.3	34.3	43.1	36.7
Primary	46.4	39.9	37.8	41.4	44.7	40.2
Secondary or higher	53.7	50.3	60.4	58.9	55.5	52.5
Wealth quintile	*	**	*		*	**
Lowest	43.3	36.0	20.9	34.4	40.4	35.8
Second	40.4	35.3	42.7	42.2	40.7	36.3
Middle	48.9	44.4	57.3	55.6	50.4	46.4
Fourth	49.8	46.8	36.3	43.0	45.7	45.7
Highest	58.4	49.2	56.1	49.0	57.7	49.2
Total (%)	**47.6**	**44.2**	**44.7**	**46.0**	**46.9**	**43.1**
Total N	**1232**	**1645**	**301**	**400**	**1533**	**2045**
Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable						

Table A.2.5.a: Perceptions Regarding Facility-Based Health Workers, by Transmission District

Table A.2.5.a presents the distribution of participants' perceptions of facility-based health workers. This includes health workers in general, health workers providing case management, and those providing care for MIP. Results are presented by participants' sociodemographic characteristics and are disaggregated by transmission district.

Percent Distribution of Overall Favorable Perceptions of Facility-Based Health Workers Zambia MBS 2024				
Characteristic	**High trans. districts (%)**	**Moderate trans. districts (%)**	**Sig.**	**Total (%)**
Sex				
Female	94.4	92.8		94.0
Male	95.7	87.6		94.0
Age	ǂ	*		ǂ
15–24	95.2	94.0		95.0
25–34	93.5	90.0		92.8
35–44	94.6	95.5		94.8
45 and above	96.6	84.2		93.2
Residence	ǂ	***		**
Rural	95.5	96.6		95.7
Urban	92.2	83.2		89.5
Level of education	*	**		***
None	83.5	100.0		89.9
Primary	95.7	96.3		95.8
Secondary or higher	92.6	82.2		89.9
Wealth quintile	ǂ	*		*
Lowest	95.9	100.0		96.4
Second	94.4	98.3		95.0
Middle	94.8	95.5		94.9
Fourth	96.4	91.2		94.9
Highest	91.8	84.5		89.5
Total (%)	**94.7**	**91.7**		**94.0**
Total (N)	**1,645**	**400**		**2,045**
Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable				

Table A.2.5.b: Perceptions Regarding Facility-Based Health Workers, by Transmission District

Table A.2.5.b presents the distribution of participants' perceptions of facility-based health workers. This includes health workers in general, health workers providing case management, and those providing care for MIP. Results are presented by participants' sociodemographic characteristics and are disaggregated by transmission district.

Percent Distribution of Perceptions of Facility-Based Health Workers Zambia MBS 2024				
Characteristic	**High trans. districts (%)**	**Moderate trans. districts (%)**	**Sig.**	**Total (%)**
Sex		ǂ		ǂ
Female	84.8	76.8		83.0
Male	81.6	71.3		79.4
Age				
15–24	85.8	75.7		83.7
25–34	82.7	76.6		81.5
35–44	83.2	76.4		81.7
45 and above	84.6	72.4		81.2
Residence	***			**
Rural	86.4	75.7		84.4
Urban	76.5	75.5		76.2
Level of education				
None	100.0	57.5		83.4
Primary	84.2	77.8		82.9
Secondary or higher	81.5	70.8		78.8
Wealth quintile	*			**
Lowest	88.5	83.2		87.8
Second	88.1	71.1		85.6
Middle	81.4	79.3		81.0
Fourth	84.5	75.3		81.8
Highest	77.8	73.2		76.4
Health facilities always have the medicine to treat malaria	**84.1**	**75.6**	**	**82.2**
Total (N)	**1,645**	**400**		**2,045**

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Table A.2.6.c: Perceptions Regarding Facility-Based Health Workers, by Transmission District

Table A.2.6.c presents the distribution of participants' perceptions of facility-based health workers. This includes health workers in general, health workers providing case management, and those providing care for MIP. Results are presented by participants' sociodemographic characteristics and are disaggregated by transmission district.

Percent Distribution of Perceptions of Facility-Based Health Workers, Zambia MBS 2024				
Characteristic	**High trans. districts (%)**	**Moderate trans. districts (%)**	**Sig.**	**Total (%)**
Sex				
Female	95.6	95.6		95.6
Male	96.0	92.6		95.3
Age				
15–24	96.4	95.9		96.3
25–34	94.7	94.6		94.7
35–44	96.6	94.7		96.2
45 and above	94.7	94.3		94.6
Residence				
Rural	95.7	95.3		95.6
Urban	95.8	94.3		95.4
Level of education				
None	89.6	100.0		93.7
Primary	95.7	95.5		95.7
Secondary or higher	95.1	93.7		94.8
Wealth quintile				
Lowest	94.3	90.4		93.8
Second	97.7	94.4		97.2
Middle	94.9	98.7		95.6
Fourth	94.6	95.4		94.9
Highest	97.0	94.3		96.1
Health providers at the health facilities in this community know about how to treat malaria in children	**95.7**	**95.0**		**95.5**
Total (N)	**1,645**	**400**		**2,045**
Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable				

Table A.2.7.a: Perceptions Regarding Community Health Workers, by Transmission District

Table A.2.7.a presents the distribution of participants' perceptions of CHWs. Results are presented by participants' sociodemographic characteristics and are disaggregated by transmission district.

Percent Distribution of Overall Favorable Perceptions of Community Health Workers by Transmission District, Zambia MBS 2024				
Characteristic	**High trans. districts (%)**	**Moderate trans. districts (%)**	**Sig.**	**Total (%)**
Sex				
Female	90.5	92.2		90.9
Male	92.8	90.6		92.3
Age				
15–24	91.0	93.9		91.6
25–34	89.9	88.7		89.7
35–44	91.8	94.8		92.5
45 and above	92.4	89.3		91.6
Residence	ǂ	*		**
Rural	92.1	95.7		92.8
Urban	87.4	85.3		86.7
Level of education				*
None	93.9	100.0		96.3
Primary	92.0	94.3		92.5
Secondary or higher	88.0	86.4		87.6
Wealth quintile				
Lowest	93.9	100.0		94.7
Second	90.7	94.2		91.2
Middle	91.6	91.9		91.7
Fourth	91.2	93.0		91.7
Highest	87.4	87.1		87.3
Positive general perceptions towards CHWs	**91.0**	**91.9**		**91.2**
Total (N)	**1,645**	**400**		**2,045**
Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable				

Table A.2.7.b: Perceptions Regarding Community Health Workers, by Transmission District

Table A.2.7.b presents the distribution of participants' perceptions of CHWs. Results are presented by participants' sociodemographic characteristics and are disaggregated by transmission district.

Percent Distribution of Perceptions of Community Health Workers by Transmission District, Zambia MBS 2024				
Characteristic	**High trans. districts (%)**	**Moderate trans. districts (%)**	**Sig.**	**Total (%)**
Community health workers always have the medicine to treat malaria (AGREE)	60.21	54.2		58.9
Community health workers in this community always have the blood test kit to tell if a person has malaria (AGREE)	69.4	67.7		69.0
Community health workers in this community know how to treat malaria in children (AGREE)	82.6	78.5		81.7
Favorable perceptions towards CHWs providing malaria case management	**75.1**	**72.5**		**74.5**
Sex		ǂ		
Female	74.7	74.2		74.6
Male	76.4	66.3		74.2
Age				
15–24	73.5	73.0		73.4
25–34	73.8	68.7		72.8
35–44	77.1	73.4		76.3
45 and above	79.4	77.4		78.9
Residence				
Rural	76.0	74.6		75.7
Urban	72.3	69.0		71.3
Level of education				
None	80.3	100.0		88.0
Primary	73.7	71.3		73.2
Secondary or higher	76.4	69.8		74.7
Wealth quintile				
Lowest	76.6	69.3		75.7
Second	73.8	72.6		73.6
Middle	77.9	85.5		79.3
Fourth	73.6	73.8		73.7
Highest	73.3	65.3		70.8
Total (N)	**1,645**	**400**		**2,045**

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

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

This subsection provides data tables related to malaria care seeking and treatment, particularly for children under five years old, including care seeking and treatment behavior as well as ideational factors, such as knowledge, attitudes, perceived response efficacy, perceived self-efficacy, gender attitudes and perceived community norms. Tables may be also included or referenced in the main body of the report.

Table A.3.1: Knowledge of Malaria Care-Seeking and Treatment

Table A.3.1 presents respondent knowledge regarding malaria care-seeking and treatment. The data is presented according to respondents' sociodemographic characteristics in each province.

Knowledge of Malaria Care-Seeking and Treatment				
Percentage of respondents with specific knowledge of malaria care-seeking and treatment, according to background characteristics, Zambia MBS 2024				
Characteristic	**High trans. districts (%)**	**Moderate trans. districts (%)**	**Sig.**	**Total (%)**
Identified SAME DAY OR NEXT DAY as time period where one should seek advice or treatment after a child under five years old develops a fever	97.7	95.4	*	97.2
Identified BLOOD TEST as the best way to know if someone has malaria.	94.7	91.7	ǂ	94.0
Identified HEALTH FACILITY as the best place to go in the community if one has malaria.	99.7	98.7		99.5
Percent of respondents that have comprehensive knowledge of malaria care-seeking and treatment	**92.7**	**86.6**	***	**91.4**
Sex				
Female	92.9	85.9		91.4
Male	91.9	89.1		91.3
Age		ǂ		
15–24	93.0	80.7		90.5
25–34	92.2	87.8		91.3
35–44	93.0	88.1		91.9
45 and above	92.8	94.1		93.2
Residence				
Rural	92.5	84.8		91.0
Urban	93.4	89.6		92.3
Level of education		*		
None	89.6	70.3		82.1
Primary	92.4	84.5		90.8
Secondary or higher	94.0	92.9		93.8
Wealth quintile				
Lowest	90.4	85.5		89.7
Second	93.0	81.0		91.2
Middle	93.7	83.5		91.9
Fourth	93.8	87.2		91.8
Highest	92.6	90.4		91.9
Total (N)	**1,645**	**400**		**2,045**
Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable				

Table A.3.2: Attitudes Toward Malaria Care-Seeking and Treatment

Table A.3.2 presents the distribution of favorable attitudes toward malaria care-seeking and treatment. Attitude favorability is calculated based on a participant's agreement or disagreement with several statements related to care-seeking and treatment. The data is presented according to respondents' sociodemographic characteristics in each province.

Attitudes Toward Malaria Care-Seeking and Treatment				
Percent of respondents with specific attitudes towards malaria care-seeking and treatment by transmission level, Zambia MBS 2024				
Characteristic	**High trans. districts (%)**	**Moderate trans. districts (%)**	**Sig.**	**Total (%)**
When you think your child may have malaria, the only reliable source of care is a health worker or a community health worker (AGREE)	91.5	83.2	**	89.7
You prefer that your child receive the medicine to treat malaria by injection rather than swallow it by pills (DISAGREE)	48.4	43.5		47.3
When your child has a fever, it is best to start by giving him/her any malaria medicine that you have home (DISAGREE)	83.2	83.6		83.3
When your child has a fever, you prefer to first go somewhere to buy medicine or seek advice before you take the child to see a community health worker or health facility (DISAGREE)	85.3	84.1		85.0
When your child has a fever, you prefer to wait a day to see if they get better before you go to a health facility or community health worker (DISAGREE)	73.4	72.9		73.3
Percent of respondents with favorable attitudes towards malaria care-seeking and treatment	**87.3**	**86.9**		**87.2**
Sex				
Female	87.1	86.0		86.9
Male	87.9	90.2		88.3
Age	ǂ			
15–24	84.9	87.5		85.4
25–34	89.1	89.0		88.7
35–44	89.8	84.7		88.7
45 and above	84.1	89.1		85.5
Residence		ǂ		ǂ
Rural	87.0	88.5		87.3
Urban	88.0	84.2		86.8
Level of education				
None	80.3	76.2		78.7
Primary	87.7	85.8		87.3
Secondary or higher	87.7	89.8		88.2
Wealth quintile				*
Lowest	82.6	86.8		83.1
Second	91.1	85.1		90.2
Middle	84.9	80.0		84.0
Fourth	87.3	88.2		87.5
Highest	90.7	90.3		90.6
Total (N)	**1,645**	**400**		**2,045**

Notes: ǂ p<p < 0.1; * p<p < 0.05; ** p<p < 0.01; *** p<p < 0.001; n/a: not applicable

Table A.3.3.a: Perceived Response Efficacy of Malaria Testing

Table A.3.3.a presents the distribution of perceived response efficacy regarding malaria testing. Perceived response efficacy is calculated based on a participant's agreement or disagreement with several statements related to testing. The data is presented according to respondents' sociodemographic characteristics by transmission district.

Perceived Response Efficacy of Malaria Testing				
Percent distribution of specific response-efficacy of malaria testing by transmission district, Zambia MBS 2024				
Percent of respondents that agree/disagree with the following statements	**High trans. districts (%)**	**Moderate trans. districts (%)**	**Sig.**	**Total (%)**
A person should still take malaria medicine even if the malaria test result says that the fever is not due to malaria [DISAGREE]	82.0	76.2		80.8
Sex		*		*
Female	81.5	73.4		79.7
Male	83.8	86.2		84.4
Age				
15–24	80.5	70.4		78.4
25–34	81.4	79.8		81.1
35–44	84.1	76.6		82.5
45 and above	84.0	80.8		83.1
Residence	***			***
Rural	84.9	79.4		83.9
Urban	72.9	70.7		72.2
Level of education				
None	90.7	61.2		79.2
Primary	82.7	75.4		81.2
Secondary or higher	82.0	81.3		81.8
Wealth quintile				
Lowest	78.1	85.0		79.0
Second	87.3	72.9		85.2
Middle	81.4	73.2		79.9
Fourth	80.5	81.4		80.8
Highest	82.6	71.4		79.1
Total (N)	**1,645**	**400**		**2,045**
Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable				

Table A.3.3.b: Perceived Response Efficacy of Malaria Testing

Table A.3.3.b presents the distribution of perceived response efficacy regarding malaria testing. Perceived response efficacy is calculated based on a participant's agreement or disagreement with several statements related to testing. The data is presented according to respondents' sociodemographic characteristics in each province.

Perceived Response Efficacy of Malaria Testing				
Percent distribution of specific response-efficacy of malaria testing by transmission district, Zambia MBS 2024				
Percent of respondents that agree/disagree with the following statements	**High trans. districts (%)**	**Moderate trans. districts (%)**	**Sig.**	**Total (%)**
Parents can diagnose malaria by a person's symptoms just as well as a blood test for malaria (DISAGREE)	60.6	59.0		60.3
Sex				
Female	61.1	57.5		60.3
Male	58.8	64.2		60.0
Age				
15–24	58.8	59.8		59.0
25–34	61.5	52.3		59.7
35–44	65.0	59.2		63.7
45 and above	54.4	69.8		58.6
Residence				
Urban	60.8	54.7		59.6
Rural	60.2	66.4		62.0
Level of education		ǂ		
None	54.7	76.2		63.1
Primary	61.7	54.2		60.2
Secondary or higher	60.7	67.7		62.5
Wealth quintile	*			*
Lowest	53.9	66.0		55.4
Second	54.9	61.5		55.9
Middle	63.1	58.0		62.2
Fourth	64.0	49.0		59.6
Highest	67.7	65.5		67.0
Total (N)	**1,645**	**400**		**2,045**
Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable				

Table A.3.4: Perceived Response Efficacy of Malaria Treatment

Table A.3.4 presents the distribution of perceived response efficacy about malaria treatment. Perceived response efficacy is calculated based on a participant's agreement or disagreement with several statements related to treatment. The data is presented according to respondents' sociodemographic characteristics in each province.

Perceived Response-Efficacy of Malaria Treatment				
Percent distribution of specific response-efficacy of malaria treatment by transmission level, Zambia MBS 2024				
Percent of respondents that agree/disagree with the following statements	**High trans. districts (%)**	**Moderate trans. districts (%)**	**Sig.**	**Total (%)**
The malaria medicines that you buy in the market are as good as the ones distributed at the health facility (DISAGREE)	59.1	67.5	ǂ	60.9
Sex				
Female	58.7	65.9		60.3
Male	60.4	73.4		63.2
Age		ǂ		
15–24	59.4	61.8		59.9
25–34	56.2	63.5		57.7
35–44	61.8	79.3		65.7
45 and above	60.6	69.1		62.9
Residence	*			ǂ
Rural	61.8	72.0		63.7
Urban	50.5	59.8		53.3
Level of education	*			
None	16.2	100.0		48.9
Primary	60.7	67.8		62.2
Secondary or higher	57.6	63.7		59.1
Wealth quintile				
Lowest	56.7	81.6		59.9
Second	63.4	63.8		63.4
Middle	61.6	72.0		63.5
Fourth	55.9	69.2		59.8
Highest	57.2	60.4		58.2
Total (N)	**1,645**	**400**		**2,045**
Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable				

Table A.3.5: Perceived Self-Efficacy for Malaria Testing and Treatment

Table A.3.5 presents the distribution of perceived self-efficacy regarding malaria testing. Perceived self-efficacy is calculated based on a participant's agreement or disagreement with several statements related to testing. The data is presented according to respondents' sociodemographic characteristics in each province.

