

NIGERIA



**Malaria Indicator
Survey (MIS)**

2021



The Federal Republic of Nigeria

Nigeria Malaria Indicator Survey 2021

Final Report

**National Malaria Elimination Programme
Abuja, Nigeria**

**National Population Commission
Abuja, Nigeria**

**The DHS Program
ICF
Rockville, Maryland, USA**

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PMI | U.S. PRESIDENT'S
MALARIA INITIATIVE

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The Global Fund



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FOREWORD

Malaria is still a major public health challenge in Nigeria, despite substantial efforts to reduce the prevalence and impact of the disease. The last decade of malaria control has witnessed increased support by the Government of Nigeria and its partners to scale up key interventions such as mass campaigns for replacement of insecticide-treated nets (ITNs), intermittent preventive treatment of malaria during pregnancy (IPTp), and malaria case management. There has also been a massive scale up of seasonal malaria chemoprevention, based on the results of the stratification and impact modelling approach for malaria intervention exercise that took place in 2020. The ongoing need is to provide current, evidence-based data on the status of programme implementation and on progress towards malaria control throughout the country.

Nigeria has implemented four National Malaria Strategic Plans (NMSPs) and is presently implementing the fifth NMSP, which covers the period 2021–2025. The 2021–2025 NMSP aims to achieve a parasite prevalence of less than 10% and reduce mortality attributable to malaria to less than 50 deaths per 1,000 live births by 2025. The need to measure the impact of these strategic plans requires the availability of data from routine sources, principally the District Health Information System (DHIS), operations research, and surveys, particularly the Nigeria Malaria Indicator Survey (NMIS).

The 2021 NMIS is the third malaria indicator survey conducted in Nigeria, with the first in 2010 and the second in 2015. The 2021 survey is unique in three ways. First, it was conducted in the first year of implementation of the current National Malaria Strategic Plan and therefore provides insights into the impact of the interventions implemented so far and possible revisions of strategies. Second, the survey implementation was conducted during a major pandemic, COVID-19. Finally, the sample size for the 2021 NMIS was much larger than in previous surveys, with a total of 568 clusters covered across the country (195 in urban areas and 373 in rural areas). The 2010 and 2015 surveys covered 240 and 333 clusters, respectively.

It is encouraging to note improvements from previous NMIS surveys in some key indicators. Overall, malaria prevalence fell from 42% in 2010 to 22% in 2021. Ownership of insecticide-treated nets (ITNs) increased from 42% in 2010 to 56% in 2021, while usage among the most vulnerable populations improved from 29% to 41% for children and from 34% to 50% for pregnant women. Among women with a live birth in the 2 years preceding the survey who reported having taken sulfadoxine-pyrimethamine (SP)/Fansidar for the prevention of malaria in pregnancy, 31% received three or more doses, up from 17% in 2018. However, some indicators showed poor performance relative to the results of previous surveys. The impact of COVID-19 may have clouded some of the gains previously recorded. When considering the number of malaria cases and deaths averted between 2000 and 2020 (1.5 billion cases and 7.6 million deaths) according to WHO, we can appreciate the tremendous progress made. However, there is a need to re-strategise at the national and subnational levels to ensure that we are on track to achieving the goals of the 2021–2025 NMSP.

The 2021 NMIS data are disaggregated to provide information by state and geopolitical zone. State-specific indicators will facilitate the enthusiasm for states to continue to develop and implement evidence-based malaria control strategies in the context of the national strategic plan as we move towards malaria elimination.

I would like to use this opportunity to express appreciation to the National Population Commission (NPC) and National Bureau of Statistics (NBS) for working with the National Malaria Elimination Programme (NMEP) and Federal Ministry of Health in the conduct of this important survey. I congratulate the National Malaria Elimination Programme on its success.

My appreciation also goes to ICF for providing technical assistance. I thank PMI-USAID; the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM); and the Health Strategy and Delivery Foundation (HSDF) for providing funding for the survey. State governments, local government authorities, and traditional authorities are well recognized for their contributions and support during survey implementation.

The contributions of the African Network for Drugs and Diagnostics Innovation (ANDI), Department of Medical Microbiology and Parasitology, College of Medicine, University of Lagos, and the Institute of Tropical Disease Research, Prevention, and Control, University of Calabar, Cross River State, as the primary reading and quality control laboratories, respectively, are to be commended.

Finally, I want to express my appreciation to all of the field functionaries for their commitment towards the success of the survey, in spite of challenging circumstances at the time of implementation, as well as the respondents/caregivers and children under age 5 for participating in the survey.



Dr. Osagie Ehanire, MD, FWACS
Honourable Minister of Health

PREFACE

The importance of having appropriate, accurate, and timely data for meaningful planning, programming, and decision making at all levels of governance cannot be overemphasized. To meet this need, the Federal Government of Nigeria, through the National Malaria Elimination Programme (NMEP) and other relevant stakeholders, conducts a malaria indicator survey (MIS) at least every 3 to 4 years.

The 2021 Nigeria Malaria Indicator Survey (NMIS) was implemented by the NMEP in collaboration with the National Population Commission (NPC) and the National Bureau of Statistics (NBS), with technical assistance from ICF. The first NMIS was conducted in 2010 and the second in 2015. The 2021 NMIS is a follow-up to the 2015 NMIS.

The primary objectives of the 2021 NMIS were to provide information on malaria indicators at the national, zonal, and state levels, including the Federal Capital Territory. The survey questions asked about household characteristics, respondents' backgrounds, reproduction, pregnancy, intermittent preventive treatment of malaria during pregnancy, fever management in children, and knowledge of malaria. Blood samples were collected from children age 6–59 months for haemoglobin measurement and malaria testing. Children with positive malaria test results according to rapid diagnostic tests (RDTs) were treated with antimalaria drugs (artemisinin-based combination therapy [ACT]).

The results of this survey not only will provide the NMEP with much-needed data but also will be useful to programme and project managers and policymakers at all levels, development agencies, and nongovernmental organizations within and outside Nigeria.



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8 September 2022

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I would like to commend the Director of the Department of Public Health, Federal Ministry of Health, Dr. Morenike Alex-Okoh, for her support and commitment to the success of the survey. The leadership and commitment of the Survey Management Committee and the Survey Implementation Committee are also well acknowledged and appreciated.

I thank the states, local government authorities, and communities and the gatekeepers at these levels for providing the enabling environment for the success of the survey. I also acknowledge the effort of the personnel at the primary testing laboratory (African Network for Drugs and Diagnostics Innovation [ANDI], Department of Medical Microbiology and Parasitology, College of Medicine, University of Lagos) and the secondary laboratory (Institute of Tropical Disease Research, Prevention, and Control, University of Calabar, Cross River State) for the primary reading and quality control of the microscopic slides generated during the survey, respectively.

My appreciation also goes to the PMI/USAID; the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM); and the Health Strategy and Delivery Foundation (HSDF) for providing financial support; and to ICF and the World Health Organization (WHO) for providing technical support for the survey.

I sincerely appreciate all of the state coordinators, team supervisors, quality control officers, national monitors, data collectors, data processing personnel, drivers, and local guides for their hard work and commitment during the implementation of the survey. Finally, I thank the caregivers and the respondents and children for participating in the survey, enabling the necessary data and blood samples to be collected for analysis and reporting.

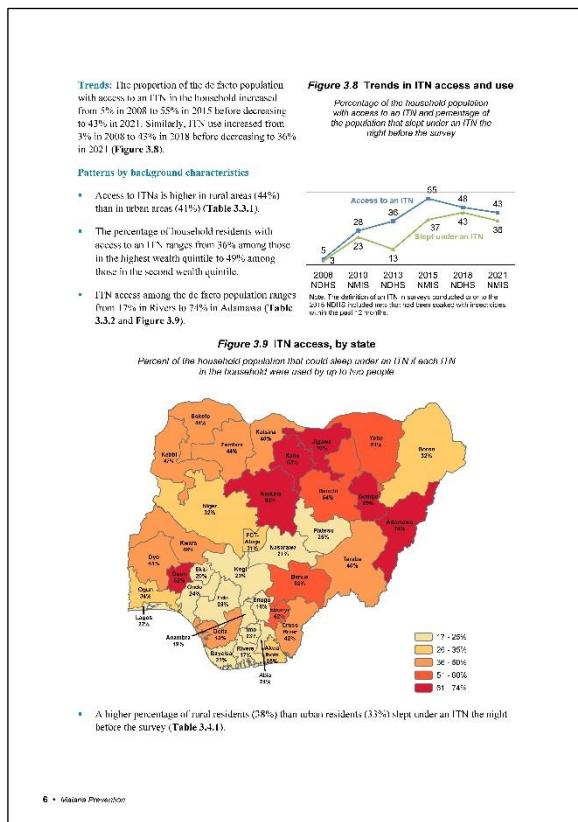


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READING AND UNDERSTANDING TABLES FROM THE 2021 NIGERIA MALARIA INDICATOR SURVEY (NMIS)

The following pages provide an introduction to the organisation of NMIS tables and the presentation of background characteristics and offer a summary of how to sample and understand denominators. This section also provides exercises for users to practice interpreting NMIS tables.

This report is based on about 60 tables of data, and the tables are located at the end of each chapter instead of being imbedded in the text. While the text and figures featured in each chapter highlight some of the most important findings from the tables, not every finding can be discussed or displayed graphically. For this reason, data users should be comfortable reading and interpreting NMIS tables.



Example 1: Prevalence of Malaria in Children: National
A biomarker measure taken from all eligible respondents

Table 4.8.1 Prevalence of malaria in children: National 1

Percentage of children age 6–59 months classified in two tests as having malaria, according to background characteristics, Nigeria MIS 2021

| 3 Background characteristic | 2 Malaria prevalence according to RDT | | Malaria prevalence according to microscopy | |
|---|--|--------------------|--|--------------------|
| | RDT positive | Number of children | Microscopy positive | Number of children |
| Age in months | | | | |
| 6–8 | 20.9 | 582 | 11.1 | 577 |
| 9–11 | 23.7 | 489 | 14.8 | 486 |
| 12–17 | 33.1 | 1,175 | 16.7 | 1,164 |
| 18–23 | 31.2 | 987 | 14.6 | 978 |
| 24–35 | 39.3 | 2,367 | 20.6 | 2,355 |
| 36–47 | 44.2 | 2,549 | 24.4 | 2,533 |
| 48–59 | 47.6 | 2,954 | 29.9 | 2,944 |
| Sex | | | | |
| Male | 40.5 | 5,701 | 22.3 | 5,668 |
| Female | 38.6 | 5,402 | 22.2 | 5,369 |
| Mother's interview status | | | | |
| Interviewed | 38.6 | 9,587 | 21.6 | 9,536 |
| Not interviewed and not in the household ¹ | 46.2 | 1,516 | 26.5 | 1,501 |
| Residence | | | | |
| Urban | 25.0 | 3,006 | 10.5 | 2,996 |
| Rural | 45.0 | 8,097 | 26.7 | 8,041 |
| Zone | | | | |
| North Central | 32.3 | 1,916 | 17.0 | 1,899 |
| North East | 43.0 | 1,991 | 20.1 | 1,983 |
| North West | 51.6 | 3,967 | 29.8 | 3,940 |
| South East | 27.3 | 902 | 18.7 | 895 |
| South South | 29.9 | 1,196 | 17.8 | 1,192 |
| South West | 24.1 | 1,131 | 16.2 | 1,128 |
| Mother's education² | | | | |
| No education | 52.1 | 4,375 | 30.4 | 4,345 |
| Primary | 42.3 | 1,481 | 22.6 | 1,472 |
| Secondary | 24.1 | 2,797 | 13.1 | 2,789 |
| More than secondary | 13.0 | 933 | 4.5 | 929 |
| Wealth quintile | | | | |
| Lowest | 55.4 | 2,431 | 31.3 | 2,414 |
| Second | 53.6 | 2,416 | 32.3 | 2,395 |
| Middle | 40.1 | 2,321 | 23.1 | 2,309 |
| Fourth | 28.7 | 2,035 | 14.6 | 2,030 |
| Highest | 12.8 | 1,900 | 5.3 | 1,889 |
| Total | 4 39.6 | 11,103 | 5 22.3 | 11,037 |
| RDT = Rapid diagnostic test (SD BIOLINE P.f) | | | | |
| ¹ Includes children whose mothers are deceased | | | | |
| ² Excludes children whose mothers were not interviewed | | | | |

Step 1: Read the title and subtitle highlighted in orange in Example 1. They tell you the topic and the specific population group being described. In this case, the table is about children age 6–59 months who were tested for malaria.

Step 2: Scan the column headings highlighted in green in Example 1. They describe how the information is categorised. In this table, the first column of data shows children who tested positive for malaria according to a rapid diagnostic test (RDT). The second column lists the number of children in the survey age 6–59 months who were tested for malaria using RDT. The third column shows children who tested positive for malaria according to microscopy. The last column lists the number of children in the survey age 6–59 months who were tested for malaria using microscopy.

Step 3: Scan the row headings in the first vertical column highlighted in blue in Example 1. These show the different ways the data are divided into categories based on background characteristics. In this case, the table presents the prevalence of malaria by age, sex, mother's interview status, urban-rural residence, zone,

mother's educational level, and wealth quintile. Most of the tables in the NMIS report will be divided into these categories.

Step 4: Look at the row at the bottom of the table highlighted in red in Example 1. These percentages represent the totals of children age 6–59 months who tested positive for malaria according to the different tests. In this case, 39.6%* of children age 6–59 months tested positive for malaria according to RDT, while 22.3% tested positive for malaria according to microscopy.

Step 5: Draw two imaginary lines, as shown on the table, to find out what percentage of children age 6–59 months whose mothers had more than a secondary education tested positive for malaria according to microscopy. This shows that 4.5% of children age 6–59 months whose mothers had more than a secondary education tested positive for malaria according to microscopy.

Step 6: Look at the patterns in the table. By looking at patterns by background characteristics, we can see how malaria prevalence varies across Nigeria. Resources are often limited. Knowing how malaria prevalence varies across groups can help programme planners and policymakers determine how to use resources effectively.

Practice: Use the table in Example 1 to answer the following questions about malaria prevalence:

- a) Is malaria prevalence according to RDT higher among boys or girls?
- b) Is there a clear pattern in RDT malaria prevalence by age?
- c) What are the lowest and highest percentages (the range) of malaria prevalence by microscopy by zone?
- d) Is there a clear pattern in RDT malaria prevalence by mother's educational level?
- e) Is there a clear pattern in malaria prevalence by microscopy by wealth quintile?

- the lowest wealth quintile (31.3%) and lowest in the highest wealth quintile (5.3%).
- e) Yes, malaria prevalence by microscopy decreases as household wealth increases; malaria prevalence by microscopy is highest in education.
- whose mothers have no education, and the lowest prevalence is 13.0% among children whose mothers have more than a secondary education.
- d) Yes, malaria prevalence by RDT decreases with increasing mother's education; the highest prevalence is 52.1% among children whose mothers have no education.
- c) Malaria prevalence by microscopy is lower in South West (16.2%) and highest in North West (29.8%).
- b) Yes, malaria prevalence increases with age: 20.9% of children age 6–8 months were positive for malaria according to RDT, as compared with 47.6% of children age 48–59 months.
- a) Boys, 40.5%.

Answers:

* For the purpose of this document, data are presented exactly as they appear in the table—including decimal places. However, data are rounded to the nearest whole percentage point in the remainder of the report.

Example 2: Use of mosquito nets by pregnant women: States
A question asked of a subgroup of survey respondents

Table 3.7.2 Use of mosquito nets by pregnant women: States 1

Percentage of pregnant women age 15–49 who slept under a mosquito net (treated or untreated) and under an insecticide-treated net (ITN) the night before the survey, and among pregnant women age 15–49 in households with at least one ITN, percentage who slept under an ITN the night before the survey, by state, Nigeria MIS 2021

| State | 2 Among pregnant women age 15–49 in all households | | | Among pregnant women age 15–49 in households with at least one ITN ¹ | |
|----------------------|--|---|--------------------------|---|--------------------------|
| | Percentage who slept under any mosquito net last night | Percentage who slept under an ITN ¹ last night | Number of pregnant women | Percentage who slept under an ITN ¹ last night | Number of pregnant women |
| | * | * | 11 | * | 9 |
| North Central | | | | | |
| FCT-Abuja | * | * | 24 | * | 19 |
| Benue | * | * | 16 | * | 8 |
| Kogi | (42.8) | (42.8) | 25 | * | 19 |
| Kwara | (23.4) | (19.5) | 27 | * | 12 |
| Nasarawa | (30.7) | (30.7) | 53 | (53.6) | 31 |
| Niger | (26.6) | (26.6) | 27 | * | 9 |
| Plateau | | | | | |
| North East | | | | | |
| Adamawa | (72.8) | (72.8) | 26 | (86.1) | 22 |
| Bauchi | 71.1 | 71.1 | 99 | (89.8) | 79 |
| Borno | (56.6) | (55.3) | 23 | * | 15 |
| Gombe | * | * | 12 | * | 10 |
| Taraba | (52.1) | (52.1) | 20 | (58.4) | 18 |
| Yobe | 59.3 | 59.3 | 67 | (83.9) | 47 |
| North West | | | | | |
| Jigawa | (86.0) | (86.0) | 57 | (88.6) | 56 |
| Kaduna | 60.8 | 60.8 | 95 | 72.5 | 79 |
| Kano | 76.9 | 76.9 | 99 | 93.0 | 82 |
| Katsina | 51.4 | 51.4 | 194 | 80.9 | 123 |
| Kebbi | 54.1 | 50.6 | 81 | (66.1) | 62 |
| Sokoto | (45.3) | (40.1) | 50 | (56.9) | 36 |
| Zamfara | 65.5 | 56.9 | 39 | (74.8) | 30 |
| South East | | | | | |
| Abia | * | * | 9 | * | 2 |
| Anambra | (5.7) | (5.7) | 19 | * | 4 |
| Ebonyi | (66.5) | (66.5) | 25 | * | 19 |
| Enugu | * | * | 8 | * | 2 |
| Imo | * | * | 12 | * | 3 |
| South South | | | | | |
| Akwa Ibom | * | * | 16 | * | 9 |
| Bayelsa | (22.9) | (22.9) | 12 | * | 5 |
| Cross River | * | * | 17 | * | 11 |
| Delta | * | * | 18 | * | 11 |
| Edo | * | * | 19 | * | 2 |
| Rivers | (1.4) | (1.4) | 12 | * | 3 |
| South West | | | | | |
| Ekiti | * | * | 5 | * | 1 |
| Lagos | * | * | 30 | * | 20 |
| Ogun | * | * | 12 | * | 8 |
| Ondo | * | * | 14 | * | 4 |
| Osun | * | * | 20 | * | 9 |
| Oyo | * | * | 24 | * | 16 |
| Total | 50.4 | 49.6 | 1,320 | 73.2 | 895 |

Notes: Table is based on women who stayed in the household the night before the interview. Figures in parentheses are based on 25–49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.

¹ An insecticide-treated net (ITN) is a factory-treated net that does not require any further treatment. In the 2008 NDHS, 2010 NMIS, 2013 NDHS, and 2015 NMIS, this was known as a long-lasting insecticidal net (LLIN).

Step 1: Read the title and subtitle. In this case, the table is about two separate groups of pregnant women age 15–49: pregnant women in all households (a) and pregnant women in households with at least one ITN (b).

Step 2: Identify the two panels. First, identify the columns that refer to pregnant women age 15–49 in all households (a), and then isolate the columns that refer only to pregnant women age 15–49 in households with at least one ITN (b).

Step 3: Look at the first panel. What percentage of pregnant women age 15–49 in all households were interviewed? 1,320. Now look at the second panel. How many pregnant women age 15–49 in households with at least one ITN were interviewed? 895. The second panel is a subset of the first panel.

Step 4: Look across the state rows and note any cells with asterisks or with percentages in parentheses. When these pregnant women are further divided into the state categories, there may be too few cases for the percentages to be reliable.

- What percentage of pregnant women age 15–49 in all households in Bayelsa slept under an ITN the night before the survey? 22.9%. This percentage is in parentheses because there are between 25 and 49 cases (unweighted) in this category. You should use this number with caution—it may not be reliable. (See Example 3 for more information on weighted and unweighted numbers.)
- What percentage of pregnant women age 15–49 in households in Abia with at least one ITN slept under an ITN the night before the survey? There is no number in this cell—only an asterisk. This is because fewer than 25 pregnant women age 15–49 were interviewed in the survey. Results for this group are not reported. The subgroup is too small, and so the data are not reliable.

When parentheses or asterisks are used in a table, the explanation will be noted in the footnote. If there are no parentheses or asterisks in a table, you can proceed with confidence that enough cases were included in all categories for the data to be reliable.

Example 3: Understanding Sampling Weights in NMIS Tables

A sample is a group of people who have been selected for a survey. In the NMIS, the sample is designed to represent the national population age 15–49. In addition to national data, most countries want to collect and report data on smaller geographical or administrative areas. However, doing so requires a minimum sample size per area. For the 2021 NMIS, the survey sample is representative at the national and zonal levels and for urban and rural areas.

To generate statistics that are representative of the country as a whole and the six zones, the number of women surveyed in each zone should contribute to the size of the total (national) sample in proportion to the size of the zone. However, if some zones have small populations, then a sample allocated in proportion to each zone's population may not include sufficient women from each district for analysis. To solve this problem, zones with small populations are

oversampled. For example, let's say that you have enough money to interview 14,476 women and want to produce results that are representative of Nigeria as a whole and its zones (as in Table 2.11.1). However, the total population of Nigeria is not evenly distributed among the zones: some zones, such as North West, are heavily populated while others, such as South East, are not. Thus, South East must be oversampled.

To get reliable statistics, a sampling statistician determines how many women should be interviewed in each zone. The blue column (1) in the table above shows the actual number of women interviewed in each zone. Within the zones, the number of women interviewed ranges from 1,523 in South East to 3,635 in North West. The number of interviews is sufficient to get reliable results in each zone.

With this distribution of interviews, some zones are overrepresented and some are underrepresented. For example, the population in North West is 33.4% of the population in Nigeria, while South East's population contributes only 7.7% of the population in Nigeria. The population in North West is about four times greater than that of South East, but the blue column shows that the NMIS interviewed only slightly more than two times the number of women in North West (3,635) than South East (1,523). This unweighted distribution of women does not accurately represent the population.

To get statistics that are representative of Nigeria, the distribution of the women in the sample needs to be weighted (or mathematically adjusted) so that it resembles the true distribution in the country. Women from small zones, like South East, should contribute only a small amount to the national total. Women from large zones, like North West, should contribute much more. Therefore, DHS statisticians mathematically calculate a “weight” that is used to adjust the number of women from each zone so that each zone's contribution to the total is proportional to the actual population of the zone. The numbers in the purple column (2) represent the “weighted” values. The weighted values can be smaller or larger than the unweighted values at the zonal level. The total national sample size of 14,476 women has not changed after weighting, but the distribution of the women in the zones has been changed to represent their contribution to the total population size.

| Table 2.11.1 Background characteristics of respondents: National | | | |
|--|------------------|-----------------|-------------------|
| Percent distribution of women age 15–49 by selected background characteristics, Nigeria MIS 2021 | | | |
| Background characteristic | Weighted percent | Weighted number | Unweighted number |
| Zone | | | |
| North Central | 16.4 | 3 | 2,674 |
| North East | 16.6 | 2,399 | 2,523 |
| North West | 33.4 | 4,832 | 3,635 |
| South East | 7.7 | 1,111 | 1,523 |
| South South | 12.0 | 1,734 | 2,148 |
| South West | 14.0 | 2,023 | 1,973 |
| Total | 100.0 | 14,476 | 14,476 |

How do statisticians weight each category? They take into account the probability that a woman was selected in the sample. If you were to compare the green column (3) to the actual population distribution of Nigeria, you would see that women in each zone are contributing to the total sample with the same weight that they contribute to the population of the country. The weighted number of women in the survey now accurately represents the proportion of women who live in North West and the proportion of women who live in South East.

With sampling and weighting, it is possible to interview enough women to provide reliable statistics at the national and zonal levels. In general, only the weighted numbers are shown in each of the NMIS tables, so do not be surprised if these numbers seem low: they may represent a larger number of women interviewed.

ACRONYMS AND ABBREVIATIONS

| | |
|----------|---|
| ACSM | advocacy communication and social mobilisation change |
| ACT | artemisinin-based combination therapy |
| ADH | Africa Data Hub |
| AFENET | African Field Epidemiology Network |
| ANC | antenatal care |
| ANDI | African Network for Drug and Device Innovation |
| BA-N | Breakthrough Action, Nigeria |
| BMGF | Bill & Melinda Gates Foundation |
| CAPI | computer-assisted personal interviewing |
| CCM | Country Coordinating Mechanism |
| CDC | Centers for Disease Control and Prevention |
| CHW | community health worker |
| CMUL | College of Medicine, University of Lagos |
| CRS | Catholic Relief Services |
| CSPro | Census and Survey Processing System |
| DFID | Department for International Development |
| DHS | Demographic and Health Survey |
| DPH/FMoH | Department of Public Health, Federal Ministry of Health |
| EA | enumeration area |
| EAD | Enumeration Area Demarcation |
| EQC | external quality control |
| FCT | Federal Capital Territory |
| FMoH | Federal Ministry of Health |
| g/dl | grams per decilitre |
| GF | Global Fund |
| GFATM | The Global Fund to Fight AIDS, Tuberculosis and Malaria |
| GF-CT | Global Fund-Country Team |
| GPS | Global Positioning System |
| HMH | Honourable Minister of Health |
| HRP | histidine-rich protein |
| HSDF | Health Strategy and Delivery Foundation |
| IFSS | Internet File Streaming System |
| IPTp | intermittent preventive treatment (of malaria) in pregnancy |
| ITN | insecticide-treated net |
| JMP | Joint Monitoring Programme for Water Supply, Sanitation and Hygiene |

| | |
|------------|--|
| LGA | local government area |
| LLIN | long-lasting insecticidal net |
| LPG | liquefied petroleum gas |
| MADETS | Malaria Data Entry and Tracking System |
| MC | Malaria Consortium |
| MIS | Malaria Indicator Survey |
| MLSCN | Medical Laboratory Science Council of Nigeria |
| MSH | Management Sciences for Health |
| NBS | National Bureau of Statistics |
| NDHS | Nigeria Demographic and Health Survey |
| NGO | nongovernmental organization |
| NHREC | National Health Research Ethics Committee of Nigeria |
| NMEP | National Malaria Elimination Programme |
| NMIS | Nigeria Malaria Indicator Survey |
| NMSP | National Malaria Strategic Plan |
| NPC | National Population Commission |
| NPHCDA | National Primary Health Care Development Agency |
| <i>Pf</i> | <i>Plasmodium falciparum</i> |
| PHC | Population and Housing Census |
| <i>Pm</i> | <i>Plasmodium malariae</i> |
| PMI-S | U.S. President's Malaria Initiative for States |
| <i>Po</i> | <i>Plasmodium ovale</i> |
| PPMV | proprietary medicine vendor |
| PSU | primary sampling unit |
| RDT | rapid diagnostic test |
| SBC | social and behaviour change |
| SDG | Sustainable Development Goal |
| SIC | Survey Implementation Committee |
| SMC | Survey Management Committee |
| SMEOR/NMEP | Surveillance, Monitoring, Evaluation and Operations Research, National Malaria Elimination Programme |
| SP | sulphadoxine-pyrimethamine |
| TD/NMEP | Technical Director, National Malaria Elimination Programme |
| UNICEF | United Nations Children's Fund |
| USAID | United States Agency for International Development |
| VIP | ventilated improved pit |
| WHO | World Health Organization |

NIGERIA



The 2021 Nigeria Malaria Indicator Survey (NMIS) was implemented by the National Malaria Elimination Programme (NMEP) of the Federal Ministry of Health (FMoH) in collaboration with the National Population Commission (NPC) and National Bureau of Statistics (NBS). Following pre-survey activities (e.g., planning meetings, review of questionnaires, household listing, laboratory assessment, and recruitment and training of field personnel), data collection took place from 12 October to 4 December 2021. ICF provided technical assistance through The Demographic and Health Surveys (DHS) Program, which is funded by the United States Agency for International Development (USAID) and offers financial support and technical assistance for population and health surveys in countries worldwide. The Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM) also facilitated the implementation of the survey through financial support.

1.1 SURVEY OBJECTIVES

The primary objective of the 2021 NMIS was to provide up-to-date estimates of basic demographic and health indicators related to malaria. Specifically, the NMIS collected information on vector control interventions (such as mosquito nets), intermittent preventive treatment of malaria in pregnant women, exposure to messages on malaria, care-seeking behaviour, treatment of fever in children, and social and behaviour change communication (SBCC). Children age 6–59 months were also tested for anaemia and malaria infection. The information collected through the NMIS is intended to assist policymakers and programme managers in evaluating and designing programmes and strategies for improving the health of the country's population.

1.2 SAMPLE DESIGN

The sample for the 2021 NMIS was designed to provide most of the survey indicators for the country as a whole, for urban and rural areas separately, and for each of the country's six geopolitical zones, which include 36 states and the Federal Capital Territory (FCT). Nigeria's geopolitical zones are as follows:

- North Central: Benue, Kogi, Kwara, Nasarawa, Niger, Plateau, and FCT
- North East: Adamawa, Bauchi, Borno, Gombe, Taraba, and Yobe
- North West: Jigawa, Kaduna, Kano, Katsina, Kebbi, Sokoto, and Zamfara
- South East: Abia, Anambra, Ebonyi, Enugu, and Imo
- South South: Akwa Ibom, Bayelsa, Cross River, Delta, Edo, and Rivers
- South West: Ekiti, Lagos, Ogun, Osun, Ondo, and Oyo

The 2021 NMIS used the sample frame for the proposed 2023 Population and Housing Census (PHC) of the Federal Republic of Nigeria. Administratively, Nigeria is divided into states. Each state is subdivided into local government areas (LGAs), each LGA is divided into wards, and each ward is divided into localities. Localities are further subdivided into convenient areas called census enumeration areas (EAs). The primary sampling unit (PSU), referred to as a cluster unit for the 2021 NMIS, was defined on the basis of EAs for the proposed 2023 PHC.

A two-stage sampling strategy was adopted for the 2021 NMIS. In the first stage, 568 EAs were selected with probability proportional to the EA size. The EA size is the number of households residing in the EA. The sample selection was done in such a way that it was representative of each state. The result was a total of 568 clusters throughout the country, 195 in urban areas and 373 in rural areas.

A complete listing of households in these clusters was conducted between 26 August and 18 September 2021, with the resulting lists of households serving as the sampling frame for the selection of households in the second stage. GPS dongles were used to capture coordinates during household listing in the 2021 NMIS sample clusters.

In the second stage's selection process, 25 households were selected in each cluster via equal probability systematic sampling. The 2021 NMIS was also designed to provide baseline information on malaria parasite prevalence and other malaria indicators for Bonny Island, which lies in Rivers State. There is an effort to declare the island malaria free in the near future, and it was critical to have baseline information. Oversampling was done for Bonny Island to be able to measure a decline in rapid diagnostic test (RDT) malaria prevalence from 22.3% (the prevalence in Rivers State according to the 2018 Nigeria Demographic and Health Survey [NDHS]) to zero. A total of 25 clusters were selected from Rivers State, with eight clusters selected from Bonny Island and the remaining 17 from the other LGAs in the state.

1.3 QUESTIONNAIRES

Three questionnaires were used in the 2021 NMIS: the Household Questionnaire, the Woman's Questionnaire, and the Biomarker Questionnaire. The questionnaires, based on The DHS Program's model questionnaires, were adapted to reflect the population and health issues relevant to Nigeria. After the questionnaires were finalised in English, they were translated into Hausa, Yoruba, and Igbo. The survey protocol was reviewed and approved by the National Health Research Ethics Committee of Nigeria (NHREC) and the ICF Institutional Review Board.

The Household Questionnaire listed all members of and visitors to selected households. Basic demographic information was collected on each person listed, including age, sex, marital status, education, and relationship to the head of the household. Data on age and sex of household members were used to identify women who were eligible for individual interviews. The Household Questionnaire also collected information on characteristics of the household's dwelling unit such as source of drinking water; type of toilet facilities; materials used for flooring, external walls, and roofing; ownership of various durable goods; and ownership of mosquito nets.

The Woman's Questionnaire was used to collect information from all eligible women age 15–49. These women were asked questions on the following topics:

- Background characteristics (including age, education, and media exposure)
- Reproduction (birth history and child mortality)
- Pregnancy and intermittent preventive treatment
- Fever in children
- Malaria knowledge and beliefs

The Biomarker Questionnaire was used to record results of anaemia and malaria rapid diagnostic testing of children age 6–59 months.

Another questionnaire, the Fieldworker Questionnaire, was used to collect basic background information on field functionaries collecting data in the field, including team supervisors, interviewers, and medical laboratory scientists (biomarker specialists). Each interviewer completed the self-administered questionnaire after the final selection of interviewers and prior to commencement of fieldwork.

The 2021 NMIS used computer-assisted personal interviewing (CAPI) for data collection.

1.4 ANAEMIA AND MALARIA TESTING

Blood samples for biomarker testing were collected via finger or heel pricks from children age 6–59 months. Each field team included one medical laboratory scientist (biomarker specialist) who carried out

the anaemia and malaria testing and prepared the blood smears. A nurse provided malaria medications for children who tested positive for malaria by RDT, in accordance with the approved treatment guidelines. The biomarker specialist requested informed consent for both tests from the child's parent or guardian before blood samples were collected.

Anaemia testing. A single-use retractable, spring-loaded, sterile lancet was used to make a finger prick (or a heel prick in the case of children age 6–11 months), and a drop of blood from this site was then collected in a microcuvette. Haemoglobin analysis was carried out on site using a battery-operated portable HemoCue®201+ device. Results were provided to the child's parent or guardian verbally and in writing and were recorded in the Biomarker Questionnaire. Parents of children with a haemoglobin level below 8 g/dl (classified as severe anaemia) were provided with a referral and instructed to take the child to a nearby health facility for follow-up care.

Malaria testing using a rapid diagnostic test (RDT). Another drop of blood, taken from the same finger or heel prick that was used for anaemia testing, was tested immediately using the Nigeria-approved SD BIOLINE Malaria Ag P.f. (HRP-II)™ RDT. This qualitative test detects the histidine-rich protein II antigen of *Plasmodium falciparum* in human whole blood. The *P. falciparum* parasite, transmitted by the *Anopheles* mosquito, is the major cause of malaria in Nigeria. The diagnostic test includes a disposable sample applicator that comes in a standard package. A tiny volume of blood is captured on the applicator and placed in the well of the testing device. All biomarker specialists were trained to perform the RDT in the field, in accordance with manufacturers' instructions. RDT results were available in 15 minutes and recorded as either positive or negative, with faint test lines considered positive. As with anaemia testing, RDT results were provided to the child's parent or guardian verbally and in written form and were recorded on the Biomarker Questionnaire.

Children who tested positive for malaria according to the RDT and who had been treated with artemisinin-based combination therapy (ACT) within 2 weeks before the day of the interview were referred to a health facility if they continued to have a fever 2 days after the last dose of ACT. In addition, children who tested positive according to the RDT and met one of the following two criteria—a haemoglobin level below 8 g/dl or symptoms indicative of severe malaria—were considered to have severe malaria and were referred to a health facility for immediate treatment and care. Children who tested positive for uncomplicated malaria were offered a full course of medication according to the standard treatment guidelines in Nigeria. Age-appropriate doses of ACT were provided to the caregiver/mother, along with instructions on how to administer the medicine to the child.

Malaria testing by microscopy. In addition to the RDT, thick and thin blood smears were prepared in the field. Each blood smear slide was given a barcode label, with a duplicate affixed to the Biomarker Questionnaire. An additional copy of the barcode label was affixed to a microscope slide transmittal form to track blood smears from the field to the laboratory. The slides were dried in a dust-free environment and stored in slide boxes. The thick and thin smear slides were collected regularly from the field and transported to 18 staining laboratories nearest to the place of collection, where they were stained with Giemsa stain. The slides were then moved to the African Network for Drug and Device Innovation (ANDI) Centre of Excellence in Lagos for logging, storage, and microscopic reading.

The blood smears were examined to determine the presence or absence of *Plasmodium* parasites and to determine parasite density. Blood smears were considered negative if no parasites were found after 100 high-powered fields had been counted. If parasites were present, the microscopist counted both asexual parasites and white blood cells. All stained slides were read by two independent microscopists. Slides with discrepant results were reanalysed by a third microscopist to determine the final result. Slides were tracked from their arrival in the lab through the examination process using the Malaria Data Entry and Tracking System (MADETS), a Census and Survey Processing System (CSPro) application developed by The DHS Program.

The microscopy results were quality checked through internal and external quality control processes. Routine internal quality control was performed following laboratory standard operating procedures. External quality control was conducted by the University of Calabar Teaching Hospital, which independently read 10% of the slides. The external quality control testing yielded 93% agreement between the ANDI Centre of Excellence and University of Calabar Teaching Hospital results. More information is provided in Appendix C, Tables C.10 and C.11.

Additionally, drops of blood were collected on Whatman filter paper for malaria genomic sequencing. The results are not shown in this report.

1.5 SURVEY IMPLEMENTATION IN THE CONTEXT OF COVID-19

The 2021 NMIS was initially planned for 2020 but had to be postponed to 2021 due to the COVID-19 pandemic, based on the recommendation of the Survey Implementation Committee (SIC). Nigeria reported its first COVID-19 case in February 2020. Subsequently, a lockdown of activities across the country was imposed and various guidelines were released by the Presidential Task Force on COVID-19 for conduct of daily activities within the country (Nigeria Presidential Task Force on COVID-19 2020). The guidelines included limiting gatherings to either 50% capacity or 50 persons, wearing face masks in public places, limiting the number of passengers in vehicles to 50% capacity, using hand sanitiser in public places, and monitoring temperature before entry in public places. Other measures included a ban on international travel and testing of persons with symptoms of COVID-19 at different testing points. With a reported reduction in number of cases in 2021, the SIC, following the approval of the Survey Management Committee (SMC) led by the Honourable Minister of Health, resumed activities for the NMIS in 2021. A COVID-19 mitigation plan for the NMIS was subsequently developed. The plan included procurement and provision of personal protective equipment for all personnel, use of extra halls for training to ensure that training rooms were not congested, daily temperature screening for all participants, provision of hand sanitiser for participants, and provision of an additional vehicle for each survey team. To prevent a shortfall of team members who could become infected during the course of the survey, additional interviewers who served as reserve team members were trained.

1.6 TRAINING OF TRAINERS AND PRETEST

The pretest training was designed to prepare the trainers for the main training, as well as to ensure that they were well versed with the NMIS questionnaires and procedures, and were able to test the questionnaires in the different languages. The training, which incorporated different training manuals (interviewer manual, supervisor manual, biomarker manual, CAPI manual, fieldworker handbook), involved sessions in which NMIS questionnaires were administered and a separate session for biomarker data collection. Thirty-one participants (20 state coordinators, two central coordinators, six biomarker coordinators, and three data processing staff) took part in the pretest training and field practice. The pretest took place over a 2-week period from 6 to 18 September 2021. Most of the participants had previous experience carrying out the NDHS, the NMIS, or other population-based surveys. The idea behind having the data processing staff participate in the pretest was to familiarise them with the CAPI system.

The training, conducted in conjunction with ICF staff, focused on key components of the survey, interview techniques and procedures for completing the NMIS questionnaires, biomarker data collection, and administration of interviews using the CAPI system. The biomarker training included training on testing for anaemia and malaria and how to prepare malaria blood smears. Participants worked in groups using various training techniques, including interactive question-and-answer sessions, case studies, and role-plays. Before starting the fieldwork, participants were given ample opportunities to practice how to administer the questionnaires and practice collection of biomarkers among children. Participants administered questionnaires in the field, provided feedback on the content and language of the questionnaires, tested the CAPI software programme, commented on the biomarker procedure, and learned various training techniques.

The field practice for the pretest was carried out in communities in nearby non-sampled locations where residents spoke English, Hausa, Yoruba, and Igbo. Following the field practice, a debriefing session was held, and modifications to the questionnaires and CAPI skip patterns were made based on lessons learned from the exercise.

1.7 TRAINING OF FIELD STAFF

The main training for the 2021 NMIS started on 20 September 2021 and lasted until 7 October 2021. The training included 3 weeks of orientation on data collection instruments and procedures followed by field practice. The 214 participants for the main training were selected through a strict vetting process at the national level. Applicants' curricula vitae received from states were assessed critically based on set criteria, and those who met requirements were further interviewed virtually before they were chosen for the main training. Participants came from all 36 states and the Federal Capital Territory and represented major language groups within the country. Most of the candidates had previous survey fieldwork experience, and some had experience gained through previous rounds of the NDHS and NMIS.

Twenty state coordinators (10 from NMEP, nine from NPC, and one from NBS) who had participated in the pretest training and training of trainers facilitated the training with ICF staff and provided technical support. A total of 37 nurses, 47 medical laboratory scientists (biomarker specialists), 12 quality control officers, and 118 data collectors were trained.

The participants were divided into eight classrooms of about 27 participants, with at least three facilitators for each class. The training sessions included discussions of concepts, procedures, and methodologies for conducting the NMIS survey. Participants were guided through the questionnaires using various training techniques such as role-plays, age probing in pairs, group discussions, in-class exercises, case studies, and presentations. The training also included discussions of the CAPI system, demonstrations of the CAPI DHS menus, and practice in conducting interviews through the CAPI system.

The biomarker training utilised a variety of learning tools. Plenary lectures were held on the technical aspects of data collection and biomarker collection. Other tools used included video and hands-on demonstrations on the process of biomarker collection, instructions on how to fill out the questionnaires and transmittal sheets, and instructions on data quality procedures. In addition, break-out sessions were held at which trainees had the opportunity for hands-on practice with both adults and children. They also had training on using rapid test kits to test for malaria, conducting anaemia testing, and preparing slides for malaria parasitaemia. The nurses, who were also trained on conducting interviews, later joined the biomarker specialists for training on treatment procedures for malaria-positive cases.

All participants were evaluated at intervals through in-class exercises, quizzes, and observations made during field practice. In the end, 37 supervisors were selected based on their performance and previous experience. The team supervisors received additional training on providing logistical support, managing field teams, observing interviews, keeping an inventory of supplies, and collecting biomarker data. They also received additional training on performing supervisory activities with the CAPI system, data quality control procedures, fieldwork coordination and management. In addition, they received training on assigning households and receiving completed interviews from the interviewers, recognizing and dealing with error messages, receiving system updates, distributing updates to interviewers, entering Biomarker Questionnaires, implementing re-visit questionnaires, resolving duplicated cases, and closing clusters. Furthermore, they were trained on transferring completed interviews to the central office via the secure Internet File Streaming System (IFSS) developed by The DHS Program.

1.8 FIELDWORK

Fieldworkers were grouped into 37 teams, each team consisting of one supervisor, one medical laboratory scientist/biomarker specialist, one nurse/interviewer, and two interviewers. Overall, 37 supervisors, 74 female interviewers, 37 biomarker specialists, and 37 nurses were deployed (a total of 185 personnel). Five

biomarker specialists and five nurses were kept as reserves. Following deployment, each team developed a schedule to visit the various clusters selected. Prior to fieldwork, each team had entry meetings with the respective states' Ministries of Health and offices of the National Population Commission. Advocacy visits were paid to key community gatekeepers at the community level to enable smooth entrance of the survey team and increase acceptance by community members.

Data collection lasted from 12 October to 4 December 2021. The fieldwork in some states took longer than expected due to the security situation and delays in household listing. During fieldwork, blood from finger pricks (or heel pricks among children age 6–11 months) was collected from eligible children (6–59 months) for rapid diagnostic testing, anaemia testing, and thin and thick film preparation. The slides were counted, recorded in the transmittal sheet, signed, and then sent to staining sites; subsequently, they were transported to the ANDI Centre of Excellence, the primary slide reading laboratory. The teams were closely monitored by the state coordinators, zonal biomarker representatives, quality control officers, and national monitors. The monitors were given orientation and provided with appropriate guidelines and checklists. The IFSS was used for uploading of data from the field in real time while fieldwork and data quality were simultaneously monitored by NMEP, NPC, and ICF. Weekly field check tables generated from the completed interviews sent to the central office were used to monitor fieldwork progress, and regular feedback was sent to the teams.

1.9 DATA PROCESSING

The processing of the 2021 NMIS data began immediately after the start of fieldwork. As data collection was being completed in each cluster, all electronic data files were transferred via the IFSS to the NPC central office in Abuja. Data files were registered and checked for inconsistencies, incompleteness, and outliers. The field teams were alerted on any inconsistencies and errors. Secondary editing, carried out in the central office, involved resolving inconsistencies and coding open-ended questions. The biomarker paper questionnaires were compared with electronic data files to check for any inconsistencies in data entry. Data entry and editing were carried out using the CSPro software package. Concurrent processing of the data offered a distinct advantage because it maximised the likelihood of the data being error-free and accurate. Timely generation of field check tables also allowed for effective monitoring. Secondary editing of the data was completed in February 2022. The data processing team coordinated this exercise at the central office.

Throughout this report, figures in tables reflect weighted numbers. Percentages based on 25 to 49 unweighted cases are shown in parentheses, and percentages based on fewer than 25 unweighted cases are suppressed and replaced with an asterisk. This is to caution readers when interpreting data that a percentage based on fewer than 50 cases may not be statistically reliable.

1.10 RESPONSE RATES

Table 1.1 shows response rates for the 2021 NMIS. A total of 14,185 households were selected for the survey, of which 13,887 were occupied and 13,727 were successfully interviewed, yielding a response rate of 99%. In the interviewed households, 14,647 women age 15–49 were identified for individual interviews. Interviews were completed with 14,476 women, yielding a response rate of 99%.

Table 1.1 Results of the household and individual interviews

Number of households, number of interviews, and response rates, according to residence (unweighted), Nigeria MIS 2021

| Result | Residence | | |
|---|-----------|-------|--------|
| | Urban | Rural | Total |
| Household interviews | | | |
| Households selected | 4,876 | 9,309 | 14,185 |
| Households occupied | 4,753 | 9,134 | 13,887 |
| Households interviewed | 4,690 | 9,037 | 13,727 |
| Household response rate ¹ | 98.7 | 98.9 | 98.8 |
| Interviews with women age 15–49 | | | |
| Number of eligible women | 4,993 | 9,654 | 14,647 |
| Number of eligible women interviewed | 4,930 | 9,546 | 14,476 |
| Eligible women response rate ² | 98.7 | 98.9 | 98.8 |

¹ Households interviewed/households occupied

² Respondents interviewed/eligible respondents

HOUSING, HOUSEHOLD POPULATION, AND RESPONDENT CHARACTERISTICS

2

Key Findings

- **Source of drinking water:** 79% of households (95% urban and 71% rural) use an improved drinking water source.
- **Type of sanitation facility:** 64% of households (88% urban and 52% rural) use an improved sanitation facility. However, 19% of households rely on open defecation.
- **Household composition:** The average household size is 5.3 persons; 15% of households are female headed.
- **Rooms for sleeping:** 38% of households have three or more rooms for sleeping.
- **Electricity:** 49% of households have access to electricity (76% urban and 36% rural).
- **Use of clean fuels and technologies for cooking:** 27% of households use clean fuels for cooking.
- **Literacy:** 56% of women in Nigeria are literate.

Information on the socioeconomic characteristics of the household population in the 2021 NMIS provides a context for interpreting demographic and health indicators and gives an indication of the representativeness of the survey. The information also sheds light on the living conditions of the population.

This chapter presents information on sources of drinking water, type of sanitation facility, housing characteristics and household possessions, use of clean fuels and technologies related to cooking, wealth, and the composition of the household population. The chapter also presents information on characteristics of the survey respondents such as age, education, literacy, exposure to mass media, internet usage, and mobile phone ownership. These socioeconomic characteristics are useful for understanding the factors that affect use of health services and other health behaviours related to malaria control.

2.1 DRINKING WATER SOURCES

Improved sources of drinking water

Include piped water, public taps, standpipes, tube wells, boreholes, protected dug wells and springs, rainwater, water delivered via a tanker truck or a cart with a small tank, and bottled or sachet water.

Sample: Households and de jure population¹

Improved sources of water protect against outside contamination so that water is more likely to be safe to drink. **Table 2.1** shows that 79% of households use an improved source of drinking water. The most common source of drinking water is tube wells or boreholes (34%), followed by protected dug wells (14%), unprotected dug wells (12%), and sachet water (11%). Six percent of households use surface water.

¹ Household, de jure, and de facto populations are defined in Section 2.7.

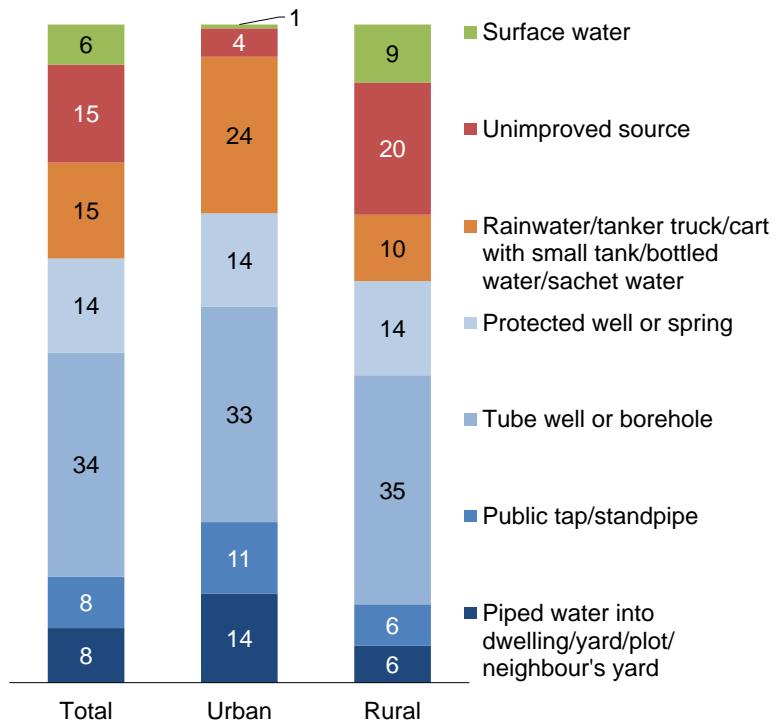
Forty-three percent of households have water on the premises, 51% take 30 minutes or less (round trip) to obtain drinking water, and 5% take more than 30 minutes.

Trends: Use of improved sources of drinking water has increased over the years, from 60% in 2008 to 74% in 2015 and 79% in 2021.

The percentage of households using improved sources of drinking water is higher in urban areas (95%) than in rural areas (71%), suggesting that urban and rural households rely on different sources of drinking water (**Figure 2.1**). About one-third of both urban households (33%) and rural households (35%) obtain water from a tube well or borehole; however, the second most common water source among urban households is sachet water (19%), whereas the second most common source among rural households is an unprotected dug well (16%).

Figure 2.1 Household drinking water by residence

Percent distribution of households by source of drinking water



2.2 DRINKING WATER SERVICE LADDER

Drinking water service ladder

Safely managed

Drinking water from an improved water source that is located on the premises, available when needed, and free from faecal and priority chemical contamination.

Basic

Drinking water from an improved source, provided either water is on the premises or round-trip collection time is 30 minutes or less.

Limited

Drinking water from an improved source, and round-trip collection time is more than 30 minutes.

Unimproved

Drinking water from an unprotected dug well or unprotected spring.

Surface water

Drinking water directly from a river, dam, lake, pond, stream, canal, or irrigation canal.

Sample: De jure population

Building off the classification of drinking water sources as improved and unimproved, the Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP) has devised a five-rung drinking water service ladder to benchmark and compare progress towards achieving Sustainable Development

Goal (SDG) targets (UNICEF/WHO 2018). The 2021 NMIS captured information on four out of the five rungs. Because the survey did not include testing of drinking water for faecal or chemical contamination, safely managed and basic drinking water services cannot be distinguished and are grouped together in **Table 2.2** as “at least basic service.”

Overall, 72% of the household population has at least basic drinking water service, and 4% has limited service. The percentage of the population with at least basic drinking water service ranges from 64% in North East to 91% in South West. Ninety percent of urban residents have at least basic drinking water service, as compared with 65% of rural residents. Use of surface water decreases with increasing wealth, from 11% in the lowest wealth quintile to less than 1% in the highest quintile.

2.3 SANITATION

Improved toilet facilities

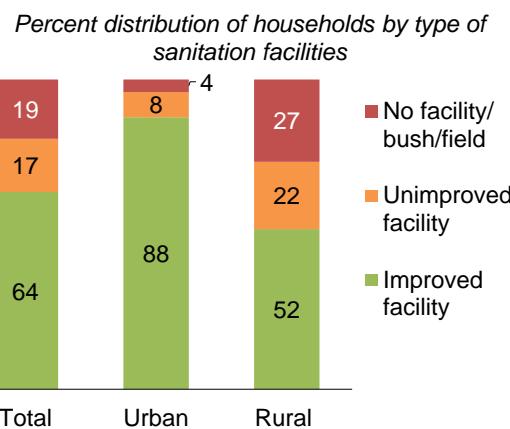
Flush/pour flush toilets that flush water and waste to a piped sewer system, septic tank, pit latrine, or unknown destination; ventilated improved pit (VIP) latrines; pit latrines with slabs; or composting toilets.

Sample: Households and de jure population

Nationally, 64% of households use improved toilet facilities, 17% use unimproved facilities, and 19% engage in open defecation (**Table 2.3** and **Figure 2.2**). A greater percentage of households in urban areas than rural areas use improved sanitation (88% versus 52%). The most commonly used improved toilet facilities in urban areas are flush/pour flush to septic tank facilities (38%), while in rural areas pit latrines with slabs (22%) are primarily used. Use of both unimproved sanitation facilities and open defecation is higher among rural households (22% and 27%, respectively) than urban households (8% and 4%, respectively). Among households with a toilet facility, 44% report that their facility is located inside their dwelling, while 52% report that the facility is located in their own yard/plot.

Trends: The percentage of households with improved sanitation facilities has fluctuated over time, decreasing from 53% in 2008 to 43% in 2010 before increasing to 56% in 2018 and 64% in 2021.

Figure 2.2 Household sanitation facilities by residence



Sanitation service ladder

Safely managed

Use of improved facilities that are not shared with other households and where excreta are safely disposed of in situ or transported and treated offsite.

Basic

Use of improved facilities that are not shared with other households.

Limited

Use of improved facilities shared by two or more households.

Unimproved

Use of pit latrines without a slab or platform, hanging latrines, or bucket latrines.

Open defecation

Disposal of human faeces in fields, forests, bushes, open bodies of water, beaches, or other open spaces or with solid waste.

Sample: De jure population

The JMP has also devised a five-rung sanitation service ladder to benchmark and compare progress towards achieving SDG targets related to sanitation. The 2021 NMIS captured information about four of the five rungs but cannot distinguish between safely managed and basic sanitation services. For this reason, safely managed and basic sanitation services are grouped together in **Table 2.4** as “at least basic service.”

Overall, 44% of the household population has at least basic service, and 16% has limited service. By zone, the percentage of the household population with at least basic service ranges from 33% in North East to 53% in South South (**Table 2.4**). The percentage of the population engaging in open defecation is highest in North Central (41%). As expected, use of unimproved sanitation facilities and open defecation decreases with increasing wealth.

2.4 HOUSING CHARACTERISTICS

The 2021 NMIS collected data on household features such as access to electricity, construction materials, number of rooms used for sleeping, and types of cooking technology and fuels. These data, along with information on ownership of household durable goods, source of drinking water, and sanitation, contribute to the creation of the household wealth index and provide information that may factor into other health indicators.

2.4.1 Construction Materials

Cement is the most common flooring material in Nigeria, used by 45% of households. A slightly higher percentage of urban households (49%) than rural households (43%) have cement floors. Earth/sand is the second most common flooring material, used by 37% of households, but unlike cement it is much more common in rural households than urban households (45% versus 21%) (**Table 2.5**). Most households in Nigeria (79%) have metal/zinc roofing, with little difference observed in urban and rural households (80% and 78%, respectively). The most common exterior wall material is cement (44%), followed by stone with mud (20%) and cement blocks (19%).

2.4.2 Rooms Used for Sleeping

The number of rooms a household uses for sleeping is an indicator of socioeconomic level and of crowding in the household, which can facilitate the spread of disease. Thirty-eight percent of households use three or more rooms for sleeping, 33% use two rooms, and 29% use only one room (**Table 2.5**).

2.5 ACCESS TO ELECTRICITY AND USE OF CLEAN FUELS AND TECHNOLOGIES FOR COOKING

Forty-nine percent of households have access to electricity, including 76% of urban households and 36% of rural households (**Table 2.6**).

Primary reliance on clean fuels and technologies

The percentage of the population using clean fuels and technologies for cooking, where clean cooking fuels and technologies are defined as follows: stoves/cookers using electricity, LPG/natural gas/biogas, solar, and alcohol/ethanol.

Sample: Households and de jure population

WHO guidelines for indoor air quality (WHO 2014a) highlight the importance of addressing both fuel and technology for protecting public health. The guidelines identify and promote technologies and fuels that are efficient and recommend against the use of technologies that rely on solid fuels such as coal and wood as well as kerosene, a non-solid but highly polluting fuel. Only 27% of households use clean cooking fuels or technologies (48% in urban areas and 16% in rural areas). Twenty-two percent of households use LPG (liquefied petroleum gas) cooking stoves. Over half of households (62%) rely on three stone stoves/open fire for cooking.

The most common solid fuel used for cooking is wood (54% of households); 66% of rural households use wood, as compared with 30% of urban households.

2.6 HOUSEHOLD WEALTH

2.6.1 Household Durable Goods

The 2021 NMIS collected information on possession of household goods and means of transportation, ownership of agricultural land, and ownership of farm animals (**Table 2.7**). Eighty-two percent of households own a mobile phone. Possession of a mobile phone is more common in urban households (89%) than rural households (79%). Approximately 4 in 10 households have a radio (44%), and 42% of households have a television. Twenty-three percent of households have a refrigerator, and 8% have a computer. Thirteen percent of households own a bicycle, 29% own a motorcycle or scooter, and 11% own a car or truck. Overall, 55% of households own agricultural land and 45% own farm animals. As expected, more households in rural areas than urban areas own agricultural land (66% and 32%, respectively) and farm animals (54% and 26%, respectively).

2.6.2 Wealth Index

Wealth index

Households are given scores based on the number and kinds of consumer goods they own, ranging from a television to a bicycle or car, and housing characteristics such as source of drinking water, toilet facilities, and flooring materials. These scores are derived using principal component analysis.

National wealth quintiles are compiled by assigning the household score to each usual (de jure) household member, ranking each person in the household population by her or his score, and then dividing the distribution into five equal categories, each comprising 20% of the population.

Sample: Households

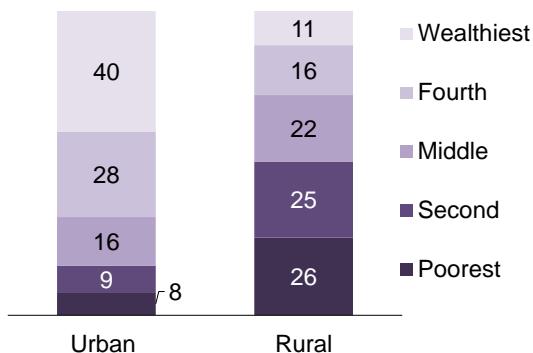
The distribution of the household population by wealth quintile indicates the degree to which wealth is evenly distributed among the population. **Table 2.8** shows the distribution of the de jure household population by wealth quintile, according to residence, zone, and state. Most of the urban population falls in

the upper two wealth quintiles, while most of the rural population falls in the bottom two quintiles (Figure 2.3). Forty percent of urban residents are in the highest wealth quintile, while 8% are in the lowest wealth quintile. In contrast, 11% of rural residents are in the highest wealth quintile and 26% are in the lowest wealth quintile.

The concentration of wealth differs markedly by zone. The percentages of the population in the lowest wealth quintile are greatest in North East and North West (38% and 31%, respectively). South West has the greatest percentage of residents in the highest wealth quintile (57%). By state, Lagos has the highest percentage (78%) of residents in the highest wealth quintile, while Borno has the highest percentage of residents in the lowest wealth quintile (67%).

Figure 2.3 Household wealth by residence

Percent distribution of *de jure* population by wealth quintiles



2.7 HOUSEHOLD POPULATION AND COMPOSITION

Household

A person or group of related or unrelated persons who live together in the same dwelling unit(s), who acknowledge one adult male or female as the head of the household, who share the same housekeeping arrangements, and who are considered a single unit.

De facto population

All persons who stayed in the selected households the night before the interview (whether usual residents or visitors).

De jure population

All persons who are usual residents of the selected households, whether or not they stayed in the household the night before the interview.

How data are calculated: All tables are based on the de facto population, unless otherwise specified.

Table 2.9 shows the distribution of the de facto household population in the 2021 NMIS by 5-year age groups, according to sex and residence. A total of 72,258 people stayed overnight in the 13,727 households interviewed in the survey. Nationally, 51% of the population falls into dependency age groups (0–14 and 65 or above). Overall, 53% of household residents are age 0–17, and 23% are classified as adolescents (age 10–19). Differences by urban and rural residence are generally small.

The population pyramid in **Figure 2.4** shows the population distribution by sex and 5-year age groups. The broad base of the pyramid indicates that Nigeria's population is young, with 47% of the population under age 15.

Table 2.10 presents the distribution of households by sex of head of household, household size, and mean size of households, according to residence. Nationally, 85% of households are headed by men and 15% are headed by women. Urban households are slightly more likely than rural households to be headed by women (18% versus 14%). On average, households consist of 5.3 persons; rural households are slightly larger than urban households (5.5 persons versus 5.0 persons).

2.8 BASIC CHARACTERISTICS OF SURVEY RESPONDENTS

A total of 14,476 women age 15–49 were interviewed with the Woman's Questionnaire; their background characteristics are presented in **Table 2.11.1**, and their distribution by state is presented in **Table 2.11.2**. Of note, 19% of respondents were age 15–19 and over half (55%) were under age 30. Fifty-nine percent of respondents practice Islam, 7% are Catholic, and 34% fall in the other Christian category. Close to 7 out of 10 women (68%) live in rural areas.

2.9 EDUCATIONAL ATTAINMENT

Studies have consistently shown that educational attainment has a strong effect on health behaviours and attitudes. In general, the higher the level of education that a woman attains, the more knowledgeable she is about use of health care services for herself, her children, and her family.

Table 2.12.1 shows the percent distribution of women age 15–49 by highest formal level of schooling attended or completed, and median years completed, according to background characteristics. Overall, 36% of women have no formal education, 5% have some primary education, 10% completed primary education but have not gone further, 16% have some secondary education, and 21% have completed secondary education. An additional 13% have attended or completed more than secondary education (**Figure 2.5**). Nationally, women have completed a median of 6.0 years of education. Formal educational attainment by state is shown in **Table 2.12.2**.

Figure 2.4 Population pyramid

Percent distribution of the household population

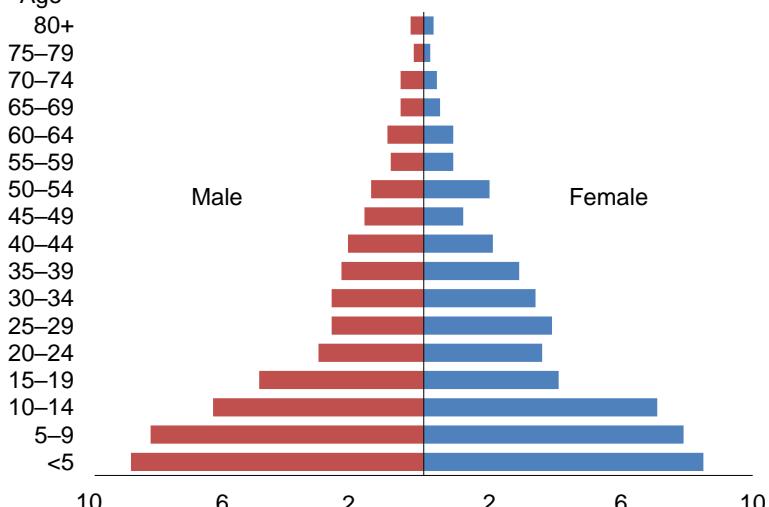
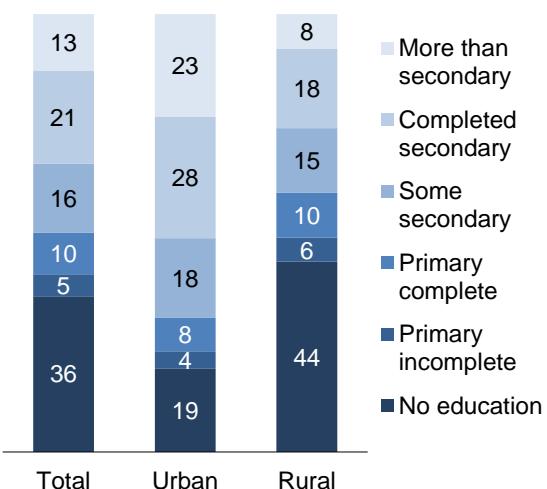


Figure 2.5 Education of survey respondents by residence

Percent distribution of women age 15–49 by highest level of schooling attended or completed



Note: No education includes informal education (adult education, Tsangaya, or Quranic).

In **Tables 2.12.1** and **2.12.2**, respondents who did not attend formal schooling are categorised as having no education. However, some of these respondents attended an informal or religious educational programme such as adult education, Tsangaya, or Quranic. Among women with informal schooling, 76% attended a Quranic school, and 22% attended a Tsangaya school; only 1% attended an adult education programme (**Tables 2.13.1** and **2.13.2**).

Patterns by background characteristics

- The median number of years of education completed generally falls with increasing age, from 8.7 years among women age 15–19 to 4.9 years among women age 45–49.
- By residence, the percentage of women with a secondary education or higher is greater in urban areas than rural areas (51% versus 26%). The median number of years of education completed is 11.0 among urban women and 5.1 among rural women.
- The percentage of women with no formal education ranges from 3% in South East to 58% in North East.
- The percentage of women with a secondary education or higher ranges from 18% in North West to 59% in South South.
- The percentage of women with no formal education varies widely by state, from 1% each in Imo and Anambra to 79% in Kebbi (**Table 2.12.2**).

2.10 LITERACY

Literacy

Respondents who had attended higher than secondary school were assumed to be literate. All other respondents were considered literate if they could read aloud all or part of a sentence shown to them.

Sample: Women age 15–49

The ability to read and write is an important personal asset, allowing individuals increased opportunities in life. Knowing the distribution of the literate population can help those involved in health communication plan how to reach women with their messages. The 2021 NMIS assessed the ability to read among women who had never been to school or who had attended only the primary level by asking them to read a simple, short sentence or part of the sentence.

Table 2.14.1 shows that, overall, 56% of women in Nigeria are literate. Forty-four percent of women cannot read at all.

Patterns by background characteristics

- Literacy is highest in the 15–19 age group (66%) and generally decreases with increasing age.
- Literacy varies by place of residence; 75% of women in urban areas are literate, as compared with 47% of women in rural areas.
- By zone, the percentage of respondents who are literate ranges from 37% in North West to 89% in South East.
- By state, literacy among respondents ranges from 22% in Sokoto to 97% in Anambra (**Table 2.14.2**).

2.11 MASS MEDIA EXPOSURE

Exposure to mass media

Respondents were asked how often they read a newspaper, listened to the radio, or watched television. Those who responded *at least once a week* are considered regularly exposed to that form of media.

Sample: Women age 15–49

Mass media (e.g., television, newspapers, magazines, and radio) is a means of communication capable of reaching large numbers of people in a short time. Exposure to mass media is key to information dissemination and knowledge expansion. All women were asked how often they listen to a radio or watch television, and women who were literate were asked how often they read a newspaper or magazine.

Seven percent of women read a newspaper at least once a week, 29% watch television at least once a week, and 22% listen to the radio at least once a week (**Table 2.15** and **Figure 2.6**). Four percent of women are exposed to all three media sources at least once a week; 61% access none of the three media sources at least once a week.

Patterns by background characteristics

- Women in rural areas are more likely than women in urban areas to access none of the three media sources weekly (69% versus 44%).
- The percentage of women accessing none of the three media sources at least once a week ranges from 38% in South East to 84% in North East.
- The percentage of women who access all three media sources increases with increasing wealth, from less than 1% among women in the lowest two wealth quintiles to 12% among women in the highest quintile.

2.12 MOBILE PHONE OWNERSHIP AND INTERNET USAGE

Use of the internet

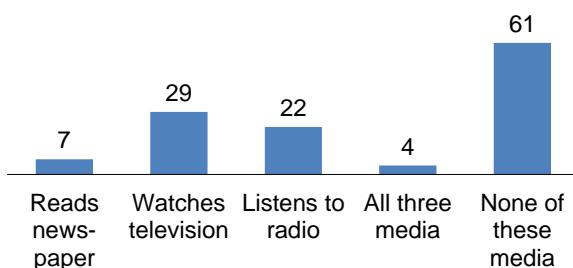
Respondents were asked if they have ever used the internet from any device, if they used the internet in the last 12 months, and, if so, how often they used it during the last month.

Sample: Women age 15–49

The internet has become an important means of sharing information and transacting business. It has increasingly connected citizens both economically and socially and is one of the defining factors in our information dissemination capability. One of the critical ways in which the internet is accessed is via smart phones. To this end, the 2021 NMIS asked respondents about smart phone ownership and use of the internet from any device.

Figure 2.6 Exposure to mass media

Percentage of women age 15–49 who are exposed to media on a weekly basis



More than half of women (58%) own a mobile phone, and 23% own a smart phone. Only one in four women (25%) have ever used the internet, with 23% using the internet in the last 12 months (**Table 2.16**). Among women who have used the internet in the past 12 months, 65% use it almost every day.

Patterns by background characteristics

- By age, mobile phone ownership ranges from 40% among women age 15–19 to 67% among women age 35–39.
- Thirty-nine percent of urban women have used the internet in the last 12 months, as compared with 15% of rural women.
- By zone, the percentage of women who use the internet almost every day ranges from 51% in North West to 74% in North Central.

LIST OF TABLES

For detailed information on household population, housing characteristics, and respondent characteristics, see the following tables:

- **Table 2.1** Household drinking water
- **Table 2.2** Drinking water service ladder
- **Table 2.3** Household sanitation facilities
- **Table 2.4** Sanitation service ladder
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Table 2.1 Household drinking water

Percent distribution of households and de jure population by source of drinking water and by time to obtain drinking water, according to residence, Nigeria MIS 2021

| Characteristic | Households | | | Population | | |
|-----------------------------------|------------|-------|--------|------------|--------|--------|
| | Urban | Rural | Total | Urban | Rural | Total |
| Source of drinking water | | | | | | |
| Improved source | 95.1 | 71.0 | 79.0 | 94.1 | 68.2 | 76.2 |
| Piped into dwelling/yard/plot | 11.6 | 4.5 | 6.9 | 11.2 | 3.7 | 6.0 |
| Piped to neighbour | 1.9 | 1.1 | 1.4 | 1.8 | 1.0 | 1.3 |
| Public tap/standpipe | 10.9 | 6.3 | 7.8 | 12.7 | 6.8 | 8.6 |
| Tube well or borehole | 32.7 | 34.8 | 34.1 | 34.4 | 35.0 | 34.8 |
| Protected dug well | 13.9 | 13.6 | 13.7 | 14.8 | 14.0 | 14.3 |
| Protected spring | 0.3 | 0.7 | 0.6 | 0.3 | 0.7 | 0.6 |
| Rainwater | 1.7 | 2.4 | 2.1 | 1.4 | 1.9 | 1.8 |
| Tanker truck/cart with small tank | 1.1 | 0.5 | 0.7 | 1.4 | 0.4 | 0.7 |
| Bottled water | 2.2 | 0.4 | 1.0 | 1.5 | 0.2 | 0.6 |
| Sachet water | 18.8 | 6.8 | 10.8 | 14.7 | 4.5 | 7.6 |
| Unimproved source | 4.3 | 20.1 | 14.9 | 5.3 | 23.4 | 17.8 |
| Unprotected dug well | 3.9 | 15.8 | 11.8 | 4.9 | 19.0 | 14.6 |
| Unprotected spring | 0.2 | 4.3 | 2.9 | 0.3 | 4.3 | 3.1 |
| Other | 0.2 | 0.1 | 0.1 | 0.2 | 0.1 | 0.1 |
| Surface water | 0.6 | 8.8 | 6.1 | 0.6 | 8.4 | 6.0 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Number of households/population | 4,546 | 9,181 | 13,727 | 22,518 | 50,626 | 73,143 |

¹ Includes water piped to a neighbour and those reporting a round-trip collection time of zero minutes

Table 2.2 Drinking water service ladder

Percent distribution of de jure population by drinking water service ladder, according to background characteristics, Nigeria MIS 2021

| Background characteristic | At least basic service ¹ | Limited service ² | Unimproved ³ | Surface water | Total | Number of persons |
|---------------------------|-------------------------------------|------------------------------|-------------------------|---------------|-------|-------------------|
| Residence | | | | | | |
| Urban | 89.5 | 4.6 | 5.3 | 0.6 | 100.0 | 22,518 |
| Rural | 64.6 | 3.7 | 23.4 | 8.4 | 100.0 | 50,626 |
| Zone | | | | | | |
| North Central | 63.5 | 7.6 | 15.6 | 13.3 | 100.0 | 12,000 |
| North East | 65.2 | 6.1 | 18.8 | 9.9 | 100.0 | 12,741 |
| North West | 65.8 | 2.3 | 30.5 | 1.3 | 100.0 | 24,973 |
| South East | 85.5 | 5.5 | 3.3 | 5.7 | 100.0 | 5,625 |
| South South | 84.2 | 1.2 | 5.9 | 8.7 | 100.0 | 8,293 |
| South West | 91.3 | 2.2 | 5.1 | 1.4 | 100.0 | 9,512 |
| Wealth quintile | | | | | | |
| Lowest | 41.9 | 3.6 | 43.8 | 10.7 | 100.0 | 14,637 |
| Second | 62.0 | 4.3 | 25.6 | 8.1 | 100.0 | 14,622 |
| Middle | 72.1 | 6.3 | 14.3 | 7.3 | 100.0 | 14,641 |
| Fourth | 88.3 | 3.6 | 4.6 | 3.5 | 100.0 | 14,614 |
| Highest | 96.9 | 1.9 | 0.9 | 0.3 | 100.0 | 14,629 |
| Total | 72.2 | 3.9 | 17.8 | 6.0 | 100.0 | 73,143 |

Note: Service ladder concept and definitions are based on the WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP).

¹ Defined as drinking water from an improved source, provided either water is on the premises or round-trip collection time is 30 minutes or less. Includes safely managed drinking water, which is not shown separately.

² Drinking water from an improved source, provided round-trip collection time is more than 30 minutes or is unknown.

³ Drinking water from an unprotected dug well, unprotected spring, or other unimproved source

Table 2.3 Household sanitation facilities

Percent distribution of households and de jure population by type of toilet/latrine facilities and percent distribution of households and de jure population with a toilet/latrine facility by location of the facility, according to residence, Nigeria MIS 2021

| Type and location of toilet/latrine facility | Households | | | Population | | |
|--|------------|-------|--------|------------|--------|--------|
| | Urban | Rural | Total | Urban | Rural | Total |
| Improved sanitation facility | 87.9 | 51.7 | 63.7 | 87.0 | 48.7 | 60.5 |
| Flush/pour flush to piped sewer system | 12.2 | 5.5 | 7.7 | 10.6 | 4.5 | 6.4 |
| Flush/pour flush to septic tank | 38.2 | 15.5 | 23.0 | 33.0 | 12.2 | 18.6 |
| Flush/pour flush to pit latrine | 11.8 | 6.9 | 8.5 | 11.7 | 6.3 | 8.0 |
| Ventilated improved pit (VIP) latrine | 5.4 | 2.0 | 3.1 | 6.8 | 2.3 | 3.7 |
| Pit latrine with slab | 20.2 | 21.5 | 21.1 | 24.7 | 23.1 | 23.6 |
| Composting toilet | 0.0 | 0.3 | 0.2 | 0.0 | 0.4 | 0.3 |
| Unimproved sanitation facility | 8.0 | 21.6 | 17.1 | 9.5 | 25.2 | 20.4 |
| Flush/pour flush not to sewer/septic tank/pit latrine | 0.4 | 0.2 | 0.3 | 0.3 | 0.2 | 0.2 |
| Pit latrine without slab/open pit | 6.4 | 20.1 | 15.6 | 8.0 | 23.9 | 19.0 |
| Bucket | 0.6 | 0.2 | 0.3 | 0.5 | 0.1 | 0.2 |
| Hanging toilet/hanging latrine | 0.6 | 0.8 | 0.7 | 0.6 | 0.8 | 0.7 |
| Other | 0.1 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 |
| Open defecation (no facility/bush/field) | 4.1 | 26.6 | 19.2 | 3.5 | 26.1 | 19.1 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Number of households/population | 4,546 | 9,181 | 13,727 | 22,518 | 50,626 | 73,143 |
| Location of toilet facility | | | | | | |
| In own dwelling | 51.8 | 38.5 | 43.7 | 50.5 | 37.4 | 42.2 |
| In own yard/plot | 43.6 | 56.6 | 51.5 | 45.0 | 58.6 | 53.6 |
| Elsewhere | 4.6 | 4.9 | 4.8 | 4.5 | 4.0 | 4.2 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Number of households/population with a toilet/latrine facility | 4,361 | 6,736 | 11,096 | 21,721 | 37,417 | 59,138 |

Table 2.4 Sanitation service ladder

Percent distribution of de jure population by type of sanitation service, according to background characteristics, Nigeria MIS 2021

| Background characteristic | At least basic service ¹ | Limited service ² | Unimproved ³ | Open defecation | Total | Number of persons |
|---------------------------|-------------------------------------|------------------------------|-------------------------|-----------------|-------|-------------------|
| Residence | | | | | | |
| Urban | 59.7 | 27.3 | 9.5 | 3.5 | 100.0 | 22,518 |
| Rural | 37.3 | 11.4 | 25.2 | 26.1 | 100.0 | 50,626 |
| Zone | | | | | | |
| North Central | 35.8 | 15.1 | 8.5 | 40.6 | 100.0 | 12,000 |
| North East | 33.3 | 12.7 | 34.9 | 19.1 | 100.0 | 12,741 |
| North West | 49.4 | 10.4 | 29.6 | 10.6 | 100.0 | 24,973 |
| South East | 44.5 | 17.6 | 10.1 | 27.9 | 100.0 | 5,625 |
| South South | 52.7 | 20.6 | 12.4 | 14.2 | 100.0 | 8,293 |
| South West | 48.4 | 33.4 | 4.6 | 13.6 | 100.0 | 9,512 |
| Wealth quintile | | | | | | |
| Lowest | 15.6 | 11.0 | 39.0 | 34.4 | 100.0 | 14,637 |
| Second | 31.7 | 9.9 | 33.1 | 25.3 | 100.0 | 14,622 |
| Middle | 40.8 | 15.6 | 19.9 | 23.7 | 100.0 | 14,641 |
| Fourth | 53.4 | 26.5 | 8.9 | 11.2 | 100.0 | 14,614 |
| Highest | 79.6 | 18.4 | 0.9 | 1.1 | 100.0 | 14,629 |
| Total | 44.2 | 16.3 | 20.4 | 19.1 | 100.0 | 73,143 |

Note: Service ladder concept and definitions are based on the WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP).

¹ Defined as use of improved facilities that are not shared with other households. Includes safely managed sanitation service, which is not shown separately.

² Defined as use of improved facilities shared by 2 or more households

³ Use of flush/pour flush toilet not to sewer, septic tank, or pit latrine; pit latrine without a slab/open pit; hanging toilet/latrine; or bucket

Table 2.5 Household characteristics: Construction materials and rooms used for sleeping

Percent distribution of households and de jure population by housing construction materials and rooms used for sleeping, according to residence, Nigeria MIS 2021

| Housing characteristic | Households | | | Population | | |
|---------------------------------|------------|-------|--------|------------|--------|--------|
| | Urban | Rural | Total | Urban | Rural | Total |
| Flooring material | | | | | | |
| Earth/sand | 20.6 | 45.2 | 37.0 | 25.6 | 50.9 | 43.1 |
| Dung | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.2 |
| Wood/planks | 0.4 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| Palm/bamboo | 0.0 | 0.2 | 0.2 | 0.0 | 0.3 | 0.2 |
| Parquet or polished wood | 0.6 | 0.3 | 0.4 | 0.5 | 0.3 | 0.4 |
| Vinyl or asphalt strips | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| Ceramic tiles | 23.9 | 8.7 | 13.8 | 21.1 | 7.3 | 11.5 |
| Cement | 48.8 | 43.2 | 45.0 | 47.7 | 39.2 | 41.8 |
| Carpet | 4.9 | 1.6 | 2.7 | 4.0 | 1.1 | 2.0 |
| Other | 0.3 | 0.1 | 0.1 | 0.3 | 0.1 | 0.2 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Roof material | | | | | | |
| No roof | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Thatch/palm leaf | 0.8 | 5.6 | 4.0 | 0.9 | 5.4 | 4.0 |
| Grass | 1.2 | 4.5 | 3.4 | 1.3 | 4.6 | 3.6 |
| Rustic mat | 1.0 | 0.7 | 0.8 | 1.4 | 0.8 | 1.0 |
| Palm/bamboo | 1.0 | 5.0 | 3.7 | 1.4 | 6.5 | 4.9 |
| Wood planks | 0.4 | 1.1 | 0.8 | 0.6 | 1.1 | 1.0 |
| Cardboard | 0.1 | 0.2 | 0.2 | 0.1 | 0.2 | 0.1 |
| Metal/zinc | 80.3 | 77.7 | 78.6 | 81.5 | 77.6 | 78.8 |
| Wood | 0.4 | 0.6 | 0.5 | 0.4 | 0.5 | 0.4 |
| Calamine/cement fibre | 0.5 | 0.1 | 0.2 | 0.4 | 0.1 | 0.2 |
| Ceramic tiles | 0.9 | 0.4 | 0.6 | 0.8 | 0.3 | 0.4 |
| Cement | 1.8 | 1.2 | 1.4 | 1.9 | 0.8 | 1.1 |
| Roofing shingles | 3.0 | 0.9 | 1.6 | 2.4 | 0.7 | 1.2 |
| Asbestos | 6.5 | 1.6 | 3.2 | 5.1 | 1.0 | 2.3 |
| Other | 1.7 | 0.3 | 0.8 | 1.9 | 0.3 | 0.8 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Exterior wall material | | | | | | |
| No walls | 1.8 | 3.1 | 2.6 | 2.1 | 3.4 | 3.0 |
| Cane/palm/trunks | 0.5 | 3.1 | 2.3 | 0.6 | 3.1 | 2.3 |
| Dirt | 1.3 | 2.8 | 2.3 | 1.5 | 3.1 | 2.6 |
| Bamboo with mud | 1.0 | 6.1 | 4.4 | 1.2 | 7.4 | 5.5 |
| Stone with mud | 7.6 | 26.1 | 20.0 | 9.9 | 30.4 | 24.1 |
| Uncovered adobe | 0.1 | 0.5 | 0.4 | 0.3 | 0.5 | 0.5 |
| Plywood | 0.2 | 0.3 | 0.3 | 0.2 | 0.3 | 0.3 |
| Cardboard | 0.0 | 0.1 | 0.1 | 0.0 | 0.1 | 0.0 |
| Reused wood | 0.3 | 0.1 | 0.2 | 0.3 | 0.1 | 0.2 |
| Cement | 59.8 | 36.2 | 44.1 | 55.1 | 32.0 | 39.1 |
| Stone with lime/cement | 1.3 | 1.6 | 1.5 | 1.6 | 1.6 | 1.6 |
| Bricks | 0.9 | 2.1 | 1.7 | 0.9 | 2.3 | 1.9 |
| Cement blocks | 22.0 | 16.8 | 18.5 | 22.4 | 14.7 | 17.1 |
| Covered adobe | 0.3 | 0.1 | 0.2 | 0.6 | 0.2 | 0.3 |
| Wood planks/shingles | 0.4 | 0.4 | 0.4 | 0.5 | 0.4 | 0.4 |
| Other | 2.4 | 0.5 | 1.1 | 2.9 | 0.4 | 1.2 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Rooms used for sleeping | | | | | | |
| One | 32.4 | 27.6 | 29.2 | 21.7 | 16.0 | 17.8 |
| Two | 33.9 | 32.7 | 33.1 | 32.9 | 29.2 | 30.4 |
| Three or more | 33.7 | 39.7 | 37.7 | 45.3 | 54.7 | 51.8 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Number of households/population | 4,546 | 9,181 | 13,727 | 22,518 | 50,626 | 73,143 |

Table 2.6 Household characteristics: Electricity, cooking technology, and cooking fuel

Percent distribution of households and de jure population by access to electricity and cooking fuels and technologies, according to residence, Nigeria MIS 2021

| Housing characteristic | Households | | | Population | | |
|--|------------|-------|--------|------------|--------|--------|
| | Urban | Rural | Total | Urban | Rural | Total |
| Electricity | | | | | | |
| Yes | 75.6 | 35.6 | 48.9 | 72.1 | 31.3 | 43.8 |
| No | 24.4 | 64.4 | 51.1 | 27.9 | 68.7 | 56.2 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Main cooking technology | | | | | | |
| Clean fuels and technologies | 48.0 | 16.0 | 26.6 | 39.0 | 11.2 | 19.8 |
| Electric stove | 1.9 | 0.9 | 1.3 | 1.7 | 0.8 | 1.1 |
| Solar cooker | 0.1 | 0.0 | 0.1 | 0.1 | 0.0 | 0.1 |
| LPG/cooking gas stove | 38.8 | 13.8 | 22.1 | 31.1 | 9.4 | 16.1 |
| Piped natural gas stove | 3.0 | 0.7 | 1.5 | 2.4 | 0.5 | 1.1 |
| Biogas stove | 4.2 | 0.5 | 1.7 | 3.7 | 0.5 | 1.5 |
| Other fuels and technologies | 50.9 | 82.9 | 72.3 | 60.7 | 88.5 | 79.9 |
| Kerosene stove/liquid fuel stove not using alcohol/ethanol | 9.0 | 5.8 | 6.9 | 7.2 | 3.8 | 4.8 |
| Manufactured solid fuel stove | 1.3 | 1.0 | 1.1 | 1.5 | 0.9 | 1.1 |
| Traditional solid fuel stove | 2.7 | 2.1 | 2.3 | 4.0 | 2.1 | 2.7 |
| Three stone stove/open fire | 37.0 | 73.8 | 61.6 | 46.9 | 81.6 | 70.9 |
| Other fuel | 0.9 | 0.1 | 0.4 | 1.1 | 0.1 | 0.4 |
| No food cooked in household | 1.1 | 1.1 | 1.1 | 0.3 | 0.3 | 0.3 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Cooking fuel | | | | | | |
| Clean fuels and technologies¹ | 48.0 | 16.0 | 26.6 | 39.0 | 11.2 | 19.8 |
| Solid fuels for cooking | 41.3 | 76.3 | 64.7 | 52.9 | 84.0 | 74.4 |
| Coal/lignite | 0.4 | 0.1 | 0.2 | 0.5 | 0.1 | 0.2 |
| Charcoal | 8.7 | 3.3 | 5.0 | 10.0 | 2.9 | 5.1 |
| Wood | 30.1 | 66.2 | 54.2 | 39.3 | 73.2 | 62.8 |
| Straw/shrubs/grass | 1.2 | 4.9 | 3.7 | 1.5 | 5.8 | 4.4 |
| Agricultural crop | 0.4 | 0.9 | 0.7 | 0.8 | 0.9 | 0.9 |
| Animal dung/waste | 0.3 | 0.4 | 0.4 | 0.5 | 0.5 | 0.5 |
| Processed biomass (pellets) or woodchips | 0.1 | 0.5 | 0.4 | 0.1 | 0.5 | 0.4 |
| Garbage/plastic | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| Sawdust | 0.1 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 |
| Other fuels | 9.6 | 6.5 | 7.6 | 7.8 | 4.4 | 5.5 |
| Gasoline/diesel | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| Kerosene | 9.4 | 6.4 | 7.4 | 7.6 | 4.4 | 5.4 |
| Other fuel | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 |
| No food cooked in household | 1.1 | 1.1 | 1.1 | 0.3 | 0.3 | 0.3 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Number of households/population | 4,546 | 9,181 | 13,727 | 22,518 | 50,626 | 73,143 |

LPG = Liquefied petroleum gas

¹ Includes stoves/cookers using electricity, LPG/natural gas/biogas, solar, and alcohol/ethanol

Table 2.7 Household possessions

Percentage of households possessing various household effects, means of transportation, agricultural land, and livestock/farm animals, by residence, Nigeria MIS 2021

| Possession | Residence | | |
|--|-----------|-------|--------|
| | Urban | Rural | Total |
| Household effects | | | |
| Radio | 50.3 | 40.4 | 43.7 |
| Television | 62.4 | 31.1 | 41.5 |
| Mobile phone | 88.8 | 79.1 | 82.3 |
| Non-mobile telephone | 2.9 | 1.1 | 1.7 |
| Computer | 15.6 | 4.4 | 8.1 |
| Refrigerator | 39.0 | 15.5 | 23.3 |
| Table | 69.1 | 51.8 | 57.5 |
| Chair | 83.9 | 82.0 | 82.6 |
| Bed | 90.4 | 90.9 | 90.7 |
| Sofa | 50.1 | 36.9 | 41.3 |
| Cupboard | 61.0 | 48.5 | 52.7 |
| Air conditioner | 8.4 | 2.5 | 4.5 |
| Electric iron | 51.0 | 20.5 | 30.6 |
| Generator | 35.9 | 20.4 | 25.5 |
| Fan | 68.9 | 35.0 | 46.3 |
| Means of transport | | | |
| Bicycle | 10.3 | 14.7 | 13.3 |
| Animal-drawn cart | 1.5 | 4.4 | 3.5 |
| Motorcycle/scooter | 20.8 | 32.6 | 28.7 |
| Car/truck | 18.6 | 7.2 | 11.0 |
| Boat with a motor/canoe | 1.7 | 2.1 | 1.9 |
| Keke napep | 1.7 | 1.4 | 1.5 |
| Ownership of agricultural land | 31.7 | 66.4 | 54.9 |
| Ownership of farm animals¹ | 26.2 | 54.4 | 45.1 |
| Number | 4,546 | 9,181 | 13,727 |

¹ Cows, bulls, other cattle, horses, donkeys, goats, sheep, chickens or other poultry, pigs, or camels

Table 2.8 Wealth quintiles

Percent distribution of the de jure population by wealth quintiles, and the Gini coefficient, according to residence, zone, and state, Nigeria MIS 2021

| Residence/zone/state | Wealth quintile | | | | | Total | Number of persons | Gini coefficient ¹ |
|----------------------|-----------------|--------|--------|--------|---------|-------|-------------------|-------------------------------|
| | Lowest | Second | Middle | Fourth | Highest | | | |
| Residence | | | | | | | | |
| Urban | 7.6 | 8.7 | 16.0 | 28.0 | 39.7 | 100.0 | 22,518 | 0.30 |
| Rural | 25.5 | 25.0 | 21.8 | 16.4 | 11.2 | 100.0 | 50,626 | 0.40 |
| Zone | | | | | | | | |
| North Central | 12.9 | 20.8 | 27.2 | 22.8 | 16.3 | 100.0 | 12,000 | 0.34 |
| North East | 37.9 | 29.1 | 16.6 | 10.4 | 6.1 | 100.0 | 12,741 | 0.38 |
| North West | 30.6 | 28.3 | 19.9 | 15.0 | 6.3 | 100.0 | 24,973 | 0.37 |
| South East | 2.4 | 7.4 | 25.3 | 31.9 | 33.0 | 100.0 | 5,625 | 0.26 |
| South South | 2.6 | 7.8 | 22.5 | 30.0 | 37.1 | 100.0 | 8,293 | 0.24 |
| South West | 3.0 | 3.0 | 10.6 | 26.6 | 56.8 | 100.0 | 9,512 | 0.15 |
| State | | | | | | | | |
| Sokoto | 20.5 | 31.3 | 21.5 | 18.1 | 8.7 | 100.0 | 2,426 | 0.37 |
| Zamfara | 29.1 | 33.7 | 15.4 | 12.3 | 9.5 | 100.0 | 1,421 | 0.42 |
| Katsina | 45.3 | 25.6 | 14.1 | 11.5 | 3.5 | 100.0 | 7,037 | 0.42 |
| Jigawa | 37.2 | 27.9 | 11.8 | 13.1 | 10.0 | 100.0 | 2,726 | 0.46 |
| Yobe | 41.3 | 27.5 | 14.7 | 5.0 | 11.6 | 100.0 | 2,261 | 0.44 |
| Borno | 66.5 | 15.8 | 15.7 | 1.2 | 0.9 | 100.0 | 1,971 | 0.42 |
| Adamawa | 27.0 | 22.3 | 23.9 | 18.2 | 8.5 | 100.0 | 1,788 | 0.33 |
| Gombe | 27.4 | 23.7 | 19.0 | 20.6 | 9.2 | 100.0 | 1,581 | 0.34 |
| Bauchi | 35.8 | 44.0 | 12.6 | 5.5 | 2.0 | 100.0 | 3,789 | 0.33 |
| Kano | 19.8 | 33.2 | 24.4 | 18.2 | 4.4 | 100.0 | 4,892 | 0.32 |
| Kaduna | 6.9 | 20.7 | 32.1 | 26.4 | 13.9 | 100.0 | 3,302 | 0.31 |
| Kebbi | 41.7 | 30.3 | 20.7 | 6.6 | 0.8 | 100.0 | 3,169 | 0.32 |
| Niger | 20.9 | 35.5 | 28.1 | 10.5 | 5.0 | 100.0 | 3,212 | 0.29 |
| FCT | 0.7 | 5.9 | 20.1 | 18.1 | 55.2 | 100.0 | 968 | 0.35 |
| Nasarawa | 16.1 | 19.7 | 27.3 | 24.9 | 11.9 | 100.0 | 1,829 | 0.40 |
| Plateau | 16.6 | 22.5 | 35.6 | 17.1 | 8.3 | 100.0 | 1,518 | 0.29 |
| Taraba | 23.1 | 24.4 | 19.7 | 23.9 | 8.9 | 100.0 | 1,351 | 0.41 |
| Benue | 10.9 | 22.3 | 32.2 | 23.6 | 11.0 | 100.0 | 1,887 | 0.34 |
| Kogi | 2.1 | 7.9 | 31.1 | 41.5 | 17.3 | 100.0 | 1,307 | 0.28 |
| Kwara | 7.1 | 5.7 | 9.2 | 40.6 | 37.4 | 100.0 | 1,280 | 0.26 |
| Oyo | 8.2 | 5.7 | 6.9 | 20.5 | 58.7 | 100.0 | 2,398 | 0.18 |
| Osun | 1.0 | 1.5 | 12.8 | 31.0 | 53.6 | 100.0 | 1,456 | 0.17 |
| Ekiti | 0.6 | 3.9 | 21.9 | 38.1 | 35.5 | 100.0 | 572 | 0.26 |
| Ondo | 0.4 | 4.4 | 24.7 | 40.4 | 30.0 | 100.0 | 746 | 0.31 |
| Edo | 3.1 | 6.5 | 11.9 | 28.6 | 49.9 | 100.0 | 1,279 | 0.23 |
| Anambra | 0.0 | 0.4 | 2.6 | 24.1 | 72.9 | 100.0 | 1,305 | 0.17 |
| Enugu | 0.8 | 12.3 | 30.0 | 36.1 | 20.8 | 100.0 | 1,011 | 0.29 |
| Ebonyi | 7.4 | 16.2 | 41.4 | 26.9 | 8.0 | 100.0 | 1,563 | 0.31 |
| Cross River | 2.3 | 10.7 | 28.0 | 27.4 | 31.6 | 100.0 | 1,117 | 0.30 |
| Akwa Ibom | 4.1 | 11.7 | 35.8 | 33.7 | 14.8 | 100.0 | 2,398 | 0.28 |
| Abia | 0.0 | 1.0 | 20.2 | 32.4 | 46.4 | 100.0 | 831 | 0.22 |
| Imo | 1.0 | 2.7 | 29.8 | 46.5 | 20.0 | 100.0 | 915 | 0.27 |
| Rivers | 1.7 | 3.7 | 7.4 | 24.1 | 63.0 | 100.0 | 1,459 | 0.16 |
| Bayelsa | 1.1 | 5.6 | 28.1 | 31.6 | 33.5 | 100.0 | 592 | 0.29 |
| Delta | 1.3 | 5.4 | 18.6 | 32.3 | 42.4 | 100.0 | 1,447 | 0.26 |
| Lagos | 0.0 | 0.1 | 2.5 | 19.6 | 77.8 | 100.0 | 2,946 | 0.09 |
| Ogun | 4.6 | 5.1 | 19.4 | 35.1 | 35.8 | 100.0 | 1,393 | 0.25 |
| Total | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | 100.0 | 73,143 | 0.39 |

¹ The Gini coefficient indicates the level of concentration of wealth, with 0 representing an equal wealth distribution and 1 representing a totally unequal distribution.

