Republic of The Gambia

Malaria Indicator Survey

2017

National Malaria Control Programme (NMCP)

Ministry of Health and Social Welfare
Banjul

The Gambia Bureau of Statistics (GBoS)

Utica International
Columbia, Maryland USA

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Ministry of Health and Social Welfare

GBoS

The Global Fund

This report summarizes the findings of the Gambia Malaria Indicator Survey 2017 (GMIS 2017). The survey was implemented by the National Malaria Control Programme (NMCP) of the Gambia Ministry of Health and Social Welfare and the Gambia Bureau of Statistics (GBoS). Financial support for the survey was provided by the Global Fund. Utica International provided technical assistance.

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The Gambia Malaria Indicator Survey 2017 (GMIS 2017) was implemented by the Gambia Bureau of Statistics (GBoS), in close collaboration with the Gambia National Malaria Control Programme (NMCP) and the National Public Health Laboratories (NPHL) of the Ministry of Health and Social Welfare (MoH&SW). Financial support for the survey was provided by the Global Fund to fight HIV AIDs, Tuberculosis, and Malaria (Global Fund – GFATM), and the Government of The Gambia. Utica International provided technical assistance.

The increased levels of partnership in the area of malaria control provide a solid foundation for sound co-ordination of malaria control within the context of planning and management. In order to achieve impact, and to consolidate gains, emphasis should be placed on universal coverage, sustained and adequate surveillance and cross border collaboration. Equity is ensured through community-based mid gender-based approaches supported by well-established community structures and health systems.

Results from the GMIS 2017 will provide the guiding principles and basis for consolidating universal access to effective interventions to meet 2030 Global Strategic Plan targets and Millennium Development Goals (MDGs), and thus reaching the malaria elimination stage by 2020.

The main objective of the malaria survey was to measure progress toward achieving the goals and targets set in the National Strategic Plan for Malaria Prevention and Control 2014-2020.

Tremendous progress has been made in the control of malaria, however, the rate of change needs to be accelerated to adequately respond to the needs of the population. This new policy will provide the framework to guide our development efforts in malaria disease burden reduction and related health system strengthening for better health outcomes for The Gambia.

The successes highlighted by the GMIS 2017 were achieved through concerted efforts by all stakeholders (Public and Private) in a shared vision for a malaria-free Gambia, and we look forward to the required support in the implementation of the recommendations to achieve a malaria free Gambia. I urge us all to embrace these new results, finding and recommendations.

Honourable Saffie Lowe Ceesay
Minister of Health and Social Welfare

ACKNOWLEDGEMENTS

The Malaria Indicator Survey (MIS 2017) was the second of its kind. It was conducted to measure haemoglobin and parasitaemia among children age 6-59 months, 5-14 years, pregnant women age 15-49 years and a sample of the general population. The results of the MIS are meant to provide benchmark data against which progress towards meeting the national malaria objectives and targets for 2020 will be measured.

In recognition of its scale, a Technical Working Group (TWG) composed of the Gambia Bureau of Statistics (GBoS), the MoH&SW and other government institutions, NGOs, Catholic Relief Services (CRS), Roll Back Malaria (RBM) partners, research institutions (Medical Research Council - MRC, Public Health Research and Development Centre - CIAM), United Nations Children Fund - UNICEF and World Health Organization -WHO) was constituted to guide the overall MIS process. With oversight responsibility on all technical and logistical aspects of the survey planning and its implementation, the TWG supported the preparatory phases of the MIS including the sample design and the development of the survey protocol.

Our sincere thanks and appreciation go to the Global Fund for providing the financial support, without which, the MIS 2017 would not have been possible. Similarly, we thank WHO, UNICEF, and MRC for their technical inputs at the level of the TWG and our sister units within MoH&SW, National Pharmaceutical Services - NPS, NHPL, Directorate of Planning and Information - DPI, and Health Management Information System - HMIS. Thank you Professor Umberto for helping with the PCR and with slides and other useful laboratory supplies which enabled us to start the survey. In addition, my sincere thanks to NPHL staff most specifically, Abdoulie Sanyang, Bakary Sanneh and Ignatius Baldeh for helping with the laboratory analysis.

I sincerely thank CRS and Mr Ousman Njie for their input and for helping with the management of the international consultants.

We would like to express our deepest gratitude and appreciation to Mr. Nyakassi M.B Sanyang and Alieu Saho, Statistician General and his Deputy, GBoS, and their entire team for the successful conduct of GMIS 2017. Special thanks go to Mr Lamin Kanteh, Muhammed Janneh, National Consultants from GBoS and Pa Babou and Abou Bah, the national consultants, who co-ordinated the implementation of the laboratory component of the survey.

I am grateful to Momodou Kalleh, M & E Co-ordinator, Lamin BS Jarju, Olimatou Kolley, Ousman Bojang, Sulayman Manneh, Alasan Jobe and the entire NMCP staff for their perseverance in successfully implementing the MIS 2017.

Finally, my special thanks to Dr Mamady Cham, Director of Health Services for providing the overall technical support and guidance.

In conclusion, we extend our gratitude to all Regional Health Teams -RHTs staff, Laboratory Assistants, Nurses and the drivers who participated or supported the survey.

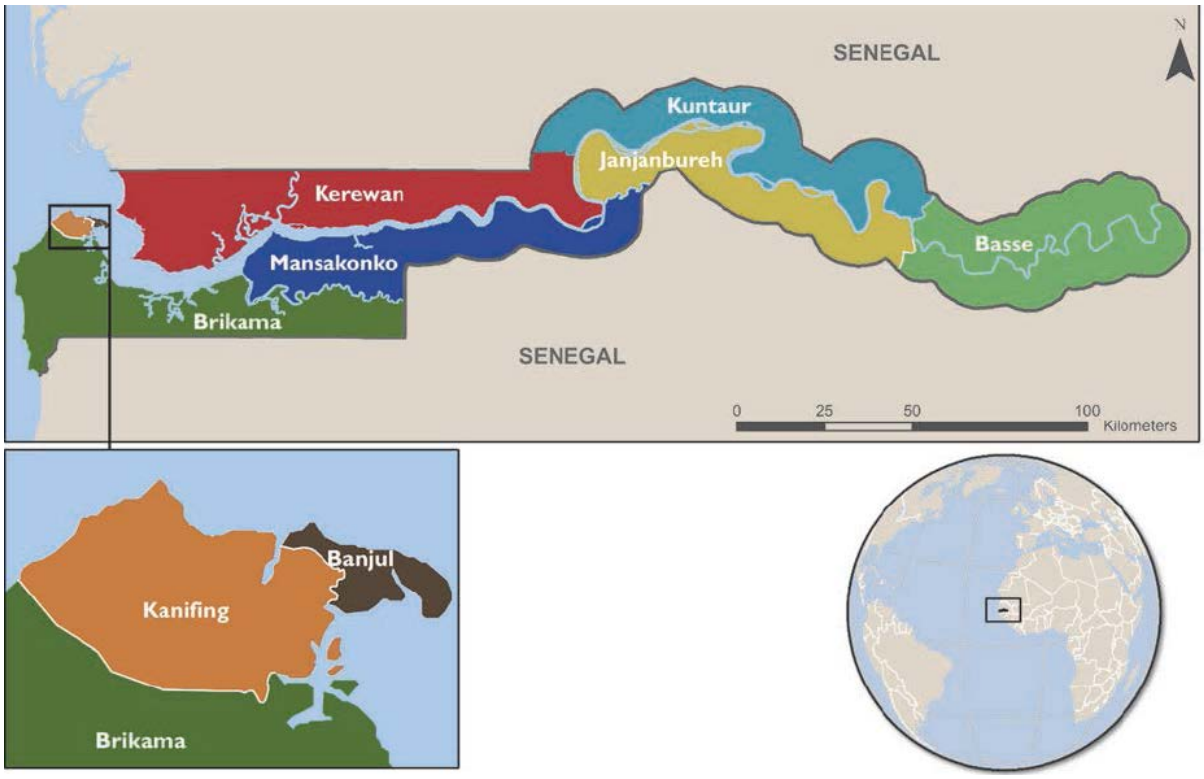
Programme Manager
National Malaria Control Programme

ACRONYMS AND ABBREVIATIONS

AIDS	Acquired Immunodeficiency Syndrome
ANC	Antenatal Care
CAPI	Computer-assisted Personnel Interviewing
CIAM	Public Health Research and Development Centre
CRS	Catholic Relief Services
CSPro	Census and Survey Processing System
DBS	Dried Blood Spot
DHS	Demographic and Health Survey
DPI	Director of Planning and Information
EA	Enumeration Area
GBoS	Gambia Bureau of Statistics
GFATM	Global Fund to fight Aids, Tuberculosis and Malaria
HDI	Human Development Index
HMIS	Health Management Information System
IEC	Information, Education and Communication
IPTp	Intermittent Preventive Treatment
IRS	Indoor Residual Spraying
ITN	Insecticide Treated Net
LGA	Local Government Area
LLIN	Long Lasting Insecticidal Net
MDGs	Millennium Development Goals
M&E	Monitoring and Evaluation
MICS	Multiple Indicator Cluster Survey
MIP	Malaria in Pregnancy
MIS	Malaria Indicator Survey
MoH&SW	Ministry of Health and Social Welfare
MRC	Medical Research Council
NGO	Non-Governmental Organization
NMCP	National Malaria Control Programme
NMCSP	National Malaria Control Strategic Plan
NPHL	National Public Health Laboratories
NPS	National Pharmaceutical Services
Pf	Plasmodium falciparum
PHC	Primary Health Care
pLDH	Plasmodium Lactase Deshydrogenase
PSU	Primary Sampling Unit
RBM	Roll-Back Malaria
RCH	Reproductive and Child Health
RDT	Rapid Diagnostic Treatment
RED	Regional Education Directorate
RHD	Regional Health Director
RHT	Regional Health Team
SCC	Scientific Co-ordinating Committee
SP	Sulfadoxine–Pyrimethamine
TWG	Technical Working Group
UNICEF	United Nations Children's Fund
WHO	World Health Organization
WI	Wealth Index

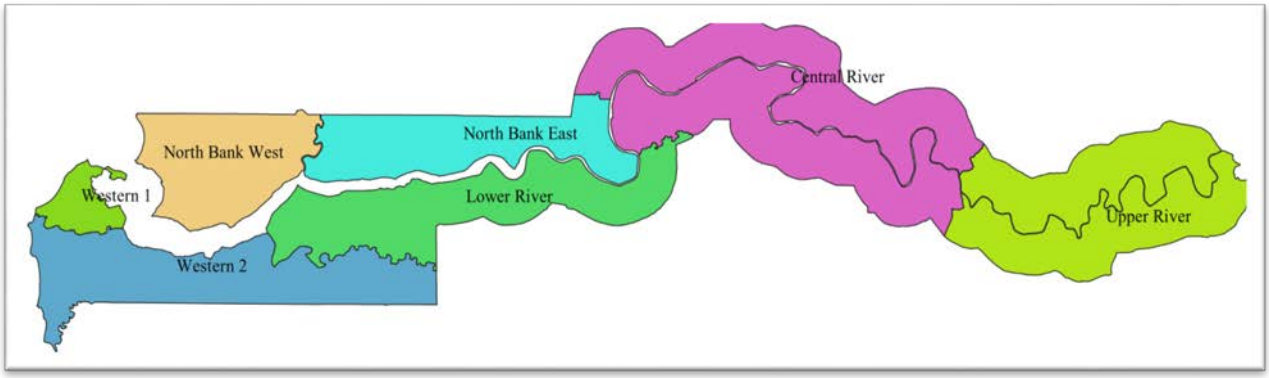
MAPS OF THE GAMBIA

Map of The Gambia – Local Government Areas (LGAs)



Source: The Gambia Bureau of Statistics, 2018

Map of The Gambia – Health Regions



Source: NMCP, 2018

INTRODUCTION AND SURVEY METHODOLOGY 1

The Gambia Malaria Indicator Survey 2017 (GMIS 2017) was implemented by the Gambia Bureau of Statistics (GBoS), in close collaboration with the Gambia National Malaria Control Programme (NMCP) and the National Public Health Laboratories (NPHL) of the Ministry of Health and Social Welfare (MoH&SW). Financial support for the survey was provided by the Global Fund to Fight AIDs, Tuberculosis, and Malaria (Global Fund - GFATM), and the Government of The Gambia. Utica International provided technical assistance.

1.1 DESCRIPTION OF THE NATIONAL MALARIA PROGRAMME

The Gambia is located on the West African coast and extends about 400 km inland, with a population density of 176 persons per square kilometre. With an estimated population of 1.9 million people in 2013, the country is classified in the low human development category (ranked 173 out of 188 in 2016 Human Development Index). According to the 2013 Population and Housing Census, 39% of the population are aged under 14 years and 58% live in urban areas.

Malaria is a major public health threat in The Gambia, as it is meso-endemic with the whole population at risk of infection. The Gambia has a perennial transmission with most cases (approximately 90%) occurring in the later stages of the rainy season (September to December). The annual malaria incidence declined by 43% across all seven regions over the past four years from 149 per 1,000 population in 2011 to 85 in 2014. The 2010 Malaria Indicator Survey (MIS) and the results of the MIS 2014 show that parasite prevalence has declined across the country in children under 5 from 4.0% to 0.2% over the period. The dominant malaria parasite species is Plasmodium falciparum which accounts for more than 95% of all reported cases.

Malaria is meso-endemic, with marked seasonal variation and 90% of cases occurring in the 4 months of the rainy season. Malaria affects the entire population and is a leading cause of morbidity and mortality, especially among children under 5 years. Although there are no major epidemiological changes in the malaria situation, significant gains have been achieved over the years. Malaria parasite prevalence among children declined from 4.0% in 2010 (GMIS 2010[1]) to 0.2% in 2014 (GMIS 2010).

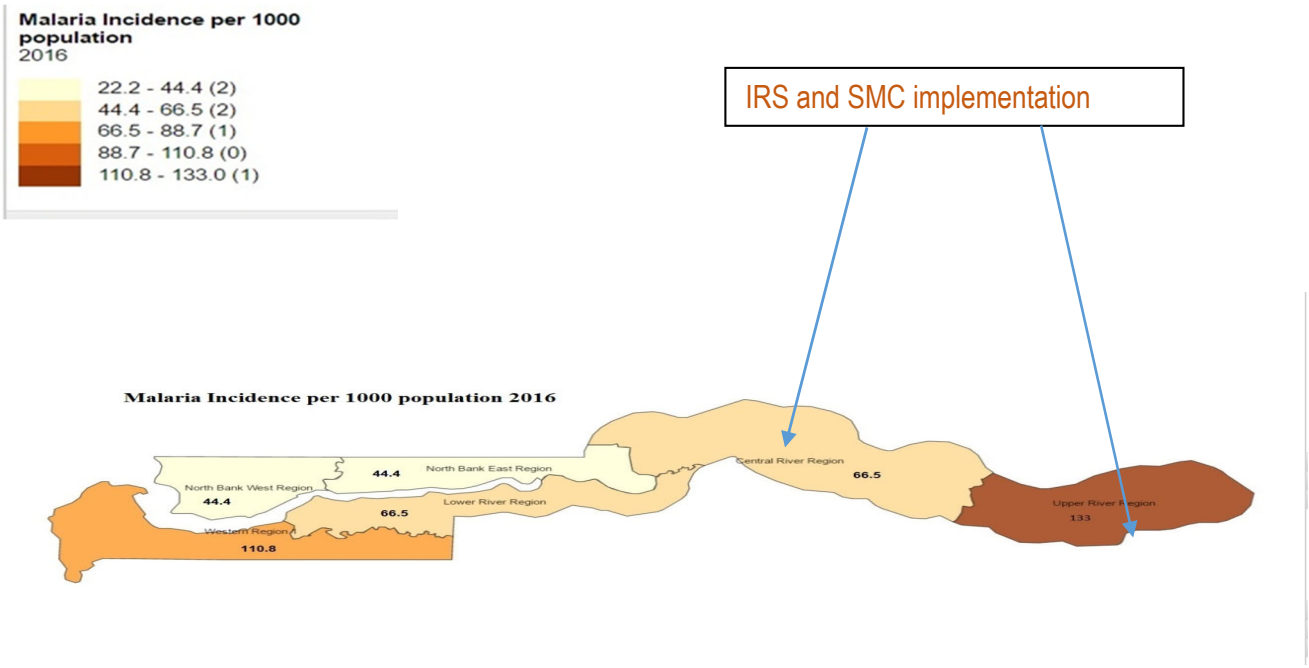
Since 2004, there has been continuous decline in malaria incidence (NMSP 2014-2020). Annual malaria case incidence declined by 50% across all regions over the past six years from 149.1 to 74 per 1000 population in 2011 and 2016 respectively (HMIS). Persisting high incidence of malaria in Upper River Region is attributed to flooding and rice cultivation practices in the region and the common practice of staying outdoors for long hours at night because of the hot and humid conditions believed to make rooms uncomfortable at night. To address this issue, formative research will be undertaken to identify appropriate evidence-informed behavioral change strategy and public health action.

A joint study with MRC in 2014 showed cure rates of Artemether-lumefantrine and Dihydroartemisinin Piperaquine for uncomplicated P. falciparum malaria to be 98.4% and 100% respectively (TES report 2014). Vector susceptibility study in 2014 showed DDT resistance nationwide and informed the introduction of a Carbamate insecticide for IRS (IRM report 2015). Insecticide resistance has been reported in Senegal which may lead to similar resistance in the country. Consequently, a study in collaboration with MRC to determine the current status of vector susceptibility in the country has been conducted, and a report has been produced to that effect.

[1] Data of the GMIS 2010 presented in this report come from: Sonko Sheriff T, Malanding Jaiteh, James Jafali, Lamin BS Jarju1, Umberto D'Alessandro, Abu Camara, Musu Komma-Bah and Alieu Saho. 2014. "Does Socio-economic Status Explain the Differentials in Malaria Parasite Prevalence? Evidence from The Gambia", *Malaria Journal* 2014, 13:449.

Data from the MIS 2014 shows that overall, 69% of households, 81% of pregnant women and 77% of children under 5 years slept under an ITN the previous night whilst the percentage who slept under ITN or in dwellings sprayed with IRS in the past 12 months was 83% during the same period (GMIS 2014). In addition, 73% of pregnant women received two doses of IPTp during ANC visits in their last pregnancy,

Figure 1.1: Malaria Incidence per 1000 population (HMIS 2016]



IRS will continue to be implemented to mitigate the effects of vector resistance to insecticides in two regions. Seasonal Malaria Chemoprevention (SMC) implementation commenced in 2014 with support from UNICEF in 2 high burden regions and continued in 2015 and 2016 with support from UNITAID. Overall, in 2015 and 2016 coverage of 86 % and 81% respectively was registered. The scaling up of SMC to Western Region which has the second highest incidence is prioritized for reprogramming and listed as PAAR. Malaria case management remains a key component under the current grant with focus on parasitological diagnosis, prompt and effective treatment and community case management, and it will be continued in this application. Routine data show that ACTs and RDTs are available in all health facilities with no stock out reported.

Support from the Global Fund - GF and The Gambia Government has contributed in improving the HMIS running on District Health Information System 2 (DHIS2) with 92% completeness and accuracy, 64% timeliness (HMIS 2016). The low level of timeliness of reports is due mainly to poor internet connectivity at the regional level. However, the current GF Health System Strengthening (HSS) grant is addressing this challenge by procurement of ICT hardware, software and training for personnel.

1.2 Objectives of the Malaria Indicator Survey in The Gambia

The main objective of the malaria survey will be to measure progress toward achieving the goals and targets set in the National Strategic Plan for Malaria Prevention and Control 2014-2020.

Objectives

1. To measure the coverage of core malaria interventions including:
2. Household level possession of nets and Insecticide-treated mosquito nets (ITNs);

   - Use of ITNs among at risk populations, especially children under five and pregnant women

- Prompt provision of anti-malarial treatment for febrile episodes in the past two weeks among children age 6-59 months;
- Use of ITNs among at risk populations, especially children under five and pregnant women
- Prompt provision of anti-malarial treatment for febrile episodes in the past two weeks among children age 6-59 months;
- Use of SP for IPT by pregnant women
- Indoor-Residual Spraying

3. To measure the prevalence of malaria parasitaemia among children 6-59 months, children 5- 14 years, pregnant women and in the general population selected from 1 in 4 households;
4. To measure the prevalence of anaemia among children 6-59 months, 5-14 years and pregnant women;
5. To assess the knowledge and practice on malaria prevention and treatment at the community level.

The specific objectives of the MIS 2017 are to assess:

- Up-to-date information on access, coverage and use of the core malaria interventions, including malaria diagnosis and treatment, ITNs and indoor residual spraying of households with insecticide (IRS);
- Malaria parasite prevalence in children aged 6-59 months, 5-14 years and pregnant women;
- Anaemia prevalence among children 6-59 months, 5-14 years and pregnant women;
- Malaria knowledge, attitude and practice among women of reproductive age 15- 49 years.

Outcomes

The Ministry of Health and Social Welfare and its partners and donors will have:

- A set of synthesized and readily consumable reports that will help in planning future interventions;
- Additional MIS 2017 database comparable to the MIS 2014;
- A sufficiently rich set of data on national and regional representative prevalence of malaria, service delivery coverage, utilization of anti-malaria services, treatment seeking behaviour of communities.

1.3 SAMPLE DESIGN

The Gambia is divided into eight Local Government Areas for the purposes of surveys and censuses. In turn, each LGA is subdivided into districts and each district (with the exception of Banjul) into settlements. An Enumeration Area (EA) is a geographic section delineated so that a team of enumerators can easily cover it during a census. In the case of The Gambia, an EA can be a settlement, a cluster of small settlements, or part of a large settlement. The GMIS 2017 sample was designed to produce reliable estimates of the most important malaria variables for the country as a whole, for urban and rural areas, and for each of the eight LGAs[2]. The sampling frame used for the GMIS 2017 was the preliminary

[2] The tables for this report were run on Health Regions, and not on LGAs. Presented below is the composition of the health regions that are based on LGAs and its districts:

Health Region	Composition (LGA)
Western 1	(Banjul + Kanifing) LGAs + Kombo North District from Brikama LGA
Western 2	Brikama LGA less Kombo North District
North Bank West	(Lower Niumi + Upper Niumi +Jokadu) Districts
North Bank East	(Illiasa +Sabach Sanjal + Lower Badibu + Central Badibu) Districts
Lower River	Mansakonko LGA
Central River	Kuntaur+ Janjanbureh LGA
Upper River	Basse LGA

findings of the Population and Housing Census conducted in 2013 (census data were provided by the Gambia Bureau of Statistics). The frame excluded individuals living in collective housing units such as hotels, hospitals, work camps, prisons, and boarding schools.

The GMIS 2017 sample was a stratified sample selected in two stages. Stratification was done by dividing each LGA into urban and rural areas (except Banjul and Kanifing, which are entirely urban settlements), achieving a total of 14 sampling strata. In the first stage, 260 EAs were selected with Probability Proportional to Size (PPS) and with independent selection in each sampling stratum. These EAs constituted the Primary Sampling Units (PSUs).

After selection of the EAs and before the main fieldwork, a household listing operation was carried out in all of the selected EAs. The listing operation consisted of visiting each of the 260 selected EAs, drawing a location map and detailed sketch map, and recording on the household listing forms all structures found in the EA, as well as all residential households within these structures (including the address and name of the household head). The resulting list of households served as the sampling frame for the selection of households in the second stage of sampling. In the second stage of selection, a fixed number of 20 households per urban EA and 22 households per rural was selected from each cluster to make up a total sample size of 5,422 households. All women age 15-49 who were usual household members or who spent the night before the survey in the selected households were eligible for individual interviews. All children under 5 years in the selected households were eligible for anaemia and malaria testing. In addition, a subsample of one in four households was selected for collection of blood samples for anaemia and malaria testing. All household members age 5 years and more in the subsample were eligible for testing. In addition, among the households in the subsample, two per cluster were selected for PCR (Polymerase Chain Reaction) in the diagnosis of malaria using dried blood spots (DBS). All household members, including children under 5 were eligible for malaria testing using DBS. A detailed description of the sample design is presented in **Appendix A**.

1.4 QUESTIONNAIRES

Three types of questionnaires were used for the GMIS 2017 — the Household Questionnaire, the Woman's Questionnaire, and the Biomarker Questionnaire. The questionnaires were adapted to reflect issues relevant to The Gambia. The questionnaires in English were programmed into tablet computers, which enabled the use of computer-assisted personal interviewing (CAPI) for the survey.

The Household Questionnaire was used to list all the usual members of and visitors to the selected households. Basic information was collected on the characteristics of each person listed in the household, including age, sex, and relationship to the head of the household. The data on the age and sex of household members, obtained from the Household Questionnaire, were used to identify women eligible for an individual interview and children age 6-59 months as well as household members age 5 years and more eligible for anaemia and malaria testing. Additionally, the Household Questionnaire captured information on characteristics of the household's dwelling unit, such as the source of water, type of toilet facilities, materials used for the floor, ownership of various durable goods, Indoor residual spraying (IRS), and ownership and use of mosquito nets.

The Woman's Questionnaire was used to collect information from women age 15-49 who were asked questions on the following topics:

Background characteristics (age, residential history, education, literacy, religion, and ethnicity);

- Reproductive history for the last 5 years and pregnancy status;
- Preventive malaria treatment for the most recent birth;
- Prevalence and treatment of fever among children under age 5;
- Knowledge about malaria (symptoms, causes, prevention, and types of antimalarial medications);
- Exposure and source of media messages about malaria;

The Biomarker Questionnaire was used to record the results of the anaemia and malaria testing of children age 6-59 months and a subsample of household members age 5 years and more (1 in 4 households was selected for the anaemia and malaria testing).

1.5 Anaemea and Malaria Testing

Blood samples for anaemia and malaria testing were collected by finger- or heel-prick from children age 6-59 months, and by finger for household members age 5 years and older selected for testing.

Anaemia testing. A single-use, retractable, spring-loaded, sterile lancet was used for the finger- or heel- prick. A drop of blood from the site was then collected in a microcuvette. Haemoglobin analysis was conducted on site with a battery-operated portable HemoCue® analyser, which produces a result in less than one minute. Results of the anaemia test were recorded in the Biomarker Questionnaire and on a brochure left in the household that also contained information on the causes and prevention of anaemia.

In this survey, anaemia was defined as haemoglobin level <11g/dl and severe anaemia as <8g/dl. Thus, any subject with haemoglobin level <11g/dl was given iron tablets (dosage) and subjects with Hb <8g/dl were given iron tablets and referred to the nearest health facility.

Malaria testing with a rapid diagnostic test (RDT). Another drop of blood was tested for malaria with Plasmodium Lactase Deshydrogenase (pLDH)-Combo rapid diagnostic test (RDT). This test detects the histidine-rich protein II (HRP-II)™ antigen of malaria, *Plasmodium falciparum* (Pf), and other species in human whole blood. 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. Like the anaemia testing, malaria RDT results were recorded in the Biomarker Questionnaire and the result shared with the child's parent or guardian.

All subjects who tested positive with RDT were treated for malaria according to the national treatment guidelines (artemether-lumefantrine for children and quinine or artemether-lumefantrine for pregnant women).

Malaria testing with blood smears. In addition to the RDT, thick blood smears were prepared in the field. Each blood smear slide was given a bar code label, with a duplicate affixed to the Biomarker Questionnaire. An additional copy of the bar code label was affixed to a blood sample transmittal form to track the blood samples from the field to the National Public Health Laboratories (NPHL). The slides were dried in a dust-free environment and stored in slide boxes. The thick smear slides were collected regularly from the field and transported to the laboratory for logging and microscopic reading.

Upon arrival at NPHL, thick blood smears were stained with Giemsa stain and examined to determine the presence of *Plasmodium* infection. All stained slides were read by two independent microscopists who were masked from the RDT results. Slides with discordant results were reanalysed by a third microscopist for final validation.

Malaria testing using DBS samples: Blood specimens for laboratory testing of malaria using DBS were collected by the GMIS health technicians from all household members, as indicated earlier, who consented to the test. For each barcoded blood sample, a duplicate label was attached to the Biomarker Questionnaire. A third copy of the same barcode was affixed to the blood sample transmittal form to track the blood samples from the field to the laboratory. Blood samples were dried overnight and packaged for storage the following morning. Samples were periodically collected in the field, along with the transmittal form, and transported to the NMCP in Kanifing to be logged in and checked; the samples were then transported to the Medical Research Council (MRC) Unit in Fajara and submitted for testing

1.6 PRETEST, TRAINING AND FIELDWORK

Pretest

Prior to the start of the main fieldwork, a pretest training workshop was conducted to test the data collection programs on paper questionnaires, survey instruments, and procedures. The training for the pretest took place from 16-18 October 2017. Eighteen field officers with 3 supervisors, 6 biomarker technicians (3 health technicians and 3 nurses), and 9 interviewers participated in the training. Officers from GBoS, NMCP, NPHL and Utica International facilitated the training and supervised the pretest fieldwork. Participants were trained on administering paper questionnaires, and collecting blood samples for anaemia and parasitaemia testing. The pretest fieldwork was conducted in two rural and two urban clusters that were not selected for the actual survey sample. At the end of the fieldwork, a debriefing session was held, and the questionnaires were modified based upon feedback from the field.

Training of Field Staff

The training for the main fieldwork was facilitated by GBoS, NMCP, NPHL, and Utica International. The training was held from October 27 to November 5, 2017 at the Regional Education Directorate 1 (RED 1), Kanifing. Over 85 field staff including 26 biomarker technicians, 39 interviewers, and 13 supervisors were trained for 10 days. Seventy-eight field staff were selected for the fieldwork. The training included instruction on interviewing techniques and field procedures, a detailed review of the content of the questionnaire, instruction on administering the paper and electronic questionnaires, mock interviews between participants in the classroom, and practice interviews with respondents in areas outside of the sampled EAs.

There were three days of field practice exercises. Health technicians were also trained on recording children and selected household members' anaemia and malaria results in the respective brochures and completing the referral slip for any child who was found to be severely anaemic or to have severe malaria.

Fieldwork

Field data collection was conducted during a 6-week period from 9 November–22 December 2017. Thirteen teams were formed, with each including a supervisor, 3 interviewers, a health technician, a nurse and a driver. Each team was allocated approximately 20 clusters according to local language competency. The team spent an average of 2.2 days working in a cluster. Information on selected clusters and sampled households was provided to each team for easy location. When eligible respondents were absent from their homes, two or more calls were made to offer respondents the opportunity to participate in the survey.

Two officers were responsible for the timely collection of slides and blood samples from the field teams to the NPHL. In addition to the field supervisors, there were two Utica consultants (a data processing expert and a biomarker specialist) and national monitors who supervised field activities and assured the collection and transmission of the blood slides to the laboratory and the DBS to the NMCP Unit. All the teams worked under the supervision of the MIS Coordinator from GBoS.

1.7 DATA PROCESSING

Data for the GMIS 2017 were collected through questionnaires programmed into the CAPI application. The CAPI application was programmed by the Utica consultant and loaded into the computers along with the Household, Biomarker, and Woman's Questionnaires. On a daily basis, data were transferred by the field supervisors to a central location for data processing in GBoS. To facilitate communication and monitoring, each field worker was assigned a unique identification number.

The Census and Survey Processing (CSPro) version 6.3 was used for data editing, cleaning, weighting, and tabulation. Data received from the field teams' CAPI applications were registered and checked for any inconsistencies and outliers at the GBoS Head Office. Data editing and cleaning included an extensive

range of structural and internal consistency checks. All anomalies were communicated to field staff who resolved the data discrepancies. The corrected results were maintained in master CSPro data files, and then used for analysis in producing tables for the final report.

1.8 ETHICAL CONSIDERATIONS

The protocol for the GMIS 2017 was approved by The Gambia Government/MRC Joint Ethics Committee. All data and other information collected were confidential. Blood samples were stored with barcode identifiers to protect the respondents' identity. The risk and benefits of participation in the survey were explained to respondents, and informed consent for the interview or blood collection was sought and obtained from all respondents.

1.9 RESPONSE RATES

Table 1.1 presents the results of the household and individual interviews. A total of 5,361 households were selected for the survey, after sampling update, of which 5,108 were occupied at the time of fieldwork. Among the occupied households, 4,990 were successfully interviewed, for a response rate of 98% (96% in urban areas, and 99% in rural areas). In the interviewed households, 9,995 eligible women were identified for individual interview and 9,706 were successfully interviewed, for a response rate of 97% (97% in both urban and rural areas).

Table 1.1 Results of the household and individual interviews

Number of households, number of interviews, and response rates, according to residence (unweighted), The Gambia MIS 2017

Result	Residence		Total
	Urban	Rural	
Household interviews			
Households selected	2,952	2,409	5,361
Households occupied	2,760	2,348	5,108
Households interviewed	2,661	2,329	4,990
Household response rate[1]	96.4	99.2	97.7
Interviews with women age 15-49			
Number of eligible women	4,783	5,212	9,995
Number of eligible women interviewed	4,630	5,076	9,706
Eligible women response rate[2]	**96.8**	**97.4**	**97.1**

[1] Households interviewed/households occupied
[2] Respondents interviewed/eligible respondents

HOUSING CHARACTERISTICS AND HOUSEHOLD POPULATION 2

Key Findings

- **Drinking water**: Most households (91%) have access to an improved source of drinking water, with 94% in urban areas and 87% in rural areas.
- **Sanitation**: One in two households uses improved sanitation; 23% have a toilet facility that would be classified as improved if not shared with other households, 26% use an unimproved toilet facility, and only less than 1% practice open defecation.
- **Electricity**: Almost six in ten households (59%) have access to electricity, 78% of urban households have electricity compared to only 20% of rural households
- **Household wealth**: Thirty-three percent of the population in urban areas are in the highest wealth quintile compared with only less than 1% of the population in rural areas.

The chapter uses information from the GMIS 2017 sample to provide a demographic and socioeconomic profile of households in The Gambia. Information is presented on housing facilities and household possessions, as well as age, sex, and residence of the household population. The profile of households provided in this chapter will help in understanding results of the GMIS 2017 presented in the following chapters. In addition, it may provide useful input for social and economic development planning. Socioeconomic characteristics are also useful for understanding the factors that affect use of health services and other health behaviours related to malaria control.

2.1 DRINKING WATER SOURCES AND TREATMENT

Improved sources of drinking water

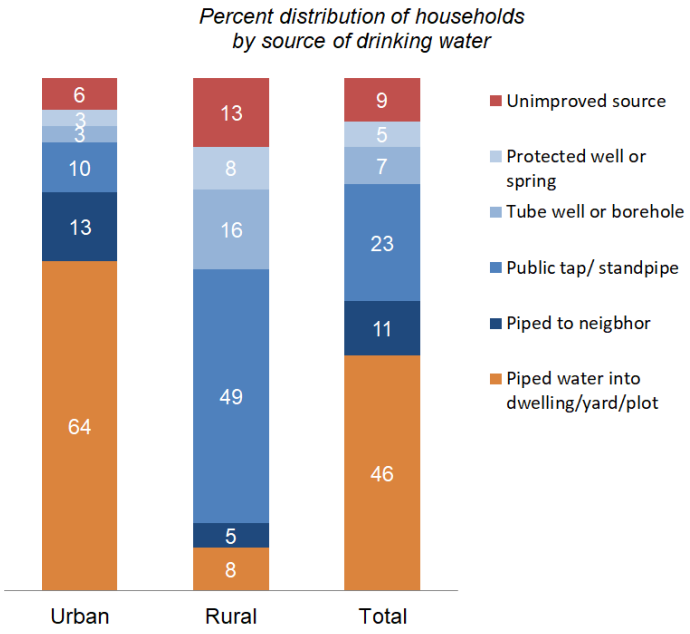
Include piped water, public taps, standpipes, tube wells, boreholes, protected dug wells and springs, and rainwater. Households that use bottled water for drinking are classified as using an improved source only if their water for cooking and handwashing comes from an improved source.

Sample: Households

Increasing access to improved drinking water is one of the Millennium Development Goals (MDGs) that The Gambia along with other nations worldwide adopted (United Nations General Assembly (2001). Improved sources of water protect against outside contamination so that water is more likely to be safe to drink. In The Gambia, 91% of households have access to an improved source of drinking water (**Table 2.1**). Ninety-four percent of urban households and 87% of rural households have access to improved water sources. According to The Gambia DHS 2013, the percentage of households having access to improved drinking water was 90%.

Table 2.1 shows that urban and rural households rely on different sources of drinking water. The majority of urban households (64%) have piped water in their dwelling, yard or plot (**Figure 2.1**). Thirteen percent of urban households have drinking water piped to neighbours, and less than one in ten households in urban areas has access to drinking water through a public tap/standpipe. Only 6% use an unimproved source of drinking water. In contrast, rural households rely on a public tap/ standpipe (49%) and tube well or borehole (16%). Over 13% of rural households use an unimproved source of water for drinking.

Figure 2.1 **Household drinking water by residence**



Two in three households in The Gambia have water on their premises or piped from a neighbour and do not spend much time fetching drinking water. On the other hand, 27% spend less than 30 minutes to fetch drinking water outside their premises and 13% spend 30 minutes or longer (**Table 2.1**). Households in rural areas are more than 6 times more likely (13% versus 2%) to spend 30 minutes or longer in obtaining drinking water than households in urban areas.

2.2 SANITATION (TOILET FACILITY)

Improved toilet facilities

Include any non-shared toilet of the following types: flush/pour flush toilets to piped sewer systems, septic tanks, and pit latrines; Ventilated Improved Pit (VIP) latrines; pit latrines with slabs.

Sample: Households

Ensuring adequate sanitation facilities is another Millennium Development Goal. A household is classified as having an improved toilet if the toilet is used only by members of one household (i.e., it is not shared) and if the facility used by the household separates the waste from human contact (WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation 2014). **Table 2.2** provides information on access to improved sanitation facilities for both households and the *de jure* household population.

Almost one in two households uses an improved toilet facility, which is defined as a non-shared facility with other households and constructed to prevent likely contact with human waste and reduce the transmission of cholera, typhoid, malaria and other diseases. Twenty-three per cent of the households have a toilet facility that would be classified as improved if not shared with other households, 26% use an unimproved toilet facility, and less than 1% practice open defecation (**Table 2.2**).

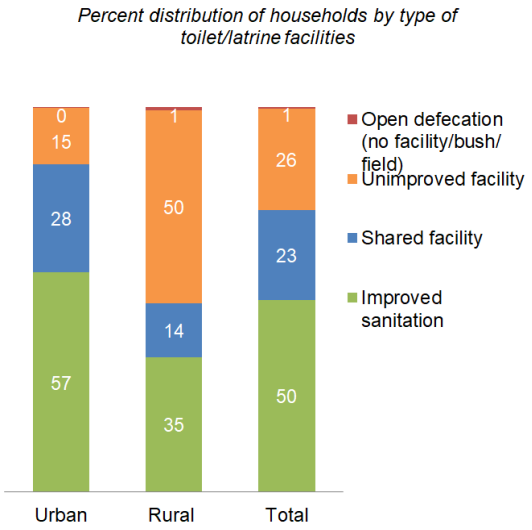
As expected, households in urban areas are more likely to use improved toilet facilities (57%) compared with rural households (35%) (**Figure 2.2**). Twenty-eight per cent of urban households use a toilet facility that would be classified as improved if not shared with other households, compared with 14% of rural households.