Perceived Self-Efficacy for Malaria Testing and Treatment				
Percent distribution of perceived self-efficacy for malaria testing and treatment by transmission level, Zambia MBS 2024				
Percent of respondents that believe they could:	**High trans. districts (%)**	**Moderate trans. districts (%)**	**Sig.**	**Total (%)**
Find the money to take your child to the health facility at the first sign of malaria (AGREE)	79.2	85.0	*	80.5
Get permission from your husband or other family member to take your child to the health facility/health provider when your child has fever (AGREE)	92.3	94.1		92.7
Take your child to the health facility the same day or next day s/he develops a fever (AGREE)	90.3	92.3		90.8
Request a blood test at the health facility when you think your child might have malaria (AGREE)	82.2	88.8		83.6
Make sure your child takes the full dose of medicine that s/he is prescribed for malaria(AGREE)	78.4	76.6		78.0
Find the money to pay for the medication the health provider recommends to treat malaria (AGREE)	87.3	90.3		88.0
Percent of respondents with perceived self-efficacy for malaria testing and treatment	**71.9**	**74.4**		**72.5**
Sex	***	***		***
Female	65.9	67.7		66.3
Male	93.2	98.5		94.3
Age	**	*		***
15–24	66.8	64.6		66.4
25–34	70.2	76.6		71.5
35–44	78.4	74.8		77.6
45 and above	79.2	90.0		82.2
Residence				
Urban	70.4	74.3		71.1
Rural	77.0	74.7		76.3
Level of education	**			*
None	52.0	100.0		70.7
Primary	71.6	73.2		71.9
Secondary or higher	77.9	75.4		77.2
Wealth quintile	***			***
Lowest	58.2	80.9		61.1
Second	71.7	71.2		71.7
Middle	76.9	71.3		75.9
Fourth	72.5	70.3		71.8
Highest	80.6	79.1		80.2
Total (N)	**1,645**	**400**		**2,045**
Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable				

Table A.3.6: Perceived Community Norms Regarding Malaria Testing and Treatment

Table A.3.6 presents the perceived community norms regarding malaria testing and treatment. This study assesses perceived community norms 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.

Perceived Community Norms Regarding Malaria Testing and Treatment			
Percent distribution of perceived community norms regarding malaria testing and treatment by transmission level, Zambia MBS 2024			
Characteristic	**Most people in the community take their children to a health provider on the same day or day after they develop a fever**	**Most children in the community taken to a health facility with fever get tested for malaria**	**Most people in the community approve of prompt care seeking for children with fever (injunctive norm)**
Transmission districts			
High	82.5	85.6	90.4
Moderate	85.5	89.1	91.6
Sex			**
Female	82.5	86.3	89.7
Male	85.4	86.6	93.9
Age			
15–24	83.0	84.8	88.7
25–34	82.3	84.9	91.0
35–44	84.3	88.7	91.8
45 and above	83.6	90.2	92.7
Residence	*	**	
Rural	84.5	88.1	90.8
Urban	79.5	81.7	90.1
Level of education			**
None	88.0	94.4	68.6
Primary	83.9	86.6	92.4
Secondary or higher	80.3	84.5	90.4
Wealth quintile	*		**
Lowest	87.1	87.0	84.5
Second	83.7	88.3	93.9
Middle	82.3	84.5	91.7
Fourth	85.2	87.7	91.0
Highest	78.1	87.0	91.6
Total (%)	82.1	86.3	90.6
Total (N)	2,045	2,045	2,045
Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable			

Table A.3.7.a: Perceptions of Health Facilities Regarding Malaria Testing and Treatment

Table A.3.7.a describes respondents' perceptions of health facilities, particularly considering malaria testing and treatment. This study assesses favorable perceptions based on participants' responses to a series of questions asking whether they agree or disagree with a statement. Results are presented by sociodemographic characteristics and transmission district.

Perceptions of Health Facilities Regarding Malaria Care-Seeking and Treatment				
Percent distribution of perceptions of health facilities by transmission level, Zambia MBS 2024				
Percent of respondents that agree/disagree with the following statements:	**High trans. districts (%)**	**Moderate trans. districts (%)**	**Sig.**	**Total (%)**
Health facilities always have the medication to treat malaria (AGREE)	**84.1**	**75.6**	**	**82.2**
Sex		ǂ		ǂ
Female	84.8	76.8		83.0
Male	81.6	71.3		79.4
Age				
15–24	85.8	75.7		83.7
25–34	82.7	76.6		81.5
35–44	83.2	76.4		81.7
45 and above	84.6	72.4		81.2
Residence	***			**
Rural	86.4	75.7		84.4
Urban	76.5	75.5		76.2
Level of education				
None	100.0	57.5		83.4
Primary	84.2	77.8		82.9
Secondary or higher	81.5	70.8		78.8
Wealth quintile	*			*
Lowest	88.5	83.2		87.8
Second	88.1	71.1		85.6
Middle	81.4	79.3		81.0
Fourth	84.5	75.3		81.8
Highest	77.8	73.2		76.4
Total (N)	**1,645**	**400**		**2,045**

Notes: ǂ $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; n/a: not applicable

Table A.3.7.b: Perceptions of Health Facilities Regarding Malaria Testing and Treatment

Table A.3.7.b describes respondents' perceptions of health facilities, particularly considering malaria testing and treatment. This study assesses favorable perceptions based on participants' responses to a series of questions asking whether they agree or disagree with a statement. Results are presented by sociodemographic characteristics and transmission district.

Perceptions of Health Facilities Regarding Malaria Care-Seeking and Testing				
Percent distribution of perceptions of health facilities by transmission level, Zambia MBS 2024				
Percent of respondents that agree/disagree with the following statements:	**High trans. districts (%)**	**Moderate trans. districts (%)**	**Sig.**	**Total (%)**
Health facilities in this community always have the blood test kit to tell if a person has malaria (AGREE)	**88.7**	**88.0**		**88.6**
Sex				
Female	88.9	87.9		88.7
Male	88.1	88.4		88.2
Age				
15–24	89.7	90.5		89.9
25–34	86.3	85.7		86.2
35–44	90.1	88.7		89.8
45 and above	89.9	86.2		88.8
Residence	*			
Rural	89.6	86.9		89.1
Urban	85.9	89.9		87.1
Level of education				
None	89.5	84.2		87.4
Primary	88.4	88.6		88.4
Secondary or higher	87.8	85.3		87.2
Wealth quintile	*			*
Lowest	86.4	87.3		86.5
Second	92.4	86.5		91.5
Middle	87.5	90.4		88.1
Fourth	88.8	89.8		89.1
Highest	88.5	85.8		87.7
Total (N)	**1,645**	**400**		**2,045**

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Table A.3.8: Perceptions of Community Health Workers Regarding Malaria Care-Seeking and Treatment

Table A.3.8 describes respondents' perceptions of community health workers, particularly considering malaria testing and treatment. This study assesses favorable perceptions based on participants' responses to a series of questions asking whether they agree or disagree with a statement. Results are presented by sociodemographic characteristics and transmission district.

Perceptions of Community-Based Health Workers Regarding Malaria Care-Seeking and Treatment				
Percent distribution of perceptions of CHWs by transmission level, Zambia MBS 2024				
Percent of respondents that agree/disagree with the following statements:	**High trans. districts (%)**	**Moderate trans. districts (%)**	**Sig.**	**Total (%)**
Community health workers always have the medication to treat malaria (AGREE)	60.21	54.18		58.9
Community health workers in this community always have the blood test kit to tell if a person has malaria (AGREE)	69.4	67.73		69.0
Community health workers in this community know how to treat malaria in children (AGREE)	82.6	78.5		81.7
Community health workers in your community make parents pay for the medication to treat malaria in children less than five years old (DISAGREE)	93.1	96.2		93.8
Percent of respondents with favorable perceptions of CHWs	**75.1**	**72.5**		**74.5**
Sex		ǂ		
Female	74.7	74.2		74.6
Male	76.4	66.3		74.2
Age				
15–24	73.5	73.0		73.4
25–34	73.8	68.7		72.8
35–44	77.1	73.4		76.3
45 and above	79.4	77.4		78.9
Residence				
Rural	76.0	74.6		75.7
Urban	72.3	69.0		71.3
Level of education				
None	80.3	100.0		88.0
Primary	73.7	71.3		73.2
Secondary or higher	76.4	69.8		74.7
Wealth quintile				
Lowest	76.6	69.3		75.7
Second	73.8	72.6		73.6
Middle	77.9	85.5		79.3
Fourth	73.6	73.8		73.7
Highest	73.3	65.3		70.8
Total (N)	**1,645**	**400**		**2,045**

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Table A.3.9: Perceptions of Facility Health Workers Regarding Malaria Care-Seeking and Treatment

Table A.3.9 describes respondents' perceptions of facility health workers, particularly considering malaria care-seeking and treatment. This study assesses favorable perceptions based on participants' responses to a series of questions asking whether they agree or disagree with a statement. Results are presented by sociodemographic characteristics and transmission district.

Perceptions of Facility-Based Health Workers Regarding Malaria Care-Seeking and Treatment				
Percent distribution of perceptions of facility health workers by transmission level, Zambia MBS 2024				
Percent of respondents that agree/disagree with the following statements:	**High trans. districts (%)**	**Moderate trans. districts (%)**	**Sig.**	**Total (%)**
Health providers in health facilities in this community treat their patients with respect (AGREE)	94.7	91.7		94.0
Health providers at the health facilities in this community know about how to treat malaria in children (AGREE)	95.7	95.0		95.5
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 (DISAGREE)	98.2	98.7		98.3
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 (DISAGREE)	97.1	98.6		97.5
Percent with favorable perceptions of health facility workers regarding care-seeking/treatment	**99.6**	**99.5**		**99.6**
Sex				
Female	99.8	99.4		99.7
Male	99.2	100.0		99.3
Age				
15–24	99.8	99.3		99.7
25–34	99.3	100.0		99.4
35–44	99.7	100.0		99.7
45 and above	100.0	98.3		99.5
Residence				
Rural	99.6	99.7		99.6
Urban	99.7	99.3		99.5
Level of education	***			
None	89.6	100.0		93.7
Primary	99.7	100.0		99.8
Secondary or higher	99.6	99.2		99.5
Wealth quintile				
Lowest	99.3	100.0		99.4
Second	100.0	98.3		99.8
Middle	99.5	100.0		99.6
Fourth	100.0	100.0		100.0
Highest	99.4	99.2		99.3
Total (N)	**1,645**	**400**		**2,045**

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Table A.3.10: Decision making for Malaria Care and Treatment

Table A.3.10 presents the distribution of decision-making regarding malaria care and treatment among respondents with partners/spouses. Results are presented by sociodemographic characteristics and transmission district and are disaggregated by the type of decision being made.

Decision-Making for Malaria Care and Treatment						
Percent distribution of decision making for malaria care and treatment by transmission level, Zambia MBS 2024						
Percent of respondents involved in decision making regarding malaria care-seeking and treatment	**High transmission districts**		**Moderate transmission districts**		**Total**	
	Decision to go to the health facility when child has malaria	**Decision to purchase medicine when child is sick with fever**	**Decision to go to the health facility when child has malaria**	**Decision to purchase medicine when child is sick with fever**	**Decision to go to the health facility when child has malaria**	**Decision to purchase medicine when child is sick with fever**
Sex	***	***	*	**	***	***
Female	89.1	85.4	88.2	82.1	88.9	84.8
Male	100.0	100.0	96.9	98.3	99.3	99.6
Age						
15–24	93.4	91.3	93.1	89.3	93.4	90.9
25–34	93.5	91.8	85.1	79.8	91.8	89.5
35–44	90.1	88.4	94.5	93.1	91.0	89.3
45 and above	91.4	90.1	92.4	93.7	91.7	91.2
Residence	ǂ	ǂ			ǂ	ǂ
Rural	93.0	91.3	91.4	89.4	92.7	91.0
Urban	89.0	87.2	89.6	86.8	89.2	87.0
Level of education						
None	100.0	100.0	100.0	100.0	100.0	100.0
Primary	91.5	89.5	89.8	87.9	91.1	89.2
Secondary or higher	93.8	92.6	91.3	88.5	93.0	91.5
Wealth quintile						
Lowest	90.6	88.1	87.9	87.8	90.2	88.1
Second	92.5	90.3	90.3	87.8	92.2	89.9
Middle	92.2	90.6	87.5	82.3	91.4	89.4
Fourth	92.4	91.1	97.7	97.0	93.9	92.7
Highest	94.1	92.7	87.2	84.1	91.6	89.6
Total (%)	**92.2**	**90.5**	**90.7**	**88.4**	**91.9**	**90.0**
Total (N)	**1,090**	**877**	**263**	**200**	**1,353**	**1,077**

Notes: ǂ $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; n/a: not applicable

Table A.3.11: Care-Seeking and Testing of Children with Fever in the Past Two Weeks

Table A.3.11.a presents the distribution of care-seeking and testing behavior for children under age five who presented with fever in the two weeks preceding the survey. This table also presents the percentage of children for whom advice or treatment was promptly sought, and those who had blood drawn for testing. Data is presented according to children's sociodemographic characteristics.

Care-Seeking and Testing of Children with Fever in the Past Two Weeks

Percentage of children under age 5 with fever in the 2 weeks preceding the survey; and among children under age 5 with fever, percentage for whom advice or treatment was sought, percentage for whom advice or treatment was sought the same or next day following the onset of fever, and percentage who had blood taken from a finger or heel for testing, according to background characteristics, Zambia MBS 2024

Characteristics	Children under age 5	Children under age 5 with fever			
	Percentage with fever in the 2 weeks preceding the survey	Percentage for whom advice or treatment was sought	Percentage for whom advice or treatment was sought the same or next day	Percentage for whom advice or treatment was sought from a health facility or community worker first[1]	Percentage who had received a malaria test
Transmission districts	**			*	
High	54.9	91.9	85.1	91.1	83.7
Moderate	42.9	93.1	82.3	94.5	84.3
Age in months					
< 12	68.3	91.7	84.2	92.3	83.8
12–23	12.3	95.8	89.2	95.1	86.4
24+	19.5	91.2	83.1	87.5	82.4
Residence	**			***	ǂ
Rural	55.3	92.8	85.9	92.7	85.1
Urban	42.4	89.0	78.8	87.3	78.2
Wealth quintile	***				
Lowest	65.3	89.5	84.6	91.3	80.8
Second	51.1	93.0	82.6	89.4	84.6
Middle	53.2	92.8	87.0	92.8	88.5
Fourth	52.2	92.6	88.3	93.8	83.9
Highest	35.2	95.3	77.4	91.0	82.0
Total (%)	**52.4**	**92.1**	**84.6**	**91.7**	**83.8**
Total (N)	**934**	**485**			

[1] Includes advice or treatment from the following sources: public medical sector, private medical sector, and community health worker. Excludes advice or treatment from a traditional practitioner, shop, market and itinerant drug seller.

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Table A.3.11b presents sources of care and promptness of care among children under age five who presented with fever in the two weeks preceding the survey.

Care-Seeking and Testing of Children with Fever in the Past Two Weeks				
Percentage of children under age 5 with fever in the 2 weeks preceding the survey; and among children under age 5 with fever, percentage for whom advice or treatment was sought[1], percentage for whom advice or treatment was sought the same or next day following the onset of fever, and percentage who had blood taken from a finger or heel for testing, according to background characteristics, Zambia MBS 2024				
Care-Seeking and Testing of Children with Fever in the Past Two Weeks (N = 485)				
	Percentage for whom advice or treatment was sought from a health facility or community worker first	**Percentage for whom advice or treatment was sought from a health facility first**	**Percentage for whom advice or treatment was sought from a community worker first**	**Percentage for whom prompt and appropriate care was sought**
Transmission districts	*	‡	*	
High	91.1	70.4	20.8	84.1
Moderate	94.5	53.0	41.4	82.3
Age in months		‡		
< 12	92.3	70.1	22.2	84.2
12–23	95.1	69.4	25.7	88.5
24+	87.5	56.8	30.6	79.4
Residence	***	**	***	‡
Rural	92.7	64.2	28.5	85.5
Urban	87.3	81.8	5.5	76.5
Wealth quintile				
Lowest	91.3	61.8	29.5	84.6
Second	89.4	68.3	21.1	79.0
Middle	92.8	64.8	27.9	87.0
Fourth	93.8	71.1	22.6	88.3
Highest	91.0	78.4	12.7	76.4
Total (%)	**91.7**	**67.4**	**24.3**	**83.8**
Total (N)	**485**			

[1] Includes advice or treatment from the following sources: public medical sector, private medical sector, and community health worker. Excludes advice or treatment from a traditional practitioner, shop, market and itinerant drug seller.

Table A.3.12: Treatment of Children with Fever

Table A.3.14 presents the percentage of children under five who had confirmed cases of malaria in the two weeks preceding the survey. This table also describes the percentage of these children receiving ACT and promptly (same or next day) receiving ACT. Data is presented according to children's sociodemographic characteristics and transmission district.