Table 2.9 Household population by age, sex, and residence

Percent distribution of the de facto household population by various age groups and percentage of the de facto household population age 10–19, according to sex and residence, Nigeria MIS 2021

| Age | Urban | | | Rural | | | Total | | |
|------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | Male | Female | Total | Male | Female | Total | Male | Female | Total |
| <5 | 16.1 | 15.3 | 15.7 | 18.5 | 17.7 | 18.1 | 17.8 | 17.0 | 17.4 |
| 5–9 | 14.9 | 15.5 | 15.2 | 17.2 | 16.1 | 16.6 | 16.5 | 15.9 | 16.2 |
| 10–14 | 13.0 | 14.3 | 13.6 | 12.7 | 14.1 | 13.4 | 12.8 | 14.1 | 13.5 |
| 15–19 | 10.5 | 8.5 | 9.5 | 9.8 | 8.1 | 8.9 | 10.0 | 8.2 | 9.1 |
| 20–24 | 6.8 | 6.7 | 6.8 | 6.2 | 7.4 | 6.8 | 6.4 | 7.2 | 6.8 |
| 25–29 | 5.7 | 7.9 | 6.8 | 5.5 | 7.7 | 6.6 | 5.6 | 7.8 | 6.7 |
| 30–34 | 5.5 | 7.2 | 6.3 | 5.5 | 6.8 | 6.1 | 5.5 | 6.9 | 6.2 |
| 35–39 | 5.7 | 6.6 | 6.1 | 4.8 | 5.3 | 5.1 | 5.1 | 5.7 | 5.4 |
| 40–44 | 5.1 | 4.7 | 4.9 | 4.4 | 3.9 | 4.2 | 4.7 | 4.1 | 4.4 |
| 45–49 | 4.2 | 2.9 | 3.5 | 3.3 | 2.1 | 2.7 | 3.6 | 2.4 | 3.0 |
| 50–54 | 3.6 | 4.0 | 3.8 | 3.2 | 4.0 | 3.6 | 3.3 | 4.0 | 3.7 |
| 55–59 | 2.3 | 1.9 | 2.1 | 2.0 | 1.8 | 1.9 | 2.1 | 1.8 | 2.0 |
| 60–64 | 2.3 | 1.6 | 2.0 | 2.0 | 1.7 | 1.9 | 2.1 | 1.7 | 1.9 |
| 65–69 | 1.4 | 0.9 | 1.2 | 1.4 | 1.0 | 1.2 | 1.4 | 1.0 | 1.2 |
| 70–74 | 1.1 | 0.7 | 0.9 | 1.5 | 0.8 | 1.1 | 1.4 | 0.7 | 1.0 |
| 75–79 | 0.4 | 0.5 | 0.4 | 0.6 | 0.5 | 0.6 | 0.6 | 0.5 | 0.5 |
| 80+ | 0.6 | 0.5 | 0.6 | 0.8 | 0.7 | 0.7 | 0.7 | 0.6 | 0.7 |
| Don't know | 0.7 | 0.2 | 0.4 | 0.4 | 0.3 | 0.4 | 0.5 | 0.3 | 0.4 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Dependency age groups | | | | | | | | | |
| 0–14 | 44.0 | 45.1 | 44.6 | 48.5 | 47.9 | 48.2 | 47.1 | 47.0 | 47.1 |
| 15–64 | 51.7 | 52.1 | 51.9 | 46.8 | 48.9 | 47.9 | 48.3 | 49.9 | 49.1 |
| 65+ | 3.6 | 2.6 | 3.1 | 4.3 | 2.9 | 3.6 | 4.1 | 2.8 | 3.4 |
| Don't know | 0.7 | 0.2 | 0.4 | 0.4 | 0.3 | 0.4 | 0.5 | 0.3 | 0.4 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Child and adult populations | | | | | | | | | |
| 0–17 | 50.5 | 50.5 | 50.5 | 55.3 | 52.9 | 54.1 | 53.8 | 52.2 | 53.0 |
| 18+ | 48.8 | 49.3 | 49.0 | 44.2 | 46.8 | 45.5 | 45.7 | 47.6 | 46.6 |
| Don't know | 0.7 | 0.2 | 0.4 | 0.4 | 0.3 | 0.4 | 0.5 | 0.3 | 0.4 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Adolescents 10–19 | 23.4 | 22.8 | 23.1 | 22.5 | 22.2 | 22.3 | 22.8 | 22.3 | 22.6 |
| Number of persons | 11,204 | 11,011 | 22,215 | 24,954 | 25,088 | 50,042 | 36,159 | 36,099 | 72,258 |

Table 2.10 Household composition

Percent distribution of households by sex of head of household and by household size, and mean size of households, according to residence, Nigeria MIS 2021

| Characteristic | Residence | | |
|--------------------------------|-----------|-------|--------|
| | Urban | Rural | Total |
| Household headship | | | |
| Male | 82.5 | 86.3 | 85.1 |
| Female | 17.5 | 13.7 | 14.9 |
| Total | 100.0 | 100.0 | 100.0 |
| Number of usual members | | | |
| 1 | 11.1 | 8.9 | 9.6 |
| 2 | 9.8 | 11.1 | 10.6 |
| 3 | 13.1 | 12.4 | 12.6 |
| 4 | 16.1 | 13.6 | 14.4 |
| 5 | 14.9 | 13.0 | 13.6 |
| 6 | 11.5 | 11.4 | 11.5 |
| 7 | 8.1 | 8.1 | 8.1 |
| 8 | 4.8 | 5.7 | 5.4 |
| 9+ | 10.5 | 15.9 | 14.1 |
| Total | 100.0 | 100.0 | 100.0 |
| Mean size of households | 5.0 | 5.5 | 5.3 |
| Number of households | 4,546 | 9,181 | 13,727 |

Note: Table is based on de jure household members, i.e., usual residents.

Table 2.11.1 Background characteristics of respondents: National

Percent distribution of women age 15–49 by selected background characteristics, Nigeria MIS 2021

| Background characteristic | Weighted percent | Weighted number | Unweighted number |
|---------------------------|------------------|-----------------|-------------------|
| Age | | | |
| 15–19 | 19.3 | 2,793 | 2,663 |
| 20–24 | 17.0 | 2,464 | 2,466 |
| 25–29 | 18.4 | 2,660 | 2,687 |
| 30–34 | 16.3 | 2,362 | 2,340 |
| 35–39 | 13.6 | 1,964 | 1,998 |
| 40–44 | 9.8 | 1,420 | 1,435 |
| 45–49 | 5.6 | 814 | 887 |
| Religion | | | |
| Catholic | 7.3 | 1,057 | 1,301 |
| Other Christian | 33.8 | 4,892 | 5,757 |
| Islam | 58.5 | 8,470 | 7,344 |
| Traditionalist | 0.4 | 54 | 70 |
| Other | 0.0 | 3 | 4 |
| Residence | | | |
| Urban | 32.1 | 4,641 | 4,930 |
| Rural | 67.9 | 9,835 | 9,546 |
| Zone | | | |
| North Central | 16.4 | 2,377 | 2,674 |
| North East | 16.6 | 2,399 | 2,523 |
| North West | 33.4 | 4,832 | 3,635 |
| South East | 7.7 | 1,111 | 1,523 |
| South South | 12.0 | 1,734 | 2,148 |
| South West | 14.0 | 2,023 | 1,973 |
| Education | | | |
| No education ¹ | 35.6 | 5,156 | 4,792 |
| Primary | 14.4 | 2,089 | 1,977 |
| Secondary | 37.1 | 5,364 | 5,669 |
| More than secondary | 12.9 | 1,867 | 2,038 |
| Wealth quintile | | | |
| Lowest | 18.3 | 2,651 | 2,434 |
| Second | 18.9 | 2,730 | 2,431 |
| Middle | 19.3 | 2,799 | 2,802 |
| Fourth | 20.8 | 3,006 | 3,225 |
| Highest | 22.7 | 3,289 | 3,584 |
| Total | 100.0 | 14,476 | 14,476 |

Note: Education categories refer to the highest level of education attended, whether or not that level was completed.

¹ No education includes informal education (adult education, Tsangaya, or Quranic).

Table 2.11.2 Distribution of respondents: States

Percent distribution of women age 15–49 by state, Nigeria MIS 2021

| State | Weighted percent | Weighted number | Unweighted number |
|----------------------|------------------|-----------------|-------------------|
| North Central | | | |
| FCT-Abuja | 1.6 | 238 | 359 |
| Benue | 2.9 | 418 | 463 |
| Kogi | 1.7 | 251 | 329 |
| Kwara | 1.9 | 277 | 313 |
| Nasarawa | 2.5 | 358 | 420 |
| Niger | 3.7 | 537 | 423 |
| Plateau | 2.1 | 298 | 367 |
| North East | | | |
| Adamawa | 2.3 | 336 | 387 |
| Bauchi | 4.9 | 703 | 484 |
| Borno | 2.5 | 358 | 420 |
| Gombe | 1.9 | 279 | 365 |
| Taraba | 1.9 | 276 | 403 |
| Yobe | 3.1 | 447 | 464 |
| North West | | | |
| Jigawa | 3.9 | 566 | 506 |
| Kaduna | 4.8 | 690 | 531 |
| Kano | 6.4 | 920 | 620 |
| Katsina | 9.4 | 1,362 | 662 |
| Kebbi | 4.2 | 613 | 479 |
| Sokoto | 2.8 | 399 | 398 |
| Zamfara | 1.9 | 282 | 439 |
| South East | | | |
| Abia | 1.2 | 178 | 299 |
| Anambra | 2.0 | 283 | 357 |
| Ebonyi | 2.1 | 297 | 312 |
| Enugu | 1.4 | 204 | 289 |
| Imo | 1.0 | 149 | 266 |
| South South | | | |
| Akwa Ibom | 3.3 | 478 | 320 |
| Bayelsa | 0.9 | 131 | 314 |
| Cross River | 1.5 | 224 | 318 |
| Delta | 2.1 | 298 | 326 |
| Edo | 2.1 | 300 | 331 |
| Rivers | 2.1 | 304 | 539 |
| South West | | | |
| Ekiti | 0.8 | 123 | 278 |
| Lagos | 4.3 | 620 | 346 |
| Ogun | 2.1 | 308 | 330 |
| Ondo | 1.1 | 156 | 306 |
| Osun | 2.2 | 320 | 354 |
| Oyo | 3.4 | 497 | 359 |
| Total | 100.0 | 14,476 | 14,476 |

Table 2.12.1 Formal educational attainment of interviewed women: National

Percent distribution of women age 15–49 by highest level of schooling attended or completed, and median years completed, according to background characteristics, Nigeria MIS 2021

| Background characteristic | Highest level of schooling | | | | | | Median years completed | Number of women |
|---------------------------|----------------------------|--------------|--------------------------------|----------------|----------------------------------|---------------------|------------------------|-----------------|
| | No education ¹ | Some primary | Completed primary ² | Some secondary | Completed secondary ³ | More than secondary | | |
| Age | | | | | | | | |
| 15–24 | 29.8 | 4.5 | 8.0 | 25.0 | 25.0 | 7.7 | 100.0 | 8.5 |
| 15–19 | 24.9 | 4.3 | 8.1 | 35.9 | 23.5 | 3.3 | 100.0 | 8.7 |
| 20–24 | 35.4 | 4.7 | 7.9 | 12.6 | 26.8 | 12.7 | 100.0 | 8.1 |
| 25–29 | 35.2 | 4.6 | 8.5 | 11.0 | 24.2 | 16.6 | 100.0 | 8.0 |
| 30–34 | 41.2 | 5.5 | 8.8 | 10.7 | 19.8 | 14.0 | 100.0 | 5.4 |
| 35–39 | 35.5 | 5.3 | 11.7 | 12.3 | 17.5 | 17.6 | 100.0 | 5.8 |
| 40–44 | 44.2 | 5.4 | 12.8 | 8.1 | 14.3 | 15.3 | 100.0 | 5.0 |
| 45–49 | 43.7 | 6.4 | 12.7 | 8.7 | 12.7 | 15.7 | 100.0 | 4.9 |
| Residence | | | | | | | | |
| Urban | 19.0 | 4.0 | 7.7 | 18.1 | 27.8 | 23.4 | 100.0 | 11.0 |
| Rural | 43.5 | 5.5 | 10.3 | 14.7 | 18.1 | 8.0 | 100.0 | 5.1 |
| Zone | | | | | | | | |
| North Central | 32.7 | 5.3 | 11.1 | 16.6 | 20.6 | 13.7 | 100.0 | 7.1 |
| North East | 57.6 | 6.5 | 6.7 | 10.1 | 11.8 | 7.3 | 100.0 | 0.0 |
| North West | 55.6 | 5.3 | 9.8 | 11.5 | 12.8 | 4.9 | 100.0 | 0.0 |
| South East | 2.8 | 4.3 | 11.5 | 23.9 | 39.0 | 18.4 | 100.0 | 11.2 |
| South South | 6.8 | 3.5 | 9.6 | 21.0 | 37.5 | 21.6 | 100.0 | 11.2 |
| South West | 8.0 | 3.6 | 8.7 | 22.9 | 29.6 | 27.2 | 100.0 | 11.2 |
| Wealth quintile | | | | | | | | |
| Lowest | 79.5 | 4.6 | 7.1 | 5.8 | 2.8 | 0.3 | 100.0 | 0.0 |
| Second | 61.0 | 7.7 | 11.5 | 10.3 | 8.6 | 0.9 | 100.0 | 0.0 |
| Middle | 33.5 | 7.4 | 13.7 | 21.6 | 20.2 | 3.6 | 100.0 | 5.7 |
| Fourth | 12.5 | 5.0 | 11.3 | 24.7 | 34.3 | 12.3 | 100.0 | 10.5 |
| Highest | 2.1 | 0.9 | 4.4 | 15.3 | 35.7 | 41.5 | 100.0 | 11.7 |
| Total | 35.6 | 5.0 | 9.5 | 15.8 | 21.3 | 12.9 | 100.0 | 6.0 |
| | | | | | | | | 14,476 |

¹ No education includes informal education (adult education, Tsangaya, or Quranic).

² Completed grade 6 at the primary level

³ Completed 6 years at the secondary level

Table 2.12.2 Formal educational attainment of interviewed women: States

Percent distribution of women age 15–49 by highest level of schooling attended or completed, and median years completed, by state, Nigeria MIS 2021

| State | Highest level of schooling | | | | | | Median years completed | Number of women |
|--|----------------------------|--------------|--------------------------------|----------------|----------------------------------|---------------------|------------------------|-----------------|
| | No education ¹ | Some primary | Completed primary ² | Some secondary | Completed secondary ³ | More than secondary | | |
| North Central | | | | | | | | |
| FCT-Abuja | 17.7 | 3.8 | 4.5 | 14.7 | 20.0 | 39.3 | 100.0 | 11.5 |
| Benue | 13.4 | 4.3 | 19.5 | 30.9 | 20.4 | 11.4 | 100.0 | 8.5 |
| Kogi | 15.4 | 11.6 | 13.5 | 19.4 | 30.7 | 9.5 | 100.0 | 8.8 |
| Kwara | 16.2 | 3.2 | 14.7 | 8.2 | 26.8 | 30.9 | 100.0 | 11.3 |
| Nasarawa | 44.9 | 5.1 | 5.8 | 13.1 | 21.0 | 10.1 | 100.0 | 5.0 |
| Niger | 59.2 | 5.8 | 9.3 | 11.9 | 10.3 | 3.5 | 100.0 | 0.0 |
| Plateau | 39.1 | 4.1 | 8.7 | 15.9 | 25.2 | 6.9 | 100.0 | 5.8 |
| North East | | | | | | | | |
| Adamawa | 39.7 | 7.1 | 9.0 | 15.9 | 19.1 | 9.2 | 100.0 | 5.4 |
| Bauchi | 65.0 | 9.3 | 6.2 | 7.2 | 10.1 | 2.1 | 100.0 | 0.0 |
| Borno | 67.5 | 7.2 | 6.1 | 12.0 | 4.3 | 3.0 | 100.0 | 0.0 |
| Gombe | 51.2 | 4.1 | 4.4 | 13.5 | 18.7 | 8.1 | 100.0 | 0.0 |
| Taraba | 38.8 | 8.3 | 12.0 | 11.8 | 15.8 | 13.3 | 100.0 | 5.2 |
| Yobe | 67.2 | 1.5 | 4.1 | 5.6 | 8.3 | 13.3 | 100.0 | 0.0 |
| North West | | | | | | | | |
| Jigawa | 56.0 | 6.2 | 4.8 | 9.3 | 13.8 | 10.0 | 100.0 | 0.0 |
| Kaduna | 21.4 | 6.2 | 13.2 | 20.9 | 24.9 | 13.3 | 100.0 | 8.7 |
| Kano | 49.1 | 6.6 | 11.4 | 16.4 | 14.4 | 2.0 | 100.0 | 1.6 |
| Katsina | 57.9 | 4.3 | 13.4 | 10.2 | 11.2 | 3.0 | 100.0 | 0.0 |
| Kebbi | 79.3 | 5.6 | 5.8 | 3.9 | 3.8 | 1.5 | 100.0 | 0.0 |
| Sokoto | 73.8 | 5.4 | 5.7 | 7.2 | 7.2 | 0.8 | 100.0 | 0.0 |
| Zamfara | 71.2 | 1.2 | 4.0 | 6.5 | 11.6 | 5.4 | 100.0 | 0.0 |
| South East | | | | | | | | |
| Abia | 4.7 | 2.8 | 7.1 | 27.1 | 35.8 | 22.5 | 100.0 | 11.2 |
| Anambra | 1.4 | 2.8 | 6.4 | 11.8 | 49.4 | 28.1 | 100.0 | 11.6 |
| Ebonyi | 3.0 | 6.6 | 19.5 | 30.1 | 31.6 | 9.3 | 100.0 | 9.3 |
| Enugu | 4.2 | 6.0 | 14.8 | 30.3 | 30.6 | 14.1 | 100.0 | 10.3 |
| Imo | 1.0 | 2.0 | 6.2 | 22.1 | 49.2 | 19.4 | 100.0 | 11.4 |
| South South | | | | | | | | |
| Akwa Ibom | 6.4 | 4.5 | 17.4 | 20.2 | 37.0 | 14.5 | 100.0 | 11.0 |
| Bayelsa | 8.4 | 4.2 | 10.5 | 23.2 | 33.8 | 19.8 | 100.0 | 11.1 |
| Cross River | 6.4 | 5.4 | 7.2 | 19.8 | 41.1 | 20.2 | 100.0 | 11.3 |
| Delta | 11.8 | 3.0 | 1.5 | 31.7 | 23.4 | 28.5 | 100.0 | 11.1 |
| Edo | 6.5 | 1.8 | 9.7 | 20.9 | 32.9 | 28.1 | 100.0 | 11.3 |
| Rivers | 2.4 | 2.1 | 6.7 | 11.8 | 55.6 | 21.5 | 100.0 | 11.5 |
| Total | 35.6 | 5.0 | 9.5 | 15.8 | 21.3 | 12.9 | 100.0 | 6.0 |
| | | | | | | | | |
| ¹ No education includes informal education (adult education, Tsangaya, or Quranic). | | | | | | | | |
| ² Completed grade 6 at the primary level | | | | | | | | |
| ³ Completed 6 years at the secondary level | | | | | | | | |

¹ No education includes informal education (adult education, Tsangaya, or Quranic).

² Completed grade 6 at the primary level

³ Completed 6 years at the secondary level

Table 2.13.1 Informal schooling attendance of interviewed women: National

Among women age 15–49 with no formal education, percentage who attended informal schooling, and percent distribution of women age 15–49 who attended informal schooling by type of informal schooling attended, according to background characteristics, Nigeria MIS 2021

| Background characteristic | Percentage of women who attended informal schooling | Number of women with no formal education | Type of informal schooling attended | | | Total | Number of women who attended informal schooling |
|---------------------------|---|--|-------------------------------------|----------|---------|-------|---|
| | | | Adult education | Tsangaya | Quranic | | |
| Age | | | | | | | |
| 15–19 | 50.4 | 695 | 0.8 | 26.8 | 72.4 | 100.0 | 350 |
| 20–24 | 52.6 | 871 | 0.5 | 22.3 | 77.2 | 100.0 | 458 |
| 25–29 | 48.2 | 936 | 0.8 | 26.6 | 72.6 | 100.0 | 451 |
| 30–34 | 51.2 | 974 | 1.4 | 23.7 | 74.8 | 100.0 | 499 |
| 35–39 | 48.3 | 698 | 1.2 | 16.5 | 82.3 | 100.0 | 337 |
| 40–44 | 51.3 | 628 | 3.3 | 14.8 | 81.9 | 100.0 | 322 |
| 45–49 | 42.5 | 356 | 1.6 | 23.3 | 75.1 | 100.0 | 151 |
| Residence | | | | | | | |
| Urban | 55.9 | 882 | 1.1 | 16.7 | 82.2 | 100.0 | 494 |
| Rural | 48.6 | 4,274 | 1.3 | 23.6 | 75.0 | 100.0 | 2,075 |
| Zone | | | | | | | |
| North Central | 19.6 | 777 | 1.3 | 3.0 | 95.7 | 100.0 | 152 |
| North East | 46.0 | 1,383 | 0.5 | 41.1 | 58.4 | 100.0 | 636 |
| North West | 65.7 | 2,687 | 0.8 | 17.3 | 81.9 | 100.0 | 1,764 |
| South East | (2.7) | (31) | * | * | * | 100.0 | 1 |
| South South | 10.9 | 118 | * | * | * | 100.0 | 13 |
| South West | 1.9 | 161 | * | * | * | 100.0 | 3 |
| Wealth quintile | | | | | | | |
| Lowest | 43.4 | 2,107 | 0.8 | 25.2 | 74.0 | 100.0 | 915 |
| Second | 54.1 | 1,666 | 1.0 | 24.0 | 75.0 | 100.0 | 901 |
| Middle | 56.0 | 939 | 2.0 | 18.0 | 79.9 | 100.0 | 526 |
| Fourth | 53.3 | 376 | 3.2 | 15.1 | 81.7 | 100.0 | 200 |
| Highest | 39.0 | 69 | * | * | * | 100.0 | 27 |
| Total | 49.8 | 5,156 | 1.3 | 22.3 | 76.4 | 100.0 | 2,569 |

Note: Figures in parentheses are based on 25–49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.

Table 2.13.2 Informal schooling attendance of interviewed women: States

Among women age 15–49 with no formal education, percentage who attended informal schooling, and percent distribution of women age 15–49 who attended informal schooling by type of informal schooling attended, by state, Nigeria MIS 2021

| State | Percentage of women who attended informal schooling | Number of women with no formal education | Type of informal schooling attended | | | Total | Number of women who attended informal schooling |
|----------------------|---|--|-------------------------------------|----------|---------|-------|---|
| | | | Adult education | Tsangaya | Quranic | | |
| North Central | | | | | | | |
| FCT-Abuja | 57.7 | 42 | (2.6) | (10.5) | (86.9) | 100.0 | 24 |
| Benue | 1.6 | 56 | * | * | * | 100.0 | 1 |
| Kogi | 9.7 | 39 | * | * | * | 100.0 | 4 |
| Kwara | 9.1 | 45 | * | * | * | 100.0 | 4 |
| Nasarawa | 18.0 | 161 | (0.0) | (0.0) | (100.0) | 100.0 | 29 |
| Niger | 22.9 | 318 | 0.6 | 2.7 | 96.7 | 100.0 | 73 |
| Plateau | 14.8 | 117 | * | * | * | 100.0 | 17 |
| North East | | | | | | | |
| Adamawa | 28.2 | 133 | (0.0) | (4.4) | (95.6) | 100.0 | 38 |
| Bauchi | 54.1 | 457 | 0.6 | 42.1 | 57.3 | 100.0 | 247 |
| Borno | 55.8 | 241 | 0.0 | 19.3 | 80.7 | 100.0 | 135 |
| Gombe | 25.8 | 143 | 3.8 | 61.1 | 35.1 | 100.0 | 37 |
| Taraba | 11.8 | 107 | * | * | * | 100.0 | 13 |
| Yobe | 55.4 | 301 | 0.0 | 63.6 | 36.4 | 100.0 | 166 |
| North West | | | | | | | |
| Jigawa | 63.2 | 317 | 0.0 | 24.9 | 75.1 | 100.0 | 200 |
| Kaduna | 68.7 | 148 | 1.5 | 1.6 | 96.9 | 100.0 | 102 |
| Kano | 82.8 | 452 | 0.3 | 18.2 | 81.5 | 100.0 | 375 |
| Katsina | 48.4 | 788 | 0.0 | 8.0 | 92.0 | 100.0 | 382 |
| Kebbi | 59.6 | 486 | 0.0 | 21.6 | 78.4 | 100.0 | 290 |
| Sokoto | 97.3 | 294 | 3.5 | 19.1 | 77.4 | 100.0 | 286 |
| Zamfara | 64.6 | 201 | 1.5 | 29.2 | 69.3 | 100.0 | 130 |
| South East | | | | | | | |
| Abia | nc | nc | nc | nc | nc | nc | nc |
| Anambra | nc | nc | nc | nc | nc | nc | nc |
| Ebonyi | nc | nc | nc | nc | nc | nc | nc |
| Enugu | * | * | * | * | * | 100.0 | 0 |
| Imo | * | * | * | * | * | 100.0 | 1 |
| South South | | | | | | | |
| Akwa Ibom | * | * | * | * | * | 100.0 | 10 |
| Bayelsa | nc | nc | nc | nc | nc | nc | nc |
| Cross River | * | * | * | * | * | 100.0 | 1 |
| Delta | (5.1) | (35) | * | * | * | 100.0 | 2 |
| Edo | (0.0) | (20) | * | * | * | 100.0 | 0 |
| Rivers | nc | nc | nc | nc | nc | nc | nc |
| South West | | | | | | | |
| Ekiti | * | * | * | * | * | 100.0 | 0 |
| Lagos | nc | nc | nc | nc | nc | nc | nc |
| Ogun | 2.8 | 41 | * | * | * | 100.0 | 1 |
| Ondo | * | * | * | * | * | 100.0 | 0 |
| Osun | nc | nc | nc | nc | nc | nc | nc |
| Oyo | 1.6 | 73 | * | * | * | 100.0 | 1 |
| Total | 49.8 | 5,156 | 1.3 | 22.3 | 76.4 | 100.0 | 2,569 |

Note: Figures in parentheses are based on 25–49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.

nc = No cases

Table 2.14.1 Literacy of interviewed women: National

Percent distribution of women age 15–49 by level of schooling attended and level of literacy, and percentage literate, according to background characteristics, Nigeria MIS 2021

| Background characteristic | Higher than secondary schooling | No schooling, informal education only, primary school, or secondary school | | | | | Percentage literate ¹ | Number of women |
|---------------------------|---------------------------------|--|-----------------------------|--------------------|--------------------------------|-------------------------|----------------------------------|-----------------|
| | | Can read a whole sentence | Can read part of a sentence | Cannot read at all | No card with required language | Blind/visually impaired | | |
| Age | | | | | | | | |
| 15–24 | 7.7 | 30.3 | 23.3 | 38.4 | 0.1 | 0.1 | 100.0 | 61.3 |
| 15–19 | 3.3 | 36.4 | 26.0 | 34.1 | 0.0 | 0.1 | 100.0 | 65.7 |
| 20–24 | 12.7 | 23.4 | 20.2 | 43.3 | 0.2 | 0.1 | 100.0 | 56.4 |
| 25–29 | 16.6 | 21.0 | 20.9 | 41.4 | 0.1 | 0.0 | 100.0 | 58.5 |
| 30–34 | 14.0 | 16.8 | 19.7 | 49.2 | 0.1 | 0.2 | 100.0 | 50.5 |
| 35–39 | 17.6 | 15.9 | 22.4 | 43.8 | 0.2 | 0.2 | 100.0 | 55.8 |
| 40–44 | 15.3 | 12.3 | 18.8 | 53.1 | 0.1 | 0.3 | 100.0 | 46.4 |
| 45–49 | 15.7 | 12.3 | 19.6 | 52.2 | 0.2 | 0.0 | 100.0 | 47.6 |
| Residence | | | | | | | | |
| Urban | 23.4 | 29.0 | 22.7 | 24.9 | 0.0 | 0.1 | 100.0 | 75.1 |
| Rural | 8.0 | 18.2 | 21.0 | 52.5 | 0.2 | 0.2 | 100.0 | 47.1 |
| Zone | | | | | | | | |
| North Central | 13.7 | 17.6 | 20.6 | 47.8 | 0.2 | 0.1 | 100.0 | 52.0 |
| North East | 7.3 | 10.7 | 22.9 | 58.4 | 0.6 | 0.0 | 100.0 | 41.0 |
| North West | 4.9 | 13.7 | 18.7 | 62.6 | 0.0 | 0.2 | 100.0 | 37.2 |
| South East | 18.4 | 43.2 | 27.6 | 10.7 | 0.0 | 0.0 | 100.0 | 89.3 |
| South South | 21.6 | 40.1 | 21.1 | 16.8 | 0.0 | 0.3 | 100.0 | 82.9 |
| South West | 27.2 | 30.8 | 24.5 | 17.2 | 0.0 | 0.2 | 100.0 | 82.6 |
| Wealth quintile | | | | | | | | |
| Lowest | 0.3 | 3.6 | 11.7 | 84.2 | 0.2 | 0.1 | 100.0 | 15.5 |
| Second | 0.9 | 8.1 | 21.8 | 68.9 | 0.2 | 0.1 | 100.0 | 30.8 |
| Middle | 3.6 | 20.9 | 26.9 | 48.2 | 0.2 | 0.3 | 100.0 | 51.3 |
| Fourth | 12.3 | 33.7 | 31.1 | 22.8 | 0.1 | 0.1 | 100.0 | 77.1 |
| Highest | 41.5 | 37.2 | 15.8 | 5.3 | 0.0 | 0.1 | 100.0 | 94.6 |
| Total | 12.9 | 21.7 | 21.5 | 43.7 | 0.1 | 0.1 | 100.0 | 56.1 |
| | | | | | | | | 14,476 |

¹ Refers to women who attended schooling higher than the secondary level and women with less schooling who can read a whole sentence or part of a sentence

Table 2.14.2 Literacy of interviewed women: States

Percent distribution of women age 15–49 by level of schooling attended and level of literacy, and percentage literate, according to background characteristics, Nigeria MIS 2021

| Background characteristic | No schooling, informal education only, primary school, or secondary school | | | | | | | Percentage literate ¹ | Number of women |
|---------------------------|--|---------------------------|-----------------------------|--------------------|--------------------------------|-------------------------|-------|----------------------------------|-----------------|
| | Higher than secondary schooling | Can read a whole sentence | Can read part of a sentence | Cannot read at all | No card with required language | Blind/visually impaired | Total | | |
| North Central | | | | | | | | | |
| FCT-Abuja | 10.7 | 18.7 | 31.9 | 38.8 | 0.0 | 0.0 | 100.0 | 61.2 | 669 |
| Benue | 11.4 | 18.6 | 34.5 | 35.5 | 0.0 | 0.0 | 100.0 | 64.5 | 418 |
| Kogi | 9.5 | 18.7 | 27.5 | 44.3 | 0.0 | 0.0 | 100.0 | 55.7 | 251 |
| Kwara | 30.9 | 19.0 | 23.3 | 26.7 | 0.0 | 0.0 | 100.0 | 73.3 | 277 |
| Nasarawa | 10.1 | 17.5 | 18.4 | 53.0 | 0.3 | 0.7 | 100.0 | 46.0 | 358 |
| Niger | 3.5 | 11.2 | 9.4 | 75.9 | 0.0 | 0.0 | 100.0 | 24.1 | 537 |
| Plateau | 6.9 | 20.5 | 21.3 | 51.4 | 0.0 | 0.0 | 100.0 | 48.6 | 298 |
| North East | | | | | | | | | |
| Adamawa | 9.2 | 17.1 | 20.4 | 53.2 | 0.0 | 0.0 | 100.0 | 46.8 | 336 |
| Bauchi | 2.1 | 10.5 | 20.9 | 66.4 | 0.0 | 0.0 | 100.0 | 33.6 | 703 |
| Borno | 3.0 | 3.2 | 17.9 | 74.9 | 1.0 | 0.0 | 100.0 | 24.1 | 358 |
| Gombe | 8.1 | 13.3 | 24.4 | 50.4 | 3.7 | 0.0 | 100.0 | 45.9 | 279 |
| Taraba | 13.3 | 20.5 | 20.8 | 45.4 | 0.0 | 0.0 | 100.0 | 54.6 | 276 |
| Yobe | 13.3 | 4.7 | 32.4 | 49.5 | 0.1 | 0.0 | 100.0 | 50.4 | 447 |
| North West | | | | | | | | | |
| Jigawa | 10.0 | 16.2 | 14.9 | 58.9 | 0.0 | 0.0 | 100.0 | 41.1 | 566 |
| Kaduna | 13.3 | 27.6 | 22.0 | 36.8 | 0.0 | 0.4 | 100.0 | 62.9 | 690 |
| Kano | 2.0 | 16.3 | 25.3 | 56.3 | 0.0 | 0.0 | 100.0 | 43.7 | 920 |
| Katsina | 3.0 | 8.2 | 15.1 | 73.4 | 0.0 | 0.4 | 100.0 | 26.2 | 1,362 |
| Kebbi | 1.5 | 8.3 | 19.6 | 70.5 | 0.0 | 0.0 | 100.0 | 29.5 | 613 |
| Sokoto | 0.8 | 9.1 | 11.8 | 78.3 | 0.0 | 0.0 | 100.0 | 21.7 | 399 |
| Zamfara | 5.4 | 10.5 | 21.9 | 62.2 | 0.0 | 0.0 | 100.0 | 37.8 | 282 |
| South East | | | | | | | | | |
| Abia | 22.5 | 49.6 | 19.5 | 8.4 | 0.0 | 0.0 | 100.0 | 91.6 | 178 |
| Anambra | 28.1 | 44.4 | 23.9 | 3.5 | 0.0 | 0.0 | 100.0 | 96.5 | 283 |
| Ebonyi | 9.3 | 39.3 | 29.1 | 22.3 | 0.0 | 0.0 | 100.0 | 77.7 | 297 |
| Enugu | 14.1 | 39.3 | 37.7 | 8.9 | 0.0 | 0.0 | 100.0 | 91.1 | 204 |
| Imo | 19.4 | 46.5 | 27.5 | 6.6 | 0.0 | 0.0 | 100.0 | 93.4 | 149 |
| South South | | | | | | | | | |
| Akwa Ibom | 14.5 | 43.2 | 27.8 | 13.8 | 0.0 | 0.8 | 100.0 | 85.4 | 478 |
| Bayelsa | 19.8 | 33.8 | 20.3 | 26.1 | 0.0 | 0.0 | 100.0 | 73.9 | 131 |
| Cross River | 20.2 | 34.7 | 24.5 | 20.6 | 0.0 | 0.0 | 100.0 | 79.4 | 224 |
| Delta | 28.5 | 37.9 | 15.5 | 17.6 | 0.0 | 0.3 | 100.0 | 82.0 | 298 |
| Edo | 28.1 | 34.5 | 16.4 | 20.9 | 0.0 | 0.0 | 100.0 | 79.1 | 300 |
| Rivers | 21.5 | 49.7 | 18.7 | 10.0 | 0.0 | 0.0 | 100.0 | 90.0 | 304 |
| South West | | | | | | | | | |
| Ekiti | 28.0 | 36.7 | 27.4 | 7.9 | 0.0 | 0.0 | 100.0 | 92.1 | 123 |
| Lagos | 39.4 | 32.3 | 16.1 | 11.5 | 0.0 | 0.7 | 100.0 | 87.8 | 620 |
| Ogun | 24.0 | 9.7 | 42.0 | 24.2 | 0.0 | 0.0 | 100.0 | 75.8 | 308 |
| Ondo | 18.8 | 29.2 | 32.2 | 19.7 | 0.0 | 0.0 | 100.0 | 80.3 | 156 |
| Osun | 20.4 | 37.1 | 22.8 | 19.8 | 0.0 | 0.0 | 100.0 | 80.2 | 320 |
| Oyo | 20.7 | 37.1 | 22.2 | 20.0 | 0.0 | 0.0 | 100.0 | 80.0 | 497 |
| Total | 12.9 | 21.7 | 21.5 | 43.7 | 0.1 | 0.1 | 100.0 | 56.1 | 14,476 |

¹ Refers to women who attended schooling higher than the secondary level and women with less schooling who can read a whole sentence or part of a sentence

Table 2.15 Exposure to mass media

Percentage of women age 15–49 who are exposed to specific media on a weekly basis, according to background characteristics, Nigeria MIS 2021

| Background characteristic | Reads a newspaper at least once a week | Watches television at least once a week | Listens to the radio at least once a week | Accesses all three media at least once a week | Accesses none of the three media at least once a week | Number of women |
|---------------------------|--|---|---|---|---|-----------------|
| Age | | | | | | |
| 15–19 | 6.6 | 28.9 | 18.1 | 3.3 | 62.8 | 2,793 |
| 20–24 | 6.5 | 28.3 | 19.0 | 3.3 | 62.8 | 2,464 |
| 25–29 | 7.5 | 31.1 | 21.9 | 4.5 | 60.8 | 2,660 |
| 30–34 | 8.3 | 28.2 | 25.7 | 5.3 | 60.7 | 2,362 |
| 35–39 | 7.2 | 31.4 | 26.9 | 5.0 | 57.9 | 1,964 |
| 40–44 | 6.0 | 26.9 | 23.1 | 3.8 | 62.7 | 1,420 |
| 45–49 | 7.8 | 27.8 | 24.2 | 4.5 | 62.5 | 814 |
| Residence | | | | | | |
| Urban | 10.8 | 45.7 | 29.2 | 6.4 | 44.4 | 4,641 |
| Rural | 5.4 | 21.4 | 18.9 | 3.2 | 69.4 | 9,835 |
| Zone | | | | | | |
| North Central | 9.1 | 32.9 | 29.3 | 5.3 | 55.0 | 2,377 |
| North East | 2.4 | 12.9 | 6.1 | 1.3 | 84.2 | 2,399 |
| North West | 3.8 | 14.4 | 16.4 | 1.7 | 74.6 | 4,832 |
| South East | 16.5 | 49.4 | 37.0 | 10.1 | 38.0 | 1,111 |
| South South | 9.1 | 50.3 | 29.1 | 6.8 | 42.6 | 1,734 |
| South West | 11.4 | 50.1 | 32.8 | 6.8 | 39.4 | 2,023 |
| Education | | | | | | |
| No education ¹ | 0.2 | 4.5 | 8.9 | 0.1 | 88.5 | 5,156 |
| Primary | 1.3 | 18.6 | 19.9 | 0.3 | 70.2 | 2,089 |
| Secondary | 9.3 | 43.8 | 28.8 | 5.0 | 45.3 | 5,364 |
| More than secondary | 26.5 | 67.0 | 42.5 | 17.6 | 22.9 | 1,867 |
| Wealth quintile | | | | | | |
| Lowest | 0.4 | 1.0 | 5.2 | 0.1 | 94.4 | 2,651 |
| Second | 1.2 | 2.3 | 9.3 | 0.3 | 88.8 | 2,730 |
| Middle | 4.0 | 14.5 | 18.5 | 1.7 | 72.7 | 2,799 |
| Fourth | 9.2 | 46.5 | 33.4 | 5.0 | 41.3 | 3,006 |
| Highest | 18.2 | 70.8 | 39.6 | 12.2 | 20.8 | 3,289 |
| Total | 7.1 | 29.2 | 22.2 | 4.2 | 61.4 | 14,476 |

¹ No education includes informal education (adult education, Tsangaya, or Quranic).

Table 2.16 Mobile phone ownership and internet usage

Percentage of women age 15–49 who own any mobile phone, who own a smart phone, who have ever used the internet, and who have used the internet in the last 12 months, and among women who have used the internet in the last 12 months, percent distribution by frequency of internet use in the last month, according to background characteristics, Nigeria MIS 2021

| Background characteristic | Owns any mobile phone | Owns a smart phone | Ever used the internet | Used the internet in the last 12 months | Number of women | Among respondents who have used the internet in the last 12 months, percentage who, in the last month, used the internet: | | | | | Number of women |
|---------------------------|-----------------------|--------------------|------------------------|---|-----------------|---|----------------------|-----------------------|------------|-------|-----------------|
| | | | | | | Almost every day | At least once a week | Less than once a week | Not at all | Total | |
| Age | | | | | | | | | | | |
| 15–19 | 39.5 | 15.0 | 21.4 | 19.9 | 2,793 | 53.6 | 27.6 | 16.1 | 2.7 | 100.0 | 557 |
| 20–24 | 59.9 | 26.8 | 29.3 | 27.7 | 2,464 | 64.3 | 22.7 | 9.8 | 3.2 | 100.0 | 681 |
| 25–29 | 63.5 | 26.8 | 28.6 | 26.4 | 2,660 | 71.5 | 17.7 | 8.2 | 2.6 | 100.0 | 701 |
| 30–34 | 60.7 | 22.2 | 22.7 | 21.0 | 2,362 | 66.9 | 22.6 | 8.0 | 2.5 | 100.0 | 495 |
| 35–39 | 66.7 | 25.0 | 25.8 | 23.8 | 1,964 | 69.1 | 20.7 | 8.6 | 1.6 | 100.0 | 467 |
| 40–44 | 59.0 | 19.8 | 19.4 | 17.6 | 1,420 | 57.4 | 28.5 | 13.1 | 1.0 | 100.0 | 250 |
| 45–49 | 62.7 | 23.3 | 19.2 | 18.1 | 814 | 65.9 | 23.9 | 9.3 | 1.0 | 100.0 | 147 |
| Residence | | | | | | | | | | | |
| Urban | 75.8 | 38.8 | 41.3 | 38.8 | 4,641 | 67.1 | 22.3 | 8.2 | 2.5 | 100.0 | 1,800 |
| Rural | 49.2 | 15.0 | 16.7 | 15.3 | 9,835 | 61.7 | 23.2 | 12.8 | 2.4 | 100.0 | 1,500 |
| Zone | | | | | | | | | | | |
| North Central | 64.6 | 21.9 | 23.1 | 22.0 | 2,377 | 74.2 | 16.8 | 6.7 | 2.4 | 100.0 | 523 |
| North East | 44.6 | 10.6 | 11.0 | 10.3 | 2,399 | 62.3 | 22.9 | 11.4 | 3.4 | 100.0 | 247 |
| North West | 40.6 | 9.6 | 10.2 | 9.2 | 4,832 | 50.6 | 25.7 | 16.5 | 7.2 | 100.0 | 444 |
| South East | 75.6 | 34.5 | 38.4 | 35.9 | 1,111 | 65.4 | 25.6 | 8.0 | 1.1 | 100.0 | 399 |
| South South | 72.4 | 37.1 | 44.9 | 40.3 | 1,734 | 64.8 | 21.6 | 11.9 | 1.8 | 100.0 | 700 |
| South West | 83.8 | 50.2 | 51.7 | 48.8 | 2,023 | 66.0 | 24.0 | 9.0 | 1.0 | 100.0 | 988 |
| Education | | | | | | | | | | | |
| No education ¹ | 29.5 | 1.6 | 1.0 | 0.7 | 5,156 | (43.6) | (29.3) | (18.2) | (8.9) | 100.0 | 34 |
| Primary | 57.8 | 6.3 | 5.2 | 4.2 | 2,089 | 33.2 | 29.9 | 28.9 | 8.0 | 100.0 | 87 |
| Secondary | 71.2 | 29.0 | 33.3 | 30.0 | 5,364 | 53.3 | 29.8 | 14.0 | 2.9 | 100.0 | 1,609 |
| More than secondary | 97.0 | 80.7 | 86.2 | 84.1 | 1,867 | 78.4 | 14.8 | 5.3 | 1.5 | 100.0 | 1,570 |
| Wealth quintile | | | | | | | | | | | |
| Lowest | 20.8 | 0.9 | 0.8 | 0.5 | 2,651 | * | * | * | * | 100.0 | 14 |
| Second | 33.7 | 2.9 | 2.9 | 2.4 | 2,730 | 27.3 | 39.1 | 24.2 | 9.3 | 100.0 | 65 |
| Middle | 56.4 | 8.2 | 10.3 | 8.9 | 2,799 | 33.2 | 35.4 | 27.5 | 3.9 | 100.0 | 248 |
| Fourth | 76.3 | 26.1 | 29.1 | 26.0 | 3,006 | 54.7 | 27.1 | 13.6 | 4.6 | 100.0 | 783 |
| Highest | 91.7 | 65.8 | 69.7 | 66.6 | 3,289 | 73.0 | 19.1 | 6.6 | 1.3 | 100.0 | 2,190 |
| Total | 57.7 | 22.7 | 24.6 | 22.8 | 14,476 | 64.6 | 22.7 | 10.3 | 2.4 | 100.0 | 3,300 |

Note: Figures in parentheses are based on 25–49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.

¹ No education includes informal education (adult education, Tsangaya, or Quranic).

Key Findings

- **Ownership of insecticide-treated nets:** 56% of households own at least one insecticide-treated net (ITN).
- **Sources of ITNs:** 79% of ITNs owned by households were obtained from a mass distribution campaign.
- **Access to an ITN:** 43% of the de facto population has access to an ITN in the household.
- **Use of ITNs:** 36% of the de facto population slept under an ITN the night before the survey.
- **Use of ITNs by children under age 5:** 41% of children under age 5 slept under an ITN the night before the survey.
- **Use of ITNs by pregnant women:** 50% of pregnant women age 15–49 slept under an ITN the night before the survey.
- **Antenatal care coverage:** 63% of women age 15–49 who gave birth in the 2 years preceding the survey received antenatal care (ANC) from a skilled provider during the pregnancy for their most recent birth. Fifty-two percent had at least four ANC visits.
- **Intermittent preventive treatment (IPTp):** 31% of women age 15–49 with a live birth in the 2 years preceding the survey reported taking three or more doses of sulfadoxine-pyrimethamine (SP)/Fansidar during their last pregnancy.

This chapter describes population coverage rates of some of the key malaria control interventions in Nigeria, including ownership, source, and use of mosquito nets and prophylactic use of antimalarial drugs among pregnant women. This is in line with Objective 1 of the 2014–2020 National Malaria Strategic Plan, which was to provide at least 80% of the targeted population with appropriate preventive measures by 2020 (NMEP 2013).

3.1 OWNERSHIP AND COVERAGE OF INSECTICIDE-TREATED NETS

Ownership of insecticide-treated nets

Households that have at least one insecticide-treated net (ITN). An ITN is defined as a factory-treated net that does not require any further treatment.

Sample: Households

Full household ITN coverage

Percentage of households with at least one ITN for every two people.

Sample: Households (with at least one person who stayed in the household the night before the survey)

ITNs repel and kill mosquitoes, thus providing protection against mosquito bites and reducing the transmission of malaria parasites. When high coverage of ITNs is achieved, ITNs help decrease malaria risk at the individual level as well as at the community level by reducing the vector population. The distribution and use of ITNs is one of the core interventions for preventing malaria infection in Nigeria.

ITNs, the primary vector control intervention in Nigeria, are distributed through mass campaigns and through routine platforms to pregnant women at antenatal care (ANC) facilities and children under age 5 during immunisations (NMEP 2020b).

ITN Mass Distribution Campaigns by States in Nigeria from 2009 to 2021

The ITN replacement strategy for Nigeria is every 3 years (NMEP 2013). However, many states have not been able to implement this strategy accordingly, since ITN distribution in Nigeria is donor driven. Hence, ITN mass distribution campaigns have occurred at different times in different states and not necessarily at 3-years intervals, as shown in **Figure 3.1**.

Figure 3.1 Year of last ITN mass distribution by state

| State | Year of previous ITN campaign | Year of most recent ITN campaign | State | Year of previous ITN campaign | Year of most recent ITN campaign |
|-------------|-------------------------------|----------------------------------|----------|-------------------------------|----------------------------------|
| Abia | 2012 | 2015 | Kano | 2015 | 2019 |
| Adamawa | 2017 | 2021 | Katsina | 2015 | 2022 |
| Akwa Ibom | 2014 | 2018 | Kebbi | 2015 | 2018 |
| Anambra | 2014 | 2021 | Kogi | 2013 | 2017 |
| Bauchi | 2014 | 2018 | Kwara | 2017 | 2020 |
| Bayelsa | 2011 | 2011 | Lagos | 2011 | 2011 |
| Benue | 2016 | 2020 | Nasarawa | 2018 | 2022 |
| Borno | 2011 | 2011 | Niger | 2014 | 2019 |
| Cross River | 2015 | 2019 | Ogun | 2014 | 2018 |
| Delta | 2013 | 2019 | Ondo | 2017 | 2021 |
| Ebonyi | 2015 | 2019 | Osun | 2013 | 2020 |
| Edo | 2012 | 2017 | Oyo | 2016 | 2021 |
| Ekiti | 2009 | 2014 | Plateau | 2015 | 2020 |
| Enugu | 2011 | 2011 | Rivers | 2014 | 2014 |
| FCT | 2011 | 2011 | Sokoto | 2013 | 2017 |
| Gombe | 2018 | 2021 | Taraba | 2011 | 2019 |
| Imo | 2012 | 2017 | Yobe | 2011 | 2019 |
| Jigawa | 2018 | 2021 | Zamfara | 2015 | 2020 |
| Kaduna | 2015 | 2019 | | | |

Nationally, 58% of households have at least one mosquito net, while 56% have at least one ITN. This implies that almost all mosquito nets owned by households in Nigeria are ITNs. The average number of ITNs per household is 1.3 (**Table 3.1.1**).

Twenty-five percent of households have at least one ITN for every two persons who stayed in the household in the night preceding the survey. In other words, 25% of households own enough ITNs to cover all household members if it is assumed that one net is shared by two people (**Table 3.1.1** and **Figure 3.2**).

Thus, to ensure sufficient household coverage of one net per two persons, the scope of distribution needs to expand to reach the 44% of households that do not own any ITNs (**Figure 3.2**). In addition, the quantity of ITNs distributed needs to increase to provide sufficient ITNs for the 31% of households that own at least one ITN but have an insufficient supply for the number of household members.

Trends: The percentage of households that own at least one ITN increased from 8% in 2008 to 69% in 2015 before decreasing to 56% in 2021 (**Figure 3.3**).

Patterns by background characteristics

- Household ownership of ITNs is higher in rural (58%) than urban (53%) areas (**Table 3.1.1**).
- ITN ownership ranges from 44% in the highest wealth quintile to 68% in the second wealth quintile (**Figure 3.4**).
- By zone, household ownership of ITNs is highest in North West (76%) and lowest in South East (37%) (**Table 3.1.1**).
- By state, the percentage of households owning at least one ITN for every two persons who stayed in the household the night preceding the survey is highest in Adamawa (56%) and lowest in Rivers (6%) (**Table 3.1.2**).

Figure 3.2 Household coverage of ITNs

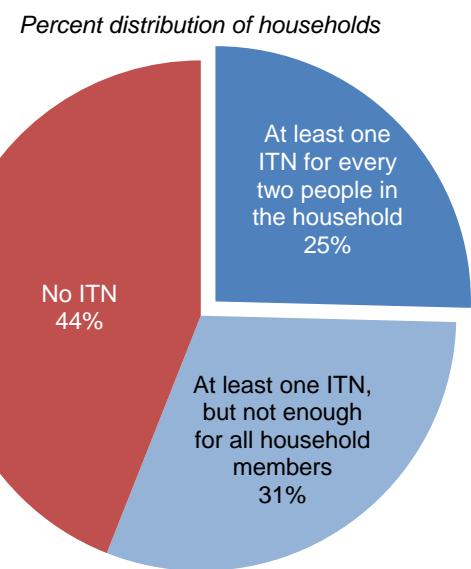
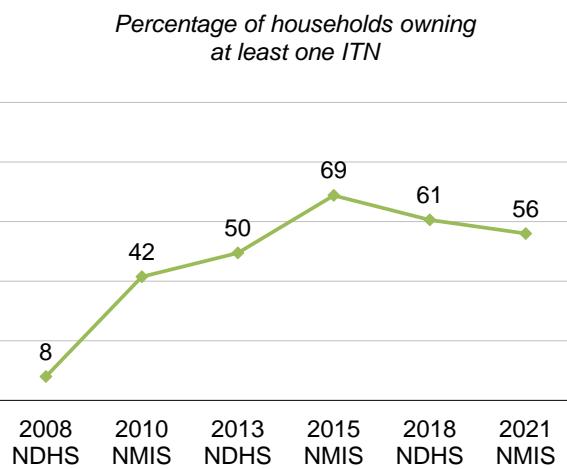
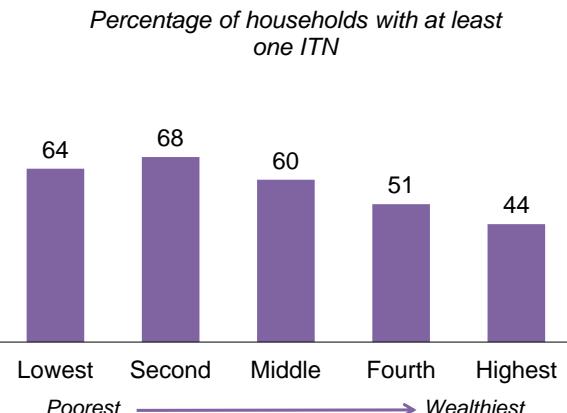


Figure 3.3 Trends in household ownership of ITNs



Note: The definition of an ITN in surveys conducted prior to the 2015 NDHS included nets that had been soaked with insecticides within the past 12 months.

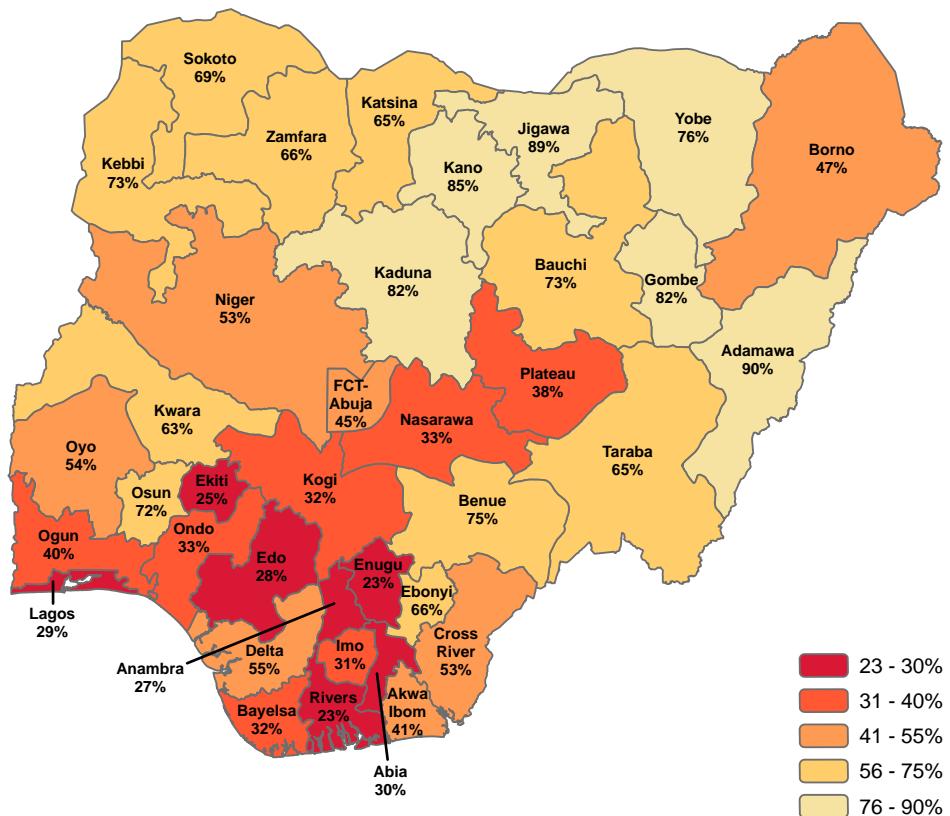
Figure 3.4 ITN ownership, by household wealth



- By state, household ownership of an ITN is lowest in Rivers and Enugu (23%) and highest in Adamawa (90%). Only five states (Adamawa, Jigawa, Kano, Kaduna, and Gombe) have achieved the national target of 80% household ownership of ITNs (**Figure 3.5**).

Figure 3.5 ITN ownership, by state

Percentage of households with at least one ITN



Source of Nets

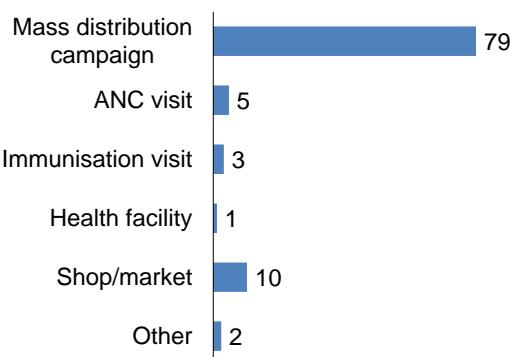
Over three quarters (79%) of ITNs in Nigerian households were obtained through mass distribution campaigns, while 10% were obtained from shops/markets, 5% were obtained during ANC visits, 3% were obtained during immunisation visits, 2% were obtained from other sources, and 1% were obtained from government or private health facilities (**Table 3.2.1** and **Figure 3.6**).

Patterns by background characteristics

- Eighty percent of nets in rural areas and 74% in urban areas were obtained through mass distribution campaigns (**Table 3.2.1**).
- The percentage of households obtaining nets through mass campaigns is highest in Gombe (98%) and lowest in FCT-Abuja (13%) (**Table 3.2.2**).

Figure 3.6 Source of ITNs

Percent distribution of ITNs in interviewed households



- The percentage of households obtaining nets in a shop/market is highest in FCT-Abuja (63%) and lowest in Osun, Gombe, Ebonyi, Cross River, Imo, and Akwa Ibom (1% or less).

3.2 HOUSEHOLD ACCESS TO AND USE OF INSECTICIDE-TREATED NETS

Access to an ITN

Percentage of the population that could sleep under an ITN if each ITN in the household were used by up to two people.

Sample: De facto household population

Use of ITNs

Percentage of the population that slept under an ITN the night before the survey.

Sample: De facto household population

ITNs act as both a physical and a chemical barrier against mosquitoes. By reducing the vector population, ITNs can help reduce malaria risk at the community level, as well as reduce the risk to the individuals who use them.

Access to an ITN is measured by the proportion of the population that could sleep under an ITN if each ITN in the household were used by up to two people. Comparing ITN access and ITN use indicators can help programmes identify behavioural gaps. Such gaps indicate that available ITNs are not being used. If the difference between these indicators is substantial, the programme may need to focus on behaviour change and on how to identify the main drivers of or barriers to ITN use to design appropriate interventions. These data help ITN programmes determine whether they need to achieve higher ITN coverage, promote ITN use, or both.

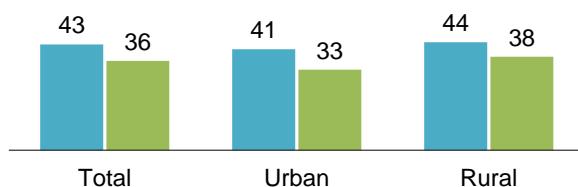
Nationally, 43% of de facto household members in Nigeria who stayed in the household the night before the survey could sleep inside an ITN if each ITN were used by up to two people (**Table 3.3.1**). The results showed that 36% of the population slept under an ITN the night before the survey (**Table 3.4.1** and **Figure 3.7**). There is only a small difference between ITN access and ITN use at the population level.

Overall, 75% of ITNs were used the night before the survey (**Table 3.5.1**).

Figure 3.7 Access to and use of ITNs, by residence

Percentage of the household population with access to an ITN and that slept under an ITN the night before the survey

■ Access to an ITN ■ Slept under an ITN



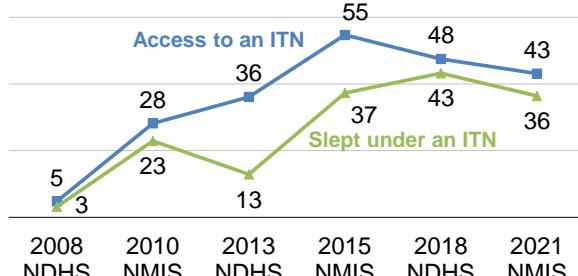
Trends: The proportion of the de facto population with access to an ITN in the household increased from 5% in 2008 to 55% in 2015 before decreasing to 43% in 2021. Similarly, ITN use increased from 3% in 2008 to 43% in 2018 before decreasing to 36% in 2021 (Figure 3.8).

Patterns by background characteristics

- Access to ITNs is higher in rural areas (44%) than in urban areas (41%) (Table 3.3.1).
- The percentage of household residents with access to an ITN ranges from 36% among those in the highest wealth quintile to 49% among those in the second wealth quintile.
- ITN access among the de facto population ranges from 17% in Rivers to 74% in Adamawa (Table 3.3.2 and Figure 3.9).

Figure 3.8 Trends in ITN access and use

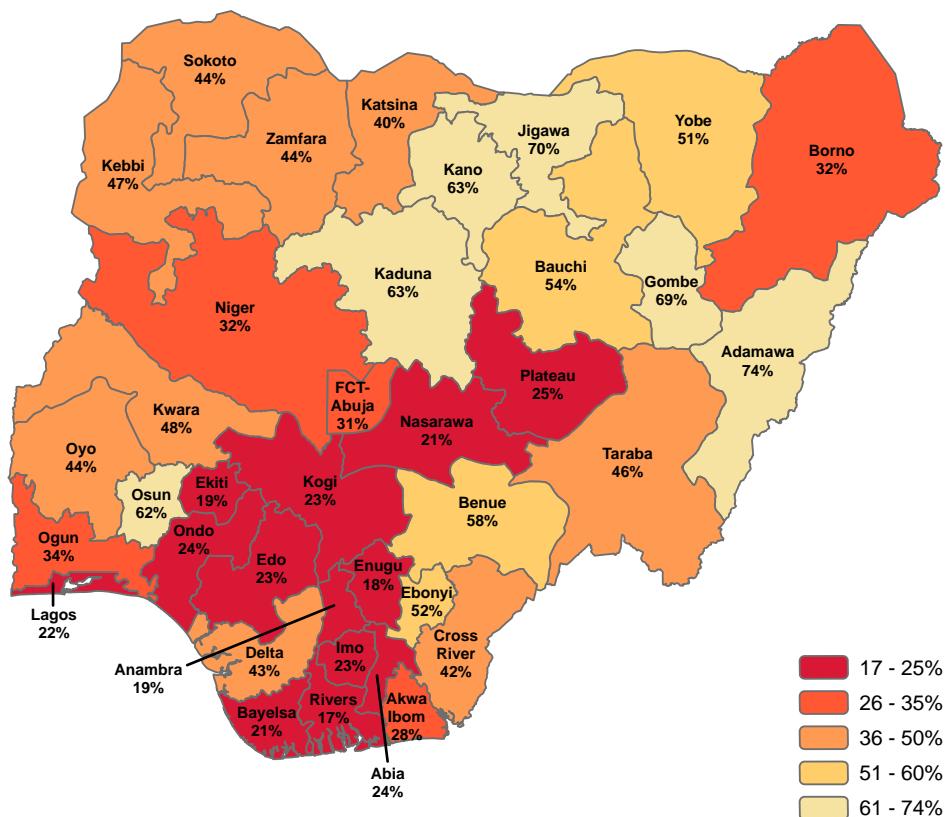
Percentage of the household population with access to an ITN and percentage of the population that slept under an ITN the night before the survey



Note: The definition of an ITN in surveys conducted prior to the 2015 NDHS included nets that had been soaked with insecticides within the past 12 months.

Figure 3.9 ITN access, by state

Percent of the household population that could sleep under an ITN if each ITN in the household were used by up to two people

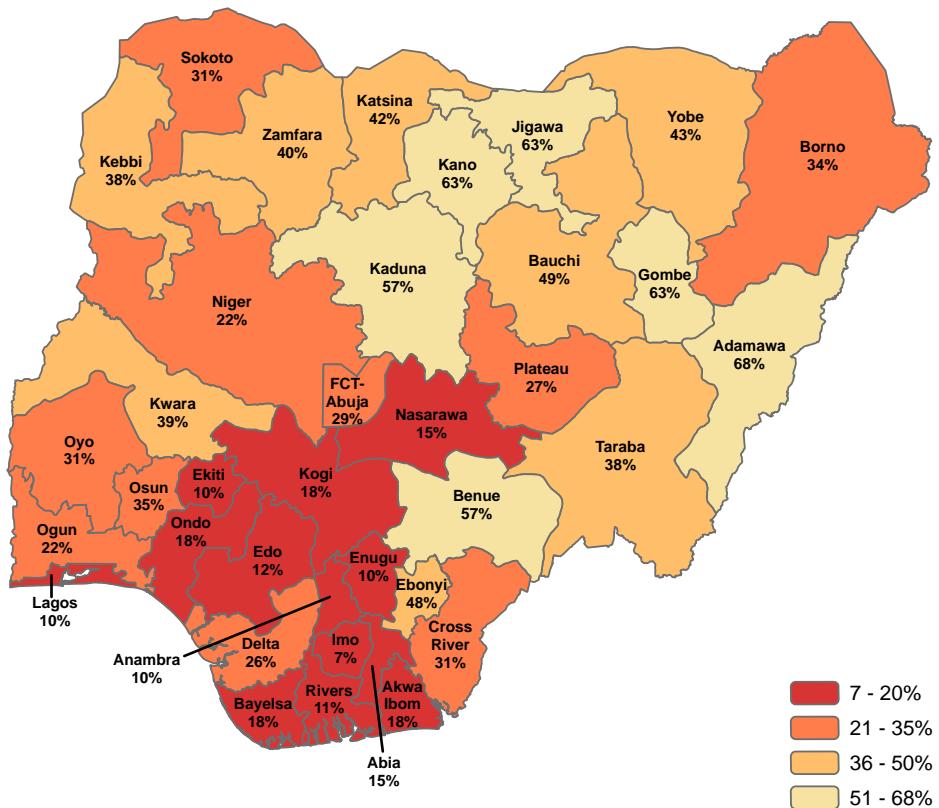


- A higher percentage of rural residents (38%) than urban residents (33%) slept under an ITN the night before the survey (Table 3.4.1).

- The percentage of the household population that slept under an ITN the night before the survey is highest in Adamawa (68%) and lowest in Imo (7%) (Table 3.4.2 and Figure 3.10).

Figure 3.10 ITN use, by state

Percentage of the household population that slept under an ITN the previous night



- Use of ITNs decreases with increasing household wealth (Table 3.4.1). Use of existing ITNs is more common in households in the lowest wealth quintile (85%) than in households in the highest quintile (58%) (Table 3.5.1).
- Use of existing ITNs is highest in Borno (92%) and lowest in Imo (27%) (Table 3.5.2).

3.3 USE OF INSECTICIDE-TREATED NETS BY CHILDREN AND PREGNANT WOMEN

Malaria is endemic in Nigeria, and transmission occurs year-round. Pregnant women and children under age 5 are the populations most at risk. While ITN mass distribution campaigns target the general population, Nigeria also conducts routine distribution campaigns through health facilities that target pregnant women and children under age 5.

Forty-one percent of children less than age 5 and 50% of pregnant women slept under an ITN the night before the survey (Table 3.6.1 and Table 3.7.1).

Trends: Use of ITNs among children under age 5 increased from 6% in 2008 to 52% in 2018 before decreasing to 41% in 2021. Similarly, use of ITNs by pregnant women increased from 5% in 2008 to 58% in 2018 and then decreased to 50% in 2021 (Figure 3.11).

Patterns by background characteristics

- The percentage of children who slept under an ITN decreases with increasing age, from 46% among those less than age 12 months to 38% among those age 48–59 months (Table 3.6.1).
- A higher percentage of children in rural (43%) than urban (38%) areas slept under an ITN the night before the survey.
- The proportion of children under age 5 who slept under an ITN the night before the survey is highest in North West (55%) and lowest in South West (22%).
- A higher percentage of pregnant women in rural (52%) than urban (44%) areas slept under an ITN the night before the survey (Table 3.7.1).
- The proportion of pregnant women who slept under an ITN the night before the survey is highest in North East (65%) and lowest in South South (21%).
- Children under age 5 from households in the second wealth quintile (48%) and pregnant women from households in the middle wealth quintile (57%) were more likely to have slept under an ITN the night before the survey than their counterparts in the highest wealth quintile (29% and 30%, respectively) (Tables 3.6.1 and 3.7.1).
- By state the proportion of children under age 5 who slept under an ITN the night before the survey ranges from 9% in Lagos to 65% in Gombe and Kano (Table 3.6.2).

3.4 REASONS MOSQUITO NETS WERE NOT USED

Table 3.8.1 presents reasons given by respondents for not sleeping under a mosquito net the night before the survey. This information is important to the National Malaria Elimination Programme (NMEP) and other stakeholders for identifying barriers to net use. Overall, 24% of mosquito nets were not used the night before the survey.

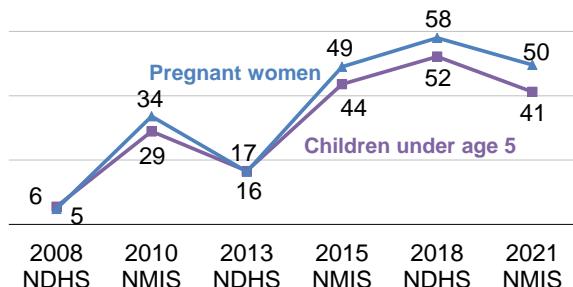
The main reasons given for not using a mosquito net the night before the survey were that net was not needed (24%), there were no mosquitoes (18%), it was too hot (16%) and other (12%).

Patterns by background characteristics

- The proportion of respondents reporting that they did not use a net the night before the survey because it was not needed was higher in rural (26%) than urban (20%) areas (Table 3.8.1).
- By zone, the proportion of respondents who reported that they did not use a net because it was not needed was highest in South East (35%) and lowest in North Central (16%).

Figure 3.11 ITN use by children and pregnant women

Percentage of children and pregnant women using an ITN the night before the survey



Note: The definition of an ITN in surveys conducted prior to the 2015 NDHS included nets that had been soaked with insecticides within the past 12 months.

- The proportion of respondents reporting that they did not use a net the night before the survey because it was not needed was highest in the lowest wealth quintile (30%) and lowest in the highest quintile (20%) (**Table 3.8.1**).
- By state, the percentage of respondents who reported not using a mosquito net because it was not needed ranges from 0% in Niger to 50% in Gombe (**Table 3.8.2**).
- Ten percent of respondents reported not using a net because it was too old/torn. By zone, this reason was most often reported by respondents in North West (16%) (**Table 3.8.1**).

3.5 MALARIA IN PREGNANCY

Malaria infection during pregnancy is a major public health problem in Nigeria, with substantial risks for the mother, her foetus, and the neonate. The World Health Organization (WHO) recommends a package of interventions for reducing the negative health effects associated with malaria in pregnancy (MIP): prompt diagnosis and treatment of confirmed infections, use of ITNs, and intermittent preventive treatment of malaria in pregnancy (IPTp) (WHO 2014b).

The 2021 NMIS assessed use of antenatal care services for the last birth in the 2 years preceding the survey and IPTp usage during the pregnancy for the last birth in the 2 years preceding the survey among women age 15–49.

3.5.1 Antenatal Care Coverage

Antenatal care (ANC) from a skilled provider

Pregnancy care received from skilled providers such as doctors, nurses/ midwives, and auxiliary nurses/midwives.

Sample: Women age 15–49 who had a live birth in the 2 years before the survey

Health care services during pregnancy and childbirth and after delivery are important for the survival and well-being of both the mother and the infant. Ensuring access to a continuum of care for women during antenatal, intrapartum, and postpartum periods is critical for maternal and new-born survival and is a priority of the Federal Ministry of Health.

Access to quality ANC services during pregnancy can help prevent maternal death. ANC visits allow providers to identify and manage infections as well as obstetric complications and to provide preventive injections, medications, and supplements to women. During ANC visits, women receive education about health behaviours during pregnancy, counselling on pregnancy danger signs, and information on family planning.

Overall, 63% of women received antenatal care from a skilled provider for their last birth in the past 2 years (**Table 3.9.1**). Thirty percent received care from a doctor, 33% received care from a nurse/midwife or auxiliary midwife, and 9% received care from a community health worker (CHW). Less than 1% of women received care from a traditional birth attendant, and 24% did not receive antenatal care.

Trends: The proportion of women with a live birth in the 2 years preceding the survey who received antenatal care during the pregnancy for their most recent live birth from a skilled provider increased from 57% in 2008 to 67% in 2018 before decreasing slightly to 63% in 2021 (Figure 3.12).

Patterns by background characteristics

- More women age 20–34 (66%) received antenatal care services from a skilled provider than women in other age groups (Table 3.9.1).
- Urban women (81%) were more likely than rural women (56%) to receive antenatal care from a skilled provider (Table 3.9.1).
- The proportion of pregnant women who received antenatal care from a skilled provider ranged from 24% in Katsina to 94% in FCT-Abuja (Table 3.9.2).
- Disparities along socioeconomic characteristics exist in use of ANC services. For example, 41% of women with no formal education received ANC services from a skilled provider, as compared with 94% of women with more than a secondary education.
- Women in the highest wealth quintile (93%) were more likely to receive ANC from a skilled provider than women in the lowest wealth quintile (37%) (Table 3.9.2).

3.5.2 Timing and Number of Antenatal Care Visits

Fifty-two percent of women had at least four ANC visits for their most recent birth in the 2 years preceding the survey (Table 3.10.1). The majority of women (42%) had their antenatal care visits in the fourth month to the seventh month of pregnancy. Only 26% of women started ANC in the first trimester, 7% did not seek care until the seventh month of pregnancy, and 24% did not seek care at all. Among those who received ANC, the median number of months pregnant at the first visit was 4.7 (Table 3.10.1).

Trends: The proportion of women who had at least four ANC visits for their most recent birth in the 2 years preceding the survey increased from 44% in 2008 to 56% in 2018 before decreasing to 52% in 2021.

Patterns by background characteristics

- Urban women (63%) were more likely than rural women (47%) to have had four or more ANC visits (Table 3.10.1).
- The proportion of women age 15–49 who reported having had at least four ANC visits ranges from 24% in Zamfara to 90% in Abia (Table 3.10.2).

3.5.3 Intermittent Preventive Treatment

Intermittent preventive treatment (IPTp) during pregnancy (IPTp3+)

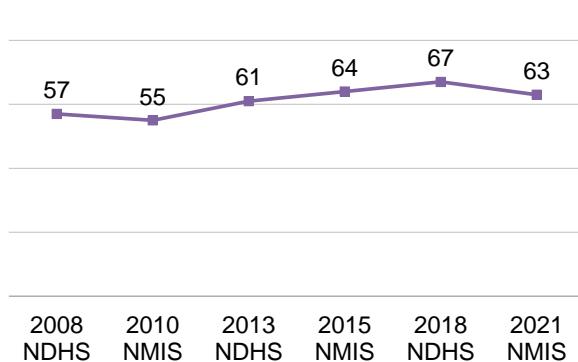
Percentage of women who took at least three doses of SP/Fansidar during their last pregnancy.

Sample: Women age 15–49 with a live birth in the 2 years before the survey

Intermittent preventive treatment of malaria in pregnancy (IPTp) is a full therapeutic course of antimalarial medicine given to pregnant women at routine antenatal care visits to prevent malaria. IPTp helps prevent

Figure 3.12 ANC from a skilled provider

Percentage of women receiving antenatal care from a skilled provider



maternal malaria episodes, maternal and foetal anaemia, placental parasitaemia, low birth weight, and neonatal mortality (WHO 2019).

Sulfadoxine-pyrimethamine (SP) is the recommended medicine for IPTp in Nigeria. The Federal Ministry of Health has been implementing IPTp, defined as provision of at least two doses of SP/Fansidar to protect the mother and her child from malaria during routine antenatal care visits in the second and third trimesters of pregnancy (IPTp2+), for more than 15 years. In 2014, NMEP adopted the 2012 WHO recommendation to administer one dose of SP/Fansidar at each antenatal care visit after the first trimester, with at least a 1-month interval. The household survey indicator used to measure coverage of this intervention was the percentage of women with a live birth in the 2 years preceding the survey who received three or more doses of SP/Fansidar (IPTp3+) to prevent malaria during their most recent pregnancy.

Fifty-nine percent of women with a live birth in the 2 years preceding the survey reported having taken one or more doses of SP/Fansidar; 46% reported taking two or more doses, and 31% reported taking three or more doses (**Table 3.11.1**).

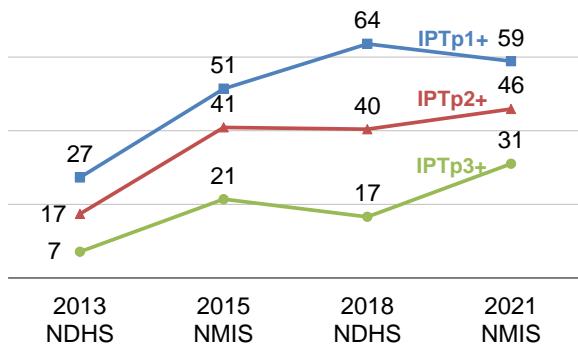
Trends: The percentage of pregnant women who reported taking one or more doses of SP/Fansidar increased from 27% in 2013 to 64% in 2018 but then decreased slightly to 59% in 2021. There were increases between 2013 and 2021 in the percentage of women taking two or more doses (from 17% to 46%) and three or more doses (from 7% to 31%) (**Figure 3.13**).

Patterns by background characteristics

- The proportion of women with a live birth in the 2 years preceding the survey who received three or more doses of SP/Fansidar is higher in urban areas (39%) than in rural areas (28%) (**Table 3.11.1**).
- Forty-one percent of women in South East received three or more doses of SP/Fansidar, as compared with 27% of women in North East (**Table 3.11.1**).
- The percentages of women receiving one or more, two or more, and three or more doses of SP/Fansidar increase with increasing education and wealth (**Table 3.11.1**).
- The proportion of women receiving three or more doses is highest in Anambra (52%) and lowest in Akwa Ibom (7%) (**Table 3.11.2**).

Figure 3.13 Trends in IPTp use

Percentage of women with a live birth in the 2 years before the survey who received at least 1, 2, or 3 doses of SP/Fansidar



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- **Table 3.11.2 Use of intermittent preventive treatment (IPTp) by women during pregnancy: States**

Table 3.1.1 Household possession of mosquito nets: National

Percentage of households with at least one mosquito net (treated or untreated) and insecticide-treated net (ITN), average number of nets and ITNs per household, and percentage of households with at least one net and ITN per two persons who stayed in the household last night, according to background characteristics, Nigeria MIS 2021

| Background characteristic | Percentage of households with at least one mosquito net | | Average number of nets per household | | Number of households | Percentage of households with at least one net for every two persons who stayed in the household last night ¹ | | Number of households with at least one person who stayed in the household last night | |
|---------------------------|---|---|--------------------------------------|---|----------------------|--|---|--|--|
| | Any mosquito net | Insecticide-treated mosquito net (ITN) ² | Any mosquito net | Insecticide-treated mosquito net (ITN) ² | | Any mosquito net | Insecticide-treated mosquito net (ITN) ² | | |
| | | | | | | | | | |
| Residence | | | | | | | | | |
| Urban | 55.2 | 52.8 | 1.2 | 1.2 | 4,546 | 25.4 | 23.8 | 4,521 | |
| Rural | 59.0 | 57.5 | 1.4 | 1.4 | 9,181 | 27.2 | 26.2 | 9,154 | |
| Zone | | | | | | | | | |
| North Central | 51.8 | 49.9 | 1.1 | 1.0 | 2,210 | 21.3 | 20.3 | 2,202 | |
| North East | 74.1 | 72.0 | 1.9 | 1.9 | 2,089 | 34.6 | 32.9 | 2,085 | |
| North West | 77.6 | 75.8 | 2.0 | 2.0 | 3,629 | 32.3 | 31.1 | 3,624 | |
| South East | 36.9 | 36.9 | 0.8 | 0.7 | 1,356 | 18.8 | 18.6 | 1,349 | |
| South South | 40.0 | 39.3 | 0.8 | 0.7 | 2,037 | 19.5 | 19.2 | 2,034 | |
| South West | 45.9 | 42.5 | 1.0 | 0.9 | 2,406 | 26.2 | 24.1 | 2,381 | |
| Wealth quintile | | | | | | | | | |
| Lowest | 65.5 | 64.0 | 1.7 | 1.6 | 2,219 | 25.5 | 24.3 | 2,219 | |
| Second | 69.6 | 68.3 | 1.7 | 1.7 | 2,365 | 28.0 | 27.4 | 2,363 | |
| Middle | 61.3 | 59.9 | 1.4 | 1.4 | 2,707 | 28.7 | 27.9 | 2,698 | |
| Fourth | 53.0 | 50.9 | 1.2 | 1.2 | 3,018 | 26.6 | 25.2 | 3,001 | |
| Highest | 45.8 | 43.5 | 1.0 | 0.9 | 3,418 | 24.5 | 22.9 | 3,394 | |
| Total | 57.7 | 56.0 | 1.4 | 1.3 | 13,727 | 26.6 | 25.4 | 13,675 | |

¹ De facto household members

² An insecticide-treated net (ITN) is a factory-treated net that does not require any further treatment. In the 2008 NDHS, 2010 NMIS, 2013 NDHS, and 2015 NMIS, this was known as a long-lasting insecticidal net (LLIN).

Table 3.1.2 Household possession of mosquito nets: States

Percentage of households with at least one mosquito net (treated or untreated) and insecticide-treated net (ITN), average number of nets and ITNs per household, and percentage of households with at least one net and ITN per two persons who stayed in the household last night, by state, Nigeria MIS 2021

| State | Percentage of households with at least one mosquito net | | Average number of nets per household | | Number of households | Percentage of households with at least one net for every two persons who stayed in the household last night ¹ | | Number of households with at least one person who stayed in the household last night |
|----------------------|---|---|--------------------------------------|---|----------------------|--|---|--|
| | Any mosquito net | Insecticide-treated mosquito net (ITN) ² | Any mosquito net | Insecticide-treated mosquito net (ITN) ² | | Any mosquito net | Insecticide-treated mosquito net (ITN) ² | |
| North Central | | | | | | | | |
| FCT-Abuja | 48.2 | 45.0 | 0.9 | 0.8 | 202 | 14.4 | 12.4 | 198 |
| Benue | 74.8 | 74.8 | 1.7 | 1.7 | 381 | 38.5 | 38.5 | 381 |
| Kogi | 34.2 | 31.5 | 0.7 | 0.6 | 286 | 14.8 | 13.2 | 285 |
| Kwara | 64.8 | 62.9 | 1.3 | 1.2 | 298 | 29.9 | 29.2 | 298 |
| Nasarawa | 36.9 | 33.4 | 0.8 | 0.7 | 290 | 13.2 | 11.4 | 290 |
| Niger | 54.4 | 53.3 | 1.2 | 1.2 | 442 | 16.7 | 16.0 | 440 |
| Plateau | 39.5 | 37.8 | 0.7 | 0.7 | 311 | 16.4 | 15.1 | 309 |
| North East | | | | | | | | |
| Adamawa | 90.2 | 90.2 | 2.4 | 2.3 | 334 | 56.9 | 55.9 | 334 |
| Bauchi | 74.7 | 72.7 | 2.0 | 1.9 | 591 | 34.0 | 32.3 | 587 |
| Borno | 52.3 | 47.4 | 1.0 | 0.9 | 339 | 10.1 | 8.9 | 339 |
| Gombe | 82.1 | 81.7 | 2.6 | 2.6 | 239 | 44.4 | 44.0 | 239 |
| Taraba | 69.2 | 64.6 | 1.6 | 1.4 | 258 | 35.1 | 30.0 | 258 |
| Yobe | 77.0 | 76.4 | 2.0 | 1.9 | 328 | 30.9 | 29.8 | 328 |
| North West | | | | | | | | |
| Jigawa | 89.1 | 88.5 | 2.6 | 2.6 | 433 | 49.0 | 48.4 | 433 |
| Kaduna | 83.3 | 82.3 | 2.2 | 2.1 | 581 | 41.9 | 41.4 | 579 |
| Kano | 86.8 | 85.3 | 2.5 | 2.5 | 683 | 39.2 | 38.7 | 683 |
| Katsina | 64.9 | 64.6 | 1.7 | 1.7 | 871 | 19.2 | 18.9 | 871 |
| Kebbi | 78.1 | 72.9 | 1.7 | 1.6 | 474 | 22.0 | 19.5 | 471 |
| Sokoto | 73.5 | 68.5 | 1.7 | 1.6 | 374 | 31.6 | 27.5 | 374 |
| Zamfara | 67.6 | 66.3 | 1.6 | 1.6 | 214 | 27.2 | 26.1 | 212 |
| South East | | | | | | | | |
| Abia | 30.5 | 30.3 | 0.6 | 0.6 | 206 | 15.2 | 15.0 | 205 |
| Anambra | 26.7 | 26.7 | 0.4 | 0.4 | 325 | 12.6 | 12.1 | 324 |
| Ebonyi | 66.2 | 66.2 | 1.5 | 1.5 | 334 | 32.9 | 32.7 | 334 |
| Enugu | 22.8 | 22.8 | 0.4 | 0.4 | 279 | 11.3 | 11.3 | 275 |
| Imo | 30.9 | 30.9 | 0.7 | 0.6 | 211 | 19.5 | 19.5 | 211 |
| South South | | | | | | | | |
| Akwa Ibom | 41.9 | 41.3 | 0.8 | 0.8 | 585 | 22.5 | 22.3 | 585 |
| Bayelsa | 37.8 | 31.6 | 0.7 | 0.6 | 129 | 16.6 | 14.2 | 129 |
| Cross River | 52.9 | 52.9 | 1.0 | 1.0 | 274 | 26.0 | 26.0 | 274 |
| Delta | 54.8 | 54.8 | 1.0 | 1.0 | 373 | 28.0 | 28.0 | 372 |
| Edo | 28.0 | 27.9 | 0.6 | 0.6 | 311 | 15.0 | 14.6 | 310 |
| Rivers | 22.8 | 22.6 | 0.4 | 0.4 | 364 | 5.8 | 5.6 | 363 |
| South West | | | | | | | | |
| Ekiti | 25.4 | 25.4 | 0.4 | 0.4 | 151 | 8.7 | 8.7 | 149 |
| Lagos | 38.3 | 29.0 | 0.7 | 0.5 | 811 | 19.0 | 13.2 | 796 |
| Ogun | 39.7 | 39.7 | 0.8 | 0.8 | 375 | 21.6 | 21.6 | 372 |
| Ondo | 33.4 | 32.8 | 0.7 | 0.7 | 167 | 15.6 | 15.6 | 167 |
| Osun | 72.2 | 71.9 | 2.0 | 2.0 | 340 | 53.2 | 52.6 | 338 |
| Oyo | 54.1 | 53.7 | 1.2 | 1.1 | 562 | 30.8 | 30.5 | 559 |
| Total | 57.7 | 56.0 | 1.4 | 1.3 | 13,727 | 26.6 | 25.4 | 13,675 |

¹ De facto household members

² An insecticide-treated net (ITN) is a factory-treated net that does not require any further treatment. In the 2008 NDHS, 2010 NMIS, 2013 NDHS, and 2015 NMIS, this was known as a long-lasting insecticidal net (LLIN).

Table 3.2.1 Source of mosquito nets: National

Percent distribution of insecticide-treated nets (ITNs), non-ITNs, and all mosquito nets by source of net, according to background characteristics, Nigeria MIS 2021

| Background characteristic | Mass distribution campaign | ANC visit | Immunisation visit | Government health facility | Private health facility | Pharmacy | Shop/ market | Community health worker | Religious institution | School | Other | Don't know | Total | Number of mosquito nets |
|---------------------------|----------------------------|-----------|--------------------|----------------------------|-------------------------|----------|--------------|-------------------------|-----------------------|--------|-------|------------|-------|-------------------------|
| ITNs ¹ | | | | | | | | | | | | | | |
| Residence | | | | | | | | | | | | | | |
| Urban | 74.0 | 5.6 | 2.3 | 1.4 | 0.3 | 0.5 | 12.7 | 0.1 | 0.2 | 0.1 | 2.0 | 0.9 | 100.0 | 5,314 |
| Rural | 80.3 | 4.4 | 3.5 | 0.8 | 0.1 | 0.1 | 9.0 | 0.0 | 0.0 | 0.1 | 1.4 | 0.2 | 100.0 | 12,780 |
| Zone | | | | | | | | | | | | | | |
| North Central | 80.2 | 2.2 | 2.4 | 0.1 | 0.0 | 0.5 | 13.1 | 0.0 | 0.1 | 0.0 | 1.2 | 0.2 | 100.0 | 2,306 |
| North East | 82.4 | 2.8 | 2.1 | 0.2 | 0.0 | 0.0 | 11.3 | 0.0 | 0.0 | 0.0 | 1.2 | 0.0 | 100.0 | 3,882 |
| North West | 74.9 | 6.3 | 3.8 | 1.4 | 0.0 | 0.2 | 11.1 | 0.0 | 0.0 | 0.2 | 1.9 | 0.2 | 100.0 | 7,212 |
| South East | 80.7 | 4.0 | 3.1 | 0.9 | 0.1 | 0.1 | 8.6 | 0.0 | 0.2 | 0.0 | 1.7 | 0.5 | 100.0 | 1,013 |
| South South | 74.8 | 8.5 | 6.6 | 1.6 | 0.4 | 0.5 | 4.8 | 0.0 | 0.2 | 0.0 | 1.8 | 0.8 | 100.0 | 1,518 |
| South West | 83.0 | 3.5 | 1.4 | 1.6 | 0.7 | 0.2 | 5.9 | 0.1 | 0.1 | 0.3 | 1.6 | 1.5 | 100.0 | 2,163 |
| Wealth quintile | | | | | | | | | | | | | | |
| Lowest | 77.3 | 4.4 | 3.1 | 0.8 | 0.0 | 0.0 | 11.4 | 0.0 | 0.0 | 0.3 | 2.6 | 0.1 | 100.0 | 3,595 |
| Second | 80.8 | 4.5 | 2.9 | 1.0 | 0.0 | 0.2 | 9.4 | 0.0 | 0.0 | 0.1 | 1.1 | 0.0 | 100.0 | 4,002 |
| Middle | 81.7 | 4.0 | 3.4 | 0.7 | 0.0 | 0.0 | 8.9 | 0.0 | 0.1 | 0.0 | 1.0 | 0.1 | 100.0 | 3,792 |
| Fourth | 80.9 | 5.2 | 3.4 | 0.5 | 0.0 | 0.2 | 7.7 | 0.1 | 0.0 | 0.1 | 1.5 | 0.4 | 100.0 | 3,491 |
| Highest | 70.3 | 5.9 | 3.0 | 2.1 | 0.8 | 0.8 | 13.4 | 0.1 | 0.2 | 0.1 | 1.9 | 1.5 | 100.0 | 3,216 |
| Total | 78.5 | 4.7 | 3.2 | 1.0 | 0.1 | 0.2 | 10.1 | 0.0 | 0.1 | 0.1 | 1.6 | 0.4 | 100.0 | 18,095 |
| NON-ITNs | | | | | | | | | | | | | | |
| Total | na | na | na | na | 0.0 | 1.6 | 77.1 | 0.0 | 0.9 | 0.0 | 12.0 | 8.4 | 100.0 | 614 |
| ALL MOSQUITO NETS | | | | | | | | | | | | | | |
| Total | 75.9 | 4.6 | 3.1 | 1.0 | 0.1 | 0.3 | 12.3 | 0.0 | 0.1 | 0.1 | 2.0 | 0.7 | 100.0 | 18,709 |

ANC = Antenatal care

na = Not applicable

¹ An insecticide-treated net (ITN) is a factory-treated net that does not require any further treatment. In the 2008 NDHS, 2010 NMIS, 2013 NDHS, and 2015 NMIS, this was known as a long-lasting insecticidal net (LLIN).

Table 3.2.2 Source of mosquito nets: States

Percent distribution of insecticide-treated nets (ITNs) by source of net, by state, Nigeria MIS 2021

| State | Mass distribution campaign | ANC visit | Immu-nisation visit | Govern-ment health facility | Private health facility | Phar-macy | Shop/ market | Com-munity health worker | Reli-gious insti-tution | School | Other | Don't know | Total | Number of mosquito nets |
|----------------------|----------------------------|-----------|---------------------|-----------------------------|-------------------------|-----------|--------------|--------------------------|-------------------------|--------|-------|------------|-------|-------------------------|
| North Central | | | | | | | | | | | | | | |
| FCT-Abuja | 13.4 | 6.6 | 7.6 | 0.0 | 0.4 | 0.7 | 63.4 | 0.0 | 1.4 | 0.3 | 5.5 | 0.5 | 100.0 | 159 |
| Benue | 93.1 | 0.3 | 0.0 | 0.0 | 0.0 | 0.3 | 5.0 | 0.0 | 0.0 | 0.0 | 1.3 | 0.0 | 100.0 | 648 |
| Kogi | 81.6 | 0.8 | 1.3 | 0.7 | 0.0 | 0.0 | 15.4 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 100.0 | 176 |
| Kwara | 86.7 | 2.7 | 1.9 | 0.0 | 0.0 | 2.5 | 3.7 | 0.0 | 0.0 | 0.0 | 2.5 | 0.0 | 100.0 | 370 |
| Nasarawa | 75.0 | 5.2 | 3.9 | 0.0 | 0.0 | 0.0 | 15.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 100.0 | 201 |
| Niger | 78.1 | 1.1 | 4.3 | 0.4 | 0.0 | 0.0 | 15.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 100.0 | 541 |
| Plateau | 88.3 | 4.6 | 0.8 | 0.0 | 0.0 | 0.0 | 5.4 | 0.0 | 0.0 | 0.0 | 0.8 | 0.0 | 100.0 | 210 |
| North East | | | | | | | | | | | | | | |
| Adamawa | 94.0 | 1.1 | 1.1 | 0.0 | 0.0 | 0.0 | 2.4 | 0.0 | 0.0 | 0.0 | 1.3 | 0.0 | 100.0 | 784 |
| Bauchi | 82.5 | 3.1 | 4.6 | 0.2 | 0.0 | 0.0 | 8.3 | 0.0 | 0.0 | 0.0 | 1.3 | 0.0 | 100.0 | 1,149 |
| Borno | 54.7 | 2.5 | 0.6 | 2.1 | 0.0 | 0.0 | 35.4 | 0.0 | 0.0 | 0.0 | 4.7 | 0.0 | 100.0 | 322 |
| Gombe | 97.8 | 1.6 | 0.1 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 100.0 | 629 |
| Taraba | 74.9 | 4.4 | 4.3 | 0.0 | 0.0 | 0.0 | 15.9 | 0.0 | 0.0 | 0.0 | 0.3 | 0.2 | 100.0 | 366 |
| Yobe | 71.0 | 4.6 | 0.1 | 0.1 | 0.0 | 0.0 | 23.7 | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 100.0 | 633 |
| North West | | | | | | | | | | | | | | |
| Jigawa | 80.3 | 8.2 | 2.0 | 0.2 | 0.1 | 0.1 | 7.3 | 0.0 | 0.1 | 0.0 | 0.8 | 1.0 | 100.0 | 1,105 |
| Kaduna | 78.0 | 5.7 | 4.7 | 5.7 | 0.1 | 0.0 | 4.4 | 0.2 | 0.1 | 0.0 | 1.0 | 0.1 | 100.0 | 1,237 |
| Kano | 85.4 | 3.4 | 0.5 | 0.2 | 0.0 | 0.0 | 9.9 | 0.0 | 0.0 | 0.1 | 0.5 | 0.0 | 100.0 | 1,686 |
| Katsina | 65.6 | 11.2 | 10.1 | 0.5 | 0.0 | 0.0 | 11.2 | 0.0 | 0.0 | 0.0 | 1.3 | 0.0 | 100.0 | 1,486 |
| Kebbi | 57.2 | 2.1 | 1.5 | 2.3 | 0.0 | 0.0 | 24.0 | 0.0 | 0.0 | 1.3 | 11.2 | 0.4 | 100.0 | 768 |
| Sokoto | 68.7 | 5.4 | 3.8 | 0.1 | 0.0 | 0.0 | 21.6 | 0.0 | 0.0 | 0.0 | 0.1 | 0.2 | 100.0 | 588 |
| Zamfara | 84.7 | 5.5 | 0.6 | 0.0 | 0.0 | 3.9 | 5.2 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 100.0 | 342 |
| South East | | | | | | | | | | | | | | |
| Abia | 70.5 | 4.6 | 2.7 | 4.2 | 0.4 | 0.5 | 10.6 | 0.0 | 1.3 | 0.0 | 5.2 | 0.0 | 100.0 | 130 |
| Anambra | 54.8 | 3.0 | 7.4 | 0.6 | 0.0 | 0.5 | 32.2 | 0.0 | 0.0 | 0.0 | 0.0 | 1.5 | 100.0 | 142 |
| Ebonyi | 92.5 | 3.0 | 2.8 | 0.1 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.5 | 0.7 | 100.0 | 501 |
| Enugu | 58.4 | 11.5 | 0.8 | 2.0 | 0.0 | 0.0 | 24.2 | 0.0 | 0.0 | 0.0 | 3.1 | 0.0 | 100.0 | 104 |
| Imo | 90.9 | 2.2 | 2.2 | 0.4 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 3.9 | 0.0 | 100.0 | 137 |
| South South | | | | | | | | | | | | | | |
| Akwa Ibom | 95.6 | 1.2 | 0.5 | 0.0 | 0.0 | 0.0 | 0.9 | 0.0 | 0.0 | 0.0 | 0.9 | 0.9 | 100.0 | 467 |
| Bayelsa | 26.9 | 14.5 | 16.6 | 5.7 | 0.0 | 4.8 | 15.2 | 0.0 | 3.0 | 1.0 | 10.9 | 1.4 | 100.0 | 71 |
| Cross River | 66.4 | 15.4 | 17.5 | 0.2 | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 | 274 |
| Delta | 71.5 | 11.1 | 4.2 | 2.1 | 0.0 | 0.8 | 7.2 | 0.0 | 0.3 | 0.0 | 1.3 | 1.4 | 100.0 | 389 |
| Edo | 78.8 | 5.0 | 5.8 | 1.5 | 3.0 | 0.0 | 2.5 | 0.0 | 0.0 | 0.0 | 3.1 | 0.3 | 100.0 | 181 |
| Rivers | 49.4 | 13.6 | 8.2 | 6.6 | 0.0 | 0.8 | 16.9 | 0.0 | 0.0 | 0.0 | 3.3 | 1.2 | 100.0 | 136 |
| South West | | | | | | | | | | | | | | |
| Ekiti | 74.6 | 10.0 | 3.8 | 3.7 | 0.0 | 0.7 | 3.4 | 2.0 | 0.0 | 1.9 | 0.0 | 0.0 | 100.0 | 61 |
| Lagos | 41.3 | 9.4 | 2.8 | 5.9 | 4.0 | 0.7 | 23.9 | 0.0 | 0.6 | 1.5 | 4.6 | 5.2 | 100.0 | 403 |
| Ogun | 93.8 | 1.3 | 0.4 | 1.0 | 0.0 | 0.0 | 3.2 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 100.0 | 281 |
| Ondo | 69.5 | 13.9 | 5.5 | 0.0 | 0.0 | 0.6 | 6.1 | 0.0 | 0.8 | 0.0 | 3.7 | 0.0 | 100.0 | 111 |
| Osun | 94.2 | 0.2 | 1.3 | 0.8 | 0.0 | 0.0 | 0.1 | 0.2 | 0.0 | 0.0 | 1.6 | 1.6 | 100.0 | 670 |
| Oyo | 96.1 | 1.9 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 | 637 |
| Total | 78.5 | 4.7 | 3.2 | 1.0 | 0.1 | 0.2 | 10.1 | 0.0 | 0.1 | 0.1 | 1.6 | 0.4 | 100.0 | 18,095 |

Note: An insecticide-treated net (ITN) is a factory-treated net that does not require any further treatment. In the 2008 NDHS, 2010 NMIS, 2013 NDHS, and 2015 NMIS, this was known as a long-lasting insecticidal net (LLIN).

ANC = Antenatal care

Table 3.3.1 Access to an insecticide-treated net (ITN): National

Percentage of the de facto population with access to an ITN in the household, according to background characteristics, Nigeria MIS 2021

| Background characteristic | Percentage of the de facto population with access to an ITN ^{1,2} | Number of persons |
|---------------------------|--|-------------------|
| Residence | | |
| Urban | 41.1 | 22,215 |
| Rural | 44.0 | 50,042 |
| Zone | | |
| North Central | 34.1 | 11,843 |
| North East | 53.9 | 12,609 |
| North West | 52.4 | 24,618 |
| South East | 29.2 | 5,546 |
| South South | 29.4 | 8,240 |
| South West | 35.6 | 9,402 |
| Wealth quintile | | |
| Lowest | 45.0 | 14,464 |
| Second | 49.3 | 14,468 |
| Middle | 44.7 | 14,439 |
| Fourth | 40.3 | 14,456 |
| Highest | 36.1 | 14,430 |
| Total | 43.1 | 72,258 |

¹ An insecticide-treated net (ITN) is a factory-treated net that does not require any further treatment. In the 2008 NDHS, 2010 NMIS, 2013 NDHS, and 2015 NMIS, this was known as a long-lasting insecticidal net (LLIN).