2.3 HOUSING CHARACTERISTICS

Table 2.3 shows the distribution of households according to dwelling characteristics for which information was obtained in the GMIS 2017.

The information on these characteristics, along with other information on the ownership of household durable goods, contributes to the creation of the household wealth index and provides information that may be relevant for other health indicators.

Figure 2.2 **Household sanitation facilities by residence**



Electricity: Almost six in ten households (59%) have access to electricity, 78% of urban households have electricity compared to only 20% of rural households.

With regard to flooring, the most common material for dwelling units in The Gambia is cement (34%). Ceramic tiles are the second most common flooring material, used by 30% of all households. More than three in ten households (31%) of rural households have floors made of earth or sand compared with only 2% of households in urban areas.

Table 2.3 also shows that 16% of households have only one room that is used for sleeping in their dwelling, 23% live in a dwelling with 2 rooms for sleeping, and 62% have three rooms or more in which members of the household sleep.

Exposure to smoke, especially smoke produced from solid fuels, is potentially harmful to health. Nationally, 54% households use solid fuels for cooking. While charcoal (53%) is the most common type of cooking fuel in urban areas, rural households rely primarily on wood (88%).

Household Durable Goods

Table 2.4 provides information on household ownership of durable goods and other possessions. Fifty-five per cent of GMIS households own a television (color or black and white), and 76% own a radio.

With regard to other electronic equipment, 32% have a cassette player, and 15% own a computer. Ninety-three percent of households have a cell phone, and only 13% own a traditional landline phone. Access to the internet is still very limited in The Gambia; less than 5% of households have an internet connection.

Majority of households do not own most basic appliances. Thirty-nine per cent of households own a refrigerator, 48% have an electric fan, and only 3% own an air conditioner. Considering household furnishing, less than half of households (47%) own a cupboard and 43% own a sofa.

Ownership for almost all household goods with the exception of radio is highest in the rural (78%) than in the urban areas (74%)

Table 2.4 also includes information on household ownership of a means of transportation. Overall, 16% of households own a own a car or truck, with a higher proportion, as expected, in urban areas (21%) than in rural areas (7%).. In contrast, higher percentages of rural households than urban households own a bicycle

(58% versus 52%), an animal drawn cart (35% versus 3%), and a motorcycle/scooter (15% versus 8%). In addition, higher proportions of rural households than urban households have agricultural land (59% versus 6%) and farm animals (82% versus 26%).

2.4 HOUSEHOLD WEALTH

Wealth index and Gini coefficient

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 the source of drinking water, toilet facilities, and flooring materials. These scores are derived by principal component analysis. National wealth quintiles are compiled by assigning the household score to each usual household member, ranking each person in the household population by their score, and then dividing the distribution into five equal categories, each with 20% of the population.

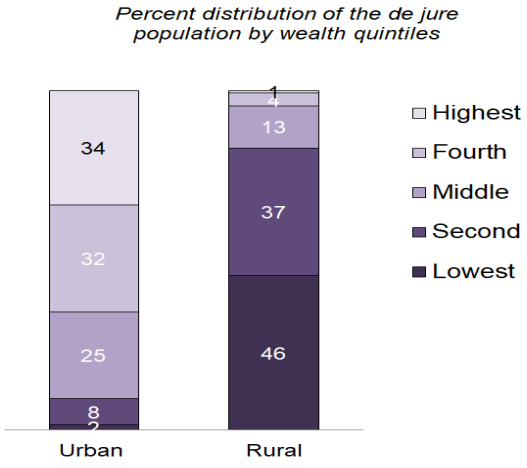
The Gini coefficient (or Gini ratio) provides a measure of the level of concentration of wealth. A Gini coefficient of 0 indicates an equal distribution of wealth and a coefficient of 1, a totally unequal distribution. In other words, if every person in the country owns the same amount of wealth, the Gini coefficient would be 0. If one person in the country owns all of the wealth, then the Gini coefficient would be 1. Because of its nature, smaller areas are more likely to have lower values of the Gini coefficient because they are more likely to be homogeneous than are larger areas.
Sample: Households

The majority of the population in urban areas is in the upper two wealth quintiles, while in rural areas, the majority of the population is in the bottom two wealth quintiles (**Figures 2.3**).

Table 2.5 shows that there are variations in the distribution of wealth quintiles at the regional level. Four of the seven health regions have the highest percentage of population in the lowest quintile: Central River (66%), North Bank West (49%), North Bank East (43%) and Upper River (41%), while Western Region 1 (less than half 1%) and Western Region 2 (7%) have the lowest percentage of the population in the lowest wealth quintile. On the other hand, Western Region 1 has the highest percentage of population in the highest wealth quintile (42%).

Almost 34% of the urban population is in the highest wealth quintile, while less than 2% is in the lowest wealth quintile. In contrast, 46% of the rural population is in the lowest wealth quintile while less than 1% is in the highest wealth quintile (**Figure 2.3**).

Figure 2.3 **Household wealth by residence**



With regard to the concentration of wealth, an examination of the Gini coefficients in **Table 2.5** indicates that wealth inequality is greater in rural than in urban areas (34%t and 15%, respectively). Inequality in the distribution of wealth is greatest in North Bank West (53%) and North Bank East (48%).

2.5 HOUSEHOLD POPULATION AND COMPOSITION

Household

A person or a group of related or unrelated persons who live together in the same dwelling unit(s) or in connected premises, who acknowledge one adult member as head of the household, and who have common arrangements for cooking and eating.

***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 specified otherwise.

Table 2.6 presents the percent distribution of the *de facto* household population by age, according to urban-rural residence and sex. The table describes the demographic context in which behaviours examined later in the report occur.

The population spending the night before the interview in the households selected for the survey included 40,393 individuals (**Table 2.6**), with females slightly outnumbering men. The age structure of the *de facto* household population reflects the effects of past demographic trends in The Gambia, particularly high fertility. A majority of the household population (56%) was less than 20 years old, and 46% was less than 15 years old.

The proportion under age 15 was greater in the rural population (51%) than in the urban population (42%). This difference is an outcome of lower fertility over the past few decades in urban areas compared with rural areas. Fifty-one percent of the population is age 15-64, and only 3% is age 65 and older

The population pyramid shown in **Figure 2.4** was constructed using the sex and age distribution of the GMIS 2017 household population. The pyramid has a wide base. This pattern is typical of countries that have experienced relatively high fertility in the recent past.

***Figure 2.4* Population pyramid**

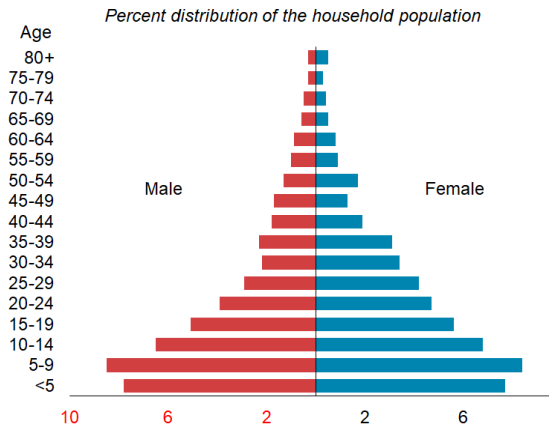


Table 2.6 presents information from the GMIS 2017 on the distribution of households by sex of the head of the household and by number of the *de jure* household members. These characteristics are important because they are often associated with socioeconomic differences between households. For example, female-headed households frequently are poorer than households headed by males. In addition, the size and composition of the household affect the allocation of financial and other resources among household members, which in turn influences the overall well-being of these individuals. Household size is also associated with crowding in the dwelling, which can lead to unfavorable health conditions

The GMIS results show that most households are headed by males; in 20% of the households, the household head is female. Female-headed households are somewhat more common in urban than in rural areas; 24% of urban households have a female head compared with 11% of rural households. The average household is very large, with 8.2 members. Twenty-one percent of households have three or fewer members, while 43% of the households have eight or more members. In general, rural households are larger than urban households. For example, 44% of urban households have seven or more members, compared with 67% of rural households. The average urban household has 7.1 persons compared with 10.3 persons in rural areas.

List of Tables

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

- **Table 2.1 Household drinking water**
- **Table 2.2 Household sanitation facilities**
- **Table 2.3 Household characteristics**
- **Table 2.4 Household possessions**
- **Table 2.5 Wealth quintiles**
- **Table 2.6 Household population by age, sex, and residence**
- **Table 2.7 Household composition**

Table 2.1 Household drinking water

Per cent distribution of households and de jure population by source of drinking water, and by time to obtain drinking water, according to residence, The Gambia MIS 2017

Characteristic	Households			Population		
	Urban	Rural	Total	Urban	Rural	Total
Source of drinking water						
Improved source	93.8	86.6	91.4	92.6	87.2	90.4
Piped into dwelling/yard plot	64.2	8.4	45.8	63.0	8.2	40.2
Pied to neighbour	13.4	4.8	10.6	11.8	3.6	8.4
Public tap/standpipe	9.8	49.4	22.8	10.5	53.1	28.2
Tube well or borehole	3.2	15.7	7.3	3.8	15.0	8.4
Protected dug well	3.1	7.5	4.6	3.6	6.7	4.9
Protected spring	0.0	0.8	0.3	0.0	0.7	0.3
Bottled water, improved source for cooking/handwashing[1]	0.1	0.0	0.1	0.0	0.0	0.0
Unimproved source	6.2	13.4	8.5	7.4	12.7	9.6
Unprotected dug well	6.2	13.2	8.5	7.4	12.6	9.6
Unprotected spring	0.0	0.2	0.1	0.0	0.1	0.0
Surface water	0.0	0.1	0.0	0.0	0.0	0.0
Other	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
Time to obtain drinking water (round trip)						
Water on premises[2]	87.3	24.2	66.6	86.6	21.5	59.6
Less than 30 minutes	10.5	61.1	27.1	10.7	63.5	32.7
30 minutes or longer	2.0	13.1	5.7	2.4	13.9	7.2
Don't know/missing	0.2	1.6	0.7	0.2	1.1	0.6
Total	100.0	100.0	100.0	100.0	100.0	100.0
Number	3,351	1,639	4,990	23,842	16,952	40,794

[1] Households using bottled water for drinking are classified as using an improved or unimproved source according to their water source for cooking and handwashing.
[2] Includes water piped to a neighbor

Table 2.2 Household sanitation facilities

Per cent 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, The Gambia MIS 2017

Type and location of toilet/latrine facility	Households			Population		
	Urban	Rural	Total	Urban	Rural	Total
Improved sanitation	57.0	35.0	49.8	63.4	36.9	52.4
Flush/pour flush to piped sewer system	4.1	0.3	2.9	3.8	0.1	2.3
Flush/pour flush to septic tank	29.9	2.4	20.9	31.1	2.1	19.0
Flush/pour flush to pit latrine	7.2	2.4	5.6	8.4	1.9	5.7
Ventilated improved pit (VIP) latrine	1.0	1.6	1.2	1.7	1.7	1.7
Pit latrine with slab	14.7	28.5	19.2	18.4	31.2	23.7
Unimproved sanitation	43.0	65.0	50.2	36.6	63.1	47.6
Shared facility[1]	28.1	14.0	23.4	21.0	11.4	17.0
Flush/pour flush to piped sewer system	1.3	0.0	0.8	1.0	0.0	0.6
Flush/pour flush to septic tank	5.5	0.4	3.8	4.0	0.1	2.4
Flush/pour flush to pit latrine	5.0	1.1	3.7	3.9	0.8	2.6
Ventilated improved pit (VIP) latrine	1.5	0.4	1.2	1.0	0.3	0.7
Pit latrine with slab	14.8	12.1	13.9	11.2	10.2	10.7
Unimproved facility						
Unimproved facility	14.8	50.0	26.3	15.5	51.1	30.3
Flush/pour flush not to sewer/septic tank/pit latrine	0.8	0.2	0.6	0.6	0.2	0.5
Pit latrine without slab/open pit	13.6	49.5	25.4	14.6	50.7	29.6
Other	0.3	0.3	0.3	0.2	0.1	0.2
Open defecation (No facility/bush/ field)	0.2	1.0	0.5	0.2	0.6	0.3
Total	100.0	100.0	100.0	100.0	100.0	100.0
Number of households/population	3,351	1,639	4,990	23,842	16,952	40,794

[1] Facilities that would be considered improved if they were not shared by two or more households.

Table 2.3 Household characteristics

Per cent distribution of households and de jure population by housing characteristics, Percentage using solid fuel for cooking, Per centage using clean fuel for cooking, and Per cent distribution by frequency of smoking in the home, according to residence, The Gambia MIS 2017

	Households			Population		
Housing characteristics	Urban	Rural	Total	Urban	Rural	Total
Electricity						
Yes	78.3	20.2	59.2	79.4	23.6	56.2
No	21.7	79.8	40.8	20.6	76.4	43.8
Total	100.0	100.0	100.0	100.0	100.0	100.0
Flooring material						
Earth, sand	2.1	31.4	11.7	1.7	28.4	12.8
Dung	0.4	0.5	0.4	0.4	0.4	0.4
Wood/planks	0.0	0.1	0.0	0.0	0.3	0.1
Parquet or polished wood	0.1	0.1	0.1	0.1	0.1	0.1
Ceramic tiles	41.3	7.4	30.2	45.6	7.5	29.8
Cement	25.7	49.4	33.5	25.3	52.1	36.4
Carpet	4.7	0.7	3.4	4.3	0.7	2.8
Linolium (Tapeh)	25.6	10.3	20.6	22.7	10.4	17.6
Other	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
Rooms used for sleeping						
One	19.7	6.7	15.5	7.2	1.7	4.9
Two	27.0	14.0	22.8	19.0	7.0	14.0
Three or more	53.2	79.2	61.7	73.8	91.3	81.1
Missing	0.1	0.0	0.1	0.0	0.0	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Cooking fuel						
Electricity	0.2	0.1	0.2	0.1	0.1	0.1
LPG/natural gas/biogas	5.0	0.5	3.5	1.9	0.2	1.2
Charcoal	53.4	5.8	37.8	46.7	4.0	29.0
Wood	33.4	88.1	51.4	47.5	92.0	66.0
Straw/shrubs/grass	1.4	3.3	2.0	2.4	3.4	2.8
Sawdust	0.2	0.0	0.2	0.3	0.0	0.2
Other	0.2	0.0	0.1	0.0	0.0	0.0
No food cooked in household	6.2	2.2	4.9	1.2	0.3	0.8
Total	100.0	100.0	100.0	100.0	100.0	100.0
Per centage using solid fuel for cooking[1]	35.0	91.4	53.5	50.1	95.4	68.9
Per centage using clean fuel for cooking[2]	5.2	0.6	3.7	2.0	0.3	1.3
Number of households/population	3,351	1,639	4,990	23,842	16,952	40,794

LPG = Liquefied petroleum gas
[1] Includes coal/lignite, charcoal, wood, straw/shrubs/grass, agricultural crops, and animal dung
[2] Includes electricity and LPG/natural gas/biogas and Kerosene

Table 2.4 Household possessions

Percentage of households possessing various household effects, means of transportation, agricultural land and livestock/farm animals by residence, The Gambia MIS 2017

	Residence		
Possession	Urban	Rural	Total
Household effects			
Radio	74.9	77.7	75.8
Television	72.7	19.7	55.3
Mobile phone	95.0	90.1	93.4
Computer	19.8	4.0	14.6
Non-mobile telephone	16.8	3.9	12.6
Refrigerator	54.0	9.0	39.2
Video cassette or player	41.9	10.5	31.6
Fan	67.1	9.9	48.3
Cupboard	59.7	21.1	47.0
Sofa	56.3	16.5	43.3
Air conditioner	4.4	0.3	3.1
Microwave	8.6	0.6	6.0
Satellite cable	24.8	3.7	17.9
Internet connection	7.0	0.6	4.9
Satellite disc	50.7	8.8	36.9
Electric generator/ solar panel	5.9	5.7	5.8
Means of transport			
Bicycle	52.3	57.5	54.0
Animal drawn cart	2.9	34.9	13.4
Motorcycle/scooter	8.2	14.8	10.4
Car/truck	21.1	6.8	16.4
Boat with a motor	0.6	1.5	0.9
Ownership of agricultural land	5.9	58.7	23.2
Ownership of farm animals[1]	26.3	81.5	44.4
Number	3,351	1,639	4,990

[1] Cows, bulls, other cattle, horses, donkeys, goats, sheep, chickens or other poultry

Table 2.5 Wealth quintiles

Per cent distribution of the de jure population by wealth quintiles,and Gini Coefficient, according to residence and region, The Gambia MIS 2017

	Wealth quintile							
Residence/region	Lowest	Second	Middle	Fourth	Highest	Total	Number of persons	Gini coefficient
Residence								
Urban	1.7	7.6	25.4	31.6	33.7	100.0	23,842	0.15
Rural	45.6	37.4	12.5	3.7	0.8	100.0	16,952	0.34
Health Region								
Western 1	0.3	5.3	19.9	33.1	41.5	100.0	17,448	0.18
Western 2	6.7	31.2	30.6	21.7	9.8	100.0	7,707	0.20
North Bank West	49.4	32.2	12.5	4.8	1.1	100.0	2,512	0.53
North Bank East	43.3	29.4	16.6	7.7	3.0	100.0	2,294	0.48
Lower River	28.1	47.4	18.4	5.1	1.0	100.0	1,506	0.25
Central River	65.6	23.1	7.9	2.9	0.5	100.0	4,541	0.37
Upper River	40.5	33.1	21.1	4.5	0.9	100.0	4,785	0.40
Total	20.0	20.0	20.0	20.0	20.0	100.0	40,794	0.33

Table 2.6 Household population by age, sex, and residence

Per cent distribution of the de facto household population by age groups, according to sex and residence, The Gambia MIS 2017

	Urban			Rural					
Age	Male	Female	Total	Male	Female	Total	Male	Female	Total
<5	14.5	13.4	13.9	19.0	16.6	17.8	16.4	14.7	15.5
5-9	16.3	15.2	15.7	19.9	17.2	18.5	17.8	16.1	16.9
10-14	12.6	12.5	12.5	14.9	13.9	14.4	13.5	13.1	13.3
15-19	10.6	11.5	11.1	10.7	9.5	10.0	10.6	10.7	10.6
20-24	9.9	10.0	10.0	5.9	7.7	6.9	8.3	9.1	8.7
25-29	7.0	8.8	8.0	4.9	7.1	6.1	6.1	8.1	7.2
30-34	4.9	7.0	6.0	4.1	5.9	5.0	4.6	6.5	5.6
35-39	5.2	6.2	5.7	4.2	5.5	4.9	4.8	5.9	5.4
40-44	4.2	3.9	4.1	3.2	3.0	3.1	3.8	3.5	3.7
45-49	4.0	2.8	3.4	3.0	2.3	2.6	3.6	2.6	3.1
50-54	3.1	3.0	3.1	2.3	3.4	2.9	2.8	3.2	3.0
55-59	2.1	1.4	1.8	2.0	2.1	2.0	2.1	1.7	1.9
60-64	1.9	1.3	1.6	1.6	1.7	1.7	1.8	1.5	1.6
65-69	1.2	0.8	1.0	1.3	1.2	1.3	1.2	1.0	1.1
70-74	0.9	0.6	0.7	1.1	1.1	1.1	1.0	0.8	0.9
75-79	0.5	0.5	0.5	0.6	0.6	0.6	0.5	0.5	0.5
80 +	0.5	0.8	0.6	1.0	1.1	1.0	0.7	0.9	0.8
Don't know/missing	0.6	0.2	0.4	0.1	0.2	0.1	0.4	0.2	0.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Dependency age groups									
0-14	43.4	41.0	42.1	53.9	47.8	50.7	47.7	43.9	45.7
15-64	53.0	56.1	54.6	42.0	48.1	45.2	48.4	52.8	50.7
65+	3.1	2.7	2.9	4.0	3.9	4.0	3.4	3.2	3.3
Don't know/missing	0.6	0.2	0.4	0.1	0.2	0.1	0.4	0.2	0.3
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	50.2	47.9	49.0	60.9	53.5	57.1	54.6	50.3	52.4
18+	49.2	51.9	50.6	39.0	46.3	42.8	45.0	49.6	47.4
Don't know/missing	0.6	0.2	0.4	0.1	0.2	0.1	0.4	0.2	0.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Adolescents 10-19	23.2	24.0	23.6	25.6	23.4	24.4	24.2	23.7	23.9
Number of persons	11,299	12,303	23,602	7,994	8,797	16,791	19,293	21,100	40,393

Table 2.7 Household composition

Per cent distribution of households by sex of head of household and by household size; mean size of household, according to residence, The Gambia MIS 2017

	Residence		
Characteristic	Urban	Rural	Total
Household headship			
Male	76.1	89.1	80.4
Female	23.9	10.9	19.6
Total	100.0	100.0	100.0
Number of usual members			
1	9.8	4.3	8.0
2	7.4	2.6	5.8
3	9.4	3.7	7.5
4	9.0	5.5	7.8
5	10.2	8.7	9.7
6	10.8	8.1	9.9
7	8.4	9.1	8.6
8	7.2	8.6	7.6
9+	28.0	49.4	35.0
Total	100.0	100.0	100.0
Mean size of households	7.1	10.3	8.2
Number of households	3,351	1,639	4,990

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

WOMEN'S CHARACTERISTICS AND PREGNANCY 3

Key Findings

- ***Education:*** Thirty-nine per cent of women age 15-49 have no education.
- ***Literacy:*** Fifty-four per cent of women age 15-49 are literate.
- ***Pregnancy:*** Almost 6% of women are pregnant

This chapter presents characteristics of the survey respondents such as age, education, and literacy. Socioeconomic characteristics are useful for understanding the factors that affect use of health services and other health behaviours related to malaria control.

3.1 BACKGROUND CHARACTERISTICS OF WOMEN RESPONDENTS

The purpose of this section is to describe the demographic and socioeconomic profile of women in The Gambia. Table 3.1 shows the weighted and unweighted numbers and the weighted per cent distributions of women who were interviewed in the GMIS 2017, by background characteristics.

More than half of the respondents age 15-49 (60% of women) are under age 30, which reflects the young age of the population. The vast majority of respondents are Muslims (97%), and the remaining 3% of women are Christians.

As expected, the Mandinka/Jahanka form the largest ethnic group, with one-third of the respondents (34%) belonging to this group, followed by the Fula/Tukulur/Lorobo, which account for 24% of women. The Wollof represents 15% of the women and the Jola/Karoninka accounted for 11% of the women.

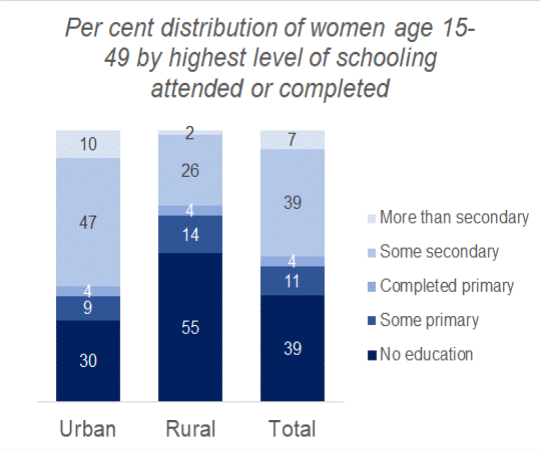
The majority of women (63%) live in urban areas. By health region, the largest percentage of women is in Western Region 1 (47%), and the smallest percentage is in the Lower River region (3%).

In general, only about 3 in 5 women in The Gambia have some formal education, and 39% have never attended school. Fourteen per cent have only primary education, and 46% have secondary or higher education

3.2 EDUCATIONAL ATTAINMENT OF WOMEN

Table 3.2 shows the per cent distribution of women age 15-49 by highest level of schooling attended or completed, and median years completed, according to background characteristics. The results show that 39% of women age 15-49 have no education, and another 39% have some secondary education. Only 7% of women have more than secondary education (**Figure 3.1**). Overall, women have completed a median of 5 years of education.

Figure 3.1 **Educational attainment of women by residence**



Patterns by background characteristics

- More than half (55%) of women in rural areas have no education compared with 30% in urban areas (**Table 3.2**).
- At the regional level, Central River and Upper River recorded the highest percentage of women with no education (67% and 60% respectively), while Western Region 1 and Western Region 2 recorded the lowest percentages (29% and 30% respectively) (**Table 3.2**).
- The percentage of women with no education decreases with an increase in wealth quintile, from 69% of women in the lowest quintile to 19% of women in the highest (**Table 3.2**).

3.3 LITERACY OF WOMEN

Literacy
Respondents who have secondary education and above school are assumed to be literate. All other respondents were given a sentence to read, and were considered to be literate if they could read all or part of the sentence.

The ability to read and write is an important personal asset that empowers women and men by increasing opportunities in life. Knowing the distribution of the literate population of a country can help programme managers—especially those concerned with health and family planning—reach their targeted audiences with their message.

The 2017 GMIS assessed literacy by asking women to read a simple sentence in the local language or in English. Respondents were given scores on whether they could not read at all, or could read part or the entire sentence shown to them. Women who had never attended school and those who had primary education were asked to read the sentence in the language with which they were most familiar. Those who have attended secondary education or higher were assumed to be literate. Those who were blind or visually impaired were excluded.

The results show that 46% of women have a secondary education or higher. Among those with primary education and those with no schooling, 2% can read a whole sentence, 6% can read part of a sentence, and 46% cannot read at all. Overall, 54% of women age 15-49 are literate (**Table 3.3**).

Patterns by background characteristics

- Literacy is much higher among the youngest women age 15-19 (75%), and decreases steadily with age to 27% among the oldest women age 45-49 (**Table 3.3**).

- Literacy varies by place of residence; 65% of women in urban areas are literate, compared with 35% of rural women (**Table 3.3**).
- Regional differences in literacy are notable; literacy is highest among women in Western Region 1 (68%) and lowest among women in the Upper River region (23%) (**Table 3.3**).
- By wealth, literacy increased gradually as wealth quintile increased, from 24% among women in the lowest wealth quintile to 79% among women in the highest quintile (**Table 3.3**).

3.4 PREGNANT WOMEN

Pregnancy
Percentage of pregnant women age 15-49 at the time of the survey
Sample: Women age 15-49

Pregnant women are three times more likely to develop severe disease than non-pregnant women who are acquiring infections from the same area. For example, malaria infection during pregnancy can lead to miscarriage, premature delivery, low birth weight, congenital infection, and/or perinatal death. Therefore, it is important to identify women who are pregnant at the time of the survey.

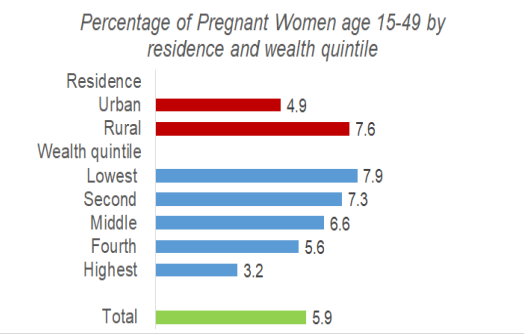
Table 3.4 presents the percentage of pregnant women age 15-49 by background characteristics. Overall, 6% reported being pregnant at the time of the survey.

Trends: Between the DHS 2013 and the GMIS 2017, the pregnancy rate does not change as it is 6 % in both surveys. This means that fertility in The Gambia still remains the same.

Patterns by background characteristics

- The percentage of pregnant women is highest in the age groups 25-29 (9%) and 30-34 (8%), and it is the lowest in the age group 45-49 with less than half 1% (**Table 3.4**).
- The percentage of pregnant women is significantly lower in urban areas (5%) than in rural areas (8%) (**Figure 3.2**).
- The North Bank East region has the highest percentage of pregnant women age 15-49 (8%). The Upper River region has the second highest (7%), and Western Region 1 the lowest (4%) (**Table 3.4**).

***Figure 3.2* Pregnant women at the time of the survey**



- The percentage of pregnant women age 15-49 decreases with an increase in wealth quintile, from 8% in the lowest wealth quintile to 3% in the highest quintile (**Figure 3.2**).
- The percentage of pregnant women is lowest among women who have secondary or higher education (4%) (**Table 3.4**).

LIST OF TABLES

For detailed information on women's characteristics, see the following tables:

Table 3.1 Background characteristics of respondents

Per cent distribution of women age 15-49 by selected background characteristics, The Gambia MIS 2017

Background characteristic	Women		
	Weighted percent	Weighted number	Unweighted number
Age			
15-19	22.5	2,188	2,157
20-24	19.3	1,868	1,866
25-29	17.8	1,724	1,750
30-34	14.3	1,388	1,357
35-39	13.0	1,257	1,264
40-44	7.6	741	749
45-49	5.5	539	563
Religion			
Islam	96.7	9,385	9,493
Christianity	3.3	317	212
Other	0.0	4	1
Ethnic group			
Mandinka/Jahanka	34.0	3,303	3,215
Wollof	15.0	1,456	1,575
Jola/Karoninka	11.1	1,077	651
Fula/Tukulur/Lorobo	23.9	2,318	2,594
Serere	3.2	307	309
Serahuleh	7.9	764	904
Creole/Aku Marabout	0.5	51	60
Manjago	2.5	246	157
Bambara	0.8	82	131
Other	1.0	102	110
Residence			
Urban	63.3	6,141	4,630
Rural	36.7	3,565	5,076
Health Region			
Western 1	47.3	4,590	2,629
Western 2	18.7	1,820	1,031
North Bank West	5.4	524	880
North Bank East	4.9	473	848
Lower River	3.3	321	852
Central River	9.5	922	1,784
Upper River	10.9	1,057	1,682
Education[1]			
No education	39.2	3,801	4,447
Primary	14.4	1,397	1,477
Secondary	39.4	3,828	3,331
More than secondary	7.0	679	451
Wealth quintile			
Lowest	16.9	1,641	2,651
Second	18.1	1,756	2,306
Middle	19.4	1,880	1,728
Fourth	22.1	2,143	1,498
Highest	23.5	2,285	1,523
Total 15-49	100.0	9,706	9,706

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

[1] In the subsequent tables of this report, Education will have only three categories: No education, Primary, Secondary or more. The two categories Secondary and More than secondary were combined in one category - Secondary or more - because of the relatively small number of the More than secondary.

Table 3.2 Educational attainment

Per cent distribution of women age 15-49 by highest level of schooling attended or completed, and median years completed, according to background characteristics, The Gambia MIS 2017

Background characteristic	Highest level of schooling					Total	Median years completed	Number of women
	No education	Some primary	Completed primary[1]	Some secondary	More than secondary[2]			
Age								
15-24	21.8	11.1	4.0	56.9	6.3	100.0	6.9	4,057
15-19	18.1	11.5	4.0	65.2	1.2	100.0	6.7	2,188
20-24	26.1	10.5	3.9	47.3	12.2	100.0	7.3	1,868
25-29	37.3	10.3	3.6	37.9	10.9	100.0	5.6	1,724
30-34	50.2	11.3	2.9	27.0	8.7	100.0	a	1,388
35-39	59.9	10.8	3.7	21.4	4.1	100.0	a	1,257
40-44	62.4	10.1	3.7	18.3	5.6	100.0	a	741
45-49	67.2	8.1	4.3	16.0	4.4	100.0	a	539
Residence								
Urban	30.1	8.9	3.7	47.3	10.1	100.0	6.8	6,141
Rural	54.8	13.8	3.8	25.9	1.7	100.0	a	3,565
Health Region								
Western 1	29.0	7.3	3.0	49.3	11.5	100.0	7.2	4,590
Western 2	29.7	13.6	6.7	43.6	6.3	100.0	5.8	1,820
North Bank West	53.4	12.2	3.0	29.8	1.6	100.0	a	524
North Bank East	56.8	11.4	2.1	28.4	1.4	100.0	a	473
Lower River	39.1	17.7	5.2	35.9	2.1	100.0	3.9	321
Central River	66.9	8.6	2.6	21.0	0.9	100.0	a	922
Upper River	60.3	19.0	3.3	16.6	0.7	100.0	a	1,057
Wealth quintile								
Lowest	68.5	11.7	2.3	17.0	0.6	100.0	-	1,641
Second	48.5	14.5	4.7	30.3	2.0	100.0	0.8	1,756
Middle	40.9	12.8	4.2	38.7	3.4	100.0	3.7	1,880
Fourth	28.7	9.3	4.0	50.1	7.8	100.0	6.7	2,143
Highest	19.3	6.5	3.3	53.3	17.6	100.0	8.0	2,285
Total	39.2	10.7	3.7	39.4	7.0	100.0	5.0	9,706

[1] Completed 6 grade at the primary level
[2] Completed 6 grade at the secondary level.
a Omitted because less than 50% of the women have some schooling

Table 3.3 Literacy

Per cent distribution of women age 15-49 by level of schooling attended and level of literacy, and percentage literate, according to background characteristics, The Gambia MIS 2017

Background characteristic	Secondary or higher schooling	No schooling or primary school: Can read a whole sentence	No schooling or primary school: Can read part of a sentence	No schooling or primary school: Cannot read at all	No schooling or primary school: No card with required language	Total	Percentage literate[1]	Number of women
Age								
15-24	66.4	3.3	5.5	24.6	0.2	100.0	75.3	4,057
25-29	59.4	1.7	5.3	33.4	0.1	100.0	66.4	1,724
25-29	48.8	1.1	5.2	44.9	0.1	100.0	55.0	1,724
30-34	35.7	1.6	6.2	56.5	0.1	100.0	43.5	1,388
35-39	25.6	1.9	6.7	65.9	0.1	100.0	34.1	1,257
40-44	23.8	1.9	6.4	67.9	0.0	100.0	32.1	741
45-49	20.4	1.3	4.9	73.4	0.0	100.0	26.6	539
Residence								
Urban	57.4	2.2	5.6	34.9	0.1	100.0	65.1	6,141
Rural	27.6	1.6	5.9	64.7	0.2	100.0	35.1	3,565
Health Region								
Western 1	60.7	2.1	4.8	32.3	0.1	100.0	67.6	4,590
Western 2	49.9	2.8	8.2	39.1	0.0	100.0	60.9	1,820
North Bank West	31.4	0.8	4.9	62.5	0.4	100.0	37.1	524
North Bank East	29.7	1.4	4.8	64.1	0.0	100.0	35.9	473
Lower River	38.0	1.8	10.2	50.1	0.0	100.0	49.9	321
Central River	21.9	1.3	6.2	70.1	0.5	100.0	29.4	922
Upper River	17.3	1.4	4.2	77.1	0.0	100.0	22.9	1,057
Wealth quintile								
Lowest	17.6	0.9	5.3	76.2	0.2	100.0	23.7	1,641
Second	32.3	2.0	6.3	59.3	0.1	100.0	40.6	1,756
Middle	42.1	2.5	5.9	49.4	0.1	100.0	50.5	1,880
Fourth	57.9	1.8	5.4	34.9	0.1	100.0	65.0	2,143
Highest	70.9	2.5	5.7	21.0	0.0	100.0	79.0	2,285
Total	46.4	2.0	5.7	45.8	0.1	100.0	54.1	9,706

[1] Refers to women who attended secondary school or higher and women who can read a whole sentence or part of a sentence.

Table 3.4 Women's pregnancy

Percentage of pregnant women age 15-49 years by background characteristics, The Gambia MIS 2017

Background characteristic	Pregnant women	Number of respondents
Age		
15-19	3.9	2,188
20-24	6.5	1,868
25-29	9.0	1,724
30-34	8.2	1,388
35-39	6.4	1,257
40-44	2.1	741
45-49	0.3	539
Residence		
Urban	4.9	6,141
Rural	7.6	3,565
Health Region		
Western 1	4.2	4,590
Western 2	7.4	1,820
North Bank West	6.9	524
North Bank East	8.2	473
Lower River	7.4	321
Central River	6.9	922
Upper River	7.7	1,057
Wealth quintile		
Lowest	7.9	1,641
Second	7.3	1,756
Middle	6.6	1,880
Fourth	5.6	2,143
Highest	3.2	2,285
Education		
No education	7.2	3,801
Primary	7.5	1,397
Secondary or more	4.3	4,508
Total	5.9	9,706

MALARIA PREVENTION 4

Key Findings

Ownership of insecticide-treated nets (ITNs):

- Seventy-nine per cent of households in The Gambia own at least one ITN.
- Thirty-eight per cent of households have one ITN for every two people who stayed in the household the night before the survey.

Access to an ITN:

- Two-thirds (65%) of the household population in the Gambia have access to an ITN.
- The percentage of the population with access to an ITN decreases with the increasing level of household wealth from 79% in the lowest wealth quintile to 47% in the highest wealth quintile.

Use of ITNs:

- Fifty-seven per cent of the household population slept under an ITN the night before the survey.
- Sixty-two per cent of children under age 5 and 69% of pregnant women age 15-49 slept under an ITN the night before the survey.

In-door Residual Spraying (IRS):

- Sixteen per cent of households had their dwellings sprayed during the 12 months preceding the survey.

Intermittent Preventive Therapy (IPTp):

- Forty-three per cent of women received three or more doses of SP/Fansidar for the prevention of malaria in pregnancy.

This chapter describes the population coverage rates of some key malaria control interventions in the Gambia, including ownership and use of mosquito nets and intermittent preventive treatment in pregnancy (IPTp). The Gambia National Malaria Control Strategic Plan (NMCSP) 2014-2020 focuses on scaling-up these interventions to reduce the malaria mortality rate by at least 40% by 2020 compared with 2013.

The 2014-2020 NMCSP stipulates that at least 80% of the population at risk are protected with the effective preventive measures of ITN and Indoor Residual Spraying (IRS).

4.1 Ownership and Sources of Mosquito Nets

Ownership of insecticide-treated nets
Households that have at least one insecticide-treated net (ITN). An ITN is a factory-treated net that does not require any further treatment.
Sample: Households

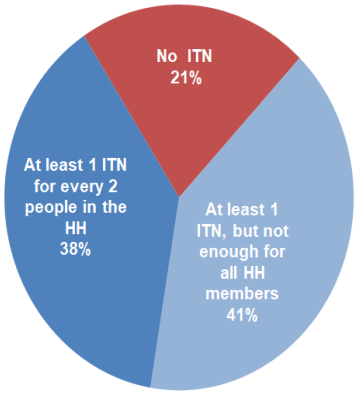
Full household ITN coverage
Percentage of households with at least one ITN for every two people.
Sample: Households

The distribution and use of ITNs is one of the central interventions for preventing malaria infection in the Gambia. The 2014-2020 NMCSP aims to achieve universal coverage with ITNs, defined as one net for every two people (The Gambia Ministry of Health and Social Welfare GMoH&SW 2014).

The 2017 GMIS indicates that 79% of households in The Gambia own at least one ITN (**Table 4.1**). Thirty-eight per cent of households have one ITN for every two people who stayed in the household the night before the survey, while 41% of households own at least one ITN but have an insufficient supply for the number of household members and 21% of households do not own any ITNs. (**Figure 4.1**).