Treatment of Children with Fever			
Percentage of children under age 5 with confirmed malaria; and among children under age 5 with confirmed malaria, percentage receiving ACT and prompt ACT, according to sociodemographic characteristics, Zambia MBS 2024			
Characteristic	**Children under age 5 with fever**	**Children under age 5 with fever with confirmed malaria**	
	Percent with confirmed malaria	**Percent with confirmed malaria receiving ACT**	**Percent with confirmed malaria receiving ACT promptly**
Transmission districts			*
High	66.4	78.4	94.3
Moderate	53.0	88.2	86.2
Age in months		*	
< 12	62.1	75.0	93.0
12–23	69.7	87.0	94.7
24+	67.7	90.4	92.3
Residence		*	
Rural	66.6	81.5	92.8
Urban	52.9	69.8	94.6
Wealth quintile	*		
Lowest	69.0	76.4	94.2
Second	69.6	88.1	90.7
Middle	65.6	82.2	90.5
Fourth	61.9	78.7	95.8
Highest	43.2	66.6	96.5
Total (%)	**64.1**	**79.7**	**93.1**
Total (N)	**485**	**311**	**253**

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Table A.3.13: Logistic Regression Exploring Factors Associated with Prompt and Appropriate Care-Seeking for Fever in Children Under Five Years in the Past Two Weeks

Results of the Logistic Regression Exploring Factors Associated with Care-Seeking and Testing of Children with Fever in the Past Two Weeks		
Characteristic	**Seeking prompt and appropriate care for children with fever in prior 2 weeks (%)**	**Adjusted Odds Ratio [95% Confidence Interval]**
Maternal Age in years		
15–24 (reference)	82.4	
25–34	86.2	
35–44	83.9	
45 and above	71.6	
Level of education		
None or Primary completed (refence)	84.6	
Secondary or higher	78.5	
Household wealth quintile		
Lowest (reference)	84.6	
Second	79.0	
Middle	87.0	
Fourth	88.3	
Highest	76.4	
Household near a health facility		
No (reference)	82.3	
Yes	84.5	
Transmission districts		
High (reference)	84.1	
Moderate	82.3	
Residence	ǂ	
Rural (reference)	85.5	1.0
Urban	76.5	0. 52 [0.27–0.98] *
Perceived severity		
No (reference)	73.5	
Yes	84.0	
Perceived vulnerability	*	
No (reference)	69.7	1.0
Yes	84.3	1.71 [0.59–4.95]
Talked about malaria with spouse		
No (reference)	82.2	
Yes	86.9	
Talked about malaria with friends/family members		
No (reference)	82.7	
Yes	85.1	
Perceived care-seeking and testing effectiveness		
No (reference)	81.0	
Yes	86.2	
Perceived self-efficacy care-seeking	ǂ	
No (reference)	79.1	1.0
Yes	87.0	1.45 [0.83–2.53]
Comprehensive knowledge of malaria care-seeking and treatment	***	

Results of the Logistic Regression Exploring Factors Associated with Care-Seeking and Testing of Children with Fever in the Past Two Weeks		
Characteristic	**Seeking prompt and appropriate care for children with fever in prior 2 weeks (%)**	**Adjusted Odds Ratio [95% Confidence Interval]**
No (reference)	57.1	1.0
Yes	86.4	3.81 [1.86–7.82] ***
Favorable attitudes towards care-seeking and treatment	*	
No (reference)	73.3	1.0
Yes	85.7	1.89 [0.98–3.66]
Prompt Care-seeking and treatment perceived as the norm in the community	***	
No (reference)	71.3	1.0
Yes	86.9	2.33 [1.22–4.43] *
Care-seeking and testing perceived as the norm in the community	*	
No (reference)	75.5	1.0
Yes	85.2	1.01 [0.47–2.15]
Reported Correct Knowledge of Malaria		
No (reference)	86.0	
Yes	83.3	
Heard a message about malaria on the media [media]		
No (reference)	81.4	
Yes	83.4	
Favorable perceptions of health facilities regarding care-seeking and treatment	**	
No (reference)	73.1	1.0
Yes	85.6	1.63 [0.80–3.33]

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

A.4 Malaria in Pregnancy

This subsection of the Annex provides all data tables related to media consumption and exposure to malaria messages. The following tables may have been duplicated or referenced in the main body of the report.

Table A.4.1: Summary of Ideational Variables Related to Malaria in Pregnancy

Summary of Ideational Variables Related to Malaria in Pregnancy							
Characteristic	**Percent of respondents who report ideational determinants, by respondent sociodemographic characteristics, Zambia MBS 2024**						
	Comprehensive knowledge of MIP recommendations	**Favorable attitudes towards IPTp**	**Perceived MIP as severe**	**Perceived response-efficacy of IPTp**	**Perceived self-efficacy regarding IPTp**	**Perceived that most in community go to ANC care at least 4 times during pregnancy**	**Perceived that most take malaria preventative medicine during pregnancy**
Transmission districts				**			
High	38.6	98.0	95.2	75.2	99.3	85.8	86.5
Moderate	38.2	98.4	94.5	84.1	99.3	85.1	87.7
Sex	***	**	*				
Female	42.6	98.6	94.5	76.8	99.4	85.3	87.1
Male	24.1	96.1	97.1	78.3	98.9	86.8	85.6
Age	*		**			**	***
15–24	36.4	98.5	92.8	75.5	99.4	82.1	80.6
25–34	41.6	97.4	95.1	76.9	98.9	85.1	88.1
35–44	41.5	98.3	96.7	81.5	99.5	89.5	92.1
45 and above	30.8	98.2	97.8	73.9	99.7	89.9	90.5
Residence	*					**	*
Rural	41.1	97.8	95.3	77.0	99.3	87.4	88.2
Urban	31.4	98.9	94.3	77.4	99.2	80.9	82.8
Level of education	**		ǂ		*		
None	24.4	93.6	100.0	72.2	93.7	83.3	85.6
Primary	41.0	97.8	94.2	77.1	99.4	85.3	87.7
Secondary or higher	30.9	98.8	96.8	79.7	99.2	86.3	84.0
Wealth quintile	**	*	ǂ	**			*
Lowest	38.4	96.1	92.1	69.2	99.1	82.8	82.2
Second	42.7	97.6	95.5	79.0	99.4	86.9	91.4
Middle	42.2	98.9	96.1	74.1	98.9	87.3	89.0
Fourth	40.7	99.0	95.8	79.9	99.6	87.4	86.3
Highest	29.3	98.5	95.2	82.1	99.3	83.7	84.8
Total (%)	**38.5**	**98.1**	**95.0**	**77.1**	**99.3**	**85.7**	**86.8**
Total (N)	**2,045**						

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Table A.4.2: Comprehensive Knowledge of Malaria in Pregnancy

Table A.4.2 presents the percentage distribution of respondents who are aware and have specific knowledge of MIP. Data is presented by transmission district and disaggregated by participant sex, age group, and level of education as well as household residence type and wealth quintile. Participants reported knowledge related to the appropriate time to first seek ANC, the number of recommended check-ups during one pregnancy, and the number of times during pregnancy a woman should receive medicine to keep her from getting malaria.

Comprehensive Knowledge of MIP			
Percent distribution of respondents with specific knowledge of MIP by transmission level, Zambia MBS 2024			
Percent of respondents that correctly answer the following questions:	**High trans. districts (%)**	**Moderate trans. districts (%)**	**Total (%)**
When should a pregnant woman go for pregnancy care for the first time	52.5	51.9	52.3
How many times should a woman receive check-up during one pregnancy	95.3	95.2	95.3
How many times during her pregnancy should a woman receive medicine to keep her from getting malaria?	76.6	74.9	76.2
Percent of respondents with comprehensive knowledge of MIP	**38.6**	**38.2**	**38.5**
Sex	***	**	***
Female	42.41	43.4	42.6
Male	25.23	19.8	24.1
Age	ǂ		*
15–24	35.9	38.4	36.4
25–34	42.0	40.0	41.6
35–44	40.6	44.5	41.5
45 and above	33.1	25.0	30.8
Residence	*		*
Rural	41.4	40.0	41.1
Urban	29.7	35.3	31.4
Level of education	**		**
None	33.6	10.0	24.4
Primary	41.7	38.3	41.0
Secondary or higher	29.9	33.7	30.9
Wealth quintile	**		**
Lowest	37.8	42.5	38.4
Second	42.3	45.5	42.7
Middle	41.5	45.4	42.2
Fourth	43.7	33.5	40.7
Highest	27.0	34.3	29.3
Total (N)	**1,645**	**400**	**2,045**

Notes: ǂ $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; n/a: not applicable

Table A.4.3: Attitudes Toward ANC/IPTp

Table A.4.3 presents the distribution of favorable or unfavorable attitudes toward IPTp. Attitude favorability is calculated based on a participant's agreement or disagreement with several statements related to ANC/IPTp. The data is presented according to respondent and household sociodemographic characteristics in each province.

Attitudes Toward IPTp				
Percent of respondents with specific attitudes towards IPTp by transmission level, Zambia MBS 2024				
Percent of respondents that agree/disagree with the following statements:	**High trans. districts (%)**	**Moderate trans. districts (%)**	**Sig.**	**Total (%)**
A woman who has given birth before does not need to see a health provider (nurse, doctor) as soon as she thinks she might be pregnant (DISAGREE)	88.8	90.3		89.1
If a pregnant woman feels healthy, she does not need to see a health provider (nurse, doctor) (DISAGREE)	14.9	15.5		15.1
Fansidar, the medicine given to pregnant women to prevent malaria during their pregnancy, is safe for them and their babies (AGREE)	96.6	95.9		96.4
The benefits of taking Fansidar to prevent malaria during pregnancy are worth any discomfort the medicine might cause (AGREE)	95.8	94.2	ǂ	95.5
Percent of respondents with favorable attitudes towards IPTp	**98.0**	**98.4**		**98.1**
Sex	*			**
Female	98.5	99.0		98.6
Male	96.1	96.2		96.1
Age				
15–24	98.3	99.2		98.5
25–34	97.5	97.4		97.4
35–44	98.4	97.6		98.3
45 and above	97.6	100.0		98.2
Residence	ǂ			
Rural	97.6	98.4		97.8
Urban	99.1	98.4		98.9
Level of education				
None	89.6	100.0		93.7
Primary	97.8	97.9		97.8
Secondary or higher	98.7	99.0		98.8
Wealth quintile	*			*
Lowest	95.5	100.0		96.1
Second	98.1	94.3		97.6
Middle	99.0	98.4		98.9
Fourth	98.6	100.0		99.0
Highest	98.7	98.1		98.5
Total (N)	**1,645**	**400**		**2,045**

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Table A.4.4: Perceived Severity of Malaria in Pregnancy

Table A.4.4 describes the percentage of respondents who hold perceptions that malaria during pregnancy is severe. Perceived severity is calculated based on the respondents' agreement or disagreement with certain statements. Data is presented by transmission district and disaggregated by participant age, sex, and level of education, as well as household residence type and wealth.

Perceived Severity of Malaria in Pregnancy				
Percent of respondents with specific perceived severity of MIP by transmission level, Zambia MBS 2024				
	High trans. districts (%)	**Moderate trans. districts (%)**	**Sig.**	**Total (%)**
Pregnant women are more likely to die from malaria compared to women who are not pregnant (AGREE)	95.2	94.5		95.0
Percent of respondents with perceived severity of MIP	**95.2**	**94.5**		**95.0**
Sex	*			*
Female	94.5	94.2		94.5
Male	97.5	95.5		97.1
Age	*			**
15–24	93.4	90.6		92.8
25–34	95.0	95.6		95.1
35–44	96.6	97.3		96.7
45 and above	98.4	96.2		97.8
Residence				
Rural	95.4	94.9		95.3
Urban	94.6	93.7		94.3
Level of education				ǂ
None	100.0	100.0		100.0
Primary	94.6	92.6		94.2
Secondary or higher	96.4	98.2		96.8
Wealth quintile				ǂ
Lowest	92.2	91.4		92.1
Second	95.9	93.3		95.5
Middle	96.2	95.9		96.1
Fourth	96.3	94.6		95.8
Highest	95.2	95.1		95.2
Total (N)	**1,645**	**400**		**2,045**

Notes: ǂ $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; n/a: not applicable

Table A.4.5: Perceived Response Efficacy of IPTp

Table A.4.5 presents the distribution of perceived response efficacy regarding IPTp. Perceived response efficacy is calculated based on a participant's agreement or disagreement with several statements related to IPTp. The data is presented according to respondents' sociodemographic characteristics in each province.

Perceived Response Efficacy of IPTp				
Percent distribution of specific response-efficacy of IPTp by transmission level, Zambia MBS 2024				
Percent of respondents who agree with the following statements:	**High trans. districts (%)**	**Moderate trans. districts (%)**	**Sig.**	**Total (%)**
Consulting health providers during the first two months of pregnancy is a way to check that the baby and mother are healthy (AGREE)	94.8	94.2		94.7
It does not matter when a pregnant woman attends antenatal care for the first time (DISAGREE)	62.4	69.8	*	64.0
Fansidar, the medicine given to pregnant women to keep them from getting sick from malaria, works well to keep the mother healthy (AGREE)	97.0	96.2		96.9
Taking Fansidar to prevent malaria during pregnancy will not improve the health of the baby (DISAGREE)	69.2	66.0		68.5
The chances of getting malaria during pregnancy are the same whether or not a pregnant woman takes the medicine to prevent malaria (DISAGREE)	74.6	80.7	*	75.9
Percent of respondents with perceived response-efficacy of IPTp	**75.2**	**84.1**	**	**77.1**
Sex				
Female	74.9	83.4		76.8
Male	76.0	86.7		78.3
Age				
15–24	74.1	81.0		75.5
25–34	74.8	85.2		76.9
35–44	79.1	90.1		81.5
45 and above	71.7	79.5		73.9
Residence				
Urban	75.0	85.6		77.0
Rural	75.6	81.6		77.4
Level of education				
None	71.0	74.2		72.2
Primary	74.9	85.7		77.1
Secondary or higher	78.2	83.8		79.7
Wealth quintile	**			**
Lowest	66.7	86.9		69.2
Second	78.0	84.7		79.0
Middle	72.0	83.7		74.1
Fourth	78.3	83.7		79.9
Highest	81.5	83.6		82.1
Total (N)	**1,645**	**400**		**2,045**

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Table A.4.6: Perceived Self-Efficacy for IPTp: Women

Table A.4.6 presents the distribution of perceived self-efficacy regarding ANC and IPTp, specifically among women. Perceived self-efficacy is calculated based on a participant's agreement or disagreement with several statements related to attending ANC and taking or requesting IPTp. The data is presented according to respondents' sociodemographic characteristics in each province.

Perceived Self-Efficacy for IPTp: Women				
Percent of respondents with perceived self-efficacy for IPTp among women by transmission level, Zambia MBS 2024				
Percent of women that believe they can:	**High trans. districts (%)**	**Moderate trans. districts (%)**	**Sig.**	**Total (%)**
Request Fansidar, the medicine to prevent malaria during pregnancy when you go for antenatal care (AGREE)	91.2	87.5	*	90.4
Go for antenatal care as soon as you think you might be pregnant (AGREE)	86.6	82.1	ǂ	85.6
Convince your spouse to accompany you for antenatal care (AGREE)	85.3	94.1		95.0
Go for antenatal care even if your religious leader does not agree (AGREE)	94.3	95.9		94.7
Take Fansidar to prevent malaria during pregnancy if the health provider (doctor, nurse) offers it to you (AGREE)	98.3	98.7		98.4
Ask the provider (doctor, nurse) any questions you might have about Fansidar (AGREE)	95.5	95.1		95.4
Percent of women with perceived self-efficacy for IPTp	**99.5**	**99.1**		**99.4**
Age				
15–24	99.5	98.3		99.3
25–34	99.4	99.0		99.3
35–44	99.3	100.0		99.5
45 and above	100.0	100.0		100.0
Residence				
Rural	99.6	99.1		99.5
Urban	99.1	99.1		99.1
Level of education	*			
None	0	0		0
Primary	99.7	98.6		99.5
Secondary or higher	98.8	100.0		99.1
Wealth quintile				
Lowest	99.6	100.0		99.6
Second	100.0	100.0		100.0
Middle	99.5	94.6		98.6
Fourth	99.3	100.0		99.5
Highest	99.0	100.0		99.3
Total (N)	**1,280**	**313**		**1,593**

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Table A.4.7: Perceived Self-Efficacy for IPTp: Men

Table A.4.7 presents the distribution of perceived self-efficacy regarding ANC and IPTp, specifically among men. Perceived self-efficacy is calculated based on a participant's agreement or disagreement with several statements related to ANC and IPTp. The data is presented according to respondents' sociodemographic characteristics in each province.

Perceived Self-Efficacy for IPTp: Men				
Percent of respondents with perceived self-efficacy for IPTp among men by transmission level, Zambia MBS 2024				
Percent of women that believe they can:	**High trans. districts (%)**	**Moderate trans. districts (%)**	**Sig.**	**Total (%)**
Encourage my spouse/partner to request for Fansidar, the medicine that helps to prevent malaria during pregnancy when she goes for antenatal care (AGREE)	94.0	92.8		93.8
Support my spouse/partner to take Fansidar to prevent malaria during pregnancy if the health provider (doctor, nurse) offers it to her (AGREE)	96.5	97.9		96.8
Encourage your spouse / partner to ask to the provider (doctor, nurse) any questions she might have about Fansidar (AGREE)	95.5	97.7		96.0
Percent of men with perceived self-efficacy for IPTp	**98.5**	**100.0**		**98.9**
Age				
15–24	100.0	100.0		100.0
25–34	96.8	100.0		97.4
35–44	99.4	100.0		99.5
45 and above	99.3	100.0		99.4
Residence				
Rural	98.4	100.0		98.7
Urban	99.2	100.0		99.5
Level of education				
None	89.6	100.0		93.7
Primary	98.5	100.0		98.8
Secondary or higher	99.5	100.0		99.6
Wealth quintile				
Lowest	96.8	100.0		97.2
Second	97.0	100.0		97.4
Middle	100.0	100.0		100.0
Fourth	100.0	100.0		100.0
Highest	99.1	100.0		99.4
Total (N)	**365**	**87**		**452**

Table A.4.8: Perceived Community Norms Regarding IPTp

Table A.4.8 presents the perceived community norms regarding IPTp. This study assesses perceived community norms based on participants' responses to a series of questions asking about the proportion of women in their community who (1) go to ANC at least four times when pregnant and (2) take medicine to prevent malaria when they are pregnant. Participants also reported whether they believe others in the community approve of women taking these actions.