² Percentage of the de facto household population that could sleep under an ITN if each ITN in the household were used by up to two people

Table 3.3.2 Access to an insecticide-treated net (ITN): States

Percentage of the de facto population with access to an ITN in the household, by state, Nigeria MIS 2021

| State | Percentage of the de facto population with access to an ITN ^{1,2} | Number of persons |
|----------------------|--|-------------------|
| North Central | | |
| FCT-Abuja | 31.1 | 954 |
| Benue | 58.3 | 1,857 |
| Kogi | 22.6 | 1,308 |
| Kwara | 48.1 | 1,278 |
| Nasarawa | 20.5 | 1,816 |
| Niger | 31.9 | 3,139 |
| Plateau | 25.4 | 1,490 |
| North East | | |
| Adamawa | 73.9 | 1,762 |
| Bauchi | 54.4 | 3,759 |
| Borno | 31.5 | 1,947 |
| Gombe | 68.5 | 1,580 |
| Taraba | 45.8 | 1,333 |
| Yobe | 51.2 | 2,228 |
| North West | | |
| Jigawa | 69.6 | 2,709 |
| Kaduna | 63.3 | 3,246 |
| Kano | 63.3 | 4,869 |
| Katsina | 40.0 | 7,009 |
| Kebbi | 46.9 | 3,048 |
| Sokoto | 44.3 | 2,320 |
| Zamfara | 43.7 | 1,417 |
| South East | | |
| Abia | 24.1 | 814 |
| Anambra | 18.5 | 1,299 |
| Ebonyi | 52.3 | 1,532 |
| Enugu | 17.6 | 1,001 |
| Imo | 22.8 | 901 |
| South South | | |
| Akwa Ibom | 28.1 | 2,388 |
| Bayelsa | 21.4 | 575 |
| Cross River | 41.8 | 1,097 |
| Delta | 43.0 | 1,476 |
| Edo | 23.2 | 1,263 |
| Rivers | 16.9 | 1,442 |
| South West | | |
| Ekiti | 19.4 | 579 |
| Lagos | 22.1 | 2,863 |
| Ogun | 33.7 | 1,381 |
| Ondo | 24.2 | 738 |
| Osun | 61.8 | 1,445 |
| Oyo | 44.4 | 2,395 |
| Total | 43.1 | 72,258 |

¹ An insecticide-treated net (ITN) is a factory-treated net that does not require any further treatment. In the 2008 NDHS, 2010 NMIS, 2013 NDHS, and 2015 NMIS, this was known as a long-lasting insecticidal net (LLIN).

² Percentage of the de facto household population that could sleep under an ITN if each ITN in the household were used by up to two people

Table 3.4.1 Use of mosquito nets by persons in the household: National

Percentage of the de facto household population that slept under a mosquito net (treated or untreated) and under an insecticide-treated net (ITN) the night before the survey, and among the de facto household population in households with at least one ITN, percentage who slept under an ITN the night before the survey, according to background characteristics, Nigeria MIS 2021

| Background characteristic | Household population | | | Household population in households with at least one ITN ¹ | |
|---------------------------|--|---|-------------------|---|-------------------|
| | Percentage who slept under any mosquito net last night | Percentage who slept under an ITN ¹ last night | Number of persons | Percentage who slept under an ITN ¹ last night | Number of persons |
| Age | | | | | |
| <5 | 42.3 | 41.2 | 12,742 | 64.3 | 8,159 |
| 5-14 | 36.1 | 35.0 | 21,262 | 55.2 | 13,469 |
| 15-34 | 36.1 | 35.0 | 20,792 | 57.4 | 12,675 |
| 35-49 | 38.2 | 37.3 | 9,249 | 63.5 | 5,424 |
| 50+ | 36.9 | 36.1 | 7,935 | 62.6 | 4,578 |
| Don't know | 22.2 | 20.5 | 279 | 49.9 | 115 |
| Sex | | | | | |
| Male | 35.3 | 34.3 | 36,159 | 56.2 | 22,039 |
| Female | 39.7 | 38.6 | 36,099 | 62.3 | 22,381 |
| Residence | | | | | |
| Urban | 34.1 | 32.8 | 22,215 | 56.0 | 12,991 |
| Rural | 39.0 | 38.1 | 50,042 | 60.6 | 31,429 |
| Zone | | | | | |
| North Central | 29.8 | 28.8 | 11,843 | 55.9 | 6,108 |
| North East | 50.4 | 48.8 | 12,609 | 65.5 | 9,392 |
| North West | 50.0 | 48.8 | 24,618 | 64.3 | 18,714 |
| South East | 20.9 | 20.9 | 5,546 | 50.5 | 2,295 |
| South South | 19.2 | 18.9 | 8,240 | 44.8 | 3,475 |
| South West | 22.8 | 21.5 | 9,402 | 45.5 | 4,435 |
| Wealth quintile | | | | | |
| Lowest | 42.8 | 41.7 | 14,464 | 62.2 | 9,608 |
| Second | 45.8 | 45.0 | 14,468 | 63.3 | 10,279 |
| Middle | 41.4 | 40.5 | 14,439 | 63.5 | 9,215 |
| Fourth | 32.9 | 31.7 | 14,456 | 55.9 | 8,198 |
| Highest | 24.5 | 23.3 | 14,430 | 47.8 | 7,030 |
| Total | 37.5 | 36.4 | 72,258 | 59.3 | 44,420 |

¹ An insecticide-treated net (ITN) is a factory-treated net that does not require any further treatment. In the 2008 NDHS, 2010 NMIS, 2013 NDHS, and 2015 NMIS, this was known as a long-lasting insecticidal net (LLIN).

Table 3.4.2 Use of mosquito nets by persons in the household: States

Percentage of the de facto household population that slept under a mosquito net (treated or untreated) and under an insecticide-treated net (ITN) the night before the survey, and among the de facto household population in households with at least one ITN, percentage who slept under an ITN the night before the survey, by state, Nigeria MIS 2021

| State | Household population | | Household population in households with at least one ITN ¹ | |
|--|--|---|---|---|
| | Percentage who slept under any mosquito net last night | Percentage who slept under an ITN ¹ last night | Number of persons | Percentage who slept under an ITN ¹ last night |
| North Central | | | | |
| FCT-Abuja | 32.5 | 28.6 | 954 | 55.9 |
| Benue | 56.8 | 56.6 | 1,857 | 73.4 |
| Kogi | 18.9 | 18.0 | 1,308 | 52.2 |
| Kwara | 39.6 | 39.0 | 1,278 | 56.6 |
| Nasarawa | 16.1 | 14.5 | 1,816 | 44.7 |
| Niger | 22.7 | 22.1 | 3,139 | 40.9 |
| Plateau | 27.5 | 26.7 | 1,490 | 69.6 |
| North East | | | | |
| Adamawa | 67.7 | 67.5 | 1,762 | 74.1 |
| Bauchi | 51.5 | 48.9 | 3,759 | 64.9 |
| Borno | 36.7 | 34.2 | 1,947 | 66.5 |
| Gombe | 63.9 | 63.3 | 1,580 | 72.8 |
| Taraba | 40.9 | 38.2 | 1,333 | 54.3 |
| Yobe | 43.2 | 42.7 | 2,228 | 57.9 |
| North West | | | | |
| Jigawa | 64.2 | 63.4 | 2,709 | 70.8 |
| Kaduna | 58.0 | 57.1 | 3,246 | 68.1 |
| Kano | 63.8 | 63.0 | 4,869 | 73.8 |
| Katsina | 42.0 | 41.8 | 7,009 | 63.7 |
| Kebbi | 42.2 | 38.2 | 3,048 | 51.5 |
| Sokoto | 33.1 | 31.1 | 2,320 | 45.4 |
| Zamfara | 41.2 | 40.2 | 1,417 | 59.6 |
| South East | | | | |
| Abia | 15.4 | 15.3 | 814 | 47.9 |
| Anambra | 10.3 | 10.3 | 1,299 | 36.4 |
| Ebonyi | 48.1 | 48.1 | 1,532 | 66.0 |
| Enugu | 9.8 | 9.8 | 1,001 | 36.1 |
| Imo | 7.4 | 7.4 | 901 | 23.9 |
| South South | | | | |
| Akwa Ibom | 17.9 | 17.8 | 2,388 | 43.8 |
| Bayelsa | 21.4 | 17.9 | 575 | 53.8 |
| Cross River | 30.6 | 30.6 | 1,097 | 51.6 |
| Delta | 26.2 | 26.2 | 1,476 | 44.5 |
| Edo | 12.5 | 12.3 | 1,263 | 38.3 |
| Rivers | 10.6 | 10.5 | 1,442 | 38.8 |
| South West | | | | |
| Ekiti | 10.0 | 9.9 | 579 | 28.5 |
| Lagos | 13.7 | 9.6 | 2,863 | 29.9 |
| Ogun | 21.7 | 21.7 | 1,381 | 48.7 |
| Ondo | 17.9 | 17.7 | 738 | 50.1 |
| Osun | 35.3 | 35.3 | 1,445 | 48.0 |
| Oyo | 31.5 | 31.2 | 2,395 | 54.2 |
| Total | 37.5 | 36.4 | 72,258 | 59.3 |
| ¹ An insecticide-treated net (ITN) is a factory-treated net that does not require any further treatment. In the 2008 NDHS, 2010 NMIS, 2013 NDHS, and 2015 NMIS, this was known as a long-lasting insecticidal net (LLIN). | | | | |

Table 3.5.1 Use of existing ITNs: National

Percentage of insecticide-treated nets (ITNs) that were used by anyone the night before the survey, according to background characteristics, Nigeria MIS 2021

| Background characteristic | Percentage of existing ITNs ¹ used last night | Number of ITNs ¹ |
|---------------------------|--|-----------------------------|
| Residence | | |
| Urban | 70.8 | 5,314 |
| Rural | 76.8 | 12,780 |
| Zone | | |
| North Central | 77.4 | 2,306 |
| North East | 82.0 | 3,882 |
| North West | 84.0 | 7,212 |
| South East | 57.0 | 1,013 |
| South South | 55.9 | 1,518 |
| South West | 52.6 | 2,163 |
| Wealth quintile | | |
| Lowest | 84.6 | 3,595 |
| Second | 81.8 | 4,002 |
| Middle | 78.4 | 3,792 |
| Fourth | 70.1 | 3,491 |
| Highest | 57.6 | 3,216 |
| Total | 75.1 | 18,095 |

¹ An insecticide-treated net (ITN) is a factory-treated net that does not require any further treatment. In the 2008 NDHS, 2010 NMIS, 2013 NDHS, and 2015 NMIS, this was known as a long-lasting insecticidal net (LLIN).

Table 3.5.2 Use of existing ITNs: States

Percentage of insecticide-treated nets (ITNs) that were used by anyone the night before the survey, by state, Nigeria MIS 2021

| State | Percentage of existing ITNs ¹ used last night | Number of ITNs ¹ |
|----------------------|--|-----------------------------|
| North Central | | |
| FCT-Abuja | 82.3 | 159 |
| Benue | 87.2 | 648 |
| Kogi | 74.9 | 176 |
| Kwara | 69.1 | 370 |
| Nasarawa | 66.4 | 201 |
| Niger | 72.3 | 541 |
| Plateau | 84.0 | 210 |
| North East | | |
| Adamawa | 84.8 | 784 |
| Bauchi | 84.7 | 1,149 |
| Borno | 91.6 | 322 |
| Gombe | 79.4 | 629 |
| Taraba | 72.3 | 366 |
| Yobe | 76.6 | 633 |
| North West | | |
| Jigawa | 88.3 | 1,105 |
| Kaduna | 77.6 | 1,237 |
| Kano | 90.8 | 1,686 |
| Katsina | 89.8 | 1,486 |
| Kebbi | 73.6 | 768 |
| Sokoto | 64.3 | 588 |
| Zamfara | 90.8 | 342 |
| South East | | |
| Abia | 50.2 | 130 |
| Anambra | 63.6 | 142 |
| Ebonyi | 65.9 | 501 |
| Enugu | 53.4 | 104 |
| Imo | 26.5 | 137 |
| South South | | |
| Akwa Ibom | 53.3 | 467 |
| Bayelsa | 70.8 | 71 |
| Cross River | 66.9 | 274 |
| Delta | 53.8 | 389 |
| Edo | 45.9 | 181 |
| Rivers | 54.0 | 136 |
| South West | | |
| Ekiti | 52.9 | 61 |
| Lagos | 36.8 | 403 |
| Ogun | 65.5 | 281 |
| Ondo | 63.3 | 111 |
| Osun | 43.2 | 670 |
| Oyo | 64.7 | 637 |
| Total | 75.1 | 18,095 |

¹ An insecticide-treated net (ITN) is a factory-treated net that does not require any further treatment. In the 2008 NDHS, 2010 NMIS, 2013 NDHS, and 2015 NMIS, this was known as a long-lasting insecticidal net (LLIN).

Table 3.6.1 Use of mosquito nets by children: National

Percentage of children under age 5 who slept under a mosquito net (treated or untreated) and under an insecticide-treated net (ITN) the night before the survey, and among children under age 5 in households with at least one ITN, percentage who slept under an ITN the night before the survey, according to background characteristics, Nigeria MIS 2021

| Background characteristic | Children under age 5 in all households | | | Children under age 5 in households with at least one ITN ¹ | |
|---------------------------|--|---|--------------------|---|--------------------|
| | Percentage who slept under any mosquito net last night | Percentage who slept under an ITN ¹ last night | Number of children | Percentage who slept under an ITN ¹ last night | Number of children |
| Age in months | | | | | |
| <12 | 47.6 | 46.1 | 2,273 | 69.1 | 1,516 |
| 12–23 | 42.5 | 41.2 | 2,262 | 63.9 | 1,458 |
| 24–35 | 42.0 | 41.0 | 2,457 | 62.9 | 1,602 |
| 36–47 | 42.0 | 40.6 | 2,645 | 64.4 | 1,668 |
| 48–59 | 38.9 | 38.2 | 3,104 | 61.9 | 1,914 |
| Sex | | | | | |
| Male | 42.0 | 40.9 | 6,509 | 64.1 | 4,154 |
| Female | 42.7 | 41.5 | 6,233 | 64.5 | 4,005 |
| Residence | | | | | |
| Urban | 38.7 | 37.5 | 3,545 | 62.1 | 2,140 |
| Rural | 43.7 | 42.6 | 9,196 | 65.1 | 6,019 |
| Zone | | | | | |
| North Central | 31.9 | 30.5 | 2,212 | 60.8 | 1,110 |
| North East | 53.0 | 50.8 | 2,264 | 67.5 | 1,702 |
| North West | 55.5 | 54.6 | 4,618 | 70.0 | 3,602 |
| South East | 29.5 | 29.5 | 994 | 60.6 | 483 |
| South South | 24.0 | 23.7 | 1,357 | 49.3 | 654 |
| South West | 23.7 | 22.2 | 1,296 | 47.2 | 609 |
| Wealth quintile | | | | | |
| Lowest | 46.3 | 45.2 | 2,772 | 67.3 | 1,860 |
| Second | 49.2 | 48.3 | 2,784 | 66.9 | 2,012 |
| Middle | 45.0 | 43.9 | 2,660 | 67.0 | 1,743 |
| Fourth | 38.3 | 36.7 | 2,313 | 61.1 | 1,391 |
| Highest | 29.7 | 28.6 | 2,213 | 54.8 | 1,153 |
| Total | 42.3 | 41.2 | 12,742 | 64.3 | 8,159 |

Note: Table is based on children who stayed in the household the night before the interview.

¹ An insecticide-treated net (ITN) is a factory-treated net that does not require any further treatment. In the 2008 NDHS, 2010 NMIS, 2013 NDHS, and 2015 NMIS, this was known as a long-lasting insecticidal net (LLIN).

Table 3.6.2 Use of mosquito nets by children: States

Percentage of children under age 5 who slept under a mosquito net (treated or untreated) and under an insecticide-treated net (ITN) the night before the survey, and among children under age 5 in households with at least one ITN, percentage who slept under an ITN the night before the survey, by state, Nigeria MIS 2021

| State | Children under age 5 in all households | | Children under age 5 in households with at least one ITN ¹ | |
|----------------------|--|---|---|---|
| | Percentage who slept under any mosquito net last night | Percentage who slept under an ITN ¹ last night | Number of children | Percentage who slept under an ITN ¹ last night |
| | | | Number of children | |
| North Central | | | | |
| FCT-Abuja | 48.2 | 42.3 | 196 | 76.0 |
| Benue | 57.6 | 57.6 | 327 | 76.8 |
| Kogi | 23.1 | 21.0 | 178 | 59.7 |
| Kwara | 46.7 | 44.2 | 203 | 58.5 |
| Nasarawa | 15.1 | 14.4 | 427 | 47.9 |
| Niger | 22.1 | 21.4 | 565 | 41.7 |
| Plateau | 30.8 | 29.5 | 314 | 78.0 |
| North East | | | | |
| Adamawa | 78.1 | 78.1 | 274 | 83.5 |
| Bauchi | 56.1 | 52.7 | 716 | 67.3 |
| Borno | 41.7 | 38.3 | 367 | 75.2 |
| Gombe | 65.2 | 64.9 | 232 | 73.2 |
| Taraba | 41.9 | 38.1 | 289 | 56.1 |
| Yobe | 41.3 | 40.7 | 385 | 53.1 |
| North West | | | | |
| Jigawa | 71.2 | 70.1 | 524 | 75.3 |
| Kaduna | 63.0 | 62.4 | 661 | 74.2 |
| Kano | 64.8 | 64.8 | 971 | 75.6 |
| Katsina | 48.1 | 48.1 | 1,139 | 71.9 |
| Kebbi | 46.2 | 43.0 | 629 | 57.9 |
| Sokoto | 42.3 | 40.0 | 457 | 55.0 |
| Zamfara | 46.2 | 46.1 | 238 | 67.0 |
| South East | | | | |
| Abia | 21.9 | 21.9 | 163 | 63.3 |
| Anambra | 20.4 | 20.4 | 180 | 61.2 |
| Ebonyi | 53.9 | 53.9 | 340 | 68.2 |
| Enugu | 12.9 | 12.9 | 183 | 45.1 |
| Imo | 10.6 | 10.6 | 128 | 29.6 |
| South South | | | | |
| Akwa Ibom | 19.5 | 19.5 | 302 | 43.4 |
| Bayelsa | 25.9 | 22.8 | 121 | 60.8 |
| Cross River | 38.7 | 38.7 | 205 | 59.8 |
| Delta | 28.1 | 28.1 | 350 | 44.7 |
| Edo | 17.4 | 17.4 | 126 | 52.4 |
| Rivers | 14.4 | 14.4 | 254 | 46.2 |
| South West | | | | |
| Ekiti | 10.8 | 10.8 | 83 | 26.0 |
| Lagos | 14.0 | 9.2 | 391 | 27.9 |
| Ogun | 18.2 | 18.2 | 206 | 38.5 |
| Ondo | 25.7 | 24.9 | 121 | 63.3 |
| Osun | 35.1 | 35.1 | 176 | 54.5 |
| Oyo | 35.6 | 35.6 | 318 | 60.5 |
| Total | 42.3 | 41.2 | 12,742 | 64.3 |
| | | | | 8,159 |

Note: Table is based on children who stayed in the household the night before the interview.

¹ An insecticide-treated net (ITN) is a factory-treated net that does not require any further treatment. In the 2008 NDHS, 2010 NMIS, 2013 NDHS, and 2015 NMIS, this was known as a long-lasting insecticidal net (LLIN).

Table 3.7.1 Use of mosquito nets by pregnant women: National

Percentage of pregnant women age 15–49 who slept under a mosquito net (treated or untreated) and under an insecticide-treated net (ITN) the night before the survey, and among pregnant women age 15–49 in households with at least one ITN, percentage who slept under an ITN the night before the survey, according to background characteristics, Nigeria MIS 2021

| Background characteristic | Among pregnant women age 15–49 in all households | | | Among pregnant women age 15–49 in households with at least one ITN ¹ | |
|---------------------------|--|---|--------------------------|---|--------------------------|
| | Percentage who slept under any mosquito net last night | Percentage who slept under an ITN ¹ last night | Number of pregnant women | Percentage who slept under an ITN ¹ last night | Number of pregnant women |
| Residence | | | | | |
| Urban | 45.8 | 44.1 | 357 | 67.7 | 233 |
| Rural | 52.2 | 51.7 | 963 | 75.1 | 662 |
| Zone | | | | | |
| North Central | 35.7 | 35.1 | 184 | 60.8 | 106 |
| North East | 65.2 | 65.0 | 247 | 84.2 | 191 |
| North West | 60.9 | 59.5 | 615 | 78.3 | 467 |
| South East | 27.4 | 27.4 | 73 | (66.9) | 30 |
| South South | 20.6 | 20.6 | 94 | 46.9 | 41 |
| South West | 23.2 | 22.8 | 106 | 40.9 | 59 |
| Education | | | | | |
| No education ² | 53.3 | 52.9 | 614 | 74.2 | 437 |
| Primary | 58.6 | 56.8 | 175 | 79.7 | 125 |
| Secondary | 46.4 | 45.4 | 420 | 73.1 | 261 |
| More than secondary | 36.8 | 36.2 | 111 | 55.8 | 72 |
| Wealth quintile | | | | | |
| Lowest | 54.6 | 54.6 | 273 | 78.4 | 190 |
| Second | 55.0 | 54.6 | 308 | 77.3 | 218 |
| Middle | 58.0 | 57.0 | 298 | 77.3 | 219 |
| Fourth | 46.2 | 44.0 | 257 | 70.9 | 159 |
| Highest | 30.3 | 29.9 | 184 | 50.8 | 109 |
| Total | 50.4 | 49.6 | 1,320 | 73.2 | 895 |

Notes: Table is based on women who stayed in the household the night before the interview. Figures in parentheses are based on 25–49 unweighted cases.

¹ An insecticide-treated net (ITN) is a factory-treated net that does not require any further treatment. In the 2008 NDHS, 2010 NMIS, 2013 NDHS, and 2015 NMIS, this was known as a long-lasting insecticidal net (LLIN).

² No education includes informal education (adult education, Tsangaya, or Quranic).

Table 3.7.2 Use of mosquito nets by pregnant women: States

Percentage of pregnant women age 15–49 who slept under a mosquito net (treated or untreated) and under an insecticide-treated net (ITN) the night before the survey, and among pregnant women age 15–49 in households with at least one ITN, percentage who slept under an ITN the night before the survey, by state, Nigeria MIS 2021

| State | Among pregnant women age 15–49 in all households | | Among pregnant women age 15–49 in households with at least one ITN ¹ | |
|----------------------|--|---|---|---|
| | Percentage who slept under any mosquito net last night | Percentage who slept under an ITN ¹ last night | Number of pregnant women | Percentage who slept under an ITN ¹ last night |
| North Central | | | | |
| FCT-Abuja | * | * | 11 | * |
| Benue | * | * | 24 | * |
| Kogi | * | * | 16 | * |
| Kwara | (42.8) | (42.8) | 25 | * |
| Nasarawa | (23.4) | (19.5) | 27 | * |
| Niger | (30.7) | (30.7) | 53 | (53.6) |
| Plateau | (26.6) | (26.6) | 27 | * |
| North East | | | | |
| Adamawa | (72.8) | (72.8) | 26 | (86.1) |
| Bauchi | 71.1 | 71.1 | 99 | (89.8) |
| Borno | (56.6) | (55.3) | 23 | * |
| Gombe | * | * | 12 | * |
| Taraba | (52.1) | (52.1) | 20 | (58.4) |
| Yobe | 59.3 | 59.3 | 67 | (83.9) |
| North West | | | | |
| Jigawa | (86.0) | (86.0) | 57 | (88.6) |
| Kaduna | 60.8 | 60.8 | 95 | 72.5 |
| Kano | 76.9 | 76.9 | 99 | 93.0 |
| Katsina | 51.4 | 51.4 | 194 | 80.9 |
| Kebbi | 54.1 | 50.6 | 81 | (66.1) |
| Sokoto | (45.3) | (40.1) | 50 | (56.9) |
| Zamfara | 65.5 | 56.9 | 39 | (74.8) |
| South East | | | | |
| Abia | * | * | 9 | * |
| Anambra | (5.7) | (5.7) | 19 | * |
| Ebonyi | (66.5) | (66.5) | 25 | * |
| Enugu | * | * | 8 | * |
| Imo | * | * | 12 | * |
| South South | | | | |
| Akwa Ibom | * | * | 16 | * |
| Bayelsa | (22.9) | (22.9) | 12 | * |
| Cross River | * | * | 17 | * |
| Delta | * | * | 18 | * |
| Edo | * | * | 19 | * |
| Rivers | (1.4) | (1.4) | 12 | * |
| South West | | | | |
| Ekiti | * | * | 5 | * |
| Lagos | * | * | 30 | * |
| Ogun | * | * | 12 | * |
| Ondo | * | * | 14 | * |
| Osun | * | * | 20 | * |
| Oyo | * | * | 24 | * |
| Total | 50.4 | 49.6 | 1,320 | 73.2 |
| | | | | 895 |

Notes: Table is based on women who stayed in the household the night before the interview. Figures in parentheses are based on 25–49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.

¹ An insecticide-treated net (ITN) is a factory-treated net that does not require any further treatment. In the 2008 NDHS, 2010 NMIS, 2013 NDHS, and 2015 NMIS, this was known as a long-lasting insecticidal net (LLIN).

Table 3.8.1 Main reason mosquito net was not used the night before the survey: National

Among ITNs, non-ITNs, and all mosquito nets, percentage that were not used by anyone the night before the survey, and among mosquito nets that were not used by anyone the night before the survey, percent distribution by the main reason each net was not used, according to background characteristics, Nigeria MIS 2021

| Background characteristic | Percent-age of nets not used the night before the survey | Total number of mosquito nets before the survey | No mosquito-toes | No malaria | Too hot | Don't like smell | Feel "closed in" | Net too dirty | Net old/orn | Main reason each net was not used the night before the survey | | | Number of mosquito nets not used the night before the survey |
|---------------------------|--|---|------------------|------------|---------|------------------|------------------|---------------|-------------|---|----------|-------------------|--|
| | | | | | | | | | | ITNs ¹ | NON-ITNs | ALL MOSQUITO NETS | |
| Residence | | | | | | | | | | | | | |
| Urban | 28.4 | 5,314 | 16.1 | 0.9 | 19.6 | 2.1 | 2.4 | 9.3 | 2.7 | 3.7 | 5.1 | 20.1 | 0.3 |
| Rural | 22.7 | 12,780 | 18.9 | 0.8 | 14.7 | 0.8 | 0.9 | 10.5 | 3.0 | 2.8 | 8.8 | 25.8 | 0.0 |
| Zone | | | | | | | | | | | | | |
| North Central | 21.5 | 2,306 | 22.2 | 0.7 | 22.1 | 0.4 | 0.3 | 9.9 | 3.4 | 2.9 | 6.8 | 16.2 | 0.0 |
| North East | 17.3 | 3,882 | 23.9 | 0.2 | 9.6 | 1.4 | 4.3 | 6.9 | 1.0 | 2.9 | 10.8 | 26.5 | 0.2 |
| North West | 15.8 | 7,212 | 19.2 | 0.6 | 6.4 | 0.4 | 0.1 | 16.0 | 5.8 | 5.5 | 11.0 | 27.1 | 0.1 |
| South East | 42.6 | 1,013 | 8.8 | 0.9 | 23.2 | 1.5 | 0.7 | 8.7 | 2.2 | 0.7 | 6.5 | 35.0 | 0.0 |
| South South | 43.8 | 1,518 | 15.8 | 0.8 | 27.6 | 0.2 | 1.1 | 10.9 | 2.4 | 0.6 | 4.7 | 17.7 | 0.1 |
| South West | 46.6 | 2,163 | 15.9 | 1.6 | 19.2 | 3.1 | 2.2 | 5.7 | 1.3 | 3.3 | 4.3 | 21.5 | 0.1 |
| Wealth quintile | | | | | | | | | | | | | |
| Lowest | 14.9 | 3,595 | 20.3 | 0.8 | 7.2 | 0.1 | 0.7 | 17.4 | 4.6 | 2.1 | 10.0 | 30.1 | 0.0 |
| Second | 17.7 | 4,002 | 26.3 | 0.8 | 9.7 | 0.2 | 0.6 | 13.8 | 5.5 | 4.0 | 9.9 | 21.9 | 0.2 |
| Middle | 21.0 | 3,792 | 13.7 | 0.8 | 16.7 | 1.1 | 7.5 | 2.6 | 3.0 | 11.4 | 24.9 | 0.3 | 14.0 |
| Fourth | 29.6 | 3,491 | 15.1 | 0.9 | 18.8 | 2.3 | 0.9 | 8.3 | 2.5 | 3.7 | 6.1 | 25.5 | 0.0 |
| Highest | 41.5 | 3,216 | 17.4 | 0.8 | 21.7 | 1.7 | 2.9 | 8.1 | 1.3 | 2.8 | 4.2 | 20.4 | 0.1 |
| Total | 24.4 | 18,095 | 18.0 | 0.8 | 16.4 | 1.2 | 1.5 | 10.1 | 2.9 | 3.1 | 7.6 | 23.8 | 0.1 |
| Total | | | | | | | | | | | | | |
| Total | 30.4 | 614 | 14.5 | 0.0 | 9.6 | 0.3 | 2.4 | 8.4 | 4.2 | 0.8 | 4.2 | 28.1 | 0.0 |
| Total | 24.6 | 18,709 | 17.8 | 0.8 | 16.1 | 1.2 | 1.5 | 10.0 | 3.0 | 3.0 | 7.4 | 24.0 | 0.1 |

¹ An insecticide-treated net (ITN) is a factory-treated net that does not require any further treatment. In the 2008 NDHS, 2010 NMIS, 2013 NDHS, and 2015 NMIS, this was known as a long-lasting insecticidal net (LLIN).

Table 3.8.2 Main reason mosquito net was not used the night before the survey: States

Among ITNs, non-ITNs, and all mosquito nets, percentage that were not used by anyone the night before the survey, and among mosquito nets that were not used by anyone the night before the survey, percent distribution by the main reason each net was not used, by state, Nigeria MIS 2021

| State | Percent- age of nets not used the night before the survey | Total number of mosquito nets | No mosqui- toes | No malaria | Too hot | Don't like smell | Feel "closed in" | Net too old/torn | Net not available last night (washing) | Main reason each net was not used the night before the survey | | | | Number of mosquito nets not used the night before the survey | | |
|----------------------|--|--|-----------------------|------------|---------|---------------------|---------------------|---------------------|---|---|---|---------------------------------|----------|--|---------|---------|
| | | | | | | | | | | ITNs ¹ | Net not available last night (washing) | Net not needed last night | Bed bugs | Other | | |
| North Central | | | | | | | | | | | | | | | | |
| FCI-Abuja | 17.7 | 159 | (23.1) | (0.0) | (28.0) | (3.8) | (3.7) | (1.8) | (0.0) | (0.0) | (4.9) | (19.0) | (0.0) | (11.8) | (3.8) | |
| Benue | 12.8 | 648 | 1.1 | 0.0 | 17.7 | 0.0 | 0.0 | 3.4 | 2.5 | 0.0 | 17.5 | 41.2 | 0.0 | 16.6 | (100.0) | |
| Kogi | 25.1 | 176 | 21.5 | 0.0 | 1.2 | 0.0 | 0.0 | 5.8 | 10.4 | 0.0 | 4.4 | 32.7 | 0.0 | 17.7 | 6.4 | |
| Kwara | 30.9 | 370 | 31.2 | 0.7 | 20.0 | 0.7 | 0.5 | 3.4 | 1.8 | 0.0 | 0.0 | 18.1 | 0.0 | 22.3 | 1.5 | |
| Nasarawa | 27.8 | 201 | 0.0 | 0.0 | 31.6 | 0.0 | 0.0 | 51.7 | 2.1 | 0.0 | 3.5 | 5.5 | 0.0 | 4.2 | 1.4 | |
| Niger | 25.1 | 541 | 41.1 | 1.1 | 29.7 | 0.0 | 0.0 | 7.0 | 3.4 | 0.0 | 4.8 | 0.0 | 0.0 | 5.5 | 2.1 | |
| Plateau | 16.0 | 210 | (4.2) | (3.6) | (15.6) | (0.0) | (0.0) | (2.1) | (6.5) | (20.9) | (22.3) | (7.7) | (0.0) | (15.7) | (1.5) | |
| North East | | | | | | | | | | | | | | | | |
| Adamawa | 14.9 | 784 | 7.6 | 0.0 | 12.8 | 3.7 | 2.3 | 9.3 | 3.9 | 1.8 | 9.2 | 29.0 | 0.0 | 20.3 | 0.0 | |
| Bauchi | 15.1 | 1,149 | 35.5 | 0.0 | 4.4 | 0.0 | 0.0 | 7.4 | 0.0 | 6.9 | 25.5 | 18.1 | 0.0 | 2.1 | 0.0 | |
| Borno | 6.1 | 322 | (16.7) | (0.0) | (0.0) | (0.0) | (0.0) | (60.0) | (0.0) | (0.0) | (7.5) | (0.0) | (0.0) | (0.0) | (15.9) | |
| Gombe | 20.6 | 629 | 3.6 | 0.8 | 21.2 | 3.1 | 2.5 | 2.5 | 0.0 | 0.0 | 50.4 | 0.0 | 0.6 | 15.2 | (100.0) | |
| Taraba | 24.5 | 366 | 15.9 | 0.0 | 7.2 | 1.0 | 12.5 | 3.2 | 0.0 | 0.0 | 34.0 | 0.9 | 13.8 | 5.3 | 100.0 | |
| Yobe | 22.2 | 633 | 48.0 | 0.0 | 5.4 | 0.3 | 8.3 | 3.5 | 1.5 | 4.0 | 8.6 | 10.5 | 0.4 | 1.9 | 7.5 | |
| North West | | | | | | | | | | | | | | | | |
| Jigawa | 11.7 | 1,105 | 3.4 | 0.0 | 2.0 | 0.0 | 0.9 | 5.4 | 9.2 | 34.2 | 20.5 | 20.6 | 0.0 | 3.8 | 0.0 | |
| Kaduna | 22.2 | 1,237 | 5.7 | 0.3 | 11.2 | 0.0 | 0.0 | 6.7 | 2.6 | 2.0 | 10.1 | 39.5 | 0.5 | 21.4 | 0.0 | |
| Kano | 9.2 | 1,686 | 24.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.0 | 7.3 | 1.3 | 10.2 | 44.3 | 0.0 | 156 | 0.7 |
| Katsina | 10.2 | 1,486 | 5.1 | 0.0 | 6.2 | 0.0 | 0.0 | 41.3 | 11.4 | 3.1 | 9.7 | 20.2 | 0.0 | 3.1 | 0.0 | 151 |
| Kebbi | 25.2 | 768 | 19.1 | 0.9 | 12.3 | 2.1 | 0.0 | 22.4 | 7.7 | 2.2 | 7.7 | 19.4 | 0.0 | 3.7 | 2.6 | 194 |
| Sokoto | 35.2 | 588 | 49.8 | 0.9 | 2.6 | 0.0 | 0.0 | 16.8 | 1.0 | 0.9 | 9.6 | 16.2 | 0.0 | 0.5 | 1.6 | 100.0 |
| Zamfara | 8.4 | 342 | 41.7 | 8.1 | 5.1 | 0.0 | 0.0 | 2.3 | 6.3 | 0.0 | 19.5 | 9.9 | 0.0 | 7.3 | 0.0 | 100.0 |
| South East | | | | | | | | | | | | | | | | |
| Abia | 47.4 | 130 | 10.8 | 0.0 | 28.3 | 2.8 | 1.3 | 14.5 | 0.0 | 0.0 | 6.5 | 28.6 | 0.0 | 7.3 | 0.0 | 100.0 |
| Anambra | 35.8 | 142 | 0.0 | 3.6 | 6.3 | 0.0 | 1.0 | 19.0 | 0.0 | 0.7 | 17.9 | 47.3 | 0.0 | 0.0 | 4.2 | 100.0 |
| Ebonyi | 34.0 | 501 | 11.5 | 0.3 | 18.0 | 2.2 | 0.3 | 3.2 | 2.7 | 1.0 | 3.8 | 44.7 | 0.0 | 11.6 | 0.6 | 100.0 |
| Enugu | 46.6 | 104 | 16.1 | 2.3 | 37.6 | 0.0 | 1.0 | 9.6 | 7.8 | 0.0 | 8.4 | 14.2 | 0.0 | 1.0 | 1.9 | 100.0 |
| Imo | 73.5 | 137 | 3.9 | 0.5 | 30.6 | 0.9 | 0.7 | 8.9 | 1.1 | 1.1 | 4.5 | 26.4 | 0.0 | 21.2 | 0.3 | 100.0 |
| South South | | | | | | | | | | | | | | | | |
| Akwa Ibom | 46.7 | 467 | 15.2 | 1.3 | 39.2 | 0.0 | 1.5 | 2.5 | 0.0 | 0.0 | 11.0 | 13.1 | 0.0 | 14.7 | 1.4 | 100.0 |
| Bayelsa | 29.2 | 71 | (18.6) | (0.0) | (13.6) | (0.0) | (0.0) | (13.6) | (0.0) | (0.0) | (5.9) | (26.0) | (0.0) | (11.0) | (11.4) | (100.0) |
| Cross River | 32.6 | 274 | 10.0 | 1.8 | 13.8 | 0.0 | 1.1 | 12.0 | 5.7 | 0.9 | 3.6 | 9.1 | 0.0 | 28.0 | 13.8 | 100.0 |
| Delta | 46.2 | 389 | 28.9 | 0.4 | 32.7 | 0.0 | 0.4 | 8.6 | 2.2 | 1.8 | 0.0 | 14.3 | 0.4 | 9.4 | 1.0 | 100.0 |
| Edo | 52.3 | 181 | 4.8 | 0.0 | 18.9 | 1.4 | 1.5 | 7.2 | 0.0 | 2.7 | 37.9 | 0.0 | 1.5 | 5.8 | 5.7 | 100.0 |
| Rivers | 46.0 | 136 | 3.9 | 0.0 | 10.1 | 0.0 | 1.2 | 54.6 | 0.0 | 0.5 | 0.0 | 22.2 | 0.0 | 6.4 | 1.1 | 100.0 |

(continued...)

Table 3.8.2—Continued

| State | Percent- age of nets not used the night before the survey | Total number of mosquito nets | Main reason each net was not used the night before the survey | | | | | | | | | | Number of mosquito nets not used the night before the survey | | | |
|--------------------------|--|--|---|---------------|---------|---------------------|---------------------|---------------------|------------------|---|---------------------------------|----------|--|------------|-------|-------|
| | | | No mosqui- toes | No malaria | Too hot | Don't like smell | Feel "closed in" | Net too old/torn | Net too dirty | Net not available last night (washing) | Net not needed last night | Bed bugs | Other | Don't know | Total | |
| South West | | | | | | | | | | | | | | | | |
| Ekiti | 46.5 | 61 | 26.1 | 0.0 | 15.4 | 0.0 | 14.4 | 22.8 | 2.1 | 1.5 | 4.1 | 8.6 | 0.0 | 5.0 | 0.0 | 100.0 |
| Lagos | 61.3 | 403 | 6.1 | 0.0 | 21.5 | 0.0 | 1.9 | 14.2 | 0.9 | 0.0 | 2.2 | 13.5 | 0.0 | 35.0 | 4.8 | 100.0 |
| Ogun | 34.5 | 281 | 61.6 | 8.3 | 8.7 | 5.8 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 10.7 | 0.0 | 3.2 | 1.2 | 97 |
| Ondo | 36.3 | 111 | 16.3 | 0.0 | 16.6 | 2.3 | 1.1 | 30.5 | 0.0 | 0.0 | 1.8 | 16.4 | 0.0 | 6.8 | 8.2 | 100.0 |
| Osun | 56.4 | 670 | 15.4 | 0.0 | 15.2 | 0.9 | 1.2 | 1.1 | 1.2 | 2.4 | 8.8 | 28.8 | 0.0 | 22.4 | 2.7 | 100.0 |
| Oyo | 34.1 | 637 | 6.2 | 3.7 | 29.0 | 9.7 | 3.8 | 0.0 | 2.8 | 11.1 | 1.2 | 25.3 | 0.5 | 4.6 | 2.1 | 100.0 |
| Total | 24.4 | 18,095 | 18.0 | 0.8 | 16.4 | 1.2 | 1.5 | 10.1 | 2.9 | 3.1 | 7.6 | 23.8 | 0.1 | 11.8 | 2.7 | 100.0 |
| NON-ITNs | | | | | | | | | | | | | | 4,410 | | |
| ALL MOSQUITO NETS | | | | | | | | | | | | | | | | |
| Total | 24.6 | 18,709 | 17.8 | 0.8 | 16.1 | 1.2 | 1.5 | 10.0 | 3.0 | 3.0 | 7.4 | 24.0 | 0.1 | 12.1 | 2.9 | 100.0 |
| ITNs | | | | | | | | | | | | | | 4,597 | | |

Note: Figures in parentheses are based on 25-49 unweighted cases.

¹ An insecticide-treated net (ITN) is a factory-treated net that does not require any further treatment. In the 2008 NDHS, 2010 NMIS, 2013 NDHS, and 2015 NMIS, this was known as a long-lasting insecticidal net (LLIN).

Table 3.9.1 Antenatal care: National

Percent distribution of women age 15–49 who had a live birth in the 2 years preceding the survey by antenatal care (ANC) provider during the pregnancy for the most recent live birth and percentage receiving antenatal care from a skilled provider for the most recent live birth, according to background characteristics, Nigeria MIS 2021

| Background characteristic | Antenatal care provider | | | | | | | No ANC | Total | Percentage receiving antenatal care from a skilled provider ¹ | Number of women |
|---------------------------|-------------------------|----------------|-------------------|-----------------------------------|-----------------------------|--------------------------------------|------------|-------------|--------------|--|-----------------|
| | Doctor | Nurse/ midwife | Auxiliary midwife | Community extension health worker | Traditional birth attendant | Community health worker/ fieldworker | Other | | | | |
| Age at birth | | | | | | | | | | | |
| <20 | 17.0 | 30.3 | 0.4 | 12.3 | 0.5 | 4.1 | 0.1 | 35.2 | 100.0 | 47.7 | 592 |
| 20–34 | 32.2 | 32.6 | 1.4 | 9.3 | 1.0 | 2.3 | 0.3 | 20.9 | 100.0 | 66.2 | 2,870 |
| 35–49 | 32.7 | 29.3 | 0.8 | 6.8 | 0.9 | 3.3 | 0.4 | 25.9 | 100.0 | 62.8 | 624 |
| Birth order | | | | | | | | | | | |
| 1 | 34.6 | 31.4 | 0.6 | 10.4 | 0.8 | 2.9 | 0.2 | 19.2 | 100.0 | 66.5 | 773 |
| 2–3 | 34.1 | 30.3 | 1.0 | 8.4 | 1.0 | 2.0 | 0.1 | 23.3 | 100.0 | 65.3 | 1,435 |
| 4–5 | 30.6 | 33.2 | 1.3 | 8.8 | 0.9 | 2.6 | 0.6 | 21.9 | 100.0 | 65.1 | 975 |
| 6+ | 19.3 | 33.0 | 1.6 | 10.6 | 1.1 | 3.8 | 0.3 | 30.2 | 100.0 | 53.9 | 903 |
| Residence | | | | | | | | | | | |
| Urban | 46.5 | 33.5 | 0.7 | 5.4 | 1.5 | 1.9 | 0.4 | 10.2 | 100.0 | 80.7 | 1,162 |
| Rural | 23.6 | 31.1 | 1.3 | 10.9 | 0.7 | 3.0 | 0.2 | 29.1 | 100.0 | 56.0 | 2,924 |
| Zone | | | | | | | | | | | |
| North Central | 38.8 | 23.7 | 1.6 | 10.1 | 0.4 | 1.5 | 0.3 | 23.6 | 100.0 | 64.2 | 716 |
| North East | 21.5 | 39.0 | 1.1 | 8.3 | 0.8 | 5.8 | 0.4 | 23.1 | 100.0 | 61.6 | 690 |
| North West | 15.6 | 29.5 | 0.7 | 15.4 | 0.6 | 3.6 | 0.0 | 34.5 | 100.0 | 45.8 | 1,528 |
| South East | 39.9 | 51.9 | 1.7 | 2.4 | 0.5 | 0.9 | 0.1 | 2.8 | 100.0 | 93.4 | 284 |
| South South | 45.8 | 33.9 | 0.6 | 0.4 | 1.2 | 0.1 | 0.4 | 17.6 | 100.0 | 80.2 | 403 |
| South West | 57.4 | 26.7 | 2.2 | 2.0 | 3.1 | 0.4 | 0.7 | 7.4 | 100.0 | 86.3 | 465 |
| Education | | | | | | | | | | | |
| No education ² | 14.1 | 25.9 | 1.2 | 12.2 | 0.8 | 4.6 | 0.2 | 41.0 | 100.0 | 41.2 | 1,825 |
| Primary | 26.0 | 39.1 | 1.3 | 11.9 | 1.0 | 1.6 | 0.4 | 18.5 | 100.0 | 66.5 | 624 |
| Secondary | 44.0 | 38.3 | 1.0 | 6.2 | 1.5 | 1.1 | 0.3 | 7.6 | 100.0 | 83.3 | 1,229 |
| More than secondary | 66.0 | 27.0 | 1.0 | 2.2 | 0.0 | 0.5 | 0.1 | 3.1 | 100.0 | 94.0 | 408 |
| Wealth quintile | | | | | | | | | | | |
| Lowest | 9.2 | 26.1 | 1.3 | 12.4 | 1.3 | 4.1 | 0.2 | 45.3 | 100.0 | 36.6 | 840 |
| Second | 16.1 | 29.7 | 1.3 | 13.4 | 0.4 | 4.4 | 0.3 | 34.5 | 100.0 | 47.0 | 906 |
| Middle | 26.7 | 35.0 | 1.3 | 10.8 | 0.6 | 3.2 | 0.2 | 22.2 | 100.0 | 63.0 | 836 |
| Fourth | 39.2 | 41.6 | 0.9 | 6.6 | 1.4 | 1.3 | 0.4 | 8.6 | 100.0 | 81.7 | 734 |
| Highest | 64.3 | 27.6 | 0.8 | 2.4 | 1.2 | 0.0 | 0.2 | 3.5 | 100.0 | 92.7 | 770 |
| Total | 30.1 | 31.8 | 1.1 | 9.4 | 0.9 | 2.7 | 0.3 | 23.7 | 100.0 | 63.0 | 4,087 |

Notes: If more than one source of ANC was mentioned, only the provider with the highest qualifications is considered in this tabulation.

¹ Skilled provider includes doctor, nurse/midwife, or auxiliary midwife.

² No education includes informal education (adult education, Tsangaya, or Quranic).

Table 3.9.2 Antenatal care: States

Percent distribution of women age 15–49 who had a live birth in the 2 years preceding the survey by antenatal care (ANC) provider during the pregnancy for the most recent live birth and percentage receiving antenatal care from a skilled provider for the most recent live birth, by state, Nigeria MIS 2021

| State | Antenatal care provider | | | | | | | Total | Percentage receiving antenatal care from a skilled provider ¹ | Number of women |
|----------------------|-------------------------|----------------|-------------------|-----------------------------------|-----------------------------|--------------------------------------|-------|-------|--|-----------------|
| | Doctor | Nurse/ midwife | Auxiliary midwife | Community extension health worker | Traditional birth attendant | Community health worker/ fieldworker | Other | | | |
| North Central | | | | | | | | | | |
| FCT-Abuja | 71.0 | 22.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.4 | 100.0 | 93.6 66 |
| Benue | 28.3 | 24.2 | 0.0 | 25.6 | 1.9 | 0.0 | 0.9 | 19.1 | 100.0 | 52.6 120 |
| Kogi | 41.8 | 38.4 | 0.0 | 1.3 | 0.0 | 2.6 | 0.0 | 15.9 | 100.0 | 80.2 51 |
| Kwara | 41.4 | 36.3 | 3.7 | 2.6 | 0.0 | 0.0 | 0.0 | 16.1 | 100.0 | 81.4 77 |
| Nasarawa | 48.3 | 13.2 | 0.0 | 13.3 | 0.0 | 0.0 | 1.1 | 24.2 | 100.0 | 61.4 123 |
| Niger | 29.6 | 16.1 | 4.7 | 9.7 | 0.4 | 4.6 | 0.0 | 34.8 | 100.0 | 50.5 187 |
| Plateau | 31.7 | 34.6 | 0.0 | 4.6 | 0.0 | 0.5 | 0.0 | 28.6 | 100.0 | 66.4 92 |
| North East | | | | | | | | | | |
| Adamawa | 18.5 | 23.6 | 0.0 | 25.9 | 0.9 | 15.0 | 0.0 | 16.1 | 100.0 | 42.1 96 |
| Bauchi | 13.4 | 51.4 | 2.4 | 1.5 | 0.0 | 0.0 | 0.0 | 31.2 | 100.0 | 67.2 255 |
| Borno | 28.6 | 52.2 | 0.0 | 1.9 | 2.3 | 8.3 | 0.0 | 6.7 | 100.0 | 80.8 88 |
| Gombe | 28.5 | 27.2 | 2.4 | 12.1 | 4.1 | 5.7 | 0.0 | 19.9 | 100.0 | 58.2 66 |
| Taraba | 39.6 | 29.2 | 0.0 | 2.3 | 0.0 | 2.4 | 3.0 | 23.6 | 100.0 | 68.7 76 |
| Yobe | 20.1 | 26.8 | 0.0 | 15.9 | 0.0 | 11.4 | 0.4 | 25.4 | 100.0 | 46.8 107 |
| North West | | | | | | | | | | |
| Jigawa | 17.9 | 27.8 | 0.5 | 28.5 | 0.0 | 4.9 | 0.0 | 20.4 | 100.0 | 46.2 160 |
| Kaduna | 31.6 | 43.7 | 0.0 | 7.4 | 0.0 | 4.3 | 0.0 | 13.0 | 100.0 | 75.3 227 |
| Kano | 16.8 | 31.2 | 0.9 | 29.4 | 2.8 | 2.0 | 0.0 | 17.1 | 100.0 | 48.8 296 |
| Katsina | 0.4 | 27.9 | 0.0 | 14.1 | 0.0 | 3.3 | 0.0 | 54.3 | 100.0 | 28.3 373 |
| Kebbi | 15.9 | 30.8 | 1.3 | 4.5 | 0.0 | 0.4 | 0.0 | 47.2 | 100.0 | 48.0 234 |
| Sokoto | 22.6 | 16.7 | 0.0 | 11.8 | 0.6 | 12.1 | 0.0 | 36.2 | 100.0 | 39.2 156 |
| Zamfara | 18.0 | 16.2 | 4.4 | 5.4 | 0.5 | 0.3 | 0.4 | 54.8 | 100.0 | 38.6 83 |
| South East | | | | | | | | | | |
| Abia | 47.4 | 36.7 | 0.7 | 5.9 | 0.0 | 2.7 | 0.7 | 5.9 | 100.0 | 84.9 56 |
| Anambra | 53.1 | 37.8 | 4.5 | 1.7 | 1.4 | 0.0 | 0.0 | 1.5 | 100.0 | 95.4 53 |
| Ebonyi | 23.2 | 70.8 | 1.5 | 2.8 | 0.0 | 0.0 | 0.0 | 1.8 | 100.0 | 95.4 91 |
| Enugu | 49.2 | 50.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 100.0 | 99.3 46 |
| Imo | 38.8 | 50.6 | 1.5 | 0.0 | 1.5 | 2.7 | 0.0 | 4.8 | 100.0 | 90.9 38 |
| South South | | | | | | | | | | |
| Akwa Ibom | 33.3 | 39.0 | 0.0 | 0.0 | 3.5 | 0.0 | 0.0 | 24.2 | 100.0 | 72.3 105 |
| Bayelsa | 36.1 | 15.4 | 0.0 | 1.9 | 0.0 | 0.0 | 0.0 | 46.6 | 100.0 | 51.5 29 |
| Cross River | 37.3 | 44.7 | 0.0 | 1.3 | 0.0 | 0.9 | 2.6 | 13.2 | 100.0 | 82.0 68 |
| Delta | 61.8 | 24.7 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 13.0 | 100.0 | 87.0 82 |
| Edo | 52.7 | 35.3 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 10.7 | 100.0 | 89.3 53 |
| Rivers | 52.8 | 32.6 | 2.1 | 0.0 | 1.7 | 0.0 | 0.0 | 10.8 | 100.0 | 87.5 66 |
| South West | | | | | | | | | | |
| Ekiti | 61.1 | 10.3 | 4.0 | 3.8 | 5.9 | 1.7 | 6.5 | 6.8 | 100.0 | 75.3 25 |
| Lagos | 65.4 | 24.5 | 1.5 | 0.0 | 5.6 | 0.0 | 0.0 | 2.9 | 100.0 | 91.5 147 |
| Ogun | 51.8 | 31.7 | 1.5 | 0.9 | 5.5 | 1.5 | 0.0 | 7.0 | 100.0 | 85.1 73 |
| Ondo | 33.0 | 41.2 | 4.2 | 4.5 | 2.3 | 0.0 | 0.0 | 14.8 | 100.0 | 78.4 33 |
| Osun | 60.1 | 28.5 | 1.5 | 5.8 | 0.0 | 0.6 | 0.0 | 3.5 | 100.0 | 90.2 64 |
| Oyo | 55.6 | 24.8 | 2.7 | 2.1 | 0.0 | 0.0 | 1.5 | 13.3 | 100.0 | 83.1 123 |
| Total | 30.1 | 31.8 | 1.1 | 9.4 | 0.9 | 2.7 | 0.3 | 23.7 | 100.0 | 63.0 4,087 |

Note: If more than one source of ANC was mentioned, only the provider with the highest qualifications is considered in this tabulation.

¹ Skilled provider includes doctor, nurse/midwife, or auxiliary midwife.

Table 3.10.1 Number of antenatal care visits and timing of first visit: National

Percent distribution of women age 15–49 who had a live birth in the 2 years preceding the survey by number of antenatal care (ANC) visits during the pregnancy for the most recent live birth and by the timing of the first visit, and among women with ANC, median months pregnant at first visit, according to background characteristics, Nigeria MIS 2021

| Background characteristic | Number of ANC visits | | | | | | | | | | Number of months pregnant at time of first ANC visit | | | | | | Median months pregnant at first visit (for those with ANC) | Number of women with ANC | | |
|---------------------------|----------------------|-----|-----|------|------|------|------------|-------|---------------|-------------------|--|------|------|------------|-------|--------------------------|--|--------------------------|--|--|
| | None | 1 | 2 | 3 | 4–7 | 8+ | Don't know | Total | 4+ ANC visits | No antenatal care | <4 | | | 4–7 | | | | | | |
| | | | | | | | | | | | <4 | 4–7 | 7+ | Don't know | Total | Number of women with ANC | | | | |
| Age at birth | | | | | | | | | | | | | | | | | | | | |
| <20 | 35.2 | 6.2 | 7.3 | 12.1 | 32.5 | 4.4 | 2.3 | 100.0 | 36.9 | 35.2 | 22.2 | 32.9 | 8.8 | 0.9 | 100.0 | 592 | 4.9 | 384 | | |
| 20–34 | 20.9 | 3.6 | 5.0 | 11.0 | 41.4 | 13.3 | 4.9 | 100.0 | 54.7 | 20.9 | 27.5 | 43.5 | 7.0 | 1.1 | 100.0 | 2,870 | 4.6 | 2,271 | | |
| 35–49 | 25.9 | 3.4 | 6.6 | 7.6 | 37.6 | 13.0 | 5.8 | 100.0 | 50.6 | 25.9 | 21.7 | 44.5 | 6.1 | 1.8 | 100.0 | 624 | 4.7 | 462 | | |
| Birth order | | | | | | | | | | | | | | | | | | | | |
| 1 | 19.2 | 4.3 | 4.8 | 10.0 | 40.1 | 14.7 | 6.9 | 100.0 | 54.8 | 19.2 | 31.8 | 41.0 | 6.6 | 1.3 | 100.0 | 773 | 4.5 | 625 | | |
| 2–3 | 23.3 | 3.3 | 4.6 | 10.0 | 40.6 | 13.5 | 4.7 | 100.0 | 54.1 | 23.3 | 26.7 | 42.8 | 5.8 | 1.5 | 100.0 | 1,435 | 4.6 | 1,101 | | |
| 4–5 | 21.9 | 5.1 | 6.4 | 11.5 | 38.5 | 11.2 | 5.2 | 100.0 | 49.8 | 21.9 | 24.3 | 46.3 | 6.7 | 0.7 | 100.0 | 975 | 4.7 | 762 | | |
| 6+ | 30.2 | 3.4 | 6.8 | 11.3 | 38.3 | 7.9 | 2.1 | 100.0 | 46.2 | 30.2 | 21.0 | 37.4 | 10.3 | 1.2 | 100.0 | 903 | 4.9 | 630 | | |
| Residence | | | | | | | | | | | | | | | | | | | | |
| Urban | 10.2 | 3.0 | 4.8 | 10.1 | 46.8 | 16.5 | 8.6 | 100.0 | 63.3 | 10.2 | 31.1 | 51.0 | 6.3 | 1.5 | 100.0 | 1,162 | 4.5 | 1,044 | | |
| Rural | 29.1 | 4.3 | 5.9 | 10.8 | 36.6 | 10.1 | 3.1 | 100.0 | 46.8 | 29.1 | 23.8 | 38.5 | 7.5 | 1.1 | 100.0 | 2,924 | 4.7 | 2,073 | | |
| Zone | | | | | | | | | | | | | | | | | | | | |
| North Central | 23.6 | 3.5 | 5.1 | 9.2 | 42.6 | 11.4 | 4.6 | 100.0 | 54.0 | 23.6 | 30.9 | 38.7 | 5.2 | 1.6 | 100.0 | 716 | 4.4 | 548 | | |
| North East | 23.1 | 6.0 | 8.3 | 16.3 | 41.7 | 3.9 | 0.7 | 100.0 | 45.6 | 23.1 | 26.5 | 40.0 | 10.0 | 0.4 | 100.0 | 690 | 4.7 | 530 | | |
| North West | 34.5 | 4.0 | 5.6 | 10.8 | 39.3 | 4.2 | 1.6 | 100.0 | 43.5 | 34.5 | 17.3 | 39.4 | 8.0 | 0.8 | 100.0 | 1,528 | 5.0 | 1,001 | | |
| South East | 2.8 | 1.6 | 4.9 | 8.1 | 52.5 | 27.8 | 2.4 | 100.0 | 80.3 | 2.8 | 34.8 | 55.3 | 7.0 | 0.1 | 100.0 | 284 | 4.6 | 276 | | |
| South South | 17.6 | 2.4 | 2.5 | 9.7 | 34.2 | 21.8 | 11.9 | 100.0 | 55.9 | 17.6 | 26.3 | 47.5 | 6.5 | 2.0 | 100.0 | 403 | 4.8 | 332 | | |
| South West | 7.4 | 4.1 | 5.3 | 6.4 | 29.1 | 32.1 | 15.6 | 100.0 | 61.2 | 7.4 | 39.1 | 46.5 | 3.8 | 3.1 | 100.0 | 465 | 4.2 | 431 | | |
| Education | | | | | | | | | | | | | | | | | | | | |
| No education ¹ | 41.0 | 5.2 | 6.3 | 11.6 | 30.0 | 4.4 | 1.6 | 100.0 | 34.4 | 41.0 | 18.5 | 31.3 | 7.8 | 1.3 | 100.0 | 1,825 | 4.8 | 1,077 | | |
| Primary | 18.5 | 2.3 | 6.5 | 12.0 | 48.3 | 9.7 | 2.6 | 100.0 | 58.0 | 18.5 | 27.1 | 43.8 | 9.6 | 1.0 | 100.0 | 624 | 4.8 | 509 | | |
| Secondary | 7.6 | 2.9 | 5.0 | 10.0 | 48.4 | 18.0 | 8.0 | 100.0 | 66.5 | 7.6 | 31.1 | 54.3 | 6.0 | 1.0 | 100.0 | 1,229 | 4.6 | 1,136 | | |
| More than secondary | 3.1 | 3.9 | 2.6 | 6.3 | 41.7 | 31.0 | 11.4 | 100.0 | 72.7 | 3.1 | 40.4 | 50.7 | 4.0 | 1.7 | 100.0 | 408 | 4.3 | 396 | | |
| Wealth quintile | | | | | | | | | | | | | | | | | | | | |
| Lowest | 45.3 | 5.2 | 7.3 | 13.0 | 26.4 | 1.4 | 1.4 | 100.0 | 27.8 | 45.3 | 14.7 | 29.4 | 9.0 | 1.6 | 100.0 | 840 | 5.0 | 459 | | |
| Second | 34.5 | 5.8 | 7.0 | 11.2 | 34.9 | 5.3 | 1.3 | 100.0 | 40.2 | 34.5 | 22.5 | 34.8 | 7.3 | 0.9 | 100.0 | 906 | 4.7 | 593 | | |
| Middle | 22.2 | 3.0 | 5.2 | 11.4 | 45.5 | 9.8 | 2.9 | 100.0 | 55.3 | 22.2 | 24.9 | 43.5 | 8.7 | 0.7 | 100.0 | 836 | 4.8 | 650 | | |
| Fourth | 8.6 | 2.6 | 4.2 | 11.5 | 51.7 | 15.8 | 5.5 | 100.0 | 67.5 | 8.6 | 31.1 | 53.1 | 5.5 | 1.7 | 100.0 | 734 | 4.7 | 671 | | |
| Highest | 3.5 | 2.6 | 3.8 | 5.8 | 41.2 | 29.9 | 13.2 | 100.0 | 71.1 | 3.5 | 38.0 | 52.3 | 4.9 | 1.3 | 100.0 | 770 | 4.4 | 743 | | |
| Total | 23.7 | 3.9 | 5.6 | 10.6 | 39.5 | 11.9 | 4.6 | 100.0 | 51.5 | 23.7 | 25.8 | 42.1 | 7.1 | 1.2 | 100.0 | 4,087 | 4.7 | 3,117 | | |

¹ No education includes informal education (adult education, Tsangaya, or Quranic).

Table 3.10.2 Number of antenatal care visits and timing of first visit: States

Percent distribution of women age 15–49 who had a live birth in the 2 years preceding the survey by number of antenatal care (ANC) visits during the pregnancy for the most recent live birth and by the timing of the first visit, and among women with ANC, median months pregnant at first visit, by state, Nigeria MIS 2021

| State | Number of ANC visits | | | | | | | 4+ ANC visits | Number of months pregnant at time of first ANC visit | | | | | | Median months pregnant at first visit (for those with ANC) | Number of women with ANC | | | |
|----------------------|----------------------|------|------|------|------|------|------------|---------------|--|------|------|------|------|-----|--|--------------------------|-----|-------|--|
| | None | 1 | 2 | 3 | 4–7 | 8+ | Don't know | | <4 | 4–7 | 7+ | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| North Central | | | | | | | | | | | | | | | | | | | |
| FCT-Abuja | 6.4 | 0.0 | 0.0 | 6.6 | 44.9 | 10.1 | 31.9 | 100.0 | 55.1 | 6.4 | 34.9 | 53.7 | 2.3 | 2.8 | 100.0 | 66 | 4.4 | 62 | |
| Benue | 19.1 | 6.6 | 6.3 | 12.8 | 50.7 | 4.5 | 0.0 | 100.0 | 55.2 | 19.1 | 45.9 | 32.4 | 2.6 | 0.0 | 100.0 | 120 | 3.7 | 97 | |
| Kogi | 15.9 | 8.0 | 4.0 | 8.7 | 37.8 | 22.5 | 3.2 | 100.0 | 60.3 | 15.9 | 44.2 | 32.2 | 5.4 | 2.4 | 100.0 | 51 | 3.9 | 43 | |
| Kwara | 16.1 | 1.2 | 3.6 | 4.8 | 45.4 | 26.4 | 2.6 | 100.0 | 71.8 | 16.1 | 38.6 | 39.9 | 5.4 | 0.0 | 100.0 | 77 | 4.1 | 65 | |
| Nasarawa | 24.2 | 0.6 | 3.6 | 9.5 | 54.8 | 5.5 | 1.7 | 100.0 | 60.3 | 24.2 | 28.0 | 44.0 | 2.2 | 1.6 | 100.0 | 123 | 4.4 | 93 | |
| Niger | 34.8 | 5.6 | 8.4 | 11.3 | 29.3 | 7.3 | 3.2 | 100.0 | 36.7 | 34.8 | 21.8 | 33.6 | 7.1 | 2.7 | 100.0 | 187 | 5.0 | 122 | |
| Plateau | 28.6 | 1.3 | 4.4 | 5.7 | 41.5 | 18.5 | 0.0 | 100.0 | 60.0 | 28.6 | 17.0 | 42.1 | 11.0 | 1.4 | 100.0 | 92 | 5.0 | 66 | |
| North East | | | | | | | | | | | | | | | | | | | |
| Adamawa | 16.1 | 4.3 | 9.0 | 19.2 | 49.5 | 1.9 | 0.0 | 100.0 | 51.4 | 16.1 | 22.2 | 51.0 | 10.8 | 0.0 | 100.0 | 96 | 4.7 | 81 | |
| Bauchi | 31.2 | 4.8 | 10.7 | 14.8 | 29.6 | 8.7 | 0.3 | 100.0 | 38.2 | 31.2 | 13.5 | 40.0 | 15.3 | 0.0 | 100.0 | 255 | 5.4 | 176 | |
| Borno | 6.7 | 5.4 | 5.5 | 23.5 | 56.5 | 0.9 | 1.6 | 100.0 | 57.4 | 6.7 | 45.7 | 40.6 | 5.6 | 1.4 | 100.0 | 88 | 4.0 | 82 | |
| Gombe | 19.9 | 10.1 | 9.3 | 21.5 | 35.1 | 0.0 | 4.1 | 100.0 | 35.1 | 19.9 | 32.5 | 38.4 | 7.1 | 2.1 | 100.0 | 66 | 4.5 | 53 | |
| Taraba | 23.6 | 3.7 | 7.0 | 10.9 | 51.7 | 3.0 | 0.0 | 100.0 | 54.7 | 23.6 | 30.9 | 36.2 | 9.3 | 0.0 | 100.0 | 76 | 4.4 | 58 | |
| Yobe | 25.4 | 9.6 | 4.5 | 12.0 | 48.0 | 0.0 | 0.4 | 100.0 | 48.0 | 25.4 | 38.7 | 33.1 | 2.5 | 0.4 | 100.0 | 107 | 3.9 | 80 | |
| North West | | | | | | | | | | | | | | | | | | | |
| Jigawa | 20.4 | 3.3 | 8.2 | 22.2 | 41.6 | 3.8 | 0.5 | 100.0 | 45.4 | 20.4 | 26.1 | 43.7 | 9.7 | 0.0 | 100.0 | 160 | 4.8 | 127 | |
| Kaduna | 13.0 | 1.9 | 6.5 | 8.7 | 55.3 | 11.1 | 3.5 | 100.0 | 66.4 | 13.0 | 24.0 | 57.1 | 5.0 | 0.9 | 100.0 | 227 | 4.9 | 197 | |
| Kano | 17.1 | 7.3 | 9.8 | 12.8 | 51.0 | 0.0 | 2.0 | 100.0 | 51.0 | 17.1 | 14.3 | 56.2 | 11.7 | 0.7 | 100.0 | 296 | 5.3 | 245 | |
| Katsina | 54.3 | 2.0 | 1.7 | 9.8 | 31.5 | 0.7 | 0.0 | 100.0 | 32.2 | 54.3 | 11.2 | 30.2 | 4.3 | 0.0 | 100.0 | 373 | 5.0 | 170 | |
| Kebbi | 47.2 | 6.9 | 5.3 | 8.0 | 26.3 | 5.2 | 1.1 | 100.0 | 31.5 | 47.2 | 24.2 | 17.4 | 9.2 | 2.0 | 100.0 | 234 | 4.2 | 124 | |
| Sokoto | 36.2 | 3.3 | 2.5 | 4.3 | 38.1 | 10.9 | 4.8 | 100.0 | 48.9 | 36.2 | 15.0 | 36.6 | 10.8 | 1.4 | 100.0 | 156 | 4.9 | 100 | |
| Zamfara | 54.8 | 1.8 | 7.5 | 11.7 | 23.0 | 1.3 | 0.0 | 100.0 | 24.3 | 54.8 | 5.4 | 31.7 | 6.8 | 1.3 | 100.0 | 83 | 5.5 | 37 | |
| South East | | | | | | | | | | | | | | | | | | | |
| Abia | 5.9 | 0.0 | 0.0 | 1.2 | 61.8 | 27.8 | 3.3 | 100.0 | 89.6 | 5.9 | 38.2 | 49.3 | 6.7 | 0.0 | 100.0 | 56 | 4.4 | 53 | |
| Anambra | 1.5 | 0.0 | 6.6 | 5.2 | 59.5 | 27.2 | 0.0 | 100.0 | 86.7 | 1.5 | 56.7 | 39.7 | 2.1 | 0.0 | 100.0 | 53 | 3.7 | 53 | |
| Ebonyi | 1.8 | 3.3 | 4.6 | 9.0 | 50.5 | 30.3 | 0.6 | 100.0 | 80.8 | 1.8 | 17.4 | 69.3 | 11.5 | 0.0 | 100.0 | 91 | 5.4 | 90 | |
| Enugu | 0.7 | 2.1 | 8.1 | 17.7 | 52.9 | 18.6 | 0.0 | 100.0 | 71.5 | 0.7 | 40.9 | 56.9 | 1.5 | 0.0 | 100.0 | 46 | 4.3 | 46 | |
| Imo | 4.8 | 1.4 | 6.3 | 8.6 | 33.3 | 33.7 | 11.8 | 100.0 | 67.1 | 4.8 | 33.6 | 50.2 | 10.4 | 1.0 | 100.0 | 38 | 4.8 | 36 | |
| South South | | | | | | | | | | | | | | | | | | | |
| Akwa Ibom | 24.2 | 4.0 | 2.6 | 13.2 | 44.2 | 7.8 | 4.1 | 100.0 | 52.0 | 24.2 | 6.0 | 53.8 | 16.0 | 0.0 | 100.0 | 105 | 6.2 | 79 | |
| Bayelsa | 46.6 | 0.0 | 1.6 | 4.9 | 9.2 | 29.4 | 8.4 | 100.0 | (38.6) | 46.6 | 23.0 | 23.4 | 3.9 | 3.1 | 100.0 | 29 | 4.2 | 15 | |
| Cross River | 13.2 | 6.2 | 8.4 | 15.9 | 46.8 | 7.0 | 2.5 | 100.0 | 53.8 | 13.2 | 32.3 | 42.5 | 9.0 | 3.0 | 100.0 | 68 | 4.5 | 59 | |
| Delta | 13.0 | 1.2 | 0.7 | 13.0 | 32.0 | 17.2 | 22.9 | 100.0 | 49.2 | 13.0 | 42.2 | 42.1 | 0.6 | 2.2 | 100.0 | 82 | 4.0 | 71 | |
| Edo | 10.7 | 0.0 | 0.0 | 1.0 | 29.7 | 44.1 | 14.5 | 100.0 | (73.8) | 10.7 | 24.4 | 58.1 | 1.7 | 5.2 | 100.0 | 53 | 4.7 | 48 | |
| Rivers | 10.8 | 0.2 | 0.9 | 2.4 | 22.3 | 43.6 | 19.9 | 100.0 | 65.9 | 10.8 | 35.5 | 51.5 | 1.2 | 1.0 | 100.0 | 66 | 4.3 | 59 | |
| South West | | | | | | | | | | | | | | | | | | | |
| Ekiti | 6.8 | 0.0 | 3.2 | 2.3 | 43.1 | 44.6 | 0.0 | 100.0 | 87.7 | 6.8 | 29.3 | 61.8 | 2.1 | 0.0 | 100.0 | 25 | 4.5 | 23 | |
| Lagos | 2.9 | 0.0 | 1.7 | 4.1 | 14.9 | 44.7 | 31.7 | 100.0 | 59.6 | 2.9 | 51.3 | 40.1 | 4.5 | 1.2 | 100.0 | 147 | 3.9 | 142 | |
| Ogun | 7.0 | 0.8 | 6.5 | 13.2 | 15.5 | 49.4 | 7.6 | 100.0 | 64.9 | 7.0 | 51.8 | 31.5 | 1.2 | 8.4 | 100.0 | 73 | 3.8 | 68 | |
| Ondo | 14.8 | 0.0 | 0.0 | 16.6 | 49.3 | 8.7 | 10.6 | 100.0 | 58.0 | 14.8 | 23.2 | 53.8 | 2.1 | 6.2 | 100.0 | 33 | 4.8 | 28 | |
| Osun | 3.5 | 0.8 | 2.4 | 3.5 | 26.6 | 46.4 | 16.9 | 100.0 | 73.0 | 3.5 | 44.0 | 47.6 | 5.0 | 0.0 | 100.0 | 64 | 4.5 | 62 | |
| Oyo | 13.3 | 14.8 | 12.3 | 4.7 | 47.0 | 3.0 | 4.8 | 100.0 | 50.0 | 13.3 | 20.9 | 57.3 | 4.8 | 3.7 | 100.0 | 123 | 4.6 | 107 | |
| Total | 23.7 | 3.9 | 5.6 | 10.6 | 39.5 | 11.9 | 4.6 | 100.0 | 51.5 | 23.7 | 25.8 | 42.1 | 7.1 | 1.2 | 100.0 | 4,087 | 4.7 | 3,117 | |

Note: Figures in parentheses are based on 25–49 unweighted cases.

Table 3.11.1 Use of intermittent preventive treatment (IPTp) by women during pregnancy: National

Percentage of women age 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, according to background characteristics, Nigeria MIS 2021

| Background characteristic | 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 | Number of women with a live birth in the 2 years preceding the survey |
|---------------------------|--|--|--|---|
| Birth order | | | | |
| 1 | 62.5 | 50.9 | 35.6 | 773 |
| 2–3 | 59.0 | 45.3 | 31.3 | 1,435 |
| 4–5 | 59.4 | 47.3 | 29.3 | 975 |
| 6+ | 55.1 | 41.2 | 28.4 | 903 |
| Residence | | | | |
| Urban | 72.1 | 57.5 | 38.6 | 1,162 |
| Rural | 53.6 | 41.3 | 28.0 | 2,924 |
| Zone | | | | |
| North Central | 57.0 | 48.1 | 35.5 | 716 |
| North East | 54.5 | 40.2 | 27.3 | 690 |
| North West | 56.5 | 40.8 | 30.1 | 1,528 |
| South East | 80.5 | 72.7 | 41.2 | 284 |
| South South | 61.0 | 49.0 | 29.3 | 403 |
| South West | 61.1 | 48.8 | 27.9 | 465 |
| Education | | | | |
| No education ¹ | 45.0 | 33.6 | 23.5 | 1,825 |
| Primary | 65.2 | 52.5 | 34.2 | 624 |
| Secondary | 69.7 | 54.1 | 36.5 | 1,229 |
| More than secondary | 78.9 | 66.2 | 43.2 | 408 |
| Wealth quintile | | | | |
| Lowest | 40.5 | 30.1 | 19.5 | 840 |
| Second | 48.8 | 34.8 | 25.5 | 906 |
| Middle | 61.7 | 50.2 | 34.2 | 836 |
| Fourth | 70.2 | 55.1 | 38.2 | 734 |
| Highest | 77.0 | 62.9 | 39.7 | 770 |
| Total | 58.9 | 45.9 | 31.0 | 4,087 |

¹ No education includes informal education (adult education, Tsangaya, or Quranic).

Table 3.11.2 Use of intermittent preventive treatment (IPTp) by women during pregnancy: States

Percentage of women age 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 state, Nigeria MIS 2021

| State | 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 | Number of women with a live birth in the 2 years preceding the survey |
|----------------------|--|--|--|---|
| North Central | | | | |
| FCT-Abuja | 67.4 | 59.3 | 35.9 | 66 |
| Benue | 66.2 | 59.1 | 47.7 | 120 |
| Kogi | 54.3 | 46.7 | 25.7 | 51 |
| Kwara | 59.2 | 43.1 | 27.4 | 77 |
| Nasarawa | 62.6 | 51.1 | 43.8 | 123 |
| Niger | 46.3 | 37.4 | 22.9 | 187 |
| Plateau | 51.4 | 48.8 | 45.8 | 92 |
| North East | | | | |
| Adamawa | 77.5 | 53.9 | 41.9 | 96 |
| Bauchi | 40.3 | 29.1 | 18.8 | 255 |
| Borno | 78.7 | 61.3 | 41.5 | 88 |
| Gombe | 57.2 | 43.3 | 26.7 | 66 |
| Taraba | 63.0 | 46.8 | 25.2 | 76 |
| Yobe | 40.1 | 30.3 | 24.3 | 107 |
| North West | | | | |
| Jigawa | 62.9 | 43.1 | 28.5 | 160 |
| Kaduna | 65.4 | 43.0 | 28.1 | 227 |
| Kano | 76.3 | 48.4 | 32.6 | 296 |
| Katsina | 41.8 | 37.0 | 30.2 | 373 |
| Kebbi | 44.5 | 35.8 | 31.4 | 234 |
| Sokoto | 61.6 | 43.0 | 29.2 | 156 |
| Zamfara | 40.0 | 30.6 | 27.3 | 83 |
| South East | | | | |
| Abia | 85.3 | 82.7 | 51.1 | 56 |
| Anambra | 87.2 | 77.3 | 52.3 | 53 |
| Ebonyi | 92.3 | 82.1 | 42.9 | 91 |
| Enugu | 70.6 | 65.9 | 29.9 | 46 |
| Imo | 47.5 | 36.6 | 20.6 | 38 |
| South South | | | | |
| Akwa Ibom | 43.4 | 30.0 | 6.9 | 105 |
| Bayelsa | 44.7 | 38.5 | 25.3 | 29 |
| Cross River | 77.7 | 62.3 | 48.7 | 68 |
| Delta | 60.2 | 49.9 | 38.2 | 82 |
| Edo | 61.7 | 56.3 | 26.2 | 53 |
| Rivers | 79.2 | 63.0 | 38.0 | 66 |
| South West | | | | |
| Ekiti | 74.0 | 62.6 | 40.0 | 25 |
| Lagos | 69.1 | 58.7 | 30.7 | 147 |
| Ogun | 54.8 | 41.7 | 35.7 | 73 |
| Ondo | 60.0 | 50.1 | 28.2 | 33 |
| Osun | 55.7 | 44.8 | 25.2 | 64 |
| Oyo | 55.8 | 40.1 | 18.9 | 123 |
| Total | 58.9 | 45.9 | 31.0 | 4,087 |

Key Findings

- **Malaria:** 22% of children age 6–59 months tested positive for malaria according to microscopy.
- **Malaria trends:** The percentage of children age 6–59 months testing positive for malaria according to microscopy decreased from 42% in 2010 to 22% in 2021.
- **Malaria prevalence by zone:** 29% of children in North West were positive for malaria according to microscopy, as compared with 17% of children in North Central.
- **Malaria prevalence by residence:** 26% of children in rural areas were positive for malaria according to microscopy, compared with 11% of urban children.
- **Fever:** 37% of children under age 5 had a fever in the 2 weeks before the survey.
- **Testing:** 24% of children with a fever had blood taken from a finger or heel for testing.
- **Artemisinin-based combination therapy (ACT):** Among children under age 5 with a fever in the 2 weeks preceding the survey who took an antimalarial, 74% received ACT.

This chapter presents data useful for assessing how well fever management strategies are being implemented. Specific topics include care seeking for febrile children, diagnostic testing of children with fever, and therapeutic use of antimalarial drugs. The prevalence of anaemia and malaria among children age 6–59 months is also discussed.

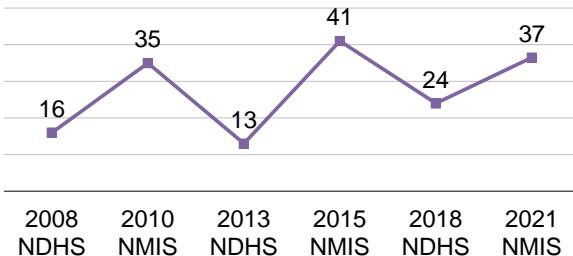
4.1 CHILDREN WITH FEVER

Fever is a key symptom of malaria and other acute infections in children and an important entry point into case management for malaria. Malaria fevers require prompt and effective treatment to prevent malaria morbidity and mortality. Thirty-seven percent of children under age 5 had a fever in the 2 weeks preceding the survey (Table 4.1.1).

Trends: The prevalence of fever among children under age 5 in the 2 weeks before the survey increased from 16% in 2008 to 41% in 2015 and then decreased to 37% in 2021 (Figure 4.1).

Figure 4.1 Trends in recent fever among children under age 5

Percentage of children under age 5 with a fever in the 2 weeks preceding the survey

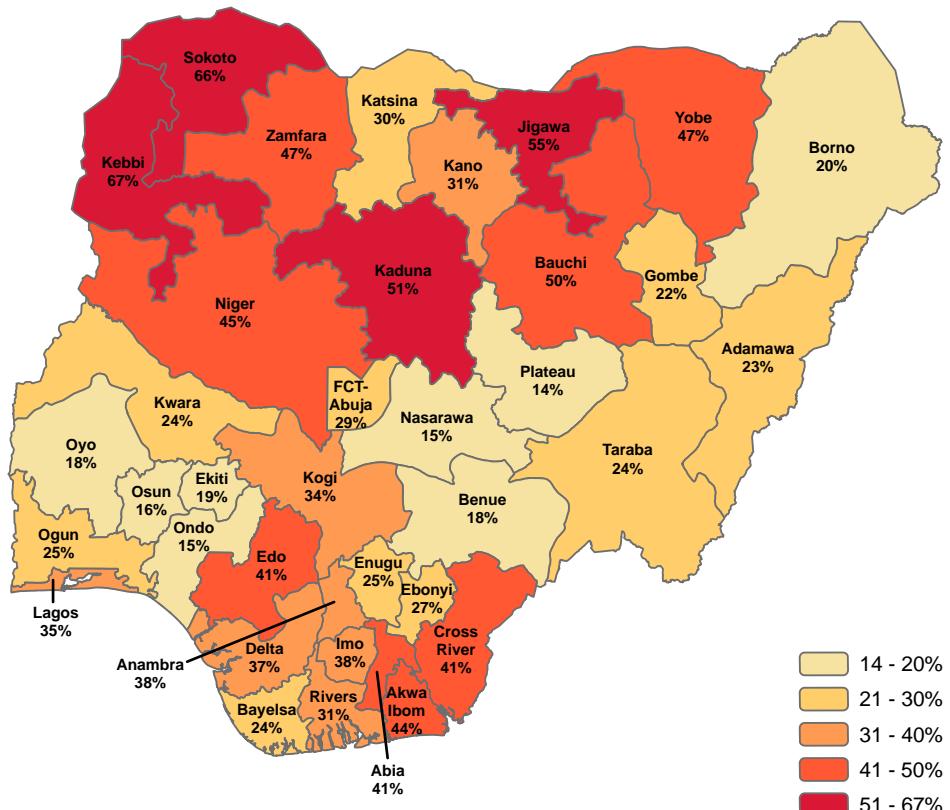


Patterns by background characteristics

- The prevalence of fever among children under age 5 is 39% in rural areas, as compared with 31% in urban areas (**Table 4.1.1**).
- By state, fever prevalence ranges from 14% in Plateau to 67% in Kebbi (**Table 4.1.2** and **Figure 4.2**).

Figure 4.2 Children with fever, by state

Percentage of children under 5 with a fever in the 2 weeks preceding the survey



4.2 CARE SEEKING FOR FEVER IN CHILDREN

Care seeking for children under age 5 with a fever

Percentage of children under 5 with a fever in the 2 weeks before the survey for whom advice or treatment was sought from the public sector, the private medical sector, the NGO medical sector, a chemist shop/patent and proprietary medicine vendor (PPMV), a market, or an itinerant drug seller.

Sample: Children under age 5 with a fever in the 2 weeks before the survey

The revised National Guidelines for the Diagnosis, Treatment, and Prevention of Malaria recommend prompt presentation of fever cases at health facilities. Advice or treatment was sought for 63% of children with a fever. Thirty-two percent of children with a recent fever received timely care (sought advice or treatment the same or next day) following fever onset (**Table 4.1.1**). Among children under age 5 with a fever in the 2 weeks preceding the survey for whom advice or treatment was sought, 18% were referred to a higher level of care (**Table 4.2**).

Among children with a recent fever for whom advice or treatment was sought, 45% received advice or treatment from the public health sector and 31% received advice or treatment from the private health

sector. Less than 1% received care from the nongovernmental organisation (NGO) private medical sector, and 25% received advice from other private sector sources. Among public sector facilities, the most common sources of advice or treatment were government hospitals (18%) and government health centres (14%). Among other private sector sources, the largest percentage of children received care at chemist shops/patent and proprietary medicine vendors (PPMVs) (23%) (**Table 4.3**).

Patterns by background characteristics

- The percentage of children for whom advice or treatment was sought ranges from 59% among those under age 12 months to 66% among those age 12–23 months (**Table 4.1.1**).
- The percentage of children for whom advice or treatment was sought the same or next day ranges from 23% among those whose mothers have no formal or informal education to 41% among those whose mothers have a secondary education.
- The percentage of children with a fever who were taken for advice or treatment and referred to a higher level of care ranges from 4% in South South to 25% in North East (**Table 4.2**).

4.3 DIAGNOSTIC TESTING OF CHILDREN WITH FEVER

Diagnosis of malaria in children under age 5 with a fever

Percentage of children under age 5 with a fever in the 2 weeks before the survey who had blood taken from a finger or heel for testing. This is a proxy measure of diagnostic testing for malaria.

Sample: Children under age 5 with a fever in the 2 weeks before the survey

The national treatment policy for the management of malaria recommends confirmation of malaria by microscopy or rapid diagnostic testing for all persons with a fever prior to commencement of treatment (NMEP 2020a). Adherence to this policy cannot be directly measured through household surveys; however, the 2021 NMIS asked interviewed women with children under age 5 who had a fever in the 2 weeks before the survey if the child had blood taken from a finger or heel for testing during the illness. This information is used as a proxy measure for adherence to the NMEP policy of conducting diagnostic testing for all suspected malaria cases.

In the 2021 NMIS, 24% of children with a fever in the 2 weeks before the survey had blood taken from a finger or heel for testing, presumably for malaria testing (**Table 4.1.1**).

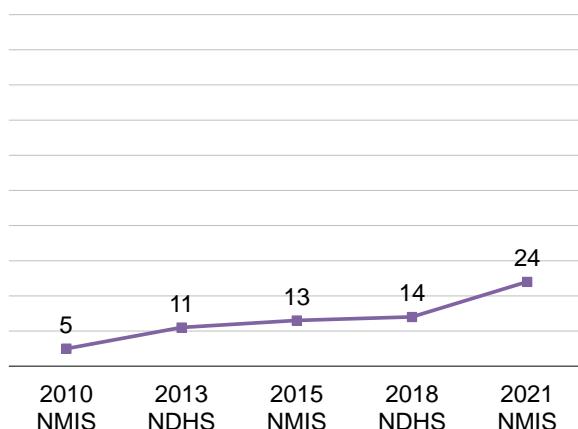
Trends: The percentage of children with a fever in the 2 weeks preceding the survey who had blood taken from a finger or heel for testing increased from 5% in 2010 to 24% in 2021 (**Figure 4.3**).

Patterns by background characteristics

- By age, diagnosis of malaria by a health care provider is highest among children age 48–59 months (52%) (**Table 4.1.1**).
- The percentage of children who were reported to have had blood taken from a finger or heel for testing is similar among those residing in urban (23%) and rural (25%) areas.
- By zone, the percentage of children who had blood taken for testing ranges from 13% in South East to 28% in North East.
- The percentage of children who were reported to have had blood taken from a finger or heel for testing was highest in the lowest wealth quintile (29%).

Figure 4.3 Trends in diagnostic testing of children with fever

Percentage of children under age 5 who had blood taken from a finger or heel for testing



4.4 USE OF RECOMMENDED ANTIMALARIALS

Artemisinin-based combination therapy (ACT) for children under age 5 with a fever

Percentage of children under age 5 with a fever in the 2 weeks before the survey who received artemisinin-based combination therapy (ACT).

Sample: Children under age 5 with a fever in the 2 weeks before the survey who took any antimalaria drug

Artemisinin-based combination therapy (ACT) is the recommended first-line antimalarial drug for the treatment of uncomplicated malaria in Nigeria. Among children who took any antimalarial, 74% received ACT, 9% received chloroquine, 7% received artesunate injection, and 6% received sulfadoxine-pyrimethamine (SP)/Fansidar (**Table 4.4**).

In 90% of children under age 5 with a fever in the 2 weeks preceding the survey who received ACT, the fever went away after they received ACT (**Table 4.5**).

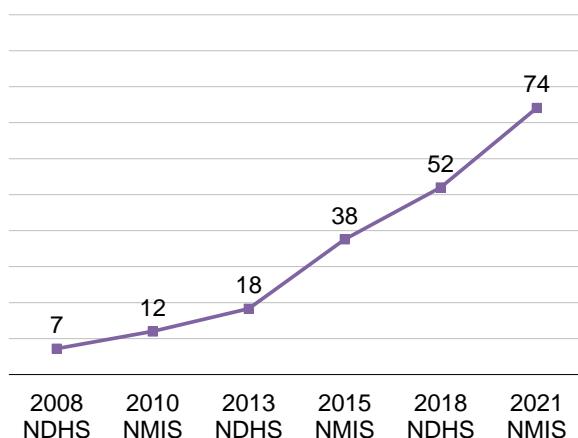
Trends: Among children under age 5 who took an antimalarial, there has been a sustained and remarkable increase in the percentage who received ACT, from 7% in 2008 to 74% in 2021 (Figure 4.4).

Patterns by background characteristics

- The percentage of children who received ACT is highest in North East (81%) and lowest in North West (58%) (Table 4.4).
- Children age 24–35 months (79%) had the highest percentage of ACT use.
- The percentage of children whose fever went away after they received ACT ranges from 80% in South South to 95% in South West (Table 4.5).

Figure 4.4 Trends in ACT use among children under age 5

Among children under age 5 with recent fever who took an antimalarial, percentage who received ACT



4.5 PREVALENCE OF LOW HAEMOGLOBIN LEVELS IN CHILDREN

Prevalence of low haemoglobin in children

Percentage of children age 6–59 months who had a haemoglobin measurement of less than 8 grams per decilitre (g/dl) of blood. The cutoff of 8 g/dl is often used to classify malaria-related anaemia.

Sample: Children age 6–59 months

Anaemia, defined as a reduced level of haemoglobin in the blood, decreases the amount of oxygen reaching the tissues and organs of the body and reduces their capacity to function. Anaemia is associated with impaired motor and cognitive development in children. The main causes of anaemia in children are malaria and inadequate intake of iron, folate, vitamin B12, and other nutrients. Other causes of anaemia include intestinal worms, haemoglobinopathy, and sickle cell disease. Although anaemia is not specific to malaria, trends in anaemia prevalence can reflect malaria morbidity, and they respond to changes in the coverage of malaria interventions (Korenromp et al. 2004). A haemoglobin level below 8.0 g/dl is classified as severe anaemia.

During the 2021 NMIS, consent was obtained and testing for anaemia was conducted among almost all (96%) eligible children age 6–59 months from the interviewed households (Table 4.6.1). Results detailed in Table 4.7.1 show that the overall national percentage of children age 6–59 months classified as having low haemoglobin levels (<8.0 g/dl) is 8%.

Trends: The percentage of low haemoglobin among children age 6–59 months decreased from 13% in 2010 to 8% in 2021 (Figure 4.5).

Patterns by background characteristics

- Children age 12–17 months had the highest percentage (12%) of low haemoglobin (Table 4.7.1).
- A higher percentage of children in rural areas (9%) had low haemoglobin than children in urban areas (5%).
- By state, low haemoglobin ranges from 1% in Nasarawa, Imo, and Bayelsa to 22% in Sokoto (Table 4.7.2 and Figure 4.6).

Figure 4.5 Trends in low haemoglobin among children

Percentage of children age 6–59 months with haemoglobin <8.0 g/dl

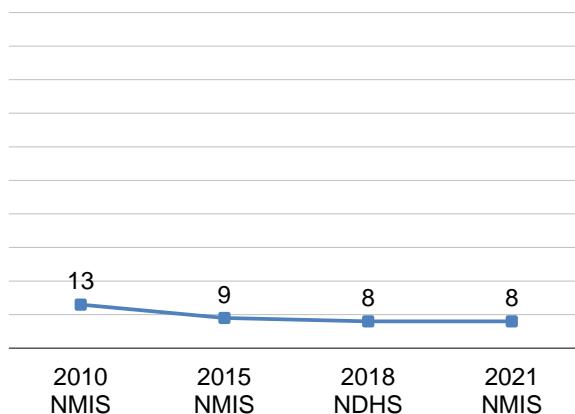
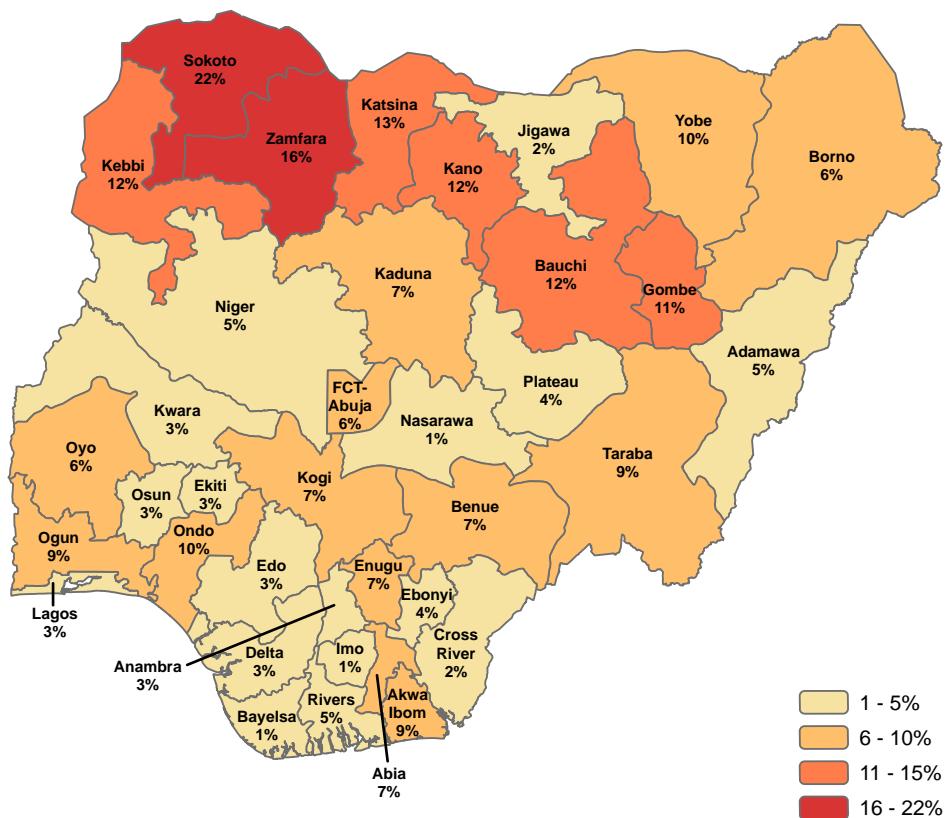


Figure 4.6 Prevalence of low haemoglobin in children, by state

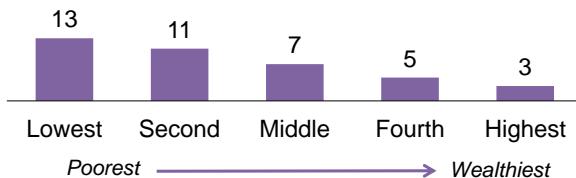
Percentage of children age 6–59 months with haemoglobin <8.0 g/dl



- The percentage of children with low haemoglobin decreases with increasing wealth, from 13% in the lowest wealth quintile to 3% in the highest wealth quintile (Table 4.7.1 and Figure 4.7).

Figure 4.7 Low haemoglobin in children, by household wealth

Percentage of children age 6–59 months with haemoglobin <8.0 g/dl



4.6 PREVALENCE OF MALARIA IN CHILDREN

Malaria prevalence in children

Percentage of children age 6–59 months classified as infected with malaria according to microscopy results.

Sample: Children age 6–59 months

Malaria is endemic in Nigeria. Those living in areas of high malaria transmission acquire partial immunity to the disease over time. However, many people, including children, can have malaria parasites in their blood without showing any signs of infection. Such asymptomatic infections not only contribute to further transmission of malaria but also increase the risk of anaemia and other associated morbidity among infected individuals.

Figure 4.8 Comparison of fieldwork data collection

| Survey | Dates of data collection |
|-----------|--------------------------|
| 2010 NMIS | October–December 2010 |
| 2015 NMIS | October–November 2015 |
| 2018 NDHS | August–December 2018 |
| 2021 NMIS | October–December 2021 |

The 2021 NMIS was conducted in October through December 2021 at the peak of the malaria transmission season. Normally, a spike in malaria cases occurs during these months. Previous surveys that incorporated malaria testing included the 2010 NMIS, the 2015 NMIS, and the 2018 NDHS (see Figure 4.8 for dates of data collection).

All children age 6–59 months were eligible for malaria testing. Among eligible children age 6–59 months from interviewed households, 96% were tested for malaria with a rapid diagnostic test (RDT) and 96% were tested by microscopy (Table 4.6.1). For details on malaria testing procedures, see Chapter 1.

In the 2021 NMIS, 22% of children age 6–59 months were positive for malaria parasites according to microscopy results. RDTs were performed in conjunction with microscopy to facilitate treatment of infected children during survey fieldwork. Forty percent of children age 6–59 months tested positive for malaria antigens using RDTs (Table 4.8.1).

Trends: The percentage of children age 6–59 months testing positive for malaria according to microscopy decreased from 42% in 2010 to 22% in 2021 (**Figure 4.9**).

Trends by background characteristics

- Between 2010 and 2021, malaria prevalence according to microscopy decreased in both urban areas (from 23% to 11%) and rural areas (from 48% to 27%) (**Figure 4.10**).