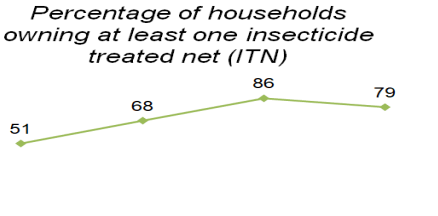
Figure 4.1 **Household ownership of ITNs**

Per cent distribution of households



Trends: The data show an increase in households that own at least one ITN from 2010 to 2014, but indicate a slight drop in 2017. In 2010, only 51% of households owned at least one ITN (The Gambia Multiple Indicator Cluster Survey – GMICS 2010). In 2014, the percentage of households owning at least one ITN increased to 86%. In 2017, it decreased to 79% (**Figure 4.2**).

Figure 4.2 **Trends in household ownership of ITNs**



Patterns by background characteristics

- Ownership of ITNs is higher in rural households (92%) compared with urban households (72%) (**Table 4.1**).
- Sixty-one per cent of households in the highest wealth quintile and 73% of households in the fourth wealth quintile own an ITN, while 95% of households in the lowest wealth quintile and 92% of households in the second wealth quintile own at least one ITN (**Figure 4.3**).
- The Central River and Upper River regions have the highest household ownership of ITNs, each with 97%, followed by the Lower River region and North Bank East with household ownership of ITNs of 95% and 92% respectively. The Western Region 1 has the lowest household ownership of ITNs (68%) (**Figure 4.4**).

Figure 4.3 **ITN ownership by household wealth quintile**

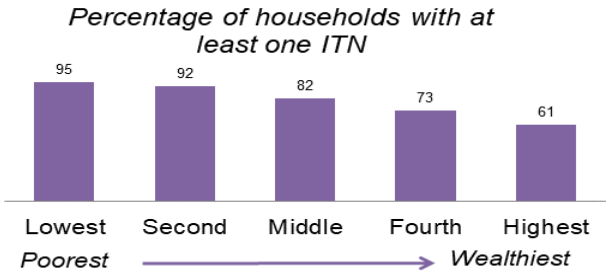
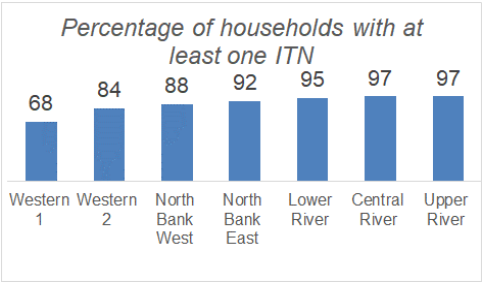


Figure 4.4 **ITN ownership by health region**



Sources of ITNs

Table 4.2 presents the percentage of households with at least one mosquito net by source of net, according to background characteristics. The vast majority of ITNs owned by households (86%) were obtained from mass distribution campaigns. Eleven per cent of ITNs came from a health facility and 6% were obtained from markets. An additional 3% of ITNs came from relatives or friends.

Patterns by background characteristics

- Households in rural areas, those in the Lower River and Central River regions and households in the lowest quintile have the highest proportions of mosquito nets that were obtained through mass national campaigns **(Table 4.2)**.
- Seven per cent of urban households, 8% of households in Western Region 1 and 11% of households in the highest quintile acquired their ITNs in the market **(Table 4.2)**.
- Eighteen per cent of households in Upper River and 17% of those in Western Region 2 got their ITNs from a health facility **(Table 4.2)**.

4.2 HOUSEHOLD ACCESS AND USE OF ITNS

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

Sample: *De facto* household population

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

Comparing ITN access and ITN use indicators can help programmes identify if there is a behavioural gap in which available ITNs are not being used. If the difference between these indicators is substantial, the programme may need to focus on behaviour change and identification of the main driving forces or barriers to ITN use to design an appropriate intervention. This analysis helps ITN programmes determine whether they need to achieve higher ITN coverage, promote ITN use, or both.

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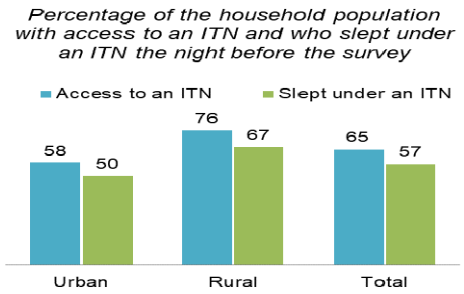
Figure 4.5 indicates that 65% of the household population in The Gambia have access to an ITN while only 58% of the household population slept under an ITN the night before the survey (**Figure 4.5**). The gap between access to and use of ITNs is similar in both urban and rural households (8% versus 9%).

In households with at least one ITN, 67% of the population slept under an ITN the previous night (**Table 4.4**). Overall, 83% of all existing ITNs were used the night before the survey (**Table 4.5**).

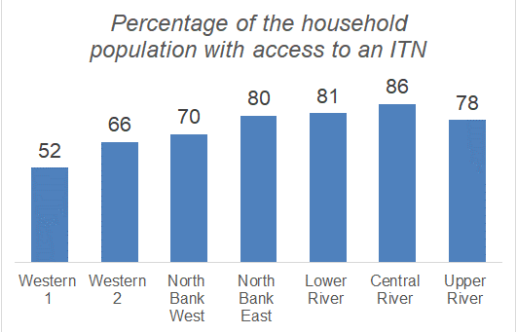
Figure 4.5 **Access to and use of ITNs by residence**



.Patterns by background characteristics

- The percentage of the population with access to an ITN decreases with increasing level of household wealth (**Table 4.5**)
- The three health regions in The Gambia have the percentage of the population with access to an ITN 80% or higher are North Bank East, Lower River and Central River, while the Western Region 1 has the lowest percentage (52%) of the population with access to an ITN **(Figure 4.6).**
- Similar to ITN access, the North Bank East, Lower River and Central River regions have the highest percentage (73%, 76% and 77% respectively) of the population that slept under an ITN the night before the survey, while Western Region 1 has the lowest percentage (46%) of the population that used an ITN (**Figure 4.7**).
- The percentage of the household population that slept under an ITN the night before the survey decreases substantially with increasing levels of wealth. Seven in ten household members (71%) from the lowest wealth quintile slept under an ITN the previous night, as compared with 39% of the household population from the highest wealth quintile (**Table 4.4**).

Figure 4.6 **Access to an ITN by health region**



4.3 USE OF ITNS BY CHILDREN AND PREGNANT WOMEN

Malaria is endemic in The Gambia with transmission occurring year-round, with seasonal variations. Partial immunity to the disease is acquired over time for those living in the high malaria transmission areas (Doolan et al. 2009). Children under age 5 are prone to severe malaria infection because they lack acquired immunity. For about 6 months after birth, antibodies acquired from the mother during pregnancy protect the child, although this maternal immunity is gradually lost when the child begins to develop his/her own immunity to malaria. Age is an important factor in determining levels of acquired immunity to malaria because acquired immunity does not prevent infection but protects against severe

disease and death. The pace at which immunity develops depends upon the exposure to malarial infection. In high malaria-endemic areas, children are thought to attain a high level of immunity by their fifth birthday. These children may experience episodes of malaria illness but usually do not suffer from severe, life-threatening conditions (Shulman and Dorman 2003).

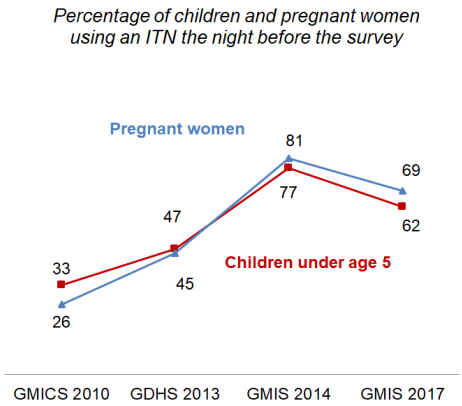
Adults usually acquire some degree of immunity. However, since pregnancy suppresses immunity, women in their first pregnancies are at increased risk for severe malaria. Malaria in pregnancy is frequently associated with the development of anaemia, which interferes with the maternal-foetus exchange and may lead to low-birth-weight infants, placental parasitaemia, foetal death, abortion, stillbirth, and prematurity (Shulman and Dorman 2003).

As stated in the Strategic Plan for Malaria Control in The Gambia 2014-2020, children under age 5 and pregnant women should sleep under an ITN every night to prevent malaria complications.

Sixty-two per cent of children under age 5 slept under an ITN the night before the survey and 72% of children under age 5 in households with at least one ITN slept under an ITN the night before the survey (**Table 4.6).** Overall, 69% of pregnant women age 15-49 slept under an ITN the night before the survey and 77% of pregnant women who live in households with at least one ITN slept under an ITN the night before the survey (**Table 4.7**)**.**

Trends: The percentage of children under age 5 who slept under an ITN the night before the survey increased from 33% in 2010 to 77% in 2014, and dropped slightly to 62% in 2017. Similar to children, the percentage of pregnant women who slept under an ITN increased from 26% in 2010 to 81% in 2014, before dropping to 69% in 2017 (**Figure 4.8**).

Figure 4.8 **ITN use by children and pregnant women**



Patterns by background characteristics

- Children in rural areas are more likely than children in urban areas to sleep under an ITN (69% and 57% respectively) (**Table 4.6).**
- The use of ITNs among children under age 5 decreases with an increase in wealth quintile. Seventy-three percent of children in the lowest wealth quintile slept under an ITN compared with 47% of children in the highest wealth quintile (**Table 4.6**).
- The use of ITNs among children under age 5 is highest in the Lower River and Central River regions (81% and 79% respectively) and lowest in Western Region 1 (52%) (**Table 4.6**).
- Pregnant women in North Bank East (86%) and Lower River region (85%) are more likely to use ITNs than those who live in other regions (**Table 4.7**).
- Sleeping under an ITN is highest among women with no education (73%) and among those in the lowest wealth quintile (80%) (**Table 4.7**).

4.4 Preference for Colour and Shape of Mosquito Nets

Preference for colour of mosquito nets

Per cent distribution of households by preference for colour of mosquito nets.

Sample: Households with mosquito nets

Preference for shape of mosquito nets
Per cent distribution of households by preference for shape of mosquito nets.
Sample: Households with mosquito nets

Preference for the shape of mosquito nets by reason
Among households with conical or rectangular shape nets, percentage that prefer conical or rectangular shape by reason of preference.
Sample: Households with conical or rectangular nets

Preference for colour and shape of mosquito nets is important information for planning and the procurement of ITNs. Table 4.8 shows that, among households who own at least one mosquito net, the majority (77%) prefer white mosquito nets compared to only 15% of households that prefer blue mosquito nets, and less than 10% prefer other colours (4%) or have no preference/don't know (5%).

Trends: The percentage of households that prefer white mosquito nets increased from 69% in the 2014 GMIS to 77% in the 2017 GMIS, while preference for blue mosquito nets dropped from 23% in 2014 to 15% in 2017.

Patterns by background characteristics

- Households in urban areas are more likely than households in rural areas to prefer white mosquito nets (80% and 72% respectively) (**Table 4.8**).
- Households in Western Region 1 (86%) and North Bank East (85%) prefer white mosquito nets more than households that live in other regions (**Table 4.8**).
- Preference for white mosquito nets increases generally with wealth quintile from 72 % among households in the second quintile to 86% among those in the highest quintile (**Table 4.8**).

With regard to preference for shape of mosquito nets, **Table 4.9** shows that almost six in 10 households (57%) prefer conical/round mosquito nets, 40% prefer the rectangular shaped nets, and less than 3% have no preference or don't know.

Trends: The percentage of households that prefer conical/round mosquito nets dropped from 77% in 2014 to 57% in 2017, while preference for rectangular shaped nets increased from 22% in 2014 to 40% in 2017.

Patterns by background characteristics

- Conical/round mosquito nets are preferred by urban households (61%) more than rural households (52%). However, there are more rural households (44%) that prefer the rectangular shaped nets than urban households (38%) (**Table 4.9**)
- Preference for conical/round mosquito nets is highest (81%) in Lower River and lowest (44%) in Central River. Similarly, preference for the rectangular shaped nets is highest (54%) in Central River and lowest (14%) in Lower River (**Table 4.9**)
- Generally, conical/round mosquito nets are preferred more by the richest households (62%) than the poorest households (43%). For rectangular shaped nets, preference is higher (52%) among the poorest households than the richest households (38%) (**Table 4.9**)

Among households owning conical/round or rectangular shaped nets, a question was asked about the reasons for preferring a specific shape. **Table 4.10** shows that the vast majority of households prefer conical/round mosquito nets because they are easier to hang (85%). The other reasons are: better fit around sleeping places (26%), easier to store when they are not hanging over a bed (11%), they are taller (10%), and more people can sleep under these nets/wider (9%).

Table 4.10 also shows that almost six in 10 households (58%) owning rectangular shaped nets prefer them because they are easier to hang. Another important reason is: better fit around sleeping places (41%), followed by more people can sleep under these nets/wider (28%), easier to store when they are not hanging over a bed (17%), they are stronger (10%), and easier to travel with outside the household (9%).

Patterns by background characteristics

- More urban households (88%) reported that conical/round nets are easier to hang than rural households (79%), while more rural households (32%) reported that conical/round nets are a better fit around sleeping places than urban households (23%). The same can be said about households owning rectangular shaped nets; the reason "easier to hang" is reported by more urban women (68%) than rural women (43%), while for the reason "better fit around sleeping places" is reported by more rural households (48%) than urban households (38%) (**Table 4.10**).

- For conical/round nets, the reported reason "easier to hang" is highest among households living in Western Region 2 (90%) and lowest in North Bank West (66%). The second most reported reason "better fit around sleeping places" is highest in North Bank West (55%) and lowest in Western Region 2 (19%). For rectangular shaped nets, the highest proportion for the reason "easier to hang" is observed in Western Region 1 (72%) and the lowest proportion is observed in Upper River (26%). Regarding the second most reported reason "better fit around sleeping places" the highest percentage is observed in North Bank West (73%) and the lowest in Western Region 2 (29%) (**Table 4.10**).

- Generally, the proportion for the reason "easier to hang" increases with the increased level of household wealth, and the proportion for the reason "better fit around sleeping places" decreases with the increase in the level of household wealth. This is especially true among households owning conical/round mosquito nets (**Table 4.10**)

4.5 INDOOR RESIDUAL SPRAYING (IRS)

Indoor Residual Spraying

Percentage of households in which someone has come into the dwelling to spray the interior walls against mosquitoes (IRS) in the past 12 months.

Sample: Households

Households with at least one ITN and/or IRS

Percentage of households with at least one ITN and/or IRS in the past 12 months.

Sample: Households

Percentage of households with at least one ITN and/or IRS for every two people in the past 12 months

Sample: Households

According to the Practical Guide to Malaria Control in the Enterprises, Indoor Residual Spraying (IRS) is a vector control technique that consists of spraying liquid insecticide on the interior walls of houses. Its effect is twofold:

- A lethal effect: the anopheles that are inside the house are killed in a few moments by landing on the walls.
- A repulsive effect: IRS discourages - this time before the bite – the anopheles from entering a house whose walls are sprayed with insecticide.

In addition, some insecticides used for IRS significantly reduce the presence of other pests such as cockroaches and flies.

However, it is important for malaria control and control of other vector-borne diseases to use only insecticides that meet the standards published by WHO to ensure the specified quality, thus ensuring maximum efficacy and safety. In addition, odor, deposit visibility, pest effectiveness, and other factors influence the acceptability of indoor spraying by the community.

Indoor Residual Spraying is another strategy adopted by The Gambia since 2008 in its efforts to eliminate malaria. Due to financial challenges, IRS in The Gambia has not been implemented nationwide since 2012. Currently IRS is being implemented as targeted and is implemented in 2 (URR & CRR) out of the 7 health regions as insecticide resistance management strategy. Overall, results in Table 4.11 show that 16% of surveyed households reported that the internal walls of their homes were pulverized in the 12 months preceding the survey. In the GMIS 2014, the percentage was 21%.

Patterns by background characteristics

- Comparison of urban and rural households shows that a considerably higher proportion of rural dwellings were sprayed (39%) than urban ones (5%) (**Table 4.11**).
- The use of IRS among households is highest in the Central River and Upper River regions (92% and 77% respectively) and lowest in Western Region 1 and North Bank West (1% and 2% respectively) (**Table 4.11**).
- The use of IRS among households decreases with an increase in wealth quintile. Fifty-seven percent of dwellings in the lowest wealth quintile were sprayed compared with 3% of dwellings in the highest wealth quintile (**Table 4.11**).

Table 4.11 also shows that almost eight in 10 households (79%) had at least one ITN and/or had IRS in the 12 months preceding the survey. This proportion is the same as that of the proportion of households with at least one ITN (79%) in **Table 4.1**

Patterns by background characteristics

- The proportion of households with at least one ITN and/or IRS is higher in rural households (93%) compared with urban households (73%) (**Table 4.11**)
- The percentage of households with at least one ITN and/or IRS is highest in the Central River and Upper River regions each with (99%) followed by the Lower River region and North Bank East (95% and 92% respectively). Western Region 1 has the lowest household ownership of ITNs and/or access to IRS (69%) (**Table 4.11**)
- Sixty-two per cent of households in the highest wealth quintile and 73% of households in the fourth wealth quintile own at least one ITN and/or have access to IRS, while 97% of households in the

lowest wealth quintile and 92% of households in the second wealth quintile own at least one ITN and/or have access to IRS. (**Table 4.11**)

With regard to households having at least one ITN for every two people and/or having access to IRS, **Table 4.11** indicates that less than one in two households (45%) meets this criteria.

Patterns by background characteristics

- The percentage of households having at least one ITN for two people and/or having access to IRS is higher in rural areas (66%) than in urban areas (35%) (**Table 4.11**)
- The percentage of households with at least one ITN for two people and/or with access to IRS is highest in Central River and Upper River regions (98% and 87% respectively) followed by Lower River and North Bank East (64% and 63% respectively). Western Region 1 has the lowest household ownership of ITNs for every two people and/or access to IRS (31%) (**Table 4.11**)
- Twenty-nine per cent of households in the highest wealth quintile and 33% of households in the fourth wealth quintile own at least one ITN for two people and/or have access to IRS, while 76% of households in the lowest wealth quintile and 60% of households in the second wealth quintile own at least one ITN for two people and/or have access to IRS (**Table 4.11**).

4.6 MALARIA IN PREGNANCY

Intermittent preventive treatment (IPTp) during pregnancy (IPTp2+)
Percentage of women who took at least two doses of SP/Fansidar.
Sample: Women age 15-49 with a live birth in the 2 years before the survey

Intermittent preventive treatment (IPTp) during pregnancy (IPTp3+)
Percentage of women who took at least three doses of SP/Fansidar.
Sample: Women age 15-49 with a live birth in the 2 years before the survey

In The Gambia, intermittent preventive treatment of malaria in pregnancy (IPTp) is a full therapeutic course of antimalarial medicine given to pregnant women at routine ANC visits to prevent malaria. IPTp helps prevent maternal malaria episodes, maternal and foetal anaemia, placental parasitaemia, low birth weight, and neonatal mortality.

The World Health Organization (WHO) recommends a three-pronged approach for reducing the negative health effects associated with malaria in pregnancy (MIP): prompt diagnosis and treatment of confirmed infection, use of long-lasting insecticidal nets (ITNs), and IPTp (WHO 2004).

Sulfadoxine-pyrimethamine (SP), also known as Fansidar, is the recommended drug for IPTp in The Gambia. Over the years, the Ministry of Health and Social welfare and the Gambia Health Service have been implementing IPTp, defined as provision of sulfadoxine-pyrimethamine (SP)/Fansidar to protect the mother and her unborn child from malaria during routine ANC visits after the first trimester of pregnancy with one month between doses. In 2013, the National Malaria Control Programme revised its policy based on a WHO recommendation from three doses only to three or more doses (WHO 2012a; WHO 2012b).

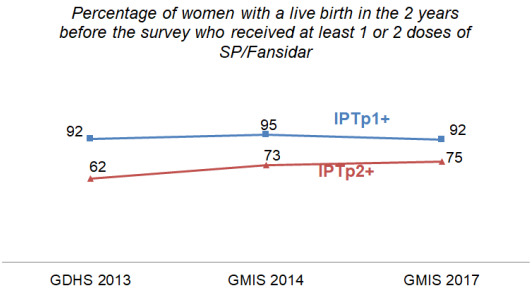
The 2017 GMIS measured coverage of this intervention among women with a live birth in the 2 years before the survey.

Ninety-two per cent of women age 15-49 with a live birth in the 2 years before the survey reported receiving one or more doses of SP/Fansidar during the pregnancy of their most recent live birth and

75% received two or more doses. Only 43% of women received three or more doses of SP/Fansidar as recommended by the National Malaria Control Strategy (**Table 4.12**).

Trends: The percentage of women with a live birth in the 2 years before the survey who received any dose of SP/Fansidar remained relatively constant from 2013 to 2017 (**Figure 4.9**). The percentage of women with a live birth in the 2 years before the survey who received 2 doses of SP/Fansidar increased from 62% in 2013 to 75% in 2017 (**Figure 4.9**).

Figure 4.9 **Trends in IPTp use by pregnant women**



Patterns by background characteristics

- Fifty per cent of urban pregnant women received at least three doses of SP/Fansidar during pregnancy compared with 34% of rural women (**Table 4.12**).
- Receiving at least three doses of SP/Fansidar does not have a clear pattern in relation to the women's education level (**Table 4.12**).
- A higher percentage of women in the wealthiest households (58%) received at least three doses of SP/Fansidar compared with women in the lowest wealth quintiles (34%) **(Table 4.12)**.

LIST OF TABLES

For detailed information on malaria, see the following tables:

- **Table 4.1 Household possession of mosquito nets**
- **Table 4.2 Source of mosquito nets**
- **Table 4.3 Access to an ITN**
- **Table 4.4 Use of mosquito nets by persons in the household**
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- **Table 4.8 Preference for colour of mosquito nets**
- **Table 4.9 Preference for shape of mosquito nets**
- **Table 4.10 Preference for the shape of mosquito nets by reason**
- **Table 4.11 Indoor residual spraying (IRS) against mosquitoes**
- **Table 4.12 Use of intermittent preventive treatment by women during pregnancy**

Table 4.1 Household possession of mosquito nets

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, The Gambia MIS 2017

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		Number of households with at least one person who stayed in the household last night
	Any mosquito net	Insecticide-treated mosquito net (ITN)[1]	Any mosquito net	Insecticide-treated mosquito net (ITN)[1]		Any mosquito net	Insecticide-treated mosquito net (ITN)[1]	
Residence								
Urban	72.9	72.2	2.3	2.3	3,351	33.0	32.5	3,346
Rural	92.4	92.0	4.5	4.5	1,639	50.6	49.8	1,636
Health Region								
Western 1	68.8	68.2	1.9	1.9	2,620	30.6	30.2	2,618
Western 2	84.1	83.6	3.1	3.1	889	34.2	33.6	884
North Bank West	88.3	88.3	3.9	3.9	244	38.5	38.3	244
North Bank East	91.9	91.9	4.2	4.2	253	59.7	59.7	253
Lower River	96.8	95.1	4.2	4.0	179	63.5	60.8	179
Central River	97.5	97.1	5.0	4.9	479	66.0	65.5	479
Upper River	97.3	96.8	6.4	6.4	326	46.8	46.1	326
Wealth quintile								
Lowest	95.9	95.4	5.2	5.1	717	52.9	52.2	717
Second	92.2	91.9	4.0	4.0	888	49.9	49.1	885
Middle	82.3	82.1	2.7	2.7	1,087	40.2	39.6	1,086
Fourth	73.6	72.7	2.4	2.3	1,118	31.9	31.5	1,118
Highest	62.1	61.2	1.8	1.8	1,180	27.0	26.6	1,175
Total	79.3	78.7	3.0	3.0	4,990	38.8	38.2	4,982

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

Table 4.2 Sources of mosquito nets

Percentage of household with at least one mosquito net by source of net, according to background characteristics, The Gambia MIS 2017

Background characteristic	Market	Health facility	Mass distribution	Relative/friend	Pharmacy	Other	Number of households with at least one mosquito net
Residence							
Urban	7.4	11.6	82.7	4.1	0.0	0.0	2,442
Rural	3.5	10.3	91.0	1.6	0.0	0.2	1,515
Health Region							
Western 1	8.0	8.6	83.3	4.0	0.0	0.0	1,803
Western 2	6.2	17.2	80.9	4.0	0.0	0.2	748
North Bank West	0.8	8.4	92.0	1.1	0.0	0.0	215
North Bank East	3.2	9.4	92.0	0.4	0.0	0.0	233
Lower River	2.0	16.9	95.6	1.4	0.0	0.0	173
Central River	3.1	6.2	93.6	1.9	0.0	0.1	467
Upper River	4.5	17.8	87.3	2.5	0.0	0.2	317
Wealth quintile							
Lowest	2.5	10.3	93.0	0.7	0.0	0.1	688
Second	3.3	9.8	90.8	1.9	0.0	0.2	818
Middle	4.3	12.4	85.6	4.4	0.0	0.0	895
Fourth	8.2	10.4	83.5	3.9	0.0	0.0	823
Highest	11.2	12.5	76.8	4.4	0.0	0.0	732
Total	5.9	11.1	85.9	3.1	0.0	0.1	3,957

Table 4.3 Access to an ITN

Percentage of the *de facto* population with access to an ITN in the household, by background characteristics, The Gambia MIS 2017

Background Characteristic	Per cent with access to an ITN[1]
Residence	
Urban	57.5
Rural	75.7
Health Region	
Western 1	51.7
Western 2	65.8
North Bank West	70.0
North Bank East	80.0
Lower River	81.2
Central River	86.4
Upper River	77.5
Wealth quintile	
Lowest	79.2
Second	76.6
Middle	64.7
Fourth	58.1
Highest	46.8
Total	65.1

[1] Percentage of the *de facto* household population who could sleep under an ITN if each ITN in the household were used by up to two people

Table 4.4 Use of mosquito nets by persons in the household

Percentage of the *de facto* household population who slept the night before the survey under a mosquito net (treated or untreated) and under an insecticide-treated net (ITN); 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, The Gambia MIS 2017

	Household population			Household population in households with at least one ITN	
Background Characteristic	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	63.1	62.4	6,178	71.7	5,382
5-14	56.9	56.2	12,280	65.5	10,544
15-34	52.2	51.7	12,941	62.2	10,754
35-49	62.3	61.8	4,908	73.6	4,121
50+	63.5	62.6	3,968	74.3	3,346
DK/Missing	43.6	39.8	118	53.1	89
Sex					
Male	55.3	54.8	19,293	64.8	16,300
Female	59.7	59.0	21,100	69.4	17,936
Residence					
Urban	50.7	50.2	23,602	63.9	18,543
Rural	67.3	66.5	16,791	71.2	15,692
Health Region					
Western 1	47.0	46.4	17,261	63.3	12,648
Western 2	54.6	54.1	7,671	61.8	6,720
North Bank West	65.7	65.6	2,478	71.9	2,261
North Bank East	72.8	72.7	2,266	77.2	2,134
Lower River	78.9	75.9	1,470	78.9	1,415
Central River	78.4	77.1	4,529	78.7	4,437
Upper River	63.3	63.1	4,718	64.4	4,620
Wealth quintile					
Lowest	72.3	71.4	8,088	74.6	7,742
Second	67.8	67.2	8,046	71.5	7,559
Middle	57.8	57.4	8,098	67.4	6,898
Fourth	50.4	50.0	8,091	61.7	6,554
Highest	39.8	38.9	8,070	57.3	5,483
Total	57.6	57.0	40,393	67.2	34,235

Table 4.5 Use of existing ITNs

Percentage of insecticide-treated nets (ITNs) that were used by anyone the night before the survey, according to background characteristics, The Gambia MIS 2017

Background Characteristic	Percentage of existing ITNs used last night	Number of ITNs[1]
Residence		
Urban	81.8	7,555
Rural	84.4	7,305
Health Region		
Western 1	83.4	4,962
Western 2	78.4	2,738
North Bank West	91.8	947
North Bank East	89.6	1,061
Lower River	87.9	711
Central River	87.3	2,370
Upper River	74.7	2,072
Wealth quintile		
Lowest	86.9	3,660
Second	83.9	3,548
Middle	83.7	2,904
Fourth	81.4	2,617
Highest	76.5	2,132
Total	83.1	14,860

Table 4.6 Use of mosquito nets by children

Percentage of children under age 5 who, the night before the survey, slept under a mosquito net (treated or untreated) and under an insecticide-treated net (ITN); 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, The Gambia MIS 2017

	Children under age 5 in all households			Children under age 5 in households with at least one ITN	
Background Characteristic	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 ITN1 last night	Number of children
Age in months					
<12	62.0	60.8	1,153	70.9	989
12-23	61.2	60.8	1,160	70.8	996
24-35	63.5	62.9	1,145	71.8	1,003
36-47	64.2	63.6	1,383	72.3	1,218
48-59	64.3	63.6	1,336	72.2	1,176
Sex					
Male	63.6	63.0	3,125	72.2	2,726
Female	62.6	61.9	3,053	71.1	2,656
Residence					
Urban	57.1	56.5	3,237	70.0	2,613
Rural	69.7	68.9	2,940	73.2	2,769
Health Region					
Western 1	52.7	52.0	2,293	69.6	1,713
Western 2	62.1	61.3	1,207	68.9	1,073
North Bank West	67.5	67.5	390	73.7	357
North Bank East	74.9	74.9	363	77.8	350
Lower River	83.8	81.4	219	82.7	216
Central River	80.0	78.7	815	80.1	801
Upper River	64.1	63.9	891	65.2	873
Wealth quintile					
Lowest	73.3	72.6	1,503	75.2	1,449
Second	72.9	72.0	1,276	75.2	1,221
Middle	62.6	62.5	1,260	72.6	1,085
Fourth	53.4	52.6	1,177	65.4	946
Highest	46.8	45.9	961	64.8	681
Total	63.1	62.4	6,178	71.7	5,382

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

Table 4.7 Use of mosquito nets by pregnant women

Percentage of pregnant women age 15-49 who, the night before the survey, slept under a mosquito net (treated or untreated) and under an insecticide-treated net (ITN); 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, The Gambia MIS 2017

	Among pregnant women age 15-49 in all households			Among pregnant women age 15-49 in households with at least one ITN	
Background Characteristic	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	68.7	68.5	297	78.7	258
Rural	70.2	68.6	268	76.0	241
Health Region					
Western 1	68.1	68.0	191	82.6	157
Western 2	59.6	58.6	135	68.3	115
North Bank West	71.5	69.9	36	82.2	31
North Bank East	85.7	85.7	38	87.4	38
Lower River	86.7	85.1	23	89.4	22
Central River	82.2	78.3	64	81.6	61
Upper River	65.0	65.0	78	66.6	76
Education					
No education	74.2	73.2	269	81.3	242
Primary	70.6	69.8	103	75.7	95
Secondary or more	62.0	61.3	192	72.6	162
Wealth quintile					
Lowest	81.7	80.2	127	85.1	119
Second	71.3	69.8	125	76.5	114
Middle	64.6	64.2	123	74.8	106
Fourth	64.6	64.1	119	75.8	100
Highest	60.2	60.2	70	70.8	60
Total	69.4	68.5	564	77.4	500

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

Table 4.8 Preference for colour of mosquito nets

Among households owning at least one mosquito net, per cent distribution by preference for colour of mosquito nets , according to background characteristics, The Gambia MIS 2017

Background Characteristic	White	Blue	Others	Don't Know/No Preference	Total	Number of households
Residence						
Urban	79.8	13.0	2.9	4.3	100.0	2,449
Rural	72.0	17.1	4.7	6.3	100.0	1,517
Health Region						
Western 1	85.7	10.1	1.5	2.7	100.0	1,812
Western 2	66.2	20.1	6.9	6.8	100.0	748
North Bank West	77.1	13.4	4.6	4.9	100.0	216
North Bank East	85.3	12.8	1.9	0.0	100.0	233
Lower River	60.3	25.4	2.2	12.2	100.0	173
Central River	79.0	12.5	5.4	3.1	100.0	467
Upper River	50.1	26.1	6.6	17.2	100.0	317
Wealth quintile						
Lowest	73.0	17.0	4.2	5.9	100.0	689
Second	71.9	17.6	4.5	6.1	100.0	820
Middle	76.6	12.9	4.3	6.3	100.0	898
Fourth	77.2	15.7	3.2	3.9	100.0	823
Highest	85.7	9.8	1.6	2.8	100.0	736
Total	76.8	14.6	3.6	5.0	100.0	3,966

Table 4.9 Preference for shape of mosquito nets

Among households that own at least one mosquito net, per cent distribution by preference for shape of mosquito nets, according to background characteristics, The Gambia MIS 2017

Background Characteristic	Conical/round	Rectangular	Don't Know/No Preference	Total	Number of households
Residence					
Urban	60.5	37.8	1.7	100.0	2,449
Rural	51.9	44.2	3.9	100.0	1,517
Health Region					
Western 1	57.1	41.9	1.0	100.0	1,812
Western 2	59.7	38.0	2.4	100.0	748
North Bank West	66.7	31.4	1.9	100.0	216
North Bank East	61.8	34.8	3.5	100.0	233
Lower River	81.3	14.4	4.4	100.0	173
Central River	43.8	54.1	2.1	100.0	467
Upper River	49.5	40.0	10.5	100.0	317
Wealth quintile					
Lowest	43.1	52.4	4.5	100.0	689
Second	55.8	40.8	3.4	100.0	820
Middle	60.4	37.5	2.1	100.0	898
Fourth	63.2	34.9	1.9	100.0	823
Highest	61.5	37.7	0.8	100.0	736
Total	57.2	40.3	2.5	100.0	3,966

Table 4.10 Preference for the shape of mosquito nets by reason

Percentage of households that prefer conical/round shape by reason for net shape preference, and percentage of households that prefer rectangular shape by reason for net shape preference according to background characteristics, The Gambia MIS 2017

	Preference of conical/round Shape									Preference of rectangular shape								
Background Characteristic	Easier to hang	Easier to store when not hung	Easier to travel with outside the household	Better fit around sleeping place	Taller	More people can sleep under net (wider)	Stronger	Other	Number of households that preferred conical shape	Easier to hang	Easier to store when not hung	Easier to travel with outside the household	Better fit around sleeping place	Taller	More people can sleep under net (wider)	Stronger	Other	Number of households that prefer rectangular shape
Residence																		
Urban	88.4	10.1	2.8	22.9	7.5	7.5	3.0	1.0	1,483	68.2	22.9	13.7	35.1	7.5	31.6	8.0	0.7	926
Rural	79.1	11.6	2.5	31.7	13.1	10.6	3.5	1.1	787	42.7	8.1	3.0	48.0	5.4	22.1	11.9	0.6	671
Health Region																		
Western 1	87.7	10.0	2.9	23.1	7.1	8.9	3.2	1.2	1,034	71.5	23.5	17.7	35.1	8.4	39.5	7.5	0.7	760
Western 2	90.4	12.6	3.3	18.5	4.2	1.1	1.4	0.6	446	68.7	22.8	2.1	29.2	1.2	8.6	1.1	0.0	284
North Bank West	66.4	15.7	0.5	54.5	24.0	10.7	2.6	1.4	144	35.5	2.0	0.0	73.3	8.2	19.1	1.4	1.8	68
North Bank East	69.2	19.3	1.7	44.9	14.1	3.3	2.6	0.0	144	34.7	12.0	1.3	39.3	12.5	3.8	37.2	0.0	81
Lower River	87.5	9.1	3.8	31.0	6.5	30.9	2.8	0.4	140	48.4	0.8	2.3	39.2	3.7	24.2	14.8	1.8	25
Central River	83.1	5.8	2.5	19.7	17.0	12.6	7.9	2.1	204	32.4	2.7	1.2	50.2	7.9	26.7	16.7	0.5	253
Upper River	85.9	3.8	1.7	26.3	15.2	4.5	2.9	0.8	157	26.3	4.1	1.4	62.4	1.9	21.6	13.1	1.3	127
Wealth quintile																		
Lowest	76.2	10.6	1.6	30.7	16.6	10.4	5.3	1.1	297	32.3	4.5	1.1	50.9	5.9	21.9	15.7	0.9	361
Second	80.5	10.4	2.5	33.1	10.4	11.1	2.4	1.5	458	56.4	10.0	3.9	40.7	4.6	23.8	7.1	0.4	334
Middle	85.4	11.7	3.1	28.2	7.4	8.1	1.9	0.7	542	71.1	19.5	14.2	37.7	2.1	36.2	6.0	0.4	337
Fourth	88.2	7.4	1.9	25.0	7.4	5.5	1.5	0.6	520	64.0	22.2	11.5	30.9	7.0	24.5	9.0	0.7	287
Highest	91.9	13.2	4.2	14.0	8.6	8.6	5.9	1.5	452	68.3	31.6	17.8	40.2	15.1	32.5	9.9	0.7	277
Total	85.1	10.6	2.7	26.0	9.5	8.5	3.1	1.0	2.270	57.5	16.7	9.2	40.5	6.6	27.6	9.6	0.6	1.597

Table 4.11 In-door residual spraying against mosquitoes

Percentage of households in which someone has come into the dwelling to spray the interior walls against mosquitoes (IRS) in the past 12 months, the percentage of households with at least one ITN and/or IRS in the past 12 months, and the percentage of households with at least one ITN for every two persons and/or IRS in the past 12 months, by background characteristics, The Gambia MIS 2017

Background Characteristic	Percentage of households with IRS[1] in the past 12 months	Percentage of households with at least one ITN and/or IRS in the past 12 months	Percentage of households with at least one ITN for every two persons and/or IRS in the past 12 months	Number of households
Residence				
Urban	5.0	72.8	35.3	3,351
Rural	38.7	92.9	65.8	1,639
Health region				
Western 1	1.3	68.7	31.2	2,620
Western 2	4.0	84.0	36.1	889
North Bank West	2.3	88.5	39.7	244
North Bank East	8.5	92.1	62.5	253
Lower River	9.1	95.3	64.0	179
Central River	91.6	99.3	98.0	479
Upper River	76.9	98.5	87.4	326
Wealth quintile				
Lowest	56.7	96.9	76.1	717
Second	25.4	92.3	59.7	888
Middle	8.8	82.5	43.8	1,087
Fourth	3.6	72.9	32.9	1,118
Highest	2.9	62.4	28.9	1,180
Total	16.1	79.4	45.3	4,990

[1] Indoor residual spraying (IRS) is limited to spraying conducted by a government, private or non-governmental organization

Table 4.12 Use of Intermittent Preventive Treatment (IPTp) by women during pregnancy

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, The Gambia MIS 2017

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
Residence				
Urban	90.8	75.9	49.7	641
Rural	92.7	73.8	34.1	436
Health Region				
Western 1	91.1	77.8	51.5	491
Western 2	91.4	73.1	43.0	174
North Bank West	88.0	61.0	18.9	63
North Bank East	97.7	77.4	33.0	52
Lower River	97.3	84.5	46.1	31
Central River	88.2	76.3	35.6	114
Upper River	94.0	70.2	36.8	152
Education				
No education	91.0	75.9	43.0	489
Primary	91.2	71.0	37.5	178
Secondary or more	92.4	75.7	46.6	409
Wealth quintile				
Lowest	90.8	75.6	33.6	216
Second	91.3	71.2	35.9	206
Middle	93.7	74.0	44.2	215
Fourth	89.8	71.1	44.0	206
Highest	92.1	82.2	57.9	234
Total	91.6	75.0	43.4	1,077

MALARIA IN CHILDREN AND HOUSEHOLD MEMBERS 5

Key Findings

- ***Fever prevalence:*** Twenty-eight per cent of children under age 5 had a fever in the 2 weeks prior to the survey.
- ***Care-seeking for fever:*** Advice or treatment was sought for 83% of children under age 5 with fever in the 2 weeks before the survey.
- ***Source of advice or treatment:*** Among children under age 5 with fever for whom advice or treatment was sought, 85% were from the public health sector, 16% were from the private health sector, and less than 1% were from other private sector sources and other sources.
- ***Type of antimalarial drug used:*** Sixty per cent of children under age 5 with fever who took an antimalarial drug in the 2 weeks before the survey were given SP/Fansidar, 31% of them were given an Artemisinin- based combination therapy (ACT), 23% were given chloroquine, and 19 per cent received quinine.
- ***Severe anaemia:*** Four per cent of children age 6-59 months were severely anaemic (haemoglobin level less than 8 g/dl).
- ***Malaria:*** Only 0.4% children age 6-59 months were tested positive with RDT. Analysis of blood smears by microscopy revealed that 0.1% of children age 6-59 months had malaria parasites. Percentage of household members 5 years and older that were tested positive with RDT is 0.7% and with microscopy is 0.2%.