Perceived Community Norms Regarding IPTp				
Percent of respondents with perceived community norms regarding IPTp by transmission level, Zambia MBS 2024				
Percent of respondents that perceive that:	**Most women in their community go to ANC at least four times when they are pregnant**	**Most women in their community go to ANC within the first 3 months**	**Most women in your community take medicine to prevent malaria when they are pregnant**	**Most people in your community approve of pregnant women taking the medicine to prevent malaria**
Transmission districts		**		
High	85.8	75.2	86.5	91.5
Moderate	85.1	68.5	87.7	89.0
Sex		ǂ		
Female	85.3	73.0	87.1	91.4
Male	86.8	76.5	85.6	89.3
Age	**	**	**	*
15–24	82.1	68.8	80.6	88.1
25–34	85.1	74.5	88.1	91.1
35–44	89.5	76.6	92.1	93.2
45 and above	89.9	80.3	90.5	94.1
Residence	**	*	**	*
Rural	87.4	75.5	88.2	91.8
Urban	80.9	69.0	82.8	88.4
Level of education				*
None	83.3	67.0	85.6	90.5
Primary	85.3	74.2	87.7	92.7
Secondary or higher	86.3	72.8	84.0	89.1
Wealth quintile		*	**	*
Lowest	82.8	72.3	82.2	90.5
Second	86.9	78.2	81.4	95.3
Middle	87.3	77.5	89.0	91.4
Fourth	87.4	73.1	86.3	87.0
Highest	83.7	68.3	84.8	90.9
Total (%)	**85.7**	**73.8**	**86.8**	**90.3**
Total (N)	**2,045**	**2,045**	**2,045**	**2,045**

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Table A.4.9: Gender Attitudes Regarding Malaria in Pregnancy

Table A.4.9 presents the distribution of equitable gender attitudes regarding ANC. Equitable gender attitudes were calculated based on a participant's reported perceptions. Data is presented by transmission district and is disaggregated by participants' sex, age group, and level of education, as well as household residence type and wealth quintile.

Gender Attitudes Regarding Malaria in Pregnancy				
Percent of respondents with equitable gender attitudes regarding ANC, by transmission level, Zambia MBS 2024				
Percent of respondents that perceive that:	**High trans. districts (%)**	**Moderate trans. districts (%)**	**Sig.**	**Total (%)**
A pregnant woman should feel comfortable asking her husband/spouse to go to the health facility for a prenatal consultation (AGREE)	97.9	99.3		98.2
Percent of respondents with equitable gender attitudes regarding ANC	**97.9**	**99.3**		**98.2**
Sex				
Female	98.0	99.4		98.3
Male	97.6	98.8		97.8
Age				
15–24	98.0	98.5		98.1
25–34	97.5	100.0		98.0
35–44	98.0	100.0		98.5
45 and above	98.3	98.3		98.3
Residence				
Rural	97.7	99.7		98.1
Urban	98.5	98.6		98.5
Level of education				
None	89.6	100.0		93.7
Primary	98.1	99.1		98.3
Secondary or higher	97.5	99.3		98.0
Wealth quintile				ǂ
Lowest	95.7	100.0		96.3
Second	98.4	100.0		98.7
Middle	98.9	100.0		99.1
Fourth	98.2	97.4		98.0
Highest	97.9	100.0		98.6
Total (N)	**1,645**	**400**		**2,045**

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Table A.4.10: Perceptions of Facility-Based Health Workers Regarding Malaria in Pregnancy

Table A.4.10 summarizes the percentage of respondents who hold favorable perceptions of facility health workers regarding MIP, based on respondents' agreement or disagreement with several statements. Data is presented by transmission district and disaggregated by respondents' sex, age, level of education as well as household residence type and wealth quintile.

Perceptions of Facility-Based Health Workers Regarding Malaria in Pregnancy				
Percent of respondents with specific perceptions of facility health workers, by transmission level, Zambia MBS 2024				
Percent of respondents that agree or disagree with the following:	**High trans. districts (%)**	**Moderate trans. districts (%)**	**Sig.**	**Total (%)**
Health providers at the health facility in this community always offer the medicine to prevent malaria to pregnant women (AGREE)	87.9	88.7		88.0
Health providers at the health facilities in this community always give pregnant women the medicine to prevent malaria only if she's eaten beforehand (DISAGREE)	61.2	68.2	*	62.7
If a woman goes to the health facility during the first two months of her pregnancy, the health providers will send her away (DISAGREE)	82.8	82.2		82.7
If a pregnant woman goes to the health facility without her husband/partner, the health providers will send her away (DISAGREE)	36.7	40.7		37.5
Total (N)	**1,645**	**400**		**2,045**

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable.

Table A.4.11: Decision making Regarding Antenatal Care

Table A.4.11 summarizes the distribution of respondents involved in decision making concerning ANC. Results are presented by province and disaggregated by respondents' sex, age, level of education, household residence type, and household wealth quintile.

Decision making Regarding Antenatal Care				
Percent distribution of respondents involved in decision making regarding antenatal care by transmission level, Zambia MBS 2024				
Percent of respondents involved in decision making regarding ANC	**High trans. districts (%)**	**Moderate trans. districts (%)**	**Sig.**	**Total (%)**
Sex		*		
Female	77.3	76.3		77.1
Male	78.1	62.0		74.6
Age	ǂ			
15–24	73.3	68.3		72.3
25–34	76.0	72.9		75.4
35–44	81.0	75.9		79.8
45 and above	82.5	69.6		78.9
Residence		ǂ		
Rural	77.4	68.8		75.8
Urban	78.0	78.3		78.1
Level of education	*			
None	56.2	73.3		62.9
Primary	79.3	69.0		77.2
Secondary or higher	76.0	77.1		76.3
Wealth quintile				
Lowest	75.6	73.0		75.2
Second	75.7	58.8		73.2
Middle	76.6	68.0		75.1
Fourth	80.8	78.6		80.1
Highest	79.8	74.2		78.0
Percent of respondents involved in decision making regarding ANC	77.5	72.1	ǂ	76.3
Total (N)	**1,232**	**301**		**1,533**

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable.

Table A.4.12: Interpersonal Communication Regarding Antenatal Care

Table A.4.12 describes IPC regarding ANC in each study province. Specifically, this table summarizes the distribution of respondents who reported discussing ANC with their spouse/partner. Data is disaggregated by sex, age, residence type, level of education, and household wealth quintile.

Interpersonal Communication Regarding Antenatal Care				
Percent distribution of respondents who discussed attending ANC with their spouse/partner by transmission level, Zambia MBS 2024				
	High trans. districts (%)	**Moderate trans. districts (%)**	**Sig.**	**Total (%)**
Sex				
Female	89.0	86.5		88.4
Male	89.3	86.1		88.6
Age				ǂ
15–24	88.2	86.4		87.9
25–34	92.0	87.7		91.2
35–44	87.0	86.9		87.0
45 and above	86.3	83.4		85.5
Residence				
Rural	88.8	87.1		88.5
Urban	90.4	85.1		88.6
Level of education				
None	82.7	100.0		89.5
Primary	90.1	87.0		89.5
Secondary or higher	88.3	86.7		87.8
Wealth quintile				
Lowest	89.6	81.7		88.6
Second	89.2	91.1		89.5
Middle	84.6	90.8		85.7
Fourth	92.3	82.2		89.2
Highest	90.4	87.7		89.5
Total (%)	**89.1**	**86.4**		**88.5**
Total (N)	**1,232**	**301**		**1,533**

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable.

Table A.4.13: Antenatal Care Attendance

Table A.4.13 describes ANC attendance among women. All respondents for this table were women with a live birth in the past two years. Data presented includes the percentage of women who reported attending at least one ANC visit, attending at least four ANC visits, attending at least one ANC while accompanied by their spouse, and attending at least one ANC visit and receiving an ITN. Data is disaggregated by respondent age group, residence type, study province, and household wealth quintile.

Antenatal Care Attendance							
Antenatal care attendance among women with a live birth in the past two years, Zambia MBS, 2024							
Characteristics	**Attending at least one antenatal visit**	**Attending at least four antenatal visits**	**Attending at least one antenatal visit accompanied by their spouse**	**Attending at least one antenatal visit and receiving an ITN**	**At least one ANC visit during the first trimester**	**Intention to attend ANC early in a future pregnancy**	**Intention to attend at least 4 ANC in a future pregnancy**
Transmission districts						**	ǂ
High	98.9	89.9	79.5	70.6	68.5	88.9	92.5
Moderate	100.0	87.1	73.6	77.4	59.7	81.8	89.6
Age	**	ǂ			ǂ		
15–24	99.3	88.3	75.0	68.2	63.4	87.0	90.7
25–34	99.0	88.2	82.3	75.0	72.9	87.7	93.3
35–44	100.0	97.3	76.1	75.0	60.5	88.9	93.4
45 and above	86.1	78.7	100.0	70.7	66.8	100.0	100.0
Residence		*				*	**
Rural	98.9	91.1	79.8	70.6	67.6	89.0	93.2
Urban	100.0	82.5	72.8	76.9	63.7	82.7	87.8
Level of education				ǂ	ǂ		
None	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Primary	98.8	88.6	78.7	70.8	70.1	87.5	91.9
Secondary or higher	100	92.4	79.1	78.9	60.6	85.8	91.6
Wealth quintile				**		*	
Lowest	100.0	91.5	78.7	59.7	65.3	92.6	96.4
Second	99.3	85.9	81.4	72.7	69.9	87.3	94.4
Middle	97.3	87.5	79.8	67.3	73.4	88.2	91.6
Fourth	100.0	95.7	73.3	82.0	63.2	87.6	88.6
Highest	98.9	85.7	77.8	85.9	59.4	81.5	88.4
Total (%)	**99.1**	**89.4**	**78.4**	**71.9**	**66.8**	**87.4**	**91.9**
Total (N)	**559**	**559**	**559**	**559**	**559**	**999**	**1,016**

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable.

Table A.4.14: Use of IPTp by Women during Pregnancy

Table A.4.14 summarizes IPTp use during pregnancy among women who have given birth in the two years preceding the survey. Only data for women is presented in this table. Data is disaggregated by participant age group, the number of ANC visits they attended during the previous pregnancy, household residence type, study province, participant level of education, and household wealth quintile.

Use of IPTp by Women During Pregnancy			
Percentage of women aged 15–49 with a live birth in the 2 years preceding the survey who, during the pregnancy that resulted in the last live birth, received one or more doses of SP/Fansidar, received two or more doses of SP/Fansidar, and received three or more doses of SP/Fansidar, by respondent sociodemographic characteristics, Zambia MBS, 2024			
Characteristics	**Percentage who received one or more doses of SP/Fansidar**	**Percentage who received two or more doses of SP/Fansidar**	**Percentage who received three or more doses of SP/Fansidar**
Transmission districts			
High	99.8	95.4	86.8
Moderate	98.9	94.3	88.0
Age			*
15–24	99.7	94.9	86.6
25–34	99.5	96.0	88.1
35–44	100.0	94.5	89.2
45 and above	100.0	90.3	52.8
Residence			
Rural	99.8	95.3	87.1
Urban	98.9	94.9	86.8
Level of education		ǂ	*
None	0.0	0.0	0.0
Primary	99.5	94.6	85.2
Secondary or higher	100.0	97.8	91.4
Wealth quintile			**
Lowest	100.0	91.7	79.0
Second	99.3	94.8	92.7
Middle	100.0	97.8	83.6
Fourth	100.0	96.7	91.3
Highest	98.6	96.1	92.2
Number of ANC visits		**	***
0–3	98.5	85.1	63.6
4+	99.8	96.5	89.8
Total (%)	**99.6**	**95.4**	**87.0**
Total N	**555**	**555**	**555**

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable.

Table A.4.15: Source of IPTp

Table A.4.15 describes the common sources of IPTp among women who gave birth in the two years prior to the study. This table also specifies the percentage of women who received one or more doses of IPTp by sociodemographic characteristics. Data is disaggregated by participant age group, resident type, study province, and household wealth quintile.

Source of IPTp				
Source of IPTp among women with a live birth in the past two years, Zambia MBS 2024				
	Percentage who received one or more doses of SP/Fansidar	**Sources of SP/Fansidar doses among those who received at least one dose**		
		Antenatal care	**Non antenatal visit at facility**	**Pharmacy**
Transmission districts			**	
High	99.8	99.5	4.5	0.2
Moderate	98.9	99.1	15.1	0.0
Age				
15–24	99.7	100.0	6.0	0.0
25–34	99.5	98.5	7.4	0.5
35–44	100.0	100.0	6.3	0.0
45 and above	100.0	100.0	0.0	0.0
Residence			*	
Rural	99.8	99.5	5.1	0.0
Urban	98.9	99.2	12.2	1.0
Wealth quintile			*	
Lowest	100.0	99.0	3.7	0.0
Second	99.3	99.2	2.6	0.0
Middle	100.0	99.3	4.2	0.0
Fourth	100.0	100.0	13.1	0.0
Highest	98.6	100.0	12.1	1.3
Total (%)	**99.7**	**99.4**	**6.5**	**0.2**
Total (N)	**555**	**553**	**553**	**553**

*p < 0.05; **p < 0.01; ***p < 0.001

Table A.4.16: Logistic Regression Results Exploring Factors Associated with the Intention to Attend ANC in a Future Pregnancy

Logistic Regression Results Exploring Factors Associated with Intention to Attend Antenatal Care At Least Four Times in a Future Pregnancy, Zambia Malaria Survey, 2024		
Characteristic	**% intention to Attend Antenatal Care At Least Four Times in a Future Pregnancy**	**Adjusted Odds Ratio (95% Confidence Interval)**
Maternal Age in years		
15–24 (reference)	90.7	
25–34	93.3	
35–44	93.4	
45 and above	100.0	
Level of education		
None or Primary completed (reference)	91.9	
Secondary or higher	91.6	
Household wealth quintile	*	
Lowest (reference)	96.4	1.0
Second	94.4	0.43 [0.18–1.02]
Middle	91.6	0.35 [0.14–0.85] *
Fourth	88.6	0.22 [0.09–0.54] **
Highest	88.4	0.26 [0.10–0.65] **
Transmission districts	ǂ	
High (reference)	92.5	1.0
Moderate	89.5	0.80 [050–1.26]
Residence	**	
Rural (reference)	93.2	1.0
Urban	87.8	0.81 [0.52–1.26]
Perceived severity of malaria		
No (reference)	100	
Yes	91.7	
Perceived susceptibility to malaria		
No (reference)	88.8	
Yes	92.1	
Talked about malaria with spouse		
No (reference)	94.3	
Yes	94.9	
Talked about malaria with friends/family members		
No (reference)	91.0	
Yes	93.2	
Perceived malaria susceptibility in pregnancy		
No (reference)	87.7	
Yes	92.1	
Perceived response-efficacy of IPTp	ǂ	
No (reference)	89.0	1.0
Yes	92.7	1.77 [0.98–3.20]
Perceived self-efficacy of IPTp	***	
No (reference)	53.8	1.0
Yes	92.1	9.55 [0.95–96.4]
Favorable attitudes towards MIP	*	
No (reference)	77.8	1.0
Yes	92.1	3.89 [1.07–14.17]*

Logistic Regression Results Exploring Factors Associated with Intention to Attend Antenatal Care At Least Four Times in a Future Pregnancy, Zambia Malaria Survey, 2024		
Characteristic	**% intention to Attend Antenatal Care At Least Four Times in a Future Pregnancy**	**Adjusted Odds Ratio (95% Confidence Interval)**
Perceived that most in community go to ANC at least 4 times when they are pregnant		
No (reference)	88.9	
Yes	92.4	
Perceived that most in community take malaria preventative medicine during pregnancy	*	
No (reference)	86.6	1.0
Yes	92.7	1.76 [0.91–3.38]
Comprehensive knowledge of MIP recommendations	**	
No (reference)	89.3	1.0
Yes	95.1	2.15 [1.21–3.81]**
Perceived equitable gender attitudes regarding ANC		
No (reference)	83.1	
Yes	92.0	
Favorable perceptions of Health Workers Regarding Malaria in Pregnancy		
No (reference)	89.5	
Yes	92.3	
Perceived that most antenatal health providers in this community treat pregnant women with respect		
No (reference)	87.2	
Yes	92.8	
Involved in decision making regarding ANC		
No (reference)	93.1	
Yes	95.0	
Discussed ANC attendance with spouse/partner		
No (reference)	92.7	
Yes	94.7	
Heard malaria messages from the media		
No (reference)	91.3	
Yes	92.7	
Heard malaria messages from health facility		
No (reference)	91.8	
Yes	92.1	
Heard malaria messages from CHW		
No (reference)	92.0	
Yes	90.5	
Heard malaria messages through SMS/Chat/Email		
No (reference)	92.3	
Yes	85.1	
Pseudo-R_2		**0.0791**
Number of observations		**1,016**
Notes: ǂ p < 0.1 * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable		