Figure 4.9 Trends in malaria prevalence among children

Percentage of children age 6–59 months who tested positive for malaria by microscopy

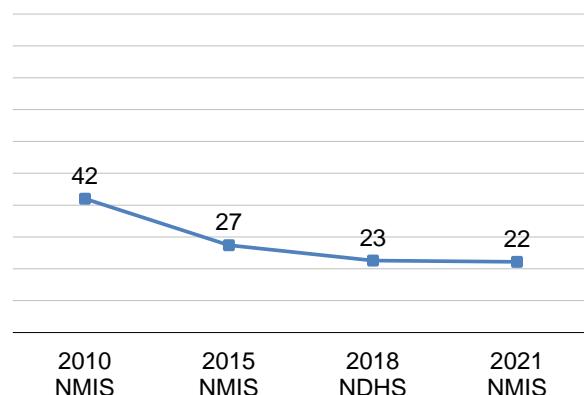
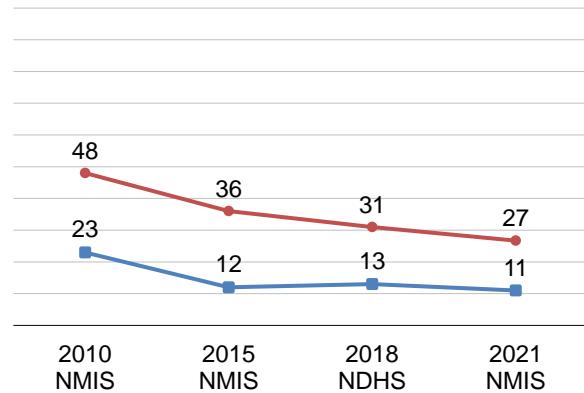


Figure 4.10 Trends in malaria prevalence among children, by residence

Percentage of children age 6–59 months who tested positive for malaria by microscopy



- Malaria prevalence decreased from 2010 to 2021 across all zones. The greatest decrease was seen in North Central, where malaria prevalence according to microscopy decreased from 49% to 17%. Compared to the 2015 NMIS, malaria prevalence decreased in North Central, North East, North West, and South South only (Figure 4.11).
- By wealth quintile, the greatest decrease in malaria prevalence according to microscopy was seen in the middle quintile (from 50% in 2010 to 23% in 2021) (Figure 4.12).

Figure 4.11 Trends in malaria prevalence among children, by zone

Percentage of children age 6–59 months who tested positive for malaria by microscopy

■ 2010 NMIS ■ 2015 NMIS ■ 2018 NDHS ■ 2021 NMIS

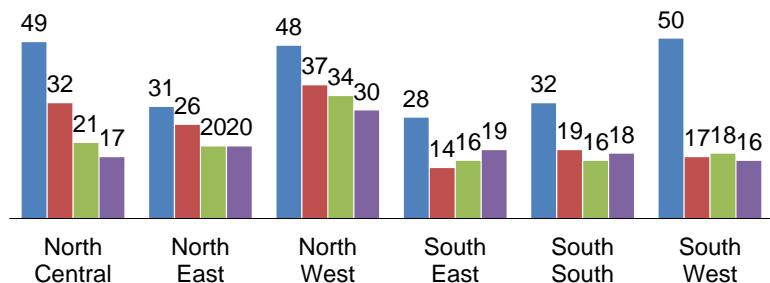
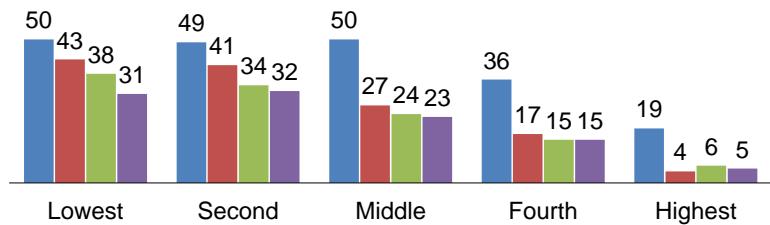


Figure 4.12 Trends in malaria prevalence among children, by wealth quintile

Percentage of children age 6–59 months who tested positive for malaria by microscopy

■ 2010 NMIS ■ 2015 NMIS ■ 2018 NDHS ■ 2021 NMIS



- By mother's education, malaria prevalence according to microscopy has generally decreased over time. The greatest percentage point decrease has been among children whose mothers have no education (from 51% in 2010 to 30% in 2021) (**Figure 4.13**).

Patterns by background characteristics

- Malaria prevalence according to microscopy generally increases with age, from 11% among children age 6–8 months to 30% among those age 48–59 months (**Table 4.8.1** and **Figure 4.14**).
- By zone, the prevalence of malaria according to microscopy is highest in North West (30%) (**Table 4.8.1**).

Figure 4.13 Trends in malaria prevalence among children, by mother's education

Percentage of children age 6–59 months who tested positive for malaria by microscopy

■ 2010 NMIS ■ 2015 NMIS ■ 2018 NDHS ■ 2021 NMIS

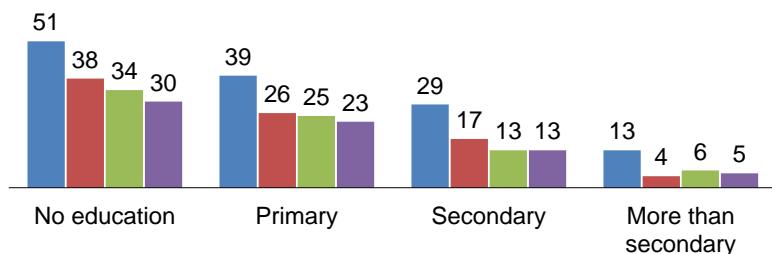
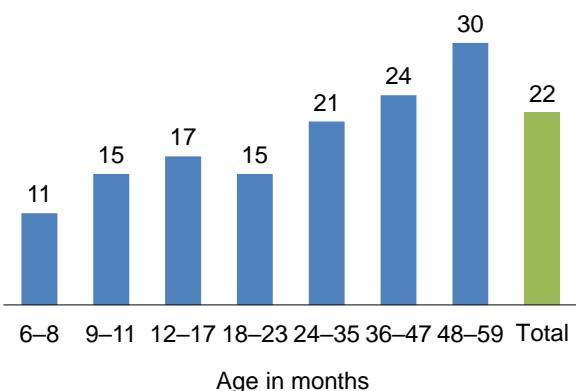


Figure 4.14 Prevalence of malaria in children, by age

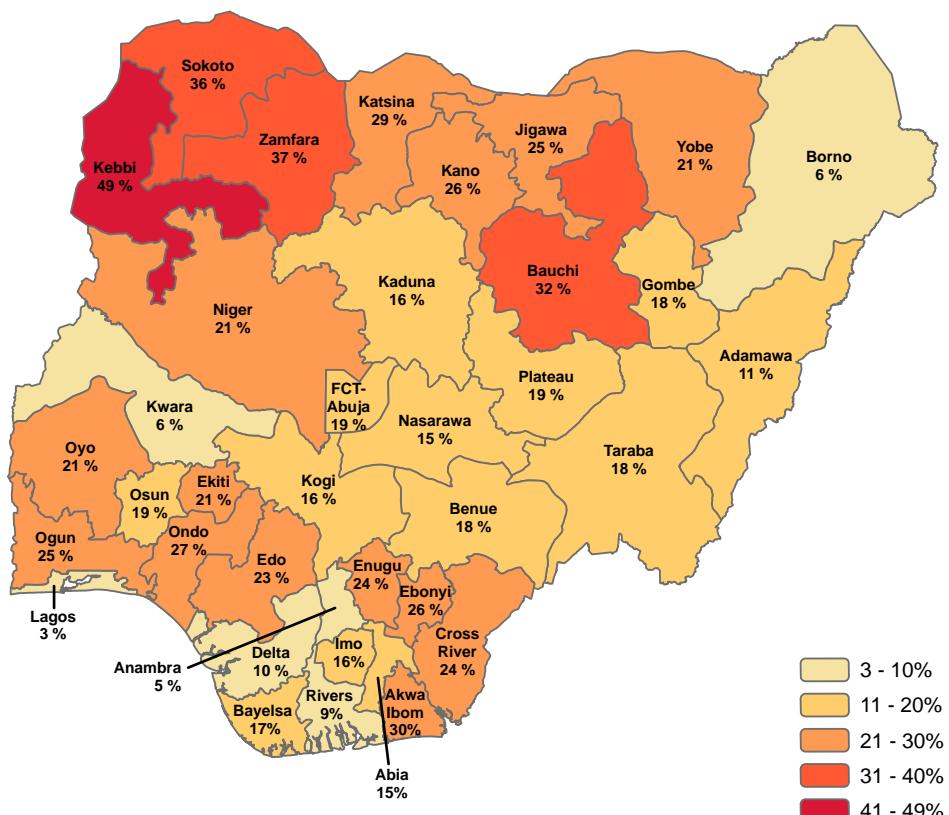
Percentage of children age 6–59 months who tested positive for malaria by microscopy



- The prevalence of malaria according to microscopy generally decreases with increasing household wealth, from 31% in the lowest and second wealth quintiles to 5% in the highest wealth quintile (**Table 4.8.1**).
- The prevalence of malaria in children according to microscopy is more than twice as high in rural areas (27%) as in urban areas (11%).
- By state, malaria prevalence ranges from 3% in Lagos to 49% in Kebbi (**Table 4.8.2** and **Figure 4.15**).

Figure 4.15 Prevalence of malaria in children, by state

Percentage of children age 6–59 months who tested positive for malaria by microscopy



4.7 MALARIA SPECIES

Several species of malaria parasites exist; *P. falciparum* malaria is the predominant species in Nigeria, causing the majority of illnesses among patients. It also causes the most severe form of the disease among children and leads to poor pregnancy outcomes in pregnant women. There are other important species including *P. malariae*, *P. ovale*, and *P. vivax*. The delineation of malaria species is important as it guides a country's malaria diagnostic strategy.

The 2021 NMIS obtained results for malaria species in the population sampled. Among children who tested positive for malaria, 91% had a *P. falciparum* infection only, 2% had a *P. malariae* infection only, 2% had a *P. ovale* infection only, 2% had a mixed *P. falciparum* and *P. ovale* infection, and 4% had a *P. falciparum* and *P. malariae* infection (**Table 4.9.1**).

LIST OF TABLES

For detailed information on malaria, see the following tables:

- **Table 4.1.1** Children with fever and care seeking, prompt treatment, and diagnosis: National
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Table 4.1.1 Children with fever and care seeking, prompt treatment, and diagnosis: National

Percentage of children under age 5 with a 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, percentage who had blood taken from a finger or heel for testing, and percentage who were diagnosed with malaria by a health care provider, according to background characteristics, Nigeria MIS 2021

| Background characteristic | Children under age 5 | | Children under age 5 with fever | | | | |
|---------------------------|---|--------------------|---|---|--|--|--------------------|
| | Percentage with a fever in the 2 weeks preceding the survey | Number of children | Percentage for whom advice or treatment was sought ¹ | Percentage for whom advice or treatment was sought the same or next day | Percentage who had blood taken from a finger or heel for testing | Percentage who were diagnosed with malaria by a health care provider | Number of children |
| Age in months | | | | | | | |
| <12 | 32.1 | 2,069 | 59.4 | 31.9 | 15.8 | 36.6 | 665 |
| 12–23 | 43.5 | 2,015 | 65.6 | 33.0 | 27.2 | 44.3 | 876 |
| 24–35 | 39.9 | 2,121 | 62.0 | 29.5 | 27.9 | 48.8 | 847 |
| 36–47 | 36.4 | 2,175 | 64.4 | 31.7 | 23.0 | 43.4 | 791 |
| 48–59 | 31.7 | 2,424 | 62.0 | 32.6 | 25.6 | 52.3 | 768 |
| Sex | | | | | | | |
| Male | 37.1 | 5,523 | 63.0 | 32.2 | 25.1 | 46.1 | 2,051 |
| Female | 35.9 | 5,282 | 62.6 | 31.2 | 23.4 | 44.5 | 1,896 |
| Residence | | | | | | | |
| Urban | 31.3 | 3,050 | 64.2 | 33.8 | 23.1 | 43.6 | 955 |
| Rural | 38.6 | 7,755 | 62.4 | 31.0 | 24.7 | 45.9 | 2,992 |
| Zone | | | | | | | |
| North Central | 26.9 | 1,803 | 68.3 | 47.4 | 23.6 | 48.0 | 485 |
| North East | 35.8 | 1,910 | 54.3 | 33.0 | 27.5 | 45.5 | 684 |
| North West | 45.5 | 3,976 | 65.6 | 25.6 | 27.2 | 47.0 | 1,810 |
| South East | 32.5 | 864 | 78.2 | 50.0 | 13.6 | 54.4 | 281 |
| South South | 37.2 | 1,120 | 51.1 | 27.3 | 12.8 | 33.7 | 416 |
| South West | 23.9 | 1,133 | 58.6 | 29.1 | 26.3 | 37.9 | 270 |
| Mother's education | | | | | | | |
| No education | 39.6 | 4,935 | 59.4 | 23.0 | 24.3 | 45.9 | 1,952 |
| Primary | 39.1 | 1,663 | 67.1 | 38.3 | 31.0 | 49.1 | 651 |
| Secondary | 34.0 | 3,137 | 64.5 | 41.3 | 18.2 | 42.2 | 1,066 |
| More than secondary | 26.0 | 1,069 | 71.0 | 40.4 | 31.7 | 45.1 | 278 |
| Wealth quintile | | | | | | | |
| Lowest | 38.9 | 2,336 | 59.6 | 22.2 | 28.6 | 45.8 | 909 |
| Second | 41.8 | 2,377 | 62.0 | 28.6 | 24.2 | 46.8 | 993 |
| Middle | 37.1 | 2,162 | 64.5 | 35.9 | 23.8 | 48.8 | 802 |
| Fourth | 34.0 | 1,961 | 62.1 | 37.3 | 18.9 | 39.6 | 667 |
| Highest | 29.3 | 1,969 | 68.0 | 39.9 | 24.5 | 43.9 | 576 |
| Total | 36.5 | 10,805 | 62.8 | 31.7 | 24.3 | 45.3 | 3,947 |

¹ Includes advice or treatment from the following sources: public sector, private medical sector, NGO medical sector, chemist shop/patient and proprietary medicine vendor (PPMV), market, and itinerant drug seller. Excludes advice or treatment from a traditional practitioner.

Table 4.1.2 Children with fever and care seeking, prompt treatment, and diagnosis: States

Percentage of children under age 5 with a 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, percentage who had blood taken from a finger or heel for testing, and percentage who were diagnosed with malaria by a health care provider, by state, Nigeria MIS 2021

| State | Children under age 5 | | Children under age 5 with fever | | | | |
|----------------------|---|--------------------|---|---|--|--|--------------------|
| | Percentage with a fever in the 2 weeks preceding the survey | Number of children | Percentage for whom advice or treatment was sought ¹ | Percentage for whom advice or treatment was sought the same or next day | Percentage who had blood taken from a finger or heel for testing | Percentage who were diagnosed with malaria by a health care provider | Number of children |
| North Central | | | | | | | |
| FCT-Abuja | 29.2 | 177 | 77.7 | 60.4 | 21.3 | 54.8 | 52 |
| Benue | 18.3 | 264 | (73.1) | (53.2) | (17.0) | (63.8) | 48 |
| Kogi | 33.8 | 131 | 66.7 | 59.0 | 21.1 | 39.8 | 44 |
| Kwara | 24.4 | 183 | (57.3) | (52.2) | (44.6) | (49.8) | 45 |
| Nasarawa | 14.6 | 303 | 52.4 | 37.5 | 33.0 | 50.9 | 44 |
| Niger | 45.4 | 474 | 73.6 | 42.1 | 22.1 | 47.8 | 215 |
| Plateau | 13.6 | 271 | (52.7) | (44.5) | (10.5) | (23.1) | 37 |
| North East | | | | | | | |
| Adamawa | 23.2 | 244 | 65.6 | 40.9 | 18.8 | 36.7 | 57 |
| Bauchi | 50.2 | 625 | 59.1 | 43.9 | 35.6 | 54.7 | 314 |
| Borno | 20.2 | 291 | 48.1 | 10.5 | 13.6 | 11.7 | 59 |
| Gombe | 21.7 | 172 | 56.4 | 25.3 | 17.4 | 34.9 | 37 |
| Taraba | 24.4 | 227 | 46.8 | 32.8 | 22.2 | 55.7 | 55 |
| Yobe | 46.5 | 350 | 45.3 | 19.3 | 24.0 | 42.0 | 163 |
| North West | | | | | | | |
| Jigawa | 54.5 | 420 | 76.3 | 26.9 | 35.5 | 44.3 | 229 |
| Kaduna | 50.6 | 575 | 83.8 | 43.4 | 18.4 | 45.4 | 290 |
| Kano | 30.9 | 802 | 44.5 | 15.6 | 13.6 | 20.3 | 248 |
| Katsina | 29.6 | 1,000 | 80.5 | 42.8 | 52.9 | 67.6 | 296 |
| Kebbi | 67.3 | 569 | 47.1 | 11.7 | 20.2 | 48.7 | 383 |
| Sokoto | 66.1 | 399 | 71.1 | 17.7 | 22.0 | 47.9 | 264 |
| Zamfara | 47.1 | 211 | 51.7 | 18.6 | 32.9 | 53.5 | 100 |
| South East | | | | | | | |
| Abia | 41.1 | 153 | 79.1 | 66.9 | 11.3 | 61.6 | 63 |
| Anambra | 37.5 | 166 | 88.5 | 41.1 | 7.7 | 73.3 | 62 |
| Ebonyi | 26.8 | 297 | 72.0 | 50.9 | 19.7 | 45.3 | 80 |
| Enugu | 24.9 | 137 | (73.2) | (31.7) | (12.1) | (47.4) | 34 |
| Imo | 38.0 | 111 | 77.4 | 51.4 | 15.5 | 38.8 | 42 |
| South South | | | | | | | |
| Akwa Ibom | 44.2 | 250 | 44.4 | 24.9 | 4.9 | 14.6 | 110 |
| Bayelsa | 24.2 | 105 | 52.2 | 21.7 | 10.4 | 44.5 | 25 |
| Cross River | 40.6 | 157 | 58.4 | 47.7 | 14.8 | 46.0 | 64 |
| Delta | 37.3 | 272 | 42.6 | 12.9 | 20.9 | 19.2 | 101 |
| Edo | 40.8 | 123 | 64.1 | 38.1 | 23.4 | 57.2 | 50 |
| Rivers | 30.6 | 213 | 58.2 | 27.7 | 4.2 | 54.3 | 65 |
| Total | 36.5 | 10,805 | 62.8 | 31.7 | 24.3 | 45.3 | 3,947 |

Note: Figures in parentheses are based on 25–49 unweighted cases.

¹ Includes advice or treatment from the following sources: public sector, private medical sector, NGO medical sector, chemist shop/patient and proprietary medicine vendor (PPMV), market, and itinerant drug seller. Excludes advice or treatment from a traditional practitioner.

Table 4.2 Referral to higher level of care

Among children under age 5 with a fever in the 2 weeks preceding the survey for whom advice or treatment was sought, percentage who were referred to a higher level of care, according to background characteristics, Nigeria MIS 2021

| Background characteristic | Percentage who were referred to a higher level of care | Number of children with a fever for whom advice or treatment was sought ¹ |
|---------------------------|--|--|
| Age in months | | |
| <12 | 17.8 | 395 |
| 12–23 | 14.6 | 574 |
| 24–35 | 21.1 | 523 |
| 36–47 | 14.7 | 508 |
| 48–59 | 21.8 | 477 |
| Sex | | |
| Male | 18.6 | 1,291 |
| Female | 17.1 | 1,186 |
| Residence | | |
| Urban | 11.7 | 609 |
| Rural | 19.9 | 1,867 |
| Zone | | |
| North Central | 8.9 | 331 |
| North East | 25.0 | 369 |
| North West | 23.2 | 1,187 |
| South East | 9.8 | 219 |
| South South | 4.2 | 213 |
| South West | 9.6 | 158 |
| Mother's education | | |
| No education | 19.4 | 1,156 |
| Primary | 27.5 | 437 |
| Secondary | 11.5 | 687 |
| More than secondary | 10.0 | 197 |
| Wealth quintile | | |
| Lowest | 24.9 | 539 |
| Second | 24.6 | 615 |
| Middle | 13.4 | 517 |
| Fourth | 9.7 | 414 |
| Highest | 12.3 | 391 |
| Total | 17.9 | 2,476 |

¹ Includes advice or treatment from the following sources: public sector, private medical sector, NGO medical sector, chemist shop/patient and proprietary medicine vendor (PPMV), market, and itinerant drug seller. Excludes advice or treatment from a traditional practitioner.

Table 4.3 Source of advice or treatment for children with fever

Percentage of children under age 5 with a fever in the 2 weeks preceding the survey for whom advice or treatment was sought from specific sources, and among children under age 5 with a fever in the 2 weeks preceding the survey for whom advice or treatment was sought, percentage for whom advice or treatment was sought from specific sources, Nigeria MIS 2021

| Source | Percentage for whom advice or treatment was sought from each source: | |
|-------------------------------------|--|---|
| | Among children with fever | Among children with fever for whom advice or treatment was sought |
| Public sector | 28.4 | 44.5 |
| Government hospital | 11.5 | 17.9 |
| Government health centre | 9.2 | 14.4 |
| Government health post | 5.2 | 8.1 |
| Mobile clinic | 0.3 | 0.4 |
| Fieldworker/CHW | 2.6 | 4.1 |
| Private sector | 19.7 | 30.8 |
| Private hospital | 2.9 | 4.5 |
| Private clinic | 2.5 | 3.8 |
| Pharmacy | 13.4 | 20.9 |
| Private doctor | 0.4 | 0.7 |
| Mobile clinic | 0.2 | 0.4 |
| Fieldworker/CHW | 0.4 | 0.6 |
| Other private medical sector | 0.0 | 0.1 |
| Private medical sector (NGO) | 0.1 | 0.1 |
| NGO hospital | 0.0 | 0.0 |
| NGO clinic | 0.1 | 0.1 |
| Other private sector | 16.0 | 25.0 |
| Chemist shop/PPMV | 14.5 | 22.7 |
| Traditional practitioner | 1.3 | 2.0 |
| Market | 0.1 | 0.1 |
| Itinerant drug seller | 0.1 | 0.1 |
| Community-oriented resource person | 0.2 | 0.3 |
| Other | 0.4 | 0.7 |
| Number of children | 3,947 | 2,524 |

Note: Advice or treatment for children with fever may have been sought from more than one source.

CHW = Community health worker

NGO = Nongovernmental organisation

PPMV = Patent and proprietary medicine vendor

Table 4.4 Type of antimalarial drugs used

Among children under age 5 with a fever in the 2 weeks preceding the survey for whom advice or treatment was sought, percentage who took specific antimalarial drugs, according to background characteristics, Nigeria MIS 2021

| Background characteristic | Percentage of children who took: | | | | | | | | Number of children with fever who took anti-malarial drug |
|---------------------------|----------------------------------|--------------|--------------|--------------|---------------|-----------------------|-------------------|--------------------------|---|
| | Any ACT | SP/ Fansidar | Chloro-quine | Amodia-quine | Quinine pills | Quinine injection/ IV | Artesunate rectal | Artesunate injection/ IV | |
| Age in months | | | | | | | | | |
| <6 | (44.8) | (17.7) | (29.3) | (2.2) | (0.0) | (0.0) | (0.0) | (6.0) | (0.0) |
| 6–11 | 57.7 | 18.6 | 11.3 | 2.4 | 0.0 | 1.7 | 5.5 | 7.0 | 3.7 |
| 12–23 | 74.8 | 4.5 | 11.8 | 2.3 | 0.4 | 0.0 | 0.7 | 6.1 | 3.0 |
| 24–35 | 79.2 | 3.8 | 7.4 | 0.9 | 1.5 | 1.0 | 0.8 | 8.6 | 3.1 |
| 36–47 | 77.6 | 6.0 | 7.4 | 3.1 | 1.2 | 0.5 | 2.3 | 3.6 | 2.1 |
| 48–59 | 73.8 | 4.1 | 3.9 | 2.6 | 0.9 | 1.4 | 2.9 | 10.1 | 5.6 |
| Sex | | | | | | | | | |
| Male | 74.8 | 6.7 | 8.3 | 2.0 | 0.1 | 0.7 | 2.2 | 7.6 | 2.7 |
| Female | 72.8 | 5.7 | 9.1 | 2.4 | 1.8 | 0.9 | 1.6 | 6.5 | 4.1 |
| Residence | | | | | | | | | |
| Urban | 73.8 | 9.1 | 6.7 | 2.3 | 2.1 | 0.7 | 1.5 | 5.6 | 1.9 |
| Rural | 73.9 | 5.0 | 9.5 | 2.1 | 0.4 | 0.8 | 2.1 | 7.7 | 4.0 |
| Zone | | | | | | | | | |
| North Central | 78.5 | 9.2 | 5.6 | 2.5 | 0.0 | 0.4 | 3.9 | 5.8 | 0.3 |
| North East | 80.5 | 6.0 | 3.8 | 1.8 | 0.4 | 0.8 | 1.6 | 11.5 | 2.3 |
| North West | 57.7 | 8.7 | 20.4 | 2.7 | 1.0 | 2.1 | 2.3 | 6.7 | 2.5 |
| South East | 70.5 | 2.9 | 7.2 | 1.7 | 0.3 | 1.4 | 1.7 | 6.2 | 12.4 |
| South South | 77.9 | 1.9 | 8.0 | 2.2 | 3.2 | 0.0 | 1.0 | 6.5 | 1.0 |
| South West | 74.7 | 8.2 | 10.3 | 2.5 | 1.0 | 0.0 | 0.4 | 5.0 | 0.6 |
| Mother's education | | | | | | | | | |
| No education | 72.6 | 7.2 | 8.7 | 1.9 | 2.1 | 1.2 | 2.1 | 9.0 | 2.3 |
| Primary | 66.6 | 6.0 | 14.3 | 3.1 | 0.0 | 0.7 | 1.3 | 4.8 | 6.2 |
| Secondary | 76.1 | 6.0 | 8.2 | 1.8 | 0.8 | 0.0 | 2.4 | 6.4 | 3.5 |
| More than secondary | 79.1 | 5.4 | 2.5 | 2.4 | 0.0 | 2.3 | 0.9 | 8.7 | 1.1 |
| Wealth quintile | | | | | | | | | |
| Lowest | 69.7 | 2.7 | 13.7 | 2.1 | 1.0 | 0.3 | 0.0 | 12.8 | 5.0 |
| Second | 74.3 | 6.3 | 5.5 | 2.1 | 1.5 | 1.1 | 6.0 | 8.2 | 0.5 |
| Middle | 75.9 | 8.6 | 9.8 | 1.7 | 1.8 | 0.7 | 1.7 | 5.7 | 0.3 |
| Fourth | 75.5 | 4.6 | 9.9 | 2.2 | 0.7 | 0.7 | 0.6 | 8.7 | 1.4 |
| Highest | 72.5 | 7.1 | 6.9 | 2.6 | 0.0 | 0.9 | 1.5 | 3.9 | 7.9 |
| Total | 73.9 | 6.2 | 8.7 | 2.2 | 0.9 | 0.8 | 1.9 | 7.1 | 3.3 |
| | | | | | | | | | 802 |

Note: Figures in parentheses are based on 25–49 unweighted cases.

ACT = Artemisinin-based combination therapy

SP = Sulfadoxine-pyrimethamine

Table 4.5 ACT use and fever

Among children under age 5 with a fever in the 2 weeks preceding the survey who received ACT, percentage whose fever went away after they received ACT, according to background characteristics, Nigeria MIS 2021

| Background characteristic | Percentage of children whose fever went away after they received ACT | Number of children with fever who received ACT |
|---------------------------|--|--|
| Age in months | | |
| <6 | * | 11 |
| 6–11 | (93.3) | 42 |
| 12–23 | 89.1 | 132 |
| 24–35 | 91.7 | 157 |
| 36–47 | 87.8 | 132 |
| 48–59 | 87.1 | 119 |
| Sex | | |
| Male | 88.6 | 319 |
| Female | 90.5 | 273 |
| Residence | | |
| Urban | 89.5 | 180 |
| Rural | 89.4 | 412 |
| Zone | | |
| North Central | 88.9 | 129 |
| North East | 92.9 | 123 |
| North West | 88.6 | 65 |
| South East | 89.7 | 103 |
| South South | 80.0 | 85 |
| South West | 95.2 | 86 |
| Mother's education | | |
| No education | 92.4 | 152 |
| Primary | 92.4 | 99 |
| Secondary | 87.9 | 251 |
| More than secondary | 85.5 | 90 |
| Wealth quintile | | |
| Lowest | 90.7 | 60 |
| Second | 91.7 | 101 |
| Middle | 87.5 | 120 |
| Fourth | 92.2 | 141 |
| Highest | 86.8 | 169 |
| Total | 89.5 | 592 |

Note: Figures in parentheses are based on 25–49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.
ACT = Artemisinin-based combination therapy

Table 4.6.1 Coverage of testing for anaemia and malaria in children: National

Percentage of eligible children age 6–59 months who were tested for anaemia and for malaria, according to background characteristics (unweighted), Nigeria MIS 2021

| Background characteristic | Percentage tested for: | | | |
|---|------------------------|------------------|-----------------------|--------------------|
| | Anaemia | Malaria with RDT | Malaria by microscopy | Number of children |
| Age in months | | | | |
| 6–8 | 95.0 | 95.2 | 94.6 | 558 |
| 9–11 | 95.3 | 95.3 | 94.7 | 470 |
| 12–17 | 96.2 | 96.2 | 95.3 | 1,171 |
| 18–23 | 95.4 | 95.4 | 94.6 | 983 |
| 24–35 | 96.8 | 96.8 | 96.3 | 2,340 |
| 36–47 | 97.2 | 97.2 | 96.5 | 2,527 |
| 48–59 | 96.1 | 96.1 | 95.8 | 3,048 |
| Sex | | | | |
| Male | 96.3 | 96.3 | 95.8 | 5,698 |
| Female | 96.3 | 96.4 | 95.8 | 5,399 |
| Mother's interview status | | | | |
| Interviewed | 96.6 | 96.6 | 96.1 | 9,429 |
| Not interviewed and not in the household ¹ | 95.0 | 95.0 | 94.1 | 1,668 |
| Residence | | | | |
| Urban | 94.6 | 94.7 | 94.4 | 3,276 |
| Rural | 97.0 | 97.1 | 96.4 | 7,821 |
| Zone | | | | |
| North Central | 95.6 | 95.7 | 94.8 | 2,187 |
| North East | 96.6 | 96.6 | 96.2 | 2,117 |
| North West | 96.0 | 96.0 | 95.3 | 3,049 |
| South East | 98.0 | 98.0 | 97.4 | 1,173 |
| South South | 96.0 | 96.0 | 95.8 | 1,498 |
| South West | 96.9 | 96.9 | 96.6 | 1,073 |
| Mother's education² | | | | |
| No education | 96.7 | 96.8 | 96.1 | 4,008 |
| Primary | 97.1 | 97.1 | 96.6 | 1,395 |
| Secondary | 96.9 | 96.9 | 96.7 | 3,023 |
| More than secondary | 94.2 | 94.3 | 93.9 | 1,003 |
| Wealth quintile | | | | |
| Lowest | 96.2 | 96.2 | 95.5 | 2,280 |
| Second | 96.8 | 96.8 | 95.9 | 2,188 |
| Middle | 97.0 | 97.0 | 96.5 | 2,337 |
| Fourth | 96.4 | 96.4 | 96.2 | 2,262 |
| Highest | 95.2 | 95.3 | 94.7 | 2,030 |
| Total | 96.3 | 96.4 | 95.8 | 11,097 |

RDT = Rapid diagnostic test (SD BIOLINE P.f.)

¹ Includes children whose mothers are deceased

² Excludes children whose mothers were not interviewed

Table 4.6.2 Coverage of testing for anaemia and malaria in children: States

Percentage of eligible children age 6–59 months who were tested for anaemia and for malaria, by state (unweighted), Nigeria MIS 2021

| State | Percentage tested for: | | | Number of children |
|----------------------|------------------------|------------------|-----------------------|--------------------|
| | Anaemia | Malaria with RDT | Malaria by microscopy | |
| North Central | | | | |
| FCT-Abuja | 94.6 | 94.6 | 94.6 | 257 |
| Benue | 97.6 | 97.6 | 96.3 | 328 |
| Kogi | 96.7 | 96.7 | 95.8 | 213 |
| Kwara | 90.9 | 90.9 | 90.9 | 187 |
| Nasarawa | 99.8 | 99.8 | 99.8 | 453 |
| Niger | 93.3 | 93.5 | 90.5 | 401 |
| Plateau | 93.7 | 93.7 | 93.4 | 348 |
| North East | | | | |
| Adamawa | 98.1 | 98.1 | 98.1 | 265 |
| Bauchi | 99.3 | 99.3 | 99.3 | 419 |
| Borno | 92.2 | 92.2 | 91.9 | 372 |
| Gombe | 92.0 | 92.0 | 90.2 | 287 |
| Taraba | 97.3 | 97.3 | 97.0 | 400 |
| Yobe | 99.7 | 99.7 | 99.2 | 374 |
| North West | | | | |
| Jigawa | 94.5 | 94.5 | 94.1 | 421 |
| Kaduna | 95.0 | 95.0 | 94.8 | 442 |
| Kano | 95.2 | 95.2 | 93.4 | 558 |
| Katsina | 100.0 | 100.0 | 99.1 | 452 |
| Kebbi | 94.5 | 94.5 | 94.5 | 416 |
| Sokoto | 93.8 | 94.0 | 93.0 | 400 |
| Zamfara | 99.4 | 99.4 | 99.4 | 360 |
| South East | | | | |
| Abia | 96.3 | 96.3 | 96.3 | 240 |
| Anambra | 98.0 | 98.5 | 97.5 | 199 |
| Ebonyi | 99.3 | 99.3 | 98.7 | 305 |
| Enugu | 100.0 | 100.0 | 99.6 | 223 |
| Imo | 95.6 | 95.6 | 94.7 | 206 |
| South South | | | | |
| Akwa Ibom | 98.7 | 98.7 | 98.1 | 158 |
| Bayelsa | 96.8 | 96.8 | 96.8 | 251 |
| Cross River | 98.3 | 98.3 | 98.3 | 241 |
| Delta | 96.7 | 96.7 | 96.1 | 361 |
| Edo | 77.0 | 77.0 | 77.0 | 135 |
| Rivers | 99.1 | 99.1 | 99.1 | 352 |
| South West | | | | |
| Ekiti | 96.8 | 96.8 | 96.8 | 155 |
| Lagos | 94.2 | 94.2 | 93.7 | 191 |
| Ogun | 96.6 | 96.6 | 96.1 | 179 |
| Ondo | 99.5 | 99.5 | 99.5 | 211 |
| Osun | 99.3 | 99.3 | 98.7 | 150 |
| Oyo | 95.2 | 95.2 | 95.2 | 187 |
| Total | 96.3 | 96.4 | 95.8 | 11,097 |

RDT = Rapid diagnostic test (SD BIOLINE P.f.)

Table 4.7.1 Haemoglobin <8.0 g/dl in children: National

Percentage of children age 6–59 months with haemoglobin lower than 8.0 g/dl, according to background characteristics, Nigeria MIS 2021

| Background characteristic | Haemoglobin <8.0 g/dl | Number of children |
|---|-----------------------|--------------------|
| Age in months | | |
| 6–8 | 6.7 | 581 |
| 9–11 | 6.0 | 489 |
| 12–17 | 11.7 | 1,175 |
| 18–23 | 9.8 | 987 |
| 24–35 | 9.5 | 2,367 |
| 36–47 | 7.0 | 2,548 |
| 48–59 | 6.2 | 2,953 |
| Sex | | |
| Male | 8.4 | 5,701 |
| Female | 7.6 | 5,400 |
| Mother's interview status | | |
| Interviewed | 8.0 | 9,584 |
| Not interviewed and not in the household ¹ | 7.8 | 1,516 |
| Residence | | |
| Urban | 4.8 | 3,005 |
| Rural | 9.2 | 8,095 |
| Zone | | |
| North Central | 4.5 | 1,915 |
| North East | 9.5 | 1,991 |
| North West | 11.7 | 3,966 |
| South East | 4.2 | 901 |
| South South | 4.2 | 1,196 |
| South West | 5.3 | 1,131 |
| Mother's education² | | |
| No education | 11.7 | 4,373 |
| Primary | 7.6 | 1,481 |
| Secondary | 4.2 | 2,797 |
| More than secondary | 2.9 | 932 |
| Wealth quintile | | |
| Lowest | 12.6 | 2,430 |
| Second | 10.5 | 2,415 |
| Middle | 7.4 | 2,321 |
| Fourth | 4.7 | 2,035 |
| Highest | 3.0 | 1,899 |
| Total | 8.0 | 11,100 |

Note: Table is based on children who stayed in the household the night before the interview. Prevalence of anaemia is based on haemoglobin levels and is adjusted for altitude using CDC formulas (CDC 1998). Haemoglobin is measured in grams per decilitre (g/dl).

¹ Includes children whose mothers are deceased

² Excludes children whose mothers were not interviewed

Table 4.7.2 Haemoglobin <8.0 g/dl in children: States

Percentage of children age 6–59 months with haemoglobin lower than 8.0 g/dl, by state, Nigeria MIS 2021

| State | Haemoglobin <8.0 g/dl | Number of children |
|----------------------|-----------------------|--------------------|
| North Central | | |
| FCT-Abuja | 6.4 | 171 |
| Benue | 6.7 | 293 |
| Kogi | 7.3 | 153 |
| Kwara | 2.9 | 165 |
| Nasarawa | 1.2 | 402 |
| Niger | 4.8 | 465 |
| Plateau | 4.4 | 267 |
| North East | | |
| Adamawa | 4.9 | 244 |
| Bauchi | 12.3 | 647 |
| Borno | 5.7 | 305 |
| Gombe | 11.2 | 182 |
| Taraba | 9.3 | 257 |
| Yobe | 10.2 | 356 |
| North West | | |
| Jigawa | 1.9 | 445 |
| Kaduna | 6.9 | 583 |
| Kano | 12.2 | 838 |
| Katsina | 13.3 | 961 |
| Kebbi | 11.6 | 526 |
| Sokoto | 22.3 | 397 |
| Zamfara | 16.0 | 216 |
| South East | | |
| Abia | 6.6 | 149 |
| Anambra | 2.5 | 159 |
| Ebonyi | 3.7 | 315 |
| Enugu | 6.8 | 166 |
| Imo | 1.0 | 111 |
| South South | | |
| Akwa Ibom | 8.7 | 262 |
| Bayelsa | 1.1 | 110 |
| Cross River | 1.5 | 185 |
| Delta | 2.5 | 318 |
| Edo | 3.0 | 90 |
| Rivers | 5.3 | 232 |
| South West | | |
| Ekiti | 2.9 | 75 |
| Lagos | 2.7 | 349 |
| Ogun | 9.4 | 173 |
| Ondo | 10.3 | 114 |
| Osun | 2.7 | 153 |
| Oyo | 6.3 | 268 |
| Total | 8.0 | 11,100 |

Note: Table is based on children who stayed in the household the night before the interview. Prevalence of anaemia is based on haemoglobin levels and is adjusted for altitude using CDC formulas (CDC 1998). Haemoglobin is measured in grams per decilitre (g/dl).

Table 4.8.1 Prevalence of malaria in children: National

Percentage of children age 6–59 months classified in two tests as having malaria, according to background characteristics, Nigeria MIS 2021

| Background characteristic | Malaria prevalence according to RDT | | Malaria prevalence according to microscopy | |
|---|-------------------------------------|--------------------|--|--------------------|
| | RDT positive | Number of children | Microscopy positive | Number of children |
| Age in months | | | | |
| 6–8 | 20.9 | 582 | 11.1 | 577 |
| 9–11 | 23.7 | 489 | 14.8 | 486 |
| 12–17 | 33.1 | 1,175 | 16.7 | 1,164 |
| 18–23 | 31.2 | 987 | 14.6 | 978 |
| 24–35 | 39.3 | 2,367 | 20.6 | 2,355 |
| 36–47 | 44.2 | 2,549 | 24.4 | 2,533 |
| 48–59 | 47.6 | 2,954 | 29.9 | 2,944 |
| Sex | | | | |
| Male | 40.5 | 5,701 | 22.3 | 5,668 |
| Female | 38.6 | 5,402 | 22.2 | 5,369 |
| Mother's interview status | | | | |
| Interviewed | 38.6 | 9,587 | 21.6 | 9,536 |
| Not interviewed and not in the household ¹ | 46.2 | 1,516 | 26.5 | 1,501 |
| Residence | | | | |
| Urban | 25.0 | 3,006 | 10.5 | 2,996 |
| Rural | 45.0 | 8,097 | 26.7 | 8,041 |
| Zone | | | | |
| North Central | 32.3 | 1,916 | 17.0 | 1,899 |
| North East | 43.0 | 1,991 | 20.1 | 1,983 |
| North West | 51.6 | 3,967 | 29.8 | 3,940 |
| South East | 27.3 | 902 | 18.7 | 895 |
| South South | 29.9 | 1,196 | 17.8 | 1,192 |
| South West | 24.1 | 1,131 | 16.2 | 1,128 |
| Mother's education² | | | | |
| No education | 52.1 | 4,375 | 30.4 | 4,345 |
| Primary | 42.3 | 1,481 | 22.6 | 1,472 |
| Secondary | 24.1 | 2,797 | 13.1 | 2,789 |
| More than secondary | 13.0 | 933 | 4.5 | 929 |
| Wealth quintile | | | | |
| Lowest | 55.4 | 2,431 | 31.3 | 2,414 |
| Second | 53.6 | 2,416 | 32.3 | 2,395 |
| Middle | 40.1 | 2,321 | 23.1 | 2,309 |
| Fourth | 28.7 | 2,035 | 14.6 | 2,030 |
| Highest | 12.8 | 1,900 | 5.3 | 1,889 |
| Total | 39.6 | 11,103 | 22.3 | 11,037 |

RDT = Rapid diagnostic test (SD BIOLINE P.f)

¹ Includes children whose mothers are deceased

² Excludes children whose mothers were not interviewed

Table 4.8.2 Prevalence of malaria in children: States

Percentage of children age 6–59 months classified in two tests as having malaria, by state, Nigeria MIS 2021

| State | Malaria prevalence according to RDT | | Malaria prevalence according to microscopy | |
|----------------------|-------------------------------------|--------------------|--|--------------------|
| | RDT positive | Number of children | Microscopy positive | Number of children |
| North Central | | | | |
| FCT-Abuja | 34.6 | 171 | 18.8 | 171 |
| Benue | 34.0 | 293 | 17.6 | 290 |
| Kogi | 27.7 | 153 | 15.9 | 151 |
| Kwara | 17.6 | 165 | 5.6 | 165 |
| Nasarawa | 29.9 | 402 | 15.3 | 402 |
| Niger | 42.6 | 466 | 20.7 | 454 |
| Plateau | 26.4 | 267 | 18.8 | 266 |
| North East | | | | |
| Adamawa | 28.0 | 244 | 10.7 | 244 |
| Bauchi | 59.6 | 647 | 31.7 | 647 |
| Borno | 18.6 | 305 | 5.6 | 304 |
| Gombe | 33.1 | 182 | 17.7 | 177 |
| Taraba | 24.5 | 257 | 17.9 | 256 |
| Yobe | 62.5 | 356 | 20.5 | 354 |
| North West | | | | |
| Jigawa | 54.5 | 445 | 25.4 | 443 |
| Kaduna | 32.3 | 583 | 16.2 | 582 |
| Kano | 54.0 | 838 | 25.5 | 824 |
| Katsina | 49.5 | 961 | 29.3 | 955 |
| Kebbi | 75.6 | 526 | 49.0 | 526 |
| Sokoto | 40.3 | 397 | 35.9 | 395 |
| Zamfara | 59.7 | 216 | 36.6 | 216 |
| South East | | | | |
| Abia | 26.4 | 149 | 14.5 | 149 |
| Anambra | 20.2 | 160 | 5.4 | 158 |
| Ebonyi | 30.2 | 315 | 25.7 | 312 |
| Enugu | 30.2 | 166 | 24.3 | 166 |
| Imo | 26.2 | 111 | 15.5 | 110 |
| South South | | | | |
| Akwa Ibom | 33.5 | 262 | 30.1 | 259 |
| Bayelsa | 27.1 | 110 | 16.7 | 110 |
| Cross River | 40.6 | 185 | 23.6 | 185 |
| Delta | 18.9 | 318 | 10.0 | 316 |
| Edo | 30.2 | 90 | 22.6 | 90 |
| Rivers | 33.8 | 232 | 8.6 | 232 |
| South West | | | | |
| Ekiti | 36.5 | 75 | 20.8 | 75 |
| Lagos | 3.2 | 349 | 2.6 | 347 |
| Ogun | 35.6 | 173 | 24.9 | 172 |
| Ondo | 44.8 | 114 | 26.7 | 114 |
| Osun | 27.6 | 153 | 19.3 | 152 |
| Oyo | 29.6 | 268 | 20.9 | 268 |
| Total | 39.6 | 11,103 | 22.3 | 11,037 |

RDT = Rapid diagnostic test (SD BIOLINE P.f.)

Table 4.9.1 Malaria species: National

Among children age 6–59 months with malaria parasites, percent distribution by species of *Plasmodium* as identified by microscopy, according to background characteristics, Nigeria MIS 2021

| Background characteristic | Positive for <i>Pf</i> only | Positive for <i>Pm</i> only | Positive for <i>Po</i> only | Positive for <i>Pf + Po</i> | Positive for <i>Pf + Pm</i> | Total | Number of children with malaria parasites |
|---------------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|-------|---|
| Age in months | | | | | | | |
| 6–8 | 92.6 | 1.7 | 3.5 | 0.0 | 2.2 | 100.0 | 64 |
| 9–11 | 98.9 | 0.0 | 0.0 | 0.0 | 1.1 | 100.0 | 72 |
| 12–17 | 96.9 | 0.5 | 0.0 | 1.0 | 1.6 | 100.0 | 194 |
| 18–23 | 95.8 | 0.0 | 1.0 | 0.6 | 2.6 | 100.0 | 143 |
| 24–35 | 91.0 | 1.4 | 1.7 | 2.3 | 3.6 | 100.0 | 486 |
| 36–47 | 88.2 | 1.8 | 1.5 | 2.2 | 6.3 | 100.0 | 619 |
| 48–59 | 90.1 | 2.5 | 1.8 | 1.3 | 4.3 | 100.0 | 880 |
| Sex | | | | | | | |
| Male | 92.3 | 1.3 | 1.2 | 1.6 | 3.6 | 100.0 | 1,264 |
| Female | 89.6 | 2.1 | 1.8 | 1.6 | 4.9 | 100.0 | 1,194 |
| Residence | | | | | | | |
| Urban | 91.6 | 1.4 | 1.6 | 0.4 | 5.1 | 100.0 | 313 |
| Rural | 90.9 | 1.7 | 1.5 | 1.8 | 4.1 | 100.0 | 2,145 |
| Zone | | | | | | | |
| North Central | 92.5 | 2.5 | 0.7 | 1.6 | 2.8 | 100.0 | 322 |
| North East | 93.2 | 0.6 | 2.1 | 0.6 | 3.5 | 100.0 | 398 |
| North West | 92.5 | 1.7 | 1.0 | 1.3 | 3.5 | 100.0 | 1,175 |
| South East | 89.8 | 0.7 | 2.5 | 2.0 | 5.1 | 100.0 | 168 |
| South South | 85.7 | 2.3 | 4.0 | 4.5 | 3.5 | 100.0 | 212 |
| South West | 81.2 | 2.6 | 1.3 | 2.1 | 12.8 | 100.0 | 183 |
| Mother's education¹ | | | | | | | |
| No education | 90.8 | 1.9 | 1.4 | 1.9 | 4.0 | 100.0 | 1,319 |
| Primary | 91.3 | 0.7 | 1.7 | 1.6 | 4.7 | 100.0 | 333 |
| Secondary | 90.4 | 1.6 | 2.7 | 0.4 | 5.0 | 100.0 | 365 |
| More than secondary | (94.5) | (0.8) | (1.8) | (1.8) | (1.2) | 100.0 | 42 |
| Wealth quintile | | | | | | | |
| Lowest | 91.1 | 1.2 | 1.0 | 2.2 | 4.4 | 100.0 | 755 |
| Second | 90.2 | 2.1 | 1.8 | 1.5 | 4.4 | 100.0 | 773 |
| Middle | 91.8 | 1.7 | 1.4 | 1.5 | 3.6 | 100.0 | 534 |
| Fourth | 90.8 | 1.8 | 2.2 | 0.8 | 4.5 | 100.0 | 296 |
| Highest | 92.1 | 1.8 | 1.8 | 0.7 | 3.5 | 100.0 | 100 |
| Total | 91.0 | 1.7 | 1.5 | 1.6 | 4.2 | 100.0 | 2,458 |

Note: No cases of *Plasmodium vivax* were found.

Pf = *Plasmodium falciparum*

Pm = *Plasmodium malariae*

Po = *Plasmodium ovale*

¹ Excludes children whose mothers were not interviewed

Table 4.9.2 Malaria species: States

Among children age 6–59 months with malaria parasites, percent distribution by species of *Plasmodium* as identified by microscopy, by state, Nigeria MIS 2021

| State | Positive for <i>Pf</i> only | Positive for <i>Pm</i> only | Positive for <i>Po</i> only | Positive for <i>Pf + Po</i> | Positive for <i>Pf + Pm</i> | Total | Number of children with malaria parasites |
|----------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|-------|---|
| North Central | | | | | | | |
| FCT-Abuja | (87.9) | (6.0) | (0.0) | (0.0) | (6.0) | 100.0 | 32 |
| Benue | 87.3 | 4.1 | 1.0 | 0.0 | 7.6 | 100.0 | 51 |
| Kogi | (90.2) | (3.5) | (1.6) | (0.0) | (4.6) | 100.0 | 24 |
| Kwara | * | * | * | * | * | 100.0 | 9 |
| Nasarawa | 94.4 | 3.2 | 0.0 | 1.4 | 1.1 | 100.0 | 61 |
| Niger | 96.1 | 1.2 | 0.0 | 2.1 | 0.7 | 100.0 | 94 |
| Plateau | 91.7 | 0.0 | 2.7 | 4.5 | 1.2 | 100.0 | 50 |
| North East | | | | | | | |
| Adamawa | (96.2) | (0.0) | (3.8) | (0.0) | (0.0) | 100.0 | 26 |
| Bauchi | 91.0 | 0.5 | 3.0 | 0.0 | 5.6 | 100.0 | 205 |
| Borno | * | * | * | * | * | 100.0 | 17 |
| Gombe | (96.2) | (0.0) | (1.4) | (2.4) | (0.0) | 100.0 | 31 |
| Taraba | 93.6 | 2.0 | 0.8 | 0.0 | 3.6 | 100.0 | 46 |
| Yobe | 96.5 | 0.6 | 0.7 | 1.2 | 1.0 | 100.0 | 73 |
| North West | | | | | | | |
| Jigawa | 91.8 | 1.9 | 0.7 | 0.0 | 5.6 | 100.0 | 112 |
| Kaduna | 96.7 | 0.0 | 0.0 | 0.0 | 3.3 | 100.0 | 94 |
| Kano | 96.3 | 0.6 | 0.0 | 1.2 | 1.9 | 100.0 | 210 |
| Katsina | 90.2 | 4.2 | 1.8 | 1.9 | 2.0 | 100.0 | 280 |
| Kebbi | 91.7 | 1.0 | 0.9 | 2.1 | 4.2 | 100.0 | 258 |
| Sokoto | 93.7 | 0.6 | 1.0 | 0.0 | 4.7 | 100.0 | 142 |
| Zamfara | 86.7 | 1.9 | 2.4 | 2.5 | 6.6 | 100.0 | 79 |
| South East | | | | | | | |
| Abia | (97.2) | (0.0) | (0.0) | (2.8) | (0.0) | 100.0 | 22 |
| Anambra | * | * | * | * | * | 100.0 | 9 |
| Ebonyi | 90.8 | 1.4 | 2.6 | 0.0 | 5.3 | 100.0 | 80 |
| Enugu | (79.0) | (0.0) | (3.7) | (6.7) | (10.6) | 100.0 | 40 |
| Imo | (96.0) | (0.0) | (4.0) | (0.0) | (0.0) | 100.0 | 17 |
| South South | | | | | | | |
| Akwa Ibom | (74.7) | (5.7) | (8.4) | (8.4) | (2.8) | 100.0 | 78 |
| Bayelsa | (94.1) | (2.3) | (2.3) | (0.0) | (1.3) | 100.0 | 18 |
| Cross River | 88.4 | 0.0 | 0.0 | 4.4 | 7.1 | 100.0 | 44 |
| Delta | (96.6) | (0.0) | (0.0) | (1.4) | (2.0) | 100.0 | 32 |
| Edo | (87.2) | (0.0) | (7.8) | (2.8) | (2.2) | 100.0 | 20 |
| Rivers | (96.0) | (0.0) | (0.0) | (0.0) | (4.0) | 100.0 | 20 |
| South West | | | | | | | |
| Ekiti | (76.6) | (7.3) | (5.4) | (0.0) | (10.7) | 100.0 | 16 |
| Lagos | * | * | * | * | * | 100.0 | 9 |
| Ogun | (85.0) | (2.4) | (0.0) | (1.9) | (10.7) | 100.0 | 43 |
| Ondo | 80.7 | 2.0 | 0.0 | 3.8 | 13.5 | 100.0 | 30 |
| Osun | (82.6) | (7.0) | (5.1) | (0.0) | (5.3) | 100.0 | 29 |
| Oyo | (76.2) | (0.0) | (0.0) | (3.3) | (20.5) | 100.0 | 56 |
| Total | 91.0 | 1.7 | 1.5 | 1.6 | 4.2 | 100.0 | 2,458 |

Note: No cases of *Plasmodium vivax* were found.

Figures in parentheses are based on 25–49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.

Pf = *Plasmodium falciparum*

Pm = *Plasmodium malariae*

Po = *Plasmodium ovale*

Key Findings

Media exposure to malaria messages:

- 46% of women age 15–49 reported having seen or heard a malaria message in the past 6 months.
- Among women who have seen or heard a malaria message, radio (39%), community health workers (24%), television (22%), and health care providers (19%) are the most common sources of information.

Knowledge of ways to avoid malaria:

- 81% of women stated that there are ways to avoid getting malaria. Among women who said there are ways to avoid malaria, 83% cited sleeping under a mosquito net or insecticide-treated net (ITN).

Malaria susceptibility, severity, and self-efficacy:

- 89% of women perceive that their families and communities are at risk of malaria.
- 60% of women feel that the consequences of malaria are serious.
- 76% of women agree that they can sleep inside a mosquito net for the entire night when there are few mosquitoes.

Attitude towards malaria-related behaviours and norms:

- 64% of women believe that the majority of people in their community currently practise specific malaria-related behaviours.

This chapter assesses the extent to which malaria communication messages reach women age 15–49 and the channels through which women receive such messages. The chapter also provides data on women’s basic knowledge about treatment and prevention of malaria, their perceptions of susceptibility to malaria and its severity, and their confidence in changing behaviour (i.e., self-efficacy).

5.1 EXPOSURE TO MALARIA MESSAGES

Exposure to communication messages

Percentage of women age 15–49 who recall seeing or hearing a message about malaria through various sources in the last 6 months.

Sample: Women age 15–49

Advocacy communication and social mobilisation (ACSM) is key to the uptake of malaria control interventions. In the current National Malaria Strategic Plan (NMSP) 2021–2025, ACSM serves as a supportive strategy for implementation of the plan’s five objectives. An efficient ACSM intervention is

necessary for the successful implementation of all malaria prevention, diagnostic, treatment coordination, management, financing, and reporting strategies (NMEP 2021).

The priority ACSM interventions include promoting actionable, audience-specific, pretested messages on effective malaria prevention behaviours using multimedia approaches; promoting access to and utilisation of malaria prevention interventions; and engaging community actors, including leaders, members, and community-based organisations, to support utilisation of mosquito nets and other preventive services. Other priority interventions include strengthening social mobilisation efforts through existing national, subnational, and community structures; reinforcing multimedia approaches to reach target audiences with appropriate information on malaria diagnosis and treatment practises; and strengthening use of appropriate evidence of the effectiveness of social and behaviour change (SBC) strategies.

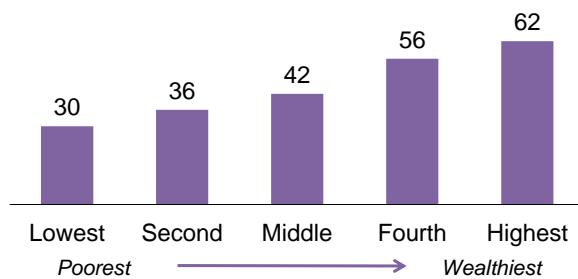
Information exposure plays a critical role in behavioural changes that will help increase malaria prevention knowledge and practises. To assess the coverage of malaria messages, women age 15–49 were asked if they had seen or heard any messages about malaria prevention in the 6 months preceding the survey. Women who had seen or heard messages were further asked about the source of the messages. Forty-six percent of women reported seeing or hearing a malaria message in the past 6 months. Radio (39%) was the most common source of exposure to malaria messages, followed by community health workers (24%) and television (22%). Other sources included health care providers (19%), family and friends (11%), social media (11%), town announcers (5%), posters/billboards (4%), newspapers/magazines (2%), and leaflets/brochures (2%) (**Table 5.1.1**).

Patterns by background characteristics

- Sixty-two percent of women in the highest wealth quintile have been exposed to malaria messages from any source, as compared with 30% of women in the lowest wealth quintile (**Figure 5.1**).

Figure 5.1 Exposure to social and behaviour change communication messages by wealth quintile

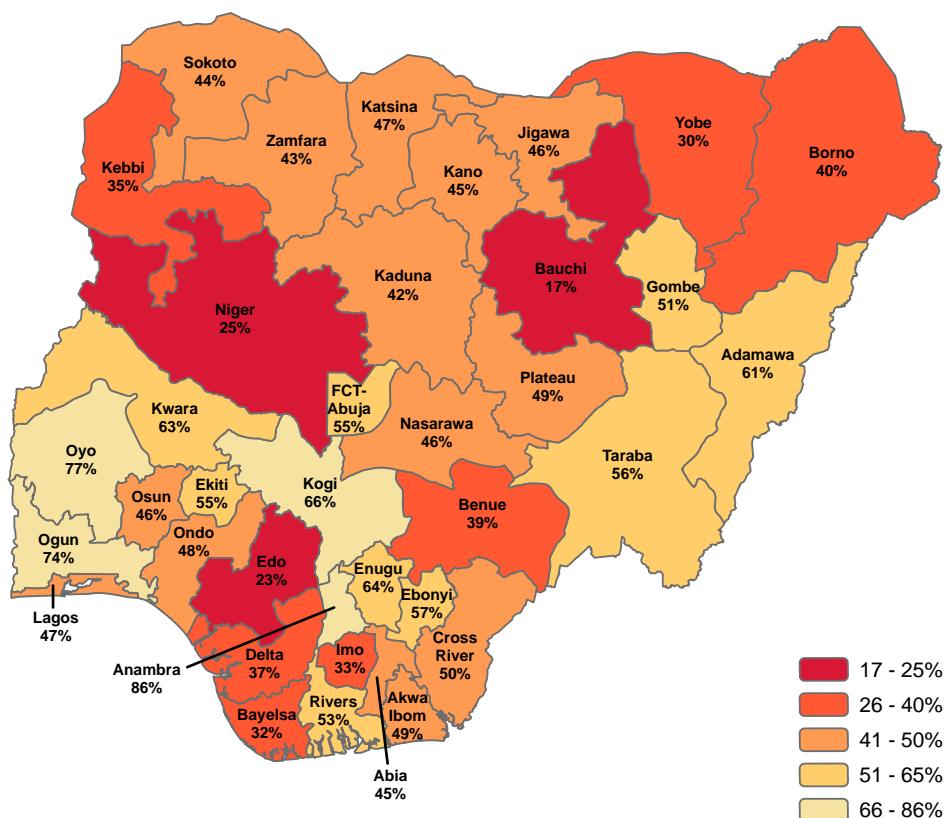
Percentage of women age 15–49 who saw or heard a message on malaria in the last 6 months



- Exposure to social and behaviour change communication messages varies among states in Nigeria. The states with the highest levels of exposure are Anambra (86%), Oyo (77%), and Ogun (74%), while the states with the lowest levels include Bauchi (17%), Edo (23%), and Niger (25%) (Table 5.1.2 and Figure 5.2).
- Sixty-seven percent of women with more than a secondary education were exposed to malaria messages from any source in the last 6 months, compared with 34% of women with no education.
- The percentage of women who have seen or heard a malaria message in the past 6 months ranges from 38% in North East to 61% in South East.
- Women in urban areas are more likely than women in rural areas to have seen or heard a malaria message in the past 6 months (55% versus 42%).

Figure 5.2 Exposure to social and behaviour change communication messages by state

Percentage of women age 15–49 who saw or heard a message on malaria in the last 6 months



5.2 KNOWLEDGE OF WAYS TO AVOID MALARIA

Better knowledge of ways to avoid and prevent malaria, such as increasing use of insecticide-treated nets (ITNs), is a foundational step towards changing behaviour. Women age 15–49 were asked if there are ways to avoid getting malaria. Women who said that there are ways to avoid getting malaria were further asked to report specific ways to avoid malaria. Eighty-one percent of women stated that there are ways to avoid getting malaria. Among those who said there are ways to avoid getting malaria, 83% cited sleeping under a mosquito net or ITN (Table 5.2.1).

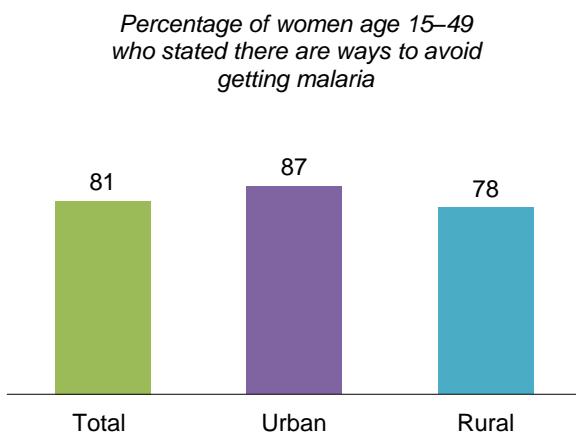
Other commonly cited measures included keeping one's surroundings clean (33%), using mosquito repellent (21%), spraying the house with insecticide (18%), filling in stagnant water (12%), taking preventive medications (11%), and putting mosquito screens on windows (6%) (**Table 5.2.1**).

Trends: The percentage of women age 15–49 who say there are ways to avoid getting malaria decreased from 93% in 2015 to 81% in 2021. However, among women who say there are ways to avoid getting malaria, the percentage who agree that sleeping inside a mosquito net helps to avoid malaria increased from 33% to 83% over the same period.

Patterns by background characteristics

- A higher percentage of women in urban areas (87%) than rural areas (78%) said that there are ways to avoid getting malaria (**Figure 5.3**).
- By state, the percentage of women who said that there are ways to avoid getting malaria ranges from 44% in Niger to 99% in Anambra (**Table 5.2.2**).
- Ninety-five percent of women with more than a secondary education said that there are ways to avoid getting malaria, as compared with 72% of women with no education.
- Among women who said there are ways to avoid getting malaria, the percentage who cite sleeping under a mosquito net or ITN as a way to avoid malaria ranges from 69% in South West to 93% in North East.

Figure 5.3 Knowledge that there are ways to avoid malaria by residence



5.3 PERCEIVED SUSCEPTIBILITY, SEVERITY, AND SELF-EFFICACY

Risk involves the following components: the likelihood of a specific event occurring (perceived susceptibility) multiplied by the magnitude of consequences associated with that event (perceived severity) (Douglas 1986). Self-efficacy refers to people's confidence in their ability to perform a specific behaviour.

During the survey, a series of statements were read to capture respondents' perceptions of malaria susceptibility, their beliefs regarding the severity of the consequences of malaria, and their perceived self-efficacy to perform specific malaria-related behaviours. Eighty-nine percent of women perceive that their families and communities are at risk for malaria, and 60% believe that the consequences of malaria are serious. Thirty-eight percent of women disagree that getting malaria is not a problem because it can be easily treated and 50% disagree that only weak children can die from malaria (**Table 5.3.1**).

Eighty-eight percent of women said that they are confident in their ability to perform specific malaria-related behaviours. This includes women who agree that they can sleep under a mosquito net for the entire night when there are lots of mosquitoes or agree that they can sleep under a mosquito net for the entire night when there are few mosquitoes (**Table 5.3.1**).

Trends: The percentage of women age 15–49 who disagree that only weak children can die from malaria increased from 30% in 2018 to 50% in 2021, while the percentage who disagree that getting malaria is not a problem because it can be easily treated decreased from 46% to 38%.

Patterns by background characteristics

- The percentage of women who perceive that their families and communities are at risk for malaria ranges from 83% in South East to 92% in South South (**Table 5.3.1**).
- A higher percentage of women in urban areas (62%) than in rural areas (59%) believe that the consequences of malaria are serious.
- The percentage of women who believe that the consequences of malaria are serious ranges from 53% each in North East and North West to 77% in South East.
- The percentage of women who feel that the consequences of malaria are serious increases with increasing household wealth, from 54% in the lowest wealth quintile to 64% in the highest wealth quintile.
- Women with more than a secondary education (67%) are more likely to feel that the consequences of malaria are serious than women with no education (53%).
- The percentage of women who are confident in their ability to perform specific malaria-related behaviours ranges from 82% in South South to 92% in North Central.
- By state, the percentage of women who are confident in their ability to perform specific malaria-related behaviours ranges from 67% in Ogun to 99% in Sokoto (**Table 5.3.2**).

5.4 ATTITUDES TOWARDS MALARIA-RELATED BEHAVIOURS AND PERCEPTIONS OF COMMUNITY NORMS

People who view a behaviour favourably or positively are more likely to adopt the behaviour. Those with favourable attitudes towards a behaviour anticipate beneficial outcomes (such as seeking prompt care to ensure peace of mind) or feel that the behaviour has positive attributes (such as sleeping under a net feels safe).

Women were asked whether they do not like sleeping under a mosquito net when the weather is too warm, whether it is best to start giving a child with a fever any medicine they have at home, and whether it is important that children take the full dose of medicine that they are prescribed for malaria. If they disagreed with either of the first two statements or agreed with the third statement, they were considered to have a favourable attitude towards specific malaria-related behaviours. Overall, 96% of women had a favourable attitude towards specific malaria behaviours (**Table 5.4.1**).

Beliefs about what others do and what others think we should do often guide our actions. These types of beliefs are called norms. Malaria programmes can influence behaviours if they portray certain behaviours as socially desirable or socially unacceptable. Sixty-four percent of women believe that most people in their community currently practise specific malaria-related behaviours (**Table 5.4.1**). This includes women who agree that people in their community usually take their children to a health care provider on the same day or the day after they develop a fever or agree that people in the community who have a mosquito net usually sleep under a mosquito net every night.

Patterns by background characteristics

- The percentage of women with a favourable attitude towards specific malaria behaviours ranges from 95% among those with no education to 98% among those with more than a secondary education.

- The percentage of women with a favourable attitude towards specific malaria-related behaviours increases with increasing household wealth, from 94% in the lowest wealth quintile to 98% in the highest quintile.
- The percentage of women who believe that the majority of people in their community currently practise specific malaria-related behaviours ranges from 49% in South South to 75% in North West.
- By state, the percentage of women who believe the majority of people in their community currently practise specific malaria-related behaviours ranges from 22% in Abia to 98% each in Bauchi and Sokoto (**Table 5.4.2**).

LIST OF TABLES

For detailed information on malaria beliefs and exposure to malaria messages, see the following tables:

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Table 5.1.1 Media exposure to malaria messages: National

Percentage of women age 15–49 who have seen or heard a malaria message in the last 6 months, and among those who have seen or heard a malaria message in the last 6 months, percentage who cite specific sources for malaria messages, according to background characteristics, Nigeria MHS 2021

| Background characteristic | Percentage who have seen or heard a malaria message in the past 6 months | Number of women | Source of exposure to malaria messages in the past 6 months | | | | | | | | | | Number of women who have seen or heard a message | |
|---------------------------|--|-----------------|---|------------|------------------|--------------------|------------------|----------------------|-------------------------|--------------|----------------|---------------------|--|-----|
| | | | Radio | Television | Poster/billboard | Newspaper/magazine | Leaflet/brochure | Health care provider | Community health worker | Social media | Town announcer | Community volunteer | Family/friends | |
| Age | | | | | | | | | | | | | | |
| 15–19 | 39.2 | 2,793 | 37.3 | 23.2 | 5.2 | 1.3 | 1.5 | 12.6 | 20.1 | 11.0 | 4.2 | 4.7 | 2.8 | 0.4 |
| 20–24 | 43.3 | 2,464 | 32.1 | 18.9 | 4.5 | 2.2 | 2.4 | 21.2 | 24.9 | 13.2 | 5.8 | 4.0 | 10.9 | 0.5 |
| 25–29 | 46.6 | 2,660 | 38.0 | 20.7 | 2.9 | 1.7 | 3.0 | 22.2 | 25.0 | 11.9 | 4.2 | 4.7 | 9.0 | 0.3 |
| 30–34 | 48.3 | 2,362 | 39.3 | 19.9 | 3.9 | 2.1 | 1.4 | 22.9 | 25.7 | 9.9 | 5.5 | 4.7 | 7.8 | 0.7 |
| 35–39 | 50.8 | 1,964 | 43.0 | 24.9 | 4.4 | 1.8 | 2.6 | 19.3 | 25.0 | 10.6 | 3.8 | 4.1 | 9.9 | 0.9 |
| 40–44 | 50.9 | 1,420 | 44.3 | 21.3 | 3.4 | 1.7 | 2.3 | 16.6 | 22.7 | 8.1 | 5.3 | 6.0 | 10.5 | 0.3 |
| 45–49 | 52.5 | 814 | 48.3 | 29.0 | 5.4 | 4.4 | 1.3 | 15.5 | 21.8 | 8.8 | 4.7 | 3.6 | 11.6 | 0.7 |
| Residence | | | | | | | | | | | | | | |
| Urban | 54.9 | 4,641 | 38.9 | 31.0 | 6.1 | 3.0 | 2.7 | 18.4 | 18.7 | 16.2 | 4.4 | 4.9 | 10.1 | 1.3 |
| Rural | 42.1 | 9,835 | 39.5 | 16.3 | 3.0 | 1.4 | 1.8 | 19.6 | 27.0 | 7.5 | 5.0 | 4.4 | 11.5 | 0.8 |
| Zone | | | | | | | | | | | | | | |
| North Central | 45.3 | 2,377 | 36.5 | 26.2 | 3.0 | 2.0 | 5.1 | 31.3 | 23.7 | 10.0 | 3.3 | 3.4 | 4.8 | 0.7 |
| North East | 37.6 | 2,399 | 24.9 | 12.7 | 5.7 | 1.1 | 0.5 | 18.2 | 29.8 | 4.1 | 8.4 | 1.7 | 18.4 | 0.0 |
| North West | 43.9 | 4,832 | 42.6 | 8.0 | 2.1 | 0.9 | 0.9 | 12.9 | 23.7 | 4.4 | 6.1 | 6.9 | 12.6 | 1.3 |
| South East | 60.6 | 1,111 | 54.3 | 35.9 | 4.6 | 3.3 | 1.7 | 14.5 | 26.6 | 21.0 | 0.7 | 3.5 | 6.5 | 0.8 |
| South South | 41.8 | 1,734 | 32.5 | 27.0 | 3.0 | 1.6 | 2.0 | 15.2 | 13.6 | 13.2 | 3.7 | 6.6 | 20.1 | 0.4 |
| South West | 59.0 | 2,023 | 42.1 | 38.9 | 8.1 | 4.0 | 3.2 | 24.8 | 24.4 | 20.9 | 4.0 | 3.0 | 4.9 | 0.3 |
| Education | | | | | | | | | | | | | | |
| No education ¹ | 34.1 | 5,156 | 37.3 | 3.9 | 1.4 | 0.5 | 0.7 | 17.5 | 30.1 | 0.3 | 7.8 | 5.2 | 10.6 | 0.4 |
| Primary | 45.6 | 2,089 | 39.8 | 11.8 | 2.5 | 0.0 | 1.5 | 17.4 | 31.7 | 2.4 | 5.7 | 5.1 | 11.9 | 0.4 |
| Secondary | 51.0 | 5,364 | 41.0 | 28.4 | 5.7 | 2.2 | 2.5 | 20.3 | 21.1 | 10.9 | 3.9 | 4.6 | 12.8 | 1.6 |
| More than secondary | 66.8 | 1,867 | 37.8 | 40.8 | 5.9 | 5.2 | 3.9 | 20.3 | 15.1 | 31.8 | 1.7 | 3.4 | 6.7 | 1.0 |
| Wealth quintile | | | | | | | | | | | | | | |
| Lowest | 29.9 | 2,651 | 26.7 | 0.9 | 1.2 | 0.2 | 0.6 | 16.3 | 38.5 | 0.2 | 7.4 | 3.2 | 14.8 | 0.6 |
| Second | 36.2 | 2,730 | 34.5 | 1.5 | 2.4 | 1.1 | 1.4 | 17.6 | 32.0 | 0.7 | 6.9 | 4.2 | 13.2 | 1.0 |
| Middle | 42.3 | 2,799 | 37.8 | 5.3 | 3.4 | 0.5 | 2.0 | 21.7 | 25.7 | 3.9 | 6.9 | 6.1 | 15.5 | 1.0 |
| Fourth | 55.7 | 3,006 | 44.6 | 24.5 | 3.0 | 1.1 | 1.4 | 17.9 | 21.1 | 8.7 | 4.5 | 5.1 | 9.8 | 1.1 |
| Highest | 62.4 | 3,289 | 42.8 | 47.4 | 7.5 | 4.8 | 3.8 | 20.5 | 15.5 | 25.5 | 1.7 | 3.9 | 6.7 | 1.1 |
| Total | 46.2 | 14,476 | 39.2 | 21.9 | 4.1 | 2.0 | 2.1 | 19.1 | 23.9 | 10.8 | 4.6 | 4.6 | 10.9 | 1.0 |

Note: More than one source may have been cited.

¹ No education includes informal education (adult education, Tsangaya, or Quranic).

Table 5.1.2 Media exposure to malaria messages: States

Percentage of women age 15–49 who have seen or heard a malaria message in the last 6 months, and among those who have seen or heard a malaria message in the last 6 months, percentage who cite specific sources for malaria messages, by state, Nigeria MIS 2021

| State | Percentage who have seen or heard a malaria message in the past 6 months | Sources of exposure to malaria messages in the past 6 months | | | | | | | | | | Number of women who have seen or heard a message | | | | |
|----------------------|--|--|-------------|-------------|------------------|--------------------|------------------|----------------------|-------------------------|--------------|----------------|--|----------------|------------|----------------|--------------|
| | | Number of women | Radio | Television | Poster/billboard | Newspaper/magazine | Leaflet/brochure | Health care provider | Community health worker | Social media | Town announcer | Community volunteer | Family/friends | Other | Don't remember | |
| North Central | | | | | | | | | | | | | | | | |
| FCT-Abuja | 54.5 | 238 | 20.4 | 57.1 | 3.0 | 2.3 | 6.2 | 38.3 | 12.3 | 25.9 | 1.0 | 4.5 | 17.1 | 0.0 | 0.0 | 130 |
| Benue | 38.6 | 418 | 27.0 | 21.1 | 3.2 | 1.2 | 7.3 | 29.8 | 37.7 | 9.8 | 0.0 | 2.9 | 1.9 | 0.0 | 0.0 | 161 |
| Kogi | 65.8 | 251 | 22.0 | 24.3 | 3.9 | 7.5 | 15.0 | 49.2 | 23.0 | 5.0 | 1.1 | 3.0 | 9.9 | 2.4 | 0.0 | 165 |
| Kwara | 63.0 | 277 | 65.9 | 30.3 | 1.8 | 2.0 | 1.2 | 9.3 | 12.2 | 21.9 | 0.0 | 3.3 | 0.0 | 0.5 | 1.5 | 175 |
| Nasarawa | 46.3 | 358 | 39.6 | 23.8 | 3.4 | 0.0 | 0.0 | 29.6 | 22.5 | 15.3 | 1.7 | 0.0 | 0.0 | 0.0 | 0.0 | 166 |
| Niger | 25.2 | 537 | 26.2 | 14.5 | 4.7 | 0.5 | 6.0 | 32.2 | 35.7 | 1.7 | 2.4 | 11.0 | 3.0 | 0.0 | 0.0 | 135 |
| Plateau | 48.9 | 298 | 48.9 | 15.0 | 0.9 | 0.0 | 0.3 | 33.6 | 23.4 | 4.3 | 0.3 | 2.0 | 3.2 | 0.0 | 0.0 | 146 |
| North East | | | | | | | | | | | | | | | | |
| Adamawa | 60.9 | 336 | 16.9 | 23.9 | 18.0 | 1.5 | 0.4 | 15.2 | 46.6 | 1.6 | 6.4 | 1.4 | 17.7 | 0.3 | 0.0 | 204 |
| Bauchi | 17.1 | 703 | 38.8 | 7.3 | 2.9 | 1.7 | 0.0 | 24.5 | 30.0 | 4.6 | 16.3 | 1.3 | 20.4 | 0.0 | 0.0 | 120 |
| Borno | 40.2 | 358 | 7.1 | 0.4 | 0.4 | 0.0 | 0.0 | 24.3 | 21.8 | 0.0 | 2.9 | 3.8 | 44.2 | 4.6 | 0.0 | 144 |
| Gombe | 51.1 | 279 | 25.7 | 6.8 | 0.0 | 0.0 | 0.0 | 10.1 | 15.0 | 6.8 | 20.9 | 0.0 | 16.9 | 0.8 | 0.0 | 143 |
| Taraba | 56.3 | 276 | 28.5 | 19.2 | 3.4 | 2.7 | 2.6 | 22.0 | 24.0 | 3.6 | 5.0 | 1.3 | 4.3 | 4.2 | 0.3 | 155 |
| Yobe | 30.4 | 447 | 38.6 | 12.3 | 3.7 | 0.0 | 0.0 | 15.1 | 35.2 | 9.4 | 0.9 | 2.8 | 8.2 | 0.3 | 0.0 | 136 |
| North West | | | | | | | | | | | | | | | | |
| Jigawa | 46.1 | 566 | 37.3 | 11.4 | 3.8 | 4.7 | 2.7 | 15.7 | 26.3 | 15.8 | 12.7 | 4.1 | 6.5 | 0.0 | 0.0 | 261 |
| Kaduna | 42.3 | 690 | 21.5 | 9.6 | 4.4 | 1.0 | 3.4 | 32.7 | 29.4 | 6.0 | 5.7 | 4.0 | 27.9 | 1.4 | 0.6 | 292 |
| Kano | 44.9 | 920 | 50.1 | 6.3 | 0.8 | 0.3 | 0.3 | 7.4 | 12.8 | 4.6 | 5.7 | 21.0 | 15.9 | 0.0 | 0.8 | 413 |
| Katsina | 47.3 | 1,362 | 32.8 | 8.3 | 0.0 | 0.2 | 0.0 | 12.0 | 35.0 | 2.2 | 3.7 | 2.9 | 12.5 | 0.4 | 0.0 | 643 |
| Kebbi | 35.2 | 613 | 60.7 | 2.4 | 0.0 | 0.0 | 0.0 | 10.6 | 20.7 | 0.5 | 2.6 | 7.6 | 4.3 | 1.1 | 1.1 | 216 |
| Sokoto | 44.1 | 399 | 66.2 | 1.0 | 0.0 | 0.0 | 0.0 | 1.6 | 6.6 | 0.0 | 11.8 | 1.0 | 6.6 | 0.0 | 11.4 | 176 |
| Zamfara | 42.6 | 282 | 65.6 | 21.2 | 15.6 | 1.7 | 0.6 | 3.9 | 11.6 | 0.5 | 12.5 | 0.8 | 1.1 | 0.0 | 0.0 | 120 |
| South East | | | | | | | | | | | | | | | | |
| Abia | 45.1 | 178 | 55.2 | 37.3 | 0.0 | 4.6 | 2.8 | 14.0 | 16.5 | 32.2 | 0.0 | 8.9 | 3.9 | 1.8 | 0.0 | 80 |
| Anambra | 85.8 | 283 | 58.8 | 52.6 | 11.5 | 6.5 | 2.0 | 18.4 | 32.8 | 34.9 | 0.0 | 1.2 | 5.2 | 0.7 | 0.0 | 243 |
| Ebonyi | 57.1 | 297 | 68.9 | 26.5 | 0.6 | 0.3 | 0.0 | 14.0 | 25.1 | 5.0 | 0.6 | 4.3 | 1.7 | 0.9 | 0.0 | 169 |
| Enugu | 64.3 | 204 | 31.2 | 24.9 | 1.1 | 0.0 | 3.2 | 5.4 | 27.6 | 11.6 | 2.4 | 4.2 | 13.4 | 1.0 | 0.0 | 131 |
| Imo | 33.1 | 149 | 42.3 | 13.1 | 1.1 | 4.8 | 0.0 | 22.5 | 15.0 | 13.8 | 1.0 | 1.1 | 15.0 | 1.0 | 0.0 | 49 |
| South South | | | | | | | | | | | | | | | | |
| Akwa Ibom | 48.9 | 478 | 51.4 | 21.2 | 2.5 | 0.8 | 1.9 | 16.0 | 11.6 | 14.5 | 6.8 | 1.2 | 32.8 | 0.0 | 0.6 | 233 |
| Bayelsa | 32.1 | 131 | 14.7 | 27.4 | 4.1 | 0.5 | 0.8 | 24.4 | 16.8 | 20.1 | 5.8 | 3.5 | 12.2 | 2.0 | 0.7 | 42 |
| Cross River | 49.9 | 224 | 31.1 | 22.9 | 8.8 | 6.3 | 3.0 | 21.0 | 21.6 | 12.9 | 1.2 | 6.3 | 16.6 | 0.0 | 112 | |
| Delta | 36.5 | 298 | 20.4 | 29.1 | 2.3 | 0.0 | 2.1 | 10.3 | 22.6 | 7.1 | 2.2 | 3.1 | 12.2 | 1.6 | 0.0 | 109 |
| Edo | 23.1 | 300 | 21.3 | 39.6 | 0.0 | 1.7 | 0.0 | 17.7 | 9.1 | 7.8 | 4.5 | 1.5 | 7.1 | 5.7 | 1.3 | 69 |
| Rivers | 52.5 | 304 | 23.8 | 31.2 | 1.4 | 0.5 | 2.5 | 9.6 | 16.0 | 1.6 | 23.6 | 24.2 | 0.8 | 0.0 | 0.0 | 160 |
| South West | | | | | | | | | | | | | | | | |
| Ekiti | 54.5 | 123 | 73.6 | 17.5 | 2.1 | 1.1 | 1.1 | 12.8 | 4.4 | 9.5 | 11.1 | 2.3 | 7.5 | 1.5 | 0.3 | 67 |
| Lagos | 47.2 | 620 | 15.1 | 42.5 | 2.6 | 0.9 | 1.5 | 30.7 | 10.0 | 24.8 | 1.3 | 2.3 | 4.3 | 0.6 | 0.0 | 292 |
| Ogun | 73.6 | 308 | 27.2 | 25.5 | 0.0 | 1.2 | 0.9 | 37.8 | 32.5 | 13.4 | 2.3 | 0.0 | 1.4 | 0.0 | 0.0 | 226 |
| Ondo | 47.9 | 156 | 36.1 | 12.8 | 1.0 | 0.9 | 0.4 | 15.3 | 12.8 | 16.1 | 0.8 | 5.9 | 16.6 | 0.5 | 3.1 | 75 |
| Osun | 46.4 | 320 | 51.6 | 20.9 | 0.7 | 2.5 | 0.0 | 7.8 | 26.9 | 13.1 | 4.3 | 15.5 | 14.4 | 0.3 | 0.0 | 149 |
| Oyo | 77.3 | 497 | 63.4 | 59.6 | 22.4 | 9.8 | 8.0 | 23.3 | 35.4 | 28.3 | 6.5 | 0.0 | 1.1 | 0.0 | 0.0 | 384 |
| Total | 46.2 | 14,476 | 39.2 | 21.9 | 4.1 | 2.0 | 2.1 | 19.1 | 23.9 | 10.8 | 4.8 | 4.6 | 10.9 | 1.0 | 0.5 | 6,692 |

Note: More than one source may have been cited.

Table 5.2.1. Knowledge of ways to avoid malaria: National

Percentage of women age 15–49 who state there are ways to avoid getting malaria, and among women who state there are ways to avoid getting malaria, percentage reporting specific ways to avoid getting malaria, according to background characteristics, Nigeria MIS 2021

| Background characteristic | Percentage who state there are ways to avoid getting malaria | Ways to avoid getting malaria | | | | | | | Number of women who state there are ways to avoid getting malaria |
|---------------------------|--|---------------------------------|------------------------|-----------------------------|------------------------------|----------------------------------|-------------------------|--------------------------------|---|
| | | Sleep under mosquito net or ITN | Use mosquito repellent | Take preventive medications | Spray house with insecticide | Fill in stagnant water (puddles) | Keep surroundings clean | Put mosquito screen on windows | |
| Age | | | | | | | | | |
| 15–19 | 78.8 | 2,793 | 85.1 | 24.6 | 10.5 | 11.1 | 32.5 | 4.9 | 0.1 |
| 20–24 | 80.3 | 2,464 | 85.0 | 20.2 | 11.2 | 29.8 | 5.3 | 0.3 | 2,200 |
| 25–29 | 79.9 | 2,660 | 82.5 | 18.8 | 10.6 | 10.9 | 33.7 | 3.5 | 1,978 |
| 30–34 | 81.6 | 2,362 | 82.9 | 18.7 | 9.3 | 19.2 | 13.6 | 5.6 | 2,125 |
| 35–39 | 83.5 | 1,964 | 80.9 | 19.9 | 11.2 | 20.4 | 13.6 | 32.3 | 1,927 |
| 40–44 | 81.9 | 1,420 | 80.9 | 20.4 | 11.8 | 18.4 | 11.6 | 31.6 | 1,639 |
| 45–49 | 82.7 | 814 | 81.9 | 20.2 | 11.8 | 21.6 | 13.5 | 35.2 | 673 |
| Residence | | | | | | | | | |
| Urban | 87.0 | 4,641 | 82.6 | 21.6 | 11.7 | 25.8 | 16.0 | 39.1 | 3.4 |
| Rural | 78.0 | 9,835 | 83.3 | 19.9 | 10.2 | 14.4 | 9.6 | 29.0 | 0.2 |
| Zone | | | | | | | | | |
| North Central | 76.7 | 2,377 | 86.2 | 10.2 | 10.8 | 28.4 | 17.4 | 34.1 | 3.6 |
| North East | 79.7 | 2,399 | 93.0 | 24.2 | 13.3 | 11.8 | 5.6 | 20.0 | 0.0 |
| North West | 80.8 | 4,832 | 85.9 | 28.0 | 5.6 | 9.5 | 6.7 | 17.3 | 1,911 |
| South East | 87.0 | 1,111 | 83.3 | 10.4 | 15.7 | 15.3 | 11.0 | 56.2 | 3,904 |
| South South | 72.3 | 1,734 | 74.8 | 15.7 | 15.2 | 25.4 | 15.3 | 47.5 | 966 |
| South West | 91.4 | 2,023 | 68.9 | 19.4 | 13.5 | 30.8 | 21.6 | 53.3 | 1,254 |
| Education | | | | | | | | | |
| No education ¹ | 72.3 | 5,156 | 86.7 | 22.7 | 5.9 | 7.7 | 3.5 | 13.3 | 0.8 |
| Primary | 77.7 | 2,089 | 81.7 | 21.1 | 11.8 | 12.7 | 8.5 | 26.6 | 0.2 |
| Secondary | 85.6 | 5,364 | 80.6 | 19.4 | 12.3 | 22.8 | 15.0 | 42.4 | 1,623 |
| More than secondary | 94.7 | 1,867 | 82.7 | 18.0 | 16.0 | 34.5 | 23.9 | 52.6 | 4,590 |
| Wealth quintile | | | | | | | | | |
| Lowest | 72.5 | 2,651 | 87.3 | 22.4 | 4.9 | 5.6 | 3.5 | 10.9 | 0.7 |
| Second | 72.5 | 2,730 | 86.7 | 22.9 | 7.7 | 8.0 | 4.6 | 17.3 | 0.1 |
| Middle | 78.3 | 2,799 | 85.2 | 18.7 | 10.5 | 15.7 | 9.5 | 28.7 | 1,979 |
| Fourth | 85.8 | 3,006 | 80.4 | 20.3 | 11.9 | 20.5 | 14.0 | 39.3 | 2,193 |
| Highest | 92.3 | 3,289 | 78.6 | 19.1 | 15.6 | 33.4 | 21.6 | 53.0 | 2,579 |
| Total | 80.9 | 14,476 | 83.0 | 20.5 | 10.8 | 18.4 | 11.8 | 32.5 | 3.1 |
| | | | | | | | | | 0.2 |
| | | | | | | | | | 11,707 |

Note: More than one source may have been cited.

ITN = insecticide-treated net (adult education, Tsangaya, or Quranic).

¹ No education includes informal education (adult education, Tsangaya, or Quranic).

Table 5.2.2 Knowledge of ways to avoid malaria: States

Percentage of women age 15–49 who state there are ways to avoid getting malaria, and among women who state there are ways to avoid getting malaria, percentage reporting specific ways to avoid getting malaria, by state, Nigeria MIS 2021

| State | Percentage who state there are ways to avoid getting malaria | Number of women | Ways to avoid getting malaria | | | | | | Number of women who state there are ways to avoid getting malaria | |
|----------------------|--|-----------------|---------------------------------|------------------------|-----------------------------|------------------------------|----------------------------------|-------------------------|---|--------|
| | | | Sleep under mosquito net or ITN | Use mosquito repellent | Take preventive medications | Spray house with insecticide | Fill in stagnant water (puddles) | Keep surroundings clean | Put mosquito screen on windows | |
| North Central | | | | | | | | | | |
| FCI-Abuja | 91.1 | 238 | 92.0 | 9.7 | 24.7 | 35.8 | 20.1 | 61.9 | 26.4 | 7.8 |
| Benue | 89.3 | 418 | 96.5 | 4.0 | 2.3 | 21.1 | 14.2 | 26.0 | 1.9 | 4.5 |
| Kogi | 78.3 | 251 | 54.8 | 10.2 | 19.6 | 47.4 | 27.6 | 39.0 | 3.3 | 1.5 |
| Kwara | 90.2 | 277 | 79.9 | 10.1 | 20.0 | 25.8 | 25.2 | 39.4 | 8.4 | 7.4 |
| Nasarawa | 80.6 | 358 | 87.6 | 9.9 | 7.3 | 23.5 | 8.7 | 23.5 | 1.2 | 1.0 |
| Niger | 43.7 | 537 | 87.6 | 14.0 | 6.5 | 13.9 | 4.9 | 14.9 | 3.1 | 2.4 |
| Plateau | 87.9 | 298 | 93.7 | 16.2 | 3.5 | 39.3 | 25.7 | 42.5 | 4.1 | 0.5 |
| North East | | | | | | | | | | |
| Adamawa | 97.2 | 336 | 98.2 | 12.8 | 21.7 | 16.1 | 6.6 | 18.4 | 2.4 | 4.1 |
| Bauchi | 65.8 | 703 | 89.6 | 21.0 | 9.2 | 10.6 | 3.7 | 14.5 | 1.1 | 0.2 |
| Borno | 69.4 | 358 | 96.1 | 34.8 | 8.7 | 6.2 | 7.0 | 6.9 | 0.8 | 0.3 |
| Gombe | 83.1 | 279 | 91.3 | 20.9 | 4.4 | 7.0 | 0.0 | 17.1 | 1.1 | 0.0 |
| Taraba | 91.5 | 276 | 84.0 | 23.7 | 27.9 | 15.1 | 6.5 | 44.5 | 2.8 | 2.3 |
| Yobe | 87.1 | 447 | 97.9 | 33.4 | 10.0 | 14.1 | 11.3 | 22.2 | 3.8 | 0.0 |
| North West | | | | | | | | | | |
| Jigawa | 77.4 | 566 | 92.3 | 13.3 | 6.7 | 4.5 | 3.6 | 24.9 | 2.6 | 0.7 |
| Kaduna | 70.8 | 690 | 81.3 | 26.7 | 6.2 | 7.9 | 20.3 | 32.9 | 5.6 | 5.6 |
| Kano | 93.6 | 920 | 96.8 | 26.3 | 10.3 | 17.0 | 6.1 | 17.6 | 7.3 | 0.3 |
| Katsina | 87.3 | 1,362 | 77.8 | 41.8 | 2.0 | 5.7 | 5.8 | 10.6 | 0.2 | 0.0 |
| Kebbi | 60.8 | 613 | 81.1 | 14.6 | 2.9 | 5.4 | 3.5 | 25.7 | 2.0 | 0.0 |
| Sokoto | 86.2 | 399 | 86.3 | 14.9 | 3.8 | 13.8 | 0.6 | 3.7 | 0.5 | 0.0 |
| Zamfara | 74.9 | 282 | 93.1 | 36.5 | 9.5 | 14.5 | 5.1 | 9.4 | 1.8 | 0.0 |
| South East | | | | | | | | | | |
| Abia | 81.3 | 178 | 67.7 | 9.0 | 25.9 | 30.6 | 9.2 | 65.8 | 17.1 | 7.8 |
| Anambra | 98.5 | 283 | 85.3 | 25.9 | 28.6 | 16.7 | 20.5 | 72.2 | 32.3 | 0.7 |
| Ebonyi | 81.9 | 297 | 92.8 | 0.5 | 5.7 | 10.0 | 9.0 | 45.5 | 2.4 | 2.9 |
| Enugu | 91.5 | 204 | 91.0 | 1.0 | 5.2 | 6.8 | 2.6 | 41.7 | 8.8 | 0.0 |
| Imo | 75.7 | 149 | 65.2 | 10.8 | 9.9 | 17.9 | 8.4 | 51.9 | 8.3 | 4.5 |
| South South | | | | | | | | | | |
| Akwa Ibom | 68.4 | 478 | 75.6 | 6.5 | 11.6 | 29.4 | 10.7 | 48.2 | 11.4 | 5.3 |
| Bayelsa | 56.0 | 131 | 72.2 | 15.3 | 11.1 | 22.4 | 12.0 | 35.0 | 3.4 | 17.0 |
| Cross River | 85.9 | 224 | 86.9 | 40.5 | 47.0 | 23.8 | 15.7 | 42.9 | 0.8 | 11.0 |
| Delta | 67.2 | 298 | 63.8 | 8.3 | 6.6 | 12.6 | 12.2 | 47.2 | 3.9 | 6.3 |
| Edo | 76.7 | 300 | 68.3 | 8.6 | 7.0 | 35.3 | 17.1 | 58.7 | 12.7 | 3.3 |
| Rivers | 76.2 | 304 | 80.1 | 21.8 | 10.5 | 23.0 | 23.1 | 43.1 | 10.6 | 4.9 |
| South West | | | | | | | | | | |
| Ekiti | 94.9 | 123 | 86.4 | 34.2 | 14.1 | 48.6 | 17.7 | 48.7 | 12.8 | 1.8 |
| Lagos | 88.1 | 620 | 49.3 | 11.1 | 12.0 | 44.8 | 19.9 | 46.1 | 9.3 | 12.9 |
| Ogun | 86.2 | 308 | 67.2 | 21.8 | 8.6 | 7.0 | 6.4 | 40.9 | 0.8 | 1.1 |
| Ondo | 87.3 | 156 | 62.8 | 16.9 | 15.9 | 26.5 | 10.0 | 39.6 | 12.9 | 6.1 |
| Osun | 92.5 | 320 | 64.8 | 4.1 | 13.9 | 13.0 | 23.0 | 73.2 | 2.1 | 16.1 |
| Oyo | 98.3 | 497 | 91.7 | 33.9 | 16.7 | 35.6 | 34.9 | 60.8 | 22.6 | 0.0 |
| Total | 80.9 | 14,476 | 83.0 | 20.5 | 10.8 | 18.4 | 11.8 | 32.5 | 6.2 | 3.1 |
| | | | | | | | | | 0.2 | 11,707 |

Note: More than one source may have been cited.
ITN = insecticide-treated net

Table 5.3.1 Malaria susceptibility, severity, and self-efficacy: National

Percentage of women age 15–49 who express specific perceptions about malaria susceptibility, percentage who express specific perceptions about the severity of malaria, and percentage who express specific perceptions about self-efficacy, according to background characteristics, Nigeria MIS 2021

| Background characteristic | Perceived susceptibility | | | Perceived severity | | | Perceived self-efficacy | | | Number of women |
|------------------------------------|---|--|---|--|--|---|--|--|---|-----------------|
| | Percentage who disagree that people in the community get malaria only during the rainy season | Percentage who agree that when a child has a fever, they almost always worry it might be malaria | Percentage who perceive that their families and communities are at risk from malaria ¹ | Percentage who disagree that getting malaria is not a problem because it can be easily treated | Percentage who disagree that only weak children can die from malaria | Percentage who feel that the consequences of malaria are serious ² | Percentage who agree that they can sleep under a mosquito net for the entire night when there are lots of mosquitoes | Percentage who agree that they can sleep under a mosquito net for the entire night when there are few mosquitoes | Percentage who are confident in their ability to perform specific malaria-related behaviours ³ | |
| Age | | | | | | | | | | |
| 15–19 | 20.9 | 77.0 | 84.0 | 41.1 | 48.7 | 59.7 | 83.8 | 74.9 | 87.5 | 2,793 |
| 20–24 | 21.0 | 82.7 | 89.2 | 38.2 | 49.9 | 57.9 | 86.3 | 77.1 | 89.6 | 2,464 |
| 25–29 | 21.3 | 84.6 | 90.2 | 38.0 | 51.7 | 60.7 | 86.1 | 77.7 | 89.4 | 2,660 |
| 30–34 | 23.5 | 83.5 | 89.8 | 37.8 | 50.4 | 60.1 | 84.2 | 76.1 | 88.0 | 2,362 |
| 35–39 | 26.5 | 82.0 | 89.5 | 37.0 | 52.4 | 61.3 | 83.9 | 77.0 | 86.9 | 1,964 |
| 40–44 | 25.7 | 81.2 | 90.6 | 36.5 | 48.8 | 59.2 | 82.9 | 73.5 | 86.4 | 1,420 |
| 45–49 | 26.1 | 82.9 | 91.2 | 34.5 | 49.1 | 56.8 | 83.9 | 76.6 | 86.7 | 814 |
| Living children under age 5 | | | | | | | | | | |
| One or more | 21.7 | 84.0 | 90.2 | 37.5 | 49.1 | 58.1 | 86.1 | 77.7 | 89.4 | 7,637 |
| None | 24.4 | 79.5 | 87.2 | 38.8 | 51.6 | 61.3 | 83.0 | 74.6 | 86.6 | 6,839 |
| Residence | | | | | | | | | | |
| Urban | 24.7 | 82.0 | 89.2 | 35.1 | 54.1 | 61.7 | 84.7 | 76.6 | 87.7 | 4,641 |
| Rural | 22.1 | 81.8 | 88.6 | 39.6 | 48.5 | 58.7 | 84.6 | 76.1 | 88.2 | 9,835 |
| Zone | | | | | | | | | | |
| North Central | 28.5 | 83.1 | 89.0 | 51.1 | 59.5 | 71.8 | 89.1 | 81.9 | 91.5 | 2,377 |
| North East | 8.3 | 85.8 | 88.1 | 37.4 | 41.3 | 53.3 | 86.9 | 80.3 | 91.0 | 2,399 |
| North West | 13.0 | 82.1 | 88.8 | 40.8 | 42.5 | 52.7 | 85.7 | 73.9 | 88.9 | 4,832 |
| South East | 33.0 | 72.5 | 83.3 | 42.5 | 69.2 | 76.9 | 81.5 | 74.7 | 85.2 | 1,111 |
| South South | 44.2 | 83.9 | 91.9 | 30.8 | 56.1 | 61.6 | 79.4 | 70.3 | 82.3 | 1,734 |
| South West | 33.9 | 78.5 | 89.5 | 21.3 | 53.1 | 58.2 | 80.6 | 76.3 | 85.0 | 2,023 |
| Education | | | | | | | | | | |
| No education ⁴ | 14.5 | 81.8 | 87.7 | 39.5 | 42.2 | 52.9 | 84.6 | 74.1 | 88.8 | 5,156 |
| Primary | 21.9 | 82.4 | 88.8 | 38.1 | 50.7 | 59.9 | 85.1 | 77.6 | 88.1 | 2,089 |
| Secondary | 28.2 | 81.2 | 89.3 | 37.8 | 54.1 | 63.5 | 85.1 | 77.5 | 88.1 | 5,364 |
| More than secondary | 32.3 | 83.1 | 90.0 | 35.3 | 61.0 | 66.9 | 83.0 | 77.1 | 85.9 | 1,867 |
| Wealth quintile | | | | | | | | | | |
| Lowest | 14.0 | 79.3 | 85.1 | 41.6 | 42.1 | 54.2 | 81.8 | 71.6 | 86.1 | 2,651 |
| Second | 14.5 | 83.1 | 88.6 | 39.4 | 44.6 | 55.2 | 86.6 | 76.9 | 90.4 | 2,730 |
| Middle | 24.3 | 83.9 | 90.9 | 39.7 | 50.1 | 59.8 | 87.4 | 79.2 | 90.7 | 2,799 |
| Fourth | 27.0 | 82.6 | 90.7 | 39.1 | 53.9 | 63.3 | 84.4 | 76.1 | 87.2 | 3,006 |
| Highest | 32.3 | 80.4 | 88.3 | 32.1 | 58.4 | 64.2 | 83.3 | 77.0 | 86.2 | 3,289 |
| Total | 22.9 | 81.8 | 88.8 | 38.1 | 50.3 | 59.6 | 84.7 | 76.2 | 88.1 | 14,476 |

¹ Includes women who disagree that people in the community get malaria only during the rainy season or agree that when a child has a fever, they almost always worry it might be malaria

² Includes women who disagree that getting malaria is not a problem because it can be easily treated or disagree that only weak children can die from malaria

³ Includes women who agree that they can sleep under a mosquito net for the entire night when there are lots of mosquitoes or agree that they can sleep under a mosquito net for the entire night when there are few mosquitoes

⁴ No education includes informal education (adult education, Tsangaya, or Quranic).