This chapter presents data useful for assessing how well fever management strategies are implemented. Specific topics include care seeking for febrile children, diagnostic testing of children with fever, and therapeutic use of antimalarial drugs. Prevalence of anaemia and malaria among children age 6-59 months and older members of the household is also assessed.

5.1 CARE SEEKING FOR FEVER IN CHILDREN

Care seeking for children under age 5 with fever

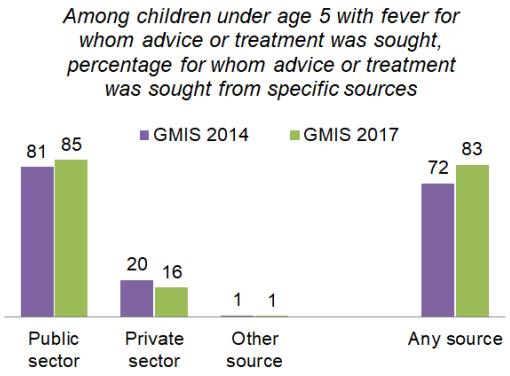
Percentage of children under age 5 with a fever in the 2 weeks before the survey for whom advice or treatment was sought from the public health sector, private medical sector, shop, market, and itinerant drug seller.
Sample: Children under age 5 with a fever in the 2 weeks before the survey

One of the key case management objectives of the National Malaria Control Programme (NMCP) is to ensure that all suspected malaria cases have access to confirmatory diagnosis and receive effective treatment. Fever is a key symptom of malaria and other acute infections in children. These fevers require

prompt and effective treatment to prevent morbidity and mortality. Twenty-eight per cent of children under age 5 had fever in the 2 weeks preceding the survey. Advice or treatment was sought for 83% of the children with fever in the 2 weeks preceding the survey, and timely care seeking (the same or next day following fever onset) occurred for 59% of the febrile children (**Table 5.1**).

Among the children with recent fever for whom care was sought, most received advice or treatment from the public health sector (85%), including 52% who sought care from a government health centre, and 25% from a government hospital. Only 16% sought advice from the private health sector, and less than 1% sought advice or treatment from other sources (**Table 5.2**).

Figure 5.1 **Trends in care seeking for fever in children by source of care**



Trends: Among those with fever, advice or treatment seeking was more likely in the GMIS 2017 than in the GMIS 2014 (83% compared to 72%). While the percentage of children with fever in the 2 weeks before the survey for whom advice or treatment was sought from the public sector slightly increased between 2014 and 2017 (from 81% to 85%), the percentage of those for whom advice or treatment was sought in the private sector decreased from 20% to 16% within the same period (**Figure 5.1**).

Patterns by background characteristics

- The percentage of children under age 5 with fever ranges from 15% in the Central River region to 35% in the Upper River region (**Table 5.1**).
- The percentage of children under age 5 with fever ranges from 25% in rural areas to 30% in urban areas (**Table 5.1**).
- Advice or treatment for children with fever was sought for 79% in rural areas compared with 86% of children in urban areas (**Table 5.1**).
- The percentage of children with fever for whom advice or treatment was sought ranges from 73% in the Upper River region to 92% in the North Bank West region (**Table 5.1**).

5.2 Use of Antimalarial Medicines

Antimalarial medicines for children under 5 with fever

Among children under age 5 with a fever in the 2 weeks before the survey who took any antimalarial medicines, the percentage who took different antimalarial medicines.

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

According to **Table 5.3**, 60% of children under age 5 with recent fever who received an antimalarial took SP/Fansidar whilst 31% of them took an ACT. About 1 in four (23%) of children under age 5 with recent fever who received an antimalarial received chloroquine and 19% had quinine.

5.3 PREVALENCE OF LOW HAEMOGLOBIN 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 cut-off 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, or 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 2004). Malaria interventions have been associated with a 60% reduction in the risk of anaemia when using a diagnostic cut-off of 8g/dl (RBM 2003).

Among eligible children age 6-59 months from interviewed households, 92% were tested for anaemia after consent from their parent or responsible adult (**Table 5.4**).

Table 5.5 shows 4% of children age 6-59 months are classified as having severe anaemia, defined as a haemoglobin concentration of less than 8 g/dl.

Trends: The prevalence of low haemoglobin has fallen substantially from 12% in the DHS 2013 to 7% in the GMIS 2014 and to 4% in the GMIS 2017.

Patterns by background characteristics

- The prevalence of severe anaemia (haemoglobin <8g/dl) in children age 6-59 months is slightly higher in males as compared with females (5% versus 4%) (**Table 5.5**).
- Severe anaemia decreased as wealth increased, from 8% among children from the poorest households to 2% among those of the richest households (**Table 5.5**).
- The prevalence of severe anaemia is highest among children in the Central River region (10%) and is lowest among children in Western Region 2 and the Lower River region, each with 2% (**Table 5.5**).

5.4 PREVALENCE OF MALARIA PARASITAEMIA IN CHILDREN

Prevalence of malaria parasitaemia in children

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

Sample: Children age 6-59 months

In the GMIS 2017, 0.1% of children age 6-59 months were positive for malaria parasites according to microscopy results (**Table 5.6**).Rapid diagnostic tests (RDTs) were done in conjunction with microscopy to facilitate the treatment of infected children during the survey fieldwork. Results from these RDTs are also presented in **Table 5.6** for reference. Only 0.4% of children age 6-59 months tested positive for malaria antigens with RDTs.

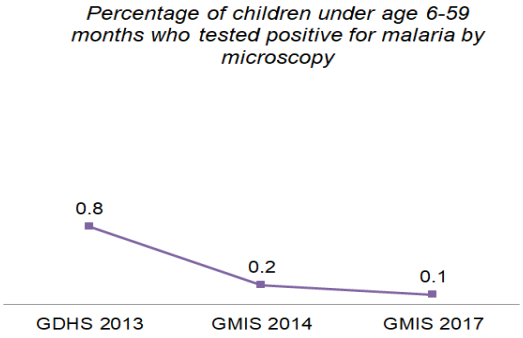
The differences in malaria prevalence observed between the RDT and microscopy results are expected. Microscopic detection of malaria parasites depends on the visualization of stained parasites under the microscope, whereas the diagnosis of malaria by RDT relies on the interaction between a parasite antigen present in the blood and an antibody in the RDT formulation. Therefore, direct comparisons of Microscopic

detection of malaria parasites depends on the visualization of stained parasites under the microscope, whereas the diagnosis of malaria by RDT relies on the interaction between a parasite antigen present in the blood and an antibody in the RDT formulation. Therefore, direct comparisons of malaria results from microscopy with those from RDTs should be avoided.

Results presented in this section are based on the microscopy analysis of blood samples.

Trends: National malaria prevalence in children under age 5 has decreased consistently from 0.8% in 2013 to 0.1% in 2017. (**Figure 5.2**)

***Figure 5.2* Trends in malaria prevalence among children**



Patterns by background characteristics

- Malaria prevalence by microscopy is slightly higher (0.7%) in young children age 6-8 months (**Table 5.6**).
- Malaria prevalence by microscopy is higher among children whose mothers have no formal education (0.2%) than among those whose mothers have a primary education or secondary or more (0.1% or less) (**Table 5.6**).
- Malaria prevalence by microscopy is mostly seen in rural areas (**Table 5.6**).
- Most of malaria cases were from Western Region 2 and the North Bank West region (**Table 5.6**).

5.5 Prevalence of Malaria Parasitaemia in Other Population Groups

Prevalence of malaria parasitaemia in other population groups

Percentage of household members age 5-14 years classified as infected with malaria, according to RDT and microscopy results

Sample: Household members age 5-14 years in 25% of the household sample.

Percentage of pregnant women age 15-49 years classified as infected with malaria, according to RDT and microscopy results

Sample: Household women age 15-59 years in 25% of the household sample, and pregnancy status from the individual women's interview

Percentage of household members age 5 years or older classified as infected with malaria, according to RDT and microscopy results

Sample: Household members age 5 years or older in 25% of the household sample.

One of the main objectives of the GMIS 2017, as was the case in the GMIS 2014, is to measure the prevalence of malaria parasitaemia among the general population selected from 1 in 4 households. Malaria prevalence among the general population selected from 1 in 4 households was measured during the data collection exercise in two ways. In the field, laboratory technicians used the Plasmodium Lactase dehydrogenase (pLDH)-Combo kit to diagnose malaria from finger pricked blood samples. The household members who tested positive for the presence of P. falciparum by the RDT were offered treatment with artemether-lumefantrine (Coartem). In addition, the laboratory technicians prepared thick blood smears that were brought back to the NPHL for microscopic examination. Blood smears with parasites were classified as malaria positive.

Table 5.7 presents the percentage of household members in the general population who were tested for anaemia and for malaria, according to background characteristics (unweighted). Data on the prevalence of

malaria parasitaemia among the general population are presented below for three groups: children age 5-14 years, pregnant women age 15-49 years, and household members age 5 years and older.

Prevalence of Malaria Parasitaemia in Children Age 5-14 Years

The National Malaria Sentinel Surveillance System (NMSSS), in order to strengthen the surveillance of the changing epidemiology of malaria data, initially demonstrated a shift in the age group that is most vulnerable to malaria. The proportion of confirmed malaria cases was highest in the age group 5 to 14 years (NMSSS, 2011). As a result, the NMCP intensified monitoring of cases among this age group and also ensured that interventions were extended to include them. Although the age shift in the malaria burden from under-five children to children aged 5-14 years has been confirmed in both the MIS 2010 and the MIS 2014, a separate study using a subset of the MIS 2010 found no significant age differentials in malaria parasite prevalence (Sonko et al; 2014).

Table 5.8 shows the results on the prevalence of malaria parasitaemia in children age 5-14 years for both the RDT and microscopy tests. A sample of 3,017 children were tested by using RDT, and 3,025 were tested by microscopy. Overall, only 0.6% tested positive for malaria. Analysis of blood smears by microscopy revealed a lower prevalence of 0.2%.

Trends: Malaria prevalence in children age 5-14 has decreased significantly between the GMIS 2014 and the GMIS 2017. Prevalence by RDT went down from 2.6% in 2014 to 0.6% in 2017, and results based on microscopy indicate that malaria prevalence decreased from 0.6% in 2014 to 0.2% in 2017

Patterns by background characteristics

- Malaria prevalence by microscopy is higher among female children (0.2%) than among male children (0.1%) (**Table 5.8**).
- Malaria prevalence by microscopy is higher in rural areas (0.3%) than in urban areas (0.0%) (**Table 5.8**).
- Most of malaria cases are from Upper River (0.8%) and Western Region 2 (0.3%) (**Table 5.8**).
- Results based on microscopy do not show any malaria cases for the two highest wealth quintiles (**Table 5.8**).

Prevalence of Malaria Parasitaemia among Pregnant Women

A sample of 134 pregnant women age 15-49 years were tested for malaria parasites in the GMIS 2017. **Table 5.9** shows that not a single pregnant woman tested positive for malaria by either RDT or microscopy. In the GMIS 2014, 126 pregnant women were tested for malaria parasites, and the results indicate that the malaria prevalence was 1.7% by RDT, while none of the pregnant women tested positive for malaria by microscopy. However, these statistics should be interpreted with caution because of the small sample in both surveys.

Prevalence of Malaria Parasitaemia in the General Population

Table 5.10 shows the prevalence of malaria in the general population age 5 years and more, by background characteristics. Overall, of the 7,808 persons tested using RDT in the field, malaria prevalence in the general population was 0.7%. Additionally, of the 7,823 tested, only 0.2% of the thick blood smear samples were found to be positive for malaria based on microscopic reading of the slides at the laboratory.

Trends: Malaria prevalence among household members age 15 years and more based on RDT has decreased from 1.7% according to the GMIS 2014 to 0.7% according to the GMIS 2017. Prevalence by microscopy decreased from 0.6% in 2014 to 0.2% in 2017.

Patterns by background characteristics

- Malaria prevalence by microscopy is higher among the male population (0.2%) than among the female population (0.1%) (**Table 5.10**).
- Malaria prevalence by microscopy is higher in rural areas (0.3%) than in urban areas (0.1%) (**Table 5.10**).
- Most malaria cases are from Lower River (0.4%) and Upper River (0.4%) (**Table 5.10**).
- Results based on microscopy do not show any malaria cases for the highest wealth quintile (**Table 5.10**)

5.6 Prevalence of Low Haemoglobin in Other Population Groups

Prevalence of low haemoglobin in other population groups

Percentage of household members age 5-14 years classified as having low haemoglobin

Sample: Household members age 5-14 years in 25% of the household sample.

Percentage of pregnant women age 15-49 years classified as having low haemoglobin

Sample: Household women age 15-59 years in 25% of the household sample, and pregnancy status from the individual women's interview

Percentage of household members age 5 years or older classified as having low haemoglobin

Sample: Household members age 5 years or older in 25% of the household sample.

Another main objective of the GMIS 2017 is to measure the low haemoglobin level in the general population selected from 1 in 4 households. The following tables present data on haemoglobin concentration of less than 8 g/dl for children age 5-14 years, pregnant women age 15-49 years and the general population age 5 years and older.

Prevalence of low haemoglobin in Children Age 5-14 Years

Table 5.11 shows the prevalence of low haemoglobin in children age 5-14 years by background characteristics. Overall, only 0.8% of children age 5-14 have a haemoglobin level of less than 8g/dl. The prevalence is highest among children age 5 years (1.6%), those living in rural areas (1.3%) and in the North Bank East region (2.5%), and among children of the poorest households (1.7%).

Prevalence of low haemoglobin among Pregnant Women

A small sample of 132 pregnant women age 15-49 years were tested for anaemia in the GMIS 2017. **Table 5.12** shows that 1.8% of pregnant women have a low haemoglobin level of less than 8 g/dl. Pregnant women residing in rural areas (3%), those with no education (3.8%), and pregnant women in the lowest wealth quintile (5.8%) are most likely to have low haemoglobin levels.

Prevalence of low haemoglobin in the General Population

As indicated earlier, one of the objectives of the GMIS 2017 was to assess the prevalence of anaemia in the general population age 5 years and older. **Table 5.13** indicates that only a small percentage of household members age 5 years and older have a low haemoglobin level (0.9%). The prevalence of low haemoglobin is highest among older people 50 years and more (1.1%), those from rural areas (1.4%) and the Central River region (3.1%), and those in the lowest wealth quintile (1.8%).

LIST OF TABLES

For detailed information on malaria, see the following tables:

Table 5.1 Prevalence, diagnosis, and prompt treatment of children with fever

Percentage of children under age five with fever in the two weeks preceding the survey; and among children under age five with fever, the percentage for whom advice or treatment was sought, the percentage who had blood taken from a finger or heel, the percentage who took any artemisinin-based combination therapy (ACT), the percentage who took ACT the same or next day following the onset of fever, the percentage who took antimalarial drugs, and the percentage who took the drugs the same or next day following the onset of fever, by background characteristics, The Gambia MIS 2017

	Children under age 5		Children under age 5 with fever		
Background Characteristic	Percentage with fever in the two 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	Number of children
Age in months					
<12	25.0	1,127	81.3	55.6	282
12-23	28.0	1,106	84.6	61.8	309
24-35	27.3	1,060	79.9	60.9	289
36-47	32.7	1,194	85.9	63.8	391
48-59	31.3	1,066	81.1	52.9	334
Sex					
Male	28.5	2,990	83.6	60.7	853
Female	26.4	2,857	81.6	57.2	753
Residence					
Urban	30.2	3,067	85.6	62.9	925
Rural	24.5	2,779	78.7	53.9	682
Health Region					
Western 1	33.0	2,113	87.9	67.4	698
Western 2	25.7	1,234	81.5	49.9	317
North Bank West	18.9	356	91.5	66.4	67
North Bank East	20.9	330	86.7	61.0	69
Lower River	21.4	226	75.5	56.4	48
Central River	14.5	736	75.1	46.5	107
Upper River	35.4	850	72.6	52.1	301
Mother's education					
No education	25.9	2,971	83.3	59.1	768
Primary	30.9	1,039	78.6	54.2	321
Secondary or more	28.2	1,836	84.2	62.0	517
Wealth quintile					
Lowest	19.9	1,388	76.6	53.5	276
Second	27.2	1,247	79.8	53.7	339
Middle	30.0	1,206	84.0	59.9	362
Fourth	27.1	1,095	79.9	56.3	297
Highest	36.5	911	91.7	70.7	333
Total	27.5	5,847	82.7	59.1	1,607

[1] Includes advice or treatment from the following sources: public sector, private sector, and NGO. Excludes advice or treatment from a traditional practitioner.

Table 5.2 Source of advice or treatment for children with fever

Percentage of children under age 5 with 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 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, The Gambia MIS 2017

	Percentage for whom advice or treatment was sought from each source:	
Source	Among children with fever	Among children with fever for whom advice or treatment was sought
Public sector	70.4	85.2
Government hospital	20.7	25.0
Government health center	42.6	51.6
Government health post	9.8	11.8
Mobile clinic	0.3	0.4
Fieldworker	1.2	1.5
Private sector	13.0	15.7
Private hospital/clinic	4.3	5.2
Pharmacy	7.4	9.0
Private doctor	0.6	0.8
Mobile clinic	0.6	0.7
Fieldworker	0.2	0.3
Other private sector	0.3	0.3
NGO clinic	0.3	0.3
Other	0.2	0.2
Number of children	1,607	1,328

Table 5.3 Type of antimalarial drugs used

Among children under age 5 with fever in the 2 weeks preceding the survey who took any antimalarial medication, percentage who took specific antimalarial drugs, according to background characteristics, The Gambia MIS 2017

Background Characteristic	Percentage of children who took:						Number of children with fever who took anti-malarial drugs
	Any ACT	SP/ Fansidar	Chloroquine	Amodiaquine	Quinine	Other anti-malarial	
Age in months							
< 6	*	*	*	*	*	*	32
6-11	*	*	*	*	*	*	15
12-23	(27.2)	(65.7)	(17.1)	(1.9)	(42.9)	(5.5)	55
24-35	(37.3)	(55.4)	(20.7)	(3.4)	(7.7)	(1.9)	49
36-47	35.5	54.2	20.9	1.6	16.3	6.8	83
48-59	42.4	50.9	27.5	2.7	10.2	1.5	62
Sex							
Male	24.6	68.9	23.8	1.9	23.4	3.0	144
Female	37.0	52.4	21.9	2.0	14.7	7.4	152
Residence							
Urban	22.8	70.6	27.3	0.8	20.8	5.1	237
Rural	63.3	19.9	5.0	6.3	11.6	6.1	60
Health Region							
Western 1	19.8	74.5	27.3	0.7	23.2	4.9	232
Western 2	*	*	*	*	*	*	23
North Bank West	*	*	*	*	*	*	5
North Bank East	*	*	*	*	*	*	1
Lower River	(67.7)	(0.0)	(0.0)	(0.0)	(0.0)	(32.3)	10
Central River	*	*	*	*	*	*	11
Upper River	(93.0)	(7.3)	(7.0)	(2.0)	(0.0)	(0.0)	15
Mother's education							
No education	39.1	51.2	21.8	0.0	7.3	8.2	128
Primary	(26.5)	(67.2)	(24.7)	(1.3)	(36.8)	(1.7)	51
Secondary or more	23.9	67.5	23.1	4.3	23.9	3.6	117
Wealth quintile							
Lowest	(79.4)	(10.0)	(6.2)	(1.2)	(6.8)	(2.1)	25
Second	(59.7)	(14.7)	(7.0)	(9.7)	(2.9)	(8.6)	24
Middle	(24.8)	(64.2)	(21.2)	(2.2)	(19.0)	(8.7)	64
Fourth	(21.0)	(68.9)	(17.0)	(0.0)	(16.0)	(9.2)	75
Highest	24.1	73.9	35.2	1.6	27.3	0.4	108
Total	31.0	60.4	22.8	1.9	18.9	5.3	296

Note: 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.
ACT = Artemisinin-based combination therapy

Table 5.4 Coverage of testing for anaemia and malaria in children

Percentage of eligible children age 6-59 months who were tested for anaemia and for malaria, according to background characteristics (unweighted), The Gambia MIS 2017

Background Characteristic	Percentage tested for: Anemia	Malaria with RDT	Malaria by microscopy	Number of children
Age in months				
6-8	94.0	94.0	94.0	268
9-11	95.5	95.5	95.5	330
12-17	97.9	97.8	97.8	625
18-23	94.2	94.0	94.2	604
24-35	90.2	90.0	90.3	1,252
36-47	89.7	89.6	89.7	1,504
48-59	92.7	92.6	92.7	1,460
Sex				
Male	92.4	92.3	92.4	3,094
Female	92.2	92.1	92.3	2,949
Mother's interview status				
Interviewed	92.3	92.1	92.3	5,058
Not interviewed but in household	92.7	92.6	92.8	985
Residence				
Urban	90.5	90.5	90.6	2,242
Rural	93.4	93.2	93.4	3,801
Health Region				
Western 1	89.6	89.6	89.6	1,111
Western 2	93.8	93.6	93.8	608
North Bank West	92.4	92.4	92.3	569
North Bank East	94.8	94.4	94.8	572
Lower River	93.0	93.0	93.0	503
Central River	93.6	93.4	93.6	1,380
Upper River	91.3	91.2	91.5	1,300
Mother's education[1]				
No education	93.1	93.0	93.1	2,912
Primary	91.9	91.5	91.9	899
Secondary or more	90.6	90.6	90.5	1,247
Wealth quintile				
Lowest	93.1	93.0	93.1	2,163
Second	93.3	93.1	93.3	1,559
Middle	92.1	91.9	92.1	1,058
Fourth	92.3	92.3	92.5	718
Highest	87.0	87.0	87.0	545
Total	92.3	92.2	92.4	6,043

RDT = Rapid Diagnostic Test
[1]Excludes children whose mothers were not interviewed.

Table 5.5 Haemoglobin <8.0 g/dl in children

Percentage of children age 6-59 months with haemoglobin lower than 8.0 g/dl, by background characteristics, The Gambia MIS 2017

Background characteristic	Hemoglobin < 8.0 g/dl	Number of children
Age in months		
6-8	1.6	218
9-11	2.0	276
12-17	6.3	535
18-23	6.6	526
24-35	4.6	974
36-47	4.2	1,183
48-59	3.6	1,228
Sex		
Male	5.1	2,480
Female	3.7	2,461
Mother's interview status		
Interviewed	4.6	4,173
Not interviewed but in household	3.3	768
Residence		
Urban	2.9	2,512
Rural	6.0	2,429
Health Region		
Western 1	2.8	1,775
Western 2	2.4	968
North Bank West	2.7	314
North Bank East	4.4	310
Lower River	2.3	172
Central River	9.6	680
Upper River	7.2	722
Mother's education[1]		
No education	5.8	2,193
Primary	3.4	738
Secondary or more	3.0	1,242
Wealth quintile		
Lowest	7.5	1,238
Second	4.3	1,049
Middle	3.8	992
Fourth	2.8	953
Highest	1.9	708
Total	4.4	4,941

Note: Table is based on children who stayed in the household the night before the interview.
[1] Excludes children whose mothers were not interviewed.

Table 5.6 Prevalence of malaria in children

Percentage of children age 6-59 months classified in two tests as having malaria, according to background characteristics, The Gambia MIS 2017

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	1.3	218	0.7	246
9-11	0.0	276	0.0	312
12-17	0.6	534	0.3	604
18-23	0.5	524	0.0	596
24-35	0.6	973	0.0	1,102
36-47	0.3	1,182	0.0	1,335
48-59	0.3	1,227	0.2	1,387
Sex				
Male	0.5	2,475	0.0	2,799
Female	0.4	2,459	0.2	2,782
Mother's interview status				
Interviewed	0.4	4,166	0.1	4,714
Not interviewed but in household	0.4	767	0.0	867
Residence				
Urban	0.5	2,510	0.0	2,882
Rural	0.4	2,424	0.2	2,699
Health Region				
Western 1	0.5	1,773	0.0	2,042
Western 2	0.9	966	0.5	1,084
North Bank West	0.2	314	0.4	347
North Bank East	0.0	309	0.0	345
Lower River	0.3	172	0.1	192
Central River	0.0	678	0.0	753
Upper River	0.5	721	0.0	819
Mother's education[1]				
No education	0.4	2,188	0.2	2,469
Primary	0.3	736	0.1	833
Secondary or more	0.6	1,242	0.0	1,412
Wealth quintile				
Lowest	0.3	1,236	0.0	1,377
Second	0.5	1,048	0.4	1,173
Middle	0.4	991	0.2	1,123
Fourth	0.6	951	0.0	1,093
Highest	0.4	708	0.0	815
Total	0.4	4,933	0.1	5,581

RDT = Rapid Diagnostic Test
[1]Excludes children whose mothers were not interviewed.

Table 5.7 Coverage of testing for anaemia and malaria in the general population (1 in 4 households)

Percentage of household members in the general population who were tested for anaemia and for malaria, according to background characteristics (unweighted), The Gambia MIS 2017

Background Characteristic	Percentage tested for: Anaemia	Malaria with RDT	Malaria by microscopy	Number of children
Age				
5-14	95.2	94.8	95.2	3,620
15-34	90.3	90.0	90.3	3,348
35-49	90.0	89.5	89.9	1,244
50+	90.2	90.0	90.1	1,196
DK/Missing	(61.5)	(61.5)	(61.5)	26
Sex				
Male	89.0	88.7	89.0	4,292
Female	94.5	94.1	94.5	5,142
Residence				
Urban	88.2	87.8	88.1	3,946
Rural	94.8	94.5	94.8	5,488
Health Region				
Western 1	83.1	82.9	83.0	2,129
Western 2	97.7	97.4	97.6	1,010
North Bank West	95.3	95.1	95.3	913
North Bank East	96.8	96.3	96.8	907
Lower River	92.6	92.5	92.6	888
Central River	95.5	95.2	95.5	1,918
Upper River	91.4	90.7	91.4	1,669
Wealth quintile				
Lowest	94.9	94.5	94.9	2,813
Second	93.5	93.1	93.4	2,475
Middle	92.3	91.9	92.3	1,819
Fourth	90.3	90.0	90.3	1,251
Highest	82.7	82.5	82.7	1,076
Total	92.0	91.7	92.0	9,434

RDT = Rapid Diagnostic Test
Figures in parentheses are based on 25-49 unweighted cases.

Table 5.8 Prevalence of malaria in children age 5-14 years

Percentage of children age 5-14 years classified in two tests as having malaria, by background characteristics, The Gambia MIS 2017

Background characteristic	Malaria prevalence according to RDT		Malaria prevalence according to microscopy	
	RDT positive	Number of children	Microscopy positive	Number of children
Child's age in years				
5	0.4	364	0.0	365
6	0.5	358	0.0	359
7	0.5	370	0.3	371
8	1.7	296	1.0	296
9	0.4	290	0.0	291
10	1.1	318	0.2	318
11	0.3	239	0.0	239
12	0.3	274	0.0	274
13	0.4	292	0.2	293
14	0.6	215	0.0	218
Sex				
Male	0.5	1,488	0.1	1,491
Female	0.7	1,529	0.2	1,534
Residence				
Urban	0.3	1,498	0.0	1,502
Rural	1.0	1,519	0.3	1,524
Health Region				
Western 1	0.2	1,022	0.0	1,025
Western 2	0.8	655	0.3	655
North Bank West	0.0	209	0.0	209
North Bank East	0.4	212	0.0	213
Lower River	0.2	128	0.0	129
Central River	0.7	400	0.0	401
Upper River	2.0	390	0.8	393
Wealth quintile				
Lowest	1.1	709	0.2	710
Second	0.9	729	0.3	734
Middle	0.4	646	0.2	647
Fourth	0.3	574	0.0	575
Highest	0.0	359	0.0	359
Total	0.6	3,017	0.2	3,025

RDT = Rapid Diagnostic Test

Table 5.9 Prevalence of malaria among pregnant women

Percentage of pregnant women age 15-49 years classified in two tests as having malaria, by background characteristics, The Gambia MIS 2017

Background characteristic	Malaria prevalence according to RDT		Malaria prevalence according to microscopy	
	RDT positive	Number of women	Microscopy positive	Number of women
Residence				
Urban	0.0	63	0.0	63
Rural	0.0	71	0.0	71
Health Region				
Western 1	(0.0)	39	(0.0)	39
Western 2	*	35	*	35
North Bank West	*	10	*	10
North Bank East	*	9	*	9
Lower River	*	5	*	5
Central River	(0.0)	20	(0.0)	20
Upper River	(0.0)	16	(0.0)	16
Education				
No education	0.0	63	0.0	63
Primary	(0.0)	28	(0.0)	28
Secondary or more	(0.0)	42	(0.0)	42
Wealth quintile				
Lowest	0.0	37	0.0	37
Second	(0.0)	35	(0.0)	35
Middle	(0.0)	23	(0.0)	23
Fourth	*	24	*	24
Highest	*	14	*	14
Total	0.0	134	0.0	134

RDT = Rapid Diagnostic Test
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 5.10 Prevalence of malaria in the general population (1 in 4 households)

Percentage of household members in the general population classified in two tests as having malaria, according to background characteristics, The Gambia MIS 2017

Background characteristic	Malaria prevalence according to RDT		Malaria prevalence according to microscopy	
	RDT positive	Number of HH members	Microscopy positive	Number of HH members
Age				
5-14	0.6	3,017	0.2	3,025
15-34	0.9	2,851	0.1	2,859
35-49	0.5	1,049	0.1	1,051
50+	0.5	873	0.5	869
DK/Missing	*	19	*	19
Sex				
Male	0.8	3,454	0.2	3,455
Female	0.6	4,354	0.1	4,368
Residence				
Urban	0.5	4,242	0.1	4,243
Rural	0.9	3,565	0.3	3,580
Health Region				
Western 1	0.7	2,904	0.1	2,902
Western 2	0.4	1,711	0.3	1,714
North Bank West	0.1	519	0.0	520
North Bank East	0.2	486	0.0	489
Lower River	0.4	309	0.4	309
Central River	0.4	956	0.1	959
Upper River	2.3	923	0.4	931
Wealth quintile				
Lowest	1.0	1,653	0.1	1,659
Second	0.8	1,724	0.3	1,726
Middle	0.5	1,612	0.2	1,614
Fourth	0.8	1,619	0.2	1,621
Highest	0.3	1,200	0.0	1,203
Total	0.7	7,808	0.2	7,823

RDT = Rapid Diagnostic Test
An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.

Table 5.11 Haemoglobin<8.0 g/dl in children age 5-14 years

Percentage of children aged 5-14 with haemoglobin lower than 8.0 g/dl, by background characteristics, The Gambia MIS 2017

Background characteristic	Haemoglobin < 8.0 g/dl	Number of children
Child's age in years		
5	1.6	365
6	0.1	359
7	1.1	371
8	0.5	296
9	1.3	291
10	0.6	318
11	0.6	239
12	1.0	274
13	0.7	293
14	0.6	218
Sex		
Male	0.8	1,491
Female	0.9	1,534
Residence		
Urban	0.4	1,502
Rural	1.3	1,523
Health Region		
Western 1	0.4	1,025
Western 2	0.0	655
North Bank West	0.0	209
North Bank East	2.5	213
Lower River	0.5	129
Central River	3.1	401
Upper River	0.7	393
Wealth quintile		
Lowest	1.7	710
Second	1.1	734
Middle	0.5	647
Fourth	0.3	575
Highest	0.2	359
Total	0.8	3,017

Table 5.12 Haemoglobin <8.0 g/dl among pregnant women

Percentage of pregnant women aged 15-49 years with haemoglobin lower than 8.0 g/dl, by background characteristics, The Gambia MIS 2017

Background characteristic	Haemoglobin < 8.0 g/dl	Number of pregnant women
Residence		
Urban	0.5	61
Rural	3.0	70
Health Region		
Western 1	(0.0)	38
Western 2	*	35
North Bank West	*	10
North Bank East	*	9
Lower River	*	5
Central River	(10.4)	20
Upper River	(0.0)	15
Education		
No education	3.8	63
Primary	(0.0)	28
Secondary or more	(0.0)	41
Wealth quintile		
Lowest	5.8	36
Second	(0.0)	35
Middle	(1.2)	23
Fourth	*	24
Highest	*	14
Total	1.8	132

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 5.13 Haemoglobin<8.0 g/dl in the general population (1 in 4 households)

Percentage of household members in the general population with haemoglobin lower than 8.0 g/dl, by background characteristics, The Gambia MIS 2017

Background Characteristic	Haemoglobin < 8.0 g/dl	Number
Age		
5-14	0.8	3,025
15-34	1.0	2,866
35-49	0.7	1,047
50+	1.2	874
DK/Missing	0.0	19
Sex		
Male	0.7	3,461
Female	1.1	4,370
Residence		
Urban	0.6	4,251
Rural	1.4	3,580
Health Region		
Western 1	0.5	2,907
Western 2	0.3	1,716
North Bank West	0.5	520
North Bank East	1.9	489
Lower River	1.0	309
Central River	3.1	958
Upper River	0.9	931
Wealth quintile		
Lowest	1.8	1,659
Second	1.1	1,733
Middle	1.0	1,614
Fourth	0.3	1,621
Highest	0.2	1,203
Total	0.9	7,831

MALARIA KNOWLEDGE 6

Key Findings

Malaria general knowledge, and knowledge of causes and symptoms:

- About ninety-nine per cent of women age 15-49 years have heard of malaria.
- Ninety-four per cent of women reported mosquito bites as the cause of malaria.
- Slightly more than 74% recognized fever as a symptom of malaria.
- Very high fever (37%), vomiting (25%), hallucination (25%) and seizures/convulsion (24%) are the major danger signs and symptoms of severe malaria.

Knowledge of malaria prevention and treatment

- Almost 73% and 39% of women reported use of a mosquito net and use of a treated mosquito net, respectively as prevention methods.
- More than 87% of women reported Coartem/ACT as medication to treat malaria.

Correct knowledge of malaria

- Almost 91% of women knew the symptoms, preventive measures, and treatment for malaria.

Knowledge of vulnerable groups to malaria:

- Approximately 80% and 56% of women reported that children under 5 and pregnant women, respectively are the most vulnerable groups to malaria.

Source of information about malaria:

- Radio (65%), friends/family (51%), a health worker (47%) and television (36%) are the most common sources of exposure to malaria messages.

Since the commencement of the Global Fund support for malaria control and prevention in The Gambia in 2004, numerous Information, Education and Communication (IEC) activities e.g. the use of radios to bring awareness about malaria, traditional communicators, community awareness of opinion leaders, youth and women's groups, have been implemented in all the regions. These activities were meant to raise community awareness about malaria control and prevention. 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 causes, symptoms, treatment, and prevention of malaria.

6.1 General Knowledge, and Knowledge of Causes and Symptoms

General Knowledge

Data on malaria knowledge were obtained by asking women age 15-49 the following question: "Have you ever heard of an illness called malaria?" Nearly all women (99%) know about malaria **(Table 6.1)**. In the 2014 GMIS, malaria knowledge was also very high (99%).

The percentage of women who have heard about malaria has changed very little regardless of age, residence, health region, wealth quintile and education.

Knowledge of causes of malaria

Knowledge of causes of malaria
Percentage of women age 15-49 who recognise mosquito bites as a cause of malaria
Sample: Women age 15-49 who have heard of malaria

During the survey, women aged 15-49 were asked about the cause(s) of malaria. **Table 6.2** shows that the majority of women (94%) reported mosquito bites as the cause of malaria. This is followed by those who reported that dirty water and surroundings can cause malaria (41%). In the GMIS 2014, the proportions were 98% and 47%, respectively. The percentages for other reported causes of malaria are very low, varying between less than 1% for witchcraft and less than 9% from drinking dirty water.

Patterns by background characteristics

- Knowledge of mosquito bites as the main cause of malaria was high among women across all subgroups (**Table 6.2**).
- The belief that drinking dirty water can cause malaria was more prevalent among urban women than rural women (11% vs. 5%) (**Table 6.2**).
- The percentage of women who believed that eating dirty food can cause malaria was highest in Lower River (17%) and the lowest in North Bank West (1%) (**Table 6.2**).

Knowledge of symptoms of malaria

Knowledge of symptoms of malaria
Percentage of interviewed women who know various symptoms of malaria
Sample: Women age 15-49 who have heard of malaria

Knowledge of symptoms of severe malaria
Percentage of women age 15-49 who identify specific symptoms of severe malaria
Sample: Women age 15-49 who have heard of malaria

Respondents were asked about the signs and symptoms that a person with malaria presents. The most frequently reported signs and symptoms were fever (74%), headache (55%), and nausea and vomiting (38%). Some respondents also reported body ache or joint pain (26%), feeling cold (25%), body weakness (18%), diarrhoea (14%), loss of appetite (13%), and dizziness (13%) as causes of malaria. Only 6%, 2% and less than 2% respectively of the interviewed women reported pale eyes, refusing to eat or drink and jaundice, as the main signs of malaria (**Table 6.3**).

When women were asked to identify specific symptoms of severe malaria, almost four in ten respondents (37%) mentioned very high fever, followed by vomiting (27%), hallucination (25%), seizures/convulsion (23%), fainting (19%) and weakness (18%). The other symptoms reported by the interviewed women vary between less than 10% for fever and 2% for diarrhoea (**Table 6.4**).

Trends: The percentage of women who mentioned fever as a symptom of malaria has decreased from the GMIS 2014 to the GMIS 2017 (83% and 74%, respectively) (**Figure 6.1**). High fever as a symptom of severe malaria was mentioned by 40% of women in the GMIS 2014 and 37% in the GMIS 2017.