Table A.4.17: Logistic Regression Results Exploring Factors Associated with the Intention to Attend ANC in the First Trimester

Logistic Regression Results Exploring Factors Associated with Intention to Attend Antenatal Care Early in a Future Pregnancy		
Characteristic	**% intending to Attend Antenatal Care Early in a Future Pregnancy**	**Adjusted Odds Ratio (95% Confidence Interval)**
Maternal Age in years		
15–24 (reference)	87.0	
25–34	87.7	
35–44	88.9	
45 and above	100.0	
Level of education		
None or Primary completed (reference)	87.5	
Secondary or higher	85.8	
Household wealth quintile	*	
Lowest (reference)	92.6	1.0
Second	87.3	0.47 [0.24–0.92]*
Middle	88.2	0.60 [0.29–1.24]
Fourth	87.6	0.65 [0.31–1.34]
Highest	81.5	0.50 [0.24–1.03]
Transmission districts	**	
High (reference)	88.9	1.0
Moderate	81.8	0.59 [0.37–0.94]*
Residence	*	
Rural (reference)	89.0	1.0
Urban	82.7	0.84 [0.50–1.41]
Perceived severity of malaria		
No (reference)	100.0	
Yes	87.2	
Perceived susceptibility to malaria		
No (reference)	84.7	
Yes	87.6	
Talked about malaria with spouse		
No (reference)	88.1	
Yes	87.9	
Talked about malaria with friends/family members		
No (reference)	86.2	
Yes	89.3	
Perceived malaria susceptibility in pregnancy		
No (reference)	87.6	
Yes	87.4	
Perceived self-efficacy of IPTp[§]	***	
No (reference)	33.0	
Yes	87.8	N/A
Perceived response-efficacy of IPTp		
No (reference)	87.2	
Yes	87.5	
Favorable attitudes towards MIP		
No (reference)	76.5	
Yes	87.6	

Logistic Regression Results Exploring Factors Associated with Intention to Attend Antenatal Care Early in a Future Pregnancy		
Characteristic	**% intending to Attend Antenatal Care Early in a Future Pregnancy**	**Adjusted Odds Ratio (95% Confidence Interval)**
Perceived that most in community go to ANC within the first 3 months of pregnancy (Positive descriptive community norms towards early ANC)	***	
No (reference)	78.8	1.0
Yes	90.7	2.22 [1.45–3.40]***
Perceived that most in community approve early ANC (within the first 3 months of pregnancy)	#	
No (reference)	80.6	
Yes	88.1	1.45 [0.81–2.61]
Comprehensive knowledge of MIP recommendations	***	
No (reference)	84.0	1.0
Yes	91.8	1.90 [1.22–2.95]**
Perceived equitable gender attitudes regarding ANC	*	
No (reference)	71.1	
Yes	87.7	2.28 [0.87–5.96]
Perceived that most antenatal health providers in this community treat pregnant women with respect	**	
No (reference)	79.3	1.0
Yes	88.8	1.86 [1.11–3.11]*
Involved in decision making regarding ANC		
No (reference)	87.7	
Yes	88.1	
Discussed ANC attendance with spouse/partner		
No (reference)	84.9	
Yes	88.4	
Heard malaria messages from the media		
No (reference)	86.2	
Yes	88.2	
Heard malaria messages from health facility		
No (reference)	87.4	
Yes	87.7	
Heard malaria messages from CHW		
No (reference)	87.0	
Yes	93.2	
Heard malaria messages through SMS/Chat/Email	*	
No (reference)	88.0	1.0
Yes	77.9	0.61 [0.28–1.30]
Pseudo-R_2		**0.0808**
Number of observations		**999**

Notes: ǂ p < 0.1 * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable ; §: Self-efficacy for IPTp variable, although significant in the bivariable analysis, was not included into the adjusted model, because sparse data for the No category (less than 5 observations).

A.5 Insecticide-Treated Net Use

This subsection of the Annex provides all data tables related to ITN use. This includes data related to respondent knowledge of malaria prevention using ITNs; attitudes toward ITNs in general; attitudes toward ITN care and repair; perceived response efficacy and perceived self-efficacy of ITNs; respondents' perceived community norms and gender attitudes regarding ITNs; household possession, access, and use of ITNs; ITN characteristics; ITN care and repurposing behavior; and sleep patterns, including seasonality of outdoor sleeping. The following tables or and figures may have been duplicated or referenced in the main body of the report.

Table A.5.1 Summary of Ideational Variables Related to Malaria Prevention Using Mosquito Nets

Summary of Ideational Variables Related to ITN Use						
Characteristic	**Percent of respondents who report ITN ideational determinants, by respondent sociodemographic characteristics, Zambia MBS 2024**					
	Knowledge of malaria prevention using mosquito nets	**Favorable attitudes towards ITNs: perceived barriers sub-scale**	**Favorable attitudes towards ITN care and repair**	**Perceived response-efficacy of ITNs**	**Perceived self-efficacy to use ITNs**	**Perceived community norms regarding ITNs (descriptive norm)**
Transmission districts						
High	95.0	85.2	98.5	99.4	98.2	82.9
Moderate	93.5	80.3	98.4	99.7	96.9	85.1
Sex						
Female	94.8	84.2	98.4	99.3	97.7	83.0
Male	94.2	83.9	98.8	99.7	98.7	84.8
Age						ǂ
15–24	94.1	83.8	97.8	99.6	97.8	80.6
25–34	95.2	83.7	98.3	99.0	98.0	83.2
35–44	93.7	86.5	99.2	99.7	98.4	85.9
45 and above	97.0	81.9	99.2	99.4	97.3	86.9
Residence	***					***
Rural	93.4	85.6	98.5	99.6	98.1	85.8
Urban	98.1	80.2	98.2	99.0	97.3	76.8
Level of education	***		*	*		
None	100.0	84.3	89.9	93.7	96.3	78.8
Primary	93.4	85.9	98.6	99.5	98.2	84.4
Secondary or higher	98.3	79.9	98.4	99.3	97.7	80.6
Wealth quintile	*					**
Lowest	92.0	81.4	98.2	99.7	97.7	85.6
Second	94.5	88.8	98.8	99.1	97.6	86.1
Middle	93.3	81.8	98.9	99.7	97.7	80.2
Fourth	95.6	86.1	98.9	99.7	99.2	88.1
Highest	97.5	82.7	98.6	99.1	97.4	77.4
Total (%)	**94.7**	**84.2**	**99.0**	**99.4**	**97.9**	**83.4**
Total (N)	**2,045**					

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Table A.5.2 Knowledge of Malaria Prevention Using Mosquito Nets

Table A.5.2 presents the distribution of participants' knowledge of malaria prevention using ITNs. Results are presented by participants' characteristics and are disaggregated by transmission district.

Knowledge of Malaria Prevention Using Mosquito Nets **Percentage of respondents that know ITNs are a method of malaria prevention, according to background characteristics, Zambia MBS 2024**				
	High trans. districts (%)	**Moderate trans. districts (%)**	**Sig.**	**Total (%)**
Sex				
Female	95.4	92.6		94.8
Male	93.5	96.7		94.2
Age				
15–24	95.0	90.3		94.1
25–34	94.8	96.8		95.2
35–44	94.5	90.7		93.7
45 and above	96.5	98.3		97.0
Residence	**	**		***
Rural	94.1	90.6		93.4
Urban	97.9	98.6		98.1
Level of education	**	*		***
None	100.0	100.0		100.0
Primary	94.2	90.5		93.4
Secondary or higher	98.3	98.5		98.3
Wealth quintile	**	ǂ		*
Lowest	91.9	92.6		92.0
Second	95.0	91.7		94.5
Middle	93.1	94.2		93.3
Fourth	97.4	91.2		95.6
Highest	98.0	96.3		97.5
Percent of respondents that know ITNs are a method of malaria prevention	**95.0**	**93.5**		**94.7**
Total (N)	**1,645**	**400**		**2,045**

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Table A.5.3.a: Favorable Attitudes toward Nets: Perceived Barriers to Net Use Sub-Scale

Table A.5.3.a presents the distribution of respondents' attitudes toward mosquito nets. This table specifies favorable attitudes toward ITNs based on agreement or disagreement with specific statements. Results are presented by participants' characteristics and disaggregated by transmission district.

Favorable Attitudes toward Nets				
Percent of respondents with specific attitudes towards mosquito nets by transmission level, Zambia MBS 2024				
Percent of respondents that agree or disagree with the following:	**High trans. districts (%)**	**Moderate trans. districts (%)**	**Sig.**	**Total (%)**
It is not easy to sleep under a mosquito net because every night you have to unfold it and cover the sleeping space (DISAGREE)	75.7	71.2		74.7
You do not like sleeping under a mosquito net when the weather is too warm (DISAGREE)	70.3	67.23		69.7
Sleeping under a net is an inconvenience for a couple that wants to make children (DISAGREE)	85.6	89.4		86.4
The smell of the insecticide makes it uncomfortable for you to sleep under a mosquito net (DISAGREE)	72.0	62.1	**	69.8
Insecticide-treated mosquito nets do not pose a risk to your health (AGREE)	72.0	81.5	*	74.1
More expensive mosquito nets are more effective than cheaper or free mosquito nets (DISAGREE)	78.7	64.6	***	75.6
Percent of respondents with favorable attitudes towards ITN use (characteristic)	**85.2**	**80.3**		**84.2**
Sex				
Female	85.7	79.1		84.2
Male	83.7	84.5		83.9
Age				
15–24	84.4	81.6		83.8
25–34	85.0	78.4		83.7
35–44	87.3	83.7		86.5
45 and above	84.2	76.0		81.9
Residence		*		
Rural	85.7	85.0		85.6
Urban	83.7	72.1		80.2
Level of education				ǂ
None	74.2	100.0		84.3
Primary	86.9	82.3		85.9
Secondary or higher	81.6	75.1		79.9
Wealth quintile				
Lowest	81.2	82.7		81.4
Second	88.8	89.1		88.9
Middle	82.8	77.5		81.8
Fourth	88.0	81.4		86.1
Highest	85.5	76.4		82.7
Total (N)	**1,645**	**400**		**2,045**

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Table A.5.3.b: Favorable Attitudes toward Nets—Positive Attributes subscale

Table A.5.3.b presents the distribution of respondents' attitudes toward mosquito nets. This table specifies favorable attitudes toward ITNs based on agreement or disagreement with specific statements related to shape, color, sleep quality, or ease of use. Results are presented by participants' characteristics and disaggregated by transmission district.

Favorable Attitudes toward Nets				
Percent of respondents with specific attitudes towards mosquito nets by transmission level, Zambia MBS 2024				
Percent of respondents that agree or disagree with the following:	**High trans. districts (%)**	**Moderate trans. districts (%)**	**Sig.**	**Total (%)**
It is easier to get a good night's sleep when you sleep under a mosquito net (AGREE)	96.6	97.3		96.8
Mosquito nets are generally easy to use for sleeping (AGREE)	98.0	94.5	**	97.2
You would use a mosquito net to sleep under regardless of its shape (AGREE)	93.7	96.9	*	94.4
You would use a mosquito net to sleep under no matter what color it is (AGREE)	92.4	96.2	**	93.2
Percent of respondents with positive attitude towards ITN attributes (characteristic)	**98.6**	**99.3**		**99.0**
Sex				
Female	98.4	99.4		98.6
Male	99.4	98.8		99.3
Age				*
15–24	98.1	97.7		98.0
25–34	99.2	100.0		99.3
35–44	97.9	100.0		98.4
45 and above	100.0	100.0		100.0
Residence				
Rural	98.9	99.7		99.0
Urban	97.9	98.6		98.1
Level of education				
None	100.0	100.0		100.0
Primary	98.8	99.6		99.0
Secondary or higher	98.4	99.2		98.6
Wealth quintile				
Lowest	99.4	100.0		99.5
Second	98.2	98.3		98.2
Middle	98.4	100.0		98.7
Fourth	98.8	100.0		99.1
Highest	98.4	98.3		98.4
Total (N)	**1,645**	**400**		**2,045**

‡<p < 0.1; *p < 0.05; **p < 0.01; ***p < 0.001; n/a: not applicable

Table A.5.4: Favorable Attitudes toward Net Care and Repair

Table A.5.4 presents the distribution of participants' attitudes toward ITN care based on agreement or disagreement with specific statements. Results are presented by participants' characteristics and disaggregated by transmission district.

Favorable Attitude Toward Net Care and Repair				
Percent of respondents with specific attitudes towards mosquito nets by transmission level, Zambia MBS 2024				
Percent of respondents that agree or disagree with the following:	**High trans. districts (%)**	**Moderate trans. districts (%)**	**Sig.**	**Total (%)**
There are actions you can take to help your mosquito nets last long (AGREE)	92.7	89.9		92.1
You can protect your family against malaria by taking care of your mosquito nets (AGREE)	97.3	96.5		97.1
It is worth taking time to care for your mosquito nets (AGREE)	97.6	97.3		97.5
An old mosquito net can still protect against malaria if it is well cared for (AGREE)	88.2	91.8		89.0
Percent of respondents with favorable attitudes towards ITN care and repair (characteristic)	**98.5**	**98.4**		**99.0**
Sex				
Female	98.4	98.0		98.4
Male	98.5	100.0		98.8
Age				
15–24	97.9	97.0		97.8
25–34	98.2	99.0		98.3
35–44	99.4	98.7		99.2
45 and above	98.9	100.0		99.2
Residence				
Rural	98.5	98.9		98.5
Urban	98.5	97.7		98.2
Level of education				
None	83.5	100.0		89.9
Primary	98.3	99.6		98.6
Secondary or higher	99.1	96.6		98.4
Wealth quintile				
Lowest	97.9	100.0		98.2
Second	99.1	96.7		98.8
Middle	98.7	100.0		98.9
Fourth	98.8	99.0		98.9
Highest	97.7	97.3		97.6
Total (N)	**1,645**	**400**		**2,045**

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Table A.5.5: Perceived Response Efficacy of Nets

Table A.5.5 summarizes respondents' perceived response efficacy of nets based on their agreement or disagreement with certain statements. Results are presented by participants' characteristics and are disaggregated by transmission district.

Perceived Response Efficacy of Nets				
Percent of respondents with specific perceived response efficacy by transmission level, Zambia MBS 2024				
Percent of respondents that agree or disagree with the following:	**High trans. districts (%)**	**Moderate trans. districts (%)**	**Sig.**	**Total (%)**
A mosquito net protects me whether I sleep on a mat or on a bed (AGREE)	94.7	97.5	*	95.3
The chances of getting malaria are the same whether or not someone sleeps under a mosquito net (DISAGREE)	71.9	79.8	***	26.4
Sleeping under a mosquito net every night is the best way to avoid getting malaria (AGREE)	96.4	96.6		96.5
Mosquito nets work well to prevent mosquito bites (AGREE)	98.1	99.1		98.3
Percent of respondents with perceived response efficacy of ITNs (characteristic)	**99.4**	**99.7**		**99.4**
Sex				
Female	99.3	99.6		99.3
Male	99.7	100.0		99.7
Age				
15–24	99.6	100.0		99.6
25–34	98.8	100.0		99.0
35–44	100.0	98.7		99.7
45 and above	99.1	100.0		99.4
Residence				
Rural	99.5	100.0		99.6
Urban	98.9	99.1		99.0
Level of education	*			*
None	89.6	100.0		93.7
Primary	99.4	100.0		99.5
Secondary or higher	99.4	99.0		99.3
Wealth quintile				
Lowest	99.6	100.0		99.7
Second	98.9	100.0		99.1
Middle	99.6	100.0		99.7
Fourth	99.5	100.0		99.7
Highest	99.1	99.0		99.1
Total (N)	**1,645**	**400**		**2,045**

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Table A.5.6.a: Perceived Self-Efficacy to Use Nets

Table A.5.6.a describes respondents perceived self-efficacy to use nets based on their response to a series of questions asking whether they feel they could or could not take certain actions. Results are presented by participants' characteristics and are disaggregated by transmission district.

Perceived Self-Efficacy to Use Nets				
Percent distribution of respondents with specific self-efficacy to use ITNs by transmission level, Zambia MBS 2024				
Percent of respondents that could do the following:	**High trans. districts (%)**	**Moderate trans. districts (%)**	**Sig.**	**Total (%)**
Sleep under a mosquito net for the entire night during rainy season (AGREE)	97.8	97.5		97.7
Sleep under a mosquito net for the entire night during the cold season (AGREE)	96.6	95.4		96.3
Sleep under a mosquito net for the entire night during the hot season (AGREE)	89.6	86.5	ǂ	89.0
Sleep under a mosquito net every night of the year (AGREE)	95.0	92.1	*	94.3
Percent of respondents with perceived self-efficacy to use ITNs (characteristic)	**98.2**	**96.9**	**ǂ**	**97.9**
Sex				
Female	97.9	96.8		97.7
Male	99.1	97.3		98.7
Age		ǂ		
15–24	98.4	95.4		97.8
25–34	97.7	99.1		98.0
35–44	98.2	98.8		98.4
45 and above	99.0	92.7		97.3
Residence				
Urban	98.3	97.3		98.1
Rural	97.8	96.1		97.3
Level of education				
None	93.9	100.0		96.3
Primary	98.6	96.7		98.2
Secondary or higher	97.9	97.2		97.7
Wealth quintile				
Lowest	98.3	93.1		97.7
Second	97.8	96.2		97.6
Middle	98.1	95.6		97.7
Fourth	99.2	99.1		99.2
Highest	97.6	97.1		97.4
Total (N)	**1,645**	**400**		**2,045**

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Table A.5.6.b: Perceived Self-Efficacy to Net Care

Table A.5.6.b describes respondents perceived self-efficacy to care for nets based on their response to a series of questions asking whether they feel they could or could not take certain actions. Results are presented by participants' characteristics and are disaggregated by transmission district.