Table 5.3.2 Malaria susceptibility, severity, and self-efficacy: States

Percentage of women age 15–49 who express specific perceptions about malaria susceptibility, percentage who express specific perceptions about the severity of malaria, and percentage who express specific perceptions about self-efficacy, by state, Nigeria MIS 2021

| State | Perceived susceptibility | | | Perceived severity | | | Perceived self-efficacy | | | Number of women |
|----------------------|---|--|---|--|--|---|--|--|---|-----------------|
| | Percentage who disagree that people in the community get malaria only during the rainy season | Percentage who agree that when a child has a fever, they almost always worry it might be malaria | Percentage who perceive that their families and communities are at risk from malaria ¹ | Percentage who disagree that getting malaria is not a problem because it can be easily treated | Percentage who disagree that only weak children can die from malaria | Percentage who feel that the consequences of malaria are serious ² | Percentage who agree that they can sleep under a mosquito net for the entire night when there are lots of mosquitoes | Percentage who agree that they can sleep under a mosquito net for the entire night when there are few mosquitoes | Percentage who are confident in their ability to perform specific malaria-related behaviours ³ | |
| North Central | | | | | | | | | | |
| FCT-Abuja | 37.9 | 94.1 | 96.8 | 41.4 | 55.0 | 61.2 | 90.9 | 82.0 | 93.8 | 238 |
| Benue | 45.6 | 87.5 | 95.3 | 64.4 | 34.9 | 73.3 | 96.1 | 93.2 | 97.7 | 418 |
| Kogi | 33.4 | 80.2 | 83.2 | 51.6 | 82.7 | 87.2 | 78.4 | 78.6 | 81.9 | 251 |
| Kwara | 16.9 | 85.8 | 88.6 | 43.9 | 70.6 | 77.0 | 91.1 | 90.8 | 93.1 | 277 |
| Nasarawa | 29.6 | 75.0 | 82.7 | 59.0 | 65.9 | 71.2 | 85.3 | 75.8 | 86.5 | 358 |
| Niger | 19.3 | 79.7 | 88.1 | 43.0 | 57.0 | 66.7 | 87.6 | 72.6 | 92.0 | 537 |
| Plateau | 18.6 | 83.7 | 88.7 | 51.5 | 65.0 | 70.5 | 91.9 | 84.4 | 92.6 | 298 |
| North East | | | | | | | | | | |
| Adamawa | 8.4 | 87.4 | 89.9 | 55.5 | 54.0 | 67.7 | 98.1 | 92.5 | 98.4 | 336 |
| Bauchi | 8.6 | 95.3 | 96.6 | 28.7 | 22.0 | 38.7 | 91.8 | 80.4 | 95.6 | 703 |
| Borno | 4.3 | 86.3 | 87.3 | 26.3 | 47.0 | 52.5 | 82.1 | 78.6 | 86.7 | 358 |
| Gombe | 7.1 | 91.1 | 93.7 | 24.3 | 36.4 | 43.3 | 90.3 | 87.3 | 95.5 | 279 |
| Taraba | 12.8 | 86.2 | 91.3 | 24.2 | 38.3 | 45.1 | 85.7 | 78.6 | 89.3 | 276 |
| Yobe | 8.8 | 65.7 | 68.6 | 62.6 | 62.5 | 77.3 | 73.5 | 68.8 | 79.9 | 447 |
| North West | | | | | | | | | | |
| Jigawa | 4.2 | 93.1 | 95.5 | 10.9 | 16.5 | 20.0 | 90.3 | 84.5 | 93.2 | 566 |
| Kaduna | 14.5 | 90.4 | 93.7 | 25.8 | 37.9 | 48.8 | 94.8 | 84.5 | 96.3 | 690 |
| Kano | 4.9 | 93.0 | 93.7 | 46.2 | 48.8 | 50.5 | 95.2 | 90.0 | 97.0 | 920 |
| Katsina | 23.3 | 57.5 | 76.8 | 71.9 | 59.5 | 81.7 | 69.0 | 52.0 | 72.7 | 1,362 |
| Kebbi | 18.0 | 85.9 | 88.0 | 37.1 | 39.7 | 48.0 | 86.0 | 69.1 | 91.3 | 613 |
| Sokoto | 0.8 | 98.5 | 98.5 | 11.9 | 13.9 | 17.6 | 98.9 | 82.2 | 99.3 | 399 |
| Zamfara | 10.0 | 90.8 | 93.7 | 18.6 | 50.5 | 55.3 | 84.0 | 78.3 | 94.0 | 282 |
| South East | | | | | | | | | | |
| Abia | 24.8 | 69.6 | 76.0 | 38.5 | 66.1 | 74.0 | 69.2 | 52.0 | 69.9 | 178 |
| Anambra | 20.2 | 61.8 | 75.5 | 45.9 | 67.5 | 75.5 | 79.3 | 77.3 | 85.3 | 283 |
| Ebonyi | 53.2 | 80.0 | 93.6 | 32.1 | 74.3 | 78.0 | 92.2 | 81.9 | 93.3 | 297 |
| Enugu | 18.0 | 72.4 | 78.1 | 51.4 | 77.8 | 85.8 | 79.9 | 79.3 | 88.7 | 204 |
| Imo | 47.5 | 81.6 | 93.7 | 49.2 | 53.9 | 68.9 | 81.5 | 76.4 | 82.5 | 149 |
| South South | | | | | | | | | | |
| Akwa Ibom | 53.1 | 83.8 | 93.7 | 35.2 | 72.2 | 76.0 | 81.4 | 67.9 | 84.2 | 478 |
| Bayelsa | 52.7 | 86.2 | 94.4 | 21.9 | 46.9 | 54.1 | 73.6 | 60.2 | 77.1 | 131 |
| Cross River | 27.4 | 93.2 | 96.4 | 7.4 | 30.6 | 32.8 | 95.6 | 85.7 | 96.5 | 224 |
| Delta | 36.7 | 79.5 | 90.1 | 35.2 | 54.9 | 59.9 | 67.0 | 60.6 | 71.6 | 298 |
| Edo | 26.1 | 83.7 | 88.7 | 24.3 | 45.0 | 52.4 | 81.6 | 75.6 | 83.5 | 300 |
| Rivers | 64.0 | 80.3 | 89.4 | 47.1 | 65.6 | 74.3 | 77.1 | 71.2 | 80.3 | 304 |
| South West | | | | | | | | | | |
| Ekiti | 45.2 | 80.1 | 94.5 | 17.9 | 39.8 | 46.9 | 79.0 | 73.0 | 80.6 | 123 |
| Lagos | 36.7 | 78.9 | 87.7 | 21.7 | 55.4 | 59.2 | 81.3 | 73.1 | 84.6 | 620 |
| Ogun | 28.9 | 70.2 | 84.4 | 36.7 | 66.6 | 76.0 | 57.7 | 60.1 | 67.3 | 308 |
| Ondo | 20.7 | 78.6 | 83.1 | 32.5 | 53.4 | 63.6 | 87.9 | 82.6 | 90.7 | 156 |
| Osun | 39.1 | 79.7 | 90.8 | 11.6 | 51.3 | 54.1 | 85.3 | 83.0 | 91.4 | 320 |
| Oyo | 31.4 | 82.1 | 94.8 | 14.8 | 46.2 | 49.9 | 89.0 | 85.0 | 91.8 | 497 |
| Total | 22.9 | 81.8 | 88.8 | 38.1 | 50.3 | 59.6 | 84.7 | 76.2 | 88.1 | 14,476 |

¹ Includes women who disagree that people in the community get malaria only during the rainy season or agree that when a child has a fever, they almost always worry it might be malaria

² Includes women who disagree that getting malaria is not a problem because it can be easily treated or disagree that only weak children can die from malaria

³ Includes women who agree that they can sleep under a mosquito net for the entire night when there are lots of mosquitoes or agree that they can sleep under a mosquito net for the entire night when there are few mosquitoes

Table 5.4.1 Attitudes towards malaria-related behaviours and malaria norms: National

Percentage of women age 15–49 who express specific attitudes regarding malaria-related behaviours, percentage with favourable attitudes towards specific malaria-related behaviours, percentage who express specific perceptions regarding community norms, and percentage who believe the majority of people in their community currently practise specific malaria-related behaviours, according to background characteristics, Nigeria MIS 2021

| Background characteristic | Attitudes towards malaria-related behaviours | | | | Perceptions of community norms | | | | Number of women |
|------------------------------------|--|--|---|--|---|--|--|--------|-----------------|
| | Percentage who disagree that they do not like sleeping under a mosquito net when the weather is too warm | Percentage who disagree that when a child has a fever, it is best to start giving the child any medicine that you have at home | Percentage who agree that it is important that children take the full dose of medicine that they are prescribed for malaria | Percentage who have a favourable attitude towards specific malaria-behaviours ¹ | Percentage who agree that people in the community usually take their children to a health care provider on the same day or the day after they develop a fever | Percentage who agree that people in the community usually sleep under a mosquito net every night | Percentage who believe the majority of people in their community currently practise specific malaria-related behaviours ² | | |
| Age | | | | | | | | | |
| 15–19 | 38.7 | 37.7 | 88.1 | 95.3 | 49.4 | 51.2 | 62.1 | 2,793 | |
| 20–24 | 38.2 | 38.6 | 89.4 | 96.0 | 55.8 | 53.9 | 66.5 | 2,464 | |
| 25–29 | 34.6 | 36.0 | 90.5 | 96.9 | 53.1 | 50.8 | 63.5 | 2,660 | |
| 30–34 | 36.4 | 38.6 | 91.8 | 97.0 | 52.0 | 51.3 | 63.5 | 2,362 | |
| 35–39 | 36.4 | 44.1 | 89.9 | 96.1 | 50.7 | 49.7 | 63.0 | 1,964 | |
| 40–44 | 37.1 | 39.9 | 91.2 | 96.4 | 50.7 | 51.1 | 62.1 | 1,420 | |
| 45–49 | 37.1 | 45.5 | 87.9 | 97.0 | 52.6 | 53.6 | 65.0 | 814 | |
| Living children under age 5 | | | | | | | | | |
| One or more | 35.8 | 35.3 | 90.5 | 96.5 | 54.9 | 54.4 | 65.8 | 7,637 | |
| None | 38.2 | 43.7 | 89.3 | 96.1 | 48.9 | 48.3 | 61.2 | 6,839 | |
| Residence | | | | | | | | | |
| Urban | 36.2 | 49.3 | 90.7 | 97.3 | 51.8 | 48.5 | 61.8 | 4,641 | |
| Rural | 37.3 | 34.5 | 89.5 | 95.9 | 52.2 | 53.0 | 64.5 | 9,835 | |
| Zone | | | | | | | | | |
| North Central | 34.5 | 49.4 | 91.2 | 95.6 | 47.4 | 45.2 | 59.0 | 2,377 | |
| North East | 30.2 | 34.0 | 88.1 | 94.3 | 60.9 | 63.6 | 74.0 | 2,399 | |
| North West | 40.2 | 18.1 | 90.6 | 96.7 | 60.8 | 64.7 | 74.8 | 4,832 | |
| South East | 44.0 | 47.4 | 89.7 | 95.8 | 40.4 | 35.0 | 50.1 | 1,111 | |
| South South | 40.5 | 62.5 | 92.6 | 97.8 | 41.3 | 31.0 | 48.9 | 1,734 | |
| South West | 33.0 | 59.5 | 86.9 | 97.5 | 41.8 | 39.9 | 50.2 | 2,023 | |
| Education | | | | | | | | | |
| No education ³ | 36.1 | 22.1 | 87.8 | 95.2 | 55.5 | 59.0 | 68.6 | 5,156 | |
| Primary | 37.5 | 34.5 | 89.7 | 95.7 | 53.3 | 56.5 | 66.5 | 2,089 | |
| Secondary | 38.6 | 49.4 | 90.6 | 97.0 | 49.8 | 47.2 | 60.5 | 5,364 | |
| More than secondary | 33.9 | 62.3 | 93.8 | 98.1 | 47.9 | 37.9 | 55.7 | 1,867 | |
| Wealth quintile | | | | | | | | | |
| Lowest | 34.6 | 23.4 | 86.3 | 94.0 | 50.6 | 57.1 | 66.4 | 2,651 | |
| Second | 38.2 | 24.4 | 89.0 | 96.2 | 59.0 | 62.6 | 72.0 | 2,730 | |
| Middle | 36.1 | 36.4 | 90.4 | 95.8 | 54.3 | 53.1 | 65.4 | 2,799 | |
| Fourth | 38.8 | 44.4 | 90.7 | 96.9 | 50.7 | 47.7 | 60.8 | 3,006 | |
| Highest | 36.7 | 62.0 | 92.5 | 98.1 | 46.9 | 40.0 | 55.5 | 3,289 | |
| Total | 36.9 | 39.2 | 89.9 | 96.3 | 52.1 | 51.5 | 63.6 | 14,476 | |

¹ Includes women who disagree that they do not like sleeping under a mosquito net when the weather is too warm, disagree that when a child has a fever it is best to start by giving the child any medicine they have at home, or agree that it is important that children take the full dose of medicine that they are prescribed for malaria

² Includes women who agree that people in the community usually take their children to a health care provider on the same day or day after they develop a fever or agree that people in the community who have a mosquito net usually sleep under a mosquito net every night

³ No education includes informal education (adult education, Tsangaya, or Quranic).

Table 5.4.2 Attitudes towards malaria-related behaviours and malaria norms: States

Percentage of women age 15–49 who express specific attitudes regarding malaria-related behaviours, percentage with favourable attitudes towards specific malaria-related behaviours, percentage who express specific perceptions regarding community norms, and percentage who believe the majority of people in their community currently practise specific malaria-related behaviours, by state, Nigeria MIS 2021

| State | Attitudes towards malaria-related behaviours | | | | Perceptions of community norms | | | | Number of women |
|----------------------|--|--|---|--|---|--|--|--------|-----------------|
| | Percentage who disagree that they do not like sleeping under a mosquito net when the weather is too warm | Percentage who disagree that when a child has a fever, it is best to start giving the child any medicine that you have at home | Percentage who agree that it is important that children take the full dose of medicine that they are prescribed for malaria | Percentage who have a favourable attitude towards specific malaria-behaviours ¹ | Percentage who agree that people in the community usually take their children to a health care provider on the same day or the day after they develop a fever | Percentage who agree that people in the community who have a mosquito net usually sleep under a mosquito net every night | Percentage who believe the majority of people in their community currently practise specific malaria-related behaviours ² | | |
| North Central | | | | | | | | | |
| FCT-Abuja | 22.7 | 55.5 | 97.5 | 99.2 | 72.8 | 62.2 | 80.7 | 238 | |
| Benue | 40.5 | 87.5 | 94.9 | 98.1 | 47.7 | 68.4 | 79.8 | 418 | |
| Kogi | 42.4 | 57.1 | 95.8 | 99.0 | 47.5 | 31.0 | 54.2 | 251 | |
| Kwara | 30.9 | 66.1 | 90.6 | 96.4 | 48.3 | 42.7 | 55.0 | 277 | |
| Nasarawa | 43.5 | 31.5 | 85.4 | 89.7 | 47.2 | 39.1 | 51.2 | 358 | |
| Niger | 36.2 | 19.2 | 87.0 | 94.0 | 48.1 | 47.5 | 59.8 | 537 | |
| Plateau | 18.5 | 45.2 | 92.4 | 95.9 | 25.0 | 16.9 | 28.1 | 298 | |
| North East | | | | | | | | | |
| Adamawa | 41.4 | 37.0 | 98.4 | 99.7 | 57.7 | 47.4 | 73.8 | 336 | |
| Bauchi | 31.2 | 17.7 | 94.7 | 98.0 | 90.2 | 94.1 | 97.7 | 703 | |
| Borno | 17.9 | 37.3 | 82.2 | 94.0 | 65.2 | 59.1 | 70.6 | 358 | |
| Gombe | 19.7 | 49.1 | 94.8 | 98.4 | 42.4 | 52.3 | 62.0 | 279 | |
| Taraba | 25.5 | 38.4 | 87.0 | 92.3 | 52.8 | 51.4 | 61.2 | 276 | |
| Yobe | 39.6 | 42.4 | 71.0 | 83.4 | 30.1 | 46.1 | 54.9 | 447 | |
| North West | | | | | | | | | |
| Jigawa | 26.0 | 11.7 | 91.1 | 94.2 | 84.9 | 85.2 | 91.4 | 566 | |
| Kaduna | 33.3 | 28.4 | 95.1 | 99.3 | 62.5 | 58.2 | 70.9 | 690 | |
| Kano | 38.6 | 9.9 | 91.0 | 96.4 | 72.9 | 71.6 | 77.5 | 920 | |
| Katsina | 57.5 | 23.9 | 84.6 | 95.7 | 29.6 | 47.0 | 57.4 | 1,362 | |
| Kebbi | 36.0 | 14.7 | 92.6 | 97.5 | 57.5 | 56.1 | 76.8 | 613 | |
| Sokoto | 29.1 | 8.7 | 99.6 | 100.0 | 95.7 | 94.5 | 97.5 | 399 | |
| Zamfara | 32.0 | 24.6 | 88.5 | 94.5 | 77.6 | 79.0 | 89.7 | 282 | |
| South East | | | | | | | | | |
| Abia | 40.6 | 29.6 | 78.3 | 85.0 | 17.8 | 13.4 | 21.8 | 178 | |
| Anambra | 52.5 | 64.0 | 94.6 | 98.9 | 41.5 | 39.2 | 49.7 | 283 | |
| Ebonyi | 29.3 | 38.3 | 95.3 | 98.4 | 43.0 | 41.3 | 57.5 | 297 | |
| Enugu | 58.4 | 59.9 | 80.7 | 94.6 | 58.7 | 50.4 | 71.1 | 204 | |
| Imo | 41.5 | 38.4 | 94.9 | 99.6 | 35.2 | 18.8 | 40.7 | 149 | |
| South South | | | | | | | | | |
| Akwa Ibom | 38.9 | 51.2 | 92.6 | 97.2 | 20.9 | 11.8 | 26.7 | 478 | |
| Bayelsa | 40.5 | 55.7 | 88.5 | 95.7 | 24.0 | 30.3 | 40.8 | 131 | |
| Cross River | 32.0 | 37.3 | 97.6 | 99.6 | 87.4 | 77.9 | 90.7 | 224 | |
| Delta | 46.9 | 69.4 | 89.9 | 95.5 | 42.9 | 36.9 | 51.1 | 298 | |
| Edo | 40.2 | 82.7 | 90.1 | 100.0 | 48.3 | 26.5 | 54.6 | 300 | |
| Rivers | 43.2 | 75.0 | 95.8 | 98.3 | 38.5 | 25.4 | 48.6 | 304 | |
| South West | | | | | | | | | |
| Ekiti | 47.1 | 38.1 | 92.3 | 98.9 | 35.3 | 36.7 | 44.6 | 123 | |
| Lagos | 24.7 | 77.1 | 93.5 | 98.6 | 33.0 | 33.2 | 42.7 | 620 | |
| Ogun | 32.2 | 35.4 | 67.7 | 95.7 | 35.1 | 37.2 | 47.9 | 308 | |
| Ondo | 38.2 | 37.4 | 83.7 | 92.7 | 29.6 | 24.4 | 34.4 | 156 | |
| Osun | 40.4 | 68.2 | 88.3 | 98.5 | 60.0 | 49.0 | 66.6 | 320 | |
| Oyo | 33.8 | 59.1 | 89.3 | 97.7 | 50.6 | 49.9 | 56.8 | 497 | |
| Total | 36.9 | 39.2 | 89.9 | 96.3 | 52.1 | 51.5 | 63.6 | 14,476 | |

¹ Includes women who disagree that they do not like sleeping under a mosquito net when the weather is too warm, disagree that when a child has a fever it is best to start by giving the child any medicine they have at home, or agree that it is important that children take the full dose of medicine that they are prescribed for malaria

² Includes women who agree that people in the community usually take their children to a health care provider on the same day or day after they develop a fever or agree that people in the community who have a mosquito net usually sleep under a mosquito net every night

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A.1 INTRODUCTION

The 2021 Nigeria Malaria Indicator Survey (NMIS) is a representative probability sample designed to produce estimates for the country as a whole, for urban and rural areas separately, for each of the six geographic zones, and for each of the country's 36 states and the Federal Capital Territory (FCT). Nigeria's geographic zones are as follows:

1. North Central: Benue, Kogi, Kwara, Nasarawa, Niger, Plateau, and FCT
2. North East: Adamawa, Bauchi, Borno, Gombe, Taraba, and Yobe
3. North West: Jigawa, Kaduna, Kano, Katsina, Kebbi, Sokoto, and Zamfara
4. South East: Abia, Anambra, Ebonyi, Enugu, and Imo
5. South South: Akwa Ibom, Bayelsa, Cross River, Delta, Edo, and Rivers
6. South West: Ekiti, Lagos, Ogun, Ondo, Osun, and Oyo

In addition, Bonny Island in Rivers State was oversampled, so the Bonny Island local government area (LGA) sample can be considered as representing a baseline survey to measure the impact of a planned project to transform the island to a malaria-free zone.

A.2 SAMPLE FRAME

The sampling frame used for the 2021 NMIS was the cartographic frame of the National Population Commission (NPC) for the proposed 2023 Population and Housing Census (PHC). Administratively, Nigeria is divided into states. Each state is subdivided into LGAs, each LGA is divided into wards, and wards are further subdivided into localities. In addition to these administrative units, localities are subdivided into convenient areas called census enumeration areas (EAs). The primary sampling unit (PSU), referred to as a cluster for the 2021 NMIS, was defined on the basis of the EAs from the census frame for the proposed 2023 PHC.

Table A.1 shows the distribution of the population by state and by type of residence according to 2021 NPC population projections, and **Table A.2** shows the distribution of EAs and their average size by state and by type of residence according to the 2021 NPC Enumeration Area Demarcation (EAD) frame.

Table A.1 Population

Distribution of population in the sampling frame by state and residence, Nigeria MIS 2021

| Zone/state | Population | | | Percentage | |
|----------------------|-------------------|--------------------|--------------------|---------------|--------------|
| | Urban | Rural | Total | States | Urban |
| North Central | | | | | |
| Benue | 2,049,701 | 5,906,447 | 7,956,148 | 2.84 | 25.76 |
| FCT Abuja | 3,803,943 | 1,638,230 | 5,442,173 | 1.95 | 69.90 |
| Kogi | 968,476 | 3,953,890 | 4,922,366 | 1.76 | 19.68 |
| Kwara | 2,424,193 | 3,609,156 | 6,033,349 | 2.16 | 40.18 |
| Nasarawa | 2,576,106 | 4,147,105 | 6,723,211 | 2.40 | 38.32 |
| Niger | 2,427,225 | 7,089,852 | 9,517,077 | 3.40 | 25.50 |
| Plateau | 1,603,184 | 6,843,895 | 8,447,079 | 3.02 | 18.98 |
| North East | | | | | |
| Adamawa | 1,416,193 | 6,761,372 | 8,177,565 | 2.92 | 17.32 |
| Bauchi | 1,356,791 | 9,292,281 | 10,649,072 | 3.81 | 12.74 |
| Borno | 7,539,731 | 2,442,147 | 9,981,878 | 3.57 | 75.53 |
| Gombe | 1,104,609 | 4,126,209 | 5,230,818 | 1.87 | 21.12 |
| Taraba | 1,735,860 | 5,337,891 | 7,073,751 | 2.53 | 24.54 |
| Yobe | 1,901,565 | 4,111,470 | 6,013,035 | 2.15 | 31.62 |
| North West | | | | | |
| Jigawa | 1,118,997 | 8,664,934 | 9,783,931 | 3.50 | 11.44 |
| Kaduna | 3,236,436 | 8,941,466 | 12,177,902 | 4.35 | 26.58 |
| Kano | 5,967,549 | 13,249,718 | 19,217,267 | 6.87 | 31.05 |
| Katsina | 2,681,399 | 9,943,671 | 12,625,070 | 4.51 | 21.24 |
| Kebbi | 1,684,265 | 6,198,770 | 7,883,035 | 2.82 | 21.37 |
| Sokoto | 1,108,476 | 6,734,780 | 7,843,256 | 2.80 | 14.13 |
| Zamfara | 1,430,525 | 4,560,255 | 5,990,780 | 2.14 | 23.88 |
| South East | | | | | |
| Abia | 1,241,297 | 4,285,410 | 5,526,707 | 1.98 | 22.46 |
| Anambra | 905,295 | 5,918,322 | 6,823,617 | 2.44 | 13.27 |
| Ebonyi | 241,624 | 4,828,993 | 5,070,617 | 1.81 | 4.77 |
| Enugu | 2,362,150 | 4,184,761 | 6,546,911 | 2.34 | 36.08 |
| Imo | 758,022 | 7,552,590 | 8,310,612 | 2.97 | 9.12 |
| South South | | | | | |
| Akwa Ibom | 745,845 | 6,504,855 | 7,250,700 | 2.59 | 10.29 |
| Bayelsa | 740,213 | 1,758,608 | 2,498,821 | 0.89 | 29.62 |
| Cross River | 285,446 | 3,956,413 | 4,241,859 | 1.52 | 6.73 |
| Delta | 3,137,171 | 3,901,367 | 7,038,538 | 2.52 | 44.57 |
| Edo | 1,686,133 | 3,046,105 | 4,732,238 | 1.69 | 35.63 |
| Rivers | 3,821,178 | 4,463,812 | 8,284,990 | 2.96 | 46.12 |
| South West | | | | | |
| Ekiti | 1,072,362 | 1,707,979 | 2,780,341 | 0.99 | 38.57 |
| Lagos | 7,059,007 | 4,104,995 | 11,164,002 | 3.99 | 63.23 |
| Ogun | 3,434,212 | 4,009,314 | 7,443,526 | 2.66 | 46.14 |
| Ondo | 3,422,248 | 1,192,481 | 4,614,729 | 1.65 | 74.16 |
| Osun | 3,921,324 | 2,677,319 | 6,598,643 | 2.36 | 59.43 |
| Oyo | 6,622,238 | 2,487,982 | 9,110,220 | 3.26 | 72.69 |
| Nigeria | 89,590,989 | 190,134,845 | 279,725,834 | 100.00 | 32.03 |

Source: NPC population projections, 2021

Table A.2 Enumeration areas and their average size

Distribution of enumeration areas and their average size in population by state and residence, Nigeria MIS 2021

| Zone/state | Number of EAs | | | Average EA size | | |
|----------------------|----------------|----------------|----------------|-----------------|------------|------------|
| | Urban | Rural | Total | Urban | Rural | Total |
| North Central | | | | | | |
| Benue | 3,894 | 11,257 | 15,151 | 526 | 525 | 525 |
| FCT Abuja | 7,399 | 3,230 | 10,629 | 514 | 507 | 512 |
| Kogi | 1,800 | 7,580 | 9,380 | 538 | 522 | 525 |
| Kwara | 4,521 | 6,930 | 11,451 | 536 | 521 | 527 |
| Nasarawa | 4,796 | 7,804 | 12,600 | 537 | 531 | 534 |
| Niger | 4,479 | 13,268 | 17,747 | 542 | 534 | 536 |
| Plateau | 2,949 | 13,051 | 16,000 | 544 | 524 | 528 |
| North East | | | | | | |
| Adamawa | 2,612 | 12,290 | 14,902 | 542 | 550 | 549 |
| Bauchi | 2,556 | 17,334 | 19,890 | 531 | 536 | 535 |
| Borno | 14,351 | 4,515 | 18,866 | 525 | 541 | 529 |
| Gombe | 1,930 | 7,227 | 9,157 | 572 | 571 | 571 |
| Taraba | 3,461 | 10,748 | 14,209 | 502 | 497 | 498 |
| Yobe | 3,667 | 7,462 | 11,129 | 519 | 551 | 540 |
| North West | | | | | | |
| Jigawa | 2,089 | 16,388 | 18,477 | 536 | 529 | 530 |
| Kaduna | 5,826 | 16,215 | 22,041 | 556 | 551 | 553 |
| Kano | 11,194 | 24,930 | 36,124 | 533 | 531 | 532 |
| Katsina | 5,078 | 18,964 | 24,042 | 528 | 524 | 525 |
| Kebbi | 3,271 | 11,585 | 14,856 | 515 | 535 | 531 |
| Sokoto | 2,093 | 12,624 | 14,717 | 530 | 533 | 533 |
| Zamfara | 2,630 | 8,545 | 11,175 | 544 | 534 | 536 |
| South East | | | | | | |
| Abia | 2,339 | 8,042 | 10,381 | 531 | 533 | 532 |
| Anambra | 1,709 | 11,192 | 12,901 | 530 | 529 | 529 |
| Ebonyi | ,449 | 9,147 | 9,596 | 538 | 528 | 528 |
| Enugu | 4,446 | 7,882 | 12,328 | 531 | 531 | 531 |
| Imo | 1,407 | 14,143 | 15,550 | 539 | 534 | 534 |
| South South | | | | | | |
| Akwa Ibom | 1,291 | 12,172 | 13,463 | 578 | 534 | 539 |
| Bayelsa | 1,448 | 3,411 | 4,859 | 511 | 516 | 514 |
| Cross River | 503 | 7,374 | 7,877 | 567 | 537 | 539 |
| Delta | 5,879 | 7,490 | 13,369 | 534 | 521 | 526 |
| Edo | 3,251 | 5,907 | 9,158 | 519 | 516 | 517 |
| Rivers | 7,258 | 8,269 | 15,527 | 526 | 540 | 534 |
| South West | | | | | | |
| Ekiti | 2,036 | 3,380 | 5,416 | 527 | 505 | 513 |
| Lagos | 13,631 | 7,888 | 21,519 | 518 | 520 | 519 |
| Ogun | 6,609 | 7,768 | 14,377 | 520 | 516 | 518 |
| Ondo | 6,417 | 2,396 | 8,813 | 533 | 498 | 524 |
| Osun | 7,349 | 4,997 | 12,346 | 534 | 536 | 534 |
| Oyo | 11,888 | 4,873 | 16,761 | 557 | 511 | 544 |
| Nigeria | 168,506 | 358,278 | 526,784 | 532 | 531 | 531 |

Source: NPC-EAD frame, 2021

A.3 SAMPLE DESIGN AND IMPLEMENTATION

The sample for the 2021 NMIS was a stratified sample selected in two stages. Stratification was achieved by separating each of the 36 states and the Federal Capital Territory into urban and rural areas. In total, there were 73 sampling strata since there are no rural areas in Lagos. Samples were selected independently in every stratum through a two-stage selection. Implicit stratification was achieved at each of the lower administrative levels by sorting the sampling frame before sample selection according to administrative order and by using probability proportional to size selection in the first stage's sampling.

In the first stage, 568 EAs were selected with probability proportional to EA size. EA size is the number of households residing in the EA. A household listing operation was carried out in all selected EAs, and the resulting lists of households served as a sampling frame for the selection of households in the second stage. In the second stage's selection, a fixed number of 25 households were selected in every cluster via equal probability systematic sampling.

Table A.3 shows the distribution of sample EAs by urban and rural residence for each state and for each of the six geographic zones. **Table A.4** shows the distribution of the expected number of completed

individual interviews with women age 15–49 and children tested for malaria by urban and rural residence for each state and each geographic zone.

The sample size for Bonny Island was calculated to be able to measure a decline in rapid diagnostic test (RDT) malaria prevalence from 22.3% (the prevalence in Rivers State according to the 2018 NDHS) to zero. A total of 25 clusters were selected from Rivers State, with eight clusters selected from Bonny Island and the remaining 17 from the other LGAs in the state.

Table A.3 Sample allocation of clusters and households

Sample allocation of clusters and households by state and residence, Nigeria MIS 2021

| Zone/state | Allocation of clusters | | | Allocation of households | | |
|----------------|------------------------|-----------------|-----------------|--------------------------|--------------|---------------|
| | Urban | Rural | Total | Urban | Rural | Total |
| North Central | 35 | 66 | 101 | 875 | 1,650 | 2,525 |
| Benue | 4 | 12 | 16 | 100 | 300 | 400 |
| FCT Abuja | 8 | 4 | 12 | 200 | 100 | 300 |
| Kogi | 4 | 11 | 15 | 100 | 275 | 375 |
| Kwara | 6 | 8 | 14 | 150 | 200 | 350 |
| Nasarawa | 4 | 9 | 13 | 100 | 225 | 325 |
| Niger | 4 | 12 | 16 | 100 | 300 | 400 |
| Plateau | 5 | 10 | 15 | 125 | 250 | 375 |
| North East | 29 | 60 | 89 | 725 | 1,500 | 2,225 |
| Adamawa | 4 | 11 | 15 | 100 | 275 | 375 |
| Bauchi | 3 | 13 | 16 | 75 | 325 | 400 |
| Borno | 12 | 4 | 16 | 300 | 100 | 400 |
| Gombe | 4 | 10 | 14 | 100 | 250 | 350 |
| Taraba | 3 | 11 | 14 | 75 | 275 | 350 |
| Yobe | 3 | 11 | 14 | 75 | 275 | 350 |
| North West | 25 | 88 | 113 | 625 | 2,200 | 2,825 |
| Jigawa | 2 | 14 | 16 | 50 | 350 | 400 |
| Kaduna | 5 | 12 | 17 | 125 | 300 | 425 |
| Kano | 5 | 13 | 18 | 125 | 325 | 450 |
| Katsina | 4 | 13 | 17 | 100 | 325 | 425 |
| Kebbi | 3 | 12 | 15 | 75 | 300 | 375 |
| Sokoto | 3 | 12 | 15 | 75 | 300 | 375 |
| Zamfara | 3 | 12 | 15 | 75 | 300 | 375 |
| South East | 17 | 57 | 74 | 425 | 1,425 | 1,850 |
| Abia | 3 | 11 | 14 | 75 | 275 | 350 |
| Anambra | 4 | 12 | 16 | 100 | 300 | 400 |
| Ebonyi | 2 | 11 | 13 | 50 | 275 | 325 |
| Enugu | 6 | 9 | 15 | 150 | 225 | 375 |
| Imo | 2 | 14 | 16 | 50 | 350 | 400 |
| South South | 33 | 66 | 99 | 825 | 1650 | 2,475 |
| Akwa Ibom | 2 | 13 | 15 | 50 | 325 | 375 |
| Bayelsa | 4 | 9 | 13 | 100 | 225 | 325 |
| Cross River | 3 | 12 | 15 | 75 | 300 | 375 |
| Delta | 7 | 9 | 16 | 175 | 225 | 400 |
| Edo | 5 | 10 | 15 | 125 | 250 | 375 |
| Rivers | 12 ^a | 13 ^a | 25 ^b | 300 | 325 | 625 |
| South West | 56 | 36 | 92 | 1,400 | 900 | 2,300 |
| Ekiti | 5 | 9 | 14 | 125 | 225 | 350 |
| Lagos | 12 | 6 | 18 | 300 | 150 | 450 |
| Ogun | 7 | 8 | 15 | 175 | 200 | 375 |
| Ondo | 12 | 3 | 15 | 300 | 75 | 375 |
| Osun | 9 | 6 | 15 | 225 | 150 | 375 |
| Oyo | 11 | 4 | 15 | 275 | 100 | 375 |
| Nigeria | 195 | 373 | 568 | 4,875 | 9,325 | 14,200 |

^a Including 4 clusters from Bonny Island

^b Including 8 clusters from Bonny Island

Table A.4 Sample allocation of expected completed interviews with women and children tested for malaria

Sample allocation of expected completed interviews with women and tested children by state and residence, Nigeria MIS 2021

| Zone/state | Women | | | Tested children | | |
|----------------|--------------|--------------|---------------|-----------------|--------------|---------------|
| | Urban | Rural | Total | Urban | Rural | Total |
| North Central | 877 | 1,655 | 2,532 | 725 | 1,365 | 2,090 |
| Benue | 100 | 301 | 401 | 83 | 248 | 331 |
| FCT Abuja | 201 | 100 | 301 | 166 | 83 | 249 |
| Kogi | 100 | 276 | 376 | 83 | 227 | 310 |
| Kwara | 151 | 201 | 352 | 124 | 166 | 290 |
| Nasarawa | 100 | 225 | 325 | 83 | 186 | 269 |
| Niger | 100 | 301 | 401 | 83 | 248 | 331 |
| Plateau | 125 | 251 | 376 | 103 | 207 | 310 |
| North East | 726 | 1,505 | 2,231 | 600 | 1,240 | 1,840 |
| Adamawa | 100 | 276 | 376 | 83 | 227 | 310 |
| Bauchi | 75 | 326 | 401 | 62 | 269 | 331 |
| Borno | 301 | 100 | 401 | 248 | 83 | 331 |
| Gombe | 100 | 251 | 351 | 83 | 207 | 290 |
| Taraba | 75 | 276 | 351 | 62 | 227 | 289 |
| Yobe | 75 | 276 | 351 | 62 | 227 | 289 |
| North West | 626 | 2,207 | 2,833 | 517 | 1,819 | 2,336 |
| Jigawa | 51 | 351 | 402 | 42 | 289 | 331 |
| Kaduna | 125 | 301 | 426 | 103 | 248 | 351 |
| Kano | 125 | 326 | 451 | 103 | 269 | 372 |
| Katsina | 100 | 326 | 426 | 83 | 269 | 352 |
| Kebbi | 75 | 301 | 376 | 62 | 248 | 310 |
| Sokoto | 75 | 301 | 376 | 62 | 248 | 310 |
| Zamfara | 75 | 301 | 376 | 62 | 248 | 310 |
| South East | 428 | 1,429 | 1,857 | 353 | 1,177 | 1,530 |
| Abia | 75 | 276 | 351 | 62 | 227 | 289 |
| Anambra | 100 | 301 | 401 | 83 | 248 | 331 |
| Ebonyi | 51 | 276 | 327 | 42 | 227 | 269 |
| Enugu | 151 | 225 | 376 | 124 | 186 | 310 |
| Imo | 51 | 351 | 402 | 42 | 289 | 331 |
| South South | 828 | 1,654 | 2,482 | 683 | 1,365 | 2,048 |
| Akwa Ibom | 51 | 326 | 377 | 42 | 269 | 311 |
| Bayelsa | 100 | 225 | 325 | 83 | 186 | 269 |
| Cross River | 75 | 301 | 376 | 62 | 248 | 310 |
| Delta | 176 | 225 | 401 | 145 | 186 | 331 |
| Edo | 125 | 251 | 376 | 103 | 207 | 310 |
| Rivers | 301 | 326 | 627 | 248 | 269 | 517 |
| South West | 1,404 | 903 | 2,307 | 1,157 | 745 | 1,902 |
| Ekiti | 125 | 225 | 350 | 103 | 186 | 289 |
| Lagos | 301 | 151 | 452 | 248 | 124 | 372 |
| Ogun | 176 | 201 | 377 | 145 | 166 | 311 |
| Ondo | 301 | 75 | 376 | 248 | 62 | 310 |
| Osun | 225 | 151 | 376 | 186 | 124 | 310 |
| Oyo | 276 | 100 | 376 | 227 | 83 | 310 |
| Nigeria | 4,889 | 9,353 | 14,242 | 4,035 | 7,711 | 11,746 |

The above sample allocation was calculated based on data from the 2018 Nigeria Demographic and Health Survey (NDHS): the average number of women age 15–49 per household was 1.04, and the average number of children age 5–59 months per household was 0.86. The household completion rate was 97%, the women's response rate was 99%, and the children's response rate was about 96% for both RDT and microscopy.

A.4 SAMPLE PROBABILITIES AND SAMPLE WEIGHTS

Due to the non-proportional allocation of the sample to the different states and the possible differences in response rates, sampling weights are required for any analysis using the 2021 NMIS data to ensure the actual representativeness of the survey results at the national level as well as the domain level. Since the 2021 NMIS sample was a two-stage stratified cluster sample selected from the sampling frame, sampling weights were calculated based on sampling probabilities separately for each sampling stage and for each cluster. The following notations are used:

- P_{1hi} : first-stage sampling probability of the i^{th} cluster in stratum h
 P_{2hi} : second-stage sampling probability within the i^{th} cluster (households)

Let a_h be the number of clusters selected in stratum h , M_{hi} the number of households according to the sampling frame in the i^{th} cluster, and $\sum M_{hi}$ the total number of households in the stratum. The probability of selecting the i^{th} cluster in the NMIS sample is calculated as follows:

$$\frac{a_h M_{hi}}{\sum M_{hi}}$$

Let b_{hi} be the proportion of households in the selected segment relative to the total number of households in EA i in stratum h if the EA is segmented; otherwise, $b_{hi} = 1$. Then the probability of selecting cluster i in the sample is:

$$P_{1hi} = \frac{a_h M_{hi}}{\sum M_{hi}} \times b_{hi}$$

Let L_{hi} be the number of households listed in the household listing operation in cluster i in stratum h , and let g_{hi} be the number of households selected in the cluster. The second stage's selection probability for each household in the cluster is calculated as follows:

$$P_{2hi} = \frac{g_{hi}}{L_{hi}}$$

The overall selection probability of each household in cluster i of stratum h is therefore the product of the selection probabilities:

$$P_{hi} = P_{1hi} \times P_{2hi}$$

The design weight for each household in cluster i of stratum h is the inverse of its overall selection probability:

$$W_{hi} = 1 / P_{hi}$$

Next, design weights were adjusted for household nonresponse as well as for individual nonresponse to calculate the sampling weights for households and for women. Differences in the household sampling weights and the individual sampling weights were introduced by individual nonresponse. The final sampling weights were normalised to obtain the total number of unweighted cases equal to the total number of weighted cases at the national level, for both household weights and individual weights. The normalised weights are relative weights that are valid for estimating means, proportions, and ratios but not valid for estimating population totals or for pooled data.

A.5 SURVEY IMPLEMENTATION

An examination of response rates for the 2021 NMIS indicates that the survey was successfully implemented. **Table A.5** presents interview completion rates for households and individual women in the 2021 NMIS by residence and zone.

Table A.5 Sample implementation

Percent distribution of households and eligible women age 15–49 by results of the household and individual interviews, and household, eligible women, and overall women response rates, according to residence and zone (unweighted), Nigeria MIS 2021

| Result | Residence | | Zone | | | | | | Total |
|--|-----------|-------|---------------|------------|------------|------------|-------------|------------|--------|
| | Urban | Rural | North Central | North East | North West | South East | South South | South West | |
| Selected households | | | | | | | | | |
| Completed (C) | 96.2 | 97.1 | 96.8 | 97.7 | 96.6 | 97.5 | 97.1 | 95.1 | 96.8 |
| Household present but no competent respondent at home (HP) | 0.1 | 0.3 | 0.4 | 0.2 | 0.2 | 0.1 | 0.5 | 0.0 | 0.2 |
| Refused (R) | 1.1 | 0.6 | 0.3 | 0.7 | 0.5 | 0.8 | 1.9 | 0.7 | 0.8 |
| Dwelling not found (DNF) | 0.1 | 0.1 | 0.1 | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 |
| Household absent (HA) | 0.9 | 1.4 | 1.9 | 0.7 | 1.7 | 1.1 | 0.3 | 1.5 | 1.2 |
| Dwelling vacant/address not a dwelling (DV) | 1.5 | 0.4 | 0.4 | 0.4 | 0.8 | 0.5 | 0.2 | 2.5 | 0.8 |
| Dwelling destroyed (DD) | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Other (O) | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Number of sampled households | 4,876 | 9,309 | 2,529 | 2,225 | 2,801 | 1,855 | 2,475 | 2,300 | 14,185 |
| Household response rate (HRR) ¹ | 98.7 | 98.9 | 99.1 | 98.9 | 99.1 | 99.1 | 97.6 | 99.3 | 98.8 |
| Eligible women | | | | | | | | | |
| Completed (EWC) | 98.7 | 98.9 | 98.8 | 96.9 | 99.6 | 99.3 | 98.8 | 99.8 | 98.8 |
| Not at home (EWNH) | 0.9 | 0.7 | 0.8 | 2.4 | 0.1 | 0.3 | 0.9 | 0.1 | 0.8 |
| Postponed (EWP) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 |
| Refused (EWR) | 0.3 | 0.2 | 0.2 | 0.6 | 0.1 | 0.3 | 0.3 | 0.1 | 0.3 |
| Incapacitated (EWI) | 0.0 | 0.1 | 0.2 | 0.1 | 0.2 | 0.1 | 0.0 | 0.0 | 0.1 |
| Other (EWO) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Number of women | 4,993 | 9,654 | 2,707 | 2,605 | 3,649 | 1,534 | 2,175 | 1,977 | 14,647 |
| Eligible women response rate (EWRR) ² | 98.7 | 98.9 | 98.8 | 96.9 | 99.6 | 99.3 | 98.8 | 99.8 | 98.8 |
| Overall women response rate (OWRR) ³ | 97.4 | 97.8 | 97.9 | 95.8 | 98.7 | 98.4 | 96.4 | 99.1 | 97.7 |

¹ Using the number of households falling into specific response categories, the household response rate (HRR) is calculated as:

$$\frac{100 * C}{C + HP + P + R + DNF}$$

² The eligible women response rate (EWRR) is equivalent to the percentage of interviews completed (EWC).

³ The overall women response rate (OWRR) is calculated as:

$$OWRR = HRR * EWRR/100$$

The estimates from a sample survey are affected by two types of errors: nonsampling errors and sampling errors. Nonsampling errors are the results of mistakes made in implementing data collection and in data processing, such as failure to locate and interview the correct household, misunderstanding of the questions on the part of either the interviewer or the respondent, or incorrect data entry. Although numerous efforts were made during the implementation of the 2021 Nigeria Malaria Indicator Survey (NMIS) to minimise this type of error, nonsampling errors are impossible to avoid and difficult to evaluate statistically.

Sampling errors, on the other hand, can be evaluated statistically. The sample of respondents selected in the 2021 NMIS is only one of many samples that could have been selected from the same population, using the same design and expected sample size. Each of these samples would yield results that differ somewhat from the results of the selected sample. Sampling errors are a measure of the variability among all possible samples. Although the exact degree of variability is unknown, it can be estimated from the survey results.

Sampling error is usually measured in terms of the standard error for a particular statistic (mean, percentage, and so on), which is the square root of the variance. The standard error can be used to calculate confidence intervals within which the true value for the population can reasonably be assumed to fall. For example, for any given statistic calculated from a sample survey, the value of that statistic will fall within a range of plus or minus two times the standard error of that statistic in 95% of all possible samples of identical size and design.

If the sample of respondents had been selected as a simple random sample, it would have been possible to use straightforward formulas for calculating sampling errors. However, the 2021 NMIS sample was the result of a multistage stratified design, and, consequently, it was necessary to use more complex formulas. Sampling errors are computed via SAS programmes developed by ICF. These programmes use the Taylor linearisation method to estimate variances for estimated means, proportions, and ratios. The Jackknife repeated replication method is used for variance estimation of more complex statistics such as fertility and mortality rates.

The Taylor linearisation method treats any percentage or average as a ratio estimate, $r = y/x$, where y represents the total sample value for variable y and x represents the total number of cases in the group or subgroup under consideration. The variance of r is computed using the formula given below, with the standard error being the square root of the variance:

$$SE^2(r) = var(r) = \frac{1-f}{x^2} \sum_{h=1}^H \left[\frac{m_h}{m_h - 1} \left(\sum_{i=1}^{m_h} z_{hi}^2 - \frac{z_h^2}{m_h} \right) \right]$$

in which

$$z_{hi} = y_{hi} - rx_{hi} \text{ and } z_h = y_h - rx_h$$

where h represents the stratum, which varies from 1 to H ;
 m_h is the total number of clusters selected in the h^{th} stratum;
 y_{hi} is the sum of the weighted values of variable y in the i^{th} cluster in the h^{th} stratum;
 x_{hi} is the sum of the weighted number of cases in the i^{th} cluster in the h^{th} stratum; and
 f is the overall sampling fraction, which is so small that it is ignored.

In addition to the standard error, the design effect (DEFT) for each estimate is also calculated. The design effect is defined as the ratio between the standard error using the given sample design and the standard error that would result if a simple random sample had been used. A DEFT value of 1.0 indicates that the sample design is as efficient as a simple random sample, while a value greater than 1.0 indicates the increase in the sampling error due to the use of a more complex and less statistically efficient design. Relative standard errors and confidence limits for the estimates are also calculated.

Sampling errors for the 2021 NMIS are calculated for selected variables considered to be of primary interest. The results are presented in this appendix for the country as a whole, for urban and rural areas, for each of the zones, and for each state. For each variable, the type of statistic (mean, proportion, or rate) and the base population are given in **Table B.1**. **Tables B.2** through **B.48** present the value of the statistic (R), its standard error (SE), the number of unweighted (N) and weighted (WN) cases, the design effect (DEFT), the relative standard error (SE/R), and the 95% confidence limits ($R \pm 2SE$) for each variable. The DEFT is undefined when the standard error considering a simple random sample is zero (when the estimate is close to 0 or 1).

The confidence interval (e.g., as calculated for child had fever in last 2 weeks) can be interpreted as follows: the overall average from the national sample is 0.365, and its standard error is 0.009. Therefore, to obtain the 95% confidence limits, one adds and subtracts twice the standard error to the sample estimate, that is, $0.365 \pm 2 \times 0.009$. There is a high probability (95%) that the true proportion of children who had a fever in the last 2 weeks is between 0.347 and 0.383.

For the total sample, the value of the DEFT, averaged over all variables, is 1.89. This means that, due to multistage clustering of the sample, the average standard error is increased by a factor of 1.89 over that in an equivalent simple random sample.

Table B.1 List of selected variables for sampling errors, Nigeria MIS 2021

| Variable | Estimate | Base population |
|---|------------|--|
| HOUSEHOLDS | | |
| Ownership of at least one mosquito net | Proportion | Households |
| Average number of mosquito nets per household | Mean | Households |
| Ownership of at least one ITN | Proportion | Households |
| Average number of ITNs per household | Mean | Households |
| Ownership of at least one ITN for every two persons | Proportion | Households |
| WOMEN | | |
| No education | Proportion | All women 15–49 |
| Secondary education or higher | Proportion | All women 15–49 |
| Literate | Proportion | All women 15–49 |
| CHILDREN | | |
| Slept under any mosquito net last night | Proportion | Children under 5 |
| Slept under an ITN last night | Proportion | Children under 5 |
| Slept under an ITN last night in households with at least one ITN | Proportion | Children under 5 in households with at least one ITN |
| Had fever in last 2 weeks | Proportion | Children under 5 in women's birth history |
| Sought care/treatment from a health facility | Proportion | Children under 5 with a fever in the last 2 weeks |
| Took ACT | Proportion | Child under 5 with a fever in the last 2 weeks who received any antimalarial drugs |
| Has anaemia (haemoglobin <8.0 g/dl) | Proportion | Children 6–59 months tested for anaemia |
| Has malaria (based on rapid test) | Proportion | Children 6–59 months tested for malaria (rapid test) |
| Has malaria (based on microscopy test) | Proportion | Children 6–59 months tested for malaria (microscopy) |
| PREGNANT WOMEN | | |
| Slept under any mosquito net last night | Proportion | All pregnant women 15–49 |
| Slept under an ITN last night | Proportion | All pregnant women 15–49 |
| Slept under an ITN last night in households with at least one ITN | Proportion | Pregnant women 15–49 in households with at least one ITN |
| Received 1+ doses of SP/Fansidar | Proportion | Last birth of women 15–49 with live births in the last 2 years |
| Received 2+ doses of SP/Fansidar | Proportion | Last birth of women 15–49 with live births in the last 2 years |
| Received 3+ doses of SP/Fansidar | Proportion | Last birth of women 15–49 with live births in the last 2 years |

Table B.2 Sampling errors: Total sample, Nigeria MIS 2021

| Variable | Value (R) | Standard error (SE) | Number of cases | | Design effect (DEFT) | Relative error (SE/R) | Confidence limits | |
|---|--------------|---------------------------|------------------------|------------------|----------------------------|-----------------------------|-------------------|-------|
| | | | Un- weighted (N) | Weighted (WN) | | | R-2SE | R+2SE |
| HOUSEHOLDS | | | | | | | | |
| Ownership of at least one mosquito net | 0.577 | 0.009 | 13,727 | 13,727 | 2.077 | 0.015 | 0.560 | 0.595 |
| Average number of mosquito nets per household | 1.363 | 0.028 | 13,727 | 13,727 | 2.034 | 0.020 | 1.307 | 1.418 |
| Ownership of at least one ITN | 0.560 | 0.009 | 13,727 | 13,727 | 2.071 | 0.016 | 0.542 | 0.577 |
| Average number of ITNs per household | 1.318 | 0.027 | 13,727 | 13,727 | 2.025 | 0.021 | 1.263 | 1.373 |
| Ownership of at least one ITN for two persons | 0.254 | 0.007 | 13,678 | 13,675 | 1.777 | 0.026 | 0.241 | 0.267 |
| WOMEN | | | | | | | | |
| No education | 0.356 | 0.013 | 14,476 | 14,476 | 3.190 | 0.036 | 0.331 | 0.382 |
| Secondary education or higher | 0.499 | 0.013 | 14,476 | 14,476 | 3.224 | 0.027 | 0.473 | 0.526 |
| Literate | 0.561 | 0.013 | 14,476 | 14,476 | 3.113 | 0.023 | 0.535 | 0.586 |
| CHILDREN | | | | | | | | |
| Slept under any mosquito net last night | 0.423 | 0.010 | 12,168 | 12,742 | 1.749 | 0.024 | 0.403 | 0.444 |
| Slept under an ITN last night | 0.412 | 0.010 | 12,168 | 12,742 | 1.750 | 0.025 | 0.391 | 0.432 |
| Slept under an ITN last night in households with at least one ITN | 0.643 | 0.010 | 7,438 | 8,159 | 1.526 | 0.016 | 0.622 | 0.664 |
| Had fever in last 2 weeks | 0.365 | 0.009 | 10,645 | 10,805 | 1.673 | 0.024 | 0.348 | 0.383 |
| Sought care/treatment from a health facility | 0.628 | 0.014 | 3,732 | 3,947 | 1.679 | 0.023 | 0.600 | 0.657 |
| Took ACT | 0.741 | 0.022 | 844 | 796 | 1.307 | 0.030 | 0.696 | 0.785 |
| Has anaemia (haemoglobin <8.0 g/dl) | 0.080 | 0.004 | 10,690 | 11,100 | 1.562 | 0.053 | 0.071 | 0.088 |
| Has malaria (based on rapid test) | 0.396 | 0.012 | 10,693 | 11,103 | 2.239 | 0.031 | 0.372 | 0.421 |
| Has malaria (based on microscopy test) | 0.223 | 0.010 | 10,631 | 11,037 | 2.116 | 0.043 | 0.203 | 0.242 |
| PREGNANT WOMEN | | | | | | | | |
| Slept under any mosquito net last night | 0.504 | 0.019 | 1,192 | 1,320 | 1.324 | 0.037 | 0.467 | 0.542 |
| Slept under an ITN last night | 0.496 | 0.019 | 1,192 | 1,320 | 1.327 | 0.038 | 0.459 | 0.534 |
| Slept under an ITN last night in households with at least one ITN | 0.732 | 0.019 | 773 | 895 | 1.240 | 0.026 | 0.694 | 0.769 |
| Received 1+ doses of SP/Fansidar | 0.589 | 0.013 | 3,928 | 4,087 | 1.680 | 0.022 | 0.563 | 0.615 |
| Received 2+ doses of SP/Fansidar | 0.459 | 0.012 | 3,928 | 4,087 | 1.530 | 0.026 | 0.435 | 0.483 |
| Received 3+ doses of SP/Fansidar | 0.310 | 0.011 | 3,928 | 4,087 | 1.473 | 0.034 | 0.289 | 0.331 |

Table B.3 Sampling errors: Urban sample, Nigeria MIS 2021

| Variable | Value (R) | Standard error (SE) | Number of cases | | Design effect (DEFT) | Relative error (SE/R) | Confidence limits | |
|---|--------------|---------------------------|------------------------|------------------|----------------------------|-----------------------------|-------------------|-------|
| | | | Un- weighted (N) | Weighted (WN) | | | R-2SE | R+2SE |
| HOUSEHOLDS | | | | | | | | |
| Ownership of at least one mosquito net | 0.552 | 0.014 | 4,690 | 4,546 | 1.965 | 0.026 | 0.523 | 0.580 |
| Average number of mosquito nets per household | 1.228 | 0.044 | 4,690 | 4,546 | 2.023 | 0.036 | 1.141 | 1.315 |
| Ownership of at least one ITN | 0.528 | 0.014 | 4,690 | 4,546 | 1.951 | 0.027 | 0.500 | 0.556 |
| Average number of ITNs per household | 1.169 | 0.041 | 4,690 | 4,546 | 1.953 | 0.035 | 1.086 | 1.252 |
| Ownership of at least one ITN for two persons | 0.238 | 0.011 | 4,665 | 4,521 | 1.724 | 0.045 | 0.216 | 0.259 |
| WOMEN | | | | | | | | |
| No education | 0.190 | 0.017 | 4,930 | 4,641 | 3.105 | 0.091 | 0.155 | 0.225 |
| Secondary education or higher | 0.694 | 0.021 | 4,930 | 4,641 | 3.230 | 0.031 | 0.651 | 0.736 |
| Literate | 0.751 | 0.018 | 4,930 | 4,641 | 2.894 | 0.024 | 0.715 | 0.786 |
| CHILDREN | | | | | | | | |
| Slept under any mosquito net last night | 0.387 | 0.018 | 3,622 | 3,545 | 1.730 | 0.047 | 0.350 | 0.424 |
| Slept under an ITN last night | 0.375 | 0.018 | 3,622 | 3,545 | 1.715 | 0.048 | 0.338 | 0.411 |
| Slept under an ITN last night in households with at least one ITN | 0.621 | 0.019 | 2,117 | 2,140 | 1.447 | 0.030 | 0.583 | 0.658 |
| Had fever in last 2 weeks | 0.313 | 0.013 | 3,196 | 3,050 | 1.449 | 0.042 | 0.287 | 0.339 |
| Sought care/treatment from a health facility | 0.642 | 0.030 | 952 | 955 | 1.804 | 0.046 | 0.582 | 0.702 |
| Took ACT | 0.738 | 0.029 | 262 | 243 | 0.994 | 0.039 | 0.681 | 0.796 |
| Has anaemia (haemoglobin <8.0 g/dl) | 0.048 | 0.005 | 3,100 | 3,005 | 1.260 | 0.105 | 0.038 | 0.058 |
| Has malaria (based on rapid test) | 0.250 | 0.017 | 3,101 | 3,006 | 1.867 | 0.067 | 0.217 | 0.284 |
| Has malaria (based on microscopy test) | 0.105 | 0.011 | 3,091 | 2,996 | 1.741 | 0.101 | 0.083 | 0.126 |
| PREGNANT WOMEN | | | | | | | | |
| Slept under any mosquito net last night | 0.458 | 0.032 | 344 | 357 | 1.239 | 0.071 | 0.393 | 0.522 |
| Slept under an ITN last night | 0.441 | 0.032 | 344 | 357 | 1.228 | 0.072 | 0.377 | 0.505 |
| Slept under an ITN last night in households with at least one ITN | 0.677 | 0.037 | 208 | 233 | 1.221 | 0.054 | 0.603 | 0.750 |
| Received 1+ doses of SP/Fansidar | 0.721 | 0.017 | 1,201 | 1,162 | 1.350 | 0.024 | 0.687 | 0.756 |
| Received 2+ doses of SP/Fansidar | 0.575 | 0.018 | 1,201 | 1,162 | 1.300 | 0.032 | 0.538 | 0.612 |
| Received 3+ doses of SP/Fansidar | 0.386 | 0.018 | 1,201 | 1,162 | 1.327 | 0.048 | 0.349 | 0.423 |

Table B.4 Sampling errors: Rural sample, Nigeria MIS 2021

| Variable | Value (R) | Standard error (SE) | Number of cases | | Design effect (DEFT) | Relative error (SE/R) | Confidence limits | |
|---|--------------|---------------------------|------------------------|------------------|----------------------------|-----------------------------|-------------------|-------|
| | | | Un- weighted (N) | Weighted (WN) | | | R-2SE | R+2SE |
| HOUSEHOLDS | | | | | | | | |
| Ownership of at least one mosquito net | 0.590 | 0.011 | 9,037 | 9,181 | 2.136 | 0.019 | 0.568 | 0.612 |
| Average number of mosquito nets per household | 1.430 | 0.035 | 9,037 | 9,181 | 2.037 | 0.025 | 1.359 | 1.501 |
| Ownership of at least one ITN | 0.575 | 0.011 | 9,037 | 9,181 | 2.135 | 0.019 | 0.553 | 0.597 |
| Average number of ITNs per household | 1.392 | 0.035 | 9,037 | 9,181 | 2.049 | 0.025 | 1.321 | 1.463 |
| Ownership of at least one ITN for two persons | 0.262 | 0.008 | 9,013 | 9,154 | 1.811 | 0.032 | 0.245 | 0.279 |
| WOMEN | | | | | | | | |
| No education | 0.435 | 0.016 | 9,546 | 9,835 | 3.180 | 0.037 | 0.402 | 0.467 |
| Secondary education or higher | 0.408 | 0.016 | 9,546 | 9,835 | 3.147 | 0.039 | 0.376 | 0.440 |
| Literate | 0.471 | 0.016 | 9,546 | 9,835 | 3.105 | 0.034 | 0.439 | 0.503 |
| CHILDREN | | | | | | | | |
| Slept under any mosquito net last night | 0.437 | 0.012 | 8,546 | 9,196 | 1.763 | 0.028 | 0.413 | 0.462 |
| Slept under an ITN last night | 0.426 | 0.012 | 8,546 | 9,196 | 1.768 | 0.029 | 0.401 | 0.451 |
| Slept under an ITN last night in households with at least one ITN | 0.651 | 0.012 | 5,321 | 6,019 | 1.560 | 0.019 | 0.626 | 0.676 |
| Had fever in last 2 weeks | 0.386 | 0.011 | 7,449 | 7,755 | 1.723 | 0.028 | 0.364 | 0.408 |
| Sought care/treatment from a health facility | 0.624 | 0.016 | 2,780 | 2,992 | 1.636 | 0.026 | 0.592 | 0.657 |
| Took ACT | 0.742 | 0.029 | 582 | 553 | 1.400 | 0.040 | 0.683 | 0.801 |
| Has anaemia (haemoglobin <8.0 g/dl) | 0.092 | 0.005 | 7,590 | 8,095 | 1.590 | 0.060 | 0.081 | 0.103 |
| Has malaria (based on rapid test) | 0.450 | 0.015 | 7,592 | 8,097 | 2.267 | 0.033 | 0.421 | 0.480 |
| Has malaria (based on microscopy test) | 0.267 | 0.012 | 7,540 | 8,041 | 2.091 | 0.044 | 0.243 | 0.290 |
| PREGNANT WOMEN | | | | | | | | |
| Slept under any mosquito net last night | 0.522 | 0.023 | 848 | 963 | 1.350 | 0.043 | 0.476 | 0.567 |
| Slept under an ITN last night | 0.517 | 0.023 | 848 | 963 | 1.356 | 0.044 | 0.472 | 0.562 |
| Slept under an ITN last night in households with at least one ITN | 0.751 | 0.022 | 565 | 662 | 1.243 | 0.029 | 0.708 | 0.794 |
| Received 1+ doses of SP/Fansidar | 0.536 | 0.016 | 2,727 | 2,924 | 1.702 | 0.030 | 0.504 | 0.568 |
| Received 2+ doses of SP/Fansidar | 0.413 | 0.014 | 2,727 | 2,924 | 1.545 | 0.035 | 0.385 | 0.442 |
| Received 3+ doses of SP/Fansidar | 0.280 | 0.013 | 2,727 | 2,924 | 1.492 | 0.045 | 0.255 | 0.305 |

Table B.5 Sampling errors: North Central zone sample, Nigeria MIS 2021

| Variable | Value (R) | Standard error (SE) | Number of cases | | Design effect (DEFT) | Relative error (SE/R) | Confidence limits | |
|---|--------------|---------------------------|------------------------|------------------|----------------------------|-----------------------------|-------------------|-------|
| | | | Un- weighted (N) | Weighted (WN) | | | R-2SE | R+2SE |
| HOUSEHOLDS | | | | | | | | |
| Ownership of at least one mosquito net | 0.518 | 0.022 | 2,447 | 2,210 | 2.220 | 0.043 | 0.473 | 0.562 |
| Average number of mosquito nets per household | 1.080 | 0.061 | 2,447 | 2,210 | 2.183 | 0.057 | 0.958 | 1.203 |
| Ownership of at least one ITN | 0.499 | 0.023 | 2,447 | 2,210 | 2.263 | 0.046 | 0.454 | 0.545 |
| Average number of ITNs per household | 1.043 | 0.062 | 2,447 | 2,210 | 2.216 | 0.059 | 0.920 | 1.167 |
| Ownership of at least one ITN for two persons | 0.203 | 0.016 | 2,436 | 2,202 | 1.916 | 0.077 | 0.171 | 0.234 |
| WOMEN | | | | | | | | |
| No education | 0.327 | 0.026 | 2,674 | 2,377 | 2.828 | 0.079 | 0.275 | 0.378 |
| Secondary education or higher | 0.509 | 0.029 | 2,674 | 2,377 | 2.964 | 0.056 | 0.452 | 0.567 |
| Literate | 0.520 | 0.030 | 2,674 | 2,377 | 3.109 | 0.058 | 0.460 | 0.580 |
| CHILDREN | | | | | | | | |
| Slept under any mosquito net last night | 0.319 | 0.025 | 2,388 | 2,212 | 1.922 | 0.079 | 0.269 | 0.369 |
| Slept under an ITN last night | 0.305 | 0.024 | 2,388 | 2,212 | 1.865 | 0.078 | 0.257 | 0.353 |
| Slept under an ITN last night in households with at least one ITN | 0.608 | 0.030 | 1,206 | 1,110 | 1.631 | 0.050 | 0.547 | 0.668 |
| Had fever in last 2 weeks | 0.269 | 0.023 | 2,024 | 1,803 | 2.058 | 0.085 | 0.224 | 0.315 |
| Sought care/treatment from a health facility | 0.683 | 0.036 | 486 | 485 | 1.617 | 0.052 | 0.612 | 0.754 |
| Took ACT | 0.794 | 0.047 | 183 | 162 | 1.437 | 0.059 | 0.701 | 0.887 |
| Has anaemia (haemoglobin <8.0 g/dl) | 0.045 | 0.006 | 2,091 | 1,915 | 1.354 | 0.142 | 0.032 | 0.057 |
| Has malaria (based on rapid test) | 0.323 | 0.025 | 2,092 | 1,916 | 2.052 | 0.076 | 0.274 | 0.372 |
| Has malaria (based on microscopy test) | 0.170 | 0.015 | 2,073 | 1,899 | 1.646 | 0.089 | 0.139 | 0.200 |
| PREGNANT WOMEN | | | | | | | | |
| Slept under any mosquito net last night | 0.357 | 0.042 | 192 | 184 | 1.236 | 0.117 | 0.274 | 0.440 |
| Slept under an ITN last night | 0.351 | 0.042 | 192 | 184 | 1.251 | 0.120 | 0.267 | 0.435 |
| Slept under an ITN last night in households with at least one ITN | 0.608 | 0.052 | 109 | 106 | 1.157 | 0.086 | 0.504 | 0.712 |
| Received 1+ doses of SP/Fansidar | 0.570 | 0.030 | 795 | 716 | 1.717 | 0.053 | 0.510 | 0.630 |
| Received 2+ doses of SP/Fansidar | 0.481 | 0.027 | 795 | 716 | 1.510 | 0.055 | 0.428 | 0.535 |
| Received 3+ doses of SP/Fansidar | 0.355 | 0.025 | 795 | 716 | 1.505 | 0.072 | 0.304 | 0.405 |

Table B.6 Sampling errors: North East zone sample, Nigeria MIS 2021

| Variable | Value (R) | Standard error (SE) | Number of cases | | | Relative error (SE/R) | Confidence limits | |
|---|--------------|---------------------------|------------------------|------------------|----------------------------|-----------------------------|-------------------|-------|
| | | | Un- weighted (N) | Weighted (WN) | Design effect (DEFT) | | R-2SE | R+2SE |
| HOUSEHOLDS | | | | | | | | |
| Ownership of at least one mosquito net | 0.741 | 0.017 | 2,173 | 2,089 | 1.807 | 0.023 | 0.707 | 0.775 |
| Average number of mosquito nets per household | 1.927 | 0.077 | 2,173 | 2,089 | 2.034 | 0.040 | 1.772 | 2.082 |
| Ownership of at least one ITN | 0.720 | 0.018 | 2,173 | 2,089 | 1.868 | 0.025 | 0.684 | 0.756 |
| Average number of ITNs per household | 1.859 | 0.074 | 2,173 | 2,089 | 1.961 | 0.040 | 1.710 | 2.007 |
| Ownership of at least one ITN for two persons | 0.329 | 0.018 | 2,170 | 2,085 | 1.788 | 0.055 | 0.293 | 0.365 |
| WOMEN | | | | | | | | |
| No education | 0.576 | 0.040 | 2,523 | 2,399 | 4.024 | 0.069 | 0.497 | 0.656 |
| Secondary education or higher | 0.292 | 0.039 | 2,523 | 2,399 | 4.335 | 0.135 | 0.213 | 0.371 |
| Literate | 0.410 | 0.035 | 2,523 | 2,399 | 3.544 | 0.085 | 0.340 | 0.479 |
| CHILDREN | | | | | | | | |
| Slept under any mosquito net last night | 0.530 | 0.024 | 2,329 | 2,264 | 1.758 | 0.046 | 0.482 | 0.579 |
| Slept under an ITN last night | 0.508 | 0.025 | 2,329 | 2,264 | 1.787 | 0.049 | 0.458 | 0.557 |
| Slept under an ITN last night in households with at least one ITN | 0.675 | 0.022 | 1,719 | 1,702 | 1.560 | 0.033 | 0.631 | 0.720 |
| Had fever in last 2 weeks | 0.358 | 0.020 | 1,976 | 1,910 | 1.629 | 0.055 | 0.319 | 0.398 |
| Sought care/treatment from a health facility | 0.543 | 0.042 | 659 | 684 | 2.020 | 0.077 | 0.459 | 0.627 |
| Took ACT | 0.807 | 0.052 | 143 | 151 | 1.584 | 0.065 | 0.703 | 0.912 |
| Has anaemia (haemoglobin <8.0 g/dl) | 0.095 | 0.010 | 2,045 | 1,991 | 1.586 | 0.110 | 0.074 | 0.116 |
| Has malaria (based on rapid test) | 0.430 | 0.030 | 2,045 | 1,991 | 2.349 | 0.069 | 0.371 | 0.489 |
| Has malaria (based on microscopy test) | 0.201 | 0.024 | 2,036 | 1,983 | 2.384 | 0.118 | 0.153 | 0.248 |
| PREGNANT WOMEN | | | | | | | | |
| Slept under any mosquito net last night | 0.652 | 0.049 | 225 | 247 | 1.633 | 0.076 | 0.553 | 0.750 |
| Slept under an ITN last night | 0.650 | 0.049 | 225 | 247 | 1.631 | 0.076 | 0.552 | 0.749 |
| Slept under an ITN last night in households with at least one ITN | 0.842 | 0.031 | 179 | 191 | 1.219 | 0.037 | 0.779 | 0.905 |
| Received 1+ doses of SP/Fansidar | 0.545 | 0.032 | 690 | 690 | 1.707 | 0.058 | 0.482 | 0.608 |
| Received 2+ doses of SP/Fansidar | 0.402 | 0.027 | 690 | 690 | 1.466 | 0.066 | 0.349 | 0.455 |
| Received 3+ doses of SP/Fansidar | 0.273 | 0.025 | 690 | 690 | 1.520 | 0.092 | 0.222 | 0.323 |

Table B.7 Sampling errors: North West zone sample, Nigeria MIS 2021

| Variable | Value (R) | Standard error (SE) | Number of cases | | | Relative error (SE/R) | Confidence limits | |
|---|--------------|---------------------------|------------------------|------------------|----------------------------|-----------------------------|-------------------|-------|
| | | | Un- weighted (N) | Weighted (WN) | Design effect (DEFT) | | R-2SE | R+2SE |
| HOUSEHOLDS | | | | | | | | |
| Ownership of at least one mosquito net | 0.776 | 0.015 | 2,707 | 3,629 | 1.816 | 0.019 | 0.747 | 0.805 |
| Average number of mosquito nets per household | 2.038 | 0.059 | 2,707 | 3,629 | 1.775 | 0.029 | 1.919 | 2.156 |
| Ownership of at least one ITN | 0.758 | 0.015 | 2,707 | 3,629 | 1.785 | 0.019 | 0.728 | 0.787 |
| Average number of ITNs per household | 1.987 | 0.059 | 2,707 | 3,629 | 1.760 | 0.030 | 1.869 | 2.105 |
| Ownership of at least one ITN for two persons | 0.311 | 0.015 | 2,704 | 3,624 | 1.727 | 0.049 | 0.280 | 0.342 |
| WOMEN | | | | | | | | |
| No education | 0.556 | 0.025 | 3,635 | 4,832 | 2.983 | 0.044 | 0.507 | 0.605 |
| Secondary education or higher | 0.293 | 0.025 | 3,635 | 4,832 | 3.310 | 0.086 | 0.242 | 0.343 |
| Literate | 0.372 | 0.024 | 3,635 | 4,832 | 3.034 | 0.065 | 0.324 | 0.421 |
| CHILDREN | | | | | | | | |
| Slept under any mosquito net last night | 0.555 | 0.016 | 3,381 | 4,618 | 1.449 | 0.029 | 0.522 | 0.587 |
| Slept under an ITN last night | 0.546 | 0.016 | 3,381 | 4,618 | 1.448 | 0.030 | 0.513 | 0.578 |
| Slept under an ITN last night in households with at least one ITN | 0.700 | 0.015 | 2,598 | 3,602 | 1.359 | 0.021 | 0.670 | 0.729 |
| Had fever in last 2 weeks | 0.455 | 0.016 | 3,043 | 3,976 | 1.597 | 0.036 | 0.423 | 0.488 |
| Sought care/treatment from a health facility | 0.656 | 0.022 | 1,481 | 1,810 | 1.599 | 0.034 | 0.611 | 0.700 |
| Took ACT | 0.580 | 0.059 | 94 | 113 | 1.058 | 0.101 | 0.463 | 0.697 |
| Has anaemia (haemoglobin <8.0 g/dl) | 0.117 | 0.009 | 2,927 | 3,966 | 1.370 | 0.073 | 0.100 | 0.134 |
| Has malaria (based on rapid test) | 0.516 | 0.023 | 2,928 | 3,967 | 2.147 | 0.044 | 0.470 | 0.561 |
| Has malaria (based on microscopy test) | 0.298 | 0.019 | 2,907 | 3,940 | 1.990 | 0.064 | 0.260 | 0.337 |
| PREGNANT WOMEN | | | | | | | | |
| Slept under any mosquito net last night | 0.609 | 0.028 | 444 | 615 | 1.172 | 0.046 | 0.553 | 0.665 |
| Slept under an ITN last night | 0.595 | 0.028 | 444 | 615 | 1.168 | 0.047 | 0.539 | 0.651 |
| Slept under an ITN last night in households with at least one ITN | 0.783 | 0.026 | 335 | 467 | 1.109 | 0.033 | 0.732 | 0.834 |
| Received 1+ doses of SP/Fansidar | 0.565 | 0.024 | 1,173 | 1,528 | 1.651 | 0.043 | 0.517 | 0.614 |
| Received 2+ doses of SP/Fansidar | 0.408 | 0.021 | 1,173 | 1,528 | 1.457 | 0.052 | 0.366 | 0.450 |
| Received 3+ doses of SP/Fansidar | 0.301 | 0.019 | 1,173 | 1,528 | 1.397 | 0.063 | 0.263 | 0.339 |

Table B.8 Sampling errors: South East zone sample, Nigeria MIS 2021

| Variable | Value (R) | Standard error (SE) | Number of cases | | Design effect (DEFT) | Relative error (SE/R) | Confidence limits | |
|---|--------------|---------------------------|------------------------|------------------|----------------------------|-----------------------------|-------------------|-------|
| | | | Un- weighted (N) | Weighted (WN) | | | R-2SE | R+2SE |
| HOUSEHOLDS | | | | | | | | |
| Ownership of at least one mosquito net | 0.369 | 0.016 | 1,808 | 1,356 | 1.422 | 0.044 | 0.337 | 0.401 |
| Average number of mosquito nets per household | 0.752 | 0.044 | 1,808 | 1,356 | 1.505 | 0.058 | 0.665 | 0.839 |
| Ownership of at least one ITN | 0.369 | 0.016 | 1,808 | 1,356 | 1.419 | 0.044 | 0.336 | 0.401 |
| Average number of ITNs per household | 0.748 | 0.043 | 1,808 | 1,356 | 1.500 | 0.058 | 0.661 | 0.834 |
| Ownership of at least one ITN for two persons | 0.186 | 0.013 | 1,797 | 1,349 | 1.455 | 0.072 | 0.160 | 0.213 |
| WOMEN | | | | | | | | |
| No education | 0.028 | 0.006 | 1,523 | 1,111 | 1.398 | 0.211 | 0.016 | 0.040 |
| Secondary education or higher | 0.813 | 0.018 | 1,523 | 1,111 | 1.780 | 0.022 | 0.778 | 0.849 |
| Literate | 0.893 | 0.011 | 1,523 | 1,111 | 1.423 | 0.013 | 0.870 | 0.915 |
| CHILDREN | | | | | | | | |
| Slept under any mosquito net last night | 0.295 | 0.027 | 1,271 | 994 | 1.591 | 0.092 | 0.240 | 0.349 |
| Slept under an ITN last night | 0.295 | 0.027 | 1,271 | 994 | 1.591 | 0.092 | 0.240 | 0.349 |
| Slept under an ITN last night in households with at least one ITN | 0.606 | 0.036 | 573 | 483 | 1.412 | 0.060 | 0.533 | 0.678 |
| Had fever in last 2 weeks | 0.325 | 0.022 | 1,162 | 864 | 1.380 | 0.068 | 0.281 | 0.369 |
| Sought care/treatment from a health facility | 0.782 | 0.027 | 387 | 281 | 1.183 | 0.035 | 0.728 | 0.837 |
| Took ACT | 0.705 | 0.057 | 195 | 146 | 1.438 | 0.081 | 0.591 | 0.819 |
| Has anaemia (haemoglobin <8.0 g/dl) | 0.042 | 0.007 | 1,149 | 901 | 1.134 | 0.171 | 0.028 | 0.057 |
| Has malaria (based on rapid test) | 0.273 | 0.030 | 1,150 | 902 | 2.030 | 0.110 | 0.213 | 0.333 |
| Has malaria (based on microscopy test) | 0.187 | 0.022 | 1,143 | 895 | 1.738 | 0.119 | 0.143 | 0.232 |
| PREGNANT WOMEN | | | | | | | | |
| Slept under any mosquito net last night | 0.274 | 0.048 | 100 | 73 | 1.073 | 0.177 | 0.177 | 0.371 |
| Slept under an ITN last night | 0.274 | 0.048 | 100 | 73 | 1.073 | 0.177 | 0.177 | 0.371 |
| Slept under an ITN last night in households with at least one ITN | 0.669 | 0.081 | 36 | 30 | 1.051 | 0.121 | 0.507 | 0.831 |
| Received 1+ doses of SP/Fansidar | 0.805 | 0.025 | 383 | 284 | 1.230 | 0.031 | 0.756 | 0.855 |
| Received 2+ doses of SP/Fansidar | 0.727 | 0.027 | 383 | 284 | 1.201 | 0.037 | 0.672 | 0.781 |
| Received 3+ doses of SP/Fansidar | 0.412 | 0.030 | 383 | 284 | 1.198 | 0.073 | 0.352 | 0.472 |

Table B.9 Sampling errors: South South zone sample, Nigeria MIS 2021

| Variable | Value (R) | Standard error (SE) | Number of cases | | Design effect (DEFT) | Relative error (SE/R) | Confidence limits | |
|---|--------------|---------------------------|------------------------|------------------|----------------------------|-----------------------------|-------------------|-------|
| | | | Un- weighted (N) | Weighted (WN) | | | R-2SE | R+2SE |
| HOUSEHOLDS | | | | | | | | |
| Ownership of at least one mosquito net | 0.400 | 0.019 | 2,404 | 2,037 | 1.931 | 0.048 | 0.361 | 0.438 |
| Average number of mosquito nets per household | 0.759 | 0.043 | 2,404 | 2,037 | 1.811 | 0.057 | 0.673 | 0.846 |
| Ownership of at least one ITN | 0.393 | 0.019 | 2,404 | 2,037 | 1.939 | 0.049 | 0.355 | 0.432 |
| Average number of ITNs per household | 0.745 | 0.043 | 2,404 | 2,037 | 1.828 | 0.058 | 0.659 | 0.832 |
| Ownership of at least one ITN for two persons | 0.192 | 0.014 | 2,400 | 2,034 | 1.695 | 0.071 | 0.164 | 0.219 |
| WOMEN | | | | | | | | |
| No education | 0.068 | 0.009 | 2,148 | 1,734 | 1.689 | 0.135 | 0.050 | 0.086 |
| Secondary education or higher | 0.801 | 0.019 | 2,148 | 1,734 | 2.152 | 0.023 | 0.764 | 0.838 |
| Literate | 0.829 | 0.019 | 2,148 | 1,734 | 2.320 | 0.023 | 0.791 | 0.867 |
| CHILDREN | | | | | | | | |
| Slept under any mosquito net last night | 0.240 | 0.022 | 1,621 | 1,357 | 1.526 | 0.091 | 0.196 | 0.284 |
| Slept under an ITN last night | 0.237 | 0.022 | 1,621 | 1,357 | 1.536 | 0.093 | 0.193 | 0.281 |
| Slept under an ITN last night in households with at least one ITN | 0.493 | 0.045 | 776 | 654 | 1.852 | 0.091 | 0.403 | 0.583 |
| Had fever in last 2 weeks | 0.372 | 0.021 | 1,396 | 1,120 | 1.433 | 0.057 | 0.330 | 0.414 |
| Sought care/treatment from a health facility | 0.511 | 0.038 | 489 | 416 | 1.518 | 0.075 | 0.435 | 0.587 |
| Took ACT | 0.777 | 0.044 | 137 | 108 | 1.155 | 0.056 | 0.689 | 0.864 |
| Has anaemia (haemoglobin <8.0 g/dl) | 0.042 | 0.008 | 1,438 | 1,196 | 1.446 | 0.200 | 0.025 | 0.058 |
| Has malaria (based on rapid test) | 0.299 | 0.030 | 1,438 | 1,196 | 2.059 | 0.101 | 0.239 | 0.360 |
| Has malaria (based on microscopy test) | 0.178 | 0.026 | 1,435 | 1,192 | 2.097 | 0.145 | 0.126 | 0.230 |
| PREGNANT WOMEN | | | | | | | | |
| Slept under any mosquito net last night | 0.206 | 0.047 | 131 | 94 | 1.168 | 0.226 | 0.113 | 0.299 |
| Slept under an ITN last night | 0.206 | 0.047 | 131 | 94 | 1.168 | 0.226 | 0.113 | 0.299 |
| Slept under an ITN last night in households with at least one ITN | 0.469 | 0.084 | 61 | 41 | 1.140 | 0.178 | 0.302 | 0.636 |
| Received 1+ doses of SP/Fansidar | 0.610 | 0.031 | 474 | 403 | 1.427 | 0.051 | 0.548 | 0.673 |
| Received 2+ doses of SP/Fansidar | 0.490 | 0.032 | 474 | 403 | 1.430 | 0.065 | 0.426 | 0.554 |
| Received 3+ doses of SP/Fansidar | 0.293 | 0.032 | 474 | 403 | 1.573 | 0.110 | 0.229 | 0.357 |

Table B.10 Sampling errors: South West zone sample, Nigeria MIS 2021

| Variable | Value (R) | Standard error (SE) | Number of cases | | Design effect (DEFT) | Relative error (SE/R) | Confidence limits | |
|---|--------------|---------------------------|------------------------|------------------|----------------------------|-----------------------------|-------------------|-------|
| | | | Un- weighted (N) | Weighted (WN) | | | R-2SE | R+2SE |
| HOUSEHOLDS | | | | | | | | |
| Ownership of at least one mosquito net | 0.459 | 0.022 | 2,188 | 2,406 | 2.066 | 0.048 | 0.414 | 0.503 |
| Average number of mosquito nets per household | 0.971 | 0.058 | 2,188 | 2,406 | 2.005 | 0.059 | 0.856 | 1.086 |
| Ownership of at least one ITN | 0.425 | 0.021 | 2,188 | 2,406 | 1.979 | 0.049 | 0.383 | 0.467 |
| Average number of ITNs per household | 0.899 | 0.053 | 2,188 | 2,406 | 1.895 | 0.059 | 0.793 | 1.005 |
| Ownership of at least one ITN for two persons | 0.241 | 0.015 | 2,171 | 2,381 | 1.664 | 0.063 | 0.210 | 0.271 |
| WOMEN | | | | | | | | |
| No education | 0.080 | 0.014 | 1,973 | 2,023 | 2.301 | 0.176 | 0.052 | 0.108 |
| Secondary education or higher | 0.797 | 0.018 | 1,973 | 2,023 | 2.001 | 0.023 | 0.761 | 0.833 |
| Literate | 0.826 | 0.019 | 1,973 | 2,023 | 2.190 | 0.023 | 0.788 | 0.863 |
| CHILDREN | | | | | | | | |
| Slept under any mosquito net last night | 0.237 | 0.022 | 1,178 | 1,296 | 1.518 | 0.095 | 0.192 | 0.282 |
| Slept under an ITN last night | 0.222 | 0.020 | 1,178 | 1,296 | 1.435 | 0.092 | 0.181 | 0.263 |
| Slept under an ITN last night in households with at least one ITN | 0.472 | 0.033 | 566 | 609 | 1.314 | 0.070 | 0.406 | 0.538 |
| Had fever in last 2 weeks | 0.239 | 0.019 | 1,044 | 1,133 | 1.397 | 0.080 | 0.201 | 0.277 |
| Sought care/treatment from a health facility | 0.586 | 0.037 | 230 | 270 | 1.165 | 0.064 | 0.511 | 0.660 |
| Took ACT | 0.747 | 0.047 | 92 | 115 | 1.132 | 0.063 | 0.653 | 0.841 |
| Has anaemia (haemoglobin <8.0 g/dl) | 0.053 | 0.009 | 1,040 | 1,131 | 1.255 | 0.176 | 0.035 | 0.072 |
| Has malaria (based on rapid test) | 0.241 | 0.026 | 1,040 | 1,131 | 1.651 | 0.107 | 0.189 | 0.293 |
| Has malaria (based on microscopy test) | 0.162 | 0.023 | 1,037 | 1,128 | 1.773 | 0.142 | 0.116 | 0.208 |
| PREGNANT WOMEN | | | | | | | | |
| Slept under any mosquito net last night | 0.232 | 0.048 | 100 | 106 | 1.099 | 0.205 | 0.137 | 0.327 |
| Slept under an ITN last night | 0.228 | 0.047 | 100 | 106 | 1.105 | 0.208 | 0.133 | 0.323 |
| Slept under an ITN last night in households with at least one ITN | 0.409 | 0.078 | 53 | 59 | 1.165 | 0.191 | 0.253 | 0.565 |
| Received 1+ doses of SP/Fansidar | 0.611 | 0.029 | 413 | 465 | 1.267 | 0.047 | 0.553 | 0.669 |
| Received 2+ doses of SP/Fansidar | 0.488 | 0.031 | 413 | 465 | 1.317 | 0.063 | 0.426 | 0.549 |
| Received 3+ doses of SP/Fansidar | 0.279 | 0.027 | 413 | 465 | 1.283 | 0.097 | 0.225 | 0.333 |

Table B.11 Sampling errors: Sokoto state sample, Nigeria MIS 2021

| Variable | Value (R) | Standard error (SE) | Number of cases | | Design effect (DEFT) | Relative error (SE/R) | Confidence limits | |
|---|--------------|---------------------------|------------------------|------------------|----------------------------|-----------------------------|-------------------|-------|
| | | | Un- weighted (N) | Weighted (WN) | | | R-2SE | R+2SE |
| HOUSEHOLDS | | | | | | | | |
| Ownership of at least one mosquito net | 0.735 | 0.043 | 363 | 374 | 1.853 | 0.059 | 0.649 | 0.821 |
| Average number of mosquito nets per household | 1.694 | 0.134 | 363 | 374 | 1.600 | 0.079 | 1.426 | 1.962 |
| Ownership of at least one ITN | 0.685 | 0.043 | 363 | 374 | 1.758 | 0.063 | 0.599 | 0.771 |
| Average number of ITNs per household | 1.570 | 0.130 | 363 | 374 | 1.554 | 0.083 | 1.311 | 1.830 |
| Ownership of at least one ITN for two persons | 0.275 | 0.039 | 363 | 374 | 1.671 | 0.143 | 0.196 | 0.353 |
| WOMEN | | | | | | | | |
| No education | 0.738 | 0.074 | 398 | 399 | 3.295 | 0.100 | 0.591 | 0.885 |
| Secondary education or higher | 0.151 | 0.066 | 398 | 399 | 3.636 | 0.439 | 0.018 | 0.284 |
| Literate | 0.217 | 0.073 | 398 | 399 | 3.501 | 0.339 | 0.070 | 0.364 |
| CHILDREN | | | | | | | | |
| Slept under any mosquito net last night | 0.423 | 0.048 | 441 | 457 | 1.514 | 0.112 | 0.328 | 0.519 |
| Slept under an ITN last night | 0.400 | 0.049 | 441 | 457 | 1.576 | 0.123 | 0.301 | 0.498 |
| Slept under an ITN last night in households with at least one ITN | 0.550 | 0.051 | 324 | 332 | 1.400 | 0.092 | 0.449 | 0.651 |
| Had fever in last 2 weeks | 0.661 | 0.043 | 401 | 399 | 1.678 | 0.066 | 0.575 | 0.748 |
| Sought care/treatment from a health facility | 0.711 | 0.032 | 274 | 264 | 1.091 | 0.046 | 0.646 | 0.776 |
| Took ACT | 0.428 | 0.123 | 16 | 16 | 0.952 | 0.288 | 0.182 | 0.674 |
| Has anaemia (haemoglobin <8.0 g/dl) | 0.223 | 0.037 | 375 | 397 | 1.665 | 0.167 | 0.149 | 0.297 |
| Has malaria (based on rapid test) | 0.403 | 0.064 | 376 | 397 | 2.154 | 0.159 | 0.275 | 0.532 |
| Has malaria (based on microscopy test) | 0.359 | 0.058 | 372 | 395 | 2.090 | 0.162 | 0.243 | 0.476 |
| PREGNANT WOMEN | | | | | | | | |
| Slept under any mosquito net last night | 0.453 | 0.058 | 46 | 50 | 0.818 | 0.129 | 0.337 | 0.570 |
| Slept under an ITN last night | 0.401 | 0.064 | 46 | 50 | 0.917 | 0.160 | 0.273 | 0.530 |
| Slept under an ITN last night in households with at least one ITN | 0.569 | 0.085 | 33 | 36 | 1.006 | 0.149 | 0.399 | 0.739 |
| Received 1+ doses of SP/Fansidar | 0.616 | 0.088 | 157 | 156 | 2.242 | 0.143 | 0.440 | 0.792 |
| Received 2+ doses of SP/Fansidar | 0.430 | 0.057 | 157 | 156 | 1.439 | 0.133 | 0.316 | 0.545 |
| Received 3+ doses of SP/Fansidar | 0.292 | 0.046 | 157 | 156 | 1.263 | 0.158 | 0.200 | 0.385 |

Table B.12 Sampling errors: Zamfara state sample, Nigeria MIS 2021

| Variable | Value (R) | Standard error (SE) | Number of cases | | Design effect (DEFT) | Relative error (SE/R) | Confidence limits | |
|---|--------------|---------------------------|------------------------|------------------|----------------------------|-----------------------------|-------------------|-------|
| | | | Un- weighted (N) | Weighted (WN) | | | R-2SE | R+2SE |
| HOUSEHOLDS | | | | | | | | |
| Ownership of at least one mosquito net | 0.676 | 0.057 | 338 | 214 | 2.220 | 0.084 | 0.562 | 0.790 |
| Average number of mosquito nets per household | 1.649 | 0.219 | 338 | 214 | 2.448 | 0.133 | 1.210 | 2.088 |
| Ownership of at least one ITN | 0.663 | 0.058 | 338 | 214 | 2.221 | 0.087 | 0.548 | 0.778 |
| Average number of ITNs per household | 1.601 | 0.212 | 338 | 214 | 2.394 | 0.132 | 1.177 | 2.025 |
| Ownership of at least one ITN for two persons | 0.261 | 0.054 | 337 | 212 | 2.239 | 0.207 | 0.153 | 0.369 |
| WOMEN | | | | | | | | |
| No education | 0.712 | 0.095 | 439 | 282 | 4.300 | 0.133 | 0.522 | 0.902 |
| Secondary education or higher | 0.236 | 0.091 | 439 | 282 | 4.403 | 0.387 | 0.053 | 0.418 |
| Literate | 0.378 | 0.102 | 439 | 282 | 4.312 | 0.270 | 0.174 | 0.582 |
| CHILDREN | | | | | | | | |
| Slept under any mosquito net last night | 0.462 | 0.055 | 390 | 238 | 1.558 | 0.120 | 0.352 | 0.573 |
| Slept under an ITN last night | 0.461 | 0.055 | 390 | 238 | 1.540 | 0.119 | 0.351 | 0.570 |
| Slept under an ITN last night in households with at least one ITN | 0.670 | 0.047 | 259 | 163 | 1.149 | 0.070 | 0.577 | 0.764 |
| Had fever in last 2 weeks | 0.471 | 0.034 | 361 | 211 | 1.155 | 0.072 | 0.403 | 0.538 |
| Sought care/treatment from a health facility | 0.517 | 0.070 | 164 | 100 | 1.658 | 0.134 | 0.378 | 0.656 |
| Took ACT | 0.518 | 0.096 | 28 | 20 | 1.032 | 0.185 | 0.326 | 0.711 |
| Has anaemia (haemoglobin <8.0 g/dl) | 0.160 | 0.027 | 358 | 216 | 1.297 | 0.168 | 0.106 | 0.215 |
| Has malaria (based on rapid test) | 0.597 | 0.064 | 358 | 216 | 2.074 | 0.107 | 0.469 | 0.725 |
| Has malaria (based on microscopy test) | 0.366 | 0.050 | 358 | 216 | 1.634 | 0.137 | 0.266 | 0.466 |
| PREGNANT WOMEN | | | | | | | | |
| Slept under any mosquito net last night | 0.655 | 0.072 | 61 | 39 | 1.075 | 0.110 | 0.511 | 0.800 |
| Slept under an ITN last night | 0.569 | 0.060 | 61 | 39 | 0.884 | 0.106 | 0.448 | 0.690 |
| Slept under an ITN last night in households with at least one ITN | 0.748 | 0.082 | 45 | 30 | 1.073 | 0.110 | 0.584 | 0.913 |
| Received 1+ doses of SP/Fansidar | 0.400 | 0.087 | 144 | 83 | 2.001 | 0.217 | 0.226 | 0.573 |
| Received 2+ doses of SP/Fansidar | 0.306 | 0.096 | 144 | 83 | 2.353 | 0.314 | 0.114 | 0.498 |
| Received 3+ doses of SP/Fansidar | 0.273 | 0.101 | 144 | 83 | 2.548 | 0.369 | 0.072 | 0.474 |