Patterns by background characteristics

- The percentage of women who recognise fever as a symptom of malaria, by region, is lowest in North Bank East (65%) and highest in Central River (82%) (**Table 6.3**).
- The percentage of women reporting headache as another main symptom of malaria increases with education, from 53% among women with no education to 57% among those with secondary education or more (**Table 6.3**).
- The percentage of women recognising very high fever as a symptom of severe malaria, by region, is highest in North Bank East (55%) and Western Region 1 (46%) and lowest in women in Lower River (23%) and Upper River (17%) (**Table 6.4**).

6.2 KNOWLEDGE OF MALARIA PREVENTION AND TREATMENT

Knowledge of malaria prevention

Knowledge of malaria prevention

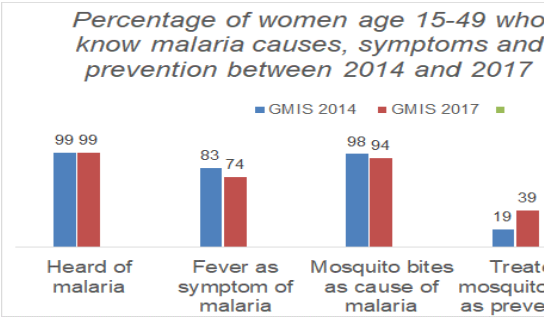
Percentage of women age 15-49 who reported sleeping under a mosquito net or a treated net as a way to avoid getting malaria

Sample: Women age 15-49 who have heard of malaria

In addition to the question on the causes of malaria, the respondents were further asked to name specific ways to avoid malaria. The results are presented in **Table 6.5**. The most commonly reported ways to avoid getting malaria were sleeping under a mosquito net (73%) followed by keeping house surroundings clean (42%), sleeping under an ITN (39%) and avoiding mosquito bites (20%). Other specific ways to avoid malaria reported by the respondents were very low ranging between one tenth of 1% and 13%.

Trends: The percentage of women, who have heard of malaria, who cited sleeping under a treated net as a way to avoid getting malaria increased from 19% in the GMIS 2014 to 39% in the GMIS 2017 (**Figure 6.1**).

Figure 6.1 **Trends in knowledge of symptoms, causes and prevention of malaria**



Patterns by background characteristics

- The percentage of women reporting sleeping under a mosquito net as a way to avoid malaria varies significantly by health region. It is lowest in Western Region 2 (64%) and highest in Central River (92%) (**Table 6.5**).

- The percentage of women who mentioned sleeping under an ITN as a means of malaria prevention also varies by health region, ranging from a minimum of 24% in North Bank West to a maximum of 56% in North Bank East (**Table 6.5**).

Knowledge of malaria treatment

Knowledge of malaria treatment
Percentage of women age 15-49 who mention Coartem/ACT as a drug to treat malaria
Sample: Women age 15-49 who have heard of malaria

When interviewed women who have heard of malaria were asked what drugs are used to treat malaria, the majority (87%) reported Coartem/ACT as the medicine of choice to treat the disease (**Table 6.6**). Slightly more than 86% mentioned Coartem while almost 10% reported ACT. Other responses included SP/Fansidar (27%), Quinine (9%) and Chloroquine (8%).

Trends: The percentage of women who reported that Coartem as the medicine to treat malaria increased from 83% in the GMIS 2014 to 86% in the GMIS 2017. For ACT, the percentage increased drastically from less than 1% in 2014 to 10% in 2017.

Patterns by background characteristics

- Knowledge of Coartem/ACT as a malaria treatment varies by age group, with 83% among women age 15-19 and 92% among those age 40-44 (**Table 6.6**).
- Knowledge of Coartem/ACT as malaria treatment varies by health region. Women in North Bank West (66%) reported Coartem/ACT as a malaria treatment less than women in the other regions with the highest in Upper River (92%) (**Table 6.6**).
- There are no significant differences by level of education regarding knowledge on correct treatment of malaria, with 84% among women with primary education and 89% among those with secondary education or higher (**Table 6.6**).
- There is little variation between women by socio-economic status in their knowledge about treatment of malaria; the percentage ranges from 86% of women in the lowest wealth quintile to 89% of women in the highest wealth quintile (**Table 6.6**).

6.3 CORRECT KNOWLEDGE OF MALARIA

Correct knowledge of malaria
Percentage of women age 15-49 with complete composite knowledge of malaria
Sample: Women age 15-49 who have heard of malaria

Definitions:
Correct knowledge of symptoms includes responses for women who mention the following symptoms of malaria: fever, feeling cold, headache, nausea and vomiting, diarrhoea, dizziness, loss of appetite, body aches or joint pain, pale eyes, body weakness, refusing to eat or drink, jaundice, dark urine, or anemia.

Correct knowledge of prevention includes responses for women who mention a treated mosquito net, using mosquito repellent, avoiding mosquito bites, taking preventive medication, indoor residual spray (IRS), using mosquito coils, cutting grass around house, eliminating stagnant water, keeping surroundings clean, or using mosquito screens on windows. This column excludes responses

that mention burning leaves, not drinking dirty water, drinking sour milk when feverish, eating unripe mango, and not getting soaked in rain.

Correct knowledge of treatment includes responses for women who mention Coartem, SP/fansidar, ACT, chloroquine or quinine.

Complete knowledge of malaria includes responses for women who mention the correct answers for symptoms of malaria, preventive measures, and treatment.

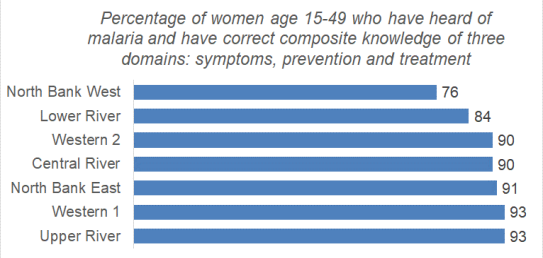
Table 6.7 provides information about correct knowledge of malaria that measures three separate domains: correct knowledge of symptoms, prevention and treatment as well as information on correct knowledge in the three domains or complete knowledge of malaria. Definitions for the correct knowledge of malaria indicators are presented above and in the notes in **Table 6.7**.

Almost all women recognise the correct symptoms of malaria (98%), recognise the correct ways of preventing malaria (99%), and recognise the correct treatment of malaria (92%). The composite measure shows 91% of women with correct complete knowledge of malaria in all domains.

Patterns by background characteristics

- The range of correct knowledge in all domains is between 84% for women age 15-19 and 95% for women age 35-39 (**Table 6.7**).
- Women who live in North Bank West have relatively less correct and also less complete knowledge of malaria symptoms, prevention and treatment (76%) than women who live in the other health regions with a proportion varying between 84% and 93% (**Figure 6.2**)

***Figure 6.2* Correct composite knowledge of malaria by health region**



- Complete knowledge of malaria varies slightly by residence, level of education and wealth quintile. **Table 6.7** shows, for example, that complete knowledge of malaria is 91% among women living in urban areas, and 90% among women living in rural areas.

6.4 KNOWLEDGE OF SPECIFIC GROUPS MOST AFFECTED BY MALARIA

Knowledge of specific groups most affected by malaria

Percentage of women age 15-49 who indicated that children under 5 and pregnant women are the most likely to be affected by malaria

Sample: Women age 15-49 who have heard of malaria

During the survey, women were asked which groups of people are most likely to be affected by malaria, 80% of respondents reported that children are most likely to be affected by malaria, 56% reported pregnant women to be the most vulnerable to malaria, 17% reported that adults are the most vulnerable to malaria, and 14% reported that the elderly are the most vulnerable to malaria (**Table 6.8**).

Trends: The percentage of women who reported that children under 5 and pregnant women are most likely to be affected by malaria has increased slightly between the GMIS 2014 (77% and 55%, respectively) and GMIS 2017 (80% and 56% respectively).

Patterns by background characteristics

- No significant differences were observed in the proportion of women who reported that children were the most vulnerable to being affected by malaria by these background characteristics: residence, education and wealth quintile (**Table 6.8**).
- By health region, there are some variations in the proportion of women who reported that children were the most vulnerable to malaria ranging from 72% in Upper River to 88% in Central River (**Table 6.8**).
- Out of all the women interviewed, those aged 35-39, those living in the Central River region, and those with secondary education or higher, have the highest proportion of respondents within their categories, who reported that pregnant women are the most vulnerable to malaria (**Table 6.8**).

6.5 Source of Information About Malaria

Sources of information about malaria

Percentage of women age 15-49 who have seen or heard about malaria from radio, friends/family, a health worker and TV

Sample: Women age 15-49 who have heard of malaria

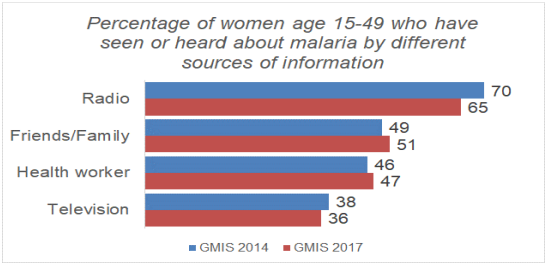
Women age 15-49 who have heard of malaria were asked to indicate their sources of information about the illness **(Table 6.9)**. Radio (65%), friends/family (51%), a health worker (47%) and television (36%) are the most common sources of exposure to malaria messages. The percentage of women who cited other sources of information about malaria varies from almost 9% for schools to less than 2% for traditional communicators and peer educators, respectively.

Trends: Between the GMIS 2014 and the GMIS 2017, the percentage of women who have seen or heard about malaria by the main sources has not changed significantly: radio (70% vs 65%), friends/family (49% vs 51%), a health worker (46% vs 47%) and television (38% vs 36%) **(Figure 6.3)**.

Patterns by background characteristics

- Information on malaria through the radio is higher in urban areas (69%) than rural areas (59%), while it is higher in Lower River (78%), North Bank East (76%), Central River (74%) and Western Region 1 (73%), than in Western Region 2 (59%), North Bank West (56%) and Upper River (31%) **(Table 6.9)**.

Figure 6.3 **Trends regarding sources of information about malaria**



- The findings of the survey show that there is strong correlation between information on malaria from TV and residence, health region, educational level and household wealth quintile. As expected, the results show that the proportion of women who received information on malaria from TV is higher in the urban areas, among women with higher educational attainment, and women in the highest wealth quintile **(Table 6.9)**.
- Getting information on malaria from friends/family and a health worker is higher among women living in rural areas (56% and 62%) than among women living in urban areas (47% and 38%) **(Table 6.9)**.
- Women age 30-39, those living in North Bank East, Lower River and Upper River, and women in the lowest wealth quintile are more likely to get information from a health worker than other women **(Table 6.9)**.

LIST OF TABLES

For detailed information on malaria, see the following tables:

Table 6.1 General knowledge of malaria

Percentage of women age 15-49 who reported having heard of malaria, and of those who have heard of malaria, percentage who can recognise fever as a sign of malaria, percentage who reported mosquito bites as the cause of malaria, and percentage who reported that sleeping under a mosquito net can protect against malaria, by background characteristics, The Gambia MIS, 2017

Background characteristic	Has heard of malaria	Number of respondents	Percentage who recognize fever as a symptom of malaria	Percentage who reported mosquito bites as a cause of malaria	Percentage who reported treated mosquito nets as a prevention method	Number of women who have heard of malaria
Age						
15-19	98.3	2,188	71.3	93.6	35.0	2,152
20-24	99.2	1,868	73.2	94.5	38.8	1,854
25-29	98.8	1,724	74.3	92.2	39.6	1,703
30-34	98.9	1,388	77.4	94.6	40.0	1,373
35-39	99.2	1,257	75.4	95.4	42.0	1,247
40-44	99.6	741	75.2	92.7	40.7	738
45-49	99.5	539	78.1	95.9	37.7	536
Residence						
Urban	99.0	6,141	73.2	92.8	40.3	6,081
Rural	98.8	3,565	76.2	96.0	36.2	3,521
Health Region						
Western 1	99.1	4,590	72.1	91.4	44.9	4,547
Western 2	99.7	1,820	74.1	95.9	28.2	1,815
North Bank West	95.7	524	73.8	93.9	23.5	501
North Bank East	98.9	473	64.9	98.3	55.6	468
Lower River	99.0	321	76.9	98.2	41.2	317
Central River	99.6	922	82.2	97.8	37.7	918
Upper River	98.1	1,057	81.0	95.2	30.6	1,037
Wealth quintile						
Lowest	98.6	1,641	76.6	96.3	38.8	1,619
Second	99.0	1,756	76.2	95.9	33.4	1,737
Middle	98.8	1,880	75.9	91.7	38.7	1,857
Fourth	98.7	2,143	70.5	90.6	39.6	2,116
Highest	99.5	2,285	73.4	95.7	42.1	2,274
Education						
No education	98.4	3,801	76.6	92.6	39.3	3,741
Primary	98.6	1,397	69.6	94.0	34.7	1,378
Secondary or more	99.5	4,508	73.8	95.1	39.6	4,485
Total	98.9	9,706	74.3	94.0	38.8	9,603

Table 6.2 Knowledge of causes of malaria

Among women aged 15-49 years who have ever heard of malaria, percentage who cite specific causes of malaria, according to background characteristics, The Gambia MIS, 2017

Background characteristic	Mosquito bites	Eating dirty food	Drinking dirty water	Getting soaked with rain	Cold or changing weather	Witchcraft	Dirty water and surroundings	Eating unripe mangoes	Drinking sour milk when feverish	Number of women who heard of malaria
Age										
15-19	93.6	7.3	9.1	2.5	3.3	0.7	36.8	1.5	0.3	2,152
20-24	94.5	6.6	8.5	3.4	2.5	0.9	41.2	1.3	0.2	1,854
25-29	92.2	9.8	9.6	4.6	3.0	1.4	40.2	0.8	0.6	1,703
30-34	94.6	8.9	8.3	2.9	2.6	1.1	41.7	0.9	0.3	1,373
35-39	95.4	6.1	6.8	2.1	3.2	0.5	45.2	1.0	0.3	1,247
40-44	92.7	5.9	7.1	4.3	2.1	0.3	38.6	1.5	0.2	738
45-49	95.9	7.8	8.5	2.5	1.8	0.3	46.6	1.8	0.5	536
Residence										
Urban	92.8	7.9	10.6	3.9	3.0	1.1	41.8	1.3	0.4	6,081
Rural	96.0	7.1	4.7	1.9	2.4	0.3	38.9	1.0	0.2	3,521
Health Region										
Western 1	91.4	9.5	14.1	4.9	4.2	1.4	40.3	1.5	0.5	4,547
Western 2	95.9	2.2	1.9	0.6	1.3	0.6	50.8	1.3	0.2	1,815
North Bank West	93.9	1.4	1.9	1.1	0.6	0.0	25.5	0.2	0.0	501
North Bank East	98.3	7.9	3.5	0.7	0.4	0.0	37.3	1.1	0.1	468
Lower River	98.2	16.7	8.2	5.3	3.9	0.6	33.1	0.8	0.1	317
Central River	97.8	8.3	5.8	3.4	2.7	0.1	45.9	1.1	0.6	918
Upper River	95.2	7.9	3.2	1.6	1.0	0.2	31.4	0.7	0.0	1,037
Wealth quintile										
Lowest	96.3	7.0	4.4	2.6	1.6	0.2	34.5	0.9	0.3	1,619
Second	95.9	7.2	5.1	2.3	3.0	0.3	40.3	0.8	0.0	1,737
Middle	91.7	7.4	11.4	2.6	4.4	1.5	42.4	1.5	0.2	1,857
Fourth	90.6	9.0	8.0	5.3	2.3	1.3	39.0	1.0	0.4	2,116
Highest	95.7	7.1	11.9	2.7	2.6	0.7	45.7	1.6	0.6	2,274
Education										
No education	92.6	7.1	7.5	2.8	2.2	1.0	38.0	1.2	0.4	3,741
Primary	94.0	7.6	5.6	2.6	2.4	0.4	44.4	1.2	0.3	1,378
Secondary or more	95.1	8.0	10.2	3.7	3.5	0.8	41.9	1.2	0.3	4,485
Total	94.0	7.6	8.5	3.2	2.8	0.8	40.7	1.2	0.3	9,603

Table 6.3 Knowledge of malaria symptoms

Among women aged 15-49 years who have ever heard of malaria, percentage who know various symptoms of malaria according to background characteristics, The Gambia MIS, 2017

Background characteristic	Fever	Feeling cold	Head-ache	Nausea and vomiting	Diarrhea	Dizziness	Loss of appetite	Body ache or joint pain	Pale eyes	Body weak-ness	Refusing to eat or drink	Jaundice	Number of women who heard of malaria
Age													
15-19	71.3	21.7	56.1	32.2	12.6	12.7	11.1	17.9	5.5	17.5	1.9	1.5	2,152
20-24	73.2	23.0	53.3	38.1	11.7	13.8	12.6	23.9	6.0	18.3	1.8	2.5	1,854
25-29	74.3	26.4	53.5	38.7	16.4	13.8	11.2	27.6	7.2	18.6	2.1	1.4	1,703
30-34	77.4	26.1	53.7	40.7	12.7	10.7	13.6	30.7	5.6	17.8	1.9	2.0	1,373
35-39	75.4	27.5	57.6	41.8	15.8	11.9	13.8	28.0	8.2	19.2	2.5	1.2	1,247
40-44	75.2	22.9	56.3	43.7	13.9	13.3	15.6	28.8	6.3	16.5	3.2	2.4	738
45-49	78.1	26.2	60.9	42.4	12.0	11.9	16.5	31.5	7.1	19.5	2.1	1.1	536
Residence													
Urban	73.2	23.9	55.9	37.8	14.1	14.4	15.1	26.0	6.5	20.5	2.4	1.7	6,081
Rural	76.2	25.6	54.1	39.4	12.8	9.9	8.7	24.7	6.2	14.1	1.6	1.8	3,521
Health Region													
Western 1	72.1	24.1	56.7	36.1	15.2	15.1	16.7	23.5	8.0	24.7	2.4	1.5	4,547
Western 2	74.1	18.4	54.3	42.4	12.7	12.4	11.9	36.0	4.2	11.6	1.4	2.4	1,815
North Bank West	73.8	20.0	45.5	39.7	8.6	10.2	5.2	14.4	8.0	9.8	0.2	1.7	501
North Bank East	64.9	26.1	68.5	34.3	25.3	8.5	17.2	36.2	8.3	27.5	10.2	2.0	468
Lower River	76.9	38.7	52.3	40.0	10.6	17.4	13.6	24.8	3.8	22.0	0.8	1.3	317
Central River	82.2	38.1	57.8	32.3	12.9	10.0	6.7	19.7	2.6	7.8	0.6	2.0	918
Upper River	81.0	22.3	47.5	47.7	7.0	6.9	4.0	21.9	5.6	8.7	1.1	1.4	1,037
Wealth quintile													
Lowest	76.6	27.9	54.7	38.6	11.9	9.1	6.8	21.9	4.9	12.4	1.4	2.2	1,619
Second	76.2	25.1	54.2	38.2	12.6	10.4	9.9	25.2	6.6	14.3	2.0	1.1	1,737
Middle	75.9	23.0	51.1	38.8	15.3	12.5	14.7	24.4	9.2	18.2	2.0	1.9	1,857
Fourth	70.5	24.5	53.1	37.3	13.6	13.0	12.3	26.7	5.3	15.2	2.2	1.6	2,116
Highest	73.4	22.9	61.6	39.2	14.1	17.0	18.2	28.1	6.1	27.8	2.7	1.9	2,274
Education													
No education	76.6	25.2	53.3	36.0	13.6	10.0	9.8	23.0	6.3	14.7	2.0	1.7	3,741
Primary	69.6	23.3	54.8	41.9	14.0	12.4	13.4	27.2	7.5	19.5	2.1	1.8	1,378
Secondary or more	73.8	24.3	57.0	39.4	13.5	15.1	15.1	27.1	6.1	20.6	2.2	1.7	4,485
Total	74.3	24.5	55.2	38.4	13.6	12.7	12.8	25.5	6.4	18.1	2.1	1.7	9,603

Table 6.4 Knowledge of symptoms of severe malaria

Among women aged 15-49 years who have ever heard of malaria, percentage who cite specific symptoms of severe malaria according to background characteristics, The Gambia MIS, 2017

Background characteristic	Seizures/ convulsion	Fainting	Some fever	Very high fever	Stiff neck	Weakness	Not active	Chills/ shivering	Not able to eat	Vomiting	Crying all the time	Restless	Diarrhoea	Hallucination	Number of women who heard of malaria
Age															
15-19	22.1	16.3	6.4	35.6	4.0	16.8	7.9	8.2	6.8	24.8	1.9	2.6	2.0	16.7	2,152
20-24	22.4	16.2	9.4	34.0	5.0	17.7	7.4	8.3	6.6	25.8	2.1	2.5	1.9	24.9	1,854
25-29	25.3	18.9	10.6	35.5	6.4	18.1	9.0	7.9	7.2	27.3	3.6	2.0	2.5	26.3	1,703
30-34	25.0	21.3	10.7	38.2	6.4	18.1	9.9	9.5	7.8	25.2	3.8	3.2	2.6	27.4	1,373
35-39	24.0	22.9	10.8	44.2	5.9	16.5	11.9	7.6	10.8	31.0	4.0	2.2	3.2	29.6	1,247
40-44	24.5	18.5	9.8	36.1	4.7	17.1	9.2	10.1	5.8	27.0	3.6	3.4	1.2	32.5	738
45-49	24.9	18.2	11.7	36.0	6.8	20.3	7.8	7.6	9.3	28.9	3.6	2.6	2.7	30.3	536
Residence															
Urban	27.4	16.9	11.1	40.7	6.8	19.6	9.8	8.5	7.1	28.3	2.9	2.6	2.4	23.6	6,081
Rural	17.4	21.4	6.6	30.1	3.2	14.0	7.3	8.1	8.3	24.0	3.1	2.5	2.1	27.8	3,521
Health Region															
Western 1	31.5	18.7	13.9	45.9	8.9	21.4	11.5	8.3	6.5	30.0	2.8	2.6	3.2	22.4	4,547
Western 2	19.5	15.8	3.0	30.2	1.4	16.2	3.7	7.8	7.5	24.0	2.5	3.1	1.0	28.6	1,815
North Bank West	7.5	14.4	4.5	31.9	1.0	10.6	2.5	6.5	4.0	16.9	0.7	2.8	1.7	25.1	501
North Bank East	15.7	13.1	13.1	55.3	4.5	26.8	25.2	18.9	20.3	45.5	10.9	2.8	0.9	8.9	468
Lower River	20.4	16.1	16.9	23.2	4.2	13.6	11.3	3.6	8.9	16.5	0.5	2.2	0.9	37.6	317
Central River	24.9	28.9	7.9	25.0	3.2	9.8	7.7	7.3	14.5	30.6	2.8	0.7	0.7	21.3	918
Upper River	8.5	19.0	1.3	17.0	2.1	10.3	2.5	8.2	1.8	12.7	3.0	3.0	3.2	38.2	1,037
Wealth quintile															
Lowest	16.0	23.2	6.5	28.9	2.7	14.0	7.8	8.3	9.9	26.6	4.1	2.0	1.8	24.6	1,619
Second	19.5	18.8	6.2	32.3	3.6	14.2	6.9	7.9	6.4	22.8	2.1	2.8	2.1	28.4	1,737
Middle	26.1	20.7	10.6	35.5	6.7	18.8	8.7	8.4	6.4	24.1	2.5	2.0	2.9	22.7	1,857
Fourth	25.9	15.9	9.5	37.3	6.8	16.7	8.8	8.5	7.6	23.9	3.1	2.1	2.1	24.9	2,116
Highest	28.5	15.8	13.1	46.5	6.5	22.4	11.5	8.7	7.7	34.5	3.2	3.7	2.4	25.4	2,274
Education															
No education	23.6	20.1	8.5	35.1	5.3	15.0	8.4	8.0	7.9	25.5	3.0	1.8	1.9	23.4	3,741
Primary	15.3	17.1	9.1	32.2	2.8	18.6	9.9	8.1	8.1	24.5	3.1	2.0	3.4	27.9	1,378
Secondary or more	26.4	17.7	10.4	39.7	6.3	19.4	9.0	8.8	7.1	28.4	2.9	3.3	2.3	25.8	4,485
Total	23.7	18.6	9.5	36.8	5.4	17.6	8.9	8.4	7.6	26.7	3.0	2.6	2.3	25.2	9,603

Table 6.5 Knowledge of ways to avoid malaria

Among women age 15-49 who have ever heard of malaria, the percentage of women who cite specific ways to avoid getting malaria, according to background characteristics, The Gambia MIS, 2017

Background characteristic	Sleep under a mosquito net	Sleep under an ITN	Use mosquito repellant	Avoid mosquito bites	Take preventive medication	Spray house with insecticide	Use mosquito coils	Cut the grass around the house	Fill in pot holes - stagnant water	Keep house surroundings clean	Burn leaves	Don't drink dirty water	Drink sour milk when feverish	Put mosquito screens on the windows	Eating unripe mangoes	Number of women who heard of malaria
Age																
15-19	72.0	35.0	11.1	17.7	5.2	9.8	8.3	9.6	9.7	36.2	3.3	2.6	0.0	0.2	0.2	2,152
20-24	71.5	38.8	12.0	19.2	5.5	10.9	6.4	8.8	10.1	41.0	3.9	1.5	0.0	0.0	0.2	1,854
25-29	73.0	39.6	14.6	20.0	7.4	10.1	6.4	11.4	9.4	40.2	3.9	1.4	0.3	0.0	0.2	1,703
30-34	74.2	40.0	14.7	19.8	6.6	11.1	6.0	13.1	12.4	41.9	5.1	2.2	0.0	0.2	0.4	1,373
35-39	75.6	42.0	11.0	22.5	5.4	11.3	7.2	12.4	14.4	47.5	5.7	1.7	0.0	0.4	0.3	1,247
40-44	70.4	40.7	12.0	21.4	4.5	12.3	4.3	13.6	14.0	43.7	4.7	1.9	0.0	0.4	0.3	738
45-49	74.2	37.7	14.4	18.8	7.3	10.1	4.7	15.5	12.8	51.0	4.1	1.3	0.0	0.1	0.2	536
Residence																
Urban	72.2	40.3	14.4	20.4	6.9	13.8	8.1	11.6	9.3	41.1	5.0	1.8	0.1	0.2	0.3	6,081
Rural	74.1	36.2	9.6	18.4	4.3	5.4	4.0	10.7	14.6	42.3	2.8	1.9	0.0	0.1	0.2	3,521
Health Region																
Western 1	72.9	44.9	18.4	23.2	7.6	14.7	8.2	12.6	7.4	38.4	6.5	1.7	0.1	0.3	0.1	4,547
Western 2	64.1	28.2	1.9	10.4	4.5	10.1	8.8	12.4	19.7	50.7	2.9	2.1	0.0	0.1	0.2	1,815
North Bank West	72.7	23.5	3.8	7.6	2.6	3.3	3.1	7.1	11.8	34.1	1.9	1.4	0.1	0.2	0.3	501
North Bank East	69.9	55.6	18.5	34.3	8.7	8.9	5.4	20.4	17.1	56.0	5.9	2.7	0.0	0.3	0.0	468
Lower River	90.2	41.2	11.6	29.7	11.1	6.9	3.7	13.1	21.6	46.6	0.2	0.7	0.0	0.0	0.0	317
Central River	91.6	37.7	20.0	20.3	4.2	6.9	3.4	3.9	7.7	36.3	0.5	1.1	0.0	0.0	0.3	918
Upper River	67.7	30.6	1.4	15.9	1.2	3.0	2.0	7.5	10.4	39.2	1.4	3.1	0.1	0.0	1.2	1,037
Wealth quintile																
Lowest	75.1	38.8	11.4	20.0	3.4	4.3	3.1	8.3	10.9	37.4	1.9	1.4	0.0	0.0	0.2	1,619
Second	74.2	33.4	8.6	17.3	5.0	5.8	5.5	11.0	16.4	44.0	3.7	1.8	0.0	0.2	0.3	1,737
Middle	70.0	38.7	12.0	21.2	6.2	8.7	6.6	15.6	16.3	41.6	5.4	3.1	0.0	0.0	0.2	1,857
Fourth	68.7	39.6	13.7	18.4	6.9	11.7	9.0	7.6	8.5	37.9	3.2	1.9	0.1	0.1	0.3	2,116
Highest	76.5	42.1	16.2	21.2	7.4	19.7	7.7	13.4	5.8	46.0	6.3	1.2	0.1	0.5	0.3	2,274
Education																
No education	72.9	39.3	12.1	19.4	5.1	6.8	5.3	9.9	10.1	38.0	3.7	1.7	0.0	0.0	0.3	3,741
Primary	70.8	34.7	9.7	17.6	5.8	8.7	6.4	13.7	14.4	46.4	5.2	2.0	0.0	0.1	0.6	1,378
Secondary or more	73.4	39.6	14.0	20.6	6.7	14.5	7.8	11.6	11.2	43.0	4.4	2.0	0.1	0.3	0.1	4,485
Total	72.9	38.8	12.6	19.7	5.9	10.7	6.6	11.3	11.2	41.5	4.2	1.9	0.1	0.2	0.3	9,603

Table 6.6 Knowledge of malaria treatment

Among women aged 15-49 who have heard of malaria, the percentage who cite specific various drugs to treat malaria, according to background characteristics, The Gambia MIS, 2017

Background characteristic	Coartem	ACT	Coartem/ACT	SP/Fansidar	Chloroquine	Quinine	Number of women who heard of malaria
Age							
15-19	80.8	9.7	82.5	18.0	5.5	7.3	2,152
20-24	84.2	9.4	85.5	26.0	7.0	7.7	1,854
25-29	87.7	10.2	89.0	30.9	8.6	8.9	1,703
30-34	87.9	9.7	88.0	31.8	10.1	11.7	1,373
35-39	90.9	10.4	91.2	30.9	10.8	10.8	1,247
40-44	91.7	8.2	92.4	27.7	9.8	5.3	738
45-49	88.7	7.9	89.1	28.3	10.8	11.1	536
Residence							
Urban	86.4	11.2	87.5	29.5	9.6	11.7	6,081
Rural	86.1	6.8	86.8	22.2	6.1	3.8	3,521
Health Region							
Western 1	86.8	13.6	88.0	33.2	10.1	14.5	4,547
Western 2	87.1	5.4	88.2	17.5	6.3	5.4	1,815
North Bank West	65.5	0.7	66.0	20.0	10.8	3.2	501
North Bank East	86.4	8.8	88.0	26.8	12.9	8.3	468
Lower River	81.2	11.1	81.7	29.6	5.3	2.6	317
Central River	89.0	9.2	89.1	30.3	5.1	1.5	918
Upper River	92.0	3.9	92.3	14.1	4.3	0.9	1,037
Wealth quintile							
Lowest	84.8	4.7	85.2	21.8	5.7	1.9	1,619
Second	86.4	7.4	87.1	22.6	6.1	4.9	1,737
Middle	85.4	11.2	86.0	26.0	7.5	11.3	1,857
Fourth	86.0	9.2	87.4	27.5	10.0	7.5	2,116
Highest	88.2	13.8	89.7	33.5	11.0	15.9	2,274
Education							
No education	85.5	7.9	86.0	27.1	6.6	6.8	3,741
Primary	83.7	8.7	84.3	24.8	6.9	7.6	1,378
Secondary or more	87.7	11.3	89.2	27.1	10.2	10.9	4,485
Total	86.3	9.6	87.3	26.8	8.3	8.8	9,603

Table 6.7 Correct knowledge of malaria

Percentage of women age 15-49 who have heard of malaria and have correct knowledge of malaria indicators, by background characteristics, The Gambia MIS, 2017

Background characteristic	Correct knowledge of symptoms[1]	Correct knowledge of preventation[2]	Correct knowledge of treatment[3]	Correct knowledge of three domains[4]	Number of women who heard of malaria
Age					
15-19	96.6	98.2	85.6	84.2	2,152
20-24	97.5	98.9	90.6	88.6	1,854
25-29	99.0	99.5	94.9	94.0	1,703
30-34	98.7	99.2	94.7	93.7	1,373
35-39	98.8	100.0	95.2	94.5	1,247
40-44	98.3	99.5	95.8	94.2	738
45-49	98.4	99.7	93.7	92.2	536
Residence					
Urban	97.8	99.0	92.9	91.4	6,081
Rural	98.3	99.3	90.4	89.5	3,521
Health Region					
Western 1	97.8	99.1	94.2	92.7	4,547
Western 2	98.1	99.0	91.2	89.8	1,815
North Bank West	96.5	99.2	76.7	75.8	501
North Bank East	98.6	99.9	91.2	91.0	468
Lower River	98.6	99.3	85.1	84.3	317
Central River	98.2	99.4	91.1	90.0	918
Upper River	98.9	99.0	94.4	93.1	1,037
Wealth quintile					
Lowest	98.4	99.3	88.7	87.9	1,619
Second	98.2	99.1	91.0	89.8	1,737
Middle	97.2	98.9	91.5	89.8	1,857
Fourth	97.8	99.0	93.0	91.3	2,116
Highest	98.5	99.4	94.5	93.5	2,274
Education					
No education	97.9	98.8	91.4	90.0	3,741
Primary	96.7	98.6	89.0	87.0	1,378
Secondary or more	98.5	99.5	93.5	92.4	4,485
Total	98.0	99.1	92.0	90.7	9,603

[1] Includes responses for women who mention the following symptoms of malaria: fever, feeling cold, headache, nausea and vomiting, diarrhoea, dizziness, loss of appetite, body aches or joint pain, pale eyes, body weakness, refusing to eat or drink, jaundice, dark urine, or anemia.

[2] Includes responses for women who mention a treated mosquito net/treated net, using mosquito repellent, avoiding mosquito bites, taking preventive medication, indoor residual spray (IRS), using mosquito coils, cutting grass around house, eliminating stagnant water, keeping surroundings clean, or using mosquito screens on windows. This column excludes responses that mention burning leaves, not drinking dirty water, drinking sour milk when feverish, eating unripe mango, and not getting soaked in rain.

[3] Includes responses for women who mention coartem, SP/fansidar, ACT, chloroquine or quinine.

[4] Includes responses for women who mention the correct answers for symptoms of malaria, preventive measures, and treatment.

Table 6.8 Knowledge of specific groups most affected by malaria

Among women age 15-49 who have heard of malaria, the percentage who cite specific groups most likely to be affected by malaria, according to background characteristics, The Gambia MIS, 2017

Background characteristic	Children under five	Adults	Pregnant women	Elderly people	Whole population	Non immune traveler	Immune suppress	Individual deficiency	Number of women who heard of malaria
Age									
15-19	72.9	16.6	43.8	14.0	13.8	0.0	0.1	0.6	2,152
20-24	77.2	15.6	54.2	13.5	13.3	0.3	0.2	0.3	1,854
25-29	80.2	15.4	59.2	14.8	13.7	0.4	0.2	0.4	1,703
30-34	83.4	18.1	62.4	16.2	11.8	0.3	0.0	1.1	1,373
35-39	85.8	18.8	63.4	13.4	11.0	0.2	0.3	0.2	1,247
40-44	82.0	17.5	59.0	14.6	12.5	0.3	0.1	0.7	738
45-49	85.8	16.8	64.1	15.8	9.9	0.5	0.4	0.1	536
Residence									
Urban	79.2	18.5	55.9	15.1	14.1	0.4	0.2	0.4	6,081
Rural	80.4	13.8	56.3	13.2	10.3	0.0	0.1	0.6	3,521
Health Region									
Western 1	79.6	22.9	57.4	14.7	13.5	0.4	0.2	0.5	4,547
Western 2	80.5	5.7	56.7	17.2	11.1	0.1	0.1	1.1	1,815
North Bank West	78.1	15.7	49.5	20.7	8.1	0.0	0.0	0.1	501
North Bank East	82.7	13.5	58.4	9.9	20.7	0.0	0.0	0.1	468
Lower River	75.9	16.6	60.1	16.9	20.5	0.0	0.3	0.6	317
Central River	87.7	20.2	68.2	13.3	9.8	0.3	0.0	0.1	918
Upper River	71.6	8.2	39.0	7.8	11.0	0.0	0.1	0.2	1,037
Wealth quintile									
Lowest	80.4	15.1	55.6	10.8	10.7	0.1	0.0	0.2	1,619
Second	80.2	12.8	55.4	14.1	11.3	0.0	0.3	0.8	1,737
Middle	77.9	14.4	53.2	15.9	12.2	0.0	0.1	0.6	1,857
Fourth	79.9	18.9	53.0	16.6	13.4	0.8	0.2	0.4	2,116
Highest	79.8	20.9	62.0	14.1	15.0	0.2	0.2	0.6	2,274
Education									
No education	79.2	16.6	56.1	12.5	12.3	0.4	0.1	0.4	3,741
Primary	76.1	14.5	52.1	16.4	14.9	0.0	0.0	0.7	1,378
Secondary or more	81.0	17.7	57.2	15.5	12.4	0.2	0.2	0.5	4,485
Total	79.6	16.8	56.1	14.4	12.7	0.2	0.2	0.5	9,603

Table 6.9 Sources of information about malaria

Among women age 15-49 who have seen or heard about malaria, percentage who have seen or heard about the disease by different sources, according to background characteristics, The Gambia MIS, 2017

Background characteristic	Radio	TV	News-paper	Friends/ family	Posters	T-shirts	Billboard	Drama perfor-mance	Traditional communi-cator	Health worker	Schools	Peer education	Number of women who heard of malaria
Age													
15-19	55.4	32.1	4.1	54.7	4.0	3.8	2.6	4.7	1.8	34.4	24.8	4.5	2,152
20-24	63.2	34.7	5.4	51.6	5.3	1.8	3.0	3.0	1.4	44.6	9.3	1.5	1,854
25-29	66.3	36.1	5.0	49.7	3.9	1.9	3.3	1.9	1.8	51.3	3.2	0.7	1,703
30-34	67.4	38.3	4.7	49.5	3.6	1.9	2.1	2.6	2.3	54.5	1.8	0.9	1,373
35-39	73.3	42.0	2.9	45.9	3.0	2.0	1.1	2.2	2.4	55.2	2.1	0.6	1,247
40-44	72.9	39.8	3.4	46.8	2.2	1.3	1.6	3.6	2.0	50.7	1.3	0.7	738
45-49	75.5	37.7	3.6	52.7	4.5	2.0	1.9	3.9	2.1	51.7	0.4	0.4	536
Residence													
Urban	68.8	49.4	5.3	47.4	3.9	2.9	3.0	3.1	1.3	38.4	9.2	2.0	6,081
Rural	59.4	14.0	2.7	56.2	4.0	1.2	1.5	3.2	2.9	62.2	7.4	1.2	3,521
Health Region													
Western 1	73.2	58.0	6.5	43.7	4.1	3.7	3.8	3.0	1.4	35.4	9.2	2.2	4,547
Western 2	59.4	22.8	2.5	46.1	2.9	1.7	1.6	3.5	1.6	53.3	11.8	1.8	1,815
North Bank West	55.8	10.3	1.3	50.0	3.7	0.0	1.9	0.6	2.0	54.6	7.7	1.6	501
North Bank East	75.5	23.5	2.0	64.4	8.1	0.8	2.3	8.2	4.0	78.0	9.3	0.5	468
Lower River	77.7	27.1	2.9	58.3	15.2	1.3	1.2	2.9	6.2	68.9	5.1	1.3	317
Central River	73.5	13.5	2.8	61.7	2.7	1.1	0.8	4.4	3.9	52.4	5.7	1.1	918
Upper River	30.6	6.7	2.5	70.8	0.6	0.1	0.0	0.8	0.6	59.2	4.0	0.5	1,037
Wealth quintile													
Lowest	59.4	8.0	2.1	59.7	4.2	0.9	0.9	2.9	2.6	62.2	5.1	1.0	1,619
Second	60.0	19.0	2.9	54.5	2.9	1.5	0.7	2.7	2.6	59.6	8.4	1.1	1,737
Middle	66.4	36.4	4.3	49.4	4.2	2.1	1.7	2.9	2.0	48.6	7.6	1.1	1,857
Fourth	66.3	44.8	5.9	45.7	3.1	1.9	3.1	3.4	1.4	36.2	9.3	2.5	2,116
Highest	71.9	62.0	5.6	46.6	5.1	4.3	4.8	3.5	1.3	36.0	11.3	2.4	2,274
Education													
No education	64.4	27.0	2.7	51.6	2.2	0.6	0.6	2.4	2.5	51.4	0.6	0.5	3,741
Primary	59.7	29.6	1.8	56.1	2.6	1.5	1.1	1.9	1.7	56.4	4.3	1.6	1,378
Secondary or more	67.9	46.3	6.5	48.0	5.7	3.9	4.4	4.1	1.5	40.8	16.6	2.7	4,485
Total	65.3	36.4	4.4	50.6	3.9	2.3	2.4	3.1	1.9	47.2	8.6	1.7	9,603

REFERENCES

Bonneville, J., Ch. Defrance, et Th. Miklavec 2007. *Guide pratique de lutte contre le paludisme en entreprise*. Internet Article: http://www.total.com/static/fr/medias/topic848/2007-paludismeguide.