Perceived Self-Efficacy to Nets Care				
Percent distribution of respondents with specific self-efficacy to care for ITNs by transmission level, Zambia MBS 2024				
Percent of respondents that could do the following:	**High trans. districts (%)**	**Moderate trans. districts (%)**	**Sig.**	**Total (%)**
You are confident you can fold or tie up the mosquito nets in your home every day after using them (AGREE)	94.6	91.8	ǂ	94.0
You are confident that you can prevent children from playing with mosquito nets (AGREE)	96.1	94.3		95.7
You are confident you can dry mosquito nets in the shade after washing (AGREE)	94.0	88.0	**	92.7
Percent of respondents with perceived self-efficacy to ITNs care (characteristic)	**98.2**	**95.8**	*	**97.7**
Sex		*		*
Female	98.4	97.1		98.1
Male	97.6	91.2		96.2
Age				
15–24	98.1	95.1		97.5
25–34	97.5	96.2		97.2
35–44	99.5	98.7		99.3
45 and above	97.9	92.2		96.3
Residence		*		*
Rural	98.2	97.9		98.1
Urban	98.3	92.3		96.5
Level of education	***	ǂ		ǂ
None	79.1	100.0		87.3
Primary	98.5	97.5		98.3
Secondary or higher	98.2	92.8		96.8
Wealth quintile				
Lowest	97.3	96.4		97.2
Second	98.4	94.3		97.8
Middle	98.7	98.4		98.6
Fourth	98.3	97.9		98.2
Highest	98.2	92.9		96.6
Total (N)	**1,645**	**400**		**2,045**

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Table A.5.7: Perceived Community Norms Regarding Nets

Table A.5.7 describes respondents' perceived community norms regarding nets. Perceived community norms were assessed based on participants' responses to a series of questions asking about the proportion of members in their community who use nets and/or approve of them (the respondent) using nets every night. Results are presented by participant characteristics and are disaggregated by study zone.

Perceived Community Norms Regarding Nets									
Percent of respondents with perceived norms regarding net use by transmission level, Zambia MBS 2024									
	High transmission districts			**Moderate transmission districts**			**Total**		
	Other people in this community take care of their mosquito nets	**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**	**Other people in this community take care of their mosquito nets**	**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**	**Other people in this community take care of their mosquito nets**	**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									ǂ
Female	76.1	82.3	92.8	79.2	85.4	92.9	76.8	83.0	92.8
Male	74.8	85.0	94.5	74.5	83.8	97.4	74.7	84.8	95.1
Age								ǂ	
15–24	76.0	79.9	91.0	80.3	83.1	94.8	76.9	80.6	91.8
25–34	77.2	83.1	94.0	77.0	83.6	94.0	77.1	83.2	94.0
35–44	75.3	85.2	94.2	74.4	88.2	89.6	75.1	85.9	93.2
45 and above	72.5	86.8	94.9	81.7	87.1	98.5	75.0	86.9	95.9
Residence	ǂ	***					*	***	
Rural	77.5	85.4	93.7	80.9	87.3	93.6	78.1	85.8	93.7
Urban	70.6	74.9	91.3	73.4	81.2	94.5	71.4	76.8	92.3
Level of education		ǂ							
None	72.6	65.1	100.0	100.0	100.0	100.0	83.3	78.8	100.0
Primary	76.0	84.2	93.9	77.6	84.9	92.7	76.3	84.4	93.7
Secondary or higher	74.0	79.7	90.4	77.6	83.1	95.4	74.9	80.6	91.7

Perceived Community Norms Regarding Nets									
Percent of respondents with perceived norms regarding net use by transmission level, Zambia MBS 2024									
	High transmission districts			**Moderate transmission districts**			**Total**		
	Other people in this community take care of their mosquito nets	**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**	**Other people in this community take care of their mosquito nets**	**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**	**Other people in this community take care of their mosquito nets**	**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**
Wealth quintile	***	**	*				***	**	
Lowest	80.1	85.4	93.1	86.9	87.1	91.1	81.0	85.6	92.8
Second	82.8	86.5	95.1	83.8	83.7	96.5	82.9	86.1	95.3
Middle	75.1	79.0	95.5	74.6	85.5	91.9	75.0	80.2	94.8
Fourth	78.5	87.3	91.6	78.2	90.0	96.0	78.4	88.1	92.9
Highest	61.7	76.2	90.1	74.8	80.1	92.9	65.8	77.4	91.0
Total (%)	**75.8**	**82.9**	**93.2**	**78.1**	**85.1**	**93.9**	**76.3**	**83.4**	**93.3**
Total (N)	**2,045**								

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Table A.5.8: Household Possession of Mosquito Nets

Table A.5.8 summarizes household possession of mosquito nets (treated or untreated). The data table specifies the percentage of households with at least one ITN in the household, and at least one ITN for every two persons who stayed in the household the previous night. Results are presented by residence, zone, and household wealth quintile.

Household Possession of Mosquito Nets		
Percentage of households with at least one mosquito net (treated or untreated) and ITN; and percentage of households with at least one net and ITN per two persons who stayed in the household last night, according to household characteristics, Zambia MBS 2024		
	Percentage of households with at least one ITN[1]	**Percentage of households with at least one ITN* for every two persons who stayed in the household last night**
Transmission districts		
High	92.5	57.0
Moderate	94.9	51.6
Residence		
Rural	93.3	57.0
Urban	92.2	52.0
Wealth quintile		*
Lowest	91.0	47.1
Second	93.4	58.2
Middle	94.3	60.8
Fourth	92.6	55.4
Highest	94.0	57.9
Total percent of households with insecticide treated nets	**93.0**	**55.8**
Total (N)	**1,325**	**1,325**
[1] An ITN is a factory-treated net that does not require any further treatment.		

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Table A.5.9: Access to an ITN

Table A.5.9 describes the percentage of de facto population in each zone with access to an ITN in the household. This percentage is interpreted as an indicator of access. Results are presented according to household characteristics and are disaggregated by study zone.

Access to an ITN			
Percentage of the de facto population with access to an ITN in the household, according to household characteristics, Zambia MBS 2024			
	High trans. districts (%)	**Moderate trans. districts (%)**	**Total (%)**
Residence	**	**	***
Rural	70.8	69.7	70.6
Urban	66.5	62.1	65.2
Wealth quintile	***		***
Lowest	63.4	61.4	63.2
Second	69.3	69.8	69.4
Middle	72.4	73.2	72.5
Fourth	72.8	65.3	70.6
Highest	72.2	66.2	70.3
Percentage of the de facto population with access to an ITN[1]	**69.9**	**67.2**	**69.3**
Total (N)	**5,716**	**1,369**	**7,085**
[1] Percentage of de facto household population who could sleep under an ITN if each ITN in the household were used by up to two people.			

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Table A.5.10: Use of Mosquito Nets by Persons in the Household

Table A.5.10 describes the percentage of de facto population in each zone who slept under an ITN in the household the night before the survey. Results are presented according to participant characteristics and are disaggregated by study zone.

Use of Mosquito Nets by Persons in the Household			
Percentage of the de facto household population who slept the night before the survey under an ITN the night before the survey, according to background characteristics, Zambia MBS 2024			
Percentage who slept under an ITN last night	**High trans. districts (%)**	**Moderate trans. Districts (%)**	**Total (%)**
Sex	*	**	**
Female	77.1	83.0	78.4
Male	74.3	76.5	74.8
Residence	**		**
Rural	77.8	81.9	78.6
Urban	67.9	75.7	70.3
Age groups	***	ǂ	***
0–4	81.5	86.4	82.6
5–14	72.6	78.3	73.8
15–24	70.3	72.9	70.9
25+	79.6	82.3	80.2
Wealth quintile	ǂ		*
Lowest	76.9	80.0	77.2
Second	72.8	74.2	73.0
Middle	80.2	81.4	80.4
Fourth	78.3	82.8	79.6
Highest	69.8	78.0	72.4
Number of ITNs in household	***		***
< 1 net per 2 people	63.6	71.3	65.4
≥ 1 net per 2 people	86.6	89.8	87.2
Percent of persons in the household who used an ITN the previous night	**75.8**	**79.8**	**76.6**
Total (N)	**5,716**	**1,369**	**7,085**

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Table A.5.11: ITN Use-to-Access Ratio

Table A.5.11 presents the ITN Use-to-Access Ratio in each zone, according to household characteristics. Results are disaggregated by study zone.

ITN Use-to-Access Ratio			
ITN Use-to-Access Ratio, according to background characteristics, Zambia MBS 2024			
ITN Use-to-Access Ratio[1]	**High transmission districts**	**Moderate transmission districts**	**Total**
Residence			
Rural	1.1	1.2	1.1
Urban	1.0	1.2	1.0
Wealth quintile			
Lowest	1.2	1.3	1.2
Second	1.0	1.0	1.0
Middle	1.1	1.1	1.1
Fourth	1.1	1.2	1.1
Highest	0.9	1.1	1.0
Total	**1.1**	**1.2**	**1.1**
[1] The ITN use access ratio is a metric that estimates the proportion of a population that uses an ITN among those who have access to one			

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Table A.5.12: Use of Existing Nets

Table A.5.12 illustrates the percentage of mosquito nets that were used the previous night, and those that were used every night in the week prior to the survey, according to household characteristics. Results are disaggregated by study zone.

Use of Existing Nets						
Percentage of nets used the previous night and every night, by background characteristics, Zambia MBS 2024						
	High transmission districts		**Moderate transmission districts**		**Total**	
	% of ITNs used the previous night	**% of ITNs used every night of the previous week**	**% of ITNs used the previous night**	**% of ITNs used every night of the previous week**	**% of ITNs used the previous night**	**% of ITNs used every night of the previous week**
Residence	***		*	**	***	
Rural	97.8	74.6	95.9	76.8	97.5	75.0
Urban	93.8	73.4	92.0	87.2	93.2	77.4
Wealth quintile	***	***		*	***	***
Lowest	97.4	73.2	96.6	69.6	97.3	72.8
Second	98.4	69.2	96.7	72.6	98.2	69.7
Middle	97.8	78.1	96.6	78.2	97.5	78.1
Fourth	97.7	80.3	95.0	86.3	97.0	81.9
Highest	93.6	70.7	91.6	82.0	93.0	74.1
Total (%)	**97.0**	**74.3**	**94.6**	**80.2**	**96.5**	**75.6**
Total (N)	**2,738**		**643**		**3,381**	

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Table A.5.13 Net Characteristics

Table A.5.13 presents the percentage of nets which specific characteristics, according to net characteristics. Results are disaggregated by study zone.

Net Characteristics			
Percentage of nets with specific characteristics, by transmission level Zambia MBS 2024			
	High transmission districts	**Moderate transmission districts**	**Total**
% of nets that are ITN[1]	98.6	97.4	98.3
% of ITNs obtained for free	100.0	100.0	100.0
Source of ITN			
Distribution campaign	91.7	87.7	90.9
Prenatal consultation (PNC)	4.9	4.4	4.8
Immunization	1.5	2.6	1.7
Other	1.9	5.3	2.6
% of ITNs ≥ 3 years old	2.4	3.6	2.7
Color of ITN			
White	97.6	95.0	97.1
Blue	0.7	0.7	0.7
Green	0.0	1.8	0.4
Other color	1.7	2.5	1.9
Total (N)	**2738**	**643**	**3,381**

[1] An ITN is a factory-treated net that does not require any further treatment.

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Table A.5.14: Net Care and Repurposing

Table A.5.14.a describes net care and repurposing practices, according to care and repurposing characteristics. Results are disaggregated by study zone.

ITN Care			
Care of ITNs, by transmission district, Zambia MBS, 2024			
	High transmission districts	**Moderate transmission districts**	**Total**
% ITNs ever washed	43.0	52.9	45.1
Product used to wash ITN	N = 1,169	N = 333	N = 1,502
Bar Soap	26.2	3.5	20.6
Detergent	63.3	67.2	64.2
Bleach	1.1	3.1	1.6
Nothing	4.4	14.0	6.8
Don't know	5.1	12.2	6.8
Where ITN was dried	N = 1,169	N = 333	N = 1,502
Out in the shade	62.2	51.4	59.5
Out in the sun	37.3	47.6	39.8
Other/Don't know	0.5	1.0	0.7
Location of ITN	N = 2,056	N = 531	N = 2,587
Hanging loose over sleeping place	47.2	24.5	42.0
Hanging and folded up and tied	47.3	70.29	52.5
Not hanging but not stored	4.2	4.069	4.2
Stored away unpacked	1.3	1.141	1.2
Stored away still in package	0.1	0.0	0.1
Total (N)	**2,738**	**643**	**3,381**

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Table A.5.14.b describes net care and repurposing practices, according to care and repurposing characteristics. Results are disaggregated by Urban/Rural residency.

Net Care and Repurposing				
	High transmission districts	**Moderate transmission districts**	**Sig.**	**Total**
% of respondents who repurposed nets that were no longer useful for sleeping under	20. 7	15.7		19.6
% of respondents engaging in any net care				
Roll up or tie when not in use	62.6	75.7	**	65.4
Handle nets with care	37.9	45.6	**	39.6
Wash gently	21.3	29.9	**	23.2
Specific repurposing actions				
Rope/tying things	42.4	68.9	**	47.0
Covering/protection seedlings/crops	16.9	14.7		16.5
Curtains/screens for windows/doors/eaves /ceiling	14.6	0 .0		12.1
Reasons for repurposing the nets		**		
Too many holes	50.0	68.6		53.3
Too dirty	1.5	1.5		1.5
Worn out	42.2	13.8		37.2
No one using it anymore	3.4	7.9		4.2
Needed it more for other uses than sleeping	1.3	4.8		1.9
Other	1.6	3.4		1.9
Total (N)	**325**	**64**		**389**

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Table A.5.15: Consistent Net Use

Table A.5.15 presents the percentage of respondents who used a net every night of the week preceding the survey, according to respondent characteristics.

Consistent Net Use the Previous Week				
Percent of respondents who used an ITN every night of the week preceding the survey, according to respondent characteristics, Zambia MBS 2024				
Characteristics	**High trans. districts (%)**	**Moderate trans. districts (%)**	**Sig.**	**Total (%)**
Sex	ǂ	ǂ		*
Female	84.3	86.0		84.6
Male	87.6	93.4		88.9
Age	*	ǂ		ǂ
15–24	81.0	84.5		81.7
25–34	87.0	90.5		87.7
35–44	88.4	89.9		88.8
≥45	84.6	85.3		84.8
Residence	*	*		**
Rural	87.2	90.3		87.8
Urban	78.1	83.0		79.6
Education	ǂ	ǂ		ǂ
Primary school not completed	80.1	100.0		87.9
Primary	84.8	86.3		85.1
≥ Secondary	84.3	88.7		85.4
Wealth quintile	ǂ	ǂ		ǂ
Lowest	89.0	83.9		88.4
Second	82.2	94.1		83.9
Middle	87.9	87.4		87.8
Fourth	84.7	89.0		86.0
Highest	80.9	85.1		82.2
Total (%)	**85.0**	**87.7**	**ǂ**	**85.6**
Total (N)	**1,645**	**400**		**2,045**

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Table A.5.16: Sleep Pattern and Outdoor Sleeping the Previous Night

Table A.5.16 presents the sleep patterns and outdoor sleeping behavior of respondents, according to respondent and household background characteristics.