Table B.13 Sampling errors: Katsina state sample, Nigeria MIS 2021

| Variable | Value (R) | Standard error (SE) | Number of cases | | Design effect (DEFT) | Relative error (SE/R) | Confidence limits | |
|---|--------------|---------------------------|------------------------|------------------|----------------------------|-----------------------------|-------------------|-------|
| | | | Un- weighted (N) | Weighted (WN) | | | R-2SE | R+2SE |
| HOUSEHOLDS | | | | | | | | |
| Ownership of at least one mosquito net | 0.649 | 0.042 | 419 | 871 | 1.804 | 0.065 | 0.565 | 0.734 |
| Average number of mosquito nets per household | 1.717 | 0.168 | 419 | 871 | 2.014 | 0.098 | 1.381 | 2.052 |
| Ownership of at least one ITN | 0.646 | 0.042 | 419 | 871 | 1.808 | 0.066 | 0.561 | 0.731 |
| Average number of ITNs per household | 1.706 | 0.168 | 419 | 871 | 2.019 | 0.099 | 1.370 | 2.043 |
| Ownership of at least one ITN for two persons | 0.189 | 0.027 | 419 | 871 | 1.400 | 0.142 | 0.135 | 0.242 |
| WOMEN | | | | | | | | |
| No education | 0.579 | 0.046 | 662 | 1,362 | 2.400 | 0.080 | 0.487 | 0.672 |
| Secondary education or higher | 0.244 | 0.044 | 662 | 1,362 | 2.641 | 0.182 | 0.155 | 0.332 |
| Literate | 0.262 | 0.043 | 662 | 1,362 | 2.523 | 0.165 | 0.176 | 0.349 |
| CHILDREN | | | | | | | | |
| Slept under any mosquito net last night | 0.481 | 0.035 | 533 | 1,139 | 1.244 | 0.074 | 0.410 | 0.552 |
| Slept under an ITN last night | 0.481 | 0.035 | 533 | 1,139 | 1.244 | 0.074 | 0.410 | 0.552 |
| Slept under an ITN last night in households with at least one ITN | 0.719 | 0.026 | 337 | 762 | 0.966 | 0.037 | 0.666 | 0.771 |
| Had fever in last 2 weeks | 0.296 | 0.023 | 490 | 1,000 | 0.977 | 0.079 | 0.250 | 0.343 |
| Sought care/treatment from a health facility | 0.805 | 0.028 | 145 | 296 | 0.783 | 0.035 | 0.749 | 0.861 |
| Took ACT | 1.000 | 0.000 | 7 | 12 | 0.000 | 1.000 | 1.000 | 1.000 |
| Has anaemia (haemoglobin <8.0 g/dl) | 0.133 | 0.024 | 452 | 961 | 1.426 | 0.177 | 0.086 | 0.181 |
| Has malaria (based on rapid test) | 0.495 | 0.049 | 452 | 961 | 1.913 | 0.098 | 0.397 | 0.592 |
| Has malaria (based on microscopy test) | 0.293 | 0.034 | 448 | 955 | 1.513 | 0.116 | 0.225 | 0.361 |
| PREGNANT WOMEN | | | | | | | | |
| Slept under any mosquito net last night | 0.514 | 0.057 | 89 | 194 | 1.059 | 0.110 | 0.401 | 0.627 |
| Slept under an ITN last night | 0.514 | 0.057 | 89 | 194 | 1.059 | 0.110 | 0.401 | 0.627 |
| Slept under an ITN last night in households with at least one ITN | 0.809 | 0.048 | 53 | 123 | 0.862 | 0.059 | 0.714 | 0.905 |
| Received 1+ doses of SP/Fansidar | 0.418 | 0.044 | 183 | 373 | 1.207 | 0.106 | 0.330 | 0.507 |
| Received 2+ doses of SP/Fansidar | 0.370 | 0.040 | 183 | 373 | 1.111 | 0.108 | 0.290 | 0.450 |
| Received 3+ doses of SP/Fansidar | 0.302 | 0.026 | 183 | 373 | 0.749 | 0.085 | 0.251 | 0.353 |

Table B.14 Sampling errors: Jigawa state sample, Nigeria MIS 2021

| Variable | Value (R) | Standard error (SE) | Number of cases | | Design effect (DEFT) | Relative error (SE/R) | Confidence limits | |
|---|--------------|---------------------------|------------------------|------------------|----------------------------|-----------------------------|-------------------|-------|
| | | | Un- weighted (N) | Weighted (WN) | | | R-2SE | R+2SE |
| HOUSEHOLDS | | | | | | | | |
| Ownership of at least one mosquito net | 0.891 | 0.018 | 373 | 433 | 1.088 | 0.020 | 0.855 | 0.926 |
| Average number of mosquito nets per household | 2.583 | 0.184 | 373 | 433 | 1.885 | 0.071 | 2.215 | 2.952 |
| Ownership of at least one ITN | 0.885 | 0.017 | 373 | 433 | 1.021 | 0.019 | 0.851 | 0.918 |
| Average number of ITNs per household | 2.551 | 0.175 | 373 | 433 | 1.789 | 0.068 | 2.202 | 2.901 |
| Ownership of at least one ITN for two persons | 0.484 | 0.026 | 373 | 433 | 1.021 | 0.055 | 0.431 | 0.537 |
| WOMEN | | | | | | | | |
| No education | 0.560 | 0.096 | 506 | 566 | 4.273 | 0.172 | 0.368 | 0.752 |
| Secondary education or higher | 0.331 | 0.106 | 506 | 566 | 4.931 | 0.319 | 0.120 | 0.543 |
| Literate | 0.411 | 0.103 | 506 | 566 | 4.614 | 0.251 | 0.205 | 0.617 |
| CHILDREN | | | | | | | | |
| Slept under any mosquito net last night | 0.712 | 0.015 | 461 | 524 | 0.606 | 0.021 | 0.682 | 0.741 |
| Slept under an ITN last night | 0.701 | 0.019 | 461 | 524 | 0.749 | 0.027 | 0.663 | 0.738 |
| Slept under an ITN last night in households with at least one ITN | 0.753 | 0.022 | 429 | 488 | 0.913 | 0.029 | 0.709 | 0.797 |
| Had fever in last 2 weeks | 0.545 | 0.047 | 381 | 420 | 1.643 | 0.086 | 0.452 | 0.638 |
| Sought care/treatment from a health facility | 0.763 | 0.038 | 215 | 229 | 1.271 | 0.050 | 0.687 | 0.840 |
| Took ACT | 0.681 | 0.202 | 12 | 16 | 1.614 | 0.297 | 0.277 | 1.084 |
| Has anaemia (haemoglobin <8.0 g/dl) | 0.019 | 0.007 | 398 | 445 | 0.953 | 0.346 | 0.006 | 0.032 |
| Has malaria (based on rapid test) | 0.545 | 0.057 | 398 | 445 | 1.938 | 0.105 | 0.430 | 0.660 |
| Has malaria (based on microscopy test) | 0.254 | 0.048 | 396 | 443 | 1.770 | 0.190 | 0.158 | 0.350 |
| PREGNANT WOMEN | | | | | | | | |
| Slept under any mosquito net last night | 0.860 | 0.051 | 49 | 57 | 1.055 | 0.060 | 0.758 | 0.963 |
| Slept under an ITN last night | 0.860 | 0.051 | 49 | 57 | 1.055 | 0.060 | 0.758 | 0.963 |
| Slept under an ITN last night in households with at least one ITN | 0.886 | 0.050 | 47 | 56 | 1.098 | 0.056 | 0.787 | 0.985 |
| Received 1+ doses of SP/Fansidar | 0.629 | 0.072 | 145 | 160 | 1.785 | 0.115 | 0.484 | 0.774 |
| Received 2+ doses of SP/Fansidar | 0.431 | 0.063 | 145 | 160 | 1.529 | 0.147 | 0.304 | 0.558 |
| Received 3+ doses of SP/Fansidar | 0.285 | 0.055 | 145 | 160 | 1.448 | 0.192 | 0.176 | 0.395 |

Table B.15 Sampling errors: Yobe state sample, Nigeria MIS 2021

| Variable | Value (R) | Standard error (SE) | Number of cases | | Design effect (DEFT) | Relative error (SE/R) | Confidence limits | |
|---|--------------|---------------------------|------------------------|------------------|----------------------------|-----------------------------|-------------------|-------|
| | | | Un- weighted (N) | Weighted (WN) | | | R-2SE | R+2SE |
| HOUSEHOLDS | | | | | | | | |
| Ownership of at least one mosquito net | 0.770 | 0.047 | 331 | 328 | 2.016 | 0.061 | 0.676 | 0.864 |
| Average number of mosquito nets per household | 1.959 | 0.262 | 331 | 328 | 2.606 | 0.134 | 1.436 | 2.483 |
| Ownership of at least one ITN | 0.764 | 0.047 | 331 | 328 | 2.007 | 0.062 | 0.669 | 0.858 |
| Average number of ITNs per household | 1.930 | 0.249 | 331 | 328 | 2.497 | 0.129 | 1.432 | 2.429 |
| Ownership of at least one ITN for two persons | 0.298 | 0.040 | 331 | 328 | 1.604 | 0.136 | 0.217 | 0.379 |
| WOMEN | | | | | | | | |
| No education | 0.672 | 0.109 | 464 | 447 | 4.855 | 0.162 | 0.455 | 0.889 |
| Secondary education or higher | 0.272 | 0.114 | 464 | 447 | 5.337 | 0.419 | 0.044 | 0.499 |
| Literate | 0.504 | 0.086 | 464 | 447 | 3.672 | 0.172 | 0.331 | 0.677 |
| CHILDREN | | | | | | | | |
| Slept under any mosquito net last night | 0.413 | 0.068 | 399 | 385 | 2.010 | 0.165 | 0.277 | 0.550 |
| Slept under an ITN last night | 0.407 | 0.068 | 399 | 385 | 1.989 | 0.167 | 0.271 | 0.543 |
| Slept under an ITN last night in households with at least one ITN | 0.531 | 0.071 | 308 | 296 | 1.822 | 0.133 | 0.389 | 0.672 |
| Had fever in last 2 weeks | 0.465 | 0.036 | 364 | 350 | 1.328 | 0.078 | 0.392 | 0.537 |
| Sought care/treatment from a health facility | 0.453 | 0.061 | 172 | 163 | 1.492 | 0.136 | 0.330 | 0.575 |
| Took ACT | 0.553 | 0.135 | 28 | 26 | 1.253 | 0.245 | 0.282 | 0.823 |
| Has anaemia (haemoglobin <8.0 g/dl) | 0.102 | 0.016 | 373 | 356 | 1.027 | 0.161 | 0.069 | 0.135 |
| Has malaria (based on rapid test) | 0.625 | 0.042 | 373 | 356 | 1.551 | 0.068 | 0.540 | 0.710 |
| Has malaria (based on microscopy test) | 0.205 | 0.069 | 371 | 354 | 2.959 | 0.337 | 0.067 | 0.343 |
| PREGNANT WOMEN | | | | | | | | |
| Slept under any mosquito net last night | 0.593 | 0.115 | 60 | 67 | 1.894 | 0.194 | 0.363 | 0.823 |
| Slept under an ITN last night | 0.593 | 0.115 | 60 | 67 | 1.894 | 0.194 | 0.363 | 0.823 |
| Slept under an ITN last night in households with at least one ITN | 0.839 | 0.052 | 49 | 47 | 0.986 | 0.062 | 0.735 | 0.944 |
| Received 1+ doses of SP/Fansidar | 0.401 | 0.042 | 108 | 107 | 0.897 | 0.104 | 0.317 | 0.484 |
| Received 2+ doses of SP/Fansidar | 0.303 | 0.040 | 108 | 107 | 0.920 | 0.132 | 0.223 | 0.384 |
| Received 3+ doses of SP/Fansidar | 0.243 | 0.035 | 108 | 107 | 0.852 | 0.143 | 0.174 | 0.313 |

Table B.16 Sampling errors: Borno state sample, Nigeria MIS 2021

| Variable | Value (R) | Standard error (SE) | Number of cases | | Design effect (DEFT) | Relative error (SE/R) | Confidence limits | |
|---|--------------|---------------------------|------------------------|------------------|----------------------------|-----------------------------|-------------------|-------|
| | | | Un- weighted (N) | Weighted (WN) | | | R-2SE | R+2SE |
| HOUSEHOLDS | | | | | | | | |
| Ownership of at least one mosquito net | 0.523 | 0.058 | 399 | 339 | 2.298 | 0.111 | 0.407 | 0.638 |
| Average number of mosquito nets per household | 1.028 | 0.170 | 399 | 339 | 2.685 | 0.166 | 0.687 | 1.369 |
| Ownership of at least one ITN | 0.474 | 0.065 | 399 | 339 | 2.577 | 0.137 | 0.344 | 0.604 |
| Average number of ITNs per household | 0.948 | 0.178 | 399 | 339 | 2.816 | 0.188 | 0.591 | 1.304 |
| Ownership of at least one ITN for two persons | 0.089 | 0.021 | 399 | 339 | 1.491 | 0.240 | 0.046 | 0.131 |
| WOMEN | | | | | | | | |
| No education | 0.675 | 0.056 | 420 | 358 | 2.453 | 0.084 | 0.562 | 0.788 |
| Secondary education or higher | 0.192 | 0.038 | 420 | 358 | 1.987 | 0.200 | 0.116 | 0.269 |
| Literate | 0.241 | 0.044 | 420 | 358 | 2.084 | 0.181 | 0.154 | 0.329 |
| CHILDREN | | | | | | | | |
| Slept under any mosquito net last night | 0.417 | 0.068 | 406 | 367 | 2.305 | 0.164 | 0.281 | 0.554 |
| Slept under an ITN last night | 0.383 | 0.074 | 406 | 367 | 2.486 | 0.194 | 0.234 | 0.532 |
| Slept under an ITN last night in households with at least one ITN | 0.752 | 0.040 | 187 | 187 | 1.340 | 0.054 | 0.671 | 0.833 |
| Had fever in last 2 weeks | 0.202 | 0.033 | 317 | 291 | 1.386 | 0.163 | 0.136 | 0.268 |
| Sought care/treatment from a health facility | 0.481 | 0.092 | 60 | 59 | 1.417 | 0.192 | 0.296 | 0.665 |
| Took ACT | 1.000 | 0.000 | 2 | 2 | 0.000 | 1.000 | 1.000 | 1.000 |
| Has anaemia (haemoglobin <8.0 g/dl) | 0.057 | 0.014 | 343 | 305 | 1.150 | 0.252 | 0.028 | 0.085 |
| Has malaria (based on rapid test) | 0.186 | 0.044 | 343 | 305 | 2.091 | 0.236 | 0.098 | 0.274 |
| Has malaria (based on microscopy test) | 0.056 | 0.012 | 342 | 304 | 1.006 | 0.218 | 0.031 | 0.080 |
| PREGNANT WOMEN | | | | | | | | |
| Slept under any mosquito net last night | 0.566 | 0.081 | 25 | 23 | 0.835 | 0.144 | 0.403 | 0.729 |
| Slept under an ITN last night | 0.553 | 0.079 | 25 | 23 | 0.807 | 0.143 | 0.395 | 0.711 |
| Slept under an ITN last night in households with at least one ITN | 0.841 | 0.095 | 14 | 15 | 1.092 | 0.113 | 0.650 | 1.032 |
| Received 1+ doses of SP/Fansidar | 0.787 | 0.041 | 101 | 88 | 1.026 | 0.052 | 0.705 | 0.870 |
| Received 2+ doses of SP/Fansidar | 0.613 | 0.050 | 101 | 88 | 1.040 | 0.081 | 0.513 | 0.712 |
| Received 3+ doses of SP/Fansidar | 0.415 | 0.049 | 101 | 88 | 1.006 | 0.118 | 0.318 | 0.513 |

Table B.17 Sampling errors: Adamawa state sample, Nigeria MIS 2021

| Variable | Value (R) | Standard error (SE) | Number of cases | | Design effect (DEFT) | Relative error (SE/R) | Confidence limits | |
|---|--------------|---------------------------|------------------------|------------------|----------------------------|-----------------------------|-------------------|-------|
| | | | Un- weighted (N) | Weighted (WN) | | | R-2SE | R+2SE |
| HOUSEHOLDS | | | | | | | | |
| Ownership of at least one mosquito net | 0.902 | 0.031 | 362 | 334 | 1.972 | 0.034 | 0.840 | 0.964 |
| Average number of mosquito nets per household | 2.357 | 0.166 | 362 | 334 | 2.111 | 0.070 | 2.025 | 2.689 |
| Ownership of at least one ITN | 0.902 | 0.031 | 362 | 334 | 1.972 | 0.034 | 0.840 | 0.964 |
| Average number of ITNs per household | 2.344 | 0.164 | 362 | 334 | 2.100 | 0.070 | 2.017 | 2.672 |
| Ownership of at least one ITN for two persons | 0.559 | 0.062 | 362 | 334 | 2.373 | 0.112 | 0.434 | 0.684 |
| WOMEN | | | | | | | | |
| No education | 0.397 | 0.068 | 387 | 336 | 2.695 | 0.170 | 0.262 | 0.533 |
| Secondary education or higher | 0.442 | 0.074 | 387 | 336 | 2.901 | 0.168 | 0.294 | 0.590 |
| Literate | 0.468 | 0.079 | 387 | 336 | 3.064 | 0.168 | 0.310 | 0.625 |
| CHILDREN | | | | | | | | |
| Slept under any mosquito net last night | 0.781 | 0.041 | 292 | 274 | 1.318 | 0.053 | 0.698 | 0.863 |
| Slept under an ITN last night | 0.781 | 0.041 | 292 | 274 | 1.318 | 0.053 | 0.698 | 0.863 |
| Slept under an ITN last night in households with at least one ITN | 0.835 | 0.035 | 276 | 256 | 1.246 | 0.042 | 0.765 | 0.906 |
| Had fever in last 2 weeks | 0.232 | 0.051 | 270 | 244 | 1.847 | 0.220 | 0.130 | 0.334 |
| Sought care/treatment from a health facility | 0.656 | 0.056 | 61 | 57 | 0.854 | 0.085 | 0.544 | 0.768 |
| Took ACT | 1.000 | 0.000 | 17 | 15 | 0.000 | 1.000 | 1.000 | 1.000 |
| Has anaemia (haemoglobin <8.0 g/dl) | 0.049 | 0.021 | 260 | 244 | 1.649 | 0.436 | 0.006 | 0.092 |
| Has malaria (based on rapid test) | 0.280 | 0.059 | 260 | 244 | 1.864 | 0.212 | 0.161 | 0.398 |
| Has malaria (based on microscopy test) | 0.107 | 0.038 | 260 | 244 | 1.734 | 0.358 | 0.030 | 0.184 |
| PREGNANT WOMEN | | | | | | | | |
| Slept under any mosquito net last night | 0.728 | 0.092 | 29 | 26 | 1.101 | 0.126 | 0.545 | 0.912 |
| Slept under an ITN last night | 0.728 | 0.092 | 29 | 26 | 1.101 | 0.126 | 0.545 | 0.912 |
| Slept under an ITN last night in households with at least one ITN | 0.861 | 0.063 | 25 | 22 | 0.892 | 0.073 | 0.735 | 0.987 |
| Received 1+ doses of SP/Fansidar | 0.775 | 0.071 | 107 | 96 | 1.795 | 0.092 | 0.632 | 0.917 |
| Received 2+ doses of SP/Fansidar | 0.539 | 0.082 | 107 | 96 | 1.731 | 0.152 | 0.375 | 0.703 |
| Received 3+ doses of SP/Fansidar | 0.419 | 0.083 | 107 | 96 | 1.762 | 0.198 | 0.254 | 0.585 |

Table B.18 Sampling errors: Gombe state sample, Nigeria MIS 2021

| Variable | Value (R) | Standard error (SE) | Number of cases | | Design effect (DEFT) | Relative error (SE/R) | Confidence limits | |
|---|--------------|---------------------------|------------------------|------------------|----------------------------|-----------------------------|-------------------|-------|
| | | | Un- weighted (N) | Weighted (WN) | | | R-2SE | R+2SE |
| HOUSEHOLDS | | | | | | | | |
| Ownership of at least one mosquito net | 0.821 | 0.056 | 337 | 239 | 2.660 | 0.068 | 0.708 | 0.933 |
| Average number of mosquito nets per household | 2.649 | 0.235 | 337 | 239 | 2.267 | 0.089 | 2.180 | 3.119 |
| Ownership of at least one ITN | 0.817 | 0.058 | 337 | 239 | 2.731 | 0.071 | 0.700 | 0.933 |
| Average number of ITNs per household | 2.635 | 0.239 | 337 | 239 | 2.301 | 0.091 | 2.156 | 3.114 |
| Ownership of at least one ITN for two persons | 0.440 | 0.038 | 337 | 239 | 1.403 | 0.086 | 0.364 | 0.516 |
| WOMEN | | | | | | | | |
| No education | 0.512 | 0.123 | 365 | 279 | 4.557 | 0.240 | 0.266 | 0.757 |
| Secondary education or higher | 0.403 | 0.120 | 365 | 279 | 4.555 | 0.299 | 0.163 | 0.644 |
| Literate | 0.459 | 0.124 | 365 | 279 | 4.598 | 0.269 | 0.212 | 0.706 |
| CHILDREN | | | | | | | | |
| Slept under any mosquito net last night | 0.652 | 0.058 | 333 | 232 | 1.791 | 0.088 | 0.537 | 0.767 |
| Slept under an ITN last night | 0.649 | 0.057 | 333 | 232 | 1.766 | 0.088 | 0.535 | 0.762 |
| Slept under an ITN last night in households with at least one ITN | 0.732 | 0.051 | 302 | 205 | 1.630 | 0.069 | 0.631 | 0.833 |
| Had fever in last 2 weeks | 0.217 | 0.041 | 236 | 172 | 1.378 | 0.190 | 0.134 | 0.299 |
| Sought care/treatment from a health facility | 0.564 | 0.094 | 57 | 37 | 1.222 | 0.166 | 0.376 | 0.751 |
| Took ACT | 0.224 | 0.137 | 9 | 5 | 0.830 | 0.610 | 0.000 | 0.497 |
| Has anaemia (haemoglobin <8.0 g/dl) | 0.112 | 0.038 | 264 | 182 | 1.777 | 0.340 | 0.036 | 0.188 |
| Has malaria (based on rapid test) | 0.331 | 0.080 | 264 | 182 | 2.268 | 0.241 | 0.172 | 0.490 |
| Has malaria (based on microscopy test) | 0.177 | 0.054 | 259 | 177 | 1.997 | 0.307 | 0.069 | 0.286 |
| PREGNANT WOMEN | | | | | | | | |
| Slept under any mosquito net last night | 0.698 | 0.099 | 21 | 12 | 0.869 | 0.142 | 0.500 | 0.896 |
| Slept under an ITN last night | 0.698 | 0.099 | 21 | 12 | 0.869 | 0.142 | 0.500 | 0.896 |
| Slept under an ITN last night in households with at least one ITN | 0.818 | 0.090 | 19 | 10 | 0.867 | 0.110 | 0.638 | 0.998 |
| Received 1+ doses of SP/Fansidar | 0.572 | 0.087 | 87 | 66 | 1.640 | 0.153 | 0.397 | 0.747 |
| Received 2+ doses of SP/Fansidar | 0.433 | 0.075 | 87 | 66 | 1.411 | 0.174 | 0.282 | 0.583 |
| Received 3+ doses of SP/Fansidar | 0.267 | 0.058 | 87 | 66 | 1.220 | 0.217 | 0.151 | 0.383 |

Table B.19 Sampling errors: Bauchi state sample, Nigeria MIS 2021

| Variable | Value (R) | Standard error (SE) | Number of cases | | Design effect (DEFT) | Relative error (SE/R) | Confidence limits | |
|---|--------------|---------------------------|------------------------|------------------|----------------------------|-----------------------------|-------------------|-------|
| | | | Un- weighted (N) | Weighted (WN) | | | R-2SE | R+2SE |
| HOUSEHOLDS | | | | | | | | |
| Ownership of at least one mosquito net | 0.747 | 0.031 | 396 | 591 | 1.425 | 0.042 | 0.685 | 0.810 |
| Average number of mosquito nets per household | 2.048 | 0.134 | 396 | 591 | 1.383 | 0.066 | 1.779 | 2.316 |
| Ownership of at least one ITN | 0.727 | 0.035 | 396 | 591 | 1.560 | 0.048 | 0.657 | 0.798 |
| Average number of ITNs per household | 1.945 | 0.124 | 396 | 591 | 1.303 | 0.064 | 1.696 | 2.193 |
| Ownership of at least one ITN for two persons | 0.323 | 0.031 | 393 | 587 | 1.302 | 0.095 | 0.262 | 0.385 |
| WOMEN | | | | | | | | |
| No education | 0.650 | 0.090 | 484 | 703 | 4.074 | 0.138 | 0.471 | 0.830 |
| Secondary education or higher | 0.195 | 0.076 | 484 | 703 | 4.138 | 0.389 | 0.043 | 0.346 |
| Literate | 0.336 | 0.069 | 484 | 703 | 3.185 | 0.206 | 0.197 | 0.474 |
| CHILDREN | | | | | | | | |
| Slept under any mosquito net last night | 0.561 | 0.032 | 462 | 716 | 1.119 | 0.058 | 0.497 | 0.626 |
| Slept under an ITN last night | 0.527 | 0.039 | 462 | 716 | 1.306 | 0.074 | 0.449 | 0.605 |
| Slept under an ITN last night in households with at least one ITN | 0.673 | 0.028 | 348 | 561 | 0.977 | 0.041 | 0.617 | 0.728 |
| Had fever in last 2 weeks | 0.502 | 0.041 | 425 | 625 | 1.514 | 0.083 | 0.419 | 0.585 |
| Sought care/treatment from a health facility | 0.591 | 0.080 | 213 | 314 | 2.094 | 0.135 | 0.432 | 0.751 |
| Took ACT | 0.964 | 0.022 | 53 | 86 | 0.896 | 0.022 | 0.921 | 1.007 |
| Has anaemia (haemoglobin <8.0 g/dl) | 0.123 | 0.023 | 416 | 647 | 1.471 | 0.191 | 0.076 | 0.169 |
| Has malaria (based on rapid test) | 0.596 | 0.042 | 416 | 647 | 1.608 | 0.070 | 0.513 | 0.680 |
| Has malaria (based on microscopy test) | 0.317 | 0.036 | 416 | 647 | 1.488 | 0.114 | 0.245 | 0.389 |
| PREGNANT WOMEN | | | | | | | | |
| Slept under any mosquito net last night | 0.711 | 0.068 | 59 | 99 | 1.179 | 0.096 | 0.575 | 0.847 |
| Slept under an ITN last night | 0.711 | 0.068 | 59 | 99 | 1.179 | 0.096 | 0.575 | 0.847 |
| Slept under an ITN last night in households with at least one ITN | 0.898 | 0.050 | 45 | 79 | 1.213 | 0.056 | 0.798 | 0.999 |
| Received 1+ doses of SP/Fansidar | 0.403 | 0.063 | 177 | 255 | 1.703 | 0.157 | 0.277 | 0.530 |
| Received 2+ doses of SP/Fansidar | 0.291 | 0.050 | 177 | 255 | 1.459 | 0.172 | 0.191 | 0.391 |
| Received 3+ doses of SP/Fansidar | 0.188 | 0.048 | 177 | 255 | 1.612 | 0.254 | 0.093 | 0.283 |

Table B.20 Sampling errors: Kano state sample, Nigeria MIS 2021

| Variable | Value (R) | Standard error (SE) | Number of cases | | Design effect (DEFT) | Relative error (SE/R) | Confidence limits | |
|---|--------------|---------------------------|------------------------|------------------|----------------------------|-----------------------------|-------------------|-------|
| | | | Un- weighted (N) | Weighted (WN) | | | R-2SE | R+2SE |
| HOUSEHOLDS | | | | | | | | |
| Ownership of at least one mosquito net | 0.868 | 0.022 | 438 | 683 | 1.341 | 0.025 | 0.825 | 0.912 |
| Average number of mosquito nets per household | 2.504 | 0.118 | 438 | 683 | 1.364 | 0.047 | 2.268 | 2.739 |
| Ownership of at least one ITN | 0.853 | 0.021 | 438 | 683 | 1.229 | 0.024 | 0.811 | 0.894 |
| Average number of ITNs per household | 2.469 | 0.114 | 438 | 683 | 1.316 | 0.046 | 2.241 | 2.697 |
| Ownership of at least one ITN for two persons | 0.387 | 0.033 | 438 | 683 | 1.433 | 0.086 | 0.320 | 0.454 |
| WOMEN | | | | | | | | |
| No education | 0.491 | 0.047 | 620 | 920 | 2.334 | 0.096 | 0.397 | 0.586 |
| Secondary education or higher | 0.328 | 0.042 | 620 | 920 | 2.221 | 0.128 | 0.244 | 0.412 |
| Literate | 0.437 | 0.044 | 620 | 920 | 2.208 | 0.101 | 0.348 | 0.525 |
| CHILDREN | | | | | | | | |
| Slept under any mosquito net last night | 0.648 | 0.046 | 613 | 971 | 1.825 | 0.071 | 0.557 | 0.740 |
| Slept under an ITN last night | 0.648 | 0.046 | 613 | 971 | 1.825 | 0.071 | 0.557 | 0.740 |
| Slept under an ITN last night in households with at least one ITN | 0.756 | 0.046 | 523 | 833 | 2.029 | 0.061 | 0.664 | 0.848 |
| Had fever in last 2 weeks | 0.309 | 0.043 | 531 | 802 | 1.909 | 0.138 | 0.224 | 0.394 |
| Sought care/treatment from a health facility | 0.445 | 0.063 | 165 | 248 | 1.488 | 0.141 | 0.320 | 0.570 |
| Took ACT | 0.685 | 0.123 | 15 | 26 | 1.118 | 0.180 | 0.439 | 0.932 |
| Has anaemia (haemoglobin <8.0 g/dl) | 0.122 | 0.012 | 531 | 838 | 0.826 | 0.098 | 0.098 | 0.146 |
| Has malaria (based on rapid test) | 0.540 | 0.047 | 531 | 838 | 1.953 | 0.087 | 0.446 | 0.635 |
| Has malaria (based on microscopy test) | 0.255 | 0.032 | 521 | 824 | 1.434 | 0.126 | 0.191 | 0.319 |
| PREGNANT WOMEN | | | | | | | | |
| Slept under any mosquito net last night | 0.769 | 0.063 | 64 | 99 | 1.029 | 0.082 | 0.643 | 0.895 |
| Slept under an ITN last night | 0.769 | 0.063 | 64 | 99 | 1.029 | 0.082 | 0.643 | 0.895 |
| Slept under an ITN last night in households with at least one ITN | 0.930 | 0.031 | 51 | 82 | 0.878 | 0.033 | 0.867 | 0.992 |
| Received 1+ doses of SP/Fansidar | 0.763 | 0.050 | 194 | 296 | 1.643 | 0.065 | 0.664 | 0.862 |
| Received 2+ doses of SP/Fansidar | 0.484 | 0.044 | 194 | 296 | 1.236 | 0.091 | 0.396 | 0.571 |
| Received 3+ doses of SP/Fansidar | 0.326 | 0.053 | 194 | 296 | 1.598 | 0.163 | 0.219 | 0.432 |

Table B.21 Sampling errors: Kaduna state sample, Nigeria MIS 2021

| Variable | Value (R) | Standard error (SE) | Number of cases | | Design effect (DEFT) | Relative error (SE/R) | Confidence limits | |
|---|--------------|---------------------------|------------------------|------------------|----------------------------|-----------------------------|-------------------|-------|
| | | | Un- weighted (N) | Weighted (WN) | | | R-2SE | R+2SE |
| HOUSEHOLDS | | | | | | | | |
| Ownership of at least one mosquito net | 0.833 | 0.027 | 426 | 581 | 1.500 | 0.033 | 0.778 | 0.887 |
| Average number of mosquito nets per household | 2.167 | 0.135 | 426 | 581 | 1.638 | 0.062 | 1.897 | 2.436 |
| Ownership of at least one ITN | 0.823 | 0.030 | 426 | 581 | 1.603 | 0.036 | 0.763 | 0.882 |
| Average number of ITNs per household | 2.131 | 0.140 | 426 | 581 | 1.690 | 0.066 | 1.851 | 2.410 |
| Ownership of at least one ITN for two persons | 0.414 | 0.052 | 425 | 579 | 2.145 | 0.125 | 0.311 | 0.517 |
| WOMEN | | | | | | | | |
| No education | 0.214 | 0.073 | 531 | 690 | 4.050 | 0.342 | 0.068 | 0.360 |
| Secondary education or higher | 0.591 | 0.082 | 531 | 690 | 3.770 | 0.138 | 0.428 | 0.754 |
| Literate | 0.629 | 0.070 | 531 | 690 | 3.302 | 0.111 | 0.489 | 0.769 |
| CHILDREN | | | | | | | | |
| Slept under any mosquito net last night | 0.630 | 0.043 | 477 | 661 | 1.349 | 0.068 | 0.544 | 0.717 |
| Slept under an ITN last night | 0.624 | 0.043 | 477 | 661 | 1.353 | 0.069 | 0.538 | 0.711 |
| Slept under an ITN last night in households with at least one ITN | 0.742 | 0.030 | 401 | 556 | 1.119 | 0.040 | 0.683 | 0.801 |
| Had fever in last 2 weeks | 0.506 | 0.030 | 437 | 575 | 1.211 | 0.060 | 0.445 | 0.566 |
| Sought care/treatment from a health facility | 0.838 | 0.027 | 221 | 290 | 1.111 | 0.033 | 0.784 | 0.893 |
| Took ACT | 0.332 | 0.140 | 15 | 20 | 1.128 | 0.421 | 0.053 | 0.612 |
| Has anaemia (haemoglobin <8.0 g/dl) | 0.069 | 0.020 | 420 | 583 | 1.556 | 0.292 | 0.029 | 0.110 |
| Has malaria (based on rapid test) | 0.323 | 0.055 | 420 | 583 | 2.046 | 0.170 | 0.213 | 0.432 |
| Has malaria (based on microscopy test) | 0.162 | 0.035 | 419 | 582 | 1.752 | 0.216 | 0.092 | 0.232 |
| PREGNANT WOMEN | | | | | | | | |
| Slept under any mosquito net last night | 0.608 | 0.074 | 68 | 95 | 1.252 | 0.121 | 0.460 | 0.755 |
| Slept under an ITN last night | 0.608 | 0.074 | 68 | 95 | 1.252 | 0.121 | 0.460 | 0.755 |
| Slept under an ITN last night in households with at least one ITN | 0.725 | 0.074 | 57 | 79 | 1.306 | 0.103 | 0.576 | 0.873 |
| Received 1+ doses of SP/Fansidar | 0.654 | 0.069 | 173 | 227 | 1.904 | 0.105 | 0.516 | 0.792 |
| Received 2+ doses of SP/Fansidar | 0.430 | 0.062 | 173 | 227 | 1.637 | 0.143 | 0.307 | 0.553 |
| Received 3+ doses of SP/Fansidar | 0.281 | 0.058 | 173 | 227 | 1.701 | 0.206 | 0.165 | 0.397 |

Table B.22 Sampling errors: Kebbi state sample, Nigeria MIS 2021

| Variable | Value (R) | Standard error (SE) | Number of cases | | Design effect (DEFT) | Relative error (SE/R) | Confidence limits | |
|---|--------------|---------------------------|------------------------|------------------|----------------------------|-----------------------------|-------------------|-------|
| | | | Un- weighted (N) | Weighted (WN) | | | R-2SE | R+2SE |
| HOUSEHOLDS | | | | | | | | |
| Ownership of at least one mosquito net | 0.781 | 0.046 | 350 | 474 | 2.091 | 0.060 | 0.688 | 0.874 |
| Average number of mosquito nets per household | 1.746 | 0.102 | 350 | 474 | 1.266 | 0.058 | 1.542 | 1.950 |
| Ownership of at least one ITN | 0.729 | 0.048 | 350 | 474 | 2.027 | 0.066 | 0.632 | 0.826 |
| Average number of ITNs per household | 1.621 | 0.107 | 350 | 474 | 1.337 | 0.066 | 1.406 | 1.836 |
| Ownership of at least one ITN for two persons | 0.195 | 0.023 | 349 | 471 | 1.070 | 0.116 | 0.150 | 0.241 |
| WOMEN | | | | | | | | |
| No education | 0.793 | 0.047 | 479 | 613 | 2.547 | 0.060 | 0.698 | 0.888 |
| Secondary education or higher | 0.093 | 0.048 | 479 | 613 | 3.552 | 0.514 | 0.000 | 0.188 |
| Literate | 0.295 | 0.047 | 479 | 613 | 2.266 | 0.161 | 0.200 | 0.390 |
| CHILDREN | | | | | | | | |
| Slept under any mosquito net last night | 0.462 | 0.051 | 466 | 629 | 1.678 | 0.110 | 0.360 | 0.564 |
| Slept under an ITN last night | 0.430 | 0.053 | 466 | 629 | 1.734 | 0.123 | 0.324 | 0.535 |
| Slept under an ITN last night in households with at least one ITN | 0.579 | 0.042 | 325 | 467 | 1.249 | 0.073 | 0.494 | 0.663 |
| Had fever in last 2 weeks | 0.673 | 0.025 | 442 | 569 | 1.124 | 0.037 | 0.622 | 0.723 |
| Sought care/treatment from a health facility | 0.471 | 0.060 | 297 | 383 | 1.842 | 0.127 | 0.351 | 0.591 |
| Took ACT | 0.000 | 0.000 | 1 | 2 | | | 0.000 | 0.000 |
| Has anaemia (haemoglobin <8.0 g/dl) | 0.116 | 0.022 | 393 | 526 | 1.271 | 0.187 | 0.073 | 0.160 |
| Has malaria (based on rapid test) | 0.756 | 0.056 | 393 | 526 | 2.239 | 0.074 | 0.645 | 0.867 |
| Has malaria (based on microscopy test) | 0.490 | 0.071 | 393 | 526 | 2.448 | 0.144 | 0.349 | 0.631 |
| PREGNANT WOMEN | | | | | | | | |
| Slept under any mosquito net last night | 0.541 | 0.084 | 67 | 81 | 1.244 | 0.156 | 0.372 | 0.710 |
| Slept under an ITN last night | 0.506 | 0.086 | 67 | 81 | 1.257 | 0.169 | 0.335 | 0.678 |
| Slept under an ITN last night in households with at least one ITN | 0.661 | 0.089 | 49 | 62 | 1.182 | 0.134 | 0.483 | 0.838 |
| Received 1+ doses of SP/Fansidar | 0.445 | 0.057 | 177 | 234 | 1.544 | 0.128 | 0.331 | 0.558 |
| Received 2+ doses of SP/Fansidar | 0.358 | 0.059 | 177 | 234 | 1.649 | 0.164 | 0.241 | 0.476 |
| Received 3+ doses of SP/Fansidar | 0.314 | 0.050 | 177 | 234 | 1.445 | 0.159 | 0.214 | 0.413 |

Table B.23 Sampling errors: Niger state sample, Nigeria MIS 2021

| Variable | Value (R) | Standard error (SE) | Number of cases | | Design effect (DEFT) | Relative error (SE/R) | Confidence limits | |
|---|--------------|---------------------------|------------------------|------------------|----------------------------|-----------------------------|-------------------|-------|
| | | | Un- weighted (N) | Weighted (WN) | | | R-2SE | R+2SE |
| HOUSEHOLDS | | | | | | | | |
| Ownership of at least one mosquito net | 0.544 | 0.047 | 363 | 442 | 1.786 | 0.086 | 0.450 | 0.638 |
| Average number of mosquito nets per household | 1.248 | 0.176 | 363 | 442 | 2.123 | 0.141 | 0.897 | 1.600 |
| Ownership of at least one ITN | 0.533 | 0.045 | 363 | 442 | 1.721 | 0.085 | 0.443 | 0.624 |
| Average number of ITNs per household | 1.224 | 0.173 | 363 | 442 | 2.094 | 0.141 | 0.878 | 1.570 |
| Ownership of at least one ITN for two persons | 0.160 | 0.036 | 362 | 440 | 1.881 | 0.228 | 0.087 | 0.232 |
| WOMEN | | | | | | | | |
| No education | 0.592 | 0.088 | 423 | 537 | 3.630 | 0.149 | 0.416 | 0.768 |
| Secondary education or higher | 0.258 | 0.093 | 423 | 537 | 4.262 | 0.360 | 0.072 | 0.443 |
| Literate | 0.241 | 0.101 | 423 | 537 | 4.717 | 0.418 | 0.039 | 0.443 |
| CHILDREN | | | | | | | | |
| Slept under any mosquito net last night | 0.221 | 0.049 | 450 | 565 | 1.920 | 0.224 | 0.122 | 0.319 |
| Slept under an ITN last night | 0.214 | 0.047 | 450 | 565 | 1.862 | 0.221 | 0.119 | 0.308 |
| Slept under an ITN last night in households with at least one ITN | 0.417 | 0.075 | 253 | 290 | 1.821 | 0.181 | 0.266 | 0.567 |
| Had fever in last 2 weeks | 0.454 | 0.049 | 377 | 474 | 1.699 | 0.107 | 0.356 | 0.551 |
| Sought care/treatment from a health facility | 0.736 | 0.054 | 177 | 215 | 1.371 | 0.073 | 0.628 | 0.843 |
| Took ACT | 0.877 | 0.082 | 29 | 33 | 1.263 | 0.094 | 0.712 | 1.042 |
| Has anaemia (haemoglobin <8.0 g/dl) | 0.048 | 0.015 | 374 | 465 | 1.281 | 0.304 | 0.019 | 0.077 |
| Has malaria (based on rapid test) | 0.426 | 0.056 | 375 | 466 | 1.980 | 0.132 | 0.314 | 0.538 |
| Has malaria (based on microscopy test) | 0.207 | 0.040 | 363 | 454 | 1.710 | 0.193 | 0.127 | 0.287 |
| PREGNANT WOMEN | | | | | | | | |
| Slept under any mosquito net last night | 0.307 | 0.071 | 44 | 53 | 1.018 | 0.232 | 0.165 | 0.450 |
| Slept under an ITN last night | 0.307 | 0.071 | 44 | 53 | 1.018 | 0.232 | 0.165 | 0.450 |
| Slept under an ITN last night in households with at least one ITN | 0.536 | 0.085 | 28 | 31 | 0.859 | 0.159 | 0.365 | 0.707 |
| Received 1+ doses of SP/Fansidar | 0.463 | 0.080 | 158 | 187 | 1.934 | 0.172 | 0.303 | 0.622 |
| Received 2+ doses of SP/Fansidar | 0.374 | 0.067 | 158 | 187 | 1.670 | 0.178 | 0.240 | 0.507 |
| Received 3+ doses of SP/Fansidar | 0.229 | 0.051 | 158 | 187 | 1.465 | 0.222 | 0.128 | 0.331 |

Table B.24 Sampling errors: FCT state sample, Nigeria MIS 2021

| Variable | Value (R) | Standard error (SE) | Number of cases | | Design effect (DEFT) | Relative error (SE/R) | Confidence limits | |
|---|--------------|---------------------------|------------------------|------------------|----------------------------|-----------------------------|-------------------|-------|
| | | | Un- weighted (N) | Weighted (WN) | | | R-2SE | R+2SE |
| HOUSEHOLDS | | | | | | | | |
| Ownership of at least one mosquito net | 0.482 | 0.040 | 294 | 202 | 1.353 | 0.082 | 0.403 | 0.561 |
| Average number of mosquito nets per household | 0.878 | 0.141 | 294 | 202 | 1.949 | 0.160 | 0.596 | 1.159 |
| Ownership of at least one ITN | 0.450 | 0.032 | 294 | 202 | 1.098 | 0.071 | 0.386 | 0.514 |
| Average number of ITNs per household | 0.787 | 0.110 | 294 | 202 | 1.611 | 0.140 | 0.566 | 1.007 |
| Ownership of at least one ITN for two persons | 0.124 | 0.023 | 290 | 198 | 1.188 | 0.186 | 0.078 | 0.170 |
| WOMEN | | | | | | | | |
| No education | 0.177 | 0.054 | 359 | 238 | 2.628 | 0.301 | 0.070 | 0.284 |
| Secondary education or higher | 0.740 | 0.078 | 359 | 238 | 3.311 | 0.105 | 0.584 | 0.896 |
| Literate | 0.773 | 0.064 | 359 | 238 | 2.857 | 0.083 | 0.645 | 0.901 |
| CHILDREN | | | | | | | | |
| Slept under any mosquito net last night | 0.482 | 0.095 | 281 | 196 | 2.127 | 0.196 | 0.293 | 0.672 |
| Slept under an ITN last night | 0.423 | 0.079 | 281 | 196 | 1.822 | 0.188 | 0.264 | 0.582 |
| Slept under an ITN last night in households with at least one ITN | 0.760 | 0.085 | 154 | 109 | 2.019 | 0.112 | 0.589 | 0.931 |
| Had fever in last 2 weeks | 0.292 | 0.041 | 268 | 177 | 1.366 | 0.139 | 0.211 | 0.374 |
| Sought care/treatment from a health facility | 0.777 | 0.035 | 71 | 52 | 0.754 | 0.045 | 0.707 | 0.848 |
| Took ACT | 0.924 | 0.047 | 40 | 28 | 1.133 | 0.051 | 0.831 | 1.018 |
| Has anaemia (haemoglobin <8.0 g/dl) | 0.064 | 0.016 | 243 | 171 | 0.959 | 0.244 | 0.033 | 0.095 |
| Has malaria (based on rapid test) | 0.346 | 0.051 | 243 | 171 | 1.293 | 0.148 | 0.243 | 0.448 |
| Has malaria (based on microscopy test) | 0.188 | 0.046 | 243 | 171 | 1.432 | 0.243 | 0.097 | 0.279 |
| PREGNANT WOMEN | | | | | | | | |
| Slept under any mosquito net last night | 0.361 | 0.179 | 16 | 11 | 1.491 | 0.497 | 0.002 | 0.719 |
| Slept under an ITN last night | 0.361 | 0.179 | 16 | 11 | 1.491 | 0.497 | 0.002 | 0.719 |
| Slept under an ITN last night in households with at least one ITN | 0.460 | 0.207 | 12 | 9 | 1.471 | 0.450 | 0.046 | 0.875 |
| Received 1+ doses of SP/Fansidar | 0.674 | 0.047 | 98 | 66 | 1.008 | 0.070 | 0.579 | 0.769 |
| Received 2+ doses of SP/Fansidar | 0.593 | 0.044 | 98 | 66 | 0.886 | 0.074 | 0.505 | 0.680 |
| Received 3+ doses of SP/Fansidar | 0.359 | 0.058 | 98 | 66 | 1.204 | 0.161 | 0.243 | 0.475 |

Table B.25 Sampling errors: Nasarawa state sample, Nigeria MIS 2021

| Variable | Value (R) | Standard error (SE) | Number of cases | | Design effect (DEFT) | Relative error (SE/R) | Confidence limits | |
|---|--------------|---------------------------|------------------------|------------------|----------------------------|-----------------------------|-------------------|-------|
| | | | Un- weighted (N) | Weighted (WN) | | | R-2SE | R+2SE |
| HOUSEHOLDS | | | | | | | | |
| Ownership of at least one mosquito net | 0.369 | 0.044 | 323 | 290 | 1.638 | 0.120 | 0.281 | 0.458 |
| Average number of mosquito nets per household | 0.754 | 0.120 | 323 | 290 | 1.769 | 0.159 | 0.514 | 0.993 |
| Ownership of at least one ITN | 0.334 | 0.045 | 323 | 290 | 1.690 | 0.133 | 0.245 | 0.423 |
| Average number of ITNs per household | 0.694 | 0.118 | 323 | 290 | 1.780 | 0.170 | 0.458 | 0.930 |
| Ownership of at least one ITN for two persons | 0.114 | 0.034 | 322 | 290 | 1.886 | 0.294 | 0.047 | 0.181 |
| WOMEN | | | | | | | | |
| No education | 0.449 | 0.054 | 420 | 358 | 2.217 | 0.120 | 0.341 | 0.558 |
| Secondary education or higher | 0.442 | 0.062 | 420 | 358 | 2.521 | 0.139 | 0.319 | 0.565 |
| Literate | 0.460 | 0.046 | 420 | 358 | 1.872 | 0.099 | 0.369 | 0.551 |
| CHILDREN | | | | | | | | |
| Slept under any mosquito net last night | 0.151 | 0.039 | 480 | 427 | 1.738 | 0.259 | 0.073 | 0.229 |
| Slept under an ITN last night | 0.144 | 0.038 | 480 | 427 | 1.701 | 0.262 | 0.069 | 0.220 |
| Slept under an ITN last night in households with at least one ITN | 0.479 | 0.075 | 148 | 129 | 1.263 | 0.156 | 0.329 | 0.628 |
| Had fever in last 2 weeks | 0.146 | 0.030 | 360 | 303 | 1.424 | 0.206 | 0.086 | 0.206 |
| Sought care/treatment from a health facility | 0.524 | 0.111 | 51 | 44 | 1.390 | 0.212 | 0.302 | 0.745 |
| Took ACT | 0.824 | 0.112 | 26 | 21 | 1.193 | 0.136 | 0.601 | 1.047 |
| Has anaemia (haemoglobin <8.0 g/dl) | 0.012 | 0.006 | 452 | 402 | 1.075 | 0.526 | 0.000 | 0.025 |
| Has malaria (based on rapid test) | 0.299 | 0.055 | 452 | 402 | 1.959 | 0.182 | 0.190 | 0.409 |
| Has malaria (based on microscopy test) | 0.153 | 0.020 | 452 | 402 | 1.074 | 0.133 | 0.112 | 0.193 |
| PREGNANT WOMEN | | | | | | | | |
| Slept under any mosquito net last night | 0.234 | 0.080 | 32 | 27 | 1.024 | 0.342 | 0.074 | 0.395 |
| Slept under an ITN last night | 0.195 | 0.085 | 32 | 27 | 1.163 | 0.437 | 0.025 | 0.365 |
| Slept under an ITN last night in households with at least one ITN | 0.430 | 0.150 | 14 | 12 | 1.111 | 0.348 | 0.131 | 0.729 |
| Received 1+ doses of SP/Fansidar | 0.626 | 0.068 | 143 | 123 | 1.689 | 0.109 | 0.489 | 0.763 |
| Received 2+ doses of SP/Fansidar | 0.511 | 0.058 | 143 | 123 | 1.386 | 0.113 | 0.395 | 0.627 |
| Received 3+ doses of SP/Fansidar | 0.438 | 0.057 | 143 | 123 | 1.368 | 0.129 | 0.325 | 0.551 |

Table B.26 Sampling errors: Plateau state sample, Nigeria MIS 2021

| Variable | Value (R) | Standard error (SE) | Number of cases | | Design effect (DEFT) | Relative error (SE/R) | Confidence limits | |
|---|--------------|---------------------------|------------------------|------------------|----------------------------|-----------------------------|-------------------|-------|
| | | | Un- weighted (N) | Weighted (WN) | | | R-2SE | R+2SE |
| HOUSEHOLDS | | | | | | | | |
| Ownership of at least one mosquito net | 0.395 | 0.077 | 375 | 311 | 2.997 | 0.194 | 0.242 | 0.548 |
| Average number of mosquito nets per household | 0.727 | 0.149 | 375 | 311 | 2.691 | 0.204 | 0.430 | 1.024 |
| Ownership of at least one ITN | 0.378 | 0.080 | 375 | 311 | 3.153 | 0.212 | 0.218 | 0.538 |
| Average number of ITNs per household | 0.676 | 0.160 | 375 | 311 | 3.072 | 0.237 | 0.356 | 0.997 |
| Ownership of at least one ITN for two persons | 0.151 | 0.050 | 371 | 309 | 2.681 | 0.333 | 0.050 | 0.252 |
| WOMEN | | | | | | | | |
| No education | 0.391 | 0.079 | 367 | 298 | 3.071 | 0.203 | 0.233 | 0.550 |
| Secondary education or higher | 0.481 | 0.079 | 367 | 298 | 2.998 | 0.165 | 0.323 | 0.639 |
| Literate | 0.486 | 0.080 | 367 | 298 | 3.039 | 0.165 | 0.326 | 0.647 |
| CHILDREN | | | | | | | | |
| Slept under any mosquito net last night | 0.308 | 0.065 | 382 | 314 | 2.015 | 0.210 | 0.179 | 0.437 |
| Slept under an ITN last night | 0.295 | 0.067 | 382 | 314 | 2.125 | 0.228 | 0.161 | 0.430 |
| Slept under an ITN last night in households with at least one ITN | 0.780 | 0.064 | 145 | 119 | 1.446 | 0.082 | 0.652 | 0.907 |
| Had fever in last 2 weeks | 0.136 | 0.040 | 344 | 271 | 1.865 | 0.296 | 0.056 | 0.217 |
| Sought care/treatment from a health facility | 0.527 | 0.098 | 46 | 37 | 1.224 | 0.186 | 0.331 | 0.723 |
| Took ACT | 0.235 | 0.164 | 4 | 2 | 0.609 | 0.696 | 0.000 | 0.562 |
| Has anaemia (haemoglobin <8.0 g/dl) | 0.044 | 0.018 | 326 | 267 | 1.609 | 0.405 | 0.008 | 0.080 |
| Has malaria (based on rapid test) | 0.264 | 0.043 | 326 | 267 | 1.599 | 0.161 | 0.179 | 0.350 |
| Has malaria (based on microscopy test) | 0.188 | 0.047 | 325 | 266 | 2.030 | 0.249 | 0.095 | 0.282 |
| PREGNANT WOMEN | | | | | | | | |
| Slept under any mosquito net last night | 0.266 | 0.069 | 31 | 27 | 0.896 | 0.260 | 0.128 | 0.404 |
| Slept under an ITN last night | 0.266 | 0.069 | 31 | 27 | 0.896 | 0.260 | 0.128 | 0.404 |
| Slept under an ITN last night in households with at least one ITN | 0.807 | 0.131 | 10 | 9 | 1.094 | 0.163 | 0.544 | 1.070 |
| Received 1+ doses of SP/Fansidar | 0.514 | 0.075 | 113 | 92 | 1.599 | 0.147 | 0.364 | 0.665 |
| Received 2+ doses of SP/Fansidar | 0.488 | 0.076 | 113 | 92 | 1.602 | 0.155 | 0.337 | 0.639 |
| Received 3+ doses of SP/Fansidar | 0.458 | 0.075 | 113 | 92 | 1.597 | 0.164 | 0.308 | 0.608 |

Table B.27 Sampling errors: Taraba state sample, Nigeria MIS 2021

| Variable | Value (R) | Standard error (SE) | Number of cases | | Design effect (DEFT) | Relative error (SE/R) | Confidence limits | |
|---|--------------|---------------------------|------------------------|------------------|----------------------------|-----------------------------|-------------------|-------|
| | | | Un- weighted (N) | Weighted (WN) | | | R-2SE | R+2SE |
| HOUSEHOLDS | | | | | | | | |
| Ownership of at least one mosquito net | 0.692 | 0.041 | 348 | 258 | 1.656 | 0.059 | 0.609 | 0.774 |
| Average number of mosquito nets per household | 1.563 | 0.185 | 348 | 258 | 2.126 | 0.118 | 1.194 | 1.933 |
| Ownership of at least one ITN | 0.646 | 0.046 | 348 | 258 | 1.786 | 0.071 | 0.554 | 0.738 |
| Average number of ITNs per household | 1.419 | 0.170 | 348 | 258 | 2.042 | 0.120 | 1.078 | 1.760 |
| Ownership of at least one ITN for two persons | 0.300 | 0.033 | 348 | 258 | 1.325 | 0.109 | 0.234 | 0.365 |
| WOMEN | | | | | | | | |
| No education | 0.388 | 0.093 | 403 | 276 | 3.782 | 0.241 | 0.201 | 0.575 |
| Secondary education or higher | 0.409 | 0.114 | 403 | 276 | 4.519 | 0.278 | 0.182 | 0.636 |
| Literate | 0.546 | 0.091 | 403 | 276 | 3.615 | 0.167 | 0.364 | 0.728 |
| CHILDREN | | | | | | | | |
| Slept under any mosquito net last night | 0.419 | 0.052 | 437 | 289 | 1.379 | 0.124 | 0.315 | 0.523 |
| Slept under an ITN last night | 0.381 | 0.041 | 437 | 289 | 1.142 | 0.109 | 0.298 | 0.463 |
| Slept under an ITN last night in households with at least one ITN | 0.561 | 0.041 | 298 | 196 | 0.876 | 0.073 | 0.479 | 0.643 |
| Had fever in last 2 weeks | 0.244 | 0.022 | 364 | 227 | 0.805 | 0.090 | 0.200 | 0.287 |
| Sought care/treatment from a health facility | 0.468 | 0.094 | 96 | 55 | 1.471 | 0.200 | 0.281 | 0.656 |
| Took ACT | 0.406 | 0.058 | 34 | 18 | 0.599 | 0.142 | 0.290 | 0.522 |
| Has anaemia (haemoglobin <8.0 g/dl) | 0.093 | 0.020 | 389 | 257 | 1.298 | 0.217 | 0.053 | 0.134 |
| Has malaria (based on rapid test) | 0.245 | 0.044 | 389 | 257 | 1.680 | 0.181 | 0.156 | 0.334 |
| Has malaria (based on microscopy test) | 0.179 | 0.047 | 388 | 256 | 1.968 | 0.261 | 0.085 | 0.272 |
| PREGNANT WOMEN | | | | | | | | |
| Slept under any mosquito net last night | 0.521 | 0.133 | 31 | 20 | 1.402 | 0.255 | 0.255 | 0.788 |
| Slept under an ITN last night | 0.521 | 0.133 | 31 | 20 | 1.402 | 0.255 | 0.255 | 0.788 |
| Slept under an ITN last night in households with at least one ITN | 0.584 | 0.120 | 27 | 18 | 1.214 | 0.205 | 0.344 | 0.824 |
| Received 1+ doses of SP/Fansidar | 0.630 | 0.058 | 110 | 76 | 1.277 | 0.093 | 0.513 | 0.746 |
| Received 2+ doses of SP/Fansidar | 0.468 | 0.067 | 110 | 76 | 1.421 | 0.144 | 0.334 | 0.603 |
| Received 3+ doses of SP/Fansidar | 0.252 | 0.063 | 110 | 76 | 1.538 | 0.251 | 0.126 | 0.379 |

Table B.28 Sampling errors: Benue state sample, Nigeria MIS 2021

| Variable | Value (R) | Standard error (SE) | Number of cases | | Design effect (DEFT) | Relative error (SE/R) | Confidence limits | |
|---|--------------|---------------------------|------------------------|------------------|----------------------------|-----------------------------|-------------------|-------|
| | | | Un- weighted (N) | Weighted (WN) | | | R-2SE | R+2SE |
| HOUSEHOLDS | | | | | | | | |
| Ownership of at least one mosquito net | 0.748 | 0.032 | 400 | 381 | 1.468 | 0.043 | 0.685 | 0.812 |
| Average number of mosquito nets per household | 1.704 | 0.124 | 400 | 381 | 1.623 | 0.073 | 1.456 | 1.952 |
| Ownership of at least one ITN | 0.748 | 0.032 | 400 | 381 | 1.468 | 0.043 | 0.685 | 0.812 |
| Average number of ITNs per household | 1.701 | 0.123 | 400 | 381 | 1.619 | 0.073 | 1.454 | 1.948 |
| Ownership of at least one ITN for two persons | 0.385 | 0.037 | 400 | 381 | 1.530 | 0.097 | 0.310 | 0.459 |
| WOMEN | | | | | | | | |
| No education | 0.134 | 0.022 | 463 | 418 | 1.415 | 0.167 | 0.089 | 0.179 |
| Secondary education or higher | 0.628 | 0.032 | 463 | 418 | 1.426 | 0.051 | 0.564 | 0.692 |
| Literate | 0.645 | 0.041 | 463 | 418 | 1.841 | 0.064 | 0.563 | 0.727 |
| CHILDREN | | | | | | | | |
| Slept under any mosquito net last night | 0.576 | 0.044 | 354 | 327 | 1.279 | 0.076 | 0.489 | 0.664 |
| Slept under an ITN last night | 0.576 | 0.044 | 354 | 327 | 1.279 | 0.076 | 0.489 | 0.664 |
| Slept under an ITN last night in households with at least one ITN | 0.768 | 0.039 | 262 | 246 | 1.304 | 0.051 | 0.689 | 0.846 |
| Had fever in last 2 weeks | 0.183 | 0.035 | 297 | 264 | 1.384 | 0.192 | 0.113 | 0.254 |
| Sought care/treatment from a health facility | 0.731 | 0.059 | 45 | 48 | 0.948 | 0.080 | 0.614 | 0.848 |
| Took ACT | 0.830 | 0.057 | 33 | 35 | 0.954 | 0.069 | 0.716 | 0.944 |
| Has anaemia (haemoglobin <8.0 g/dl) | 0.067 | 0.021 | 320 | 293 | 1.391 | 0.316 | 0.025 | 0.110 |
| Has malaria (based on rapid test) | 0.340 | 0.058 | 320 | 293 | 1.924 | 0.171 | 0.224 | 0.456 |
| Has malaria (based on microscopy test) | 0.176 | 0.034 | 316 | 290 | 1.396 | 0.195 | 0.107 | 0.244 |
| PREGNANT WOMEN | | | | | | | | |
| Slept under any mosquito net last night | 0.708 | 0.133 | 23 | 24 | 1.462 | 0.187 | 0.443 | 0.974 |
| Slept under an ITN last night | 0.708 | 0.133 | 23 | 24 | 1.462 | 0.187 | 0.443 | 0.974 |
| Slept under an ITN last night in households with at least one ITN | 0.880 | 0.091 | 18 | 19 | 1.262 | 0.104 | 0.697 | 1.062 |
| Received 1+ doses of SP/Fansidar | 0.662 | 0.068 | 131 | 120 | 1.638 | 0.102 | 0.527 | 0.797 |
| Received 2+ doses of SP/Fansidar | 0.591 | 0.052 | 131 | 120 | 1.222 | 0.088 | 0.487 | 0.696 |
| Received 3+ doses of SP/Fansidar | 0.477 | 0.058 | 131 | 120 | 1.343 | 0.122 | 0.360 | 0.594 |

Table B.29 Sampling errors: Kogi state sample, Nigeria MIS 2021

| Variable | Value (R) | Standard error (SE) | Number of cases | | Design effect (DEFT) | Relative error (SE/R) | Confidence limits | |
|---|--------------|---------------------------|------------------------|------------------|----------------------------|-----------------------------|-------------------|-------|
| | | | Un- weighted (N) | Weighted (WN) | | | R-2SE | R+2SE |
| HOUSEHOLDS | | | | | | | | |
| Ownership of at least one mosquito net | 0.342 | 0.066 | 355 | 286 | 2.603 | 0.193 | 0.210 | 0.474 |
| Average number of mosquito nets per household | 0.656 | 0.169 | 355 | 286 | 2.641 | 0.258 | 0.317 | 0.994 |
| Ownership of at least one ITN | 0.315 | 0.067 | 355 | 286 | 2.687 | 0.212 | 0.181 | 0.449 |
| Average number of ITNs per household | 0.615 | 0.174 | 355 | 286 | 2.731 | 0.283 | 0.267 | 0.963 |
| Ownership of at least one ITN for two persons | 0.132 | 0.034 | 354 | 285 | 1.891 | 0.260 | 0.063 | 0.200 |
| WOMEN | | | | | | | | |
| No education | 0.154 | 0.029 | 329 | 251 | 1.457 | 0.189 | 0.096 | 0.212 |
| Secondary education or higher | 0.596 | 0.083 | 329 | 251 | 3.032 | 0.140 | 0.429 | 0.762 |
| Literate | 0.557 | 0.081 | 329 | 251 | 2.911 | 0.145 | 0.395 | 0.718 |
| CHILDREN | | | | | | | | |
| Slept under any mosquito net last night | 0.231 | 0.068 | 237 | 178 | 1.802 | 0.296 | 0.094 | 0.368 |
| Slept under an ITN last night | 0.210 | 0.066 | 237 | 178 | 1.810 | 0.314 | 0.078 | 0.343 |
| Slept under an ITN last night in households with at least one ITN | 0.597 | 0.061 | 89 | 63 | 0.895 | 0.103 | 0.474 | 0.720 |
| Had fever in last 2 weeks | 0.338 | 0.039 | 185 | 131 | 1.076 | 0.116 | 0.259 | 0.416 |
| Sought care/treatment from a health facility | 0.667 | 0.116 | 56 | 44 | 1.904 | 0.174 | 0.435 | 0.899 |
| Took ACT | 0.774 | 0.091 | 35 | 24 | 1.199 | 0.117 | 0.593 | 0.956 |
| Has anaemia (haemoglobin <8.0 g/dl) | 0.073 | 0.023 | 206 | 153 | 1.263 | 0.313 | 0.028 | 0.119 |
| Has malaria (based on rapid test) | 0.277 | 0.067 | 206 | 153 | 1.770 | 0.242 | 0.143 | 0.412 |
| Has malaria (based on microscopy test) | 0.159 | 0.040 | 204 | 151 | 1.295 | 0.251 | 0.079 | 0.239 |
| PREGNANT WOMEN | | | | | | | | |
| Slept under any mosquito net last night | 0.241 | 0.108 | 20 | 16 | 1.128 | 0.447 | 0.026 | 0.457 |
| Slept under an ITN last night | 0.241 | 0.108 | 20 | 16 | 1.128 | 0.447 | 0.026 | 0.457 |
| Slept under an ITN last night in households with at least one ITN | 0.509 | 0.185 | 10 | 8 | 1.137 | 0.362 | 0.140 | 0.879 |
| Received 1+ doses of SP/Fansidar | 0.543 | 0.063 | 71 | 51 | 1.041 | 0.117 | 0.416 | 0.669 |
| Received 2+ doses of SP/Fansidar | 0.467 | 0.062 | 71 | 51 | 1.018 | 0.133 | 0.343 | 0.590 |
| Received 3+ doses of SP/Fansidar | 0.257 | 0.051 | 71 | 51 | 0.952 | 0.197 | 0.156 | 0.359 |

Table B.30 Sampling errors: Kwara state sample, Nigeria MIS 2021

| Variable | Value (R) | Standard error (SE) | Number of cases | | Design effect (DEFT) | Relative error (SE/R) | Confidence limits | |
|---|--------------|---------------------------|------------------------|------------------|----------------------------|-----------------------------|-------------------|-------|
| | | | Un- weighted (N) | Weighted (WN) | | | R-2SE | R+2SE |
| HOUSEHOLDS | | | | | | | | |
| Ownership of at least one mosquito net | 0.648 | 0.066 | 337 | 298 | 2.505 | 0.102 | 0.516 | 0.779 |
| Average number of mosquito nets per household | 1.263 | 0.162 | 337 | 298 | 2.298 | 0.128 | 0.940 | 1.587 |
| Ownership of at least one ITN | 0.629 | 0.072 | 337 | 298 | 2.695 | 0.114 | 0.486 | 0.772 |
| Average number of ITNs per household | 1.242 | 0.167 | 337 | 298 | 2.355 | 0.135 | 0.908 | 1.576 |
| Ownership of at least one ITN for two persons | 0.292 | 0.049 | 337 | 298 | 1.947 | 0.166 | 0.195 | 0.389 |
| WOMEN | | | | | | | | |
| No education | 0.162 | 0.068 | 313 | 277 | 3.194 | 0.418 | 0.026 | 0.297 |
| Secondary education or higher | 0.659 | 0.071 | 313 | 277 | 2.605 | 0.107 | 0.518 | 0.800 |
| Literate | 0.733 | 0.074 | 313 | 277 | 2.913 | 0.101 | 0.585 | 0.881 |
| CHILDREN | | | | | | | | |
| Slept under any mosquito net last night | 0.467 | 0.047 | 204 | 203 | 1.093 | 0.100 | 0.374 | 0.560 |
| Slept under an ITN last night | 0.442 | 0.041 | 204 | 203 | 0.969 | 0.093 | 0.360 | 0.524 |
| Slept under an ITN last night in households with at least one ITN | 0.585 | 0.077 | 155 | 153 | 1.509 | 0.131 | 0.431 | 0.738 |
| Had fever in last 2 weeks | 0.244 | 0.078 | 193 | 183 | 2.360 | 0.320 | 0.088 | 0.399 |
| Sought care/treatment from a health facility | 0.573 | 0.099 | 40 | 45 | 1.255 | 0.173 | 0.375 | 0.772 |
| Took ACT | 0.447 | 0.081 | 16 | 19 | 0.704 | 0.182 | 0.284 | 0.610 |
| Has anaemia (haemoglobin <8.0 g/dl) | 0.029 | 0.009 | 170 | 165 | 0.708 | 0.298 | 0.012 | 0.046 |
| Has malaria (based on rapid test) | 0.176 | 0.062 | 170 | 165 | 1.944 | 0.352 | 0.052 | 0.300 |
| Has malaria (based on microscopy test) | 0.056 | 0.020 | 170 | 165 | 1.195 | 0.350 | 0.017 | 0.096 |
| PREGNANT WOMEN | | | | | | | | |
| Slept under any mosquito net last night | 0.428 | 0.102 | 26 | 25 | 1.107 | 0.239 | 0.223 | 0.633 |
| Slept under an ITN last night | 0.428 | 0.102 | 26 | 25 | 1.107 | 0.239 | 0.223 | 0.633 |
| Slept under an ITN last night in households with at least one ITN | 0.573 | 0.132 | 17 | 19 | 1.235 | 0.231 | 0.309 | 0.838 |
| Received 1+ doses of SP/Fansidar | 0.592 | 0.096 | 81 | 77 | 1.811 | 0.162 | 0.401 | 0.784 |
| Received 2+ doses of SP/Fansidar | 0.431 | 0.088 | 81 | 77 | 1.661 | 0.205 | 0.254 | 0.608 |
| Received 3+ doses of SP/Fansidar | 0.274 | 0.065 | 81 | 77 | 1.361 | 0.238 | 0.144 | 0.404 |

Table B.31 Sampling errors: Oyo state sample, Nigeria MIS 2021

| Variable | Value (R) | Standard error (SE) | Number of cases | | Design effect (DEFT) | Relative error (SE/R) | Confidence limits | |
|---|--------------|---------------------------|------------------------|------------------|----------------------------|-----------------------------|-------------------|-------|
| | | | Un- weighted (N) | Weighted (WN) | | | R-2SE | R+2SE |
| HOUSEHOLDS | | | | | | | | |
| Ownership of at least one mosquito net | 0.541 | 0.029 | 374 | 562 | 1.132 | 0.054 | 0.482 | 0.599 |
| Average number of mosquito nets per household | 1.156 | 0.111 | 374 | 562 | 1.622 | 0.096 | 0.934 | 1.377 |
| Ownership of at least one ITN | 0.537 | 0.030 | 374 | 562 | 1.149 | 0.055 | 0.478 | 0.597 |
| Average number of ITNs per household | 1.134 | 0.113 | 374 | 562 | 1.690 | 0.100 | 0.908 | 1.360 |
| Ownership of at least one ITN for two persons | 0.305 | 0.035 | 372 | 559 | 1.463 | 0.115 | 0.235 | 0.375 |
| WOMEN | | | | | | | | |
| No education | 0.147 | 0.047 | 359 | 497 | 2.502 | 0.321 | 0.053 | 0.242 |
| Secondary education or higher | 0.728 | 0.051 | 359 | 497 | 2.163 | 0.070 | 0.625 | 0.830 |
| Literate | 0.800 | 0.055 | 359 | 497 | 2.559 | 0.068 | 0.691 | 0.909 |
| CHILDREN | | | | | | | | |
| Slept under any mosquito net last night | 0.356 | 0.051 | 210 | 318 | 1.319 | 0.143 | 0.254 | 0.458 |
| Slept under an ITN last night | 0.356 | 0.051 | 210 | 318 | 1.319 | 0.143 | 0.254 | 0.458 |
| Slept under an ITN last night in households with at least one ITN | 0.605 | 0.055 | 121 | 187 | 1.056 | 0.091 | 0.495 | 0.716 |
| Had fever in last 2 weeks | 0.183 | 0.047 | 208 | 300 | 1.789 | 0.254 | 0.090 | 0.276 |
| Sought care/treatment from a health facility | 0.460 | 0.081 | 35 | 55 | 1.028 | 0.177 | 0.297 | 0.623 |
| Took ACT | 0.395 | 0.107 | 17 | 25 | 0.934 | 0.270 | 0.181 | 0.608 |
| Has anaemia (haemoglobin <8.0 g/dl) | 0.063 | 0.023 | 178 | 268 | 1.162 | 0.367 | 0.017 | 0.109 |
| Has malaria (based on rapid test) | 0.296 | 0.056 | 178 | 268 | 1.440 | 0.189 | 0.184 | 0.407 |
| Has malaria (based on microscopy test) | 0.209 | 0.059 | 178 | 268 | 1.740 | 0.280 | 0.092 | 0.326 |
| PREGNANT WOMEN | | | | | | | | |
| Slept under any mosquito net last night | 0.344 | 0.103 | 18 | 24 | 0.863 | 0.300 | 0.138 | 0.550 |
| Slept under an ITN last night | 0.344 | 0.103 | 18 | 24 | 0.863 | 0.300 | 0.138 | 0.550 |
| Slept under an ITN last night in households with at least one ITN | 0.514 | 0.134 | 13 | 16 | 0.870 | 0.260 | 0.246 | 0.781 |
| Received 1+ doses of SP/Fansidar | 0.558 | 0.069 | 83 | 123 | 1.316 | 0.124 | 0.420 | 0.697 |
| Received 2+ doses of SP/Fansidar | 0.401 | 0.062 | 83 | 123 | 1.193 | 0.155 | 0.277 | 0.525 |
| Received 3+ doses of SP/Fansidar | 0.189 | 0.044 | 83 | 123 | 1.047 | 0.230 | 0.102 | 0.276 |

Table B.32 Sampling errors: Osun state sample, Nigeria MIS 2021

| Variable | Value (R) | Standard error (SE) | Number of cases | | Design effect (DEFT) | Relative error (SE/R) | Confidence limits | |
|---|--------------|---------------------------|------------------------|------------------|----------------------------|-----------------------------|-------------------|-------|
| | | | Un- weighted (N) | Weighted (WN) | | | R-2SE | R+2SE |
| HOUSEHOLDS | | | | | | | | |
| Ownership of at least one mosquito net | 0.722 | 0.036 | 366 | 340 | 1.520 | 0.049 | 0.650 | 0.793 |
| Average number of mosquito nets per household | 1.975 | 0.124 | 366 | 340 | 1.314 | 0.063 | 1.728 | 2.222 |
| Ownership of at least one ITN | 0.719 | 0.035 | 366 | 340 | 1.499 | 0.049 | 0.648 | 0.789 |
| Average number of ITNs per household | 1.969 | 0.125 | 366 | 340 | 1.326 | 0.063 | 1.719 | 2.219 |
| Ownership of at least one ITN for two persons | 0.526 | 0.051 | 364 | 338 | 1.934 | 0.097 | 0.425 | 0.628 |
| WOMEN | | | | | | | | |
| No education | 0.040 | 0.020 | 354 | 320 | 1.933 | 0.509 | 0.000 | 0.080 |
| Secondary education or higher | 0.813 | 0.035 | 354 | 320 | 1.662 | 0.043 | 0.744 | 0.882 |
| Literate | 0.802 | 0.032 | 354 | 320 | 1.491 | 0.039 | 0.739 | 0.866 |
| CHILDREN | | | | | | | | |
| Slept under any mosquito net last night | 0.351 | 0.059 | 172 | 176 | 1.479 | 0.170 | 0.232 | 0.470 |
| Slept under an ITN last night | 0.351 | 0.059 | 172 | 176 | 1.479 | 0.170 | 0.232 | 0.470 |
| Slept under an ITN last night in households with at least one ITN | 0.545 | 0.074 | 115 | 113 | 1.487 | 0.136 | 0.397 | 0.693 |
| Had fever in last 2 weeks | 0.157 | 0.021 | 160 | 157 | 0.806 | 0.135 | 0.114 | 0.199 |
| Sought care/treatment from a health facility | 0.610 | 0.077 | 25 | 25 | 0.819 | 0.126 | 0.457 | 0.763 |
| Took ACT | 0.789 | 0.152 | 11 | 11 | 1.274 | 0.193 | 0.485 | 1.093 |
| Has anaemia (haemoglobin <8.0 g/dl) | 0.027 | 0.012 | 149 | 153 | 0.962 | 0.446 | 0.003 | 0.051 |
| Has malaria (based on rapid test) | 0.276 | 0.046 | 149 | 153 | 1.203 | 0.166 | 0.184 | 0.367 |
| Has malaria (based on microscopy test) | 0.193 | 0.036 | 148 | 152 | 1.158 | 0.187 | 0.121 | 0.266 |
| PREGNANT WOMEN | | | | | | | | |
| Slept under any mosquito net last night | 0.259 | 0.138 | 19 | 20 | 1.467 | 0.532 | 0.000 | 0.534 |
| Slept under an ITN last night | 0.259 | 0.138 | 19 | 20 | 1.467 | 0.532 | 0.000 | 0.534 |
| Slept under an ITN last night in households with at least one ITN | 0.565 | 0.205 | 9 | 9 | 1.305 | 0.362 | 0.156 | 0.975 |
| Received 1+ doses of SP/Fansidar | 0.557 | 0.068 | 65 | 64 | 1.146 | 0.121 | 0.422 | 0.692 |
| Received 2+ doses of SP/Fansidar | 0.448 | 0.064 | 65 | 64 | 1.080 | 0.142 | 0.321 | 0.575 |
| Received 3+ doses of SP/Fansidar | 0.252 | 0.044 | 65 | 64 | 0.864 | 0.177 | 0.163 | 0.341 |

Table B.33 Sampling errors: Ekiti state sample, Nigeria MIS 2021

| Variable | Value (R) | Standard error (SE) | Number of cases | | Design effect (DEFT) | Relative error (SE/R) | Confidence limits | |
|---|--------------|---------------------------|------------------------|------------------|----------------------------|-----------------------------|-------------------|-------|
| | | | Un- weighted (N) | Weighted (WN) | | | R-2SE | R+2SE |
| HOUSEHOLDS | | | | | | | | |
| Ownership of at least one mosquito net | 0.254 | 0.036 | 331 | 151 | 1.495 | 0.141 | 0.182 | 0.326 |
| Average number of mosquito nets per household | 0.409 | 0.056 | 331 | 151 | 1.249 | 0.137 | 0.297 | 0.520 |
| Ownership of at least one ITN | 0.254 | 0.036 | 331 | 151 | 1.495 | 0.141 | 0.182 | 0.326 |
| Average number of ITNs per household | 0.406 | 0.057 | 331 | 151 | 1.282 | 0.141 | 0.292 | 0.521 |
| Ownership of at least one ITN for two persons | 0.087 | 0.020 | 327 | 149 | 1.275 | 0.228 | 0.047 | 0.127 |
| WOMEN | | | | | | | | |
| No education | 0.037 | 0.014 | 278 | 123 | 1.279 | 0.395 | 0.008 | 0.065 |
| Secondary education or higher | 0.868 | 0.024 | 278 | 123 | 1.174 | 0.028 | 0.820 | 0.915 |
| Literate | 0.921 | 0.016 | 278 | 123 | 0.971 | 0.017 | 0.890 | 0.953 |
| CHILDREN | | | | | | | | |
| Slept under any mosquito net last night | 0.108 | 0.027 | 170 | 83 | 1.023 | 0.254 | 0.053 | 0.162 |
| Slept under an ITN last night | 0.108 | 0.027 | 170 | 83 | 1.023 | 0.254 | 0.053 | 0.162 |
| Slept under an ITN last night in households with at least one ITN | 0.260 | 0.061 | 64 | 34 | 0.975 | 0.234 | 0.138 | 0.382 |
| Had fever in last 2 weeks | 0.191 | 0.048 | 142 | 65 | 1.426 | 0.251 | 0.095 | 0.287 |
| Sought care/treatment from a health facility | 0.412 | 0.133 | 33 | 12 | 1.351 | 0.323 | 0.146 | 0.677 |
| Took ACT | 0.859 | 0.080 | 15 | 5 | 0.800 | 0.093 | 0.699 | 1.020 |
| Has anaemia (haemoglobin <8.0 g/dl) | 0.029 | 0.019 | 150 | 75 | 1.542 | 0.668 | 0.000 | 0.067 |
| Has malaria (based on rapid test) | 0.365 | 0.074 | 150 | 75 | 1.582 | 0.203 | 0.217 | 0.513 |
| Has malaria (based on microscopy test) | 0.208 | 0.105 | 150 | 75 | 2.607 | 0.502 | 0.000 | 0.417 |
| PREGNANT WOMEN | | | | | | | | |
| Slept under any mosquito net last night | 0.154 | 0.135 | 8 | 5 | 1.229 | 0.871 | 0.000 | 0.423 |
| Slept under an ITN last night | 0.154 | 0.135 | 8 | 5 | 1.229 | 0.871 | 0.000 | 0.423 |
| Slept under an ITN last night in households with at least one ITN | 0.653 | 0.358 | 2 | 1 | 1.242 | 0.548 | 0.000 | 1.370 |
| Received 1+ doses of SP/Fansidar | 0.740 | 0.052 | 54 | 25 | 0.879 | 0.070 | 0.636 | 0.843 |
| Received 2+ doses of SP/Fansidar | 0.626 | 0.079 | 54 | 25 | 1.213 | 0.126 | 0.468 | 0.783 |
| Received 3+ doses of SP/Fansidar | 0.400 | 0.078 | 54 | 25 | 1.185 | 0.194 | 0.245 | 0.556 |

Table B.34 Sampling errors: Ondo state sample, Nigeria MIS 2021

| Variable | Value (R) | Standard error (SE) | Number of cases | | Design effect (DEFT) | Relative error (SE/R) | Confidence limits | |
|---|--------------|---------------------------|------------------------|------------------|----------------------------|-----------------------------|-------------------|-------|
| | | | Un- weighted (N) | Weighted (WN) | | | R-2SE | R+2SE |
| HOUSEHOLDS | | | | | | | | |
| Ownership of at least one mosquito net | 0.334 | 0.028 | 320 | 167 | 1.044 | 0.083 | 0.279 | 0.389 |
| Average number of mosquito nets per household | 0.671 | 0.087 | 320 | 167 | 1.322 | 0.130 | 0.497 | 0.846 |
| Ownership of at least one ITN | 0.328 | 0.028 | 320 | 167 | 1.049 | 0.084 | 0.273 | 0.383 |
| Average number of ITNs per household | 0.663 | 0.088 | 320 | 167 | 1.330 | 0.132 | 0.487 | 0.839 |
| Ownership of at least one ITN for two persons | 0.156 | 0.027 | 320 | 167 | 1.325 | 0.173 | 0.102 | 0.210 |
| WOMEN | | | | | | | | |
| No education | 0.068 | 0.015 | 306 | 156 | 1.008 | 0.213 | 0.039 | 0.097 |
| Secondary education or higher | 0.780 | 0.034 | 306 | 156 | 1.439 | 0.044 | 0.711 | 0.848 |
| Literate | 0.803 | 0.027 | 306 | 156 | 1.176 | 0.033 | 0.749 | 0.856 |
| CHILDREN | | | | | | | | |
| Slept under any mosquito net last night | 0.257 | 0.041 | 221 | 121 | 1.124 | 0.158 | 0.176 | 0.338 |
| Slept under an ITN last night | 0.249 | 0.039 | 221 | 121 | 1.077 | 0.156 | 0.171 | 0.326 |
| Slept under an ITN last night in households with at least one ITN | 0.633 | 0.065 | 95 | 48 | 0.987 | 0.103 | 0.503 | 0.763 |
| Had fever in last 2 weeks | 0.152 | 0.045 | 171 | 88 | 1.538 | 0.293 | 0.063 | 0.242 |
| Sought care/treatment from a health facility | 0.488 | 0.133 | 28 | 13 | 1.267 | 0.273 | 0.222 | 0.754 |
| Took ACT | 0.200 | 0.133 | 9 | 4 | 0.981 | 0.664 | 0.000 | 0.465 |
| Has anaemia (haemoglobin <8.0 g/dl) | 0.103 | 0.028 | 210 | 114 | 1.231 | 0.268 | 0.048 | 0.158 |
| Has malaria (based on rapid test) | 0.448 | 0.055 | 210 | 114 | 1.472 | 0.123 | 0.338 | 0.559 |
| Has malaria (based on microscopy test) | 0.267 | 0.044 | 210 | 114 | 1.234 | 0.164 | 0.179 | 0.354 |
| PREGNANT WOMEN | | | | | | | | |
| Slept under any mosquito net last night | 0.282 | 0.076 | 24 | 14 | 0.840 | 0.269 | 0.131 | 0.434 |
| Slept under an ITN last night | 0.256 | 0.076 | 24 | 14 | 0.869 | 0.296 | 0.104 | 0.407 |
| Slept under an ITN last night in households with at least one ITN | 0.819 | 0.099 | 9 | 4 | 0.736 | 0.121 | 0.621 | 1.018 |
| Received 1+ doses of SP/Fansidar | 0.600 | 0.093 | 65 | 33 | 1.509 | 0.155 | 0.414 | 0.785 |
| Received 2+ doses of SP/Fansidar | 0.501 | 0.081 | 65 | 33 | 1.300 | 0.162 | 0.339 | 0.664 |
| Received 3+ doses of SP/Fansidar | 0.282 | 0.058 | 65 | 33 | 1.035 | 0.207 | 0.166 | 0.399 |

Table B.35 Sampling errors: Edo state sample, Nigeria MIS 2021

| Variable | Value (R) | Standard error (SE) | Number of cases | | Design effect (DEFT) | Relative error (SE/R) | Confidence limits | |
|---|--------------|---------------------------|------------------------|------------------|----------------------------|-----------------------------|-------------------|-------|
| | | | Un- weighted (N) | Weighted (WN) | | | R-2SE | R+2SE |
| HOUSEHOLDS | | | | | | | | |
| Ownership of at least one mosquito net | 0.280 | 0.029 | 346 | 311 | 1.207 | 0.104 | 0.222 | 0.339 |
| Average number of mosquito nets per household | 0.600 | 0.082 | 346 | 311 | 1.304 | 0.136 | 0.436 | 0.763 |
| Ownership of at least one ITN | 0.279 | 0.029 | 346 | 311 | 1.208 | 0.105 | 0.220 | 0.337 |
| Average number of ITNs per household | 0.581 | 0.085 | 346 | 311 | 1.388 | 0.147 | 0.411 | 0.752 |
| Ownership of at least one ITN for two persons | 0.146 | 0.022 | 345 | 310 | 1.165 | 0.152 | 0.102 | 0.191 |
| WOMEN | | | | | | | | |
| No education | 0.065 | 0.015 | 331 | 300 | 1.098 | 0.229 | 0.035 | 0.095 |
| Secondary education or higher | 0.819 | 0.036 | 331 | 300 | 1.713 | 0.044 | 0.747 | 0.892 |
| Literate | 0.791 | 0.041 | 331 | 300 | 1.839 | 0.052 | 0.708 | 0.873 |
| CHILDREN | | | | | | | | |
| Slept under any mosquito net last night | 0.174 | 0.058 | 146 | 126 | 1.461 | 0.333 | 0.058 | 0.289 |
| Slept under an ITN last night | 0.174 | 0.058 | 146 | 126 | 1.461 | 0.333 | 0.058 | 0.289 |
| Slept under an ITN last night in households with at least one ITN | 0.524 | 0.121 | 55 | 42 | 1.415 | 0.230 | 0.283 | 0.766 |
| Had fever in last 2 weeks | 0.408 | 0.045 | 145 | 123 | 0.969 | 0.111 | 0.317 | 0.498 |
| Sought care/treatment from a health facility | 0.641 | 0.089 | 59 | 50 | 1.299 | 0.139 | 0.463 | 0.820 |
| Took ACT | 0.721 | 0.115 | 18 | 15 | 1.023 | 0.160 | 0.491 | 0.951 |
| Has anaemia (haemoglobin <8.0 g/dl) | 0.030 | 0.022 | 104 | 90 | 1.076 | 0.714 | 0.000 | 0.074 |
| Has malaria (based on rapid test) | 0.302 | 0.052 | 104 | 90 | 0.991 | 0.173 | 0.197 | 0.407 |
| Has malaria (based on microscopy test) | 0.226 | 0.051 | 104 | 90 | 1.059 | 0.227 | 0.123 | 0.329 |
| PREGNANT WOMEN | | | | | | | | |
| Slept under any mosquito net last night | 0.069 | 0.068 | 22 | 19 | 1.230 | 0.978 | 0.000 | 0.205 |
| Slept under an ITN last night | 0.069 | 0.068 | 22 | 19 | 1.230 | 0.978 | 0.000 | 0.205 |
| Slept under an ITN last night in households with at least one ITN | 0.597 | 0.340 | 4 | 2 | 1.090 | 0.570 | 0.000 | 1.277 |
| Received 1+ doses of SP/Fansidar | 0.617 | 0.108 | 62 | 53 | 1.695 | 0.175 | 0.401 | 0.833 |
| Received 2+ doses of SP/Fansidar | 0.563 | 0.087 | 62 | 53 | 1.342 | 0.155 | 0.388 | 0.737 |
| Received 3+ doses of SP/Fansidar | 0.262 | 0.063 | 62 | 53 | 1.091 | 0.239 | 0.137 | 0.387 |

Table B.36 Sampling errors: Anambra state sample, Nigeria MIS 2021

| Variable | Value (R) | Standard error (SE) | Number of cases | | | Confidence limits | |
|---|--------------|---------------------------|------------------------|------------------|----------------------------|-----------------------------|-------|
| | | | Un- weighted (N) | Weighted (WN) | Design effect (DEFT) | Relative error (SE/R) | R-2SE |
| HOUSEHOLDS | | | | | | | |
| Ownership of at least one mosquito net | 0.267 | 0.026 | 400 | 325 | 1.172 | 0.097 | 0.215 |
| Average number of mosquito nets per household | 0.442 | 0.069 | 400 | 325 | 1.524 | 0.157 | 0.303 |
| Ownership of at least one ITN | 0.267 | 0.026 | 400 | 325 | 1.172 | 0.097 | 0.215 |
| Average number of ITNs per household | 0.437 | 0.067 | 400 | 325 | 1.481 | 0.152 | 0.304 |
| Ownership of at least one ITN for two persons | 0.121 | 0.021 | 398 | 324 | 1.284 | 0.174 | 0.079 |
| WOMEN | | | | | | | |
| No education | 0.014 | 0.007 | 357 | 283 | 1.113 | 0.503 | 0.000 |
| Secondary education or higher | 0.894 | 0.025 | 357 | 283 | 1.521 | 0.028 | 0.844 |
| Literate | 0.965 | 0.011 | 357 | 283 | 1.158 | 0.012 | 0.942 |
| CHILDREN | | | | | | | |
| Slept under any mosquito net last night | 0.204 | 0.058 | 219 | 180 | 1.702 | 0.287 | 0.087 |
| Slept under an ITN last night | 0.204 | 0.058 | 219 | 180 | 1.702 | 0.287 | 0.087 |
| Slept under an ITN last night in households with at least one ITN | 0.612 | 0.121 | 71 | 60 | 1.652 | 0.197 | 0.370 |
| Had fever in last 2 weeks | 0.375 | 0.068 | 211 | 166 | 1.714 | 0.181 | 0.239 |
| Sought care/treatment from a health facility | 0.885 | 0.039 | 69 | 62 | 0.933 | 0.044 | 0.808 |
| Took ACT | 0.415 | 0.134 | 46 | 43 | 1.550 | 0.322 | 0.148 |
| Has anaemia (haemoglobin <8.0 g/dl) | 0.025 | 0.013 | 195 | 159 | 1.123 | 0.500 | 0.000 |
| Has malaria (based on rapid test) | 0.202 | 0.049 | 196 | 160 | 1.405 | 0.242 | 0.104 |
| Has malaria (based on microscopy test) | 0.054 | 0.027 | 194 | 158 | 1.285 | 0.489 | 0.001 |
| PREGNANT WOMEN | | | | | | | |
| Slept under any mosquito net last night | 0.057 | 0.046 | 28 | 19 | 0.959 | 0.806 | 0.000 |
| Slept under an ITN last night | 0.057 | 0.046 | 28 | 19 | 0.959 | 0.806 | 0.000 |
| Slept under an ITN last night in households with at least one ITN | 0.244 | 0.175 | 7 | 4 | 0.954 | 0.718 | 0.000 |
| Received 1+ doses of SP/Fansidar | 0.872 | 0.064 | 66 | 53 | 1.561 | 0.073 | 0.744 |
| Received 2+ doses of SP/Fansidar | 0.773 | 0.081 | 66 | 53 | 1.585 | 0.105 | 0.611 |
| Received 3+ doses of SP/Fansidar | 0.523 | 0.076 | 66 | 53 | 1.238 | 0.145 | 0.372 |

Table B.37 Sampling errors: Enugu state sample, Nigeria MIS 2021

| Variable | Value (R) | Standard error (SE) | Number of cases | | | Confidence limits | |
|---|--------------|---------------------------|------------------------|------------------|----------------------------|-----------------------------|-------|
| | | | Un- weighted (N) | Weighted (WN) | Design effect (DEFT) | Relative error (SE/R) | R-2SE |
| HOUSEHOLDS | | | | | | | |
| Ownership of at least one mosquito net | 0.228 | 0.045 | 375 | 279 | 2.078 | 0.198 | 0.138 |
| Average number of mosquito nets per household | 0.371 | 0.085 | 375 | 279 | 2.183 | 0.229 | 0.201 |
| Ownership of at least one ITN | 0.228 | 0.045 | 375 | 279 | 2.078 | 0.198 | 0.138 |
| Average number of ITNs per household | 0.371 | 0.085 | 375 | 279 | 2.183 | 0.229 | 0.201 |
| Ownership of at least one ITN for two persons | 0.113 | 0.036 | 367 | 275 | 2.151 | 0.317 | 0.041 |
| WOMEN | | | | | | | |
| No education | 0.042 | 0.013 | 289 | 204 | 1.094 | 0.309 | 0.016 |
| Secondary education or higher | 0.750 | 0.036 | 289 | 204 | 1.418 | 0.048 | 0.677 |
| Literate | 0.911 | 0.022 | 289 | 204 | 1.329 | 0.024 | 0.867 |
| CHILDREN | | | | | | | |
| Slept under any mosquito net last night | 0.129 | 0.053 | 244 | 183 | 1.833 | 0.413 | 0.023 |
| Slept under an ITN last night | 0.129 | 0.053 | 244 | 183 | 1.833 | 0.413 | 0.023 |
| Slept under an ITN last night in households with at least one ITN | 0.451 | 0.123 | 67 | 52 | 1.549 | 0.272 | 0.205 |
| Had fever in last 2 weeks | 0.249 | 0.060 | 199 | 137 | 1.601 | 0.240 | 0.130 |
| Sought care/treatment from a health facility | 0.732 | 0.066 | 46 | 34 | 1.005 | 0.090 | 0.601 |
| Took ACT | 0.761 | 0.106 | 22 | 17 | 1.259 | 0.139 | 0.549 |
| Has anaemia (haemoglobin <8.0 g/dl) | 0.068 | 0.028 | 223 | 166 | 1.394 | 0.415 | 0.011 |
| Has malaria (based on rapid test) | 0.302 | 0.079 | 223 | 166 | 2.241 | 0.262 | 0.144 |
| Has malaria (based on microscopy test) | 0.243 | 0.067 | 222 | 166 | 1.997 | 0.274 | 0.110 |
| PREGNANT WOMEN | | | | | | | |
| Slept under any mosquito net last night | 0.099 | 0.094 | 10 | 8 | 1.021 | 0.947 | 0.000 |
| Slept under an ITN last night | 0.099 | 0.094 | 10 | 8 | 1.021 | 0.947 | 0.000 |
| Slept under an ITN last night in households with at least one ITN | 0.461 | 0.385 | 2 | 2 | 1.163 | 0.835 | 0.000 |
| Received 1+ doses of SP/Fansidar | 0.706 | 0.068 | 62 | 46 | 1.199 | 0.096 | 0.571 |
| Received 2+ doses of SP/Fansidar | 0.659 | 0.073 | 62 | 46 | 1.237 | 0.110 | 0.514 |
| Received 3+ doses of SP/Fansidar | 0.299 | 0.072 | 62 | 46 | 1.262 | 0.240 | 0.156 |

Table B.38 Sampling errors: Ebonyi state sample, Nigeria MIS 2021

| Variable | Value (R) | Standard error (SE) | Number of cases | | Design effect (DEFT) | Relative error (SE/R) | Confidence limits | |
|---|--------------|---------------------------|------------------------|------------------|----------------------------|-----------------------------|-------------------|-------|
| | | | Un- weighted (N) | Weighted (WN) | | | R-2SE | R+2SE |
| HOUSEHOLDS | | | | | | | | |
| Ownership of at least one mosquito net | 0.662 | 0.034 | 325 | 334 | 1.294 | 0.051 | 0.594 | 0.730 |
| Average number of mosquito nets per household | 1.507 | 0.113 | 325 | 334 | 1.340 | 0.075 | 1.281 | 1.733 |
| Ownership of at least one ITN | 0.662 | 0.034 | 325 | 334 | 1.294 | 0.051 | 0.594 | 0.730 |
| Average number of ITNs per household | 1.498 | 0.112 | 325 | 334 | 1.347 | 0.075 | 1.273 | 1.722 |
| Ownership of at least one ITN for two persons | 0.327 | 0.036 | 325 | 334 | 1.395 | 0.111 | 0.254 | 0.400 |
| WOMEN | | | | | | | | |
| No education | 0.030 | 0.015 | 312 | 297 | 1.578 | 0.514 | 0.000 | 0.060 |
| Secondary education or higher | 0.709 | 0.052 | 312 | 297 | 2.020 | 0.074 | 0.605 | 0.814 |
| Literate | 0.777 | 0.036 | 312 | 297 | 1.533 | 0.047 | 0.704 | 0.849 |
| CHILDREN | | | | | | | | |
| Slept under any mosquito net last night | 0.539 | 0.056 | 331 | 340 | 1.477 | 0.103 | 0.428 | 0.650 |
| Slept under an ITN last night | 0.539 | 0.056 | 331 | 340 | 1.477 | 0.103 | 0.428 | 0.650 |
| Slept under an ITN last night in households with at least one ITN | 0.682 | 0.050 | 266 | 269 | 1.264 | 0.073 | 0.582 | 0.781 |
| Had fever in last 2 weeks | 0.268 | 0.032 | 306 | 297 | 1.151 | 0.121 | 0.204 | 0.333 |
| Sought care/treatment from a health facility | 0.720 | 0.065 | 87 | 80 | 1.185 | 0.090 | 0.590 | 0.851 |
| Took ACT | 0.850 | 0.043 | 38 | 35 | 0.709 | 0.050 | 0.765 | 0.935 |
| Has anaemia (haemoglobin <8.0 g/dl) | 0.037 | 0.010 | 303 | 315 | 0.805 | 0.256 | 0.018 | 0.056 |
| Has malaria (based on rapid test) | 0.302 | 0.057 | 303 | 315 | 1.986 | 0.188 | 0.188 | 0.416 |
| Has malaria (based on microscopy test) | 0.257 | 0.040 | 301 | 312 | 1.528 | 0.154 | 0.178 | 0.336 |
| PREGNANT WOMEN | | | | | | | | |
| Slept under any mosquito net last night | 0.665 | 0.107 | 25 | 25 | 1.123 | 0.161 | 0.452 | 0.879 |
| Slept under an ITN last night | 0.665 | 0.107 | 25 | 25 | 1.123 | 0.161 | 0.452 | 0.879 |
| Slept under an ITN last night in households with at least one ITN | 0.872 | 0.082 | 19 | 19 | 1.070 | 0.094 | 0.707 | 1.037 |
| Received 1+ doses of SP/Fansidar | 0.923 | 0.032 | 99 | 91 | 1.167 | 0.035 | 0.859 | 0.987 |
| Received 2+ doses of SP/Fansidar | 0.821 | 0.038 | 99 | 91 | 0.967 | 0.046 | 0.745 | 0.897 |
| Received 3+ doses of SP/Fansidar | 0.429 | 0.059 | 99 | 91 | 1.162 | 0.137 | 0.311 | 0.547 |