Gambia Bureau of Statistics (GBoS). 2013. The Gambia 2013 Population and Housing Census Preliminary Results, Banjul, The Gambia.

Gambia Bureau of Statistics (GBoS) and UNICEF. 2010. *The Gambia Multiple Indicator Cluster Survey 2010.* Banjul, The Gambia.

Ceesay SJ, Casals-Pascual C, Nwakanma DC, Walther M, Gomez-Escobar N, Fulford AJC, et al. 2010 "Continued Decline of Malaria in The Gambia with Implications for Elimination". *PLoS ONE* 5(8): e12242. https://doi.org/10.1371/journal.pone.0012242.

Ghana Statistical Service (GSS), Ghana Health Service (GHS), and ICF. 2017. *Ghana Malaria Indicator Survey 2016*. Accra, Ghana, and Rockville, Maryland, USA: GSS, GHS, and ICF.

Health Management Information System (HMIS), Ministry of Health and Social Welfare. 2013. *Service Statistics Report 2013*. Banjul, The Gambia.

Korenromp, E. L., J. Armstrong-Schellenberg, B. Williams, B. Nahlen, R. W. Snow. 2004. "Impact of Malaria Control on Childhood Anemia in Africa–A Quantitative Review." *Tropical Medicine & International Health* 9(10):1050-1065.

Luebker, Malte. 2010. Inequality, income shares and poverty: The practical meaning of Gini coefficients, Travail Policy Brief No. 3. Geneva: ILO.

Malaria Situational Analyses Report 2002. 'Banjul, The Gambia.

Ministry of Health and Social Welfare. 2013. Malaria Control in The Gambia: National Malaria Policy, 2014-2020. Banjul, The Gambia.

Moody, A. 2002. "Rapid Diagnostic Tests for Malaria Parasites." Clinical Microbiology Review 15:66-78.

National Malaria Control Programme (NMCP), Ministry of Health and Social Welfare. 2013. *Malaria Control in The Gambia: National Malaria Strategy Plan, 2014-2020*, NMCP Banjul, The Gambia.

National Malaria Control Programme (NMCP), Ministry of Health and Social Welfare. 2014. *The Gambia Malaria Indicator Survey* – Near Final Report MIS 2014 (Draft). Banjul, The Gambia.

Shulman, C. E., and E. K. Dorman. 2003. "Importance and Prevention of Malaria in Pregnancy." *Transactions of the Royal Society of Tropical Medicine and Hygiene* 97:30-35.

Sonko Sheriff T, Malanding Jaiteh, James Jafali, Lamin BS Jarju1, Umberto D'Alessandro, Abu Camara, Musu Komma-Bah and Alieu Saho. 2014. "Does Socio-economic Status Explain the Differentials in Malaria Parasite Prevalence? Evidence from The Gambia", *Malaria Journal* 2014, 13:449.

The Gambia Bureau of Statistics (GBOS) and ICF International. 2014. *The Gambia Demographic and Health Survey 2013.* Banjul, The Gambia, and Rockville, Maryland, USA: GBOS and ICF International.

UNDP. 2017. Human Development Report 2016. UN Statistical Office. New York: NY, USA.

World Health Organization. 2004. A Strategic Framework for Malaria Prevention and Control during Pregnancy in the African Region. Geneva: World Health Organization.

World Health Organization. 2012a. *Intermittent Preventive Treatment of Malaria in Pregnancy (IPTp) with Sulfadoxine-Pyrimethamine. (SP).* Report presented in a meeting at WHO Headquarters, 9-11 July 2012. Geneva: World Health Organization. http://www.who.int/malaria/mpac/sep2012/iptp_sp_erg_meeting_report_july2012.pdf.

World Health Organization. 2012b. "Intermittent Preventive Treatment of Malaria in Pregnancy Using Sulfadoxine-Pyrimethamine (IPTp-SP)." Updated WHO Policy Recommendation (October 2012) by the Global Malaria Programme. Geneva: World Health Organization. http://who.int/malaria/iptp_sp_updated_policy_recommendation_en_102012.pdf?ua=1.

SAMPLE DESIGN

Appendix A

A.1 INTRODUCTION

The Gambia Malaria Indicator Survey 2017 (GMIS 2017) was the second survey of its kind. The survey used a nationally representative sample of 5,422 households from 260 sample clusters. It was designed to provide up-to-date information on access, coverage and use of the core malaria interventions, including use of insecticide treated nets (ITN), indoor residual spraying with insecticide (IRS), malaria diagnosis and treatment; and malaria parasite prevalence in children aged 6-59 months and; malaria knowledge, attitude and practice among women of reproductive age 15-49 years, and the intermittent preventive treatment (IPTp) for malaria during their last pregnancy.

The survey was designed to produce representative results for the main MIS indicators for the country as a whole, for the urban and rural areas separately, for each of eight Local Government Areas (LGAs) in The Gambia, but the survey findings are presented by Health Region corresponding to the LGAs).

A.2 SAMPLING FRAME

The sampling frame used for GMIS 2017 is the preliminary results of the 2013 Population and Housing Census conducted in The Gambia (PHC 2013), provided by the Gambia Bureau of Statistics (GBoS). The sampling frame is a complete list of Enumeration Areas (EAs) covering the whole country. An EA is a geographic area consisting of a convenient number of households which served as counting unit for the census, with an average size of 53 households per EA. The sampling frame contains information about the location, the administrative attribution, the type of residence, and the numbers of residential households and population of each EA. A sketch map is also available for each EA which delimitates the geographic boundaries of the EA.

For the purposes of censuses and surveys, The Gambia is divided into eight Local Government Areas (LGAs). In turn, each LGA is sub-divided into districts, and each district into settlements. An EA is either a settlement, or a group of small settlements, or a part of a large settlement. These units allow the country as a whole to be easily separated into small geographical area units with an urban-rural designation. In The Gambia, there are 48 districts, 1,219 settlements and 4,098 EAs. Tables 1 and 2 below give the distribution of population, the distribution of households and EA by LGA and by residence. In The Gambia, 58% of the population lives in urban areas; the urban population lives mainly in the three LGAs of Banjul, Kanifing and Brikama; the urban population accouns for 67% of all households in The Gambia.

Table A.1 below shows the distribution of population and residential households by LGA based on the preliminary results of the PHC 2013. The size of the LGA varies from 1.7% for Banjul to 37.2% for Brikama. Table A.2 below shows the distribution of EAs and their average size in number of households. The average EA size is 65 households in urban areas and 39 households in rural areas, with an overall average size of 53 households per EA.

A.3 SAMPLE DESIGN AND IMPLEMENTATION

The sample for the GMIS 2017 was a stratified sample selected in two stages from the sampling frame. Stratification was achieved by separating each LGA into urban and rural areas. In total, 14 sampling strata had been created since Banjul and Kanifing are entirely settlements urban. Samples were selected independently in each stratum, by a two stage selection. Implicit stratification and proportional allocation had been achieved at each of the lower administrative levels by sorting the sampling frame within each sampling stratum before sample selection, according to administrative units, and by using a Probability Proportional to Size selection at the first stage's sampling.

In the first stage, 260 EAs were selected with probability proportional to the EA size and with independent selection in each sampling stratum with the sample allocation given in Table A.3. The EA size is the number of residential households residing in the EA during the population census of 2013. After the selection of the Primary Sampling Units (PSU), the EAs in the first stage, and before the main survey, a household listing operation was carried out in all the

selected EAs, and the resulting lists of households were used as sampling frame for the selection of households in the second stage. Some of the selected EAs are large in size. In order to minimize the task of household listing, the selected EAs which have more than 200 households could be segmented. Only one segment was selected for the survey with probability proportional to the segment size. Household listing was conducted only in the selected segment (see detailed instructions for segmentation in the Manual for Household Listing). So a GMIS 2017 cluster is either an EA or a segment of an EA.

In the second stage of selection, a fixed number of 20 households per cluster in urban areas and 22 households per cluster in rural areas, were selected with equal probability systematic selection from the newly created household listing. The survey interviewers were instructed to interview only the pre-selected households. No replacements and no changes of the pre-selected households were allowed in the implementing stages in order to prevent bias. All women aged 15-49 who were usual members of the selected households or who spent the night in the selected households the day before the survey were eligible for the female survey.

Table A.3 below shows the sample allocation of clusters and the sample allocation of households according to LGA and by type of residence; Table A.4 below shows the sample allocation of expected number of completed women interviews according to LGA and by type of residence, and the expected number of children under 5 covered by the survey. In order that the survey precisions are comparable across LGAs, the sample allocation figures a power allocation. This allocation was aimed to achieve comparable survey precision across LGAs. Banjul was over sampled by considering its heterogeneity in social, economic and cultural aspects, and low fertility level. With a fixed sample take of 20 households per urban cluster and 22 households per rural cluster, the survey selected 260 EAs. Among them 149 clusters are allocated to urban areas, and 111 are allocated to rural areas. The survey were conducted in 5,422 residential households, 2,980 in urban areas and 2,442 in rural areas. The survey was expected to result in 7,761 completed women interviews, 3,567 in urban areas and 4,194 in rural areas. The survey was expected to cover about 6,000 children under 5. The sample calculations were based on the survey results of The Gambia DHS 2013

Table A.4 below shows the 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, by type of residence and by health region.

A.4 Sample Probabilities and Sampling Weights

Because of the non-proportional allocation of the sample to the different regions and study domains, sampling weights will be required for any analysis using the GMIS 2017 data to ensure the actual representativity of the sample. Since the GMIS 2017 sample was a two-stage stratified cluster sample, sampling weights were calculated based on sampling probabilities which were calculated separately for each sampling stage and for each cluster. We use the following notations:

P_{1hi}: sampling probability of the i^{th} cluster in stratum h
P_{2hi}: sampling probability within the i^{th} cluster for households
P_{hi}: overall sampling probability of any households of the i^{th} cluster in stratum h

Let a_h be the number of clusters selected in stratum h for the GMIS, M_{hi} the number of households according to the sampling frame in the i^{th} cluster, and $\sum M_{hi}$ the total number of structures in the stratum h. The probability of selecting the i^{th} cluster in stratum h for the GMIS 2017 is calculated as follows:

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

Let L_{hi} and g_{hi} be the number of households listed and selected in the i^{th} cluster in stratum h. The probability for selecting a household in the i^{th} 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 production of the selection probabilities:

$$P_{hi} = P_{1hi} \times P_{2hi} = \frac{a_h g_{hi} M_{hi}}{L_{hi} \sum M_{hi}}$$

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

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

A spreadsheet containing all sampling parameters and selection probabilities was constructed to facilitate the calculation of sampling weights. Design weight was adjusted for household non-response as well as for individual non-response to get the sampling weights for households and for individual women, respectively. The differences between the household sampling weights and the individual women sampling weights are introduced by individual non-response. Sampling weights for malaria testing for children were obtained by adjusting the household sampling weight for non response to test for children. All the sampling weights were further normalized at the national level to produce un-weighted cases equal to weighted cases for interviewed households, for interviewed women 15-49 and for children who participated in the malaria test, respectively. It is important to note that the normalized weights are relative weights which are valid for estimating proportions, means, ratios and rates, but not valid for estimating population totals and not valid for pooled data from different surveys.

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Table A.1. Distribution of population and residential households by LGA

LGA	Population	Household	Population %	Household %
Banjul	31,301	6,657	1.7	2.9
Kanifing	382,096	67,119	20.3	29.2
Brikama	699704	87864	37.2	38.3
Mansakonko	82,361	8,919	4.4	3.9
Kerewan	221,054	22,407	11.7	9.8
Kuntaur	99,108	9,321	5.3	4.1
Janjanbureh	126,910	11,238	6.7	4.9
Basse	239,916	15,975	12.7	7.0
Total	1,882,450	229,500	100.00	100.00

Source: The Gambia 2013 Population and Housing Census Preliminary Results

Table A.2. Distribution of EAs and their average size in number of households by LGA

	Distribution of EA			Average EA size		
LGA	Urban	Rural	Total	Urban	Rural	Total Total
Banjul	74	0	74	90	0	90
Kanifing	773	0	773	78	0	78
Brikama	1,052	414	1,466	59	49	56
Mansakonko	32	172	204	67	44	47
Kerewan	106	387	493	61	42	46
Kuntaur	16	221	237	53	37	38
Janjanbureh	43	254	297	53	38	40
Basse	159	395	554	37	25	29
Total	2,255	1,843	4,098	65	39	53

Source: The Gambia 2013 Population and Housing Census Preliminary Results

Table A.3. Sample allocation of clusters and households by LGA

LGA	Allocation of EA			Allocation of households		
	Urban	Rural	Total	Urban	Rural	Total
Banjul	30	0	30	600	0	600
Kanifing	40	0	40	800	0	800
Brikama	29	18	47	580	396	976
Mansakonko	8	16	24	160	352	512
Kerewan	16	27	43	320	594	914
Kuntaur	4	19	23	80	418	498
Janjanbureh	8	15	23	160	330	490
Basse	14	16	30	280	352	632
Total	149	111	260	2,980	2,442	5,422

Table A.4 Sample implementation: Women

Per cent 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 province (unweighted), The Gambia MIS 2017

Result	Residence		Health Region							Total
	Urban	Rural	Western Region 1	Western Region 2	North Bank West	North Bank East	Lower River	Central River	Upper River	
Selected households										
Completed (C)	90.1	96.7	81.7	89.3	97.7	93.7	96.5	97.0	93.1	93.1
Household present but no competent respondent at home (HP)	1.1	0.3	1.9	1.8	0.4	0.2	0.4	0.0	0.0	0.7
Postponed (P)	0.2	0.0	0.3	0.0	0.0	0.0	0.1	0.0	0.0	0.1
Refused (R)	0.8	0.2	1.2	1.0	0.7	0.0	0.4	0.2	0.6	0.6
Dwelling not found (DNF)	1.3	0.2	2.7	1.9	0.1	0.4	0.2	0.2	0.6	0.8
Household absent (HA)	3.6	1.5	7.2	3.8	0.7	3.5	1.4	1.4	3.1	2.7
Dwelling vacant/address not a dwelling (DV)	2.4	0.9	3.9	2.1	0.3	1.2	0.8	1.0	2.4	1.7
Dwelling destroyed (DD)	0.3	0.0	1.0	0.1	0.0	0.2	0.0	0.0	0.2	0.2
Other (O)	0.2	0.1	0.0	0.1	0.0	0.8	0.1	0.2	0.0	0.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of sampled households	2,952	2,409	585	800	976	510	914	497	490	5,361
Household response rate (HRR)[1]	96.4	99.2	93.0	95.1	98.8	99.4	98.8	99.6	98.7	97.7
Eligible women										
Completed (EWC)	96.8	97.4	96.5	94.9	98.9	95.3	98.5	100.0	98.5	97.1
Not at home (EWNH)	2.5	1.7	2.8	4.3	1.0	3.8	0.6	0.0	1.1	2.1
Postponed (EWP)	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0
Refused (EWR)	0.5	0.3	0.8	0.5	0.0	0.1	0.4	0.0	0.1	0.4
Partly completed (EWPC)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incapacitated (EWI)	0.1	0.6	0.0	0.2	0.1	0.6	0.5	0.0	0.4	0.4
Other (EWO)	0.0	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	100.0
Number of women	4,783	5,212	650	1,286	1,832	894	1,755	951	846	9,995
Eligible women response rate (EWRR)[2]	96.8	97.4	96.5	94.9	98.9	95.3	98.5	100.0	98.5	97.1
Overall women response rate (ORR)[3]	93.3	96.6	89.7	90.3	97.7	94.7	97.2	99.6	97.2	94.9

[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:

$$OWRR = HRR * EWRR/100$$

ESTIMATES OF SAMPLING ERRORS Appendix B

The estimates from a sample survey are affected by two types of errors: non-sampling errors and sampling errors. Non-sampling errors are the results of mistakes made in implementing data collection and 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, and data entry errors. Although numerous efforts were made during the implementation of The Gambia MIS 2017 (GMIS 2017) to minimize this type of error, non-sampling 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 GMIS 2017 is only one of many samples that could have been selected from the same population, using the same design and expected size. Each of these samples would yield results that differ somewhat from the results of the actual sample selected. Sampling errors are a measure of the variability between all possible samples. Although the degree of variability is not known exactly, it can be estimated from the survey results.

A sampling error is usually measured in terms of the *standard error* for a particular statistic (mean, percentage, etc.), 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 GMIS 2017 sample is the result of a multi-stage stratified design, and, consequently, it was necessary to use more complex formulae. The computer software used to calculate sampling errors for The GMIS 2017 is a SAS programme. This programme used the Taylor linearization method of variance estimation for survey estimates that are means, proportions or ratios. The Jackknife repeated replication method is used for variance estimation of more complex statistics such as fertility and mortality rates.

The Taylor linearization 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 calculated, which 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. The relative standard error and confidence limits for the estimates are also calculated.

Sampling errors for The GMIS 2017 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 separately, and for each of the seven health regions in The Gambia. For each variable, the type of statistic (mean, proportion, or rate) and the base population are given in Table B.1. Tables B.2 to B.11 present the value of the statistic (R), its standard error (SE), the number of un-weighted (N) and weighted (WN) cases, the design effect (DEFT), the relative standard error (SE/R), and the 95% confidence limits (R±2SE), for each variable. The DEFT is considered undefined when the standard error considering simple random sample is zero (when the estimate is close to 0 or 1). In the case of the total fertility rate, the number of un-weighted cases is not relevant, as there is no known un-weighted value for woman-years of exposure to child-bearing.

The confidence interval (e.g., as calculated for children under five *"Had a fever in last two weeks"*) can be interpreted as follows: the overall proportion from the national sample is 0.298 and its standard error is 0.013. Therefore, to obtain the 95% confidence limits, one adds and subtracts twice the standard error to the sample estimate, i.e., 0.298±2×0.013. There is a high probability (95%) that the *true* average proportion of children under five had fever in the last two weeks is between 0.273 and 0.323.

For the total sample, the value of the DEFT, averaged over all variables, is 1.784. This means that, due to multi-stage clustering of the sample, the average standard error is increased by a factor of 1.784 over that in an equivalent simple random sample.

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Table B.1 List of indicators for sampling errors, The Gambia MIS 2017

VARIABLE	Type of Estimate	Base Population
HOUSEHOLDS		
Proportion of households having at least one mosquito net of any type	Proportion	All households interviewed
Average number of any mosquito nets per household	Mean	All households interviewed
Proportion of households having at least one ITN	Proportion	All households interviewed
Average number of ITNs per household	Mean	All households interviewed
CHILDREN UNDER FIVE		
Slept under any mosquito net last night	Proportion	All children under five years of age
Slept under an ITN last night	Proportion	All children under five years of age
Had a fever in last two weeks	Proportion	All children under five years of age
Sought for medical treatment for fever	Proportion	Children under five years of age had fever
Received medical treatment for fever	Proportion	Children under five years of age had fever
Received ACT treatment for fever	Proportion	Children under five years of age had fever
Prevalence of anaemia (haemoglobin level <8.0g/dl)	Proportion	All children under five who were tested
Prevalence of malaria (RDT)	Proportion	All children under five who were tested
Prevalence of malaria (microscopy test)	Proportion	All children under five who were tested
WOMEN AND PREGNANT WOMEN		
Urban residence	Proportion	All women 15-49
No education	Proportion	All women 15-50
Secondary education or higher	Proportion	All women 15-51
Slept under any bednet last night	Proportion	Pregnant women 15-49
Slept under an ITN last night	Proportion	Pregnant women 15-49
Percentage who received 1+ doses of SP/Fansidar	Proportion	Pregnant women 15-49
Percentage who received 2+ doses of SP/Fansidar	Proportion	Pregnant women 15-49
Percentage who received 3+ doses of SP/Fansidar	Proportion	Pregnant women 15-49

Table B.2 Sampling errors: Total sample, The Gambia MIS 2017

Variable	R	SE	N	WN	DEFT	SE/R	R-2SE	R+2SE
HOUSEHOLDS								
Proportion of households having at least one bednet of any type	0.793	0.014	4,990	4,990	2.382	0.017	0.766	0.820
Average number of any bednets per household	3.012	0.078	4,990	4,990	1.782	0.026	2.857	3.168
Proportion of households having at least one ITN	0.787	0.013	4,990	4,990	2.249	0.017	0.761	0.813
Average number of ITNs per household	2.978	0.078	4,990	4,990	1.784	0.026	2.823	3.133
CHILDREN UNDER FIVE								
Slept under any bednet last night	0.631	0.014	6,880	6,182	1.584	0.022	0.603	0.659
Slept under an ITN last night	0.624	0.014	6,880	6,182	1.583	0.023	0.596	0.652
Had a fever in last two weeks	0.298	0.013	5,730	5,277	1.868	0.042	0.273	0.323
Sought treatment for fever	0.825	0.014	1,546	1,572	1.346	0.017	0.798	0.853
Had received antimalaria treatment for fever	0.185	0.032	1,546	1,572	2.964	0.175	0.120	0.249
Had received ACT treatment for fever	0.296	0.065	196	290	2.231	0.221	0.165	0.427
Prevalence of anaemia (haemoglobin level <8.0g/dl)	0.044	0.004	5,580	4,941	1.243	0.088	0.036	0.052
Prevalence of malaria (RDT)	0.004	0.001	5,572	4,933	1.327	0.286	0.002	0.007
Prevalence of malaria (microscopy test)	0.001	0.001	5,581	5,581	1.486	0.729	0.000	0.003
WOMEN AND PREGNANT WOMEN								
Urban residence	0.633	0.011	9,706	9,706	2.183	0.017	0.611	0.654
No education	0.392	0.010	9,706	9,706	2.080	0.026	0.371	0.412
Secondary education or higher	0.464	0.011	9,706	9,706	2.105	0.023	0.443	0.486
Slept under any bednet last night	0.694	0.030	648	564	1.492	0.044	0.633	0.755
Slept under an ITN last night	0.685	0.030	648	564	1.481	0.044	0.625	0.746
Percentage who received 1+ doses of SP/Fansidar	0.916	0.012	1,100	1,077	1.488	0.014	0.891	0.941
Percentage who received 2+ doses of SP/Fansidar	0.750	0.019	1,100	1,077	1.424	0.025	0.713	0.787
Percentage who received 3+ doses of SP/Fansidar	0.434	0.021	1,100	1,077	1.384	0.048	0.393	0.476

Table B.3 Sampling errors: Urban sample, The Gambia MIS 2017

Variable	R	SE	N	WN	DEFT	SE/R	R-2SE	R+2SE
HOUSEHOLDS								
Proportion of households having at least one bednet of any type	0.729	0.019	2,661	3,351	2.246	0.027	0.690	0.767
Average number of any bednets per household	2.282	0.092	2,661	3,351	1.907	0.040	2.098	2.466
Proportion of households having at least one ITN	0.722	0.018	2,661	3,351	2.120	0.026	0.685	0.759
Average number of ITNs per household	2.254	0.092	2,661	3,351	1.912	0.041	2.071	2.438
CHILDREN UNDER FIVE								
Slept under any bednet last night	0.571	0.021	2,589	3,241	1.590	0.037	0.529	0.614
Slept under an ITN last night	0.565	0.021	2,589	3,241	1.586	0.038	0.523	0.608
Had a fever in last two weeks	0.328	0.019	2,172	2,770	1.733	0.059	0.289	0.366
Sought treatment for fever	0.854	0.019	664	907	1.342	0.023	0.815	0.893
Had received antimalaria treatment for fever	0.258	0.054	664	907	2.896	0.211	0.149	0.366
Had received ACT treatment for fever	0.218	0.065	117	234	1.912	0.296	0.089	0.348
Prevalence of anaemia (haemoglobin level <8.0g/dl)	0.029	0.006	2,030	2,512	1.542	0.211	0.017	0.041
Prevalence of malaria (RDT)	0.005	0.002	2,029	2,510	1.269	0.423	0.001	0.009
Prevalence of malaria (microscopy test)	0.000	0.000	2,032	2,882	0.443	1.001	0.000	0.000
WOMEN AND PREGNANT WOMEN								
Urban residence	1.000	0.000	4,630	6,141	na	0.000	1.000	1.000
No education	0.301	0.013	4,630	6,141	1.932	0.043	0.275	0.327
Secondary education or higher	0.574	0.014	4,630	6,141	1.986	0.025	0.545	0.602
Slept under any bednet last night	0.687	0.049	262	297	1.599	0.071	0.589	0.784
Slept under an ITN last night	0.685	0.049	262	297	1.600	0.071	0.587	0.782
Percentage who received 1+ doses of SP/Fansidar	0.908	0.019	484	641	1.475	0.021	0.869	0.947
Percentage who received 2+ doses of SP/Fansidar	0.759	0.027	484	641	1.383	0.036	0.705	0.813
Percentage who received 3+ doses of SP/Fansidar	0.497	0.029	484	641	1.286	0.059	0.439	0.556

Table B.4 Sampling errors: Rural sample, The Gambia MIS 2017

Variable	R	SE	N	WN	DEFT	SE/R	R-2SE	R+2SE
HOUSEHOLDS								
Proportion of households having at least one bednet of any type	0.924	0.012	2,329	1,639	2.100	0.012	0.901	0.947
Average number of any bednets per household	4.507	0.134	2,329	1,639	1.806	0.030	4.238	4.775
Proportion of households having at least one ITN	0.920	0.011	2,329	1,639	2.019	0.012	0.897	0.943
Average number of ITNs per household	4.457	0.134	2,329	1,639	1.800	0.030	4.190	4.725
CHILDREN UNDER FIVE								
Slept under any bednet last night	0.697	0.018	4,291	2,942	1.639	0.026	0.661	0.733
Slept under an ITN last night	0.689	0.018	4,291	2,942	1.641	0.026	0.653	0.726
Had a fever in last two weeks	0.265	0.016	3,558	2,507	2.058	0.061	0.233	0.297
Sought treatment for fever	0.786	0.017	882	665	1.214	0.022	0.753	0.820
Had received antimalaria treatment for fever	0.085	0.013	882	665	1.357	0.156	0.059	0.112
Had received ACT treatment for fever	0.615	0.074	79	57	1.246	0.120	0.468	0.763
Prevalence of anaemia (haemoglobin level <8.0g/dl)	0.060	0.005	3,550	2,429	1.057	0.076	0.051	0.069
Prevalence of malaria (RDT)	0.004	0.002	3,543	2,424	1.424	0.375	0.001	0.007
Prevalence of malaria (microscopy test)	0.002	0.002	3,549	2,699	1.808	0.753	0.000	0.006
WOMEN AND PREGNANT WOMEN								
Urban residence	0.000	0.000	5,076	3,565	na	na	0.000	0.000
No education	0.548	0.017	5,076	3,565	2.404	0.031	0.515	0.582
Secondary education or higher	0.276	0.014	5,076	3,565	2.223	0.051	0.248	0.304
Slept under any bednet last night	0.702	0.035	386	268	1.358	0.050	0.633	0.772
Slept under an ITN last night	0.686	0.034	386	268	1.312	0.050	0.618	0.754
Percentage who received 1+ doses of SP/Fansidar	0.927	0.012	616	436	1.146	0.013	0.903	0.951
Percentage who received 2+ doses of SP/Fansidar	0.738	0.023	616	436	1.276	0.031	0.692	0.783
Percentage who received 3+ doses of SP/Fansidar	0.341	0.022	616	436	1.157	0.065	0.297	0.386

Table B.5 Sampling errors: Western 1 sample, The Gambia MIS 2017

Variable	R	SE	N	WN	DEFT	SE/R	R-2SE	R+2SE
HOUSEHOLDS								
Proportion of households having at least one bednet of any type	0.688	0.023	1,632	2,620	2.034	0.034	0.642	0.735
Average number of any bednets per household	1.924	0.091	1,632	2,620	1.707	0.047	1.742	2.105
Proportion of households having at least one ITN	0.682	0.022	1,632	2,620	1.913	0.032	0.637	0.726
Average number of ITNs per household	1.894	0.091	1,632	2,620	1.715	0.048	1.712	2.075
CHILDREN UNDER FIVE								
Slept under any bednet last night	0.527	0.023	1,268	2,295	1.327	0.045	0.480	0.574
Slept under an ITN last night	0.520	0.024	1,268	2,295	1.327	0.045	0.473	0.567
Had a fever in last two weeks	0.353	0.024	1,052	1,950	1.571	0.068	0.305	0.401
Sought treatment for fever	0.878	0.024	375	689	1.384	0.027	0.831	0.925
Had received antimalaria treatment for fever	0.336	0.065	375	689	2.456	0.194	0.206	0.467
Had received ACT treatment for fever	0.198	0.061	105	232	1.632	0.311	0.075	0.320
Prevalence of anaemia (haemoglobin level <8.0g/dl)	0.028	0.008	995	1,775	1.608	0.282	0.012	0.044
Prevalence of malaria (RDT)	0.005	0.003	995	1,773	1.197	0.515	0.000	0.010
Prevalence of malaria (microscopy test)	0.000	0.000	996	2,042	na	na	0.000	0.000
WOMEN AND PREGNANT WOMEN								
Urban residence	0.968	0.005	2,629	4,590	1.539	0.005	0.957	0.978
No education	0.290	0.015	2,629	4,590	1.724	0.053	0.259	0.320
Secondary education or higher	0.607	0.017	2,629	4,590	1.817	0.029	0.573	0.642
Slept under any bednet last night	0.681	0.063	120	191	1.462	0.093	0.554	0.808
Slept under an ITN last night	0.680	0.063	120	191	1.464	0.093	0.553	0.807
Percentage who received 1+ doses of SP/Fansidar	0.911	0.022	266	491	1.270	0.024	0.867	0.956
Percentage who received 2+ doses of SP/Fansidar	0.778	0.031	266	491	1.229	0.040	0.715	0.841
Percentage who received 3+ doses of SP/Fansidar	0.515	0.033	266	491	1.075	0.064	0.449	0.581

Table B.6 Sampling errors: Western 2 sample, The Gambia MIS 2017

Variable	R	SE	N	WN	DEFT	SE/R	R-2SE	R+2SE
HOUSEHOLDS								
Proportion of households having at least one bednet of any type	0.841	0.019	514	889	1.190	0.023	0.803	0.880
Average number of any bednets per household	3.100	0.163	514	889	1.450	0.052	2.775	3.425
Proportion of households having at least one ITN	0.836	0.020	514	889	1.201	0.023	0.797	0.876
Average number of ITNs per household	3.080	0.163	514	889	1.453	0.053	2.753	3.406
CHILDREN UNDER FIVE								
Slept under any bednet last night	0.621	0.041	707	1,207	1.513	0.066	0.539	0.703
Slept under an ITN last night	0.613	0.041	707	1,207	1.504	0.066	0.532	0.695
Had a fever in last two weeks	0.290	0.036	612	1,050	1.821	0.124	0.218	0.363
Sought treatment for fever	0.812	0.027	175	305	0.817	0.033	0.758	0.865
Had received antimalaria treatment for fever	0.062	0.017	175	305	0.889	0.283	0.027	0.096
Had received ACT treatment for fever	0.619	0.163	12	19	1.044	0.264	0.292	0.945
Prevalence of anaemia (haemoglobin level <8.0g/dl)	0.024	0.007	570	968	0.951	0.288	0.010	0.038
Prevalence of malaria (RDT)	0.009	0.004	569	966	1.096	0.480	0.000	0.017
Prevalence of malaria (microscopy test)	0.005	0.004	570	1,084	1.222	0.968	0.000	0.014
WOMEN AND PREGNANT WOMEN								
Urban residence	0.558	0.028	1,031	1,820	1.831	0.051	0.501	0.615
No education	0.297	0.024	1,031	1,820	1.716	0.082	0.249	0.346
Secondary education or higher	0.499	0.023	1,031	1,820	1.444	0.045	0.454	0.544
Slept under any bednet last night	0.596	0.075	81	135	1.256	0.125	0.447	0.745
Slept under an ITN last night	0.586	0.072	81	135	1.218	0.124	0.441	0.731
Percentage who received 1+ doses of SP/Fansidar	0.914	0.035	101	174	1.231	0.038	0.845	0.983
Percentage who received 2+ doses of SP/Fansidar	0.731	0.046	101	174	1.035	0.063	0.640	0.823
Percentage who received 3+ doses of SP/Fansidar	0.430	0.063	101	174	1.273	0.147	0.304	0.557

Table B.7 Sampling errors: North Bank West sample, The Gambia MIS 2017

Variable	R	SE	N	WN	DEFT	SE/R	R-2SE	R+2SE
HOUSEHOLDS								
Proportion of households having at least one bednet of any type	0.883	0.018	421	244	1.117	0.020	0.847	0.918
Average number of any bednets per household	3.888	0.126	421	244	0.870	0.032	3.636	4.140
Proportion of households having at least one ITN	0.883	0.018	421	244	1.130	0.020	0.848	0.919
Average number of ITNs per household	3.881	0.124	421	244	0.857	0.032	3.632	4.130
CHILDREN UNDER FIVE								
Slept under any bednet last night	0.675	0.045	654	390	1.675	0.066	0.585	0.764
Slept under an ITN last night	0.675	0.045	654	390	1.675	0.066	0.585	0.764
Had a fever in last two weeks	0.200	0.030	541	326	1.613	0.152	0.139	0.260
Sought treatment for fever	0.918	0.029	111	65	1.095	0.031	0.860	0.976
Had received antimalaria treatment for fever	0.072	0.025	111	65	0.997	0.346	0.022	0.122
Had received ACT treatment for fever	0.385	0.180	8	5	1.038	0.468	0.025	0.745
Prevalence of anaemia (haemoglobin level <8.0g/dl)	0.027	0.007	526	314	0.826	0.247	0.014	0.040
Prevalence of malaria (RDT)	0.002	0.002	526	314	1.070	1.008	0.000	0.006
Prevalence of malaria (microscopy test)	0.004	0.003	525	347	1.000	0.711	0.000	0.009
WOMEN AND PREGNANT WOMEN								
Urban residence	0.170	0.017	880	524	1.350	0.100	0.136	0.205
No education	0.534	0.036	880	524	2.147	0.068	0.462	0.607
Secondary education or higher	0.314	0.032	880	524	2.016	0.101	0.251	0.377
Slept under any bednet last night	0.715	0.057	60	36	1.012	0.079	0.602	0.829
Slept under an ITN last night	0.699	0.061	60	36	1.069	0.087	0.577	0.821
Percentage who received 1+ doses of SP/Fansidar	0.880	0.026	107	63	0.833	0.030	0.828	0.933
Percentage who received 2+ doses of SP/Fansidar	0.610	0.063	107	63	1.328	0.103	0.484	0.736
Percentage who received 3+ doses of SP/Fansidar	0.189	0.043	107	63	1.142	0.230	0.102	0.276

Table B.8 Sampling errors: North Bank East sample, The Gambia MIS 2017

Variable	R	SE	N	WN	DEFT	SE/R	R-2SE	R+2SE
HOUSEHOLDS								
Proportion of households having at least one bednet of any type	0.919	0.017	461	253	1.309	0.018	0.886	0.953
Average number of any bednets per household	4.193	0.243	461	253	1.785	0.058	3.707	4.679
Proportion of households having at least one ITN	0.919	0.017	461	253	1.309	0.018	0.886	0.953
Average number of ITNs per household	4.190	0.242	461	253	1.784	0.058	3.705	4.675
CHILDREN UNDER FIVE								
Slept under any bednet last night	0.749	0.037	637	363	1.542	0.050	0.674	0.824
Slept under an ITN last night	0.749	0.037	637	363	1.542	0.050	0.674	0.824
Had a fever in last two weeks	0.222	0.019	524	300	1.049	0.087	0.184	0.261
Sought treatment for fever	0.884	0.031	115	67	1.048	0.035	0.823	0.945
Had received antimalaria treatment for fever	0.020	0.013	115	67	0.995	0.641	0.000	0.045
Had received ACT treatment for fever	1.000	0.000	2	1	na	0.000	1.000	1.000
Prevalence of anaemia (haemoglobin level <8.0g/dl)	0.044	0.009	542	310	1.062	0.209	0.026	0.063
Prevalence of malaria (RDT)	0.000	0.000	540	309	na	na	0.000	0.000
Prevalence of malaria (microscopy test)	0.000	0.000	542	345	na	na	0.000	0.000
WOMEN AND PREGNANT WOMEN								
Urban residence	0.287	0.029	848	473	1.849	0.100	0.230	0.345
No education	0.568	0.038	848	473	2.229	0.067	0.492	0.644
Secondary education or higher	0.297	0.037	848	473	2.352	0.125	0.223	0.371
Slept under any bednet last night	0.857	0.035	67	38	0.862	0.041	0.786	0.927
Slept under an ITN last night	0.857	0.035	67	38	0.862	0.041	0.786	0.927
Percentage who received 1+ doses of SP/Fansidar	0.977	0.017	95	52	1.080	0.017	0.943	1.010
Percentage who received 2+ doses of SP/Fansidar	0.774	0.049	95	52	1.138	0.064	0.676	0.872
Percentage who received 3+ doses of SP/Fansidar	0.330	0.045	95	52	0.922	0.135	0.240	0.419