Sleep Pattern and Outdoor Sleeping the Previous Night		
Respondent's sleep pattern and outdoor sleeping, according to background characteristics, Zambia MBS 2024		
	Time respondents went to sleep	**Time respondents woke up**
Transmission districts		
High	20:06	5:48
Moderate	20:00	5:36
Sex		
Female	20:06	5:48
Male	20:12	5:36
Age	*	
15–24	20:00	5:48
25–34	20:06	5:42
35–44	20:12	5:42
45 and above	20:12	5:48
Residence		
Rural	20:06	5:42
Urban	20:12	5:54
Wealth quintile	*	
Lowest	20:06	5:48
Second	19:48	5:42
Middle	20:06	5:42
Fourth	20:06	5:42
Highest	20:24	5:56
Total (N)	**2,028**	**2,031**

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Table A.5.17: Results of the Logistic Regression Exploring Factors Associated with Use of Mosquito Nets Every Night—Residents of Households with at Least One ITN

Results of the Logistic Regression Exploring Factors Associated with Use of ITN Every Night – Residents of Households with at Least One ITN		
Age in years	**	
15–24	86.2	1.0
25–34	92.8	1.81 [1.20–2.73]**
35–44	91.7	1.56 [0.99–2.45]
45 and above	87.3	0.93 [0.56–1.55]
Sex	*	
Female (reference)	88.9	1.0
Male	92.3	1.42 [0.92–2.20]
Level of education		
None (reference)	90.7	
Primary completed	89.4	
Secondary or higher	88.9	
Household wealth quintile	*	
Lowest (reference)	92.4	1.0
Second	89.0	0.71 [0.41–1.23]
Middle	93.0	1.19 [0.66–2.13]
Fourth	90.3	0.87 [0.50–1.51]
Highest	84.2	0.62 [0.36–1.09]
Transmission districts		
High (reference)	89.6	
Moderate	90.1	
Residence	***	
Rural (reference)	91.6	1.0
Urban	84.1	0.59 [0.41–0.86] **
Perceived barriers to net use	*	
No (reference)	87.9	1.0
Yes	90.0	1.14 [0.73–1.81]
Positive attributes of nets	**	
No (reference)	65.0	1.0
Yes	89.9	2.90 [1.00–8.42]
Perceived severity of malaria	ǂ	
No (reference)	97.9	1.0
Yes	89.5	0.15 [0.02–1.07]
Perceived susceptibility to malaria		
No (reference)	88.0	
Yes	89.8	
Talked about malaria with spouse		
No (reference)	92.0	
Yes	92.3	
Talked about malaria with friends/family members		
No (reference)	88.6	
Yes	91.0	
Knowledge of malaria prevention using mosquito nets		
No (reference)	87.1	
Yes	89.8	
Perceived mosquito net effectiveness §	*	
No (reference)	57.3	1.0

Results of the Logistic Regression Exploring Factors Associated with Use of ITN Every Night – Residents of Households with at Least One ITN		
Yes	89.8	N/A
Perceived self-efficacy for mosquito net use §	***	
No (reference)	41.4	
Yes	90.4	NA
Use of mosquito nets perceived as the norm in the community	ǂ	
No (reference)	86.8	1.00
Yes	90.2	1.16 [0.77–1.75]
Favorable attitudes towards ITN care and repair	*	
No (reference)	74.3	1.00
Yes	89.9	2.07 [0.72–5.98]
Perceived self-efficacy for ITN care and repair		
No (reference)	81.0	
Yes	89.8	
Taking care of mosquito nets perceived as the norm in the community		
No (reference)	88.6	
Yes	90.0	
Heard malaria messages from the media		
No (reference)	92.1	
Yes	91.3	
Heard malaria messages from health facility	ǂ	
No (reference)	88.8	1.00
Yes	93.3	1.69 [1.06–2.68]*
Heard malaria messages from CHW		
No (reference)	89.6	
Yes	90.6	
Heard malaria messages through SMS/Chat/Email		
No (reference)	89.6	
Yes	91.1	
Heard malaria messages from CHW		
No (reference)	89.6	
Yes	90.5	
Household size	5.7 (se = 0.0598)	
Number of ITN	2.8 (se = 0.0347)	
Pseudo-R2		0.0557
Number of observations		1,890

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Table A.5.18: Results of the logistic regression exploring factors associated with reported care of ITNs by tying or folding it up when not in use—residents of households with at least one ITN

Results of the logistic regression exploring factors associated with reported care of ITNs by tying or folding it up when not in use—residents of households with at least one ITN		
Characteristic	**% Net care (Roll up or tie up when not in use**	**Adjusted Odds Ratio (95% Confidence Interval)**
Age in years	ǂ	
15–24 (reference)	63.6	1.0
25–34	69.8	1.32 [1.00–1.74]
35–44	69.9	1.26 [0.90–1.76]
45 and above	61.5	0.87 [0.62–1.23]
Sex		
Female (reference)	66.3	
Male	68.2	
Level of education		
None (reference)	75.0	
Primary completed	66.4	
Secondary or higher	68.3	
Household wealth quintile		
Lowest (reference)	66.9	
Second	64.2	
Middle	65.4	
Fourth	71.7	
Highest	65.2	
Transmission districts	***	
High (reference)	64.1	1.0
Moderate	76.0	1.89 [1.37–2.61] ***
Residence		
Rural (reference)	68.4	
Urban	62.1	
Favorable attitudes toward mosquito net use	*	
No (reference)	59.4	1.0
Yes	68.1	1.48 [1.08–2.03] *
Perceived severity of malaria		
No (reference)	58.0	
Yes	66.9	
Perceived susceptibility to malaria		
No (reference)	61.1	
Yes	67.1	
Talked about malaria with spouse		
No (reference)	69.0	
Yes	68.0	
Talked about malaria with friends/family members		
No (reference)	66.0	
Yes	67.7	
Knowledge of malaria prevention using mosquito nets		
No (reference)	62.8	
Yes	67.0	
Perceived mosquito net effectiveness	ǂ	

Results of the logistic regression exploring factors associated with reported care of ITNs by tying or folding it up when not in use—residents of households with at least one ITN		
Characteristic	**% Net care (Roll up or tie up when not in use**	**Adjusted Odds Ratio (95% Confidence Interval)**
No (reference)	29.8	1.0
Yes	66.9	3.06 [0.55–17.11]
Perceived self-efficacy for mosquito net use		
No (reference)	58.5	
Yes	66.9	
Use of mosquito nets perceived as the norm in the community	‡	
No (reference)	61.7	1.0
Yes	67.7	1.21 [0.909–1.62]
Favorable attitudes towards ITN care and repair		
No (reference)	57.7	
Yes	66.9	
Perceived self-efficacy for ITN care and repair	‡	
No (reference)	51.3	1.0
Yes	67.1	2.01 [1.00–4.03]
Taking care of mosquito nets perceived as the norm in the community		
No (reference)	67.2	
Yes	66.6	
Heard malaria messages from the media		
No (reference)	69.6	
Yes	71.4	
Heard malaria messages from health facility	*	
No (reference)	65.3	1.00
Yes	72.4	1.37 [1.04–1.81]*
Heard malaria messages from CHW	‡	
No (reference)	66.0	1.00
Yes	74.1	1.27 [0.85–1.88]
Heard malaria messages through SMS/Chat/Email	*	
No (reference)	66.0	1.00
Yes	78.2	1.79 [1.13–2.83]*
Household size	5.82	
Number of ITN	2.82	
Pseudo-R2		0.0540
Number of observations		1,890

Notes: ‡ p < 0.1 * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

A.6 Indoor Residual Spraying

This subsection of the Annex provides all data tables related to IRS. The section includes data related to respondent knowledge and awareness of IRS; attitudes toward IRS; perceived response efficacy and perceived self-efficacy of IRS; respondents' willingness to accept IRS in their community; and IRS coverage. The following tables may have been duplicated or referenced in the main body of the report.

Table A.6.1: Summary of Ideational Variables Related to IRS

Summary of Ideational Variables Related to IRS						
Characteristic	**Percent of respondents who report ideational determinants, by respondent sociodemographic characteristics, Zambia MBS 2024**					
	Awareness of the IRS program	**Favorable attitudes towards IRS**	**Perceived IRS as effective- Believes that IRS is effective way to prevent malaria**	**Perceived IRS as effective- Believes people who lived in sprayed houses are less likely to get malaria**	**Perceived self-efficacy of IRS- Self-efficacy to move furniture in preparation for spraying**	**Perceived self-efficacy of IRS- Self-efficacy to sleep in house the night it is sprayed**
Transmission districts	***					
High	89.2	90.0	85.4	80.4	74.0	92.9
Moderate	96.7	87.0	81.5	83.4	75.1	89.3
Sex	ǂ			ǂ		
Female	90.2	89.1	84.0	82.5	74.9	91.3
Male	93.2	87.6	83.2	78.6	72.9	91.8
Age	***			*		
15–24	85.2	91.6	84.8	85.3	74.9	90.2
25–34	93.5	87.2	80.6	76.7	73.0	91.2
35–44	94.3	89.5	85.5	86.2	75.7	93.3
45 and above	93.0	84.2	85.2	75.7	74.5	91.3
Residence		***		*		
Urban	91.5	90.5	83.8	83.8	73.4	92.7
Rural	89.0	85.3	83.8	77.4	76.6	88.9
Level of education						
None	89.8	81.0	72.2	67.3	67.6	100
Primary	91.1	89.9	82.8	81.0	72.9	91.2
Secondary or higher	92.0	86.4	85.0	81.9	76.7	90.4
Wealth quintile		ǂ			**	
Lowest	88.7	85.4	85.2	83.2	72.3	91.1
Second	93.3	89.0	85.7	80.0	68.1	93.2
Middle	89.2	93.8	88.3	86.0	88.5	94.7
Fourth	90.6	90.6	79.5	76.3	71.8	90.8
Highest	92.2	85.2	81.7	83.4	72.3	88.2
Total (%)	**90.8**	**88.7**	**83.8**	**81.6**	**74.5**	**91.4**
Total (N)	**2,045**	**1862**	**1,862**	**1,862**	**1,862**	**1,862**

Notes: ǂ p < 0.1 * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Table A.6.2: Awareness of the Indoor Residual Spraying Program

Table A.6.2 presents the distribution of awareness of IRS programs by study zone. Data is disaggregated by respondent sex, age group, level of education, household residence type, household wealth quintile, and whether or not the respondent lives in an IRS zone.

Knowledge of the IRS program				
Percent of respondents with awareness of the IRS program by transmission level, Zambia MBS 2024				
Percent of respondents who know about the IRS program	**High trans. Districts (%)**	**Moderate trans. districts (%)**	**Sig.**	**Total (%)**
Sex	*			ǂ
Female	88.3	96.9		90.1
Male	92.4	96.0		93.2
Age	***	*		***
15–24	83.5	91.5		85.2
25–34	91.9	100.0		93.5
35–44	93.0	98.9		94.3
45 and above	91.1	97.9		93.0
Residence		*		
Rural	89.8	98.6		91.5
Rural	87.2	93.4		89.0
Level of education				
None	83.3	100.0		89.8
Primary	89.7	96.4		91.1
Secondary or higher	90.5	96.6		92.0
Wealth quintile				
Lowest	87.4	98.0		88.7
Second	92.5	97.9		93.3
Middle	87.5	96.9		89.2
Fourth	88.4	95.8		90.6
Highest	90.2	96.4		92.2
IRS zone				
No	88.8	3.3		88.7
Yes	89.8	96.7		92.5
Total %	**89.2**	**96.7**	***	**90.8**
Total (N)	**1,645**	**400**		**2,045**

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Table A.6.3: Favorable Attitudes Toward Indoor Residual Spraying

Table A.6.3 presents the distribution of favorable attitudes toward IRS. Attitude favorability is calculated based on a participant's agreement or disagreement to several statements related to IRS.

Attitudes Toward Indoor Residual Spraying				
Percent distribution of respondents with favorable attitudes toward IRS by transmission level, Zambia MBS 2024				
Percent of respondents that agree or disagree with the following:	**High trans. districts (%)**	**Moderate trans. districts (%)**	**Sig.**	**Total (%)**
Many people develop skin problems (rashes, itching) after the walls inside their houses are sprayed with insecticide (DISAGREE)	79.0	65.9	***	76.1
After spraying the interior walls of a household with insecticide, a person can touch the walls safely once the spray has dried (AGREE)	81.2	76.2	ǂ	80.1
People have problems with bugs/bed bugs after the walls are sprayed (DISAGREE)	89.0	89.4		89.1
The benefits of having my house sprayed is worth the effort needed to move my belongings out so it can be sprayed (AGREE)	75.1	70.5		74.1
It's bothers me to leave my possessions outside of my house while my walls are being sprayed (DISAGREE)	80.8	83.2		81.3
Spraying the inside walls of a house to kill mosquitoes does not cause any health problems for the people living in the house (AGREE)	80.2	76.1		79.3
There is no need to sleep under a mosquito net once your house has been sprayed (DISAGREE)	80.2	76.1	ǂ	79.3
Percent of respondents with positive attitudes towards IRS	**91.5**	**87.0**	**ǂ**	**90.4**
Sex				
Female	91.4	87.1		90.4
Male	91.6	86.8		90.6
Age				
15–24	93.1	90.0		92.4
25–34	92.3	84.2		90.6
35–44	88.4	90.3		88.8
45 and above	90.7	81.7		88.1
Residence		**		ǂ
Rural	91.4	91.9		91.5
Urban	91.6	78.0		87.4
Level of education				
None	87.5	82.3		85.3
Primary	91.1	87.6		90.3
Secondary or higher	91.7	86.5		90.3
Wealth quintile	*			ǂ
Lowest	86.3	86.5		86.3
Second	90.8	93.7		91.2
Middle	95.8	88.3		94.3
Fourth	93.3	84.5		90.5
Highest	90.9	86.0		89.3
IRS zone				*
No	92.5	13.0		92.5
Yes	90.0	87.0		88.8

Attitudes Toward Indoor Residual Spraying				
Percent distribution of respondents with favorable attitudes toward IRS by transmission level, Zambia MBS 2024				
Percent of respondents that agree or disagree with the following:	**High trans. districts (%)**	**Moderate trans. districts (%)**	**Sig.**	**Total (%)**
Total (N)	**1,474**	**388**		**1,862**

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Table A.6.4: Perceived Response Efficacy of Indoor Residual Spraying

Table A.6.4.a presents the distribution of perceived response-efficacy of IRS as measured by agreement with the statement that spraying the inside walls of a house is an effective way to prevent malaria.

Perceived Response Efficacy of IRS				
Percent distribution of respondents with perceived response efficacy of IRS by transmission level, Zambia MBS 2024				
Percent of respondents that agree with the following:	**High trans. districts (%)**	**Moderate trans. districts (%)**	**Sig.**	**Total (%)**
Spraying the inside walls of a house is an effective way to prevent malaria (AGREE)	86.1	81.5	ǂ	85.0
Sex				
Female	85.9	81.0		84.7
Male	86.8	83.0		86.0
Age				
15–24	86.9	84.6		86.4
25–34	84.7	77.9		83.3
35–44	85.3	85.7		85.4
45 and above	89.3	75.8		85.4
Residence				
Rural	85.3	81.0		84.4
Urban	88.7	82.3		86.7
Level of education				
None	68.0	82.3		74.2
Primary	85.4	77.2		83.6
Secondary or higher	86.6	88.2		87.0
Wealth quintile				
Lowest	83.9	89.1		84.7
Second	87.3	84.8		86.9
Middle	89.8	83.6		88.6
Fourth	84.5	72.8		80.9
Highest	84.4	84.3		84.4
IRS zone				
No	86.5	0.0		86.5
Yes	85.5	100.0		83.8
Total (N)	**1,474**	**388**		**1,862**

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Table A.6.4.b presents the distribution of perceived response-efficacy of IRS, as measured by agreement with the statement that people who live in houses that have been sprayed are less likely to get malaria.

Perceived Response Efficacy of IRS				
Percent distribution of respondents with perceived response efficacy of IRS by transmission level, Zambia MBS 2024				
Percent of respondents that agree with the following:	**High trans. districts (%)**	**Moderate trans. districts (%)**	**Sig.**	**Total (%)**
People who live in houses that have been sprayed are less likely to get malaria (AGREE)	76.5	75.1		76.2
Sex				
Female	77.0	74.7		76.4
Male	75.0	76.7		75.3
Age				
15–24	78.0	79.6		78.3
25–34	76.2	73.5		75.6
35–44	74.4	75.0		74.5
45 and above	78.0	69.8		75.6
Residence	ǂ			
Rural	75.4	74.1		75.1
Urban	80.4	76.9		79.3
Level of education				
None	75.3	74.2		74.8
Primary	74.8	72.8		74.4
Secondary or higher	79.5	76.8		78.8
Wealth quintile	*			**
Lowest	72.7	84.33		74.4
Second	75.5	70.12		74.7
Middle	84.3	88.22		85.1
Fourth	72.5	72.42		72.5
Highest	77.0	69.33		74.5
IRS zone				
No	78.35	0.0		78.4
Yes	74.01	100.0		74.5
Total (N)	**1,474**	**388**		**1,862**

Notes: ǂ $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; n/a: not applicable

Table A.6.5.a: Perceived Self-Efficacy Regarding Indoor Residual Spraying

Table A.6.5.a presents the distribution of perceived self-efficacy regarding IRS. Perceived self-efficacy is calculated based on a participant's report that they could or could not do several actions related to IRS.

Perceived Self-Efficacy Regarding IRS				
Percent of respondents with perceived self-efficacy of IRS by Transmission District Zambia MBS 2024				
Percent of respondents that can do the following:	**High trans. districts (%)**	**Moderate trans. districts (%)**	**Sig.**	**Total (%)**
Move all my furniture out of my house to prepare the house for spraying	82.5	83.4		82.7
Sex				
Female	82.6	83.6		82.8
Male	82.0	82.9		82.2
Age				ǂ
15–24	85.4	89.1		86.2
25–34	80.6	78.4		80.1
35–44	80.8	89.0		82.7
45 and above	83.4	73.2		80.4
Residence		ǂ		*
Rural	83.5	87.2		84.2
Urban	79.1	76.5		78.3
Level of education				
None	69.0	72.4		70.5
Primary	82.4	82.5		82.5
Secondary or higher	81.2	83.0		81.7
Wealth quintile		*		
Lowest	81.2	89.5		82.4
Second	79.7	91.9		81.6
Middle	84.5	86.9		84.9
Fourth	83.7	72.0		80.0
Highest	83.4	86.5		84.4
IRS zone				
No	84.0	16.6		84.0
Yes	80.4	83.4		81.6
Total (N)	**1,474**	**388**		**1,862**

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Table A.6.5.b: Perceived Self-Efficacy Regarding Indoor Residual Spraying

Table A.6.5.b presents the distribution of perceived self-efficacy regarding IRS. Perceived self-efficacy is calculated based on a participant's report that they could or could not do several actions related to IRS.