Table B.39 Sampling errors: Cross River state sample, Nigeria MIS 2021

| Variable | Value (R) | Standard error (SE) | Number of cases | | Design effect (DEFT) | Relative error (SE/R) | Confidence limits | |
|---|--------------|---------------------------|------------------------|------------------|----------------------------|-----------------------------|-------------------|-------|
| | | | Un- weighted (N) | Weighted (WN) | | | R-2SE | R+2SE |
| HOUSEHOLDS | | | | | | | | |
| Ownership of at least one mosquito net | 0.529 | 0.035 | 372 | 274 | 1.360 | 0.067 | 0.459 | 0.600 |
| Average number of mosquito nets per household | 1.000 | 0.113 | 372 | 274 | 1.692 | 0.113 | 0.774 | 1.226 |
| Ownership of at least one ITN | 0.529 | 0.035 | 372 | 274 | 1.360 | 0.067 | 0.459 | 0.600 |
| Average number of ITNs per household | 1.000 | 0.113 | 372 | 274 | 1.692 | 0.113 | 0.774 | 1.226 |
| Ownership of at least one ITN for two persons | 0.260 | 0.022 | 372 | 274 | 0.951 | 0.083 | 0.216 | 0.303 |
| WOMEN | | | | | | | | |
| No education | 0.064 | 0.028 | 318 | 224 | 2.013 | 0.436 | 0.008 | 0.119 |
| Secondary education or higher | 0.811 | 0.053 | 318 | 224 | 2.383 | 0.065 | 0.705 | 0.916 |
| Literate | 0.794 | 0.055 | 318 | 224 | 2.409 | 0.069 | 0.684 | 0.905 |
| CHILDREN | | | | | | | | |
| Slept under any mosquito net last night | 0.387 | 0.054 | 261 | 205 | 1.394 | 0.141 | 0.278 | 0.496 |
| Slept under an ITN last night | 0.387 | 0.054 | 261 | 205 | 1.394 | 0.141 | 0.278 | 0.496 |
| Slept under an ITN last night in households with at least one ITN | 0.598 | 0.072 | 170 | 133 | 1.477 | 0.120 | 0.455 | 0.741 |
| Had fever in last 2 weeks | 0.406 | 0.031 | 211 | 157 | 0.911 | 0.077 | 0.343 | 0.469 |
| Sought care/treatment from a health facility | 0.584 | 0.049 | 87 | 64 | 0.940 | 0.084 | 0.485 | 0.682 |
| Took ACT | 0.824 | 0.074 | 37 | 27 | 1.198 | 0.090 | 0.676 | 0.972 |
| Has anaemia (haemoglobin <8.0 g/dl) | 0.015 | 0.007 | 237 | 185 | 0.881 | 0.451 | 0.001 | 0.028 |
| Has malaria (based on rapid test) | 0.406 | 0.085 | 237 | 185 | 2.395 | 0.211 | 0.235 | 0.576 |
| Has malaria (based on microscopy test) | 0.236 | 0.077 | 237 | 185 | 2.338 | 0.325 | 0.083 | 0.390 |
| PREGNANT WOMEN | | | | | | | | |
| Slept under any mosquito net last night | 0.333 | 0.093 | 18 | 17 | 0.848 | 0.280 | 0.146 | 0.520 |
| Slept under an ITN last night | 0.333 | 0.093 | 18 | 17 | 0.848 | 0.280 | 0.146 | 0.520 |
| Slept under an ITN last night in households with at least one ITN | 0.510 | 0.126 | 11 | 11 | 0.897 | 0.248 | 0.258 | 0.763 |
| Received 1+ doses of SP/Fansidar | 0.777 | 0.073 | 82 | 68 | 1.724 | 0.094 | 0.630 | 0.923 |
| Received 2+ doses of SP/Fansidar | 0.623 | 0.098 | 82 | 68 | 1.986 | 0.158 | 0.427 | 0.820 |
| Received 3+ doses of SP/Fansidar | 0.487 | 0.109 | 82 | 68 | 2.134 | 0.224 | 0.269 | 0.705 |

Table B.40 Sampling errors: Akwa Ibom state sample, Nigeria MIS 2021

| Variable | Value (R) | Standard error (SE) | Number of cases | | Design effect (DEFT) | Relative error (SE/R) | Confidence limits | |
|---|--------------|---------------------------|------------------------|------------------|----------------------------|-----------------------------|-------------------|-------|
| | | | Un- weighted (N) | Weighted (WN) | | | R-2SE | R+2SE |
| HOUSEHOLDS | | | | | | | | |
| Ownership of at least one mosquito net | 0.419 | 0.049 | 373 | 585 | 1.922 | 0.118 | 0.321 | 0.518 |
| Average number of mosquito nets per household | 0.808 | 0.107 | 373 | 585 | 1.706 | 0.132 | 0.594 | 1.022 |
| Ownership of at least one ITN | 0.413 | 0.049 | 373 | 585 | 1.923 | 0.119 | 0.315 | 0.512 |
| Average number of ITNs per household | 0.798 | 0.106 | 373 | 585 | 1.706 | 0.133 | 0.585 | 1.011 |
| Ownership of at least one ITN for two persons | 0.223 | 0.038 | 373 | 585 | 1.750 | 0.170 | 0.147 | 0.299 |
| WOMEN | | | | | | | | |
| No education | 0.064 | 0.019 | 320 | 478 | 1.382 | 0.297 | 0.026 | 0.102 |
| Secondary education or higher | 0.717 | 0.040 | 320 | 478 | 1.591 | 0.056 | 0.636 | 0.797 |
| Literate | 0.854 | 0.040 | 320 | 478 | 2.002 | 0.047 | 0.774 | 0.933 |
| CHILDREN | | | | | | | | |
| Slept under any mosquito net last night | 0.195 | 0.030 | 183 | 302 | 0.762 | 0.154 | 0.135 | 0.255 |
| Slept under an ITN last night | 0.195 | 0.030 | 183 | 302 | 0.762 | 0.154 | 0.135 | 0.255 |
| Slept under an ITN last night in households with at least one ITN | 0.434 | 0.064 | 82 | 135 | 0.914 | 0.148 | 0.306 | 0.563 |
| Had fever in last 2 weeks | 0.442 | 0.082 | 163 | 250 | 1.814 | 0.186 | 0.277 | 0.606 |
| Sought care/treatment from a health facility | 0.444 | 0.086 | 75 | 110 | 1.255 | 0.195 | 0.271 | 0.617 |
| Took ACT | 0.839 | 0.158 | 10 | 13 | 0.936 | 0.188 | 0.524 | 1.154 |
| Has anaemia (haemoglobin <8.0 g/dl) | 0.087 | 0.032 | 156 | 262 | 1.311 | 0.363 | 0.024 | 0.150 |
| Has malaria (based on rapid test) | 0.335 | 0.073 | 156 | 262 | 1.772 | 0.217 | 0.189 | 0.481 |
| Has malaria (based on microscopy test) | 0.301 | 0.071 | 155 | 259 | 1.639 | 0.237 | 0.159 | 0.444 |
| PREGNANT WOMEN | | | | | | | | |
| Slept under any mosquito net last night | 0.282 | 0.122 | 14 | 16 | 0.871 | 0.432 | 0.039 | 0.526 |
| Slept under an ITN last night | 0.282 | 0.122 | 14 | 16 | 0.871 | 0.432 | 0.039 | 0.526 |
| Slept under an ITN last night in households with at least one ITN | 0.540 | 0.208 | 7 | 9 | 0.970 | 0.385 | 0.125 | 0.956 |
| Received 1+ doses of SP/Fansidar | 0.434 | 0.053 | 68 | 105 | 0.896 | 0.122 | 0.328 | 0.540 |
| Received 2+ doses of SP/Fansidar | 0.300 | 0.046 | 68 | 105 | 0.838 | 0.153 | 0.208 | 0.392 |
| Received 3+ doses of SP/Fansidar | 0.069 | 0.031 | 68 | 105 | 1.006 | 0.441 | 0.008 | 0.130 |

Table B.41 Sampling errors: Abia state sample, Nigeria MIS 2021

| Variable | Value (R) | Standard error (SE) | Number of cases | | Design effect (DEFT) | Relative error (SE/R) | Confidence limits | |
|---|--------------|---------------------------|------------------------|------------------|----------------------------|-----------------------------|-------------------|-------|
| | | | Un- weighted (N) | Weighted (WN) | | | R-2SE | R+2SE |
| HOUSEHOLDS | | | | | | | | |
| Ownership of at least one mosquito net | 0.305 | 0.053 | 330 | 206 | 2.080 | 0.174 | 0.199 | 0.411 |
| Average number of mosquito nets per household | 0.634 | 0.105 | 330 | 206 | 1.637 | 0.166 | 0.423 | 0.845 |
| Ownership of at least one ITN | 0.303 | 0.053 | 330 | 206 | 2.067 | 0.174 | 0.197 | 0.408 |
| Average number of ITNs per household | 0.632 | 0.105 | 330 | 206 | 1.630 | 0.166 | 0.422 | 0.842 |
| Ownership of at least one ITN for two persons | 0.150 | 0.030 | 329 | 205 | 1.495 | 0.197 | 0.091 | 0.209 |
| WOMEN | | | | | | | | |
| No education | 0.047 | 0.016 | 299 | 178 | 1.276 | 0.332 | 0.016 | 0.079 |
| Secondary education or higher | 0.854 | 0.028 | 299 | 178 | 1.385 | 0.033 | 0.797 | 0.911 |
| Literate | 0.916 | 0.020 | 299 | 178 | 1.215 | 0.021 | 0.877 | 0.955 |
| CHILDREN | | | | | | | | |
| Slept under any mosquito net last night | 0.219 | 0.060 | 251 | 163 | 1.722 | 0.273 | 0.099 | 0.339 |
| Slept under an ITN last night | 0.219 | 0.060 | 251 | 163 | 1.722 | 0.273 | 0.099 | 0.339 |
| Slept under an ITN last night in households with at least one ITN | 0.633 | 0.052 | 89 | 56 | 0.801 | 0.082 | 0.529 | 0.737 |
| Had fever in last 2 weeks | 0.411 | 0.044 | 248 | 153 | 1.239 | 0.107 | 0.323 | 0.499 |
| Sought care/treatment from a health facility | 0.791 | 0.056 | 109 | 63 | 1.296 | 0.071 | 0.679 | 0.904 |
| Took ACT | 0.895 | 0.052 | 58 | 35 | 1.073 | 0.058 | 0.792 | 0.998 |
| Has anaemia (haemoglobin <8.0 g/dl) | 0.066 | 0.018 | 231 | 149 | 1.120 | 0.277 | 0.030 | 0.103 |
| Has malaria (based on rapid test) | 0.264 | 0.085 | 231 | 149 | 2.371 | 0.321 | 0.095 | 0.434 |
| Has malaria (based on microscopy test) | 0.145 | 0.056 | 231 | 149 | 1.905 | 0.389 | 0.032 | 0.258 |
| PREGNANT WOMEN | | | | | | | | |
| Slept under any mosquito net last night | 0.087 | 0.087 | 17 | 9 | 1.194 | 1.000 | 0.000 | 0.261 |
| Slept under an ITN last night | 0.087 | 0.087 | 17 | 9 | 1.194 | 1.000 | 0.000 | 0.261 |
| Slept under an ITN last night in households with at least one ITN | 0.467 | 0.379 | 3 | 2 | 1.268 | 0.811 | 0.000 | 1.226 |
| Received 1+ doses of SP/Fansidar | 0.853 | 0.036 | 89 | 56 | 0.980 | 0.042 | 0.781 | 0.925 |
| Received 2+ doses of SP/Fansidar | 0.827 | 0.034 | 89 | 56 | 0.869 | 0.041 | 0.759 | 0.895 |
| Received 3+ doses of SP/Fansidar | 0.511 | 0.062 | 89 | 56 | 1.192 | 0.121 | 0.387 | 0.634 |

Table B.42 Sampling errors: Imo state sample, Nigeria MIS 2021

| Variable | Value (R) | Standard error (SE) | Number of cases | | Design effect (DEFT) | Relative error (SE/R) | Confidence limits | |
|---|--------------|---------------------------|------------------------|------------------|----------------------------|-----------------------------|-------------------|-------|
| | | | Un- weighted (N) | Weighted (WN) | | | R-2SE | R+2SE |
| HOUSEHOLDS | | | | | | | | |
| Ownership of at least one mosquito net | 0.309 | 0.026 | 378 | 211 | 1.105 | 0.085 | 0.256 | 0.362 |
| Average number of mosquito nets per household | 0.652 | 0.063 | 378 | 211 | 1.010 | 0.097 | 0.525 | 0.778 |
| Ownership of at least one ITN | 0.309 | 0.026 | 378 | 211 | 1.105 | 0.085 | 0.256 | 0.362 |
| Average number of ITNs per household | 0.649 | 0.063 | 378 | 211 | 1.020 | 0.098 | 0.522 | 0.776 |
| Ownership of at least one ITN for two persons | 0.195 | 0.022 | 378 | 211 | 1.084 | 0.113 | 0.151 | 0.239 |
| WOMEN | | | | | | | | |
| No education | 0.010 | 0.006 | 266 | 149 | 0.979 | 0.588 | 0.000 | 0.022 |
| Secondary education or higher | 0.907 | 0.014 | 266 | 149 | 0.796 | 0.016 | 0.879 | 0.936 |
| Literate | 0.934 | 0.016 | 266 | 149 | 1.079 | 0.018 | 0.901 | 0.967 |
| CHILDREN | | | | | | | | |
| Slept under any mosquito net last night | 0.106 | 0.032 | 226 | 128 | 1.144 | 0.297 | 0.043 | 0.169 |
| Slept under an ITN last night | 0.106 | 0.032 | 226 | 128 | 1.144 | 0.297 | 0.043 | 0.169 |
| Slept under an ITN last night in households with at least one ITN | 0.296 | 0.092 | 80 | 46 | 1.372 | 0.311 | 0.112 | 0.481 |
| Had fever in last 2 weeks | 0.380 | 0.041 | 198 | 111 | 0.994 | 0.107 | 0.299 | 0.461 |
| Sought care/treatment from a health facility | 0.774 | 0.048 | 76 | 42 | 0.960 | 0.062 | 0.677 | 0.871 |
| Took ACT | 0.706 | 0.104 | 31 | 17 | 1.151 | 0.148 | 0.498 | 0.915 |
| Has anaemia (haemoglobin <8.0 g/dl) | 0.010 | 0.007 | 197 | 111 | 1.002 | 0.691 | 0.000 | 0.025 |
| Has malaria (based on rapid test) | 0.262 | 0.044 | 197 | 111 | 1.237 | 0.169 | 0.173 | 0.350 |
| Has malaria (based on microscopy test) | 0.155 | 0.028 | 195 | 110 | 0.969 | 0.180 | 0.099 | 0.211 |
| PREGNANT WOMEN | | | | | | | | |
| Slept under any mosquito net last night | 0.043 | 0.046 | 20 | 12 | 1.032 | 1.066 | 0.000 | 0.134 |
| Slept under an ITN last night | 0.043 | 0.046 | 20 | 12 | 1.032 | 1.066 | 0.000 | 0.134 |
| Slept under an ITN last night in households with at least one ITN | 0.183 | 0.182 | 5 | 3 | 0.998 | 0.990 | 0.000 | 0.546 |
| Received 1+ doses of SP/Fansidar | 0.475 | 0.076 | 67 | 38 | 1.241 | 0.160 | 0.324 | 0.627 |
| Received 2+ doses of SP/Fansidar | 0.366 | 0.075 | 67 | 38 | 1.271 | 0.205 | 0.216 | 0.515 |
| Received 3+ doses of SP/Fansidar | 0.206 | 0.048 | 67 | 38 | 0.972 | 0.233 | 0.110 | 0.302 |

Table B.43 Sampling errors: Rivers state sample, Nigeria MIS 2021

| Variable | Value (R) | Standard error (SE) | Number of cases | | Design effect (DEFT) | Relative error (SE/R) | Confidence limits | |
|---|--------------|---------------------------|------------------------|------------------|----------------------------|-----------------------------|-------------------|-------|
| | | | Un- weighted (N) | Weighted (WN) | | | R-2SE | R+2SE |
| HOUSEHOLDS | | | | | | | | |
| Ownership of at least one mosquito net | 0.228 | 0.038 | 617 | 364 | 2.227 | 0.166 | 0.153 | 0.304 |
| Average number of mosquito nets per household | 0.378 | 0.068 | 617 | 364 | 2.006 | 0.180 | 0.241 | 0.514 |
| Ownership of at least one ITN | 0.226 | 0.038 | 617 | 364 | 2.220 | 0.166 | 0.151 | 0.301 |
| Average number of ITNs per household | 0.374 | 0.068 | 617 | 364 | 1.995 | 0.181 | 0.239 | 0.509 |
| Ownership of at least one ITN for two persons | 0.056 | 0.011 | 615 | 363 | 1.158 | 0.191 | 0.035 | 0.078 |
| WOMEN | | | | | | | | |
| No education | 0.024 | 0.014 | 539 | 304 | 2.088 | 0.575 | 0.000 | 0.052 |
| Secondary education or higher | 0.888 | 0.034 | 539 | 304 | 2.523 | 0.039 | 0.819 | 0.957 |
| Literate | 0.900 | 0.032 | 539 | 304 | 2.482 | 0.036 | 0.835 | 0.964 |
| CHILDREN | | | | | | | | |
| Slept under any mosquito net last night | 0.144 | 0.039 | 383 | 254 | 1.689 | 0.271 | 0.066 | 0.221 |
| Slept under an ITN last night | 0.144 | 0.039 | 383 | 254 | 1.689 | 0.271 | 0.066 | 0.221 |
| Slept under an ITN last night in households with at least one ITN | 0.462 | 0.086 | 133 | 79 | 1.527 | 0.186 | 0.291 | 0.634 |
| Had fever in last 2 weeks | 0.306 | 0.037 | 334 | 213 | 1.367 | 0.121 | 0.232 | 0.380 |
| Sought care/treatment from a health facility | 0.582 | 0.097 | 97 | 65 | 1.849 | 0.168 | 0.387 | 0.776 |
| Took ACT | 0.809 | 0.048 | 30 | 19 | 0.740 | 0.059 | 0.714 | 0.905 |
| Has anaemia (haemoglobin <8.0 g/dl) | 0.053 | 0.017 | 349 | 232 | 1.408 | 0.323 | 0.019 | 0.087 |
| Has malaria (based on rapid test) | 0.338 | 0.058 | 349 | 232 | 1.993 | 0.170 | 0.223 | 0.453 |
| Has malaria (based on microscopy test) | 0.086 | 0.033 | 349 | 232 | 2.022 | 0.379 | 0.021 | 0.152 |
| PREGNANT WOMEN | | | | | | | | |
| Slept under any mosquito net last night | 0.014 | 0.009 | 31 | 12 | 0.362 | 0.667 | 0.000 | 0.032 |
| Slept under an ITN last night | 0.014 | 0.009 | 31 | 12 | 0.362 | 0.667 | 0.000 | 0.032 |
| Slept under an ITN last night in households with at least one ITN | 0.052 | 0.035 | 14 | 3 | 0.374 | 0.677 | 0.000 | 0.123 |
| Received 1+ doses of SP/Fansidar | 0.792 | 0.052 | 103 | 66 | 1.392 | 0.066 | 0.688 | 0.897 |
| Received 2+ doses of SP/Fansidar | 0.630 | 0.077 | 103 | 66 | 1.727 | 0.123 | 0.476 | 0.785 |
| Received 3+ doses of SP/Fansidar | 0.380 | 0.086 | 103 | 66 | 1.903 | 0.226 | 0.208 | 0.551 |

Table B.44 Sampling errors: Bayelsa state sample, Nigeria MIS 2021

| Variable | Value (R) | Standard error (SE) | Number of cases | | Design effect (DEFT) | Relative error (SE/R) | Confidence limits | |
|---|--------------|---------------------------|------------------------|------------------|----------------------------|-----------------------------|-------------------|-------|
| | | | Un- weighted (N) | Weighted (WN) | | | R-2SE | R+2SE |
| HOUSEHOLDS | | | | | | | | |
| Ownership of at least one mosquito net | 0.378 | 0.034 | 303 | 129 | 1.228 | 0.091 | 0.309 | 0.446 |
| Average number of mosquito nets per household | 0.674 | 0.063 | 303 | 129 | 1.060 | 0.093 | 0.549 | 0.799 |
| Ownership of at least one ITN | 0.316 | 0.039 | 303 | 129 | 1.464 | 0.124 | 0.237 | 0.394 |
| Average number of ITNs per household | 0.553 | 0.072 | 303 | 129 | 1.296 | 0.130 | 0.409 | 0.697 |
| Ownership of at least one ITN for two persons | 0.142 | 0.025 | 303 | 129 | 1.227 | 0.174 | 0.092 | 0.191 |
| WOMEN | | | | | | | | |
| No education | 0.084 | 0.030 | 314 | 131 | 1.931 | 0.362 | 0.023 | 0.145 |
| Secondary education or higher | 0.769 | 0.065 | 314 | 131 | 2.709 | 0.085 | 0.638 | 0.899 |
| Literate | 0.739 | 0.074 | 314 | 131 | 2.959 | 0.101 | 0.591 | 0.888 |
| CHILDREN | | | | | | | | |
| Slept under any mosquito net last night | 0.259 | 0.047 | 269 | 121 | 1.361 | 0.183 | 0.164 | 0.353 |
| Slept under an ITN last night | 0.228 | 0.053 | 269 | 121 | 1.580 | 0.233 | 0.121 | 0.334 |
| Slept under an ITN last night in households with at least one ITN | 0.608 | 0.054 | 101 | 45 | 0.977 | 0.089 | 0.500 | 0.717 |
| Had fever in last 2 weeks | 0.242 | 0.027 | 237 | 105 | 0.874 | 0.111 | 0.188 | 0.296 |
| Sought care/treatment from a health facility | 0.522 | 0.054 | 53 | 25 | 0.716 | 0.104 | 0.414 | 0.630 |
| Took ACT | 0.601 | 0.148 | 10 | 4 | 0.816 | 0.247 | 0.305 | 0.898 |
| Has anaemia (haemoglobin <8.0 g/dl) | 0.011 | 0.007 | 243 | 110 | 1.063 | 0.621 | 0.000 | 0.025 |
| Has malaria (based on rapid test) | 0.271 | 0.058 | 243 | 110 | 1.739 | 0.213 | 0.155 | 0.386 |
| Has malaria (based on microscopy test) | 0.167 | 0.038 | 243 | 110 | 1.384 | 0.224 | 0.092 | 0.243 |
| PREGNANT WOMEN | | | | | | | | |
| Slept under any mosquito net last night | 0.229 | 0.085 | 28 | 12 | 1.053 | 0.370 | 0.060 | 0.398 |
| Slept under an ITN last night | 0.229 | 0.085 | 28 | 12 | 1.053 | 0.370 | 0.060 | 0.398 |
| Slept under an ITN last night in households with at least one ITN | 0.524 | 0.149 | 12 | 5 | 1.033 | 0.285 | 0.226 | 0.823 |
| Received 1+ doses of SP/Fansidar | 0.447 | 0.087 | 69 | 29 | 1.446 | 0.195 | 0.272 | 0.621 |
| Received 2+ doses of SP/Fansidar | 0.385 | 0.076 | 69 | 29 | 1.293 | 0.198 | 0.232 | 0.537 |
| Received 3+ doses of SP/Fansidar | 0.253 | 0.068 | 69 | 29 | 1.284 | 0.268 | 0.118 | 0.388 |

Table B.45 Sampling errors: Delta state sample, Nigeria MIS 2021

| Variable | Value (R) | Standard error (SE) | Number of cases | | Design effect (DEFT) | Relative error (SE/R) | Confidence limits | |
|---|--------------|---------------------------|------------------------|------------------|----------------------------|-----------------------------|-------------------|-------|
| | | | Un- weighted (N) | Weighted (WN) | | | R-2SE | R+2SE |
| HOUSEHOLDS | | | | | | | | |
| Ownership of at least one mosquito net | 0.548 | 0.030 | 393 | 373 | 1.213 | 0.056 | 0.487 | 0.609 |
| Average number of mosquito nets per household | 1.041 | 0.076 | 393 | 373 | 1.234 | 0.073 | 0.889 | 1.193 |
| Ownership of at least one ITN | 0.548 | 0.030 | 393 | 373 | 1.213 | 0.056 | 0.487 | 0.609 |
| Average number of ITNs per household | 1.041 | 0.076 | 393 | 373 | 1.234 | 0.073 | 0.889 | 1.193 |
| Ownership of at least one ITN for two persons | 0.280 | 0.029 | 392 | 372 | 1.263 | 0.103 | 0.223 | 0.337 |
| WOMEN | | | | | | | | |
| No education | 0.118 | 0.030 | 326 | 298 | 1.695 | 0.258 | 0.057 | 0.179 |
| Secondary education or higher | 0.836 | 0.036 | 326 | 298 | 1.768 | 0.044 | 0.763 | 0.909 |
| Literate | 0.820 | 0.041 | 326 | 298 | 1.931 | 0.050 | 0.738 | 0.903 |
| CHILDREN | | | | | | | | |
| Slept under any mosquito net last night | 0.281 | 0.066 | 379 | 350 | 2.006 | 0.233 | 0.150 | 0.412 |
| Slept under an ITN last night | 0.281 | 0.066 | 379 | 350 | 2.006 | 0.233 | 0.150 | 0.412 |
| Slept under an ITN last night in households with at least one ITN | 0.447 | 0.106 | 235 | 220 | 2.217 | 0.238 | 0.234 | 0.660 |
| Had fever in last 2 weeks | 0.373 | 0.025 | 306 | 272 | 0.785 | 0.067 | 0.323 | 0.423 |
| Sought care/treatment from a health facility | 0.426 | 0.074 | 118 | 101 | 1.332 | 0.173 | 0.279 | 0.573 |
| Took ACT | 0.738 | 0.108 | 32 | 30 | 1.367 | 0.146 | 0.523 | 0.953 |
| Has anaemia (haemoglobin <8.0 g/dl) | 0.025 | 0.011 | 349 | 318 | 1.235 | 0.418 | 0.004 | 0.046 |
| Has malaria (based on rapid test) | 0.189 | 0.049 | 349 | 318 | 1.867 | 0.262 | 0.090 | 0.288 |
| Has malaria (based on microscopy test) | 0.100 | 0.031 | 347 | 316 | 1.761 | 0.313 | 0.037 | 0.163 |
| PREGNANT WOMEN | | | | | | | | |
| Slept under any mosquito net last night | 0.285 | 0.159 | 18 | 18 | 1.507 | 0.556 | 0.000 | 0.603 |
| Slept under an ITN last night | 0.285 | 0.159 | 18 | 18 | 1.507 | 0.556 | 0.000 | 0.603 |
| Slept under an ITN last night in households with at least one ITN | 0.446 | 0.199 | 13 | 11 | 1.375 | 0.446 | 0.048 | 0.844 |
| Received 1+ doses of SP/Fansidar | 0.602 | 0.043 | 90 | 82 | 0.831 | 0.071 | 0.516 | 0.688 |
| Received 2+ doses of SP/Fansidar | 0.499 | 0.059 | 90 | 82 | 1.107 | 0.117 | 0.382 | 0.616 |
| Received 3+ doses of SP/Fansidar | 0.382 | 0.054 | 90 | 82 | 1.043 | 0.140 | 0.275 | 0.489 |

Table B.46 Sampling errors: Lagos state sample, Nigeria MIS 2021

| Variable | Value (R) | Standard error (SE) | Number of cases | | Design effect (DEFT) | Relative error (SE/R) | Confidence limits | |
|---|--------------|---------------------------|------------------------|------------------|----------------------------|-----------------------------|-------------------|-------|
| | | | Un- weighted (N) | Weighted (WN) | | | R-2SE | R+2SE |
| HOUSEHOLDS | | | | | | | | |
| Ownership of at least one mosquito net | 0.383 | 0.041 | 423 | 811 | 1.729 | 0.107 | 0.301 | 0.465 |
| Average number of mosquito nets per household | 0.690 | 0.098 | 423 | 811 | 1.869 | 0.142 | 0.493 | 0.886 |
| Ownership of at least one ITN | 0.290 | 0.034 | 423 | 811 | 1.559 | 0.119 | 0.221 | 0.359 |
| Average number of ITNs per household | 0.496 | 0.069 | 423 | 811 | 1.546 | 0.139 | 0.358 | 0.635 |
| Ownership of at least one ITN for two persons | 0.132 | 0.023 | 415 | 796 | 1.379 | 0.174 | 0.086 | 0.178 |
| WOMEN | | | | | | | | |
| No education | 0.031 | 0.018 | 346 | 620 | 1.958 | 0.595 | 0.000 | 0.067 |
| Secondary education or higher | 0.899 | 0.027 | 346 | 620 | 1.660 | 0.030 | 0.845 | 0.953 |
| Literate | 0.878 | 0.029 | 346 | 620 | 1.639 | 0.033 | 0.820 | 0.936 |
| CHILDREN | | | | | | | | |
| Slept under any mosquito net last night | 0.140 | 0.036 | 203 | 391 | 1.149 | 0.256 | 0.068 | 0.212 |
| Slept under an ITN last night | 0.092 | 0.023 | 203 | 391 | 0.936 | 0.255 | 0.045 | 0.139 |
| Slept under an ITN last night in households with at least one ITN | 0.279 | 0.081 | 70 | 129 | 1.219 | 0.291 | 0.116 | 0.442 |
| Had fever in last 2 weeks | 0.346 | 0.033 | 189 | 352 | 0.860 | 0.096 | 0.279 | 0.413 |
| Sought care/treatment from a health facility | 0.734 | 0.054 | 66 | 122 | 0.965 | 0.074 | 0.626 | 0.842 |
| Took ACT | 0.891 | 0.057 | 27 | 55 | 0.991 | 0.063 | 0.778 | 1.004 |
| Has anaemia (haemoglobin <8.0 g/dl) | 0.027 | 0.012 | 180 | 349 | 0.920 | 0.463 | 0.002 | 0.052 |
| Has malaria (based on rapid test) | 0.032 | 0.021 | 180 | 349 | 1.333 | 0.645 | 0.000 | 0.074 |
| Has malaria (based on microscopy test) | 0.026 | 0.015 | 179 | 347 | 1.277 | 0.584 | 0.000 | 0.056 |
| PREGNANT WOMEN | | | | | | | | |
| Slept under any mosquito net last night | 0.101 | 0.072 | 15 | 30 | 0.943 | 0.708 | 0.000 | 0.244 |
| Slept under an ITN last night | 0.101 | 0.072 | 15 | 30 | 0.943 | 0.708 | 0.000 | 0.244 |
| Slept under an ITN last night in households with at least one ITN | 0.151 | 0.103 | 10 | 20 | 0.941 | 0.687 | 0.000 | 0.357 |
| Received 1+ doses of SP/Fansidar | 0.691 | 0.054 | 76 | 147 | 1.049 | 0.078 | 0.584 | 0.799 |
| Received 2+ doses of SP/Fansidar | 0.587 | 0.071 | 76 | 147 | 1.303 | 0.121 | 0.445 | 0.729 |
| Received 3+ doses of SP/Fansidar | 0.307 | 0.065 | 76 | 147 | 1.280 | 0.213 | 0.176 | 0.438 |

Table B.47 Sampling errors: Ogun state sample, Nigeria MIS 2021

| Variable | Value (R) | Standard error (SE) | Number of cases | | Design effect (DEFT) | Relative error (SE/R) | Confidence limits | |
|---|--------------|---------------------------|------------------------|------------------|----------------------------|-----------------------------|-------------------|-------|
| | | | Un- weighted (N) | Weighted (WN) | | | R-2SE | R+2SE |
| HOUSEHOLDS | | | | | | | | |
| Ownership of at least one mosquito net | 0.397 | 0.089 | 374 | 375 | 3.478 | 0.225 | 0.218 | 0.576 |
| Average number of mosquito nets per household | 0.751 | 0.197 | 374 | 375 | 3.296 | 0.263 | 0.356 | 1.145 |
| Ownership of at least one ITN | 0.397 | 0.089 | 374 | 375 | 3.478 | 0.225 | 0.218 | 0.576 |
| Average number of ITNs per household | 0.751 | 0.197 | 374 | 375 | 3.296 | 0.263 | 0.356 | 1.145 |
| Ownership of at least one ITN for two persons | 0.216 | 0.046 | 373 | 372 | 2.161 | 0.215 | 0.123 | 0.308 |
| WOMEN | | | | | | | | |
| No education | 0.134 | 0.040 | 330 | 308 | 2.139 | 0.302 | 0.053 | 0.214 |
| Secondary education or higher | 0.667 | 0.060 | 330 | 308 | 2.279 | 0.089 | 0.548 | 0.787 |
| Literate | 0.758 | 0.052 | 330 | 308 | 2.201 | 0.069 | 0.653 | 0.863 |
| CHILDREN | | | | | | | | |
| Slept under any mosquito net last night | 0.182 | 0.044 | 202 | 206 | 1.458 | 0.243 | 0.093 | 0.270 |
| Slept under an ITN last night | 0.182 | 0.044 | 202 | 206 | 1.458 | 0.243 | 0.093 | 0.270 |
| Slept under an ITN last night in households with at least one ITN | 0.385 | 0.049 | 101 | 97 | 0.853 | 0.126 | 0.288 | 0.483 |
| Had fever in last 2 weeks | 0.253 | 0.035 | 174 | 171 | 1.050 | 0.137 | 0.183 | 0.322 |
| Sought care/treatment from a health facility | 0.394 | 0.060 | 43 | 43 | 0.784 | 0.153 | 0.273 | 0.515 |
| Took ACT | 0.921 | 0.078 | 13 | 14 | 1.135 | 0.085 | 0.765 | 1.078 |
| Has anaemia (haemoglobin <8.0 g/dl) | 0.094 | 0.030 | 173 | 173 | 1.294 | 0.317 | 0.034 | 0.153 |
| Has malaria (based on rapid test) | 0.356 | 0.101 | 173 | 173 | 2.333 | 0.282 | 0.155 | 0.557 |
| Has malaria (based on microscopy test) | 0.249 | 0.086 | 172 | 172 | 2.302 | 0.344 | 0.078 | 0.420 |
| PREGNANT WOMEN | | | | | | | | |
| Slept under any mosquito net last night | 0.269 | 0.120 | 16 | 12 | 0.952 | 0.444 | 0.030 | 0.509 |
| Slept under an ITN last night | 0.269 | 0.120 | 16 | 12 | 0.952 | 0.444 | 0.030 | 0.509 |
| Slept under an ITN last night in households with at least one ITN | 0.419 | 0.160 | 10 | 8 | 0.915 | 0.381 | 0.100 | 0.738 |
| Received 1+ doses of SP/Fansidar | 0.548 | 0.056 | 70 | 73 | 0.992 | 0.102 | 0.437 | 0.659 |
| Received 2+ doses of SP/Fansidar | 0.417 | 0.036 | 70 | 73 | 0.656 | 0.087 | 0.344 | 0.490 |
| Received 3+ doses of SP/Fansidar | 0.357 | 0.042 | 70 | 73 | 0.781 | 0.118 | 0.273 | 0.442 |

Table B.48 Sampling errors: Bonny Island sample, Nigeria MIS 2021

| Variable | Value (R) | Standard error (SE) | Number of cases | | Design effect (DEFT) | Relative error (SE/R) | Confidence limits | |
|---|--------------|---------------------------|------------------------|------------------|----------------------------|-----------------------------|-------------------|-------|
| | | | Un- weighted (N) | Weighted (WN) | | | R-2SE | R+2SE |
| HOUSEHOLDS | | | | | | | | |
| Ownership of at least one mosquito net | 0.343 | 0.027 | 199 | 8 | 0.793 | 0.078 | 0.289 | 0.396 |
| Average number of mosquito nets per household | 0.448 | 0.041 | 199 | 8 | 0.800 | 0.091 | 0.367 | 0.529 |
| Ownership of at least one ITN | 0.343 | 0.027 | 199 | 8 | 0.793 | 0.078 | 0.289 | 0.396 |
| Average number of ITNs per household | 0.448 | 0.041 | 199 | 8 | 0.800 | 0.091 | 0.367 | 0.529 |
| Ownership of at least one ITN for two persons | 0.132 | 0.017 | 199 | 8 | 0.711 | 0.129 | 0.098 | 0.166 |
| WOMEN | | | | | | | | |
| No education | 0.012 | 0.009 | 173 | 6 | 1.049 | 0.721 | 0.000 | 0.030 |
| Secondary education or higher | 0.924 | 0.020 | 173 | 6 | 0.981 | 0.021 | 0.884 | 0.963 |
| Literate | 0.904 | 0.022 | 173 | 6 | 0.977 | 0.024 | 0.860 | 0.948 |
| CHILDREN | | | | | | | | |
| Slept under any mosquito net last night | 0.157 | 0.068 | 95 | 4 | 1.599 | 0.435 | 0.021 | 0.294 |
| Slept under an ITN last night | 0.157 | 0.068 | 95 | 4 | 1.599 | 0.435 | 0.021 | 0.294 |
| Slept under an ITN last night in households with at least one ITN | 0.369 | 0.158 | 40 | 2 | 1.745 | 0.426 | 0.054 | 0.685 |
| Had fever in last 2 weeks | 0.206 | 0.057 | 80 | 3 | 1.186 | 0.279 | 0.091 | 0.321 |
| Sought care/treatment from a health facility | 0.509 | 0.177 | 18 | 1 | 1.322 | 0.347 | 0.156 | 0.863 |
| Took ACT | 0.720 | 0.170 | 8 | 0 | 0.911 | 0.236 | 0.380 | 1.060 |
| Has anaemia (haemoglobin <8.0 g/dl) | 0.007 | 0.008 | 88 | 4 | 0.923 | 1.122 | 0.000 | 0.023 |
| Has malaria (based on rapid test) | 0.415 | 0.023 | 88 | 4 | 0.394 | 0.055 | 0.369 | 0.460 |
| Has malaria (based on microscopy test) | 0.000 | 0.000 | 88 | 4 | NA | NA | 0.000 | 0.000 |
| PREGNANT WOMEN | | | | | | | | |
| Slept under any mosquito net last night | 0.267 | 0.073 | 19 | 1 | 0.657 | 0.271 | 0.122 | 0.413 |
| Slept under an ITN last night | 0.267 | 0.073 | 19 | 1 | 0.657 | 0.271 | 0.122 | 0.413 |
| Slept under an ITN last night in households with at least one ITN | 0.464 | 0.096 | 10 | 0 | 0.585 | 0.207 | 0.272 | 0.655 |
| Received 1+ doses of SP/Fansidar | 0.611 | 0.089 | 22 | 1 | 0.903 | 0.146 | 0.433 | 0.790 |
| Received 2+ doses of SP/Fansidar | 0.481 | 0.103 | 22 | 1 | 1.016 | 0.214 | 0.275 | 0.687 |
| Received 3+ doses of SP/Fansidar | 0.188 | 0.101 | 22 | 1 | 1.274 | 0.537 | 0.000 | 0.391 |

DATA QUALITY TABLES

Appendix C

Table C.1 Household age distribution

Single-year age distribution of the de facto household population by sex (weighted), Nigeria MIS 2021

| Age | Female | | Male | | Age | Female | | Male | |
|-----|--------|---------|--------|---------|------------|--------|---------|--------|---------|
| | Number | Percent | Number | Percent | | Number | Percent | Number | Percent |
| 0 | 1,141 | 3.2 | 1,082 | 3.0 | 37 | 284 | 0.8 | 257 | 0.7 |
| 1 | 1,032 | 2.9 | 1,183 | 3.3 | 38 | 318 | 0.9 | 278 | 0.8 |
| 2 | 1,170 | 3.2 | 1,259 | 3.5 | 39 | 202 | 0.6 | 200 | 0.6 |
| 3 | 1,299 | 3.6 | 1,303 | 3.6 | 40 | 792 | 2.2 | 987 | 2.7 |
| 4 | 1,485 | 4.1 | 1,609 | 4.4 | 41 | 175 | 0.5 | 152 | 0.4 |
| 5 | 884 | 2.4 | 852 | 2.4 | 42 | 245 | 0.7 | 255 | 0.7 |
| 6 | 1,438 | 4.0 | 1,554 | 4.3 | 43 | 195 | 0.5 | 196 | 0.5 |
| 7 | 1,217 | 3.4 | 1,345 | 3.7 | 44 | 85 | 0.2 | 96 | 0.3 |
| 8 | 1,270 | 3.5 | 1,331 | 3.7 | 45 | 470 | 1.3 | 700 | 1.9 |
| 9 | 931 | 2.6 | 881 | 2.4 | 46 | 92 | 0.3 | 124 | 0.3 |
| 10 | 1,379 | 3.8 | 1,421 | 3.9 | 47 | 121 | 0.3 | 172 | 0.5 |
| 11 | 751 | 2.1 | 703 | 1.9 | 48 | 113 | 0.3 | 192 | 0.5 |
| 12 | 1,037 | 2.9 | 983 | 2.7 | 49 | 61 | 0.2 | 116 | 0.3 |
| 13 | 1,009 | 2.8 | 794 | 2.2 | 50 | 699 | 1.9 | 688 | 1.9 |
| 14 | 928 | 2.6 | 729 | 2.0 | 51 | 155 | 0.4 | 91 | 0.3 |
| 15 | 760 | 2.1 | 1,143 | 3.2 | 52 | 240 | 0.7 | 186 | 0.5 |
| 16 | 504 | 1.4 | 592 | 1.6 | 53 | 222 | 0.6 | 114 | 0.3 |
| 17 | 600 | 1.7 | 700 | 1.9 | 54 | 139 | 0.4 | 113 | 0.3 |
| 18 | 697 | 1.9 | 814 | 2.3 | 55 | 319 | 0.9 | 336 | 0.9 |
| 19 | 401 | 1.1 | 363 | 1.0 | 56 | 108 | 0.3 | 153 | 0.4 |
| 20 | 1,148 | 3.2 | 916 | 2.5 | 57 | 81 | 0.2 | 108 | 0.3 |
| 21 | 359 | 1.0 | 376 | 1.0 | 58 | 113 | 0.3 | 98 | 0.3 |
| 22 | 451 | 1.2 | 436 | 1.2 | 59 | 43 | 0.1 | 62 | 0.2 |
| 23 | 331 | 0.9 | 350 | 1.0 | 60 | 353 | 1.0 | 467 | 1.3 |
| 24 | 313 | 0.9 | 245 | 0.7 | 61 | 65 | 0.2 | 67 | 0.2 |
| 25 | 1,195 | 3.3 | 857 | 2.4 | 62 | 83 | 0.2 | 98 | 0.3 |
| 26 | 408 | 1.1 | 256 | 0.7 | 63 | 64 | 0.2 | 77 | 0.2 |
| 27 | 419 | 1.2 | 365 | 1.0 | 64 | 50 | 0.1 | 56 | 0.2 |
| 28 | 516 | 1.4 | 331 | 0.9 | 65 | 187 | 0.5 | 260 | 0.7 |
| 29 | 277 | 0.8 | 205 | 0.6 | 66 | 23 | 0.1 | 26 | 0.1 |
| 30 | 1,314 | 3.6 | 1,040 | 2.9 | 67 | 58 | 0.2 | 108 | 0.3 |
| 31 | 213 | 0.6 | 184 | 0.5 | 68 | 48 | 0.1 | 79 | 0.2 |
| 32 | 464 | 1.3 | 352 | 1.0 | 69 | 30 | 0.1 | 37 | 0.1 |
| 33 | 266 | 0.7 | 201 | 0.6 | 70+ | 669 | 1.9 | 963 | 2.7 |
| 34 | 237 | 0.7 | 213 | 0.6 | Don't know | 96 | 0.3 | 184 | 0.5 |
| 35 | 984 | 2.7 | 892 | 2.5 | | | | | |
| 36 | 272 | 0.8 | 206 | 0.6 | Total | 36,099 | 100.0 | 36,159 | 100.0 |

Note: The de facto population includes all residents and nonresidents who stayed in the household the night before the interview.

Table C.2 Age distribution of eligible and interviewed women

De facto household population of women age 10–54, number and percent distribution of interviewed women age 15–49, percentage of eligible women who were interviewed (weighted), by 5-year age groups, and ratios for selected age groups, Nigeria MIS 2021

| Age group | Household population of women age 10–54 | Interviewed women age 15–49 | | Percentage of eligible women interviewed |
|----------------|---|-----------------------------|------------|--|
| | | Number | Percentage | |
| 10–14 | 5,104 | na | na | na |
| 15–19 | 2,963 | 2,926 | 19.4 | 98.8 |
| 20–24 | 2,602 | 2,568 | 17.0 | 98.7 |
| 25–29 | 2,814 | 2,778 | 18.4 | 98.7 |
| 30–34 | 2,493 | 2,474 | 16.4 | 99.2 |
| 35–39 | 2,060 | 2,040 | 13.5 | 99.0 |
| 40–44 | 1,493 | 1,482 | 9.8 | 99.3 |
| 45–49 | 857 | 846 | 5.6 | 98.7 |
| 50–54 | 1,455 | na | na | na |
| 15–49 | 15,282 | 15,114 | 100.0 | 98.9 |
| Ratios | | | | |
| 10–14 to 15–19 | 1.72 | na | na | na |
| 50–54 to 45–49 | 1.70 | na | na | na |

Note: The de facto population includes all residents and nonresidents who stayed in the household the night before the interview. Weights for both the household population of women and interviewed women are household weights. Age is based on the Household Questionnaire.
na = Not applicable

Table C.3 Age displacement at ages 14/15

Number of women age 12–18 listed in the household schedule by single-year age and age ratio 15/14, according to zone (weighted), Nigeria MIS 2021

| Zone | Age | | | | | | | Total age 12–18 | Age ratio (age 15/age 14) |
|---------------|-------|-------|-----|-----|-----|-----|-----|-----------------|---------------------------|
| | 12 | 13 | 14 | 15 | 16 | 17 | 18 | | |
| North Central | 146 | 135 | 160 | 111 | 66 | 84 | 133 | 835 | 0.69 |
| North East | 170 | 182 | 202 | 150 | 92 | 114 | 144 | 1,054 | 0.74 |
| North West | 441 | 416 | 262 | 313 | 186 | 268 | 272 | 2,158 | 1.20 |
| South East | 77 | 62 | 69 | 36 | 45 | 31 | 41 | 359 | 0.52 |
| South South | 109 | 103 | 127 | 73 | 64 | 50 | 51 | 577 | 0.57 |
| South West | 106 | 123 | 120 | 84 | 58 | 62 | 74 | 627 | 0.70 |
| Total | 1,049 | 1,021 | 939 | 767 | 511 | 609 | 715 | 5,611 | 0.82 |

Table C.4 Age displacement at ages 49/50

Number of women age 47–53 listed in the household schedule by single-year age and age ratio 50/49, according to zone (weighted), Nigeria MIS 2021

| Zone | Age | | | | | | | Total age 47–53 | Age ratio (age 50/age 49) |
|---------------|-----|-----|----|-----|-----|-----|-----|-----------------|---------------------------|
| | 47 | 48 | 49 | 50 | 51 | 52 | 53 | | |
| North Central | 14 | 16 | 13 | 118 | 25 | 50 | 41 | 277 | 8.98 |
| North East | 10 | 9 | 3 | 132 | 22 | 31 | 27 | 234 | 39.42 |
| North West | 46 | 35 | 12 | 176 | 33 | 50 | 63 | 416 | 14.54 |
| South East | 12 | 10 | 11 | 64 | 21 | 38 | 24 | 180 | 5.77 |
| South South | 17 | 15 | 10 | 132 | 30 | 29 | 27 | 259 | 13.78 |
| South West | 24 | 27 | 16 | 84 | 32 | 46 | 43 | 272 | 5.14 |
| Total | 123 | 113 | 66 | 707 | 162 | 243 | 224 | 1,637 | 10.76 |

Table C.5 Live births by years preceding the survey

Number of live births, percentage with year and month of birth given, sex ratio at birth, and ratio by years preceding the survey, according to living, dead, and total children (weighted), Nigeria MIS 2021

| Years preceding survey | Number of live births | | | Percentage with year and month of birth given | | | Sex ratio at birth ¹ | | | Ratio of years preceding survey ² | | |
|------------------------|-----------------------|------|--------|---|-------|-------|---------------------------------|-------|-------|--|-------|-------|
| | Living | Dead | Total | Living | Dead | Total | Living | Dead | Total | Living | Dead | Total |
| 0 | 1,824 | 67 | 1,891 | 99.9 | 100.0 | 99.9 | 92.8 | 170.0 | 94.7 | na | na | na |
| 1 | 2,063 | 78 | 2,140 | 100.0 | 100.0 | 100.0 | 116.2 | 133.9 | 116.8 | na | na | na |
| 2 | 2,129 | 103 | 2,232 | 100.0 | 100.0 | 100.0 | 107.1 | 134.9 | 108.2 | 100.2 | 130.1 | 101.3 |
| 3 | 2,186 | 80 | 2,267 | 100.0 | 100.0 | 100.0 | 101.1 | 131.4 | 102.1 | 98.7 | 93.5 | 98.5 |
| 4 | 2,302 | 69 | 2,371 | 100.0 | 100.0 | 100.0 | 105.0 | 142.0 | 106.0 | 133.0 | 99.5 | 131.7 |
| 5 | 1,275 | 58 | 1,333 | 99.9 | 100.0 | 99.9 | 111.9 | 120.5 | 112.3 | 110.8 | 169.1 | 112.5 |
| All | 11,779 | 455 | 12,234 | 100.0 | 100.0 | 100.0 | 105.2 | 137.7 | 106.3 | na | na | na |

na = Not applicable

¹ $(Bm/Bf) \times 100$, where Bm and Bf are the numbers of male and female births, respectively

² $[2Bx/(Bx-1+Bx+1)] \times 100$, where Bx is the number of births in x years preceding the survey

Table C.6 Completeness of reporting

Percentage of observations missing information for selected demographic and health questions (weighted), Nigeria MIS 2021

| Subject | Percentage with information missing | Number of cases |
|---|-------------------------------------|-----------------|
| Missing day only (live births in the 5 years preceding the survey) | 5.81 | 12,234 |
| Missing month but year reported (live births in the 5 years preceding the survey) | 0.02 | 12,234 |
| Missing year (live births in the 15 years preceding the survey) | 0.00 | 12,234 |
| Missing month but year reported (women age 15–49) | 7.86 | 14,476 |
| Missing year (women age 15–49) | 1.02 | 14,476 |
| Anaemia (living children age 6–59 months from the Biomarker Questionnaire) | 4.01 | 11,564 |
| Malaria (living children age 6–59 months from the Biomarker Questionnaire) | 3.99 | 11,564 |

Table C.7 Observation of mosquito nets

Percentage of all mosquito nets observed by the interviewers, according to background characteristics (weighted), Nigeria MIS 2021

| Background characteristic | Percentage of mosquito nets observed by interviewers | Number of mosquito nets |
|---------------------------|--|-------------------------|
| Residence | | |
| Urban | 72.2 | 5,583 |
| Rural | 77.6 | 13,126 |
| Zone | | |
| North Central | 69.2 | 2,387 |
| North East | 87.4 | 4,025 |
| North West | 79.2 | 7,395 |
| South East | 78.3 | 1,020 |
| South South | 64.1 | 1,547 |
| South West | 59.9 | 2,335 |
| Wealth quintile | | |
| Lowest | 76.7 | 3,693 |
| Second | 81.8 | 4,073 |
| Middle | 78.5 | 3,889 |
| Fourth | 77.6 | 3,643 |
| Highest | 63.6 | 3,411 |
| Total | 76.0 | 18,709 |

Table C.8 Number of enumeration areas completed by month of fieldwork and zone

During the period of fieldwork, number of enumeration areas (EAs) completed by month, according to zone, and percent distribution of EAs completed by month, Nigeria MIS 2021

| Zone | Month of fieldwork | | | Total |
|----------------------|--------------------|----------|----------|-------|
| | October | November | December | |
| North Central | 56 | 45 | 0 | 101 |
| North East | 44 | 45 | 0 | 89 |
| North West | 42 | 64 | 6 | 112 |
| South East | 34 | 40 | 0 | 74 |
| South South | 41 | 52 | 6 | 99 |
| South West | 43 | 49 | 0 | 92 |
| Percent distribution | 45.9 | 52.0 | 2.1 | 100.0 |
| Total | 260 | 295 | 12 | 567 |

Note: EAs are classified by month of fieldwork according to the date by which the last Biomarker Questionnaire in the EA was completed.

Table C.9 Positive rapid diagnostic test (RDT) results by month of fieldwork and zone, Nigeria MIS 2021

Among children age 6–59 months tested for malaria by RDT, percentage who tested positive by month of fieldwork, according to zone, Nigeria MIS 2021

| Zone | Percentage of children classified as having malaria by month of fieldwork | | | Total |
|---------------|---|----------|----------|-------|
| | October | November | December | |
| North Central | 30.1 | 35.1 | * | 32.3 |
| North East | 39.2 | 47.8 | * | 43.0 |
| North West | 53.0 | 51.1 | 41.2 | 51.6 |
| South East | 23.6 | 30.5 | * | 27.3 |
| South South | 27.1 | 31.5 | 41.8 | 29.9 |
| South West | 28.3 | 20.1 | * | 24.1 |
| Total | 37.3 | 41.6 | 41.4 | 39.6 |

Note: An asterisk indicates that a figure is based on fewer than 25 unweighted cases or that there were no children measured for malaria in the zone for the month.

Table C.10 Concordance and discordance between RDT and microscopy results

Percent distribution children age 6–59 months by concordance and discordance between RDT and microscopy test results, Nigeria MIS 2021

| | Concordance | | Discordance | | | Total percentage | Number of children |
|-------|----------------------|----------------------|----------------------|----------------------|--------------------|------------------|--------------------|
| | RDT+/ microscopy+ | RDT-/ microscopy- | RDT+/ microscopy- | RDT-/ microscopy+ | Other ¹ | | |
| Total | 17.4 | 55.9 | 19.2 | 2.9 | 4.6 | 100.0 | 11,097 |

¹ Includes children for whom microscopy results could not be determined because of slide loss, slide breakage, or smear quality

Table C.11 Concordance and discordance between national and external quality control laboratories

Distribution of microscope slides of thick films examined by both the national laboratory and the external quality control (EQC) laboratory, by concordant and discordant results, Nigeria MIS 2021

| | National lab and EQC lab results | | | Number of microscope slides |
|-------|----------------------------------|------------|---------------|-----------------------------|
| | Concordant | Discordant | Total percent | |
| Total | 93.1 | 6.9 | 100.0 | 1,064 |

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| | Hannatu Maaji Musa | Interviewer |
| | Halima Bala Adamu | Interviewer |
| KATSINA | Umar Hamisu | Med. Lab. Sct |
| | Hauwa Shehu Daura | Nurse |
| | Hassan Sule Isyaka | Supervisor |
| | Saratu Sabiu Kurfi | Interviewer |
| | Aisha Bashir | Interviewer |

| | | |
|-----------------|---|---------------|
| KEBBI | Usman Kabiru | Med. Lab. Sct |
| | Ibrahim Almustapha | Nurse |
| | Amina Al Makura | Interviewer |
| | Amina Haliru Bala | Interviewer |
| | Saudat Zagga Umar | Supervisor |
| KOGI | Ayodele Aaron | Med. Lab. Sct |
| | Awodi Hannah Hauwa | Nurse |
| | Jimoh Otuoze Jamiu | Interviewer |
| | Enemaku Elejo Evelyn | Interviewer |
| | Rukayat Aliyu | Supervisor |
| KWARA | Abdullahi Mulikat M | Med. Lab. Sct |
| | Ayinla Rufai | Nurse |
| | Bolade Gladys Yejide | Supervisor |
| | Adefila Ifeoluwa Abimbola | Interviewer |
| | Majolagbe Kafilat Omolola | Interviewer |
| LAGOS | Omobhude Ugoeze Chioma | Med. Lab. Sct |
| | Oguntoyinbo Raimot Adeola | Nurse |
| | Mana Adewale | Supervisor |
| | Oyetunde Ololade | Interviewer |
| | Deborah Onyinyechukwu | Interviewer |
| NASARAWA | Salihu Gambo Moses | Med. Lab. Sct |
| | Khadija Muhammad Suleiman | Nurse |
| | Nakre Bello Issac | Supervisor |
| | Fauziyah Adamu Ibrahim | Interviewer |
| | Blessing Bob Musa | Interviewer |
| NIGER | Mohammed Shaba Kolo | Med. Lab. Sct |
| | Hassan Rahmat Wasagi | Nurse |
| | Jareed Kurama (replaced later by Ezekiel Biko Grace) | Interviewer |
| | Maryam Saidu Gwarjiko (replaced later by Rachael Danladi) | Interviewer |
| | Abubakar Nafisat Aguye | Supervisor |
| OGUN | Sunmola Oyinkansola | Med. Lab. Sct |
| | Afuwape Olajumoke Fausat | Nurse |
| | Odunlami Oyinkasola Omobolaji | Supervisor |
| | Kuye Ajoke | Interviewer |
| | Emmanuel Chukwuemeka M. | Interviewer |
| ONDO | Oluwakemi Cecilia Faleye | Med. Lab. Sct |
| | Oladipupo Olanike Olufunke | Nurse |
| | Foluke Omotola Akinbobose | Interviewer |
| | Taiwo Aishat Shittu | Interviewer |
| | Iyantan Afolabi Evans | Supervisor |
| OSUN | Oyeniran O Adeola | Med. Lab. Sct |
| | Adeniji Ademidun | Nurse |
| | Adeyemi Gbemisola Funmilayo | Interviewer |
| | Olushola Kareem | Supervisor |
| | Abiodun AdebANJI Adediran | Interviewer |
| OYO | Oyetunde Oyebami | Med. Lab. Sct |
| | Adeleke Elizabeth Ebelechukwu | Nurse |
| | Akinware Opeyemi Oluwabunmi | Interviewer |
| | Seun-Addie Kehinde | Supervisor |
| | Iyabo Evelyn Aramide | Interviewer |

| | | |
|----------------|-----------------------------|------------------|
| PLATEAU | Dimlong Moses Y | Med. Lab. Sct |
| | Ejah Susan Akusu | Nurse |
| | Busayo Ajayi | Interviewer |
| | Aduli Grace Othniel | Supervisor |
| | Gwammen Dorcas D | Interviewer |
| RIVERS | Tonye Bongili | Med. Lab. Sct |
| | Sukariba Matthew Onyemaechi | Nurse |
| | Joycelyn Ibama Sunday | Interviewer |
| | Ibiyekura Harry C | Supervisor |
| | Onwuchekwa Amarachi Faith | Interviewer |
| SOKOTO | Muhammad Murtala Namadina | Med. Lab. Sct |
| | Marwana Umar | Nurse/Supervisor |
| | Fatima Aliyu Dogon Daji | Interviewer |
| | Lubabatu Yayaji | Interviewer |
| | Shamsiya Muhammad | Interviewer |
| TARABA | Gemson Simon Isa Linus | Med. Lab. Sct |
| | John D. Adamu | Nurse |
| | Judith Hadiza Dame | Interviewer |
| | Aliyu Mohammed Hurso | Supervisor |
| | Sumayyat Abubakar Sale | Interviewer |
| YOBE | Musa Liman | Med. Lab. Sct |
| | Mohammed Bukar | Nurse |
| | Zarah Ahmad Yusuf | Interviewer |
| | Ya Gumsu Shehu Mustapha | Supervisor |
| | Dauda Umar Maikau | Interviewer |
| ZAMFARA | Sani Suleman Gusau | Med. Lab. Sct |
| | Sani Aliyu | Nurse |
| | Munira Aminu Gullah | Supervisor |
| | Sadiya Ahmad Gusau | Interviewer |
| | Mohammed Mu'azu | Interviewer |

The 2021 NMIS was designed to provide baseline information on malaria parasite prevalence and other malaria indicators for Bonny Island, which lies in Rivers State. A total of 25 clusters were selected from Rivers State, with eight clusters selected from Bonny Island and the remaining 17 from the other local government areas (LGAs) of the state.

This appendix represents the survey results for Bonny Island. **Table E.1** shows the final report table number, indicator, category, weighted value, weighted number, and unweighted number for each of the indicators calculated for Bonny Island. Note that footnotes corresponding to the variables and categories are not provided. See the corresponding final report table for footnotes.

Figure E.1 shows the indicator “Percentage of households with at least one ITN” as an example. It can be interpreted as follows: 34% of households in Bonny Island have at least one insecticide-treated mosquito net (ITN). More information about the definition of an ITN can be found by referencing the footnotes in **Table 3.1.1**. In total, 199 households were interviewed in Bonny Island as part of the 2021 NMIS. However, the weighted number of households is eight (out of 13,727 in the survey overall), which reflects the small percentage of households in Bonny Island relative to the total number of households in the 2021 NMIS.

Figure E.1 How to read the Bonny Island table

| Final report table number | Indicator | Category | Weighted value | Weighted number | Unweighted number |
|---------------------------|---|--|----------------|-----------------|-------------------|
| 3.1.1 | Percentage of households with at least one mosquito net | Insecticide-treated mosquito net (ITN) | 34.3 | 8 | 199 |

For more information about weighted and unweighted numbers, see Reading and Understanding Tables from the 2021 Nigeria Malaria Indicator Survey (NMIS) at the front of the report.

Table E.1 NMIS indicators for Bonny Island

| Final report table number | Indicator | Category | Weighted value | Weighted number | Unweighted number |
|---------------------------|---|---|----------------|-----------------|-------------------|
| 2.2 | Percent distribution of de jure population by drinking water service ladder | At least basic service | 64.8 | 27 | 692 |
| 2.2 | Percent distribution of de jure population by drinking water service ladder | Limited service | 14.0 | 27 | 692 |
| 2.2 | Percent distribution of de jure population by drinking water service ladder | Unimproved | 21.2 | 27 | 692 |
| 2.2 | Percent distribution of de jure population by drinking water service ladder | Surface water | 0.0 | 27 | 692 |
| 2.4 | Percent distribution of de jure population by type of sanitation service | At least basic service | 50.5 | 27 | 692 |
| 2.4 | Percent distribution of de jure population by type of sanitation service | Limited service | 24.9 | 27 | 692 |
| 2.4 | Percent distribution of de jure population by type of sanitation service | Unimproved | 4.2 | 27 | 692 |
| 2.4 | Percent distribution of de jure population by type of sanitation service | Open defecation | 20.3 | 27 | 692 |
| 2.8 | Wealth quintile | Lowest | 0.0 | 27 | 692 |
| 2.8 | Wealth quintile | Second | 0.0 | 27 | 692 |
| 2.8 | Wealth quintile | Middle | 0.7 | 27 | 692 |
| 2.8 | Wealth quintile | Fourth | 33.6 | 27 | 692 |
| 2.8 | Wealth quintile | Highest | 65.7 | 27 | 692 |
| 2.11.1 | Percent distribution of women age 15–49 | | 0.0 | 6 | 173 |
| 2.12.1 | Highest level of schooling attended or completed | No education | 1.2 | 6 | 173 |
| 2.12.1 | Highest level of schooling attended or completed | Some primary | 1.3 | 6 | 173 |
| 2.12.1 | Highest level of schooling attended or completed | Completed primary | 5.1 | 6 | 173 |
| 2.12.1 | Highest level of schooling attended or completed | Some secondary | 11.6 | 6 | 173 |
| 2.12.1 | Highest level of schooling attended or completed | Completed secondary | 50.6 | 6 | 173 |
| 2.12.1 | Highest level of schooling attended or completed | More than secondary | 30.1 | 6 | 173 |
| 2.12.1 | Highest level of schooling attended or completed | Median years completed | 11.6 | 6 | 173 |
| 2.13.1 | Percentage of women who attended informal schooling | | * | 0 | 2 |
| 2.13.1 | Type of informal schooling attended | Adult education | * | 0 | 0 |
| 2.13.1 | Type of informal schooling attended | Tsangaya | * | 0 | 0 |
| 2.13.1 | Type of informal schooling attended | Quranic | * | 0 | 0 |
| 2.14.1 | Level of literacy | Higher than secondary schooling | 30.1 | 6 | 173 |
| 2.14.1 | Level of literacy | Can read a whole sentence | 50.9 | 6 | 173 |
| 2.14.1 | Level of literacy | Can read part of a sentence | 9.3 | 6 | 173 |
| 2.14.1 | Level of literacy | Cannot read at all | 9.6 | 6 | 173 |
| 2.14.1 | Level of literacy | No card with required language | 0.0 | 6 | 173 |
| 2.14.1 | Level of literacy | Blind/visually impaired | 0.0 | 6 | 173 |
| 2.14.1 | Percentage literate | | 90.4 | 6 | 173 |
| 2.15 | Percentage of women age 15–49 who are exposed to specific media on a weekly basis | Reads a newspaper at least once a week | 10.3 | 6 | 173 |
| 2.15 | Percentage of women age 15–49 who are exposed to specific media on a weekly basis | Watches television at least once a week | 95.1 | 6 | 173 |
| 2.15 | Percentage of women age 15–49 who are exposed to specific media on a weekly basis | Listens to the radio at least once a week | 42.7 | 6 | 173 |
| 2.15 | Percentage of women age 15–49 who are exposed to specific media on a weekly basis | Accesses all three media at least once a week | 7.3 | 6 | 173 |
| 2.15 | Percentage of women age 15–49 who are exposed to specific media on a weekly basis | Accesses none of the three media at least once a week | 3.6 | 6 | 173 |
| 2.16 | Mobile phone ownership and Internet usage | Owns any mobile phone | 85.9 | 6 | 173 |
| 2.16 | Mobile phone ownership and Internet usage | Owns a smart phone | 49.6 | 6 | 173 |
| 2.16 | Mobile phone ownership and Internet usage | Ever used the Internet | 65.5 | 6 | 173 |
| 2.16 | Mobile phone ownership and Internet usage | Used the Internet in the past 12 months | 54.3 | 6 | 173 |
| 2.16 | Internet usage in the past month | Almost every day | 75.7 | 4 | 96 |
| 2.16 | Internet usage in the past month | At least once a week | 8.4 | 4 | 96 |
| 2.16 | Internet usage in the past month | Less than once a week | 14.6 | 4 | 96 |
| 2.16 | Internet usage in the past month | Not at all | 1.4 | 4 | 96 |
| 3.1.1 | Percentage of households with at least one mosquito net | Any mosquito net | 34.3 | 8 | 199 |
| 3.1.1 | Percentage of households with at least one mosquito net | Insecticide-treated mosquito net (ITN) | 34.3 | 8 | 199 |
| 3.1.1 | Average number of nets per household | Any mosquito net | 0.4 | 8 | 199 |
| 3.1.1 | Average number of nets per household | Insecticide-treated mosquito net (ITN) | 0.4 | 8 | 199 |
| 3.1.1 | Percentage of households with at least one net for every two persons who stayed in the household last night | Any mosquito net | 13.2 | 8 | 199 |
| 3.1.1 | Percentage of households with at least one net for every two persons who stayed in the household last night | Insecticide-treated mosquito net (ITN) | 13.2 | 8 | 199 |
| 3.2.1 | Percent distribution of mosquito nets by source of net | Mass distribution campaign | 42.7 | 4 | 90 |
| 3.2.1 | Percent distribution of mosquito nets by source of net | ANC visit | 7.7 | 4 | 90 |
| 3.2.1 | Percent distribution of mosquito nets by source of net | Immunisation visit | 11.1 | 4 | 90 |

Continued...

Table E.1—Continued

| Final report table number | Indicator | Category | Weighted value | Weighted number | Unweighted number |
|---------------------------|--|---|----------------|-----------------|-------------------|
| 3.2.1 | Percent distribution of mosquito nets by source of net | Government health facility | 2.2 | 4 | 90 |
| 3.2.1 | Percent distribution of mosquito nets by source of net | Private health facility | 0.0 | 4 | 90 |
| 3.2.1 | Percent distribution of mosquito nets by source of net | Pharmacy | 0.0 | 4 | 90 |
| 3.2.1 | Percent distribution of mosquito nets by source of net | Shop/market | 24.5 | 4 | 90 |
| 3.2.1 | Percent distribution of mosquito nets by source of net | Community health worker | 0.0 | 4 | 90 |
| 3.2.1 | Percent distribution of mosquito nets by source of net | Religious institution | 0.0 | 4 | 90 |
| 3.2.1 | Percent distribution of mosquito nets by source of net | School | 0.0 | 4 | 90 |
| 3.2.1 | Percent distribution of mosquito nets by source of net | Other | 11.7 | 4 | 90 |
| 3.2.1 | Percent distribution of mosquito nets by source of net | Don't know | 0.0 | 4 | 90 |
| 3.3.1 | Percentage of the de facto population with access to an ITN | | 23.3 | 27 | 692 |
| 3.4.1 | Percentage of the de facto household population that slept under a mosquito net last night | Any mosquito net | 13.9 | 27 | 692 |
| 3.4.1 | Percentage of the de facto household population that slept under a mosquito net last night | Insecticide-treated mosquito net (ITN) | 13.9 | 27 | 692 |
| 3.4.1 | Percentage of the de facto population that slept under an ITN last night in households with at least one ITN | | 36.0 | 11 | 269 |
| 3.5.1 | Percentage of existing ITNs used last night | | 61.4 | 4 | 90 |
| 3.6.1 | Percentage of children under age 5 who slept under a mosquito net last night | Any mosquito net | 15.7 | 4 | 95 |
| 3.6.1 | Percentage of children under age 5 who slept under a mosquito net last night | Insecticide-treated mosquito net (ITN) | 15.7 | 4 | 95 |
| 3.6.1 | Percentage of children under age 5 who slept under an ITN last night in households with at least one ITN | | (36.9) | 2 | 40 |
| 3.7.1 | Percentage of pregnant women who slept under a mosquito net last night | Any mosquito net | * | 1 | 19 |
| 3.7.1 | Percentage of pregnant women who slept under a mosquito net last night | Insecticide-treated mosquito net (ITN) | * | 1 | 19 |
| 3.7.1 | Percentage of pregnant women who slept under a mosquito net last night in households with at least one ITN | | * | 0 | 10 |
| 3.8.1 | Percentage of nets not used the night before the survey | | 38.6 | 4 | 90 |
| 3.8.1 | Reason net not used the night before the survey | No mosquitoes | (2.0) | 1 | 33 |
| 3.8.1 | Reason net not used the night before the survey | No malaria | (0.0) | 1 | 33 |
| 3.8.1 | Reason net not used the night before the survey | Too hot | (4.5) | 1 | 33 |
| 3.8.1 | Reason net not used the night before the survey | Don't like smell | (0.0) | 1 | 33 |
| 3.8.1 | Reason net not used the night before the survey | Feel "closed in" | (0.0) | 1 | 33 |
| 3.8.1 | Reason net not used the night before the survey | Net too old/torn | (62.8) | 1 | 33 |
| 3.8.1 | Reason net not used the night before the survey | Net too dirty | (0.0) | 1 | 33 |
| 3.8.1 | Reason net not used the night before the survey | Net not available last night (washing) | (5.7) | 1 | 33 |
| 3.8.1 | Reason net not used the night before the survey | Usual users did not sleep here last night | (0.0) | 1 | 33 |
| 3.8.1 | Reason net not used the night before the survey | Net not needed last night | (22.2) | 1 | 33 |
| 3.8.1 | Reason net not used the night before the survey | Bed bugs | (0.0) | 1 | 33 |
| 3.8.1 | Reason net not used the night before the survey | Other | (2.8) | 1 | 33 |
| 3.8.1 | Reason net not used the night before the survey | Don't know | (0.0) | 1 | 33 |
| 3.9.1 | Antenatal care provider | Doctor | * | 1 | 22 |
| 3.9.1 | Antenatal care provider | Nurse/midwife | * | 1 | 22 |
| 3.9.1 | Antenatal care provider | Auxiliary midwife | * | 1 | 22 |
| 3.9.1 | Antenatal care provider | Community extension health worker | * | 1 | 22 |
| 3.9.1 | Antenatal care provider | Traditional birth attendant | * | 1 | 22 |
| 3.9.1 | Antenatal care provider | Community health worker/fieldworker | * | 1 | 22 |
| 3.9.1 | Antenatal care provider | Other | * | 1 | 22 |
| 3.9.1 | Antenatal care provider | No ANC | * | 1 | 22 |
| 3.9.1 | Antenatal care provider | Percentage receiving antenatal care from a skilled provider | * | 1 | 22 |
| 3.10.1 | Number of ANC visits | None | * | 1 | 22 |
| 3.10.1 | Number of ANC visits | 1 | * | 1 | 22 |
| 3.10.1 | Number of ANC visits | 2 | * | 1 | 22 |
| 3.10.1 | Number of ANC visits | 3 | * | 1 | 22 |
| 3.10.1 | Number of ANC visits | 4–7 | * | 1 | 22 |
| 3.10.1 | Number of ANC visits | 8+ | * | 1 | 22 |
| 3.10.1 | Number of ANC visits | Don't know | * | 1 | 22 |
| 3.10.1 | Number of ANC visits | 4+ ANC visits | * | 1 | 22 |
| 3.10.1 | Number of months pregnant at time of first ANC visit | No antenatal care | * | 1 | 22 |
| 3.10.1 | Number of months pregnant at time of first ANC visit | <4 | * | 1 | 22 |

Continued...

Table E.1—Continued

| Final report table number | Indicator | Category | Weighted value | Weighted number | Unweighted number |
|---------------------------|---|--|----------------|-----------------|-------------------|
| 3.10.1 | Number of months pregnant at time of first ANC visit | 4–7 | * | 1 | 22 |
| 3.10.1 | Number of months pregnant at time of first ANC visit | 7+ | * | 1 | 22 |
| 3.10.1 | Number of months pregnant at time of first ANC visit | Don't know | * | 1 | 22 |
| 3.10.1 | Number of months pregnant at time of first ANC visit | Median months pregnant at first visit (for those with ANC) | 4.8 | 1 | 22 |
| 3.11.1 | Use of intermittent preventive treatment (IPTp) | Percentage who received one or more doses of SP/Fansidar | * | 1 | 22 |
| 3.11.1 | Use of intermittent preventive treatment (IPTp) | Percentage who received two or more doses of SP/Fansidar | * | 1 | 22 |
| 3.11.1 | Use of intermittent preventive treatment (IPTp) | Percentage who received three or more doses of SP/Fansidar | * | 1 | 22 |
| 4.1.1 | Percentage of children under age 5 with a fever in the 2 weeks preceding the survey | | 35.0 | 4 | 80 |
| 4.1.1 | Percentage of children under age 5 with fever for whom advice or treatment was sought | | * | 1 | 19 |
| 4.1.1 | Percentage of children under age 5 with fever for whom advice or treatment was sought the same or next day | | * | 1 | 19 |
| 4.1.1 | Percentage of children under age 5 with fever who had blood taken from a finger or heel for testing | | * | 1 | 19 |
| 4.1.1 | Percentage of children under age 5 with fever who were diagnosed with malaria by a health care provider | | * | 1 | 19 |
| 4.2 | Percentage of children under age 5 with a fever for whom advice or treatment was sought who were referred to a higher level of care | | * | 1 | 12 |
| 4.4 | Among children under age 5 with a fever for whom advice or treatment was sought, percentage who took | Any ACT | * | 0 | 8 |
| 4.4 | Among children under age 5 with a fever for whom advice or treatment was sought, percentage who took | SP/Fansidar | * | 0 | 8 |
| 4.4 | Among children under age 5 with a fever for whom advice or treatment was sought, percentage who took | Chloroquine | * | 0 | 8 |
| 4.4 | Among children under age 5 with a fever for whom advice or treatment was sought, percentage who took | Amodiaquine | * | 0 | 8 |
| 4.4 | Among children under age 5 with a fever for whom advice or treatment was sought, percentage who took | Quinine pills | * | 0 | 8 |
| 4.4 | Among children under age 5 with a fever for whom advice or treatment was sought, percentage who took | Quinine injection/IV | * | 0 | 8 |
| 4.4 | Among children under age 5 with a fever for whom advice or treatment was sought, percentage who took | Artesunate rectal | * | 0 | 8 |
| 4.4 | Among children under age 5 with a fever for whom advice or treatment was sought, percentage who took | Artesunate injection/IV | * | 0 | 8 |
| 4.4 | Among children under age 5 with a fever for whom advice or treatment was sought, percentage who took | Other antimalarial | * | 0 | 8 |
| 4.5 | Percentage of children whose fever went away after taking ACT | | * | 0 | 6 |
| 4.6.1 | Percentage of eligible children age 6–59 months who were tested for | Anaemia | 100.0 | 88 | 88 |
| 4.6.1 | Percentage of eligible children age 6–59 months who were tested for | Malaria with RDT | 100.0 | 88 | 88 |
| 4.6.1 | Percentage of eligible children age 6–59 months who were tested for | Malaria by microscopy | 100.0 | 88 | 88 |
| 4.7.1 | Percentage of children age 6–59 months with haemoglobin lower than 8.0 g/dl | Haemoglobin <8.0 g/dl | 0.7 | 4 | 88 |
| 4.8.1 | Malaria prevalence | RDT positive | 41.5 | 4 | 88 |
| 4.8.1 | Malaria prevalence | Microscopy positive | 0.0 | 4 | 88 |
| 4.9.1 | Percent distribution by species of <i>Plasmodium</i> | Positive for <i>Pf</i> only | * | 0 | 0 |
| 4.9.1 | Percent distribution by species of <i>Plasmodium</i> | Positive for <i>Pm</i> only | * | 0 | 0 |
| 4.9.1 | Percent distribution by species of <i>Plasmodium</i> | Positive for <i>Po</i> only | * | 0 | 0 |
| 4.9.1 | Percent distribution by species of <i>Plasmodium</i> | Positive for <i>Pf + Po</i> | * | 0 | 0 |
| 4.9.1 | Percent distribution by species of <i>Plasmodium</i> | Positive for <i>Pf + Pm</i> | * | 0 | 0 |

Continued...

Table E.1—Continued

| Final report table number | Indicator | Category | Weighted value | Weighted number | Unweighted number |
|---------------------------|--|---|----------------|-----------------|-------------------|
| 5.1.1 | Percentage who have seen or heard a malaria message in the past 6 months | | 61.7 | 6 | 173 |
| 5.1.1 | Source of exposure to malaria messages in the past 6 months | Radio | 33.9 | 4 | 105 |
| 5.1.1 | Source of exposure to malaria messages in the past 6 months | Television | 43.5 | 4 | 105 |
| 5.1.1 | Source of exposure to malaria messages in the past 6 months | Poster/billboard | 0.0 | 4 | 105 |
| 5.1.1 | Source of exposure to malaria messages in the past 6 months | Newspaper/magazine | 0.6 | 4 | 105 |
| 5.1.1 | Source of exposure to malaria messages in the past 6 months | Leaflet/brochure | 3.9 | 4 | 105 |
| 5.1.1 | Source of exposure to malaria messages in the past 6 months | Health care provider | 9.4 | 4 | 105 |
| 5.1.1 | Source of exposure to malaria messages in the past 6 months | Community health worker | 8.7 | 4 | 105 |
| 5.1.1 | Source of exposure to malaria messages in the past 6 months | Social media | 17.8 | 4 | 105 |
| 5.1.1 | Source of exposure to malaria messages in the past 6 months | Town announcer | 0.6 | 4 | 105 |
| 5.1.1 | Source of exposure to malaria messages in the past 6 months | Interpersonal communication agent/community volunteer | 22.5 | 4 | 105 |
| 5.1.1 | Source of exposure to malaria messages in the past 6 months | Family/friends | 16.6 | 4 | 105 |
| 5.1.1 | Source of exposure to malaria messages in the past 6 months | Other | 0.0 | 4 | 105 |
| 5.1.1 | Source of exposure to malaria messages in the past 6 months | Don't remember | 0.0 | 4 | 105 |
| 5.2.1 | Percentage who state there are ways to avoid getting malaria | | 81.0 | 6 | 173 |
| 5.2.1 | Ways to avoid getting malaria | Sleep under mosquito net or ITN | 77.2 | 5 | 138 |
| 5.2.1 | Ways to avoid getting malaria | Use mosquito repellent | 12.3 | 5 | 138 |
| 5.2.1 | Ways to avoid getting malaria | Take preventive medications | 5.5 | 5 | 138 |
| 5.2.1 | Ways to avoid getting malaria | Spray house with insecticide | 13.2 | 5 | 138 |
| 5.2.1 | Ways to avoid getting malaria | Fill in stagnant water (puddles) | 31.2 | 5 | 138 |
| 5.2.1 | Ways to avoid getting malaria | Keep surroundings clean | 54.9 | 5 | 138 |
| 5.2.1 | Ways to avoid getting malaria | Put mosquito screen on windows | 4.9 | 5 | 138 |
| 5.2.1 | Ways to avoid getting malaria | Other | 5.7 | 5 | 138 |
| 5.2.1 | Ways to avoid getting malaria | Don't know | 1.1 | 5 | 138 |
| 5.3.1 | Percentage who disagree that people in the community get malaria only during the rainy season | Perceived susceptibility | 75.3 | 6 | 173 |
| 5.3.1 | Percentage who agree that when a child has a fever they almost always worry it might be malaria | | 85.1 | 6 | 173 |
| 5.3.1 | Percentage who perceive that their families and communities are at risk from malaria | | 96.1 | 6 | 173 |
| 5.3.1 | Percentage who disagree that getting malaria is not a problem because it can be easily treated | | 56.6 | 6 | 173 |
| 5.3.1 | Percentage who disagree that only weak children can die from malaria | | 74.6 | 6 | 173 |
| 5.3.1 | Percentage who feel that the consequences of malaria are serious | | 81.4 | 6 | 173 |
| 5.3.1 | Percentage who agree that they can sleep under a mosquito net for the entire night when there are lots of mosquitoes | | 87.1 | 6 | 173 |
| 5.3.1 | Percentage who agree that they can sleep under a mosquito net for the entire night when there are few mosquitoes | | 71.6 | 6 | 173 |
| 5.3.1 | Percentage who are confident in their ability to perform specific malaria-related behaviours | | 87.1 | 6 | 173 |
| 5.4.1 | Percentage who disagree that they do not like sleeping under a mosquito net when the weather is too warm | | 63.8 | 6 | 173 |
| 5.4.1 | Percentage who disagree that when a child has a fever, it is best to start giving the child any medicine that you have at home | | 85.8 | 6 | 173 |
| 5.4.1 | Percentage who agree that it is important that children take the full dose of medicine that they are prescribed for malaria | | 98.7 | 6 | 173 |
| 5.4.1 | Percentage who have a favourable attitude toward specific malaria-related behaviours | | 100.0 | 6 | 173 |

Continued...

Table E.1—Continued

| Final report table number | Indicator | Category | Weighted value | Weighted number | Unweighted number |
|---------------------------|---|----------|----------------|-----------------|-------------------|
| 5.4.1 | Percentage who agree that people in the community usually take their children to a health care provider on the same day or the day after they develop a fever | | 42.7 | 6 | 173 |
| 5.4.1 | Percentage who agree that people in the community who have a mosquito net usually sleep under a mosquito net every night | | 34.8 | 6 | 173 |
| 5.4.1 | Percentage who believe the majority of people in their community currently practise specific malaria-related behaviours | | 57.0 | 6 | 173 |

Note: Figures in parentheses are based on 25–49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.

NIGERIA MALARIA INDICATOR SURVEY
 HOUSEHOLD QUESTIONNAIRE

NIGERIA
 NATIONAL MALARIA ELIMINATION PROGRAMME
 NATIONAL POPULATION COMMISSION

| IDENTIFICATION | | | | | | | | | | | | | | | | | | | | | | |
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| LOCAL GOVT AREA | | | | <table border="1" style="float: right; margin-right: 10px;"><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table> | | | | | | | | | | | | | | | | | | |
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| LOCALITY | | | | <table border="1" style="float: right; margin-right: 10px;"><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table> | | | | | | | | | | | | | | | | | | |
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| ENUMERATION AREA | | | | <table border="1" style="float: right; margin-right: 10px;"><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table> | | | | | | | | | | | | | | | | | | |
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| NAME OF HOUSEHOLD HEAD | | | | <table border="1" style="float: right; margin-right: 10px;"><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table> | | | | | | | | | | | | | | | | | | |
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| INTERVIEWER VISITS | | | | | | | | | | | | | | | | | | | | | | |
| | 1 | 2 | 3 | FINAL VISIT | | | | | | | | | | | | | | | | | | |
| DATE | | | | DAY <table border="1" style="float: right; margin-right: 10px;"><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table> | | | | | | | | | | | | | | | | | | |
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| INTERVIEWER'S NAME | | | | MONTH <table border="1" style="float: right; margin-right: 10px;"><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table> | | | | | | | | | | | | | | | | | | |
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| RESULT* | | | | YEAR <table border="1" style="float: right; margin-right: 10px;"><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table> | | | | | | | | | | | | | | | | | | |
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| NEXT VISIT: DATE | | | | INT. NO. <table border="1" style="float: right; margin-right: 10px;"><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table> | | | | | | | | | | | | | | | | | | |
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| TIME | | | | RESULT* <table border="1" style="float: right; margin-right: 10px;"><tr><td></td></tr></table> | | | | | | | | | | | | | | | | | | |
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| | | | | TOTAL NUMBER OF VISITS <table border="1" style="float: right; margin-right: 10px;"><tr><td></td></tr></table> | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | |
| <p>*RESULT CODES:</p> <p>1 COMPLETED 2 NO HOUSEHOLD MEMBER AT HOME OR NO COMPETENT RESPONDENT AT HOME AT TIME OF VISIT 3 ENTIRE HOUSEHOLD ABSENT FOR EXTENDED PERIOD OF TIME 4 POSTPONED 5 REFUSED 6 DWELLING VACANT OR ADDRESS NOT A DWELLING 7 DWELLING DESTROYED 8 DWELLING NOT FOUND 9 OTHER _____ (SPECIFY)</p> | | | | | | | | | | | | | | | | | | | | | | |
| | | | | TOTAL PERSONS IN HOUSEHOLD <table border="1" style="float: right; margin-right: 10px;"><tr><td></td><td></td></tr></table> | | | | | | | | | | | | | | | | | | |
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| | | | | TOTAL ELIGIBLE WOMEN <table border="1" style="float: right; margin-right: 10px;"><tr><td></td><td></td></tr></table> | | | | | | | | | | | | | | | | | | |
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| | | | | LINE NO. OF RESPONDENT TO HOUSEHOLD QUESTIONNAIRE <table border="1" style="float: right; margin-right: 10px;"><tr><td></td><td></td></tr></table> | | | | | | | | | | | | | | | | | | |
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| LANGUAGE OF QUESTIONNAIRE** | | 0 <table border="1" style="float: right; margin-right: 10px;"><tr><td></td></tr></table> 1 <table border="1" style="float: right; margin-right: 10px;"><tr><td></td></tr></table> | | | LANGUAGE OF INTERVIEW** <table border="1" style="float: right; margin-right: 10px;"><tr><td></td><td></td></tr></table> | | | NATIVE LANGUAGE OF RESPONDENT** <table border="1" style="float: right; margin-right: 10px;"><tr><td></td><td></td></tr></table> TRANSLATOR USED (YES = 1, NO = 2) <table border="1" style="float: right; margin-right: 10px;"><tr><td></td></tr></table> | | | | | | | | | | | | | | |
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| LANGUAGE OF QUESTIONNAIRE** | | ENGLISH **LANGUAGE CODES: 01 ENGLISH 03 YORUBA 06 OTHER 02 HAUSA 04 IGBO | | | | | | | | | | | | | | | | | | | | |
| TEAM | | TEAM SUPERVISOR | | | | | | | | | | | | | | | | | | | | |
| <table border="1" style="float: left; margin-right: 10px;"><tr><td></td><td></td></tr></table> NUMBER | | | | NAME <table border="1" style="float: right; margin-right: 10px;"><tr><td></td><td></td><td></td><td></td></tr></table> | | | | | | NUMBER <table border="1" style="float: right; margin-right: 10px;"><tr><td></td><td></td><td></td><td></td></tr></table> | | | | | | | | | | | | |
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INTRODUCTION AND CONSENT

Greetings. My name is _____. I am working with the National Malaria Elimination Program and the National Population Commission. We are conducting a survey about malaria all over Nigeria. The information we collect will help the government to plan health services. Your household was selected for the survey. I would like to ask you some questions about your household. The questions usually take about 15-20 minutes. All of the answers you give will be confidential and will not be shared with anyone other than members of our survey team. You don't have to be in the survey, but we hope you will agree to answer the questions since your views are important. If I ask you any question you don't want to answer, just let me know and I will go on to the next question or you can stop the interview at any time. In case you need more information about the survey, you may contact the following persons:

National Malaria Elimination Program Contact Person: Dr. Perpetua Uhomoibhi; Phone number: 08059121416

National Population Commission Contact Person: Mrs. Bintu Abba; Phone number: 08033138277

National Health Research Ethics Committee Contact Person: NHREC Secretary; Email: secretary@nhrec.net

NHREC Desk Officer; Email: deskofficer@nhrec.net

Phone number: 095238367

Health Strategy and Delivery Foundation Contact Person: Dr. Ify Aniebo; Phone number: 09063727555

IF INTERESTED, ALLOW RESPONDENT TO COPY CONTACT INFORMATION

We also are taking measures to reduce the risk of transmission of COVID-19, including wearing face masks, keeping a distance of 2 meters from respondents to the survey, and washing our hands frequently.

Do you have any questions?

May I begin the interview now?

SIGNATURE OF INTERVIEWER _____ DATE _____

RESPONDENT AGREES
TO BE INTERVIEWED . . 1

RESPONDENT DOES NOT AGREE
TO BE INTERVIEWED . . 2 → END

| | | | |
|-----|------------------|---------------|--|
| 100 | RECORD THE TIME. | HOURS | |
| | | MINUTES | |
| | | | |
| | | | |

HOUSEHOLD SCHEDULE

| LINE NO. | USUAL RESIDENTS AND VISITORS | RELATIONSHIP TO HEAD OF HOUSEHOLD | SEX | RESIDENCE | | AGE | ELIGIBILITY | |
|----------|---|--|---------------------------|--------------------------------|----------------------------------|---|---|--|
| | | | | 4 | 5 | | 6 | 7 |
| | <p>Please give me the names of the persons who usually live in your household and guests of the household who stayed here last night, starting with the head of the household.</p> <p>AFTER ASKING QUESTIONS 2-7 FOR EACH PERSON ASK QUESTIONS 2A-2C TO BE SURE THAT THE LISTING IS COMPLETE.</p> <p>SEE CODES BELOW.</p> | What is the relationship of (NAME) to the head of the household? | Is (NAME) male or female? | Does (NAME) usually live here? | Did (NAME) stay here last night? | How old is (NAME)? IF 95 OR MORE, RECORD '95'. | CIRCLE LINE NUMBER OF ALL WOMEN AGE 15-49 | CIRCLE LINE NUMBER OF ALL CHILDREN AGE 0-5 |
| 01 | | <input type="checkbox"/> <input type="checkbox"/> | M 1 F 2 | Y 1 N 2 | Y 1 N 2 | <input type="checkbox"/> <input type="checkbox"/> | 01 | 01 |
| 02 | | <input type="checkbox"/> <input type="checkbox"/> | 1 2 | 1 2 | 1 2 | <input type="checkbox"/> <input type="checkbox"/> | 02 | 02 |
| 03 | | <input type="checkbox"/> <input type="checkbox"/> | 1 2 | 1 2 | 1 2 | <input type="checkbox"/> <input type="checkbox"/> | 03 | 03 |
| 04 | | <input type="checkbox"/> <input type="checkbox"/> | 1 2 | 1 2 | 1 2 | <input type="checkbox"/> <input type="checkbox"/> | 04 | 04 |
| 05 | | <input type="checkbox"/> <input type="checkbox"/> | 1 2 | 1 2 | 1 2 | <input type="checkbox"/> <input type="checkbox"/> | 05 | 05 |
| 06 | | <input type="checkbox"/> <input type="checkbox"/> | 1 2 | 1 2 | 1 2 | <input type="checkbox"/> <input type="checkbox"/> | 06 | 06 |
| 07 | | <input type="checkbox"/> <input type="checkbox"/> | 1 2 | 1 2 | 1 2 | <input type="checkbox"/> <input type="checkbox"/> | 07 | 07 |
| 08 | | <input type="checkbox"/> <input type="checkbox"/> | 1 2 | 1 2 | 1 2 | <input type="checkbox"/> <input type="checkbox"/> | 08 | 08 |
| 09 | | <input type="checkbox"/> <input type="checkbox"/> | 1 2 | 1 2 | 1 2 | <input type="checkbox"/> <input type="checkbox"/> | 09 | 09 |
| 10 | | <input type="checkbox"/> <input type="checkbox"/> | 1 2 | 1 2 | 1 2 | <input type="checkbox"/> <input type="checkbox"/> | 10 | 10 |

2A) Just to make sure that I have a complete listing: are there any other people such as small children or infants that we have not listed?

YES → ADD TO TABLE NO

2B) Are there any other people who may not be members of your family, such as domestic servants, lodgers, or friends who usually live here?

YES → ADD TO TABLE NO

2C) Are there any guests or temporary visitors staying here, or anyone else who stayed here last night, who have not been listed?