Table B.9 Sampling errors: Lower River sample, The Gambia MIS 2017

Variable	R	SE	N	WN	DEFT	SE/R	R-2SE	R+2SE
HOUSEHOLDS								
Proportion of households having at least one bednet of any type	0.968	0.008	478	179	0.999	0.008	0.951	0.984
Average number of any bednets per household	4.157	0.190	478	179	1.689	0.046	3.777	4.538
Proportion of households having at least one ITN	0.951	0.010	478	179	0.993	0.010	0.932	0.971
Average number of ITNs per household	3.979	0.187	478	179	1.702	0.047	3.605	4.353
CHILDREN UNDER FIVE								
Slept under any bednet last night	0.839	0.020	592	220	1.208	0.024	0.799	0.879
Slept under an ITN last night	0.812	0.022	592	220	1.192	0.027	0.768	0.856
Had a fever in last two weeks	0.251	0.030	484	184	1.481	0.121	0.190	0.312
Sought treatment for fever	0.762	0.039	122	46	0.996	0.051	0.684	0.841
Had received antimalaria treatment for fever	0.191	0.025	122	46	0.702	0.132	0.140	0.241
Had received ACT treatment for fever	0.650	0.127	23	9	1.259	0.196	0.395	0.904
Prevalence of anaemia (haemoglobin level <8.0g/dl)	0.023	0.008	468	172	1.078	0.344	0.007	0.039
Prevalence of malaria (RDT)	0.003	0.003	468	172	1.147	0.993	0.000	0.009
Prevalence of malaria (microscopy test)	0.001	0.001	468	192	0.821	0.993	0.000	0.004
WOMEN AND PREGNANT WOMEN								
Urban residence	0.269	0.024	852	321	1.554	0.088	0.221	0.316
No education	0.391	0.021	852	321	1.241	0.053	0.350	0.433
Secondary education or higher	0.380	0.022	852	321	1.314	0.058	0.336	0.424
Slept under any bednet last night	0.867	0.043	61	23	1.037	0.050	0.780	0.954
Slept under an ITN last night	0.851	0.045	61	23	1.014	0.052	0.762	0.940
Percentage who received 1+ doses of SP/Fansidar	0.973	0.016	83	31	0.897	0.017	0.941	1.005
Percentage who received 2+ doses of SP/Fansidar	0.845	0.034	83	31	0.859	0.041	0.777	0.914
Percentage who received 3+ doses of SP/Fansidar	0.461	0.046	83	31	0.839	0.100	0.368	0.553

Table B.10 Sampling errors: Central River sample, The Gambia MIS 2017

Variable	R	SE	N	WN	DEFT	SE/R	R-2SE	R+2SE
HOUSEHOLDS								
Proportion of households having at least one bednet of any type	0.975	0.012	938	479	2.273	0.012	0.951	0.998
Average number of any bednets per household	5.021	0.193	938	479	1.708	0.038	4.636	5.406
Proportion of households having at least one ITN	0.971	0.014	938	479	2.600	0.015	0.942	0.999
Average number of ITNs per household	4.946	0.196	938	479	1.749	0.040	4.555	5.338
CHILDREN UNDER FIVE								
Slept under any bednet last night	0.800	0.016	1,553	815	1.291	0.020	0.767	0.832
Slept under an ITN last night	0.787	0.020	1,553	815	1.494	0.026	0.747	0.828
Had a fever in last two weeks	0.158	0.021	1,245	662	1.898	0.131	0.117	0.199
Sought treatment for fever	0.751	0.038	193	104	1.147	0.050	0.676	0.826
Had received antimalaria treatment for fever	0.106	0.025	193	104	1.104	0.234	0.056	0.156
Had received ACT treatment for fever	0.599	0.117	22	11	1.041	0.196	0.365	0.834
Prevalence of anaemia (haemoglobin level <8.0g/dl)	0.096	0.009	1,292	680	1.025	0.089	0.079	0.114
Prevalence of malaria (RDT)	0.000	0.000	1,289	678	na	na	0.000	0.000
Prevalence of malaria (microscopy test)	0.000	0.000	1,291	753	na	na	0.000	0.000
WOMEN AND PREGNANT WOMEN								
Urban residence	0.113	0.010	1,784	922	1.373	0.091	0.093	0.134
No education	0.669	0.022	1,784	922	1.940	0.032	0.626	0.713
Secondary education or higher	0.219	0.018	1,784	922	1.876	0.084	0.183	0.256
Slept under any bednet last night	0.822	0.040	126	64	1.093	0.049	0.742	0.902
Slept under an ITN last night	0.783	0.046	126	64	1.150	0.059	0.691	0.875
Percentage who received 1+ doses of SP/Fansidar	0.882	0.033	213	114	1.472	0.037	0.816	0.947
Percentage who received 2+ doses of SP/Fansidar	0.763	0.044	213	114	1.514	0.058	0.674	0.851
Percentage who received 3+ doses of SP/Fansidar	0.356	0.053	213	114	1.596	0.148	0.251	0.462

Table B.11 Sampling errors: Upper River sample, The Gambia MIS 2017

Variable	R	SE	N	WN	DEFT	SE/R	R-2SE	R+2SE
HOUSEHOLDS								
Proportion of households having at least one bednet of any type	0.973	0.007	546	326	1.021	0.007	0.959	0.988
Average number of any bednets per household	6.371	0.450	546	326	2.009	0.071	5.471	7.271
Proportion of households having at least one ITN	0.968	0.009	546	326	1.164	0.009	0.950	0.985
Average number of ITNs per household	6.353	0.450	546	326	2.005	0.071	5.453	7.252
CHILDREN UNDER FIVE								
Slept under any bednet last night	0.641	0.034	1,469	892	1.594	0.054	0.573	0.710
Slept under an ITN last night	0.639	0.034	1,469	892	1.590	0.053	0.571	0.708
Had a fever in last two weeks	0.368	0.023	1,272	805	1.597	0.062	0.323	0.414
Sought treatment for fever	0.720	0.027	455	297	1.250	0.038	0.666	0.774
Had received antimalaria treatment for fever	0.048	0.017	455	297	1.618	0.364	0.013	0.082
Had received ACT treatment for fever	0.925	0.054	24	14	0.780	0.058	0.818	1.033
Prevalence of anaemia (haemoglobin level <8.0g/dl)	0.072	0.010	1,187	722	1.240	0.138	0.052	0.092
Prevalence of malaria (RDT)	0.005	0.002	1,185	721	0.979	0.437	0.001	0.009
Prevalence of malaria (microscopy test)	0.000	0.001	1,189	819	0.790	1.019	0.000	0.002
WOMEN AND PREGNANT WOMEN								
Urban residence	0.253	0.039	1,682	1,057	3.623	0.152	0.176	0.330
No education	0.603	0.027	1,682	1,057	2.299	0.046	0.548	0.658
Secondary education or higher	0.173	0.021	1,682	1,057	2.251	0.120	0.132	0.215
Slept under any bednet last night	0.650	0.060	133	78	1.294	0.093	0.530	0.770
Slept under an ITN last night	0.650	0.060	133	78	1.294	0.093	0.530	0.770
Percentage who received 1+ doses of SP/Fansidar	0.940	0.014	235	152	0.919	0.015	0.911	0.968
Percentage who received 2+ doses of SP/Fansidar	0.702	0.025	235	152	0.824	0.035	0.653	0.752
Percentage who received 3+ doses of SP/Fansidar	0.368	0.028	235	152	0.887	0.076	0.312	0.424

DATA QUALITY TABLES

Appendix C

Table C.1 Household age distribution

Single-year age distribution of the *de facto* household population by sex (weighted), The Gambia MIS 2017

	Female		Male			Female		Male	
Age	Number	Per cent	Number	Per cent	Age	Number	Percent	Number	Percent
0	585	2.8	567	2.9	36	277	1.3	165	0.9
1	548	2.6	586	3.0	37	200	0.9	148	0.8
2	560	2.7	598	3.1	38	219	1.0	158	0.8
3	675	3.2	737	3.8	39	154	0.7	128	0.7
4	739	3.5	669	3.5	40	305	1.4	279	1.4
5	704	3.3	687	3.6	41	85	0.4	95	0.5
6	700	3.3	731	3.8	42	141	0.7	142	0.7
7	763	3.6	760	3.9	43	130	0.6	141	0.7
8	617	2.9	640	3.3	44	88	0.4	72	0.4
9	603	2.9	618	3.2	45	232	1.1	298	1.5
10	578	2.7	655	3.4	46	87	0.4	106	0.5
11	495	2.3	495	2.6	47	78	0.4	97	0.5
12	591	2.8	520	2.7	48	75	0.4	111	0.6
13	583	2.8	531	2.8	49	70	0.3	81	0.4
14	512	2.4	413	2.1	50	214	1.0	173	0.9
15	431	2.0	540	2.8	51	106	0.5	74	0.4
16	392	1.9	379	2.0	52	157	0.7	128	0.7
17	528	2.5	417	2.2	53	104	0.5	87	0.4
18	516	2.4	426	2.2	54	87	0.4	77	0.4
19	384	1.8	287	1.5	55	139	0.7	127	0.7
20	461	2.2	478	2.5	56	69	0.3	78	0.4
21	260	1.2	246	1.3	57	66	0.3	92	0.5
22	419	2.0	305	1.6	58	49	0.2	69	0.4
23	436	2.1	339	1.8	59	33	0.2	34	0.2
24	337	1.6	226	1.2	60	171	0.8	154	0.8
25	511	2.4	361	1.9	61	40	0.2	34	0.2
26	294	1.4	203	1.1	62	37	0.2	49	0.3
27	316	1.5	261	1.4	63	41	0.2	57	0.3
28	340	1.6	215	1.1	64	28	0.1	55	0.3
29	253	1.2	147	0.8	65	116	0.5	117	0.6
30	530	2.5	346	1.8	66	13	0.1	21	0.1
31	196	0.9	117	0.6	67	26	0.1	55	0.3
32	279	1.3	170	0.9	68	27	0.1	34	0.2
33	174	0.8	126	0.7	69	19	0.1	12	0.1
34	200	0.9	119	0.6	70+	473	2.2	426	2.2
35	394	1.9	331	1.7	Don't know/missing	40	0.2	74	0.4
					Total	21,100	100.0	19,293	100.0

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

Table C.2.1 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, and percentage of eligible women who were interviewed (weighted), by 5-year age groups, The Gambia MIS 2017

Age group	Household population of women age 10-54	Interviewed women age 15-49		Percentage of eligible women interviewed
		Number	Percentage	
10-14	2,759	-	-	-
15-19	2,251	2,183	22.9	97.0
20-24	1,912	1,857	19.5	97.1
25-29	1,713	1,677	17.6	97.9
30-34	1,379	1,351	14.2	97.9
35-39	1,244	1,218	12.8	97.9
40-44	749	730	7.6	97.5
45-49	542	526	5.5	97.1
50-54	669	na	na	na
15-49	9,791	9,542	100.0	97.5

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

PERSONNEL OF THE GAMBIA MIS 2017 *Appendix D*

HOUSEHOLD LISTING TEAMS

Group 1		**Group 2**	
Supervisor	Alieu B Ceesay	Supervisor	Dobally Jobe
Mapper	Alieu Danso	Mapper	Samba Sowe
	Joy Karafa Gomez		Mariama Jammeh
	Modou Lamin Jarjussey		Babucarr Danso
	Alagie Lamin Camara		Bakary Sanneh
Group 3		**Group 4**	
Supervisor	Maweya Ayoub	Supervisor	Lamin Daffeh
Mapper	Lamin Danso	Mapper	Ebou Jawo
	Therease Mendy		Fatima Stanley
	Omar Kanteh		Essa Jammeh
Group 5		**Facilitators**	
Supervisor	Sanna Fofana	Alagie Fanneh	
Mapper	Alagie Dumbuya	Ebrima Manneh	
	Yaya Jadama		
	Musa Sanyang		
	Lamin Demba		

TRAINERS

No.	**Name**	**Designation**	**Institution**
1	Masanneh Landing Ceesay	MIS Coordinator	GBoS
2	Mawdo Gibba	Statistician	GBoS
3	Mama Jarju	Senior Statistician	GBoS
4	Ebrima Suso	Statistician	GBoS
5	Olimatou Sissoho	Statistician	GBoS
6	Abdou Bah	Lab Technician	MoH&SW
7	Pa Babou	Lab Specialist Consultant	MoH&SW
8	Lamin Kanteh	MIS Local Consultant	GBoS

LIST FOR THE FIELD EXERCISE

No.	Supervisors	No.	Interviewers
1	Nasiru Deen Macauley	41	Lamin Fofana
2	Fatou Darboe	42	Binta Bah
3	Mama Jarju	43	Demba Wali
4	Cherno Talib Jallow	44	Sheriff Tambajang
5	Baba Conateh	45	Omar Njie
6	Famara Nyabally	46	Omar Drammeh
7	Ousman Janneh	47	Yaya Dampha
8	Ousainou Mbye	48	Ousman Barrow
9	Bakary Bojang	49	Aminata Jawo
10	Momodou Lamin Saidy	50	Alieu Njie
11	Kalilou Njie	51	Foday Sawo
12	Ndaneh Konteh	52	Alhagie Tambajang
13	Fatou S. Jabang		
	Interviewers		**Nurses**
14	Alhagie Suwareh	53	Muhammded Leigh
15	Charles Demba	54	Sanna Wally
16	Lamin Y Jammeh	55	Abdoulie Kujabi
17	Siabatou Camara	56	Hagie Mbye
18	Ebrima Jallow	57	Omar M Fadera
19	Sally Solvieg Jeng	58	Kebba Kinteh
20	Karamo Janneh	59	Famara Jarju
21	Aminata Badjie	60	Yamundow Cham
22	Isatou Jaiteh	61	Sanu Njie
23	Modou Chatty	62	Nyima Tamba
24	Ebrima Ndow	63	Nyimasata Saidykhan (r.i.p.)
25	Mamina Betts	64	Demba B S Manka
26	Baboucarr Bahoum	65	Ebrima Kuruma
27	Alagie Jatta		**Lab Technicians**
28	Lamin Sambou	66	Fatou D Camara
29	Modou Lamin Beyai	67	Musa Jammeh
30	Lamin Tabally	68	Modou Jeng
31	Lamin Suwareh	69	Ansumana Mari
32	Dembo Fofana	70	Tijan Janneh
33	Fatoumata Jarju	71	Nfamara Gitteh
34	Mbassy Jabang	72	Musa Danso
35	Samboujang Dampha	73	Isatou Joof
36	Nano Jobarteh	74	Mariama Jaham
37	Fatou Camara	75	Ndey Binta Bah
38	Modou Lamin Janneh	76	Njagga Ceesay
39	Fatoumata Fatajo	77	Olematou Sagnia
40	Sonna Ceesay	78	Fatou Jagne

STAFF INVOLVED IN LABORATORY WORK

No.	Name	Designation	Institution
1	Abdoulie MSanyang	Laboratory Manager	NPHL
2	Musa Ceesay	Slide Reader	MoH&SW
3	Awa Ndow	Slide Reader	MoH&SW
4	Lamin M M Jallow	Slide Reader	MoH&SW
5	Kalipha Saidy	Slide Reader	MoH&SW
6	Cherno Yaddeh	Slide Reader	MoH&SW
7	Omar Kebbeh	Slide Reader	MoH&SW
8	Alhagie Papa Sey	Data Entry Clerk	MoH&SW
9	Fanna Sowe	Slide Reader	MoH&SW

NATIONAL COORDINATORS

No.	Name	Designation	Institution
1	Nyakassie M B Sanyang	Statistician General	GBoS
2	Baba Suwareh	Deputy Statistician General	GBoS
3	Alieu Saho	Consultant MICS 6	GBoS
4	Abdou Bah	Lab Technician	EFSTH
5	Sulayman Manneh	Data Manager	NMCP
6	Ousman F.Bojang	M&E Assistant	NMCP
7	Robert Ninson	MEAL Manager	CRS
8	Baboucarr Ceesay	ICT Technician	NMCP
9	Lamin Jawara	Head, ICT Unit	MoH&SW
10	Momodou Kalleh	M&E Coordinator	NMCP

SUPPORT STAFF

Famara Manneh	Diver GBoS
Jabou Sano	GBoS
Nfamara Beyai	NMCP
Dodou Jarju	NMCP

UTICA INTERNATIONAL TECHNICAL ASSISTANCE

Mohamed Ayad	Project Coordinator
Harouna Koché	Data Processing
Astou Gueye-Gaye	Biomarker Specialist
Carole L. Steere	Editor
Audrey Shenett	Report Production Specialist

QUESTIONNAIRES

Appendix ***E***

REPUBLIC OF THE GAMBIA

THE GAMBIA MALARIA INDICATOR SURVEY 2017

HOUSEHOLD QUESTIONNAIRE

GBoS

GAMBIA BUREAU OF STATISTICS IN COLLABORATION WITH MINISTRY OF HEALTH AND SOCIAL WELFARE

IDENTIFICATION

LOCAL GOVERNMENT AREA: ☐

1	BANJUL	5	KEREWAN NBW
2	KANIFING	6	KEREWAN NBE
3	BRIKAMA	7	KUNTAUR
4	MANSAKONKO	8	JANJANGBUREH
		9	BASSE

DISTRICT NAME: _____ D/CODE ☐☐ SETTLEMENT NAME: _____ S/CODE ☐☐☐☐☐

NAME OF HOUSEHOLD HEAD: _____ TEL ☐☐☐☐☐☐☐

Compund No ☐☐☐

EA NUMBER: ☐☐☐☐☐ CLUSTER NUMBER ☐☐☐ HOUSEHOLD NUMBER ☐☐☐☐

AREA OF RESIDENCE: ☐ 1 URBAN 2 RURAL PRIMARY HEALTH CARE: ☐ 1 PHC 2 NON PHC

INTERVIEWER VISITS

	1	2	3	FINAL VISIT
DATE				DAY ☐☐ MONTH ☐☐ YEAR ☐☐
INTERVIEWER'S NAME				INT. NUMBER ☐☐
RESULT*				RESULT* ☐
NEXT VISIT: DATE				TOTAL NUMBER OF VISITS ☐
TIME				

*RESULT CODES:

1 COMPLETED
2 PARTLY COMPLETED
3 NO HOUSEHOLD MEMBER AT HOME OR NO COMPETENT RESPONDENT AT HOME AT TIME OF VISIT
4 ENTIRE HOUSEHOLD ABSENT FOR EXTENDED PERIOD OF TIME
5 REFUSED
6 DWELLING VACANT OR ADDRESS NOT A DWELLING
7 DWELLING DESTROYED
8 OTHER _____ (specify)

TOTAL PERSONS IN HOUSEHOLD ☐☐☐

TOTAL ELIGIBLE WOMEN ☐☐

LINE NO. OF RESPONDENT TO HH QUEST. ☐☐☐

HH SELECTED FOR ANAEMIA AND MALARIA TESTS FOR MEMBERS 5 YEARS AND OLDER: YES 1 / NO 2

HH SELECTED FOR PCR TESTS FOR MEMBERS 5 YEARS AND OLDER: YES 1 / YES 2

LANGUAGE OF QUESTIONNAIRE** ☐☐ LANGUAGE OF INTERVIEW** ☐☐ NATIVE LANGUAGE OF RESPONDENT** ☐☐ TRANSLATOR USED (YES = 1, NO = 2) ☐

LANGUAGE OF QUESTIONNAIRE** ENGLISH

**LANGUAGE CODES

01 ENGLISH	03 WOLLOF	05 JOLA
02 MANDINKA	04 FULA	06 SARAHULE
07 SERERE	08 MANJAGO	09 CREOLE/ AKU MARABOUT
10 BAMBARA	96 OTHER LANGUAGE (specify)	

SUPERVISOR	FIELD EDITOR	OFFICE EDITOR	KEYED BY
NAME _____ SU/CODE ☐☐	NAME _____ FE/CODE ☐☐	OE/CODE ☐☐	DE/CODE ☐☐

INTRODUCTION AND CONSENT

Hello. My name is _____. I am working with GBoS and MoHSW. We are conducting a survey about malaria all over The Gambia. 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 to 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.
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	WOMEN 15-49	CHILDREN <5 YEARS 0-59 MON.	MEMBERS 5 YEARS AND OLDER
1	2	3	4	5	6	7	8	9	10
	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. AFTER LISTING THE NAMES AND RECORDING THE RELATIONSHIP AND SEX FOR EACH PERSON, ASK QUESTIONS 2A-2C TO BE SURE THAT THE LISTING IS COMPLETE. THEN ASK APPROPRIATE QUESTIONS IN COLUMNS 5-10 FOR EACH PERSON.	What is the relationship of (NAME) to the head of the household? SEE CODES BELOW.	Is (NAME) male or female?	Does (NAME) usually live here?	Did (NAME) stay here last night?	How old is (NAME)? RECORD IN COMPL-ED YEARS IF 95 OR MORE, RECORD '95'.	CIRCLE LINE NUMBER OF ALL WOMEN AGE 15-49	CIRCLE LINE NUMBER OF ALL CHILDREN AGE 0 TO 59 MONTHS (UNDER 5 YEARS}	CIRCLE LINE NUMBER OF ALL MEMBERS 5 YEARS AND OLDER
			M F	Y N	Y N	IN YEARS			
01			1 2	1 2	1 2		01	01	01
02			1 2	1 2	1 2		02	02	02
03			1 2	1 2	1 2		03	03	03
04			1 2	1 2	1 2		04	04	04
05			1 2	1 2	1 2		05	05	05
06			1 2	1 2	1 2		06	06	06
07			1 2	1 2	1 2		07	07	07
08			1 2	1 2	1 2		08	08	08
09			1 2	1 2	1 2		09	09	09
10			1 2	1 2	1 2		10	10	10

CODES FOR Q. 3: RELATIONSHIP TO HEAD OF HOUSEHOLD

01 = HEAD	09 = BROTHER-IN-LAW/SISTER-IN-LAW
02 = WIFE/HUSBAND	10 = UNCLE/AUNT
03 = SON/DAUGHTER	11 = NIECE/NEPHEW
04 = SON-IN-LAW/DAUGHTER-IN-LAW	12 = OTHER RELATIVE
05 = GRANDCHILD	13 = ADOPTED/FOSTER/STEPCHILD
06 = PARENT	14 = SERVANT(LIVE-IN)
07 = PARENT-IN-LAW	96 = OTHER (NOT RELATED)
08 = BROTHER/SISTER	98 = DK

LINE NO.	USUAL RESIDENTS AND VISITORS	RELATIONSHIP TO HEAD OF HOUSEHOLD	SEX	RESIDENCE		AGE	WOMEN 15-49	CHILDREN <5 YEARS 0-59 MON.	MEMBERS 5 YEARS AND OLDER
1	2	3	4	5	6	7	8	9	10
	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. AFTER LISTING THE NAMES AND RECORDING THE RELATIONSHIP AND SEX FOR EACH PERSON, ASK QUESTIONS 2A-2C TO BE SURE THAT THE LISTING IS COMPLETE. THEN ASK APPROPRIATE QUESTIONS IN COLUMNS 5-10 FOR EACH PERSON.	What is the relationship of (NAME) to the head of the household? SEE CODES BELOW.	Is (NAME) male or female?	Does (NAME) usually live here?	Did (NAME) stay here last night?	How old is (NAME)? RECORD IN COMPL-ED YEARS IF 95 OR MORE, RECORD '95'.	CIRCLE LINE NUMBER OF ALL WOMEN AGE 15-49	CIRCLE LINE NUMBER OF ALL CHILDREN AGE 0 TO 59 MONTHS (UNDER 5 YEARS}	CIRCLE LINE NUMBER OF ALL MEMBERS 5 YEARS AND OLDER
			M F	Y N	Y N	IN YEARS			
11			1 2	1 2	1 2		11	11	11
12			1 2	1 2	1 2		12	12	12
13			1 2	1 2	1 2		13	13	13
14			1 2	1 2	1 2		14	14	14
15			1 2	1 2	1 2		15	15	15
16			1 2	1 2	1 2		16	16	16
17			1 2	1 2	1 2		17	17	17
18			1 2	1 2	1 2		18	18	18
19			1 2	1 2	1 2		19	19	19
20			1 2	1 2	1 2		20	20	20

TICK HERE IF CONTINUATION SHEET USED

2A) Just to make sure that I have a complete listing: are there any other persons 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	09 = BROTHER-IN-LAW/SISTER-IN-LAW
02 = WIFE/HUSBAND	10 = UNCLE/AUNT
03 = SON/DAUGHTER	11 = NIECE/NEPHEW
04 = SON-IN-LAW/DAUGHTER-IN-LAW	12 = OTHER RELATIVE
05 = GRANDCHILD	13 = ADOPTED/FOSTER/STEPCHILD
06 = PARENT	14 = SERVANT(LIVE-IN)
07 = PARENT-IN-LAW	96 = OTHER (NOT RELATED)
08 = BROTHER/SISTER	98 = DK

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 NEIGHBOUR . . . . . **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** CART WITH SMALL TANK . . . . . **71** SURFACE WATER (RIVER/DAM/ LAKE/POND/STREAM/CANAL/ IRRIGATION CHANNEL) . . . . . **81** BOTTLED WATER . . . . . **91** OTHER _____ **96** (SPECIFY)	→ **105** → **103** → **103**
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 NEIGHBOUR . . . . . **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** 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 NEIGHBOURHOOD . . . . . 1 IN OWN YARD/PLOT . . . . . 2 ELSEWHERE 3	→ 104
104	How long does it take to go there, get water, and come back?	MINUTES . . . . . ☐☐☐ DON'T KNOW 998	
105	What kind of toilet facility do members of your household mainly use?	**FLUSH OR POUR FLUSH TOILET** FLUSH TO PIPED SEWER SYSTEM . . . . . 11 FLUSH TO SEPTIC TANK . . . . . 12 FLUSH TO PIT LATRINE . . . . . 13 FLUSH TO SOMEWHERE . . . 14 FLUSH, DON'T KNOW WHERE . . . . . 15 **PIT LATRINE** VENTILATED IMPROVED PIT LATRINE (VIP) . . . . . 21 PIT LATRINE WITH SLAB . . . . . 22 PIT LATRINE WITHOUT SLAB/ OPEN PIT . . . . . 23 NO FACILITY/BUSH/FIELD . . . . . 61 OTHER _____ 96 **(SPECIFY)**	→ **108**
106	Do you share this toilet facility with other households?	YES . . . . . 1 NO 2	→ 107
107	How many households use this toilet facility?	NO. OF HOUSEHOLDS IF LESS THAN 10 . . . . . ☐☐ 10 OR MORE HOUSEHOLDS . . . . . 95 DON'T KNOW 98	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
108	Does your household have: Electricity? A radio? A television? A mobile telephone? A non-mobile telephone? A refrigerator? A video cassette or DVD player? A fan ? A cupboard ? A sofa ? An Air conditioner ? Microwave Oven ? Satellite cable Internet Connection Satellite Disc An Electric Generator /Solar Panel?	YES NO a ELECTRICITY 1 2 b A RADIO 1 2 c A TELEVISION 1 2 d A NON-MOBILE PHONE 1 2 e A COMPUTER 1 2 f) A REFRIGERATOR 1 2 g) A VIDEO CASSETTE OR PLAYER 1 2 h) A FAN ..... 1 2 i) A CUPBOARD . . . . . 1 2 j) A SOFA . . . . . 1 2 k) AN AIR CONDITIONE . . . . . 1 2 l) MICROWARE . . . . . 1 2 m) SATLLITE CAE . . . . . 1 2 n) INTERNET CONNECTION . . . 1 2 o) SATALLITE DIS . . . . . 1 2 p) AN ECLETRIC GENERATOR . . 1 2 Q) MOBILE TELEPHONE 1 2	
108A	On what basis do you occupy this dwelling	OWNER . . . . . 1 FAMILY COMPOUND ..... 2 TENANT ..... 3 OFFICIAL . . . . . 4 RENT FREE ..... 5 OTHER _____ 6 (SPECIFY)	
108B	Does your household own: Residental land ? Farm land ?	YES NO RESIDENTAL LAND ..... 1 2 FARM LAND 1 2	
109	What type of fuel does your household mainly use for cooking?	ELECTRICITY . . . . . 01 GAS TANK (NAT . . . . . 02 BIOGAS . . . . . 03 KEROSENE . . . . . 04 CHARCOAL . . . . . 05 WOOD/FIREWOOD ..... 06 STRAW/SHRUBS/GRASS . . . . . 07 ANIMAL DUNG . . . . . 08 SAW DUST . . . . . 09 NO FOOD COOKED IN HOUSEHOLD . . . . . 95 OTHER _____ 96 (SPECIFY)	
110	MAIN MATERIAL OF THE FLOOR. RECORD OBSERVATION.	**NATURAL FLOOR** EARTH/SAND . . . . . 11 DUNG . . . . . 12 RUDIMENTARY FLOOR WOOD PLANKS . . . . . 21 **FINISHED FLOOR** PARQUET OR POLISHED WOOD . . . . . 31 CERAMIC TILES . . . . . 33 CEMENT . . . . . 34 CARPET . . . . . 35 LINOLIUM(TAPEH) ..... 36 OTHER _____ 96 (SPECIFY)	
111	MAIN MATERIAL OF THE ROOF. RECORD OBSERVATION.	NATURAL ROOFING NO ROOF . . . . . 11 THATCH/PALM LEAF . . . . . 12 RUDIMENTARY ROOFING PALM/BAMBOO . . . . . 21 WOOD PLANKS . . . . . 22 FINISHED ROOFING METAL . . . . . 31 WOOD . . . . . 32 CALAMINE/CEMENT FIBER . . . . . 33 CERAMIC TILES . . . . . 34 CEMENT . . . . . 35 ROOFING TILES . . . . . 36 OTHER _____ 96 (SPECIFY)	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
112	MAIN MATERIAL OF THE EXTERIOR WALLS. RECORD OBSERVATION.	NATURAL WALLS 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)	
112a	Any Window ?	YES . . . . . 1 NO 2	→ 113a
112b	Type of Window Window with glass Windom with screen Window with curtain/shutter	YES NO WINDOW WITH GLASS . . . . . 1 2 WINDOW WITH SCREEN . . . . . 1 2 WINDOW WITH CURTAIN/SHUTTER 1 2	
113a	How many separate rooms are in this household ? Include all rooms, including kitchen, toilet, sleeping rooms, salon etc	ROOMS	
113b	How many rooms in this household are used for sleeping?	ROOMS	
113c	How many sleeping spaces does your household have?	NUMBER OF SLEEPING SPACES	
114	Does any member of this household own: A watch? A bicycle? A motorcycle or motor scooter? An animal-drawn cart? A car or truck? A boat with a motor? A boat without a motor?	YES NO WATCH . . . . . 1 2 BICYCLE . . . . . 1 2 MOTORCYCLE/SCOOTER . . . 1 2 ANIMAL-DRAWN CART . . . . . 1 2 CAR/TRUCK . . . . . 1 2 BOAT WITHOUT MOTOR 1 2 BOAT WITH MOTOR 1 2	
115	Does any member of this household own any agricultural land?	YES . . . . . 1 NO 2	→ 117
116	How many hectares of agricultural land do members of this household own? IF 95 OR MORE, CIRCLE '950'.	HECTARES . . . . 95 OR MORE HECTARES . . . . . 950 DON'T KNOW 998	
117	Does this household own any livestock, herds, other farm animals, or poultry?	YES . . . . . 1 NO 2	→ 119
118	How many of the following animals does this household own? IF NONE, ENTER '00'. IF 95 OR MORE, ENTER '95'. IF UNKNOWN, ENTER '98'. A) Milk cows/bulls B) Other cattle C1) Horses C2) Donkeys/mules D) Goats? E) Sheep? F) Chickens/poultry? G) Pigs	Milk cows/bulls . . . . . . Other cattle Horses . . . . . . Donkeys/mules . . . . . . Goats . . . . . . Sheep . . . . . . CHICKENS/DUCK/GUINEA . . . . . . PIGS	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
119	Does any member of this household have a bank account/ Credit Union Account?	1 2 DON'T KNOW 8	
120	At any time in the past 12 months, has anyone come into your dwelling to spray the interior walls against mosquitoes?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW 8	→ 121a
120a	Who sprayed the dwelling?	GOVERNMENT WORKER/PROGRAM . . . 1 PRIVATE COMPANY . . . . . 2 MEDICAL RESEARCH COUNCIL . . . . . 3 OTHER _____ 6 (SPECIFY) DON'T KNOW 8	
120b	How many moonths ago was the house sprayed ? IF LESS THAN A MONTH, RECORD 00	MONTHS AGO	
121	Does your household have any mosquito nets that can be used while sleeping?	YES . . . . . 1 NO 2	→ 122
121a	If no, why ?	DON'T HAVE MONEY . . . . . 1 DON'T FEEL CONFORTABLE SLEEPING UNDER A MOSQUITO NET . . . . . 2 USE SPRAY/REPELLENT . . . . . 3 NET NOT AVIALABLE . . . . . 4 OTHER _____ 6 (SPECIFY)	→ 132
122	How many mosquito nets does your household have?	NUMBER OF NETS	
122a	How did your household obtain the mosquito net(s)?	MARKET . . . . . A HEALTH FACILITY . . . . . B MASS DISTRIBUTION . . . . . C RELATIVE/FRIEND D PHARMACY E OTHER SPECIFY X	
122b	If you have a choice, what colour of mosquito net do you prefer?	WHITE . . . . . 1 BLUE . . . . . 2 OTHER _____ 6 (SPECIFY) DON'T KNOW/NO PREFERENCE 8	
122c	What mosquito net shape do you prefer ?	CONICAL/ROUND . . . . . 1 RECTANGULAR . . . . . 2 DON'T KNOW/NO PREFERENCE 8	→ 122f → 123
122d	What are the reasons why you prefer a conical-shaped net over a rectangular-shaped net? Anything else? CIRCLE ALL MENTIONED	EASIER TO HANG . . . . . A EASIER TO STORE WHEN NOT HUNG . B EASIER TO TRAVEL WITH OUTSIDE THE HOUSEHOLD . . . . . C BETTER FIT AROUND SLEEPING PLACE . D TALLER . . . . . E MORE PEOPLE CAN SLEEP UNDER NET (WIDER) . . . . . F STRONGER . . . . . G OTHER _____ X (SPECIFY)	
122e	If given rectangular net would you use it?	YES . . . . . 1 NO 2	→ 123
122f	What are the reasons why you prefer a rectangular-shaped net over conical-shaped net? Anything else? CIRCLE ALL MENTIONED	EASIER TO HANG . . . . . A EASIER TO STORE WHEN NOT HUNG . B EASIER TO TRAVEL WITH OUTSIDE THE HOUSEHOLD . . . . . C BETTER FIT AROUND SLEEPING PLACE . D TALLER . . . . . E MORE PEOPLE CAN SLEEP UNDER NET (WIDER) . . . . . F STRONGER . . . . . G OTHER _____ X (SPECIFY)	
122g	If given conical net would you use it?	YES . . . . . 1 NO 2	

		NET # 1	NET # 2	NET # 3	NET # 4
123	ASK THE RESPONDENT TO SHOW YOU ALL THE NETS IN THE HOUSEHOLD IF MORE THAN 4 NETS, GO TO NET 5	OBSERVED ..... 1 NOT OBSERVED ... 2	OBSERVED ..... 1 NOT OBSERVED ... 2	OBSERVED ..... 1 NOT OBSERVED ... 2	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 ... [ ][ ] MORE THAN 36 MONTHS AGO ... 95 NOT SURE 98	MONTHS AGO ... [ ][ ] MORE THAN 36 MONTHS AGO ... 95 NOT SURE 98	MONTHS AGO ... [ ][ ] MORE THAN 36 MONTHS AGO ... 95 NOT SURE 98	MONTHS AGO ... [ ][ ] MORE THAN 36 MONTHS AGO ... 95 NOT SURE 98
124A	RECORD OR ASK THE SHAPE OF THE NET	CONICAL .... 1 RECTANGULAR ... 2	CONICAL .... 1 RECTANGULAR ... 2	CONICAL .... 1 RECTANGULAR ... 2	CONICAL .... 1 RECTANGULAR ... 2
125	OBSERVE OR ASK THE 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) OLYSET ..... 11 PERMANET ..... 12 NET PROTECT ... 13 OTHER .... 14 DK BRAND ..... 16 (SKIP TO 129) 'PRETREATED' NET SUPA NET ..... 21 POWER TAB ... 22 SAFE NITE ..... 23 OTHER/ 24 DK BRAND ..... 26 OTHER .... 96 DK BRAND 98	LONG-LASTING INSECTICIDE-TREATED NET (LLIN) OLYSET ..... 11 PERMANET ..... 12 NET PROTECT ... 13 OTHER .... 14 DK BRAND ..... 16 (SKIP TO 129) 'PRETREATED' NET SUPA NET ..... 21 POWER TAB ... 22 SAFE NITE ..... 23 OTHER/ 24 DK BRAND ..... 26 OTHER .... 96 DK BRAND 98	LONG-LASTING INSECTICIDE-TREATED NET (LLIN) OLYSET ..... 11 PERMANET ..... 12 NET PROTECT ... 13 OTHER .... 14 DK BRAND ..... 16 (SKIP TO 129) 'PRETREATED' NET SUPA NET ..... 21 POWER TAB ... 22 SAFE NITE ..... 23 OTHER/ 24 DK BRAND ..... 26 OTHER .... 96 DK BRAND 98	LONG-LASTING INSECTICIDE-TREATED NET (LLIN) OLYSET ..... 11 PERMANET ..... 12 NET PROTECT ... 13 OTHER .... 14 DK BRAND ..... 16 (SKIP TO 129) 'PRETREATED' NET SUPA NET ..... 21 POWER TAB ... 22 SAFE NITE ..... 23 OTHER/ 24 DK BRAND ..... 26 OTHER .... 96 DK BRAND 98
126	When you got the net, was it already treated with an insecticide to kill or repel mosquitoes?	YES .... 1 NO .... 2 NOT SURE 8	YES .... 1 NO .... 2 NOT SURE 8	YES .... 1 NO .... 2 NOT SURE 8	YES .... 1 NO .... 2 NOT SURE 8
127	Since you got the net, was it ever soaked or dipped in a liquid to kill or repel mosquitoes?	YES .... 1 NO .... 2 (SKIP TO 129) NOT SURE 8	YES .... 1 NO .... 2 (SKIP TO 129) NOT SURE 8	YES .... 1 NO .... 2 (SKIP TO 129) NOT SURE 8	YES .... 1 NO .... 2 (SKIP TO 129) NOT SURE 8
128	How many months ago was the net last soaked or dipped? IF LESS THAN ONE MONTH AGO, RECORD '00'.	MONTHS AGO ... [ ][ ] MORE THAN 24 MONTHS AGO ... 95 NOT SURE 98	MONTHS AGO ... [ ][ ] MORE THAN 24 MONTHS AGO ... 95 NOT SURE 98	MONTHS AGO ... [ ][ ] MORE THAN 24 MONTHS AGO ... 95 NOT SURE 98	MONTHS AGO ... [ ][ ] MORE THAN 24 MONTHS AGO ... 95 NOT SURE 98
129	Did anyone sleep under this mosquito net last night?	YES .... 1 NO .... 2 (SKIP TO 131) NOT SURE 8	YES .... 1 NO .... 2 (SKIP TO 131) NOT SURE 8	YES .... 1 NO .... 2 (SKIP TO 131) NOT SURE 8	YES .... 1 NO .... 2 (SKIP TO 131) NOT SURE 8