Perceived Self-Efficacy Regarding IRS				
Percent of respondents with perceived self-efficacy of IRS by Transmission District Zambia MBS 2024				
Percent of respondents that can do the following:	**High trans. districts (%)**	**Moderate trans. districts (%)**	**Sig.**	**Total (%)**
Sleep in my house on the night it is sprayed.	92.1	89.3		91.4
Sex				
Female	91.7	88.6		91.0
Male	93.2	91.9		92.9
Age				
15–24	91.7	89.2		91.1
25–34	92.4	85.8		91.0
35–44	91.0	94.0		91.7
45 and above	94.2	89.1		92.7
Residence				
Rural	91.9	92.4		92.0
Urban	92.6	83.7		89.8
Level of education				
None	92.7	100.0		95.9
Primary	92.1	89.8		91.6
Secondary or higher	91.8	86.0		90.2
Wealth quintile				
Lowest	89.4	93.5		90.0
Second	91.9	96.2		92.6
Middle	92.6	94.1		92.9
Fourth	92.6	86.6		90.8
Highest	93.7	84.8		90.8
IRS zone				
No	91.4	10.7		91.4
Yes	92.9	89.3		91.4
Total (N)	**1,474**	**388**		**1,862**

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Table A.6.6: Willingness to Accept Indoor Residual Spraying

Table A.6.6 summarizes individuals' willingness to accept IRS in their home. Data are presented in each zone and disaggregated by prior IRS knowledge, respondent sex, residence type, age group, level of education, household wealth quintile, and whether their household is within an IRS zone.

Willingness to Accept IRS			
Percent distribution of individuals willing to accept IRS by Transmission District Zambia MBS 2024			
Willingness to accept IRS	**High trans. districts (%)**	**Moderate trans. districts (%)**	**Total (%)**
Sex			
Female	89.1	91.1	89.5
Male	86.4	91.6	87.5
Age			
15–24	89.2	93.3	90.0
25–34	87.3	89.4	87.7
35–44	90.1	95.3	91.3
45 and above	86.7	83.8	85.9
Residence		***	ǂ
Rural	88.9	96.4	90.3
Urban	87.4	82.2	85.8
Level of education			
None	72.0	100	82.9
Primary	89.3	89.9	89.4
Secondary or higher	88.0	92.5	89.1
Wealth quintile			
Lowest	87.2	95.6	88.3
Second	89.8	92.0	90.1
Middle	91.5	97.2	92.5
Fourth	86.6	88.8	87.3
Highest	87.1	88.2	87.4
IRS zone			
No	88.7	0.0	88.7
Yes	88.3	91.2	89.4
Prior knowledge of the IRS program	***	*	***
No	64.9	73.9	65.6
Yes	91.4	91.8	91.5
Total (%)	**88.5**	**91.2**	**89.1**
Total (N)	**1,645**	**400**	**2,045**

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Table A.6.7: Indoor Residual Spraying Coverage

Table A.6.7 summarizes household IRS coverage in each study zone. Data are disaggregated by household residence type and household wealth quintile.

IRS Coverage: Proportion of households that were sprayed by various actors			
Percent of households with IRS coverage by transmission level, Zambia MBS 2024			
	High trans. districts (%)	**Moderate trans. districts (%)**	**Total (%)**
Residence	*	***	***
Rural	43.4	82.2	50.5
Urban	33.6	32.8	33.4
Wealth quintile		**	ǂ
Lowest	42.1	84.2	47.6
Second	46.6	84.1	51.7
Middle	34.6	62.6	39.9
Fourth	43.7	65.2	50.1
Highest	39.7	49.4	42.9
Total (%)	**41.4**	**64.9**	**46.5**
Total (N)	**1,066**	**259**	**1,325**

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

A.7 Media Consumption and Message Exposure

This subsection of the Annex provides all data tables related to media consumption and exposure to malaria messages. The following tables may have been duplicated or referenced in the main body of the report.

Table A.7.1: Radio Listenership at Least Once a Week

Table A.7.1 describes the distribution of radio listenership. It includes data from all respondents as well as respondents in households that own a radio.

Radio Listenership at Least Once a Week						
Percent distribution of radio listenership at least once a week among all respondents and respondents in households with a radio by transmission level, Zambia MBS 2024						
	High transmission districts		**Moderate transmission districts**		**Total**	
	All respondents	**Respondents in households with a radio**	**All respondents**	**Respondents in households with a radio**	**All respondents**	**Respondents in households with a radio**
Sex	***	*	**		***	**
Female	41.9	74.1	58.7	78.2	45.5	75.2
Male	53.1	80.9	76.3	87.8	58.1	82.4
Age		ǂ	*		***	*
15–24	39.4	69.0	50.1	73.4	41.6	69.9
25–34	45.8	77.8	65.3	73.8	49.7	76.9
35–44	47.3	79.7	66.8	90.0	51.6	82.3
45 and above	49.1	79.6	76.6	85.7	56.7	81.8
Residence	***	*		*	***	
Rural	36.7	72.4	60.0	90.1	41.0	76.0
Urban	69.0	82.0	67.0	70.0	68.4	78.3
Level of education	**				**	
None	30.0	43.7	56.5	100.0	40.4	67.3
Primary	42.2	76.5	60.7	87.9	45.9	79.0
Secondary or higher	55.6	79.8	67.9	71.3	58.8	77.2
Wealth quintile	***	*	*		***	ǂ
Lowest	17.7	57.7	37.9	0.0	20.3	57.7
Second	29.8	59	46.2	90.0	32.2	63.3
Middle	50.0	78.3	65.9	86.3	52.8	78.8
Fourth	56.6	77.4	69.6	87.9	60.4	80.6
Highest	69.4	78.8	69.3	73.8	69.4	77.3
Total (%)	**44.4**	**75.8**	**62.5**	**80.3**	**48.3**	**76.9**
Total (N)	**1,645**	**638**	**400**	**175**	**2,045**	**813**

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Table A.7.2: Preferred Time to Listen to Radio

Table A.7.2 summarizes respondents' preferred time to listen to the radio. It includes data by study zone, respondent sex, respondent age, respondent level of education, and household wealth quintile. The data presented in this table is disaggregated by certain times at which one can listen to the radio, among respondents in households with radio.

Preferred Time to Listen to Radio					
Preferred time to listen to radio, among respondents in households with radio, Zambia MBS 2024					
	Early in the morning	**End of morning**	**Afternoon**	**Early in the evening**	**End of evening**
Transmission districts*					
High	8.0	8.6	13.9	47.5	22.0
Moderate	13.5	15.7	9.3	46.6	14.9
Sex‡					
Female	8.0	11.2	11.3	47.4	20.2
Male	8.6	8.4	16.5	46.9	19.6
Age*					
15–24	6.4	9.2	9.4	49.8	24.9
25–34	12.4	11.2	9.2	45.6	21.6
35–44	8.4	13.0	16.7	46.1	15.8
45 and above	10.7	7.1	20.2	47.8	14.3
Residence***					
Rural	5.9	8.7	15.4	53.7	16.3
Urban	15.4	13.4	8.1	36.5	26.4
Level of education*					
None	0	10.4	10.4	38.9	40.3
Primary	6.7	11.1	13.4	51.3	17.4
Secondary or higher	14.4	9.6	11.6	39.2	25.2
Wealth quintile ‡					
Lowest	4.2	4.4	14.3	59.2	17.9
Second	8.5	7.3	8.9	55.6	19.7
Middle	9.0	6.5	11.7	53.0	19.3
Fourth	5.8	13.9	13.1	47.8	19.4
Highest	14.7	13.4	14.1	36.0	21.9
Total (%)	**9.5**	**10.5**	**12.6**	**47.2**	**20.2**
Total (N)	**101**	**112**	**135**	**505**	**215**

Notes: ‡ $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; n/a: not applicable

Table A.7.3: Television Viewership at Least Once a Week

Table A.7.3 describes the distribution of television listenership. It includes data from all respondents as well as respondents in households that own a television.

Television Viewership at Least Once a Week						
Percent distribution of television viewership at least once a week among all respondents and respondents in households with a television by transmission level, Zambia MBS 2024						
	High transmission districts		**Moderate transmission districts**		**Total**	
	All respondents	**Respondents in households with television**	**All respondents**	**Respondents in households with television**	**All respondents**	**Respondents in households with television**
Sex						
Female	22.4	100	34.0	100	24.9	100.0
Male	20.5	94.4	42.5	100	25.2	95.8
Age						
15–24	23.6	100	33.0	100	25.6	100
25–34	19.7	100	33.1	100	22.4	100
35–44	22.0	95.5	39.1	100	25.8	96.7
45 and above	23.6	100	42.2	100	28.8	100
Residence	***		**		***	
Rural	13.7	95.2	20.5	100	15.0	96.1
Urban	48.3	100	62.7	100	52.6	100.0
Level of education	***		***		***	
None	12.4	0.0	15.9	0	13.7	0
Primary	17.3	94.2	27.9	100	19.4	96.3
Secondary or higher	38.4	100	55.7	100	42.8	100.0
Wealth quintile	***		***		***	
Lowest	3.0	0	4.6	0	3.3	0
Second	4.0	0	8.0	0	4.6	0
Middle	12.7	100.0	14.1	0	13.0	100
Fourth	24.2	100.0	31.2	100	26.3	100
Highest	69.4	98.0	74.5	100	71.0	98.6
Total (%)	**22.0**	**98.4**	**35.9**	**100**	**25.0**	**98.8**
Total (N)	**1,645**	**76**	**400**	**26**	**2,045**	**102**

Notes: ǂ p < 0.1 * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable; zeros in the table reflect the fact that respondents from these sub-groups do not own a television.

Table A.7.4: Preferred Time to Watch Television

Table A.7.4 summarizes respondents' preferred time to watch television. It includes data by study zone, respondent sex, respondent age, respondent level of education, and household wealth quintile. The data presented in this table is disaggregated by certain times at which one can watch television, among respondents in households with television.

Preferred Time to Watch Television					
Preferred time to watch television, Zambia MBS 2024					
	Early in the morning	**End of morning**	**Afternoon**	**Early in the evening**	**End of evening**
Transmission districts‡					
High	1.7	6.3	8.6	49.5	33.6
Moderate	1.3	11.7	14.5	49.2	23.3
Sex‡					
Female	1.7	9.5	10.5	49.1	29.2
Male	1.4	2.8	10.1	50.6	34.1
Age‡					
15–24	1.3	10.4	13.2	51.0	24.1
25–34	4.1	9.0	12.1	43.3	31.6
35–44	0	7.4	5.5	51.1	36.1
45 and above	0	1.6	9.1	55.2	32.5
Residence‡					
Rural	0	6.1	8.9	55.6	28.9
Urban	2.9	9.6	11.7	44.3	31.5
Level of education‡					
None	0	0	0	80.8	19.2
Primary	0.8	8.4	10.5	50.0	29.9
Secondary or higher	2.6	7.7	10.7	48.8	30.3
Wealth quintile‡					
Lowest	0	0	30.9	54.1	15.0
Second	0	18.7	12.9	50.4	18.0
Middle	1.9	8.8	12.2	32.2	44.9
Fourth	0.9	6.9	14.2	46.7	30.4
Highest	2.0	7.9	7.5	53.6	29.0
Total (%)	**1.6**	**8.0**	**10.4**	**49.4**	**30.4**
Total (N)	**9**	**45**	**58**	**275**	**170**

Notes: ǂ p < 0.1 * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Table A.7.5: Mobile Phone or Tablet Ownership

Table A.7.5 describes the distribution of ownership of mobile phones or tablets by respondent sociodemographic characteristics, including participant sex, age group, residence, level of education, and household wealth quintile.

Mobile phone or tablet ownership				
Percent distribution of mobile phone or tablet ownership among all respondents by transmission level, Zambia MBS 2024				
	High trans. districts (%)	**Moderate trans. districts (%)**	**Sig.**	**Total (%)**
Sex				
Female	75.0	85.4		77.2
Male	76.3	83.1		77.7
Age				
15–24	73.4	84.2		75.6
25–34	77.6	80.9		78.3
35–44	74.8	85.3		77.1
45 and above	75.1	93.1		80.1
Residence	***			***
Rural	70.4	82.1		72.6
Urban	90.9	89.6		90.5
Level of education	***	**		***
None	52.3	83.3		64.4
Primary	72.4	81.3		74.2
Secondary or higher	88.7	95.2		90.3
Wealth quintile	***	***		
Lowest	35.8	59.4		38.8
Second	65.4	56.6		64.1
Middle	84.7	81.9		84.2
Fourth	93.3	96.3		94.2
Highest	93.3	96.2		97.8
Total (%)	**75.3**	**84.9**	*	**77.3**
Total (N)	**1,645**	**400**		**2,045**

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Table A.7.6: Exposure to Malaria Messages

Table A.7.6.a describes the percentage of respondents who have been exposed to malaria messages, specifically through recall of malaria message. This data presents exposure rates by participant sociodemographic characteristics, including participant sex, age group, residence, level of education, and household wealth quintile. It is disaggregated by study zone.

Recall of malaria messages				
Percentage of respondents who recalled malaria message, by background characteristics, Zambia MBS 2024				
	High trans. districts (%)	**Moderate trans. districts (%)**	**Sig.**	**Total (%)**
Recognition of malaria logo (among those exposed to any malaria messages)	33.2	42.6	ǂ	35.5
Successful completion of campaign slogan (among those exposed to any malaria messages)	13.6	27.6	***	17.0
Percentage of respondents exposed to specific malaria messages (characteristics)	**47.0**	**53.8**		**48.4**
Sex	ǂ	ǂ		ǂ
Female	45.7	52.6		47.2
Male	51.2	58.1		52.7
Age	*	*		**
15–24	41.0	42.0		41.2
25–34	50.4	63.0		52.9
35–44	49.3	59.2		51.5
45 and above	50.3	52.7		51.0
Residence	***	*		***
Rural	42.9	46.7		43.6
Urban	59.9	66.2		61.8
Level of education	***	***		***
None	19.1	27.6		22.4
Primary	41.5	44.7		42.1
Secondary or higher	66.6	77.0		69.3
Wealth quintile	***	*		***
Lowest	35.0	48.5		36.7
Second	37.5	36.1		37.3
Middle	49.7	47.5		49.3
Fourth	49.7	50.2		49.9
Highest	49.7	69.9		65.8
Total (N)	**1,645**	**400**		**2,045**

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Table A.7.6.b describes the percentage of respondents who have been exposed to malaria messages, specifically through recognizing the Malaria Ends with Me logo. This data presents exposure rates by participant sociodemographic characteristics, including participant sex, age group, residence, level of education, and household wealth quintile. It is disaggregated by study zone.

Recognition of Malaria logo				
Percentage of respondents who recognized the "Malaria Ends we Me Logo", by background characteristics, Zambia MBS 2024				
	High trans. districts (%)	**Moderate trans. districts (%)**	**Sig.**	**Total (%)**
Sex	*	*		**
Female	21.8	28.2		23.2
Male	27.8	37.7		30.0
Age		*		ǂ
15–24	20.5	23.8		21.2
25–34	24.5	38.8		27.4
35–44	25.3	29.6		26.3
45 and above	22.5	28.5		24.2
Residence	*			**
Rural	20.7	25.9		21.7
Urban	30.7	37.9		32.8
Level of education	***	**		***
None	10.1	27.7		17.0
Primary	17.5	21.7		18.3
Secondary or higher	41.6	50.1		43.8
Wealth quintile	***	ǂ		***
Lowest	13.6	25.7		15.1
Second	19.3	26.5		20.4
Middle	21.3	22.8		21.5
Fourth	22.7	22.4		22.6
Highest	39.7	44.9		41.3
Total (%)	**23.1**	**30.3**	**ǂ**	**24.7**
Total (N)	**1,645**	**400**		**2,045**

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable

Table A.7.6.c describes the percentage of respondents who have been exposed to malaria messages, specifically through successfully completing the recent campaign slogan. This data presents exposure rates by participant sociodemographic characteristics, including participant sex, age group, residence, level of education, and household wealth quintile.

Successful completion of a campaign slogan				
Percentage of respondents successfully completed the recent campaign slogan, by background characteristics, Zambia MBS 2024				
	High trans. districts (%)	**Moderate trans. districts (%)**	**Sig.**	**Total (%)**
Sex	*			ǂ
Female	8.0	18.2		10.2
Male	12.2	17.3		13.3
Age				*
15–24	6.6	13.6		8.1
25–34	10.9	23.6		13.4
35–44	8.7	17.1		10.6
45 and above	10.3	18.2		12.4
Residence	**			**
Rural	7.6	15.0		9.0
Urban	13.0	23.4		16.1
Level of education	***	**		***
None	0.0	13.0		5.1
Primary	5.5	10.9		6.6
Secondary or higher	18.8	33.4		22.6
Wealth quintile	***	*		***
Lowest	3.9	19.0		5.8
Second	7.7	9.3		7.9
Middle	6.9	7.2		6.9
Fourth	8.2	18.3		11.2
Highest	18.5	27.0		21.1
Total (%)	**8.9**	**18.0**	***	**10.9**
Total (N)	**1,645**	**400**		**2,045**

Notes: ǂ p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001; n/a: not applicable