YES → ADD TO TABLE NO

CODES FOR Q. 3: RELATIONSHIP TO HEAD OF HOUSEHOLD

- | | |
|------------------------------------|-------------------------------|
| 01 = HEAD | 07 = PARENT-IN-LAW |
| 02 = WIFE OR HUSBAND | 08 = BROTHER OR SISTER |
| 03 = SON OR DAUGHTER | 09 = OTHER RELATIVE |
| 04 = SON-IN-LAW OR DAUGHTER-IN-LAW | 10 = ADOPTED/FOSTER/STEPCHILD |
| 05 = GRANDCHILD | 11 = NOT RELATED |
| 06 = PARENT | 12 = CO-WIFE |
| | 98 = DONT KNOW |

HOUSEHOLD SCHEDULE

| LINE NO. | USUAL RESIDENTS AND VISITORS | RELATIONSHIP TO HEAD OF HOUSEHOLD | SEX | RESIDENCE | | AGE | ELIGIBILITY | |
|-------------|---|---|----------------------------------|---------------------------------------|---|--|--|---|
| | | | | 4 | 5 | | 6 | 7 |
| | <p>Please give me the names of the persons who usually live in your household and guests of the household who stayed here last night, starting with the head of the household.</p> <p>AFTER ASKING QUESTIONS 2-7 FOR EACH PERSON ASK QUESTIONS 2A-2C TO BE SURE THAT THE LISTING IS COMPLETE.</p> | <p>What is the relationship of (NAME) to the head of the household?</p> <p>SEE CODES BELOW.</p> | <p>Is (NAME) male or female?</p> | <p>Does (NAME) usually live here?</p> | <p>Did (NAME) stay here last night?</p> | <p>How old is (NAME)?</p> <p>IF 95 OR MORE, RECORD '95'.</p> | <p>CIRCLE LINE NUMBER OF ALL WOMEN AGE 15-49</p> | <p>CIRCLE LINE NUMBER OF ALL CHILDREN AGE 0-5</p> |

HOUSEHOLD CHARACTERISTICS

| NO. | QUESTIONS AND FILTERS | CODING CATEGORIES | SKIP |
|-----|---|---|-------|
| 101 | What is the MAIN source of drinking water for members of your household? | PIPED WATER PIPED INTO DWELLING 11 PIPED TO YARD/PLOT 12 PIPED TO NEIGHBOR 13 PUBLIC TAP/STANDPIPE 14 TUBE WELL OR BOREHOLE 21 DUG WELL PROTECTED WELL 31 UNPROTECTED WELL 32 WATER FROM SPRING PROTECTED SPRING 41 UNPROTECTED SPRING 42 RAINWATER 51 TANKER TRUCK 61 CART WITH SMALL TANK 71 SURFACE WATER (RIVER/DAM/ LAKE/POND/STREAM/CANAL/ IRRIGATION CHANNEL) 81 BOTTLED WATER 91 SACHET WATER 92 OTHER 96 (SPECIFY) | → 105 |
| 102 | What is the MAIN source of water used by your household for other purposes such as cooking and handwashing? | PIPED WATER PIPED INTO DWELLING 11 PIPED TO YARD/PLOT 12 PIPED TO NEIGHBOR 13 PUBLIC TAP/STANDPIPE 14 TUBE WELL OR BOREHOLE 21 DUG WELL PROTECTED WELL 31 UNPROTECTED WELL 32 WATER FROM SPRING PROTECTED SPRING 41 UNPROTECTED SPRING 42 RAINWATER 51 TANKER TRUCK 61 CART WITH SMALL TANK 71 SURFACE WATER (RIVER/DAM/ LAKE/POND/STREAM/CANAL/ IRRIGATION CHANNEL) 81 OTHER 96 (SPECIFY) | → 105 |
| 103 | Where is that water source located? | IN OWN DWELLING 1 IN OWN YARD/PLOT 2 ELSEWHERE 3 | → 105 |
| 104 | How long does it take to go there, get water, and come back? | MINUTES <input type="text"/> <input type="text"/> <input type="text"/> DON'T KNOW 998 | |

HOUSEHOLD CHARACTERISTICS

| NO. | QUESTIONS AND FILTERS | CODING CATEGORIES | SKIP |
|-----|---|---|---|
| 105 | What kind of toilet facility do members of your household usually use? IF NOT POSSIBLE TO DETERMINE, ASK PERMISSION TO OBSERVE THE FACILITY. | FLUSH OR POUR FLUSH TOILET FLUSH TO PIPED SEWER SYSTEM 11 FLUSH TO SEPTIC TANK 12 FLUSH TO PIT LATRINE 13 FLUSH TO SOMEWHERE ELSE 14 FLUSH, DON'T KNOW WHERE 15 PIT LATRINE VENTILATED IMPROVED PIT LATRINE .. 21 PIT LATRINE WITH SLAB 22 PIT LATRINE WITHOUT SLAB/OPEN PIT .. 23 COMPOSTING TOILET 31 BUCKET TOILET 41 HANGING TOILET/HANGING LATRINE..... 51 NO FACILITY/BUSH/FIELD 61 OTHER _____ 96 (SPECIFY) | |
| 106 | Do you share this toilet facility with other households? | YES 1 NO 2 | → 108 |
| 107 | Including your own household, how many households use this toilet facility? | NO. OF HOUSEHOLDS IF LESS THAN 10 0 10 OR MORE HOUSEHOLDS 95 DON'T KNOW 98 | |
| 108 | Where is this toilet facility located? | IN OWN DWELLING 1 IN OWN YARD/PLOT 2 ELSEWHERE 3 | |
| 109 | In your household, what type of cookstove is MAINLY used for cooking? | ELECTRIC STOVE 01 SOLAR COOKER 02 LIQUIFIED PETROLEUM GAS (LPG)/ COOKING GAS STOVE 03 PIPED NATURAL GAS STOVE 04 BIOGAS STOVE 05 KEROSENE STOVE 06 MANUFACTURED SOLID FUEL STOVE 07 TRADITIONAL SOLID FUEL STOVE 08 THREE STONE STOVE/OPEN FIRE 09 NO FOOD COOKED IN HOUSEHOLD 95 OTHER _____ 96 (SPECIFY) | → 111 |
| 110 | What type of fuel or energy source is used in this cookstove? | ALCOHOL/ETHANOL 01 GASOLINE/DIESEL 02 KEROSENE/PARAFFIN 03 COAL/LIGNITE 04 CHARCOAL 05 WOOD 06 STRAW/SHRUBS/GRASS 07 AGRICULTURAL CROP 08 ANIMAL DUNG/WASTE 09 PROCESSED BIOMASS (PELLETS) OR WOODCHIPS 10 GARBAGE/PLASTIC 11 SAWDUST 12 OTHER _____ 96 (SPECIFY) | |
| 111 | How many rooms in this household are used for sleeping? | ROOMS | <input type="text"/> <input type="text"/> |

HOUSEHOLD CHARACTERISTICS

| NO. | QUESTIONS AND FILTERS | CODING CATEGORIES | | SKIP |
|-----|--|---|---|-------|
| 112 | Does this household own any livestock, herds, other farm animals, or poultry? | YES | 1 | |
| | | NO | 2 | → 114 |
| 113 | How many of the following animals does this household own? IF NONE, RECORD '00'. IF 95 OR MORE, RECORD '95'. IF UNKNOWN, RECORD '98'. a) Milk cows or bulls? b) Other cattle? c) Horses, donkeys, or mules? d) Goats? e) Sheep? f) Chickens or other poultry? g) Pigs? h) Camels? | a) COWS/BULLS | <input type="text"/> <input type="text"/> | |
| | | b) OTHER CATTLE | <input type="text"/> <input type="text"/> | |
| | | c) HORSES/DONKEYS/MULES | <input type="text"/> <input type="text"/> | |
| | | d) GOATS | <input type="text"/> <input type="text"/> | |
| | | e) SHEEP | <input type="text"/> <input type="text"/> | |
| | | f) CHICKENS/POULTRY | <input type="text"/> <input type="text"/> | |
| | | g) PIGS | <input type="text"/> <input type="text"/> | |
| | | h) CAMELS | <input type="text"/> <input type="text"/> | |
| 114 | Does any member of this household own any agricultural land? | YES | 1 | |
| | | NO | 2 | → 116 |
| 115 | How many plots/acres/hectares of agricultural land do members of this household own? IF 95 OR MORE, CIRCLE '950'. PLOT | 01 <input type="text"/> <input type="text"/> . <input type="text"/> | | |
| | | ACRES | 02 <input type="text"/> <input type="text"/> . <input type="text"/> | |
| | | HECTARES | 03 <input type="text"/> <input type="text"/> . <input type="text"/> | |
| | | 95 OR MORE PLOTS/ACRES/HECTARES .. | 950 | |
| | | DON'T KNOW | 998 | |
| 116 | Does your household have: a) Electricity? b) A radio? c) A television? d) A non-mobile telephone? e) A computer? f) A refrigerator? g) A table? h) A chair? i) A bed? j) A sofa? k) A cupboard? l) An air conditioner? m) An electric iron? n) A generator? o) A fan? | YES | NO | |
| | | a) ELECTRICITY | 1 | 2 |
| | | b) RADIO | 1 | 2 |
| | | c) TELEVISION | 1 | 2 |
| | | d) NON-MOBILE TELEPHONE .. | 1 | 2 |
| | | e) COMPUTER | 1 | 2 |
| | | f) REFRIGERATOR | 1 | 2 |
| | | g) TABLE | 1 | 2 |
| | | h) CHAIR | 1 | 2 |
| | | i) BED | 1 | 2 |
| | | j) SOFA | 1 | 2 |
| | | k) CUPBOARD | 1 | 2 |
| | | l) AIR CONDITIONER | 1 | 2 |
| | | m) ELECTRIC IRON | 1 | 2 |
| | | n) GENERATOR | 1 | 2 |
| | | o) FAN | 1 | 2 |
| 117 | Does any member of this household own: a) A watch? b) A mobile phone? c) A bicycle? d) A motorcycle or motor scooter? e) An animal-drawn cart? f) A car or truck? g) A boat with a motor? h) A canoe? i) A keke napec? | YES | NO | |
| | | a) WATCH | 1 | 2 |
| | | b) MOBILE PHONE | 1 | 2 |
| | | c) BICYCLE | 1 | 2 |
| | | d) MOTORCYCLE/SCOOTER .. | 1 | 2 |
| | | e) ANIMAL-DRAWN CART .. | 1 | 2 |
| | | f) CAR/TRUCK | 1 | 2 |
| | | g) BOAT WITH MOTOR | 1 | 2 |
| | | h) CANOE | 1 | 2 |
| | | i) KEKE NAPEP | 1 | 2 |
| 118 | Does any member of this household have an account in a bank or other financial institution? | YES | 1 | |
| | | NO | 2 | |

HOUSEHOLD CHARACTERISTICS

| NO. | QUESTIONS AND FILTERS | CODING CATEGORIES | SKIP |
|-----|---|---|-------|
| 119 | Does any member of this household use a mobile phone to make financial transactions such as sending or receiving money, paying bills, purchasing goods or services, or receiving wages? | YES 1 NO 2 | |
| 120 | Does your household have any mosquito nets? | YES 1 NO 2 | → 132 |
| 121 | How many mosquito nets does your household have? IF 7 OR MORE NETS, RECORD '7'. | NUMBER OF NETS <input type="text"/> | |

MOSQUITO NETS

| NO. | QUESTIONS AND FILTERS | CODING CATEGORIES | SKIP |
|-----|--|---|---|
| | ASK THE RESPONDENT TO SHOW YOU ALL THE NETS IN THE HOUSEHOLD. OBSERVE AND ANSWER THE QUESTIONS FOR EACH NET, ONE BY ONE. | | |
| 122 | ASSIGN EACH NET A SEQUENTIAL NUMBER AND RECORD THE NUMBER HERE. | NET NUMBER | <input type="text"/> |
| 123 | WAS THIS NET OBSERVED? | OBSERVED | 1 |
| | | NOT OBSERVED | 2 |
| 124 | How many months ago did your household get the mosquito net? IF LESS THAN ONE MONTH AGO, RECORD '00'. | MONTHS AGO | <input type="text"/> <input type="text"/> |
| | | MORE THAN 36 MONTHS AGO | 95 |
| | | NOT SURE | 98 |
| 125 | OBSERVE OR ASK BRAND/TYPE OF MOSQUITO NET. IF BRAND IS UNKNOWN AND YOU CANNOT OBSERVE THE NET, SHOW PICTURES OF TYPICAL NET TYPES/BRANDS TO RESPONDENT. | LONG-LASTING INSECTICIDE-TREATED NET (LLIN) PERMANET 11 OLYSET 12 ICONLIFE 13 DURANET 14 NETPROTECT 15 BASF INTERCEPTOR 16 YORKOOL 17 MAGNET 18 DAWAPLUS 2.0 19 ROYAL SECURITY 20 ROYAL SENTRY 21 PERMANET 2.0 22 PERMANET 3.0 23 VEERALIN 24 INTERCEPTOR G2 25 ROYAL GUARD 26 OTHER/DON'T KNOW BRAND (LLIN) 36 OTHER TYPE (NOT LLIN) 96 DON'T KNOW TYPE 98 | |
| 126 | Did you get the net through a mass distribution campaign, during an antenatal care visit, or during an immunization visit? | YES, MASS DISTRIBUTION CAMPAIGN 1 YES, ANC 2 YES, IMMUNIZATION VISIT 3 NO 4 | <input type="text"/> → 128 |
| 127 | Where did you get the net? | GOVERNMENT HEALTH FACILITY 01 PRIVATE HEALTH FACILITY 02 PHARMACY 03 SHOP/MARKET 04 CHW 05 RELIGIOUS INSTITUTION 06 SCHOOL 07 OTHER _____ 96 SPECIFY DON'T KNOW 98 | |
| 128 | Did anyone sleep inside this mosquito net last night? | YES 1 NO 2 NOT SURE 8 | → 130 → 131 |

MOSQUITO NETS

| NO. | QUESTIONS AND FILTERS | CODING CATEGORIES | SKIP |
|-----|--|---|-------|
| 129 | <p>Who slept inside this mosquito net last night?</p> <p>RECORD THE PERSON'S NAME AND LINE NUMBER FROM HOUSEHOLD SCHEDULE.</p> | <p>NAME _____</p> <p>LINE NUMBER <input style="width: 20px; height: 15px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 15px; border: 1px solid black;" type="text"/></p> <p>NAME _____</p> <p>LINE NUMBER <input style="width: 20px; height: 15px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 15px; border: 1px solid black;" type="text"/></p> <p>NAME _____</p> <p>LINE NUMBER <input style="width: 20px; height: 15px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 15px; border: 1px solid black;" type="text"/></p> <p>NAME _____</p> <p>LINE NUMBER <input style="width: 20px; height: 15px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 15px; border: 1px solid black;" type="text"/></p> | → 131 |
| 130 | What was the MAIN REASON this net was not used last night? | <p>NO MOSQUITOES 01</p> <p>NO MALARIA 02</p> <p>TOO HOT 03</p> <p>DON'T LIKE SMELL 04</p> <p>FEEL 'CLOSED IN' 05</p> <p>NET TOO OLD/TORN 06</p> <p>NET TOO DIRTY 07</p> <p>NET NOT AVAILABLE LAST NIGHT (WASHING) 08</p> <p>USUAL USERS DID NOT SLEEP HERE LAST NIGHT 09</p> <p>NET NOT NEEDED LAST NIGHT 10</p> <p>BED BUGS 11</p> <p>OTHER 96 (SPECIFY)</p> <p>DON'T KNOW 98</p> | |
| 131 | GO BACK TO 122 FOR NEXT NET; OR, IF NO MORE NETS, GO TO 132. | | |

ADDITIONAL HOUSEHOLD CHARACTERISTICS

| NO. | QUESTIONS AND FILTERS | CODING CATEGORIES | SKIP |
|-----|--|-----------------------------------|------|
| 132 | OBSERVE MAIN MATERIAL OF THE FLOOR OF THE DWELLING. | NATURAL FLOOR | |
| | RECORD OBSERVATION. | EARTH/SAND 11 | |
| | | DUNG 12 | |
| | | RUDIMENTARY FLOOR | |
| | | WOOD PLANKS 21 | |
| | | PALM/BAMBOO 22 | |
| | | FINISHED FLOOR | |
| | | PARQUET OR POLISHED WOOD 31 | |
| | | VINYL OR ASPHALT STRIPS 32 | |
| | | CERAMIC TILES 33 | |
| | | CEMENT 34 | |
| | | CARPET 35 | |
| | | OTHER 96 | |
| | | (SPECIFY) | |
| 133 | OBSERVE MAIN MATERIAL OF THE ROOF OF THE DWELLING. | NATURAL ROOFING | |
| | RECORD OBSERVATION. | NO ROOF 11 | |
| | | THATCH/PALM LEAF 12 | |
| | | GRASS 13 | |
| | | RUDIMENTARY ROOFING | |
| | | RUSTIC MAT 21 | |
| | | PALM/BAMBOO 22 | |
| | | WOOD PLANKS 23 | |
| | | CARDBOARD 24 | |
| | | FINISHED ROOFING | |
| | | METAL/ZINC 31 | |
| | | WOOD 32 | |
| | | CALAMINE/CEMENT FIBER 33 | |
| | | CERAMIC TILES 34 | |
| | | CEMENT 35 | |
| | | ROOFING SHINGLES 36 | |
| | | ASBESTOS 37 | |
| | | OTHER 96 | |
| | | (SPECIFY) | |
| 134 | OBSERVE MAIN MATERIAL OF THE EXTERIOR WALLS OF THE DWELLING. | NATURAL WALLS | |
| | RECORD OBSERVATION. | NO WALLS 11 | |
| | | CANE/PALM/TRUNKS 12 | |
| | | DIRT 13 | |
| | | RUDIMENTARY WALLS | |
| | | BAMBOO WITH MUD 21 | |
| | | STONE WITH MUD 22 | |
| | | UNCOVERED ADOBE 23 | |
| | | PLYWOOD 24 | |
| | | CARDBOARD 25 | |
| | | REUSED WOOD 26 | |
| | | FINISHED WALLS | |
| | | CEMENT 31 | |
| | | STONE WITH LIME/CEMENT 32 | |
| | | BRICKS 33 | |
| | | CEMENT BLOCKS 34 | |
| | | COVERED ADOBE 35 | |
| | | WOOD PLANKS/SHINGLES 36 | |
| | | OTHER 96 | |
| | | (SPECIFY) | |
| 135 | RECORD THE TIME. | HOURS | |
| | | MINUTES | |
| | | | |
| | | | |

INTERVIEWER'S OBSERVATIONS

TO BE FILLED IN AFTER COMPLETING INTERVIEW

COMMENTS ABOUT INTERVIEW:

COMMENTS ON SPECIFIC QUESTIONS:

ANY OTHER COMMENTS:

SUPERVISOR'S OBSERVATIONS

NIGERIA MALARIA INDICATOR SURVEY
 WOMAN'S QUESTIONNAIRE

NIGERIA
 NATIONAL MALARIA ELIMINATION PROGRAMME
 NATIONAL POPULATION COMMISSION

| IDENTIFICATION | | | | | | | | | | | | | | | | | | | | | | |
|---|--|---|--|--|--|--|--|--|--|--|------|--|--|----------|--|--|---------|--|--|--|--|--|
| STATE | | | | <table border="1" style="float: right; margin-right: 10px;"><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table> | | | | | | | | | | | | | | | | | | |
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| LOCAL GOVT AREA | | | | <table border="1" style="float: right; margin-right: 10px;"><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table> | | | | | | | | | | | | | | | | | | |
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| ENUMERATION AREA | | | | <table border="1" style="float: right; margin-right: 10px;"><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table> | | | | | | | | | | | | | | | | | | |
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| NAME OF HOUSEHOLD HEAD | | | | <table border="1" style="float: right; margin-right: 10px;"><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table> | | | | | | | | | | | | | | | | | | |
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| NAME AND LINE NUMBER OF WOMAN | | | | <table border="1" style="float: right; margin-right: 10px;"><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table> | | | | | | | | | | | | | | | | | | |
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| INTERVIEWER VISITS | | | | | | | | | | | | | | | | | | | | | | |
| | 1 | 2 | 3 | FINAL VISIT | | | | | | | | | | | | | | | | | | |
| DATE | | | | <table border="1" style="float: right; margin-right: 10px;"><tr><td>DAY</td><td></td><td></td></tr><tr><td>MONTH</td><td></td><td></td></tr><tr><td>YEAR</td><td></td><td></td></tr><tr><td>INT. NO.</td><td></td><td></td></tr><tr><td>RESULT*</td><td></td><td></td></tr></table> | DAY | | | MONTH | | | YEAR | | | INT. NO. | | | RESULT* | | | | | |
| DAY | | | | | | | | | | | | | | | | | | | | | | |
| MONTH | | | | | | | | | | | | | | | | | | | | | | |
| YEAR | | | | | | | | | | | | | | | | | | | | | | |
| INT. NO. | | | | | | | | | | | | | | | | | | | | | | |
| RESULT* | | | | | | | | | | | | | | | | | | | | | | |
| INTERVIEWER'S NAME | | | | <table border="1" style="float: right; margin-right: 10px;"><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table> | | | | | | | | | | | | | | | | | | |
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| NEXT VISIT: DATE | | | | <table border="1" style="float: right; margin-right: 10px;"><tr><td>TOTAL NUMBER OF VISITS</td><td></td></tr></table> | TOTAL NUMBER OF VISITS | | | | | | | | | | | | | | | | | |
| TOTAL NUMBER OF VISITS | | | | | | | | | | | | | | | | | | | | | | |
| TIME | | | | <table border="1" style="float: right; margin-right: 10px;"><tr><td></td></tr></table> | | | | | | | | | | | | | | | | | | |
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| *RESULT CODES: 1 COMPLETED 4 REFUSED 2 NOT AT HOME 5 PARTLY COMPLETED 7 OTHER _____ 3 POSTPONED 6 INCAPACITATED SPECIFY | | | | | | | | | | | | | | | | | | | | | | |
| LANGUAGE OF QUESTIONNAIRE** | 0 <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>0</td><td>1</td></tr></table> | 0 | 1 | LANGUAGE OF INTERVIEW** | <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td></td><td></td></tr></table> | | | NATIVE LANGUAGE OF RESPONDENT** <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td></td><td></td></tr></table> TRANSLATOR USED (YES = 1, NO = 2) <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td></td></tr></table> | | | | | | | | | | | | | | |
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| LANGUAGE OF QUESTIONNAIRE** | ENGLISH | | **LANGUAGE CODES: 01 ENGLISH 03 YORUBA 06 OTHER 02 HAUSA 04 IGBO | | | | | | | | | | | | | | | | | | | |
| TEAM | TEAM SUPERVISOR | | | | | | | | | | | | | | | | | | | | | |
| <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td></td><td></td></tr></table> NUMBER | | | <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td></td><td></td><td></td><td></td></tr></table> NAME | | | | | | | <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td></td><td></td><td></td><td></td></tr></table> NUMBER | | | | | | | | | | | | |
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INTRODUCTION AND CONSENT

Greetings. My name is _____. I am working with the National Malaria Elimination Program and the National Population Commission. We are conducting a survey about malaria all over Nigeria. The information we collect will help the government to plan health services. Your household was selected for the survey. The questions usually take about 30 minutes. All of the answers you give will be confidential and will not be shared with anyone other than members of our survey team. You don't have to be in the survey, but we hope you will agree to answer the questions since your views are important. If I ask you any question you don't want to answer, just let me know and I will go on to the next question or you can stop the interview at any time.

As part of this survey, we are also asking children 6 months through 4 years all over the country to take a combined malaria and anaemia testing and give a few drops of blood from a finger or heel. Malaria is a serious illness caused by a parasite transmitted by a mosquito bite. Anaemia is a serious health problem that usually results from poor nutrition, malaria and other infections, or chronic disease. The equipment used to take the blood is clean and completely safe. It has never been used before and will be thrown away after each test. The blood will be tested for malaria and anaemia immediately, and the result will be told to you right away. A few blood drops will also be collected on slides and on filter paper and taken to a laboratory for malaria testing. You will not be told the results of the laboratory testing. We would like to ask you to allow for storing part of the blood sample at the laboratory for additional tests or research. The blood sample will not have any name or other data attached that could identify you. The results will be kept strictly confidential and will not be shared with anyone other than members of our survey team.

Lastly, we are taking measures to reduce the risk of transmission of COVID-19, including wearing face masks, keeping a distance of 2 meters from respondents to the survey, and washing our hands frequently.

In case you need more information about the survey, you may contact the following persons:

National Malaria Elimination Program Contact Person: Dr. Perpetua Uhomobhi; Phone number: 08059121416

National Population Commission Contact Person: Mrs. Bintu Abba; Phone number: 08033138277

National Health Research Ethics Committee Contact Person: NHREC Secretary; Email: secretary@nhrec.net

NHREC Desk Officer; Email: deskofficer@nhrec.net

Phone number: 095238367

Health Strategy and Delivery Foundation Contact Person: Dr. Ify Ariebo; Phone number: 09063727555

IF INTERESTED, ALLOW RESPONDENT TO COPY CONTACT INFORMATION

Do you have any questions?

May I begin the interview now?

SIGNATURE OF INTERVIEWER _____ DATE _____

RESPONDENT AGREES
TO BE INTERVIEWED ... 1
↓

RESPONDENT DOES NOT AGREE
TO BE INTERVIEWED ... 2 → END

SECTION 1. RESPONDENT'S BACKGROUND

| NO. | QUESTIONS AND FILTERS | CODING CATEGORIES | SKIP |
|------|---|---|-------|
| 101 | RECORD THE TIME. | HOURS MINUTES <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | |
| 102 | In what month and year were you born? | MONTH DON'T KNOW MONTH 98 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> YEAR DON'T KNOW YEAR 9998 | |
| 103 | How old were you at your last birthday? COMPARE AND CORRECT 102 AND/OR 103 IF INCONSISTENT. | AGE IN COMPLETED YEARS <input type="checkbox"/> <input type="checkbox"/> | |
| 104 | Have you ever attended school? | YES 1 NO 2 | → 105 |
| 104A | Have you had any informal education? | YES 1 NO 2 | → 108 |
| 104B | What type of informal education have you attended? | ADULT EDUCATION 1 TSANGAYA 2 QUARANIC 3 | → 108 |
| 105 | What is the highest level of school you attended: primary, secondary, or higher? | PRIMARY 1 SECONDARY 2 HIGHER 3 | |
| 106 | What is the highest class/form/year you completed at that level? IF COMPLETED LESS THAN ONE YEAR AT THAT LEVEL, RECORD '00'. | CLASS/FORM/YEAR <input type="checkbox"/> <input type="checkbox"/> | |

SECTION 1. RESPONDENT'S BACKGROUND

| NO. | QUESTIONS AND FILTERS | CODING CATEGORIES | SKIP |
|-----|---|--|-------|
| 107 | CHECK 105: PRIMARY OR <input type="checkbox"/> SECONDARY  | HIGHER <input type="checkbox"/> | → 110 |
| 108 | Now I would like you to read this sentence to me. SHOW CARD TO RESPONDENT. IF RESPONDENT CANNOT READ WHOLE SENTENCE, PROBE: Can you read any part of the sentence to me? | CANNOT READ AT ALL 1 ABLE TO READ ONLY PART OF THE SENTENCE 2 ABLE TO READ WHOLE SENTENCE 3 NO CARD WITH REQUIRED LANGUAGE 4 (SPECIFY LANGUAGE) BLIND/VISUALLY IMPAIRED 5 | |
| 109 | CHECK 108: CODE '2', '3' OR '4' <input type="checkbox"/> CIRCLED  | CODE '1' OR '5' CIRCLED <input type="checkbox"/> | → 111 |
| 110 | Do you read a newspaper or magazine at least once a week, less than once a week or not at all? | AT LEAST ONCE A WEEK 1 LESS THAN ONCE A WEEK 2 NOT AT ALL 3 | |
| 111 | Do you listen to the radio at least once a week, less than once a week or not at all? | AT LEAST ONCE A WEEK 1 LESS THAN ONCE A WEEK 2 NOT AT ALL 3 | |
| 112 | Do you watch television at least once a week, less than once a week or not at all? | AT LEAST ONCE A WEEK 1 LESS THAN ONCE A WEEK 2 NOT AT ALL 3 | |
| 113 | Do you own a mobile phone? | YES 1 NO 2 | → 115 |
| 114 | Is your mobile phone a smart phone? | YES 1 NO 2 | |
| 115 | Have you ever used the Internet from any location on any device? | YES 1 NO 2 | → 118 |
| 116 | In the last 12 months, have you used the Internet? IF NECESSARY, PROBE FOR USE FROM ANY LOCATION, WITH ANY DEVICE. | YES 1 NO 2 | → 118 |
| 117 | During the last one month, how often did you use the Internet: almost every day, at least once a week, less than once a week, or not at all? | ALMOST EVERY DAY 1 AT LEAST ONCE A WEEK 2 LESS THAN ONCE A WEEK 3 NOT AT ALL 4 | |
| 118 | What is your religion? | CATHOLIC 01 OTHER CHRISTIAN 02 ISLAM 03 TRADITIONALIST 04 OTHER 96 (SPECIFY) | |
| 119 | What is your ethnic group? | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> (ETHNIC GROUP) | |

SECTION 2. REPRODUCTION

| NO. | QUESTIONS AND FILTERS | CODING CATEGORIES | SKIP | | | | | | | | |
|-----|---|--|---|--|--|--|--|--|--|--|--|
| 201 | Now I would like to ask about all the births you have had during your life. Have you ever given birth? | YES 1 NO 2 | → 206 | | | | | | | | |
| 202 | Do you have any sons or daughters to whom you have given birth who are now living with you? | YES 1 NO 2 | → 204 | | | | | | | | |
| 203 | a) How many sons live with you? b) And how many daughters live with you? IF NONE, RECORD '00'. | a) SONS AT HOME b) DAUGHTERS AT HOME | <table border="1" style="float: right; margin-left: 10px; border-collapse: collapse; text-align: center;"> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </table> | | | | | | | | |
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| | | | | | | | | | | | |
| 204 | Do you have any sons or daughters to whom you have given birth who are alive but do not live with you? | YES 1 NO 2 | → 206 | | | | | | | | |
| 205 | a) How many sons are alive but do not live with you? b) And how many daughters are alive but do not live with you? IF NONE, RECORD '00'. | a) SONS ELSEWHERE b) DAUGHTERS ELSEWHERE | <table border="1" style="float: right; margin-left: 10px; border-collapse: collapse; text-align: center;"> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </table> | | | | | | | | |
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| | | | | | | | | | | | |
| 206 | Have you ever given birth to a boy or girl who was born alive but later died? IF NO, PROBE: Any baby who cried, who made any movement, sound, or effort to breathe, or who showed any other signs of life even if for a very short time? | YES 1 NO 2 | → 208 | | | | | | | | |
| 207 | a) How many boys have died? b) And how many girls have died? IF NONE, RECORD '00'. | a) BOYS DEAD b) GIRLS DEAD | <table border="1" style="float: right; margin-left: 10px; border-collapse: collapse; text-align: center;"> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </table> | | | | | | | | |
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| | | | | | | | | | | | |
| 208 | SUM ANSWERS TO 203, 205, AND 207, AND ENTER TOTAL. IF NONE, RECORD '00'. | TOTAL LIVE BIRTHS | <table border="1" style="float: right; margin-left: 10px; border-collapse: collapse; text-align: center;"> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </table> | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| 209 | CHECK 208: Just to make sure that I have this right: you have had in TOTAL _____ births during your life. Is that correct? | YES <input type="checkbox"/> NO <input type="checkbox"/> PROBE AND CORRECT 201-208 AS NECESSARY. | | | | | | | | | |
| 210 | CHECK 208: ONE OR MORE BIRTHS <input type="checkbox"/> | NO BIRTHS <input type="checkbox"/> | → 224 | | | | | | | | |
| 211 | Now I'd like to ask you about your more recent births. How many births have you had in 2016-2021? RECORD NUMBER OF LIVE BIRTHS IN 2016-2021. | TOTAL IN 2016-2021 | <table border="1" style="float: right; margin-left: 10px; border-collapse: collapse; text-align: center;"> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </table> | | | | | | | | |
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| | | | | | | | | | | | |
| | | NONE | 00 → 224 | | | | | | | | |

SECTION 2. REPRODUCTION

212 Now I would like to record the names of all your births in 2016-2021, whether still alive or not, starting with the most recent one you had.

RECORD IN 213 THE NAMES OF ALL THE BIRTHS BORN IN 2016-2021. RECORD TWINS AND TRIPLETS ON SEPARATE ROWS. IF THERE ARE MORE THAN 5 BIRTHS, USE AN ADDITIONAL QUESTIONNAIRE STARTING WITH THE SECOND ROW.

| 213 | 214 | 215 | 216 | 217 | 218 IF ALIVE: | 219 IF ALIVE: | 220 IF ALIVE: | 221 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| What name was given to your (most recent/ previous) baby? RECORD NAME. BIRTH HISTORY NUMBER. | Is (NAME) a boy or a girl? | Was that a single or multiple pregnancy? | On what day, month, and year was (NAME) born? | Is (NAME) still alive? | How old was (NAME) at (NAME)'s last birthday? | Is (NAME) living with you? | RECORD HOUSEHOLD LINE NUMBER OF CHILD. RECORD '00' IF CHILD NOT LISTED IN HOUSEHOLD. | Were there any other live births between (NAME) and (NAME OF PREVIOUS BIRTH), including any children who died after birth? | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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SECTION 2. REPRODUCTION

| NO. | QUESTIONS AND FILTERS | CODING CATEGORIES | SKIP |
|-----|---|--|---------------|
| 222 | Have you had any live births since the birth of (NAME OF MOST RECENT BIRTH)?" | YES NO | 1 2 |
| 223 | COMPARE 211 WITH NUMBER OF BIRTHS IN BIRTH HISTORY | NUMBERS ARE THE SAME NUMBERS ARE DIFFERENT (PROBE AND RECONCILE) | |
| 224 | Are you pregnant now? | YES NO UNSURE | 1 2 8 |
| 225 | How many weeks or months pregnant are you? RECORD NUMBER OF COMPLETED WEEKS OR MONTHS. | WEEKS MONTHS | 1 2 301 |

SECTION 3. PREGNANCY AND INTERMITTENT PREVENTIVE TREATMENT

| NO. | QUESTIONS AND FILTERS | CODING CATEGORIES | SKIP |
|-----|--|---|------|
| 301 | <p>CHECK 216 AND 218:</p> <p>ONE OR MORE BIRTHS 0-35 MONTHS BEFORE THE SURVEY <input type="checkbox"/></p> | <p>NO BIRTHS <input type="checkbox"/></p> <p>0-35 MONTHS BEFORE THE SURVEY <input type="checkbox"/></p> | 401 |
| 302 | RECORD THE NAME OF THE MOST RECENT BIRTH FROM 213, LINE 01: | <p>MOST RECENT BIRTH</p> <p>NAME _____</p> | |
| 303 | <p>Now I would like to ask you some questions about your last pregnancy that resulted in a live birth.</p> <p>While you were pregnant with (NAME), did you see anyone for antenatal care for this pregnancy?</p> | <p>YES 1</p> <p>NO 2</p> | 308 |
| 304 | <p>Whom did you see?</p> <p>Anyone else?</p> <p>PROBE TO IDENTIFY EACH TYPE OF PERSON AND RECORD ALL MENTIONED.</p> | <p>HEALTH PERSONNEL</p> <p>DOCTOR A</p> <p>NURSE/MIDWIFE B</p> <p>AUXILIARY MIDWIFE C</p> <p>COMMUNITY EXTENSION HEALTH WORKER D</p> <p>OTHER PERSON</p> <p>TRADITIONAL BIRTH ATTENDANT E</p> <p>COMMUNITY HEALTH WORKER/ FIELD WORKER F</p> <p>OTHER _____ X (SPECIFY)</p> | |
| 305 | <p>Where did you receive antenatal care for this pregnancy?</p> <p>Anywhere else?</p> <p>PROBE TO IDENTIFY THE TYPE OF SOURCE.</p> <p>IF UNABLE TO DETERMINE IF PUBLIC, PRIVATE, OR NGO SECTOR, RECORD 'X' AND WRITE THE NAME OF THE PLACE(S).</p> | <p>HOME</p> <p>HER HOME A</p> <p>OTHER HOME B</p> <p>PUBLIC SECTOR</p> <p>GOVERNMENT HOSPITAL C</p> <p>GOVERNMENT HEALTH CENTER D</p> <p>GOVERNMENT HEALTH POST E</p> <p>OTHER PUBLIC SECTOR _____ F (SPECIFY)</p> <p>PRIVATE MEDICAL SECTOR</p> <p>PRIVATE HOSPITAL G</p> <p>PRIVATE CLINIC H</p> <p>OTHER PRIVATE MEDICAL SECTOR _____ I (SPECIFY)</p> <p>NGO MEDICAL SECTOR</p> <p>NGO HOSPITAL J</p> <p>NGO CLINIC K</p> <p>OTHER NGO MEDICAL SECTOR _____ L (SPECIFY)</p> <p>OTHER _____ X (SPECIFY)</p> | |

SECTION 3. PREGNANCY AND INTERMITTENT PREVENTIVE TREATMENT

| NO. | NAME OF CHILD | BIRTH HISTORY NUMBER | |
|-----|---|---|--|
| 306 | How many weeks or months pregnant were you when you first received antenatal care for this pregnancy? | WEEKS 1 MONTHS 2 DON'T KNOW 998 | <input type="text" value="1"/> <input type="text" value="1"/> <input type="text" value="2"/> <input type="text" value="2"/> |
| 307 | How many times did you receive antenatal care during this pregnancy? | NUMBER OF TIMES DON'T KNOW 98 | <input type="text" value="1"/> <input type="text" value="1"/> |
| 308 | During this pregnancy, did you take SP/Fansidar to keep you from getting malaria? | YES 1 NO 2 DON'T KNOW 8 | <input type="text" value="1"/> <input type="text" value="2"/> → 401 |
| 309 | How many times did you take SP/Fansidar during this pregnancy? | TIMES <input type="text" value="1"/> <input type="text" value="1"/> | |
| 310 | Did you get the SP/Fansidar during any antenatal care visit, during another visit to a health facility or from another source? IF MORE THAN ONE SOURCE, RECORD THE HIGHEST SOURCE ON THE LIST. | ANTENATAL VISIT 1 ANOTHER FACILITY VISIT 2 COMMUNITY HEALTH EXTENSION WORKER 3 OTHER SOURCE 6 | |

SECTION 4. FEVER IN CHILDREN

| NO. | QUESTIONS AND FILTERS | CODING CATEGORIES | SKIP |
|-----|--|---|------------------------------|
| 401 | CHECK 216, 217, AND 218 IN THE BIRTH HISTORY: ANY SURVIVING CHILDREN BORN 0-59 MONTHS BEFORE THE SURVEY? ONE OR MORE SURVIVING CHILDREN BORN 0-59 MONTHS BEFORE THE SURVEY <input type="checkbox"/> | NO SURVIVING CHILDREN BORN 0-59 MONTHS BEFORE THE SURVEY <input type="checkbox"/> | 501 |
| 402 | Now I would like to ask some questions about the health of your children born in the last 5 years. (We will talk about each separately, starting with the youngest.) | | |
| 403 | RECORD THE NAME AND BIRTH HISTORY NUMBER FROM 213 OF THE SURVIVING CHILDREN BORN 0-59 MONTHS BEFORE THE SURVEY, STARTING WITH THE LAST ONE. NAME OF CHILD _____ BIRTH HISTORY NUMBER | <input type="checkbox"/> <input type="checkbox"/> | |
| 404 | Has (NAME) been ill with a fever at any time in the last 2 weeks? | YES 1 NO 2 DON'T KNOW 8 | <input type="checkbox"/> 416 |
| 405 | At any time during the illness, did (NAME) have blood taken from (NAME)'s finger or heel for testing? | YES 1 NO 2 DON'T KNOW 8 | |
| 406 | Were you told by a healthcare provider that (NAME) had malaria? | YES 1 NO 2 DON'T KNOW 8 | |
| 407 | Did you seek advice or treatment for the illness from any source? | YES 1 NO 2 | <input type="checkbox"/> 412 |

SECTION 4. FEVER IN CHILDREN

| | | | | | |
|------|---|---|--|-----|-----|
| NO. | NAME OF CHILD _____ | BIRTH HISTORY NUMBER | <input type="checkbox"/> <input type="checkbox"/> | | |
| 408 | <p>Where did you seek advice or treatment?</p> <p>Anywhere else?</p> <p>PROBE TO IDENTIFY THE TYPE OF SOURCE.</p> <p>IF UNABLE TO DETERMINE IF PUBLIC, PRIVATE, OR NGO SECTOR, RECORD 'X' AND WRITE THE NAME OF THE PLACE(S).</p> | <p>PUBLIC SECTOR</p> <p>GOVERNMENT HOSPITAL A GOVERNMENT HEALTH CENTER B GOVERNMENT HEALTH POST C MOBILE CLINIC D COMMUNITY HEALTH WORKER/ FIELDWORKER E OTHER PUBLIC SECTOR _____ F (SPECIFY)</p> <p>PRIVATE MEDICAL SECTOR</p> <p>PRIVATE HOSPITAL G PRIVATE CLINIC H PHARMACY I PRIVATE DOCTOR J MOBILE CLINIC K COMMUNITY HEALTH WORKER/ FIELDWORKER L OTHER PRIVATE MEDICAL SECTOR _____ M (SPECIFY)</p> <p>NGO MEDICAL SECTOR</p> <p>NGO HOSPITAL N NGO CLINIC O OTHER NGO MEDICAL SECTOR _____ P (SPECIFY)</p> <p>OTHER SOURCE</p> <p>CHEMIST SHOP/PPMV Q TRADITIONAL PRACTITIONER R MARKET S ITINERANT DRUG SELLER T COMMUNITY-ORIENTED RESOURCE PERSON U</p> <p>OTHER _____ X (SPECIFY)</p> | | | |
| 409 | CHECK 408: | <p>TWO OR MORE CODES CIRCLED <input type="checkbox"/></p> | <p>ONLY ONE CODE CIRCLED <input type="checkbox"/></p> | 411 | |
| 410 | Where did you first seek advice or treatment? USE LETTER CODE FROM 408. | FIRST PLACE <input type="checkbox"/> | | | |
| 411 | How many days after the illness began did you first seek advice or treatment for (NAME)? IF THE SAME DAY RECORD '00'. | DAYS <input type="checkbox"/> <input type="checkbox"/> | | | |
| 411A | While (NAME) was sick with this fever were you referred to go to a higher level of care? | YES 1 NO 2 | | | |
| 412 | At any time during the illness, did (NAME) take any medicine for the illness? | YES 1 NO 2 DON'T KNOW 8 | | | |
| | | | | | 416 |

SECTION 4. FEVER IN CHILDREN

| | | | |
|------|--|---|--|
| NO. | NAME OF CHILD | BIRTH HISTORY NUMBER | |
| 413 | <p>What medicine did (NAME) take?</p> <p>Any other medicine?</p> <p>RECORD ALL MENTIONED.</p> <p>IF MEDICINE NOT KNOWN, ASK TO SEE THE PACKAGE OR PRESCRIPTION.</p> | <p>ANTIMALARIAL MEDICINE</p> <p>ARTEMISININ COMBINATION THERAPY (ACT) A</p> <p>SP/FANSIDAR B</p> <p>CHLOROQUINE C</p> <p>AMODIAQUINE D</p> <p>QUININE</p> <p>PILLS E</p> <p>INJECTION/IV F</p> <p>ARTESUNATE</p> <p>RECTAL G</p> <p>INJECTION/IV H</p> <p>OTHER</p> <p>ANTIMALARIAL I</p> <p>(SPECIFY)</p> <p>ANTIBIOTIC MEDICINE</p> <p>AMOXICILLIN J</p> <p>COTRIMOXAZOLE K</p> <p>OTHER PILL/SYRUP L</p> <p>OTHER INJECTION/IV M</p> <p>OTHER MEDICINE</p> <p>ASPIRIN N</p> <p>PARACETAMOL/PANADOL/ACETAMINOPHEN O</p> <p>IBUPROFEN P</p> <p>OTHER X</p> <p>(SPECIFY)</p> <p>DON'T KNOW Z</p> | |
| 414 | <p>CHECK 413: ARTEMISININ COMBINATION THERAPY ('A') GIVEN</p> <p>CODE 'A' <input type="checkbox"/> CIRCLED</p> <p>CODE 'A' <input type="checkbox"/> NOT CIRCLED</p> <p>416</p> | | |
| 415 | How long after the fever started did (NAME) first take an artemisinin combination therapy? | SAME DAY 0 NEXT DAY 1 TWO DAYS AFTER FEVER 2 THREE OR MORE DAYS AFTER FEVER 3 DON'T KNOW 8 | |
| 415A | After (NAME) took an artemisinin combination therapy, did the fever go away? | YES 1 NO 2 | |
| 416 | <p>CHECK 216 AND 217 IN BIRTH HISTORY: ANY MORE SURVIVING CHILDREN BORN 0-59 MONTHS BEFORE THE SURVEY?</p> <p>NO MORE SURVIVING CHILDREN BORN 0-59 MONTHS BEFORE THE SURVEY <input type="checkbox"/></p> <p>MORE SURVIVING CHILDREN BORN <input type="checkbox"/> 0-59 MONTHS BEFORE THE SURVEY</p> <p>403</p> | | |

SECTION 5. MALARIA KNOWLEDGE AND BELIEFS

| NO. | QUESTIONS AND FILTERS | CODING CATEGORIES | SKIP |
|-----|---|---|------|
| 501 | In the past six months, have you seen or heard any messages about malaria? | YES 1 NO 2 | 503 |
| 502 | Where did you see or hear these messages? PROBE: Anywhere else? RECORD ALL MENTIONED. | RADIO A TELEVISION B POSTER/BILLBOARD C NEWSPAPER/MAGAZINE D LEAFLET/BROCHURE E HEALTHCARE PROVIDER F COMMUNITY HEALTH WORKER G SOCIAL MEDIA H TOWN ANNOUNCER I INTER-PERSONAL COMMUNICATION AGENT/ COMMUNITY VOLUNTEER J FAMILY/FRIENDS K OTHER _____ X (SPECIFY) DON'T REMEMBER Z | |
| 503 | Are there ways to avoid getting malaria? | YES 1 NO 2 DON'T KNOW 8 | 505 |
| 504 | What are the things that people can do to prevent themselves from getting malaria? RECORD ALL MENTIONED. | SLEEP INSIDE A MOSQUITO NET A SLEEP INSIDE AN INSECTICIDE-TREATED MOSQUITO NET B USE MOSQUITO REPELLENT OR COIL C TAKE PREVENTATIVE MEDICATIONS D SPRAY HOUSE WITH INSECTICIDE E FILL IN STAGNANT WATERS (PUDDLES) F KEEP SURROUNDINGS CLEAN G PUT MOSQUITO SCREEN ON WINDOWS H OTHER _____ X (SPECIFY) DON'T KNOW Z | |
| 505 | Now I am going to read some statements and I would like you to tell me whether you agree or disagree with each statement. If you don't know, say, don't know. People in this community only get malaria during the rainy season. Do you agree or disagree? | AGREE 1 DISAGREE 2 DON'T KNOW/UNCERTAIN 8 | |
| 506 | When a child has a fever, you almost always worry it might be malaria. Do you agree or disagree? | AGREE 1 DISAGREE 2 DON'T KNOW/UNCERTAIN 8 | |
| 507 | Getting malaria is not a problem because it can be easily treated. Do you agree or disagree? | AGREE 1 DISAGREE 2 DON'T KNOW/UNCERTAIN 8 | |

SECTION 5. MALARIA KNOWLEDGE AND BELIEFS

| NO. | QUESTIONS AND FILTERS | CODING CATEGORIES | SKIP | | | | | | | | |
|------|---|---|---|--|--|--|--|--|--|--|--|
| 508 | Only weak children can die from malaria. Do you agree or disagree? | AGREE 1 DISAGREE 2 DON'T KNOW/UNCERTAIN 8 | | | | | | | | | |
| 509 | You can sleep inside a mosquito net for the entire night when there are lots of mosquitoes. Do you agree or disagree? | AGREE 1 DISAGREE 2 DON'T KNOW/UNCERTAIN 8 | | | | | | | | | |
| 510 | You can sleep inside a mosquito net for the entire night when there are few mosquitoes Do you agree or disagree? | AGREE 1 DISAGREE 2 DON'T KNOW/UNCERTAIN 8 | | | | | | | | | |
| 511 | You do not like sleeping inside a mosquito net when the weather is too warm. Do you agree or disagree? | AGREE 1 DISAGREE 2 DON'T KNOW/UNCERTAIN 8 | | | | | | | | | |
| 512 | When a child has a fever, it is best to start by giving them any medicine you have at home. Do you agree or disagree? | AGREE 1 DISAGREE 2 DON'T KNOW/UNCERTAIN 8 | | | | | | | | | |
| 512A | It is important that children take the full dose of medicine that they are prescribed for malaria Do you agree or disagree? | AGREE 1 DISAGREE 2 DON'T KNOW/UNCERTAIN 8 | | | | | | | | | |
| 513 | People in your community usually take their children to a health care provider on the same day or day after they develop a fever. Do you agree or disagree? IF RESPONDENT DOESN'T KNOW, PROBE: Would you say more than half or less than half of | AGREE/MORE THAN HALF 1 DISAGREE/LESS THAN HALF 2 DON'T KNOW/UNCERTAIN 8 | | | | | | | | | |
| 514 | People in your community who have a mosquito net usually sleep inside a mosquito net every night. Do you agree or disagree? IF RESPONDENT DOESN'T KNOW, PROBE: Would you say more than half or less than half of the community does this? | AGREE/MORE THAN HALF 1 DISAGREE/LESS THAN HALF 2 DON'T KNOW/UNCERTAIN 8 | | | | | | | | | |
| 515 | RECORD THE TIME. | HOURS MINUTES | <table border="1"> <tr> <td></td><td></td></tr> <tr> <td></td><td></td></tr> <tr> <td></td><td></td></tr> <tr> <td></td><td></td></tr> </table> | | | | | | | | |
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INTERVIEWER'S OBSERVATIONS

TO BE FILLED IN AFTER COMPLETING INTERVIEW

COMMENTS ABOUT INTERVIEW:

COMMENTS ON SPECIFIC QUESTIONS:

ANY OTHER COMMENTS:

SUPERVISOR'S OBSERVATIONS

NIGERIA MALARIA INDICATOR SURVEY
 BIOMARKER QUESTIONNAIRE

NIGERIA
 NATIONAL MALARIA ELIMINATION PROGRAMME
 NATIONAL POPULATION COMMISSION

| IDENTIFICATION | | | | | | | | | | | | | | | | | | | | | | |
|--|--|---|--|--|--|--|--|--|--|---|--|--|--|--|--|--|--|--|--|--|--|--|
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| LOCAL GOVT AREA | | | | <table border="1" style="float: right; margin-right: 10px;"><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table> | | | | | | | | | | | | | | | | | | |
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| LOCALITY | | | | <table border="1" style="float: right; margin-right: 10px;"><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table> | | | | | | | | | | | | | | | | | | |
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| ENUMERATION AREA | | | | <table border="1" style="float: right; margin-right: 10px;"><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table> | | | | | | | | | | | | | | | | | | |
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| NAME OF HOUSEHOLD HEAD | | | | <table border="1" style="float: right; margin-right: 10px;"><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table> | | | | | | | | | | | | | | | | | | |
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| LABORATORY SCIENTIST'S VISITS | | | | | | | | | | | | | | | | | | | | | | |
| | 1 | 2 | 3 | FINAL VISIT | | | | | | | | | | | | | | | | | | |
| DATE | | | | DAY <table border="1" style="float: right; margin-right: 10px;"><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table> | | | | | | | | | | | | | | | | | | |
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| LABORATORY SCIENTIST'S NAME | | | | MONTH <table border="1" style="float: right; margin-right: 10px;"><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table> | | | | | | | | | | | | | | | | | | |
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| NEXT VISIT: DATE | | | | YEAR <table border="1" style="float: right; margin-right: 10px;"><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table> | | | | | | | | | | | | | | | | | | |
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| TIME | | | | TOTAL NUMBER OF VISITS <table border="1" style="float: right; margin-right: 10px;"><tr><td></td></tr></table> | | | | | | | | | | | | | | | | | | |
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| NOTES: | | | | TOTAL ELIGIBLE CHILDREN <table border="1" style="float: right; margin-right: 10px;"><tr><td></td><td></td></tr></table> | | | | | | | | | | | | | | | | | | |
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| LANGUAGE OF QUESTIONNAIRE** | 0 <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>0</td><td>1</td></tr></table> | 0 | 1 | LANGUAGE OF INTERVIEW** <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td></td><td></td></tr></table> | | | NATIVE LANGUAGE OF RESPONDENT** <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td></td><td></td></tr></table> | | | TRANSLATOR (YES = 1, NO = 2) <table border="1" style="float: right; margin-right: 10px;"><tr><td></td></tr></table> | | | | | | | | | | | | |
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| TEAM | TEAM SUPERVISOR | | | | | | | | | | | | | | | | | | | | | |
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HEMOGLOBIN MEASUREMENT AND MALARIA TESTING FOR CHILDREN AGE 6 MONTHS TO 4 YEARS

| | | | |
|-----|--|---|-------|
| 101 | CHECK CAPI OUTPUT FOR "LIST ELIGIBLE INDIVIDUALS/BIOMARKERS" COLUMN 9 IN HOUSEHOLD QUESTIONNAIRE. RECORD THE LINE NUMBER AND NAME FOR ALL ELIGIBLE CHILDREN AGE 0-5 YEARS IN QUESTION 102 ON THIS PAGE AND SUBSEQUENT PAGES STARTING WITH THE FIRST ONE LISTED. IF MORE THAN THREE CHILDREN, USE ADDITIONAL QUESTIONNAIRE(S). | | |
| | CHILD 1 | | SKIP |
| 102 | CHECK CAPI OUTPUT AND RECORD NAME AND LINE NUMBER OF CHILD. [RECORD NAME FROM COLUMN 2 IN HOUSEHOLD QUESTIONNAIRE; RECORD LINE NUMBER FROM COLUMN 9 IN HOUSEHOLD QUESTIONNAIRE.] | NAME _____ LINE NUMBER | |
| 103 | IF MOTHER INTERVIEWED: COPY CHILD'S DATE OF BIRTH (DAY, MONTH, AND YEAR) FROM BIRTH HISTORY. IF MOTHER NOT INTERVIEWED ASK: What is (NAME)'s date of birth? | DAY MONTH YEAR | |
| 104 | IF MOTHER INTERVIEWED: COPY CHILD'S AGE FROM BIRTH HISTORY. IF MOTHER NOT INTERVIEWED ASK: How old was (NAME) at (NAME)'s last birthday? COMPARE AND CORRECT 103 AND/OR 104 IF INCONSISTENT. | AGE IN COMPLETED YEARS <input type="checkbox"/> | |
| 105 | CHECK 104: CHILD AGE 0-4 YEARS? YES <input type="checkbox"/> NO <input type="checkbox"/> | | → 129 |
| 106 | CHECK 103: IS THE CHILD AGE 0-5 MONTHS OR IS THE CHILD OLDER? <input type="checkbox"/> | OLDER <input type="checkbox"/> AGE 0-5 MONTHS <input type="checkbox"/> | → 129 |
| 107 | RECORD NAME OF PARENT/RESPONSIBLE ADULT FOR THE CHILD. | NAME _____ LINE NUMBER | |
| 108 | ASK CONSENT FOR MALARIA AND ANEMIA TESTS FROM PARENT/RESPONSIBLE ADULT: As part of this survey, we are asking children all over the country to take a test to see if they have malaria and a test to see if they have anemia. Malaria is a serious illness caused by a parasite transmitted by a mosquito bite. Anemia is a serious health problem that usually results from poor nutrition, malaria and other infections, or chronic disease. This survey will assist the government to develop programs to prevent and treat malaria and anemia. We ask that all children age 6 months through 4 years take part in malaria and anemia testing. The tests require a few drops of blood from a finger or heel. The equipment used to take the blood is clean and completely safe. It has never been used before and will be thrown away after each test. The blood will be tested for malaria and anemia immediately, and the results will be told to you right away. A few blood drops will be collected on a slide and taken to a laboratory for testing. You will not be told the results of the laboratory testing. All results will be kept strictly confidential and will not be shared with anyone other than members of our survey team. Do you have any questions? You can say yes or no. It is up to you to decide. Will you allow (NAME OF CHILD) to participate in the malaria and anemia tests? | | |
| 109 | CIRCLE THE CODE. | GRANTED 1 REFUSED 2 NOT PRESENT/OTHER 3 | → 112 |
| 110 | SIGN NAME AND ENTER LABORATORY SCIENTIST NUMBER. | (SIGN) <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> LAB SCIENTIST NUMBER | |

| | | |
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| 110A | <p>ASK CONSENT FOR DRIED BLOOD SPOTS COLLECTION FROM PARENT/RESPONSIBLE ADULT: As part of the survey, we are also asking to collect blood samples on filter paper to send to the lab to test to determine if the antimalaria medicines are still able to kill the parasite.</p> <p>For this test, a few drops of blood will be collected on a filter paper card to test at a laboratory for the ability of the antimalarial medicine to kill the malaria parasite. The equipment used to take the blood is clean and completely safe. It has never been used before and will be thrown away after we take your blood. You will not be told the results of the laboratory testing. All results will be kept strictly confidential and will not be shared with anyone other than members of our survey team.</p> <p>Do you have any questions? You can say yes or no. It is up to you to decide. Will you allow (NAME OF CHILD) to participate in collecting blood samples on filter paper?</p> | |
| 110B | CIRCLE THE CODE. | GRANTED 1 REFUSED 2 NOT PRESENT/OTHER 3 |
| | → 112 | |
| 110C | SIGN NAME AND ENTER LABORATORY SCIENTIST NUMBER. | <hr/> <p style="text-align: center;">(SIGN)</p> <div style="text-align: center;"> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> </div> <p style="text-align: center;">LAB SCIENTIST NUMBER</p> |
| | | |
| 110D | ASK CONSENT FOR ADDITIONAL TESTING FROM PARENT/RESPONSIBLE ADULT: <p>We ask you to allow the ANDI Centre of Excellence for Malaria Diagnosis, College of Medicine, University of Lagos to store part of the blood sample at the laboratory for additional malaria tests or research. We are not certain about what additional malaria tests might be done. The blood sample will not have any name or other data attached that could identify you. You do not have to agree. If you do not want the blood sample stored for additional testing, you can still participate in testing to see if malaria medicines are still effective.</p> <p>Will you allow us to keep the blood sample stored for additional testing?</p> | |
| | | |
| 110E | CIRCLE THE CODE. | GRANTED 1 REFUSED 2 NOT PRESENT/OTHER 3 |
| | → 112 | |
| 110F | SIGN NAME AND ENTER LABORATORY SCIENTIST NUMBER NUMBER. | <hr/> <p style="text-align: center;">(SIGN)</p> <div style="text-align: center;"> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> </div> <p style="text-align: center;">LAB SCIENTIST NUMBER</p> |
| | | |

HEMOGLOBIN MEASUREMENT AND MALARIA TESTING FOR CHILDREN AGE 6 MONTHS TO 4 YEARS

| | CHILD 1 | SKIP |
|-----|--|---|
| 111 | IF CONSENT GRANTED, PREPARE EQUIPMENT AND SUPPLIES FOR THE TESTS AND PROCEED WITH THE TESTS. | |
| 112 | PLACE 1ST BAR CODE LABEL FOR MALARIA LAB TEST IN SPACE TO THE RIGHT. PUT THE 2ND BAR CODE LABEL ON THE SLIDE, THE 3RD ON THE FILTER PAPER, THE 4TH ON THE SLIDE TRANSMITTAL FORM AND THE 5TH ON THE DBS TRANSMITTAL FORM. | <div style="border: 2px dashed black; padding: 5px; text-align: center;">PUT THE 1ST BAR CODE LABEL HERE.</div> NOT PRESENT 99994 REFUSED 99995 OTHER 99996 |
| 113 | RECORD HEMOGLOBIN LEVEL HERE AND IN THE ANEMIA AND MALARIA PAMPHLET. | G/DL <input type="text"/> <input type="text"/> . <input type="text"/> NOT PRESENT 994 REFUSED 995 OTHER 996 |
| 114 | RECORD THE RESULT OF THE MALARIA RDT HERE AND IN THE ANEMIA AND MALARIA PAMPHLET. | POSITIVE 1 NEGATIVE 2 → 126 NOT PRESENT 4 REFUSED 5 → 128 OTHER 6 → 126 |
| 115 | Does (NAME) suffer from any of the following illnesses or symptoms: a) Extreme weakness? b) Heart problems? c) Loss of consciousness? d) Rapid or difficult breathing? e) Seizures? f) Abnormal bleeding? g) Jaundice or yellow skin? h) Dark urine? i) Vomiting? j) Pallor? k) Refusal to eat? l) Very cold hands and feet? | YES NO a) EXTREME WEAKNESS 1 2 b) HEART PROBLEMS . 1 2 c) LOSS OF CONSCIOUS . 1 2 d) RAPID BREATHING . 1 2 e) SEIZURES 1 2 f) BLEEDING 1 2 g) JAUNDICE 1 2 h) DARK URINE 1 2 i) VOMITING 1 2 j) PALLOR 1 2 k) REFUSAL TO EAT ... 1 2 l) VERY COLD HANDS AND FEET 1 2 |
| 116 | CHECK 115: ANY 'YES' CIRCLED? | NO <input type="checkbox"/> YES <input type="checkbox"/> ↓ |
| 117 | CHECK 113: HEMOGLOBIN RESULT | BELOW 8.0 G/DL, SEVERE ANEMIA 1 8.0 G/DL OR ABOVE 2 OTHER 6 → 119 |
| 118 | SEVERE MALARIA REFERRAL The malaria test shows that (NAME OF CHILD) has malaria. Your child also has symptoms suggestive of severe malaria. Due to the severity of your child's illness, the malaria treatment I have may not help your child, and I cannot give you the medication. Your child is very ill and must be taken to a health facility right away. RECORD THE RESULT OF THE MALARIA RDT ON THE REFERRAL FORM. | → 126 |
| 119 | In the past 2 weeks has (NAME) taken or is (NAME) taking ACT given by a doctor or health center to treat the malaria? VERIFY BY ASKING TO SEE TREATMENT. | YES 1 NO 2 → 121 |
| 120 | ALREADY TAKING ACT REFERRAL STATEMENT You have told me that (NAME OF CHILD) had already received an ACT for malaria. Therefore, I cannot give you additional ACT. However, the test shows that he/she has malaria. If your child has a fever for 2 days after the last dose of ACT, you should take the child to the nearest health facility for further examination. | → 128 |

HEMOGLOBIN MEASUREMENT AND MALARIA TESTING FOR CHILDREN AGE 6 MONTHS TO 4 YEARS

| | CHILD 1 | SKIP | | | | | | | | | | | | |
|-----------------|---|--|-----|-------------------------|-----------------|---------|---------|----------|--------------------|---------------------------------|-----------|-------------|----------------------------------|--|
| 121 | ASK CONSENT FOR MALARIA TREATMENT FROM PARENT/RESPONSIBLE ADULT: The malaria test shows that your child has malaria. We can give you free medicine. The medicine is called ACT. ACT is very effective and in a few days it should get rid of the fever and other symptoms. You do not have to give the child the medicine. This is up to you. Please tell me whether you accept the medicine or not. | | | | | | | | | | | | | |
| 122 | CIRCLE THE APPROPRIATE CODE. | ACCEPTED MEDICINE 1 REFUSED MEDICINE 2 OTHER 6 → 128 | | | | | | | | | | | | |
| 123 | SIGN NAME AND ENTER LABORATORY SCIENTIST NUMBER NUMBER. | (SIGN) LAB SCIENTIST NUMBER | | | | | | | | | | | | |
| 124 | CHECK 122: ACCEPTED MEDICINE? YES <input type="checkbox"/> NO <input type="checkbox"/> | → 128 | | | | | | | | | | | | |
| 125 | PROVIDE DOSAGE INSTRUCTIONS TO PARENT/RESPONSIBLE ADULT. The second dose should be given 8 hours after the first dose on the day of commencement of treatment. TELL THE PARENT/RESPONSIBLE ADULT: If [NAME] has a high fever, fast or difficult breathing, is not able to drink or breastfeed, gets sicker or does not get better in 2 days, you should take him/her to a health professional for treatment right away. | → 128 | | | | | | | | | | | | |
| | TREATMENT WITH ACT | | | | | | | | | | | | | |
| | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center; padding: 2px;">WEIGHT (in kg)</th> <th style="text-align: center; padding: 2px;">AGE</th> <th style="text-align: center; padding: 2px;">ARTEMETHER-LUMEFANTRINE</th> </tr> </thead> <tbody> <tr> <td style="text-align: center; padding: 2px;">LESS THAN 5 KGS</td> <td style="text-align: center; padding: 2px;">NOTHING</td> <td style="text-align: center; padding: 2px;">NOTHING</td> </tr> <tr> <td style="text-align: center; padding: 2px;">5-14 KGS</td> <td style="text-align: center; padding: 2px;">6 MONTHS - 3 YEARS</td> <td style="text-align: center; padding: 2px;">1 TABLET TWICE A DAY FOR 3 DAYS</td> </tr> <tr> <td style="text-align: center; padding: 2px;">15-25 KGS</td> <td style="text-align: center; padding: 2px;">4 - 8 YEARS</td> <td style="text-align: center; padding: 2px;">2 TABLETS TWICE A DAY FOR 3 DAYS</td> </tr> </tbody> </table> | WEIGHT (in kg) | AGE | ARTEMETHER-LUMEFANTRINE | LESS THAN 5 KGS | NOTHING | NOTHING | 5-14 KGS | 6 MONTHS - 3 YEARS | 1 TABLET TWICE A DAY FOR 3 DAYS | 15-25 KGS | 4 - 8 YEARS | 2 TABLETS TWICE A DAY FOR 3 DAYS | |
| WEIGHT (in kg) | AGE | ARTEMETHER-LUMEFANTRINE | | | | | | | | | | | | |
| LESS THAN 5 KGS | NOTHING | NOTHING | | | | | | | | | | | | |
| 5-14 KGS | 6 MONTHS - 3 YEARS | 1 TABLET TWICE A DAY FOR 3 DAYS | | | | | | | | | | | | |
| 15-25 KGS | 4 - 8 YEARS | 2 TABLETS TWICE A DAY FOR 3 DAYS | | | | | | | | | | | | |
| | IF CHILD WEIGHS LESS THAN 5 KGS, DO NOT LEAVE DRUGS. TELL PARENTS TO TAKE CHILD TO HEALTH FACILITY. | | | | | | | | | | | | | |
| 126 | CHECK 113: HEMOGLOBIN RESULT | BELOW 8.0 G/DL, SEVERE ANEMIA 1 8.0 G/DL OR ABOVE 2 OTHER 6 → 128 | | | | | | | | | | | | |
| 127 | SEVERE ANEMIA REFERRAL The anemia test shows that (NAME OF CHILD) has severe anemia. Your child is very ill and must be taken to a health facility immediately. RECORD THE RESULT OF THE ANEMIA TEST ON THE REFERRAL FORM. | | | | | | | | | | | | | |
| 128 | TODAY'S DATE: | DAY MONTH YEAR <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table> | | | | | | | | | | | | |
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| 129 | IF ANOTHER CHILD, GO TO 102 ON THE NEXT PAGE; IF NO MORE CHILDREN, END INTERVIEW. | | | | | | | | | | | | | |

HEMOGLOBIN MEASUREMENT AND MALARIA TESTING FOR CHILDREN AGE 6 MONTHS TO 4 YEARS

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| 101 | CHECK CAPI OUTPUT FOR "LIST ELIGIBLE INDIVIDUALS/Biomarkers" COLUMN 9 IN HOUSEHOLD QUESTIONNAIRE. RECORD THE LINE NUMBER AND NAME FOR ALL ELIGIBLE CHILDREN AGE 0-5 YEARS IN QUESTION 102 ON THIS PAGE AND SUBSEQUENT PAGES STARTING WITH THE FIRST ONE LISTED. IF MORE THAN THREE CHILDREN, USE ADDITIONAL QUESTIONNAIRE(S). | | | | | | | | | | | | | | | | | |
| | CHILD 2 | | SKIP | | | | | | | | | | | | | | | |
| 102 | CHECK CAPI OUTPUT AND RECORD NAME AND LINE NUMBER OF CHILD. [RECORD NAME FROM COLUMN 2 IN HOUSEHOLD QUESTIONNAIRE; RECORD LINE NUMBER FROM COLUMN 9 IN HOUSEHOLD QUESTIONNAIRE.] | | NAME _____ LINE NUMBER | | | | | | | | | | | | | | | |
| 103 | IF MOTHER INTERVIEWED: COPY CHILD'S DATE OF BIRTH (DAY, MONTH, AND YEAR) FROM BIRTH HISTORY. IF MOTHER NOT INTERVIEWED ASK: What is (NAME)'s date of birth? | | DAY <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table> MONTH <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table> YEAR <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td></td><td></td><td></td></tr></table> | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | | | |
| 104 | IF MOTHER INTERVIEWED: COPY CHILD'S AGE FROM BIRTH HISTORY. IF MOTHER NOT INTERVIEWED ASK: How old was (NAME) at (NAME)'s last birthday? COMPARE AND CORRECT 103 AND/OR 104 IF INCONSISTENT. | | AGE IN COMPLETED YEARS <input type="checkbox"/> | | | | | | | | | | | | | | | |
| 105 | CHECK 104: CHILD AGE 0-4 YEARS? YES <input type="checkbox"/> NO <input type="checkbox"/> | | → 129 | | | | | | | | | | | | | | | |
| 106 | CHECK 103: IS THE CHILD AGE 0-5 MONTHS OR IS THE CHILD OLDER? OLDER <input type="checkbox"/> AGE 0-5 MONTHS <input type="checkbox"/> | | → 129 | | | | | | | | | | | | | | | |
| 107 | RECORD NAME OF PARENT/RESPONSIBLE ADULT FOR THE CHILD. | | NAME _____ LINE NUMBER | | | | | | | | | | | | | | | |
| 108 | ASK CONSENT FOR MALARIA AND ANEMIA TESTS FROM PARENT/RESPONSIBLE ADULT: As part of this survey, we are asking children all over the country to take a test to see if they have malaria and a test to see if they have anemia. Malaria is a serious illness caused by a parasite transmitted by a mosquito bite. Anemia is a serious health problem that usually results from poor nutrition, malaria and other infections, or chronic disease. This survey will assist the government to develop programs to prevent and treat malaria and anemia. We ask that all children age 6 months through 4 years take part in malaria and anemia testing. The tests require a few drops of blood from a finger or heel. The equipment used to take the blood is clean and completely safe. It has never been used before and will be thrown away after each test. The blood will be tested for malaria and anemia immediately, and the results will be told to you right away. A few blood drops will be collected on a slide and taken to a laboratory for testing. You will not be told the results of the laboratory testing. All results will be kept strictly confidential and will not be shared with anyone other than members of our survey team. Do you have any questions? You can say yes or no. It is up to you to decide. Will you allow (NAME OF CHILD) to participate in the malaria and anemia tests? | | | | | | | | | | | | | | | | | |
| 109 | CIRCLE THE CODE. | | GRANTED 1 REFUSED 2 NOT PRESENT/OTHER 3 → 112 | | | | | | | | | | | | | | | |
| 110 | SIGN NAME AND ENTER LABORATORY SCIENTIST NUMBER. | | (SIGN) <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td></td><td></td><td></td><td></td></tr></table> LAB SCIENTIST NUMBER | | | | | | | | | | | | | | | |
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| 110A | <p>ASK CONSENT FOR DRIED BLOOD SPOTS COLLECTION FROM PARENT/RESPONSIBLE ADULT: As part of the survey, we are also asking to collect blood samples on filter paper to send to the lab to test to determine if the antimalaria medicines are still able to kill the parasite.</p> <p>For this test, a few drops of blood will be collected on a filter paper card to test at a laboratory for the ability of the antimalarial medicine to kill the malaria parasite. The equipment used to take the blood is clean and completely safe. It has never been used before and will be thrown away after we take your blood. You will not be told the results of the laboratory testing. All results will be kept strictly confidential and will not be shared with anyone other than members of our survey team.</p> <p>Do you have any questions? You can say yes or no. It is up to you to decide.</p> | | | | | | |
| 110B | CIRCLE THE CODE. | GRANTED 1 REFUSED 2 NOT PRESENT/OTHER 3 | → 112 | | | | |
| 110C | SIGN NAME AND ENTER LABORATORY SCIENTIST NUMBER. | <hr style="border: 0.5px solid black; margin-bottom: 5px;"/> (SIGN) <div style="text-align: center; margin-top: 10px;"> <table border="1" style="display: inline-table; vertical-align: middle; border-collapse: collapse;"> <tr><td style="width: 25px; height: 25px;"></td><td style="width: 25px; height: 25px;"></td><td style="width: 25px; height: 25px;"></td><td style="width: 25px; height: 25px;"></td></tr> </table> LAB SCIENTIST NUMBER </div> | | | | | |
| | | | | | | | |
| 110D | <p>ASK CONSENT FOR ADDITIONAL TESTING FROM PARENT/RESPONSIBLE ADULT:</p> <p>We ask you to allow the ANDI Centre of Excellence for Malaria Diagnosis, College of Medicine, University of Lagos to store part of the blood sample at the laboratory for additional malaria tests or research. We are not certain about what additional malaria tests might be done. The blood sample will not have any name or other data attached that could identify you. You do not have to agree. If you do not want the blood sample stored for additional testing, you can still participate in testing to see if malaria medicines are still effective.</p> <p>Will you allow us to keep the blood sample stored for additional testing?</p> | | | | | | |
| 110E | CIRCLE THE CODE. | GRANTED 1 REFUSED 2 NOT PRESENT/OTHER 3 | → 112 | | | | |
| 110F | SIGN NAME AND ENTER LABORATORY SCIENTIST NUMBER. | <hr style="border: 0.5px solid black; margin-bottom: 5px;"/> (SIGN) <div style="text-align: center; margin-top: 10px;"> <table border="1" style="display: inline-table; vertical-align: middle; border-collapse: collapse;"> <tr><td style="width: 25px; height: 25px;"></td><td style="width: 25px; height: 25px;"></td><td style="width: 25px; height: 25px;"></td><td style="width: 25px; height: 25px;"></td></tr> </table> LAB SCIENTIST NUMBER </div> | | | | | |
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HEMOGLOBIN MEASUREMENT AND MALARIA TESTING FOR CHILDREN AGE 6 MONTHS TO 4 YEARS

| | CHILD 2 | SKIP | | | |
|-----|---|---|--|--|--|
| 111 | IF CONSENT GRANTED, PREPARE EQUIPMENT AND SUPPLIES FOR THE TESTS AND PROCEED WITH THE TESTS. | | | | |
| 112 | PLACE 1ST BAR CODE LABEL FOR MALARIA LAB TEST IN SPACE TO THE RIGHT. PUT THE 2ND BAR CODE LABEL ON THE SLIDE, THE 3RD ON THE FILTER PAPER, THE 4TH ON THE SLIDE TRANSMITTAL FORM AND THE 5TH ON THE DBS TRANSMITTAL FORM. | <div style="border: 2px dashed black; padding: 5px; margin-bottom: 10px;"> PUT THE 1ST BAR CODE LABEL HERE. </div> NOT PRESENT 99994 REFUSED 99995 OTHER 99996 | | | |
| 113 | RECORD HEMOGLOBIN LEVEL HERE AND IN THE ANEMIA AND MALARIA PAMPHLET. | G/DL <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="width: 15px; height: 15px;"></td><td style="width: 15px; height: 15px;"></td><td style="width: 15px; height: 15px;"></td></tr></table> NOT PRESENT 994 REFUSED 995 OTHER 996 | | | |
| | | | | | |
| 114 | RECORD THE RESULT OF THE MALARIA RDT HERE AND IN THE ANEMIA AND MALARIA PAMPHLET. | POSITIVE 1 NEGATIVE 2 NOT PRESENT 4 REFUSED 5 OTHER 6 <div style="display: flex; justify-content: space-between; margin-top: 10px;"> → 126 → 128 → 126 </div> | | | |
| 115 | Does (NAME) suffer from any of the following illnesses or symptoms: a) Extreme weakness? b) Heart problems? c) Loss of consciousness? d) Rapid or difficult breathing? e) Seizures? f) Abnormal bleeding? g) Jaundice or yellow skin? h) Dark urine? i) Vomiting? j) Pallor? k) Refusal to eat? l) Very cold hands and feet? | YES NO a) EXTREME WEAKNESS 1 2 b) HEART PROBLEMS . 1 2 c) LOSS OF CONSCIOUS 1 2 d) RAPID BREATHING . 1 2 e) SEIZURES 1 2 f) BLEEDING 1 2 g) JAUNDICE 1 2 h) DARK URINE 1 2 i) VOMITING 1 2 j) PALLOR 1 2 k) REFUSAL TO EAT ... 1 2 l) VERY COLD HANDS AND FEET 1 2 | | | |
| 116 | CHECK 115: ANY 'YES' CIRCLED? | NO <input type="checkbox"/> <div style="text-align: center; margin: 10px 0;"> </div> YES <input type="checkbox"/> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> → 118 </div> | | | |
| 117 | CHECK 113: HEMOGLOBIN RESULT | BELOW 8.0 G/DL, SEVERE ANEMIA 1 8.0 G/DL OR ABOVE 2 OTHER 6 <div style="display: flex; justify-content: space-between; margin-top: 10px;"> → 119 </div> | | | |
| 118 | SEVERE MALARIA REFERRAL The malaria test shows that (NAME OF CHILD) has malaria. Your child also has symptoms suggestive of severe malaria. Due to the severity of your child's illness, the malaria treatment I have may not help your child, and I cannot give you the medication. Your child is very ill and must be taken to a health facility right away. RECORD THE RESULT OF THE MALARIA RDT ON THE REFERRAL FORM. <div style="display: flex; justify-content: space-between; margin-top: 10px;"> → 126 </div> | | | | |
| 119 | In the past 2 weeks has (NAME) taken or is (NAME) taking ACT given by a doctor or health center to treat the malaria? VERIFY BY ASKING TO SEE TREATMENT. | YES 1 NO 2 <div style="display: flex; justify-content: space-between; margin-top: 10px;"> → 121 </div> | | | |
| 120 | ALREADY TAKING ACT REFERRAL STATEMENT You have told me that (NAME OF CHILD) had already received an ACT for malaria. Therefore, I cannot give you additional ACT. However, the test shows that he/she has malaria. If your child has a fever for 2 days after the last dose of ACT, you should take the child to the nearest health facility for further examination. <div style="display: flex; justify-content: space-between; margin-top: 10px;"> → 128 </div> | | | | |

HEMOGLOBIN MEASUREMENT AND MALARIA TESTING FOR CHILDREN AGE 6 MONTHS TO 4 YEARS

| | CHILD 2 | SKIP | | | | | | | | | | | | | | | |
|--------------------|--|--|--------------------|--|--|----------------|-----|-------------------------|-----------------|---------|---------|----------|--------------------|---------------------------------|-----------|-------------|----------------------------------|
| 121 | ASK CONSENT FOR MALARIA TREATMENT FROM PARENT/RESPONSIBLE ADULT: The malaria test shows that your child has malaria. We can give you free medicine. The medicine is called ACT. ACT is very effective and in a few days it should get rid of the fever and other symptoms. You do not have to give the child the medicine. This is up to you. Please tell me whether you accept the medicine or not. | | | | | | | | | | | | | | | | |
| 122 | CIRCLE THE APPROPRIATE CODE. | ACCEPTED MEDICINE 1 REFUSED MEDICINE 2 OTHER 6 → 128 | | | | | | | | | | | | | | | |
| 123 | SIGN NAME AND ENTER LABORATORY SCIENTIST NUMBER. | (SIGN) LAB SCIENTIST NUMBER | | | | | | | | | | | | | | | |
| 124 | CHECK 122: ACCEPTED MEDICINE? YES <input type="checkbox"/> NO <input type="checkbox"/> | → 128 | | | | | | | | | | | | | | | |
| 125 | PROVIDE DOSAGE INSTRUCTIONS TO PARENT/RESPONSIBLE ADULT. The second dose should be given 8 hours after the first dose on the day of commencement of treatment. TELL THE PARENT/RESPONSIBLE ADULT: If [NAME] has a high fever, fast or difficult breathing, is not able to drink or breastfeed, gets sicker or does not get better in 2 days, you should take him/her to a health professional for treatment right away. <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3" style="text-align: center;">TREATMENT WITH ACT</th> </tr> <tr> <th style="text-align: center;">WEIGHT (in kg)</th> <th style="text-align: center;">AGE</th> <th style="text-align: center;">ARTEMETHER-LUMEFANTRINE</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">LESS THAN 5 KGS</td> <td style="text-align: center;">NOTHING</td> <td style="text-align: center;">NOTHING</td> </tr> <tr> <td style="text-align: center;">5-14 KGS</td> <td style="text-align: center;">6 MONTHS - 3 YEARS</td> <td style="text-align: center;">1 TABLET TWICE A DAY FOR 3 DAYS</td> </tr> <tr> <td style="text-align: center;">15-25 KGS</td> <td style="text-align: center;">4 - 8 YEARS</td> <td style="text-align: center;">2 TABLETS TWICE A DAY FOR 3 DAYS</td> </tr> </tbody> </table> IF CHILD WEIGHS LESS THAN 5 KGS, DO NOT LEAVE DRUGS. TELL PARENTS TO TAKE CHILD TO HEALTH FACILITY. | | TREATMENT WITH ACT | | | WEIGHT (in kg) | AGE | ARTEMETHER-LUMEFANTRINE | LESS THAN 5 KGS | NOTHING | NOTHING | 5-14 KGS | 6 MONTHS - 3 YEARS | 1 TABLET TWICE A DAY FOR 3 DAYS | 15-25 KGS | 4 - 8 YEARS | 2 TABLETS TWICE A DAY FOR 3 DAYS |
| TREATMENT WITH ACT | | | | | | | | | | | | | | | | | |
| WEIGHT (in kg) | AGE | ARTEMETHER-LUMEFANTRINE | | | | | | | | | | | | | | | |
| LESS THAN 5 KGS | NOTHING | NOTHING | | | | | | | | | | | | | | | |
| 5-14 KGS | 6 MONTHS - 3 YEARS | 1 TABLET TWICE A DAY FOR 3 DAYS | | | | | | | | | | | | | | | |
| 15-25 KGS | 4 - 8 YEARS | 2 TABLETS TWICE A DAY FOR 3 DAYS | | | | | | | | | | | | | | | |
| 126 | CHECK 113: HEMOGLOBIN RESULT | BELOW 8.0 G/DL, SEVERE ANEMIA 1 8.0 G/DL OR ABOVE 2 OTHER 6 → 128 | | | | | | | | | | | | | | | |
| 127 | SEVERE ANEMIA REFERRAL The anemia test shows that (NAME OF CHILD) has severe anemia. Your child is very ill and must be taken to a health facility immediately. RECORD THE RESULT OF THE ANEMIA TEST ON THE REFERRAL FORM. | | | | | | | | | | | | | | | | |
| 128 | TODAY'S DATE: | DAY MONTH YEAR | | | | | | | | | | | | | | | |
| 129 | IF ANOTHER CHILD, GO TO 102 ON THE NEXT PAGE; IF NO MORE CHILDREN, END INTERVIEW. | | | | | | | | | | | | | | | | |

HEMOGLOBIN MEASUREMENT AND MALARIA TESTING FOR CHILDREN AGE 6 MONTHS TO 4 YEARS

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| 101 | CHECK CAPI OUTPUT FOR "LIST ELIGIBLE INDIVIDUALS/BIOMARKERS" COLUMN 9 IN HOUSEHOLD QUESTIONNAIRE. RECORD THE LINE NUMBER AND NAME FOR ALL ELIGIBLE CHILDREN AGE 0-5 YEARS IN QUESTION 102 ON THIS PAGE AND SUBSEQUENT PAGES STARTING WITH THE FIRST ONE LISTED. IF MORE THAN THREE CHILDREN, USE ADDITIONAL QUESTIONNAIRE(S). | | |
| | CHILD 3 | | SKIP |
| 102 | CHECK CAPI OUTPUT AND RECORD NAME AND LINE NUMBER OF CHILD. [RECORD NAME FROM COLUMN 2 IN HOUSEHOLD QUESTIONNAIRE; RECORD LINE NUMBER FROM COLUMN 9 IN HOUSEHOLD QUESTIONNAIRE.] | NAME _____ LINE NUMBER | |
| 103 | IF MOTHER INTERVIEWED: COPY CHILD'S DATE OF BIRTH (DAY, MONTH, AND YEAR) FROM BIRTH HISTORY. IF MOTHER NOT INTERVIEWED ASK: What is (NAME)'s date of birth? | DAY MONTH YEAR | |
| 104 | IF MOTHER INTERVIEWED: COPY CHILD'S AGE FROM BIRTH HISTORY. IF MOTHER NOT INTERVIEWED ASK: How old was (NAME) at (NAME)'s last birthday? COMPARE AND CORRECT 103 AND/OR 104 IF INCONSISTENT. | AGE IN COMPLETED YEARS <input type="checkbox"/> | |
| 105 | CHECK 104: CHILD AGE 0-4 YEARS? YES <input type="checkbox"/> NO <input type="checkbox"/> | | → 129 |
| 106 | CHECK 103: IS THE CHILD AGE 0-5 MONTHS OR IS THE CHILD OLDER? <input type="checkbox"/> | AGE 0-5 MONTHS <input type="checkbox"/> | → 129 |
| 107 | RECORD NAME OF PARENT/RESPONSIBLE ADULT FOR THE CHILD. | NAME _____ LINE NUMBER | |
| 108 | ASK CONSENT FOR MALARIA AND ANEMIA TESTS FROM PARENT/RESPONSIBLE ADULT: As part of this survey, we are asking children all over the country to take a test to see if they have malaria and a test to see if they have anemia. Malaria is a serious illness caused by a parasite transmitted by a mosquito bite. Anemia is a serious health problem that usually results from poor nutrition, malaria and other infections, or chronic disease. This survey will assist the government to develop programs to prevent and treat malaria and anemia. We ask that all children age 6 months through 4 years take part in malaria and anemia testing. The tests require a few drops of blood from a finger or heel. The equipment used to take the blood is clean and completely safe. It has never been used before and will be thrown away after each test. The blood will be tested for malaria and anemia immediately, and the results will be told to you right away. A few blood drops will be collected on a slide and taken to a laboratory for testing. You will not be told the results of the laboratory testing. All results will be kept strictly confidential and will not be shared with anyone other than members of our survey team. Do you have any questions? You can say yes or no. It is up to you to decide. Will you allow (NAME OF CHILD) to participate in the malaria and anemia tests? | | |
| 109 | CIRCLE THE CODE. | GRANTED 1 REFUSED 2 NOT PRESENT/OTHER 3 | → 112 |
| 110 | SIGN NAME AND ENTER LABORATORY SCIENTIST NUMBER | (SIGN) <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> LAB SCIENTIST NUMBER | |

| | | |
|------|---|---|
| 110A | <p>ASK CONSENT FOR DRIED BLOOD SPOTS COLLECTION FROM PARENT/RESPONSIBLE ADULT: As part of the survey, we are also asking to collect blood samples on filter paper to send to the lab to test to determine if the antimalaria medicines are still able to kill the parasite.</p> <p>For this test, a few drops of blood will be collected on a filter paper card to test at a laboratory for the ability of the antimalarial medicine to kill the malaria parasite. The equipment used to take the blood is clean and completely safe. It has never been used before and will be thrown away after we take your blood. You will not be told the results of the laboratory testing. All results will be kept strictly confidential and will not be shared with anyone other than members of our survey team.</p> <p>Do you have any questions? You can say yes or no. It is up to you to decide.</p> | |
| 110B | CIRCLE THE CODE. | GRANTED 1 REFUSED 2 NOT PRESENT/OTHER 3 → 112 |
| 110C | SIGN NAME AND ENTER LABORATORY SCIENTIST NUMBER. | <hr/> (SIGN)  LAB SCIENTIST NUMBER |
| 110D | <p>ASK CONSENT FOR ADDITIONAL TESTING FROM PARENT/RESPONSIBLE ADULT:</p> <p>We ask you to allow the ANDI Centre of Excellence for Malaria Diagnosis, College of Medicine, University of Lagos to store part of the blood sample at the laboratory for additional malaria tests or research. We are not certain about what additional malaria tests might be done. The blood sample will not have any name or other data attached that could identify you. You do not have to agree. If you do not want the blood sample stored for additional testing, you can still participate in testing to see if malaria medicines are still effective.</p> <p>Will you allow us to keep the blood sample stored for additional testing?</p> | |
| 110E | CIRCLE THE CODE. | GRANTED 1 REFUSED 2 NOT PRESENT/OTHER 3 → 112 |
| 110F | SIGN NAME AND ENTER LABORATORY SCIENTIST NUMBER. | <hr/> (SIGN)  LAB SCIENTIST NUMBER |

HEMOGLOBIN MEASUREMENT AND MALARIA TESTING FOR CHILDREN AGE 6 MONTHS TO 4 YEARS

| | CHILD 3 | SKIP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------------------------|--|--|-------|-----|----|---------------------|---|---|-------------------|---|---|----------------------|---|---|--------------------|---|---|-------------|---|---|-------------|---|---|-------------|---|---|---------------|---|---|-------------|---|---|-----------|---|---|-------------------|---|---|--------------------------------|---|---|
| 111 | IF CONSENT GRANTED, PREPARE EQUIPMENT AND SUPPLIES FOR THE TESTS AND PROCEED WITH THE TESTS. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 112 | PLACE 1ST BAR CODE LABEL FOR MALARIA LAB TEST IN SPACE TO THE RIGHT. PUT THE 2ND BAR CODE LABEL ON THE SLIDE, THE 3RD ON THE FILTER PAPER, THE 4TH ON THE SLIDE TRANSMITTAL FORM AND THE 5TH ON THE DBS TRANSMITTAL FORM. | <div style="border: 2px dashed black; padding: 5px; margin-bottom: 10px;"> PUT THE 1ST BAR CODE LABEL HERE. </div> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> NOT PRESENT 99994 REFUSED 99995 OTHER 99996 </div> </div> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 113 | RECORD HEMOGLOBIN LEVEL HERE AND IN THE ANEMIA AND MALARIA PAMPHLET. | <div style="display: flex; justify-content: space-around; align-items: center;"> G/DL </div> <div style="display: flex; justify-content: space-around; margin-top: 5px;"> NOT PRESENT 994 REFUSED 995 OTHER 996 </div> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 114 | RECORD THE RESULT OF THE MALARIA RDT HERE AND IN THE ANEMIA AND MALARIA PAMPHLET. | <div style="display: flex; justify-content: space-around; align-items: center;"> POSITIVE 1 NEGATIVE 2 NOT PRESENT 4 REFUSED 5 OTHER 6 </div> <div style="display: flex; justify-content: space-around; margin-top: 5px;"> → 126 → 128 → 126 </div> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 115 | Does (NAME) suffer from any of the following illnesses or symptoms: a) Extreme weakness? b) Heart problems? c) Loss of consciousness? d) Rapid or difficult breathing? e) Seizures? f) Abnormal bleeding? g) Jaundice or yellow skin? h) Dark urine? i) Vomiting? j) Pallor? k) Refusal to eat? l) Very cold hands and feet? | <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;"></th> <th style="width: 25%; text-align: center;">YES</th> <th style="width: 25%; text-align: center;">NO</th> </tr> </thead> <tbody> <tr> <td>a) EXTREME WEAKNESS</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> </tr> <tr> <td>b) HEART PROBLEMS</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> </tr> <tr> <td>c) LOSS OF CONSCIOUS</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> </tr> <tr> <td>d) RAPID BREATHING</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> </tr> <tr> <td>e) SEIZURES</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> </tr> <tr> <td>f) BLEEDING</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> </tr> <tr> <td>g) JAUNDICE</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> </tr> <tr> <td>h) DARK URINE</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> </tr> <tr> <td>i) VOMITING</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> </tr> <tr> <td>j) PALLOR</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> </tr> <tr> <td>k) REFUSAL TO EAT</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> </tr> <tr> <td>l) VERY COLD HANDS AND FEET</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> </tr> </tbody> </table> | | YES | NO | a) EXTREME WEAKNESS | 1 | 2 | b) HEART PROBLEMS | 1 | 2 | c) LOSS OF CONSCIOUS | 1 | 2 | d) RAPID BREATHING | 1 | 2 | e) SEIZURES | 1 | 2 | f) BLEEDING | 1 | 2 | g) JAUNDICE | 1 | 2 | h) DARK URINE | 1 | 2 | i) VOMITING | 1 | 2 | j) PALLOR | 1 | 2 | k) REFUSAL TO EAT | 1 | 2 | l) VERY COLD HANDS AND FEET | 1 | 2 |
| | YES | NO | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| a) EXTREME WEAKNESS | 1 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| b) HEART PROBLEMS | 1 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| c) LOSS OF CONSCIOUS | 1 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| d) RAPID BREATHING | 1 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| e) SEIZURES | 1 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| f) BLEEDING | 1 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| g) JAUNDICE | 1 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| h) DARK URINE | 1 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| i) VOMITING | 1 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| j) PALLOR | 1 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| k) REFUSAL TO EAT | 1 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| l) VERY COLD HANDS AND FEET | 1 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 116 | CHECK 115: ANY 'YES' CIRCLED? | <div style="display: flex; justify-content: space-around; align-items: center;"> NO <input type="checkbox"/> YES <input type="checkbox"/> </div> <div style="text-align: center; margin-top: 5px;"> ↓ </div> | → 118 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 117 | CHECK 113: HEMOGLOBIN RESULT | <div style="display: flex; justify-content: space-around; align-items: center;"> BELOW 8.0 G/DL, SEVERE ANEMIA 1 8.0 G/DL OR ABOVE 2 OTHER 6 </div> <div style="text-align: center; margin-top: 5px;"> ↓ </div> | → 119 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 118 | SEVERE MALARIA REFERRAL The malaria test shows that (NAME OF CHILD) has malaria. Your child also has symptoms suggestive of severe malaria. Due to the severity of your child's illness, the malaria treatment I have may not help your child, and I cannot give you the medication. Your child is very ill and must be taken to a health facility right away. RECORD THE RESULT OF THE MALARIA RDT ON THE REFERRAL FORM. | | → 126 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 119 | In the past 2 weeks has (NAME) taken or is (NAME) taking ACT given by a doctor or health center to treat the malaria? VERIFY BY ASKING TO SEE TREATMENT. | <div style="display: flex; justify-content: space-around; align-items: center;"> YES 1 NO 2 </div> | → 121 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 120 | ALREADY TAKING ACT REFERRAL STATEMENT You have told me that (NAME OF CHILD) had already received an ACT for malaria. Therefore, I cannot give you additional ACT. However, the test shows that he/she has malaria. If your child has a fever for 2 days after the last dose of ACT, you should take the child to the nearest health facility for further examination. | | → 128 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

HEMOGLOBIN MEASUREMENT AND MALARIA TESTING FOR CHILDREN AGE 6 MONTHS TO 4 YEARS

| | CHILD 3 | SKIP | | | | | | | | | | | | | | | |
|--------------------|---|---|--|--|----------------|-----|-------------------------|-----------------|---------|---------|----------|--------------------|---------------------------------|-----------|-------------|----------------------------------|-------|
| 121 | ASK CONSENT FOR MALARIA TREATMENT FROM PARENT/RESPONSIBLE ADULT: The malaria test shows that your child has malaria. We can give you free medicine. The medicine is called ACT. ACT is very effective and in a few days it should get rid of the fever and other symptoms. You do not have to give the child the medicine. This is up to you. Please tell me whether you accept the medicine or not. | | | | | | | | | | | | | | | | |
| 122 | CIRCLE THE APPROPRIATE CODE. | ACCEPTED MEDICINE 1 REFUSED MEDICINE 2 OTHER 6 → 128 | | | | | | | | | | | | | | | |
| 123 | SIGN NAME AND ENTER LABORATORY SCIENTIST NUMBER NUMBER. | (SIGN) LAB SCIENTIST NUMBER | | | | | | | | | | | | | | | |
| 124 | CHECK 122: ACCEPTED MEDICINE? YES <input type="checkbox"/> NO <input type="checkbox"/> | → 128 | | | | | | | | | | | | | | | |
| 125 | PROVIDE DOSAGE INSTRUCTIONS TO PARENT/RESPONSIBLE ADULT. The second dose should be given 8 hours after the first dose on the day of commencement of treatment. TELL THE PARENT/RESPONSIBLE ADULT: If [NAME] has a high fever, fast or difficult breathing, is not able to drink or breastfeed, gets sicker or does not get better in 2 days, you should take him/her to a health professional for treatment right away. <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3" style="text-align: center;">TREATMENT WITH ACT</th> </tr> <tr> <th style="text-align: center;">WEIGHT (in kg)</th> <th style="text-align: center;">AGE</th> <th style="text-align: center;">ARTEMETHER-LUMEFANTRINE</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">LESS THAN 5 KGS</td> <td style="text-align: center;">NOTHING</td> <td style="text-align: center;">NOTHING</td> </tr> <tr> <td style="text-align: center;">5-14 KGS</td> <td style="text-align: center;">6 MONTHS - 3 YEARS</td> <td style="text-align: center;">1 TABLET TWICE A DAY FOR 3 DAYS</td> </tr> <tr> <td style="text-align: center;">15-25 KGS</td> <td style="text-align: center;">4 - 8 YEARS</td> <td style="text-align: center;">2 TABLETS TWICE A DAY FOR 3 DAYS</td> </tr> </tbody> </table> <p align="center">IF CHILD WEIGHS LESS THAN 5 KGS, DO NOT LEAVE DRUGS. TELL PARENTS TO TAKE CHILD TO HEALTH FACILITY.</p> | TREATMENT WITH ACT | | | WEIGHT (in kg) | AGE | ARTEMETHER-LUMEFANTRINE | LESS THAN 5 KGS | NOTHING | NOTHING | 5-14 KGS | 6 MONTHS - 3 YEARS | 1 TABLET TWICE A DAY FOR 3 DAYS | 15-25 KGS | 4 - 8 YEARS | 2 TABLETS TWICE A DAY FOR 3 DAYS | → 128 |
| TREATMENT WITH ACT | | | | | | | | | | | | | | | | | |
| WEIGHT (in kg) | AGE | ARTEMETHER-LUMEFANTRINE | | | | | | | | | | | | | | | |
| LESS THAN 5 KGS | NOTHING | NOTHING | | | | | | | | | | | | | | | |
| 5-14 KGS | 6 MONTHS - 3 YEARS | 1 TABLET TWICE A DAY FOR 3 DAYS | | | | | | | | | | | | | | | |
| 15-25 KGS | 4 - 8 YEARS | 2 TABLETS TWICE A DAY FOR 3 DAYS | | | | | | | | | | | | | | | |
| 126 | CHECK 113: HEMOGLOBIN RESULT | BELOW 8.0 G/DL, SEVERE ANEMIA 1 8.0 G/DL OR ABOVE 2 OTHER 6 → 128 | | | | | | | | | | | | | | | |
| 127 | SEVERE ANEMIA REFERRAL The anemia test shows that (NAME OF CHILD) has severe anemia. Your child is very ill and must be taken to a health facility immediately. RECORD THE RESULT OF THE ANEMIA TEST ON THE REFERRAL FORM. | | | | | | | | | | | | | | | | |
| 128 | TODAY'S DATE: | DAY MONTH YEAR <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table> | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| 129 | IF ANOTHER CHILD, GO TO 102 IN ADDITIONAL QUESTIONNAIRE; IF NO MORE CHILDREN, END INTERVIEW. | | | | | | | | | | | | | | | | |

LABORATORY SCIENTIST'S OBSERVATIONS
TO BE FILLED IN AFTER COMPLETING BIOMARKERS

SUPERVISOR'S OBSERVATIONS

NIGERIA MALARIA INDICATOR SURVEY
FIELDWORKER QUESTIONNAIRE

NIGERIA
NATIONAL MALARIA ELIMINATION PROGRAMME
NATIONAL POPULATION COMMISSION

LANGUAGE OF
QUESTIONNAIRE ENGLISH

| NO. | QUESTIONS AND FILTERS | CODING CATEGORIES | SKIP |
|-----|---------------------------|--|------|
| 100 | What is your name? | NAME _____ | |
| 101 | RECORD FIELDWORKER NUMBER | NUMBER <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> | |

INSTRUCTIONS

Information on all MIS field workers is collected as part of the MIS survey. Please fill out the questions below. The information you provide will be part of the survey data file; however, your name will be removed and will not be part of the data file. Thank you for providing the information needed.

| | | | |
|-----|--|--|---|
| 102 | In what state do you live? | ABIA | 01 |
| | | ADAMAWA | 02 |
| | | AKWA IBOM | 03 |
| | | ANAMBRA | 04 |
| | | BAUCHI | 05 |
| | | BAYELSA | 06 |
| | | BENUE | 07 |
| | | BORNO | 08 |
| | | CROSS RIVER | 09 |
| | | DELTA | 10 |
| | | EBONYI | 11 |
| | | EDO | 12 |
| | | EKITI | 13 |
| | | ENUGU | 14 |
| | | FCT-ABUJA | 15 |
| | | GOMBE | 16 |
| | | IMO | 17 |
| | | JIGAWA | 18 |
| | | KADUNA | 19 |
| | | KANO | 20 |
| | | KATSINA | 21 |
| | | KEBBI | 22 |
| | | KOGI | 23 |
| | | KWARA | 24 |
| | | LAGOS | 25 |
| | | NASARAWA | 26 |
| | | NIGER | 27 |
| | | OGUN | 28 |
| | | ONDO | 29 |
| | | OSUN | 30 |
| | | OYO | 31 |
| | | PLATEAU | 32 |
| | | RIVERS | 33 |
| | | SOKOTO | 34 |
| | | TARABA | 35 |
| | | YOBÉ | 36 |
| | | ZAMFARA | 37 |
| 103 | Do you live in a city, town, or rural area? | CITY | 1 |
| | | TOWN | 2 |
| | | RURAL | 3 |
| 104 | How old are you? RECORD AGE IN COMPLETED YEARS. | AGE | <input type="text"/> <input type="text"/> |
| 105 | Are you male or female? | MALE | 1 |
| | | FEMALE | 2 |
| 106 | What is your current marital status? | CURRENTLY MARRIED | 1 |
| | | LIVING WITH A MAN/WOMAN | 2 |
| | | WIDOWED | 3 |
| | | DIVORCED | 4 |
| | | SEPARATED | 5 |
| | | NEVER MARRIED OR LIVED WITH A MAN/WOMAN | 6 |

| NO. | QUESTIONS AND FILTERS | CODING CATEGORIES | SKIP |
|-----|---|-----------------------|---|
| 107 | How many living children do you have? INCLUDE ONLY CHILDREN WHO ARE YOUR BIOLOGICAL CHILDREN. | LIVING CHILDREN | <input type="checkbox"/> <input type="checkbox"/> |
| 108 | Have you ever had a child who died? | YES | 1 |
| | | NO | 2 |
| 109 | What is the highest level of school you attended: primary, secondary, or higher? | PRIMARY | 1 |
| | | SECONDARY | 2 |
| | | HIGHER | 3 |
| 110 | What is the highest class/form/year you completed at that level? IF COMPLETED LESS THAN ONE YEAR AT THAT LEVEL, RECORD '00'. | CLASS/FORM/YEAR | <input type="checkbox"/> <input type="checkbox"/> |
| 111 | What is your religion? | CATHOLIC | 01 |
| | | OTHER CHRISTIAN | 02 |
| | | ISLAM | 03 |
| | | TRADITIONALIST | 04 |
| | | NO RELIGION | 95 |
| | | OTHER _____ | 96 |
| | | (SPECIFY) | |
| 112 | What is your ethnicity? | ETHNICITY _____ | <input type="checkbox"/> <input type="checkbox"/> |
| 113 | What languages can you speak? | ENGLISH | A |
| | | HAUSA | B |
| | | YORUBA | C |
| | | IGBO | D |
| | | URHOBOR | E |
| | | IBIBIO | F |
| | | EDO | G |
| | | FULFULDE | H |
| | | KANURI | I |
| | | OTHER _____ | X |
| | | (SPECIFY) | |
| 114 | What is your mother tongue/native language (language spoken at home growing up)? | ENGLISH | A |
| | | HAUSA | B |
| | | YORUBA | C |
| | | IGBO | D |
| | | URHOBOR | E |
| | | IBIBIO | F |
| | | EDO | G |
| | | FULFULDE | H |
| | | KANURI | I |
| | | OTHER _____ | 96 |
| | | (SPECIFY) | |
| 115 | Have you ever worked on: a) a DHS prior to this survey? b) an MIS prior to this survey? c) any other survey prior to this survey? | YES | NO |
| | a) DHS | 1 | 2 |
| | b) MIS | 1 | 2 |
| | c) OTHER SURVEY | 1 | 2 |
| 116 | Were you already working for the National Malaria Elimination Programme (NMEP) or the National Population Commission (NPC) at the time you were employed to work on this MIS? | YES, NMEP | 1 |
| | | YES, NPC | 2 |
| | | NO | 3 → 118 |
| 117 | Are you a permanent or temporary employee of NMEP or NPC? | PERMANENT | 1 |
| | | TEMPORARY | 2 |
| 118 | If you have comments, please write them here. | | |