		NET # 1	NET # 2	NET # 3	NET # 4
130	Who slept under this mosquito net last night? RECORD THE PERSON'S NAME AND LINE NUMBER FROM THE HOUSEHOLD SCHEDULE.	NAME_____________ LINE NO. . . . . . [ ][ ] NAME_____________ LINE NO. . . . . . [ ][ ] NAME_____________ LINE NO. . . . . . [ ][ ] NAME_____________ LINE NO. . . . . . [ ][ ] NAME_____________ LINE NO. . . . . . [ ][ ]	NAME_____________ LINE NO. . . . . . [ ][ ] NAME_____________ LINE NO. . . . . . [ ][ ] NAME_____________ LINE NO. . . . . . [ ][ ] NAME_____________ LINE NO. . . . . . [ ][ ] NAME_____________ LINE NO. . . . . . [ ][ ]	NAME_____________ LINE NO. . . . . . [ ][ ] NAME_____________ LINE NO. . . . . . [ ][ ] NAME_____________ LINE NO. . . . . . [ ][ ] NAME_____________ LINE NO. . . . . . [ ][ ] NAME_____________ LINE NO. . . . . . [ ][ ]	NAME_____________ LINE NO. . . . . . [ ][ ] NAME_____________ LINE NO. . . . . . [ ][ ] NAME_____________ LINE NO. . . . . . [ ][ ] NAME_____________ LINE NO. . . . . . [ ][ ] NAME_____________ LINE NO. . . . . . [ ][ ]
131		GO BACK TO 123 FOR NEXT NET; OR, IF NO MORE NETS, GO TO 132	GO BACK TO 123 FOR NEXT NET; OR, IF NO MORE NETS, GO TO 132	GO BACK TO 123 FOR NEXT NET; OR, IF NO MORE NETS, GO TO 132	GO BACK TO 123 FOR NEXT NET; OR, IF NO MORE NETS, GO TO 132
132	RECORD THE TIME.		HOURS . . . . [ ][ ] MINUTES . . . . [ ][ ]		

		NET # 5	NET # 6	NET # 7	NET # 8
123	ASK THE RESPONDENT TO SHOW YOU ALL THE NETS IN THE HOUSEHOLD IF MORE THAN 4 NETS, GO TO NET 5	OBSERVED ..... 1 NOT OBSERVED ... 2	OBSERVED ..... 1 NOT OBSERVED ... 2	OBSERVED ..... 1 NOT OBSERVED ... 2	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 ... [ ][ ] MORE THAN 36 MONTHS AGO ... 95 NOT SURE 98	MONTHS AGO ... [ ][ ] MORE THAN 36 MONTHS AGO ... 95 NOT SURE 98	MONTHS AGO ... [ ][ ] MORE THAN 36 MONTHS AGO ... 95 NOT SURE 98	MONTHS AGO ... [ ][ ] MORE THAN 36 MONTHS AGO ... 95 NOT SURE 98
124A	RECORD OR ASK THE SHAPE OF THE NET	CONICAL .... 1 RECTANGULAR ... 2	CONICAL .... 1 RECTANGULAR ... 2	CONICAL .... 1 RECTANGULAR ... 2	CONICAL .... 1 RECTANGULAR ... 2
125	OBSERVE OR ASK THE 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) OLYSET ..... 11 PERMANET ..... 12 NET PROTECT ... 13 OTHER .... 14 DK BRAND ..... 16 (SKIP TO 129) 'PRETREATED' NET SUPA NET ..... 21 POWER TAB ... 22 SAFE NITE ..... 23 OTHER/ 24 DK BRAND ..... 26 OTHER .... 96 DK BRAND 98	LONG-LASTING INSECTICIDE-TREATED NET (LLIN) OLYSET ..... 11 PERMANET ..... 12 NET PROTECT ... 13 OTHER .... 14 DK BRAND ..... 16 (SKIP TO 129) 'PRETREATED' NET SUPA NET ..... 21 POWER TAB ... 22 SAFE NITE ..... 23 OTHER/ 24 DK BRAND ..... 26 OTHER .... 96 DK BRAND 98	LONG-LASTING INSECTICIDE-TREATED NET (LLIN) OLYSET ..... 11 PERMANET ..... 12 NET PROTECT ... 13 OTHER .... 14 DK BRAND ..... 16 (SKIP TO 129) 'PRETREATED' NET SUPA NET ..... 21 POWER TAB ... 22 SAFE NITE ..... 23 OTHER/ 24 DK BRAND ..... 26 OTHER .... 96 DK BRAND 98	LONG-LASTING INSECTICIDE-TREATED NET (LLIN) OLYSET ..... 11 PERMANET ..... 12 NET PROTECT ... 13 OTHER .... 14 DK BRAND ..... 16 (SKIP TO 129) 'PRETREATED' NET SUPA NET ..... 21 POWER TAB ... 22 SAFE NITE ..... 23 OTHER/ 24 DK BRAND ..... 26 OTHER .... 96 DK BRAND 98
126	When you got the net, was it already treated with an insecticide to kill or repel mosquitoes?	YES .... 1 NO .... 2 NOT SURE 8	YES .... 1 NO .... 2 NOT SURE 8	YES .... 1 NO .... 2 NOT SURE 8	YES .... 1 NO .... 2 NOT SURE 8
127	Since you got the net, was it ever soaked or dipped in a liquid to kill or repel mosquitoes?	YES .... 1 NO .... 2 (SKIP TO 129) NOT SURE 8	YES .... 1 NO .... 2 (SKIP TO 129) NOT SURE 8	YES .... 1 NO .... 2 (SKIP TO 129) NOT SURE 8	YES .... 1 NO .... 2 (SKIP TO 129) NOT SURE 8
128	How many months ago was the net last soaked or dipped? IF LESS THAN ONE MONTH AGO, RECORD '00'.	MONTHS AGO ... [ ][ ] MORE THAN 24 MONTHS AGO ... 95 NOT SURE 98	MONTHS AGO ... [ ][ ] MORE THAN 24 MONTHS AGO ... 95 NOT SURE 98	MONTHS AGO ... [ ][ ] MORE THAN 24 MONTHS AGO ... 95 NOT SURE 98	MONTHS AGO ... [ ][ ] MORE THAN 24 MONTHS AGO ... 95 NOT SURE 98
129	Did anyone sleep under this mosquito net last night?	YES .... 1 NO .... 2 (SKIP TO 131) NOT SURE 8	YES .... 1 NO .... 2 (SKIP TO 131) NOT SURE 8	YES .... 1 NO .... 2 (SKIP TO 131) NOT SURE 8	YES .... 1 NO .... 2 (SKIP TO 131) NOT SURE 8

		NET # 5	NET # 6	NET # 7	NET # 8
130	Who slept under this mosquito net last night? RECORD THE PERSON'S NAME AND LINE NUMBER FROM THE HOUSEHOLD SCHEDULE.	NAME_____________ LINE NO.	NAME_____________ LINE NO.	NAME_____________ LINE NO.	NAME_____________ LINE NO. . . . . .
		NAME_____________ LINE NO.	NAME_____________ LINE NO.	NAME_____________ LINE NO.	NAME_____________ LINE NO. . . . . .
		NAME_____________ LINE NO.	NAME_____________ LINE NO.	NAME_____________ LINE NO.	NAME_____________ LINE NO. . . . . .
		NAME_____________ LINE NO.	NAME_____________ LINE NO.	NAME_____________ LINE NO.	NAME_____________ LINE NO. . . . . .
		NAME_____________ LINE NO.	NAME_____________ LINE NO.	NAME_____________ LINE NO.	NAME_____________ LINE NO. . . . . .
131		GO BACK TO 123 FOR NEXT NET; OR, IF NO MORE NETS, GO TO 132	GO BACK TO 123 FOR NEXT NET; OR, IF NO MORE NETS, GO TO 132	GO BACK TO 123 FOR NEXT NET; OR, IF NO MORE NETS, GO TO 132	GO BACK TO 123 FOR NEXT NET; OR, IF NO MORE NETS, GO TO 132
132	RECORD THE TIME.		HOURS . . . . MINUTI		

INTERVIEWER'S OBSERVATIONS

TO BE FILLED IN AFTER COMPLETING INTERVIEW.

COMMENTS ABOUT RESPONDENT:

COMMENTS ON SPECIFIC QUESTIONS:

ANY OTHER COMMENTS:

SUPERVISOR'S OBSERVATIONS

NAME OF SUPERVISOR: _____ DATE: _____

EDITOR'S OBSERVATIONS

NAME OF EDITOR: _____ DATE: _____

REPUBLIC OF THE GAMBIA

THE GAMBIA MALARIA INDICATOR SURVEY 2017

WOMAN QUESTIONNAIRE

GBoS

GAMBIA BUREAU OF STATISTICS IN COLLABORATION WITH MINISTRY OF HEALTH AND SOCIAL WELFARE

IDENTIFICATION

LOCAL GOVERNMENT AREA: ☐

1	BANJUL	5	KEREWAN NBW
2	KANIFING	6	KEREWAN NBE
3	BRIKAMA	7	KUNTAUR
4	MANSAKONKO	8	JANJANGBUREH
		9	BASSE

DISTRICT NAME: _____ DCODE ☐☐ SETTLEMENT NAME: _____ SCODE ☐☐☐☐☐

NAME OF RESPONDENT: _____ TEL ☐☐☐☐☐☐☐

EA NUMBER: ☐☐☐☐☐ CLUSTER NUMBER ☐☐☐ HOUSEHOLD NUMBER ☐☐☐☐

AREA OF RESIDENCE: ☐ 1 URBAN 2 RURAL RESPONDENT'S LINE NUMBER ☐☐

INTERVIEWER VISITS

	1	2	3	FINAL VISIT
DATE				DAY ☐☐
				MONTH ☐☐
				YEAR ☐☐☐☐
INTERVIEWER'S NAME				INT. NUMBER ☐☐
RESULT*				RESULT ☐
NEXT VISIT: DATE				TOTAL NUMBER OF VISITS ☐
TIME				

*RESULT CODES:

1	COMPLETED	4	REFUSED	7	OTHER _____ (SPECIFY)
2	NOT AT HOME	5	PARTLY COMPLETED		
3	POSTPONED	6	INCAPACITATED		

LANGUAGE OF QUESTIONNAIRE** ☐☐ LANGUAGE OF INTERVIEW** ☐☐ NATIVE LANGUAGE OF RESPONDENT** ☐☐ TRANSLATOR USED (YES = 1, NO = 2) ☐

LANGUAGE OF QUESTIONNAIRE** ENGLISH

**LANGUAGE CODES

01 ENGLISH	03 WOLLOF	05 JOLA
02 MANDINKA	04 FULA	06 SARAHULE
07 SERERE	08 MANJAGO	09 CREOLE/ AKU MARABOUT
10 BAMBARA	96 OTHER LANGUAGE (specify) _____	

SUPERVISOR	FIELD EDITOR	OFFICE EDITOR	KEYED BY
NAME _____ SU/CODE ☐☐	NAME _____ FE/CODE ☐☐	OE/CODE ☐☐	DE/CODE ☐☐

SECTION 1. RESPONDENT'S BACKGROUND

INTRODUCTION AND CONSENT

INFORMED CONSENT

Hello. My name is _____. I am working with GBoS and Ministry of health. We are conducting a survey about health all over The Gambia. The information we collect will help the government to plan health services. Your household was selected for the survey. The questions usually take about 20-30 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.

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

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
101	RECORD THE TIME.	HOUR ..... ☐☐ MINUTES ..... ☐☐	
102	In what month and year were you born?	MONTH ..... ☐☐ DON'T KNOW MONTH ..... 98 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 ☐☐	
104	Have you ever attended school?	YES ..... 1 NO 2	→ 108
104a	What type of school system did you attend?	CONVENTIONAL 1 MADRASSA 2	
105	What is the highest level of school you attended: primary, secondary, or higher?	EARLY CHILDHOOD EDUCATION (Conventional, Madrassa) ..... 0 PRIMARY (Conventional, Madrassa) ..... 1 LOWER SECONDARY (Conventional, Madrassa) ..... 2 UPPER SECONDARY (Conventional, Madrassa) ..... 3 VOCATIONAL ..... 4 DIPLOMA ..... 5 HIGHER 6	
106	What is the highest (grade/form/year) you completed at that level? IF COMPLETED LESS THAN 1 YEAR AT THAT LEVEL, RECORD '00'.	GRADE/FORM/YEAR ..... ☐☐	
107	CHECK 105: PRE SCHOOL OR PRIMARY ☐ ↓ SECONDARY OR HIGHER ☐ →		109

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
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 PARTS OF SENTENCE . . . . . 2 ABLE TO READ WHOLE SENTENCE 3 NO CARD WITH REQUIRED LANGUAGE _____ 4 (SPECIFY LANGUAGE) BLIND/VISUALLY IMPAIRED 5	
109	What is your religion?	ISLAM . . . . . 1 CHRISTIANITY . . . . . 2 TRADITIONAL RELIGION . . . . . 3 OTHER RELIGION (specify) . . . . . 3 NO RELIGION 5	
110	What is your ethnicity?	MANDINKA/JAHANKA . . . . . 01 WOLLOF . . . . . 02 FULA/TUKULURU/LOROBO . . . . . 04 JOLA/KARONIKA . . . . . 03 SERERE . . . . . 05 SERAHULEH . . . . . 06 CREOLE/AKU MARABOUT . . . . . 07 MANJAGO . . . . . 08 BAMBARA . . . . . 09 OTHER ETHNIC GROUP (SPECIFY) _____ 96	
111	In the past 6 months, have you seen or heard any messages about malaria?	YES . . . . . 1 NO 2	→ 201
112	Have your seen or heard these messages: On the radio? On the television? On a poster or billboard? From a community health worker? At a community event? RECORD ALL MENTIONED	RADIO . . . . . A TELEVISION . . . . . B POSTER OR BILLBOARD . . . . . C COMMUNITY HEALTH WORKER D COMMUNITY EVENT . . . . . E OTHER _____ X (SPECIFY)	

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	How many sons live with you? And how many daughters live with you? IF NONE, RECORD '00'.	SONS AT HOME . . . . . ☐☐ DAUGHTERS AT HOME . . . . . ☐☐	
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	How many sons are alive but do not live with you? And how many daughters are alive but do not live with you? IF NONE, RECORD '00'.	SONS ELSEWHERE . . . . . ☐☐ DAUGHTERS ELSEWHERE ☐☐	
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 or showed signs of life but did not survive?	YES . . . . . 1 NO 2	→ 208
207	How many boys have died? And how many girls have died? IF NONE, RECORD '00'.	BOYS DEAD . . . . . ☐☐ GIRLS DEAD . . . . . ☐☐	
208	SUM ANSWERS TO 203, 205, 207, AND ENTER TOTAL. IF NONE,CIRCLE '00'.	TOTAL BIRTHS . . . . . ☐☐ NONE 00	
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 ☐ ↓ NO ☐ → PROBE AND CORRECT 201-208 AS NECESSARY.		
210	CHECK 208: ONE BIRTH ↓ Was this child born in the last 6 years? TWO OR MORE BIRTHS ↓ How many of these children were born in the last 6 years? IF NO CIRCLE '00'.	TOTAL IN THE LAST 6 YEARS . . . . . ☐☐ NONE 00	→ 224

211 Now I would like to record the names of all your births in the last 6 years, whether still alive or not, starting with the most recent one you had.

RECORD NAMES OF ALL THE BIRTHS IN THE LAST 6 YEARS IN 212. RECORD TWINS AND TRIPLETS ON SEPARATE ROWS.

212 What name was given to your (most recent/previous) baby? RECORD NAME. BIRTH HISTORY NUMBER	213 Is (NAME) a boy or a girl?	214 Were any of these births twins?	215 In what month and year was (NAME) born? PROBE: When is his/her birthday?	216 Is (NAME) still alive?	217 IF ALIVE: How old was (NAME) at his/her last birthday? RECORD AGE IN COMPLETED YEARS.	218 IF ALIVE: Is (NAME) living with you?	219 IF ALIVE: RECORD HOUSE-HOLD LINE NUMBER OF CHILD (RECORD '00' IF CHILD NOT LISTED IN HOUSE-HOLD).	220 Were there any other live births between (NAME) and (NAME OF BIRTH ON PREVIOUS LINE), including any children who died after birth?
01	BOY 1 GIRL 2	SING. 1 MULT. 2	MONTH ☐☐ YEAR ☐☐☐☐	YES . . . . 1 NO . . . . 2 (NEXT BIRTH)	AGE IN YEARS ☐☐	YES . . . 1 NO 2	HOUSEHOLD LINE NUMBER ☐☐ (NEXT BIRTH)	
02	BOY 1 GIRL 2	SING. 1 MULT. 2	MONTH ☐☐ YEAR ☐☐☐☐	YES . . . . 1 NO . . . . 2 → 220	AGE IN YEARS ☐☐	YES . . . 1 NO 2	HOUSEHOLD LINE NUMBER ☐☐	YES . . . . . 1 ADD BIRTH NO . . . . . 2 NEXT BIRTH
03	BOY 1 GIRL 2	SING. 1 MULT. 2	MONTH ☐☐ YEAR ☐☐☐☐	YES . . . . 1 NO . . . . 2 → 220	AGE IN YEARS ☐☐	YES . . . 1 NO 2	HOUSEHOLD LINE NUMBER ☐☐	YES . . . . . 1 ADD BIRTH NO . . . . . 2 NEXT BIRTH
04	BOY 1 GIRL 2	SING. 1 MULT. 2	MONTH ☐☐ YEAR ☐☐☐☐	YES . . . . 1 NO . . . . 2 → 220	AGE IN YEARS ☐☐	YES . . . 1 NO 2	HOUSEHOLD LINE NUMBER ☐☐	YES . . . . . 1 ADD BIRTH NO . . . . . 2 NEXT BIRTH
05	BOY 1 GIRL 2	SING. 1 MULT. 2	MONTH ☐☐ YEAR ☐☐☐☐	YES . . . . 1 NO . . . . 2 → 220	AGE IN YEARS ☐☐	YES . . . 1 NO 2	HOUSEHOLD LINE NUMBER ☐☐	YES . . . . . 1 ADD BIRTH NO . . . . . 2 NEXT BIRTH
06	BOY 1 GIRL 2	SING. 1 MULT. 2	MONTH ☐☐ YEAR ☐☐☐☐	YES . . . . 1 NO . . . . 2 → 220	AGE IN YEARS ☐☐	YES . . . 1 NO 2	HOUSEHOLD LINE NUMBER ☐☐	YES . . . . . 1 ADD BIRTH NO . . . . . 2 NEXT BIRTH
07	BOY 1 GIRL 2	SING. 1 MULT. 2	MONTH ☐☐ YEAR ☐☐☐☐	YES . . . . 1 NO . . . . 2 → 220	AGE IN YEARS ☐☐	YES . . . 1 NO 2	HOUSEHOLD LINE NUMBER ☐☐	YES . . . . . 1 ADD BIRTH NO 2

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
221	Have you had any live births since the birth of (NAME OF MOST RECENT BIRTH)? IF YES, RECORD BIRTH(S) IN TABLE.	YES . . . . . 1 NO 2	
222	**COMPARE 210 WITH THE NUMBER OF BIRTHS IN HISTORY ABOVE AND MARK:** **NUMBERS ARE SAME** ☐ **NUMBERS ARE DIFFERENT** ☐ → **(PROBE AND RECONCILE.)**		↓
223	**CHECK 215:** **ENTER THE NUMBER OF BIRTHS IN 2012 OR LATER.**	NUMBER OF BIRTHS . . . . . ☐ NONE 0	
224	Are you pregnant now?	YES . . . . . 1 NO . . . . . 2 UNSURE 8	→ 226
225	How many months pregnant are you? **RECORD NUMBER OF COMPLETED MONTHS.** **RECORD 00 IF DON'T KNOW.**	MONTHS . . . . . ☐☐	
226	CHECK 223: ONE OR MORE BIRTHS IN 2012 OR LATER ☐ ↓ NO BIRTHS IN 2012 OR LATER OR IS BLANK ☐ → 501		

SECTION 3. PREGNANCY AND INTERMITTENT PREVENTATIVE TREATMENT

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
301	CHECK 215: ENTER IN THE TABLE THE NAME AND SURVIVAL STATUS OF THE MOST RECENT BIRTH. Now I would like to ask some questions about your most recent pregnancy that resulted in a live birth.		
302	FROM 212 AND 216, LINE 01:	LAST BIRTH NAME _____ LIVING ☐ DEAD ☐	
303	When you were pregnant with (NAME), did you see anyone for antenatal care for this pregnancy?	YES . . . . . 1 NO 2	→ 305
304	Whom did you see? Anyone else? PROBE FOR THE TYPE OF PERSON AND RECORD ALL PERSONS SEEN	HEALTH PERSONNEL DOCTOR . . . . . A NURSE/MIDWIFE . . . . . B AUXILIARY NURSE . . . . . C OTHER PERSON COMMUNITY BIRTH COMPANION D VILLAGE HEALTH WORKER . . . . . E OTHER _____ X (SPECIFY)	
305	During this pregnancy, did you take any drugs to keep you from getting malaria?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW 8	→ 311
306	What drugs did you take? RECORD ALL MENTIONED. IF TYPE OF DRUG IS NOT DETERMINED, SHOW TYPICAL ANTIMALARIAL DRUGS TO RESPONDENT.	SP/FANSIDAR . . . . . A CHLOROQUINE . . . . . B COARTEM . . . . . C OTHER _____ X (SPECIFY) DON'T KNOW . . . . . Z	
307	CHECK 306: SP/FANSIDAR TAKEN FOR MALARIA PREVENTION.	CODE 'A' CIRCLED ☐ CODE 'A' NOT CIRCLED ☐	→ 311
308	How many times did you take (SP/Fansidar) during this pregnancy?	TIMES . . . . . ☐☐	
309	CHECK 304: ANTENATAL CARE FROM HEALTH PERSONNEL DURING THIS PREGNANCY	CODE 'A', 'B', OR 'C' CIRCLED ☐ OTHER ☐	→ 311
310	Did you get the (SP/Fansidar) during any antenatal care visit, during another visit to a health facility or from another source?	ANTENATAL VISIT . . . . . 1 ANOTHER FACILITY VISIT . . . . . 2 OTHER SOURCE 6	
311	CHECK 215 AND 216:	ONE OR MORE LIVING CHILDREN BORN IN 2012 OR LATER ☐ → GO TO 401 NO LIVING CHILDREN BORN IN 2012 OR LATER ☐	→ 501

SECTION 4. FEVER IN CHILDREN

401	CHECK 215: ENTER IN THE TABLE THE BIRTH HISTORY NUMBER, NAME, AND SURVIVAL STATUS OF EACH BIRTH IN 2011 (1) OR LATER. ASK THE QUESTIONS ABOUT ALL OF THESE BIRTHS. BEGIN WITH THE LAST BIRTH. (IF THERE ARE MORE THAN 3 BIRTHS, USE ADDITIONAL QUESTIONNAIRES). Now I would like to ask some questions about the health of your children born since OctobeR 2011. (We will talk about each separately.)			
402	BIRTH HISTORY NUMBER FROM 212 IN BIRTH HISTORY	LAST BIRTH BIRTH HISTORY NUMBER ☐☐	NEXT-TO-LAST BIRTH BIRTH HISTORY NUMBER ☐☐	SECOND-FROM-LAST BIRTH BIRTH HISTORY NUMBER ☐☐
403	FROM 212 AND 216	NAME ______ LIVING ☐ DEAD ☐ (GO TO 403 IN NEXT COLUMN OR, IF NO MORE BIRTHS, GO TO 501)	NAME ______ LIVING ☐ DEAD ☐ (GO TO 403 IN NEXT COLUMN OR, IF NO MORE BIRTHS, GO TO 501)	NAME ______ LIVING ☐ DEAD ☐ (GO TO 403 IN NEXT-TO-LAST COLUMN OF NEW QUESTIONNAIRE, OR, IF NO MORE BIRTHS, GO TO 501)
404	Has (NAME) been ill with a fever at any time in the last 2 weeks?	YES .... 1 NO .... 2 (GO TO 403 IN NEXT COLUMN OR, IF NO MORE BIRTHS, GO TO 501) DON'T KNOW 8	YES .... 1 NO .... 2 (GO TO 403 IN NEXT COLUMN OR, IF NO MORE BIRTHS, GO TO 501) DON'T KNOW 8	YES .... 1 NO .... 2 (GO TO 403 IN NEXT COLUMN OR, IF NO MORE BIRTHS, GO TO 501) DON'T KNOW 8
405	Did you seek advice or treatment for the illness from any source?	YES .... 1 NO .... 2 (SKIP TO 410)	YES .... 1 NO .... 2 (SKIP TO 410)	YES .... 1 NO .... 2 (SKIP TO 410)
406	Where did you seek advice or treatment? Anywhere else? PROBE TO IDENTIFY EACH TYPE OF SOURCE. IF UNABLE TO DETERMINE IF PUBLIC OR PRIVATE SECTOR, WRITE THE NAME OF THE PLACE. ______ (NAME OF PLACE(S))	PUBLIC SECTOR GOVT. HOSPITAL A GOVT. HEALTH CENTER ...... B GOVT. HEALTH POST .... C MOBILE CLINIC D FIELDWORKER E OTHER PUBLIC SECTOR ______ F (SPECIFY) PRIVATE MEDICAL SECTOR PVT. HOSPITAL/ CLINIC .... G PHARMACY ... H PVT. DOCTOR ... I MOBILE CLINIC J FIELDWORKER K OTHER PRIVATE MED. SECTOR ______ L (SPECIFY) COMMUNITY CLINIC M NGO CLINIC N OTHER SOURCE PRACTITIONER SHOP O TRADITONAL PRACTITIONER P MARKET ...... Q OTHER ______ X (SPECIFY)	PUBLIC SECTOR GOVT. HOSPITAL A GOVT. HEALTH CENTER ...... B GOVT. HEALTH POST .... C MOBILE CLINIC D FIELDWORKER E OTHER PUBLIC SECTOR ______ F (SPECIFY) PRIVATE MEDICAL SECTOR PVT. HOSPITAL/ CLINIC .... G PHARMACY ... H PVT. DOCTOR ... I MOBILE CLINIC J FIELDWORKER K OTHER PRIVATE MED. SECTOR ______ L (SPECIFY) COMMUNITY CLINIC M NGO CLINIC N OTHER SOURCE PRACTITIONER SHOP O TRADITONAL PRACTITIONER P MARKET ...... Q OTHER ______ X (SPECIFY)	PUBLIC SECTOR GOVT. HOSPITAL A GOVT. HEALTH CENTER ...... B GOVT. HEALTH POST .... C MOBILE CLINIC D FIELDWORKER E OTHER PUBLIC SECTOR ______ F (SPECIFY) PRIVATE MEDICAL SECTOR PVT. HOSPITAL/ CLINIC .... G PHARMACY ... H PVT. DOCTOR ... I MOBILE CLINIC J FIELDWORKER K OTHER PRIVATE MED. SECTOR ______ L (SPECIFY) COMMUNITY CLINIC M NGO CLINIC N OTHER SOURCE PRACTITIONER SHOP O TRADITONAL PRACTITIONER P MARKET ...... Q OTHER ______ X (SPECIFY)
406A	How many days after the fever began did you first seek treatment for (NAME)? IF THE SAME DAY, RECORD 00	DAYS ☐☐	DAYS ☐☐	DAYS ☐☐

NO.	QUESTIONS AND FILTERS	LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____
407	CHECK 406:	TWO OR MORE CODES CIRCLED ☐ / ONLY ONE CODE CIRCLED ☐ (SKIP TO 409)	TWO OR MORE CODES CIRCLED ☐ / ONLY ONE CODE CIRCLED ☐ (SKIP TO 409)	TWO OR MORE CODES CIRCLED ☐ / ONLY ONE CODE CIRCLED ☐ (SKIP TO 409)
408	Where did you first seek advice or treatment? USE LETTER CODE FROM 406.	FIRST PLACE . . . ☐	FIRST PLACE . . . ☐	FIRST PLACE . . . ☐
409	At any time during the illness, did (NAME) have blood taken from his/her finger or heel for testing?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW 8	YES . . . . . 1 NO . . . . . 2 DON'T KNOW 8	YES . . . . . 1 NO . . . . . 2 DON'T KNOW 8
410	At any time during the illness, did (NAME) take any drugs for the illness?	YES . . . . . 1 NO . . . . . 2 (GO BACK TO 403 IN NEXT COLUMN; OR, IF NO MORE BIRTHS, GO TO 501) DON'T KNOW 8	YES . . . . . 1 NO . . . . . 2 (GO BACK TO 403 IN NEXT COLUMN; OR, IF NO MORE BIRTHS, GO TO 501) DON'T KNOW 8	YES . . . . . 1 NO . . . . . 2 (GO TO 403 IN NEXT-TO-LAST COLUMN OF NEW QUESTIONNAIRE; OR, IF NO MORE BIRTHS, GO TO 501) DON'T KNOW 8
411	What drugs did (NAME) take? Any other drugs? RECORD ALL MENTIONED. ASK TO SEE DRUGS, IF TYPE OF DRUG IS NOT KNOWN OR TYPE OF DRUG IS STILL NOT DETERMINED, SHOW TYPICAL ANTI MALARIAL DRUGS TO RESPONDANT	ANTIMALARIAL DRUGS SP/FANSIDAR . . . A CHLOROQUINE B AMODIAQUINE C QUININE . . . . . D COMBINATION WITH ARTEMISININ E OTHER ANTI-MALARIAL _____ (SPECIFY) . . . F ANTIBIOTIC DRUGS PILL/SYRUP . . . G INJECTION . . . H OTHER DRUGS ASPIRIN . . . . . I PARACETAMOL . . . J IBUPROFEN . . . K OTHER _____ (SPECIFY) X DON'T KNOW . . . . . Z	ANTIMALARIAL DRUGS SP/FANSIDAR . . . A CHLOROQUINE . B AMODIAQUINE C QUININE . . . . . D COMBINATION WITH ARTEMISININ E OTHER ANTI-MALARIAL _____ (SPECIFY) . . . F ANTIBIOTIC DRUGS PILL/SYRUP . . . G INJECTION . . . H OTHER DRUGS ASPIRIN . . . . . I PARACETAMOL . . . J IBUPROFEN . . . K OTHER _____ (SPECIFY) X DON'T KNOW . . . . . Z	ANTIMALARIAL DRUGS SP/FANSIDAR . . . A CHLOROQUINE B AMODIAQUINE C QUININE . . . . . D COMBINATION WITH ARTEMISININ E OTHER ANTI-MALARIAL _____ (SPECIFY) . . . F ANTIBIOTIC DRUGS PILL/SYRUP . . . G INJECTION . . . H OTHER DRUGS ASPIRIN . . . . . I PARACETAMOL . . . J IBUPROFEN . . . K OTHER _____ (SPECIFY) X DON'T KNOW . . . . . Z
412	CHECK 411: ANY CODE A-F CIRCLED?	YES ☐ / NO ☐ (GO BACK TO 403 IN NEXT COLUMN; OR, IF NO MORE BIRTHS, GO TO 501)	YES ☐ / NO ☐ (GO BACK TO 403 IN NEXT COLUMN; OR, IF NO MORE BIRTHS, GO TO 501)	YES ☐ / NO ☐ (GO TO 403 IN NEXT-TO-LAST COLUMN OF NEW QUESTIONNAIRE; OR, IF NO MORE BIRTHS, GO TO 501)

NO.	QUESTIONS AND FILTERS	LAST BIRTH NAME ______	NEXT-TO-LAST BIRTH NAME ______	SECOND-FROM-LAST BIRTH NAME ______
413	CHECK 411: SP/FANSIDAR ('A') GIVEN	CODE 'A' CIRCLED ☐ / CODE 'A' NOT CIRCLED ☐ (SKIP TO 415)	CODE 'A' CIRCLED ☐ / CODE 'A' NOT CIRCLED ☐ (SKIP TO 415)	CODE 'A' CIRCLED ☐ / CODE 'A' NOT CIRCLED ☐ (SKIP TO 415)
414	How long after the fever started did (NAME) first take (SP/Fansidar)?	SAME DAY . . . . 0 NEXT DAY . . . . 1 TWO DAYS AFTER FEVER . . . . 2 THREE OR MORE DAYS AFTER FEVER . . . . 3 DON'T KNOW . . . 8	SAME DAY . . . . 0 NEXT DAY . . . . 1 TWO DAYS AFTER FEVER . . . . 2 THREE OR MORE DAYS AFTER FEVER . . . . 3 DON'T KNOW . . . 8	SAME DAY . . . . 0 NEXT DAY . . . . 1 TWO DAYS AFTER FEVER . . . . 2 THREE OR MORE DAYS AFTER FEVER . . . . 3 DON'T KNOW . . . 8
415	CHECK 411: CHLOROQUINE ('B') GIVEN	CODE 'B' CIRCLED ☐ / CODE 'B' NOT CIRCLED ☐ (SKIP TO 417)	CODE 'B' CIRCLED ☐ / CODE 'B' NOT CIRCLED ☐ (SKIP TO 417)	CODE 'B' CIRCLED ☐ / CODE 'B' NOT CIRCLED ☐ (SKIP TO 417)
416	How long after the fever started did (NAME) first take chloroquine?	SAME DAY . . . . 0 NEXT DAY . . . . 1 TWO DAYS AFTER FEVER . . . . 2 THREE OR MORE DAYS AFTER FEVER . . . . 3 DON'T KNOW . . . 8	SAME DAY . . . . 0 NEXT DAY . . . . 1 TWO DAYS AFTER FEVER . . . . 2 THREE OR MORE DAYS AFTER FEVER . . . . 3 DON'T KNOW . . . 8	SAME DAY . . . . 0 NEXT DAY . . . . 1 TWO DAYS AFTER FEVER . . . . 2 THREE OR MORE DAYS AFTER FEVER . . . . 3 DON'T KNOW . . . 8
417	CHECK 411: AMODIAQUINE ('C') GIVEN	CODE 'C' CIRCLED ☐ / CODE 'C' NOT CIRCLED ☐ (SKIP TO 419)	CODE 'C' CIRCLED ☐ / CODE 'C' NOT CIRCLED ☐ (SKIP TO 419)	CODE 'C' CIRCLED ☐ / CODE 'C' NOT CIRCLED ☐ (SKIP TO 419)
418	How long after the fever started did (NAME) first take amodiaquine?	SAME DAY . . . . 0 NEXT DAY . . . . 1 TWO DAYS AFTER FEVER . . . . 2 THREE OR MORE DAYS AFTER FEVER . . . . 3 DON'T KNOW . . . 8	SAME DAY . . . . 0 NEXT DAY . . . . 1 TWO DAYS AFTER FEVER . . . . 2 THREE OR MORE DAYS AFTER FEVER . . . . 3 DON'T KNOW . . . 8	SAME DAY . . . . 0 NEXT DAY . . . . 1 TWO DAYS AFTER FEVER . . . . 2 THREE OR MORE DAYS AFTER FEVER . . . . 3 DON'T KNOW . . . 8
419	CHECK 411: QUININE ('D') GIVEN	CODE 'D' CIRCLED ☐ / CODE 'D' NOT CIRCLED ☐ (SKIP TO 421)	CODE 'D' CIRCLED ☐ / CODE 'D' NOT CIRCLED ☐ (SKIP TO 421)	CODE 'D' CIRCLED ☐ / CODE 'D' NOT CIRCLED ☐ (SKIP TO 421)
420	How long after the fever started did (NAME) first take quinine?	SAME DAY . . . . 0 NEXT DAY . . . . 1 TWO DAYS AFTER FEVER . . . . 2 THREE OR MORE DAYS AFTER FEVER . . . . 3 DON'T KNOW . . . 8	SAME DAY . . . . 0 NEXT DAY . . . . 1 TWO DAYS AFTER FEVER . . . . 2 THREE OR MORE DAYS AFTER FEVER . . . . 3 DON'T KNOW . . . 8	SAME DAY . . . . 0 NEXT DAY . . . . 1 TWO DAYS AFTER FEVER . . . . 2 THREE OR MORE DAYS AFTER FEVER . . . . 3 DON'T KNOW . . . 8

NO.	QUESTIONS AND FILTERS	LAST BIRTH NAME ______	NEXT-TO-LAST BIRTH NAME ______	SECOND-FROM-LAST BIRTH NAME ______
421	CHECK 411: COMBINATION WITH ARTEMISININ ('E') GIVEN	CODE 'E' CIRCLED ☐ CODE 'E' NOT CIRCLED ☐ (SKIP TO 423)	CODE 'E' CIRCLED ☐ CODE 'E' NOT CIRCLED ☐ (SKIP TO 423)	CODE 'E' CIRCLED ☐ CODE 'E' NOT CIRCLED ☐ (SKIP TO 423)
422	How long after the fever started did (NAME) first take (COMBINATION WITH ARTEMISININ)?	SAME DAY . . . . 0 NEXT DAY . . . . 1 TWO DAYS AFTER FEVER . . . . 2 THREE OR MORE DAYS AFTER FEVER . . . . 3 DON'T KNOW . . . 8	SAME DAY . . . . 0 NEXT DAY . . . . 1 TWO DAYS AFTER FEVER . . . . 2 THREE OR MORE DAYS AFTER FEVER . . . . 3 DON'T KNOW . . . 8	SAME DAY . . . . 0 NEXT DAY . . . . 1 TWO DAYS AFTER FEVER . . . . 2 THREE OR MORE DAYS AFTER FEVER . . . . 3 DON'T KNOW . . . 8
423	CHECK 411: OTHER ANTIMALARIAL ('F') GIVEN	CODE 'F' CIRCLED ☐ CODE 'F' NOT CIRCLED ☐ (GO BACK TO 403 IN NEXT COLUMN; OR, IF NO MORE BIRTHS, GO TO 501)	CODE 'F' CIRCLED ☐ CODE 'F' NOT CIRCLED ☐ (GO BACK TO 403 IN NEXT COLUMN; OR, IF NO MORE BIRTHS, GO TO 501)	CODE 'F' CIRCLED ☐ CODE 'F' NOT CIRCLED ☐ (GO TO 403 IN NEXT-TO-LAST COLUMN OF NEW QUESTIONNAIRE; OR, IF NO MORE BIRTHS, GO TO 501)
424	How long after the fever started did (NAME) first take (OTHER ANTIMALARIAL)?	SAME DAY . . . . 0 NEXT DAY . . . . 1 TWO DAYS AFTER FEVER . . . . 2 THREE OR MORE DAYS AFTER FEVER . . . . 3 DON'T KNOW . . . 8	SAME DAY . . . . 0 NEXT DAY . . . . 1 TWO DAYS AFTER FEVER . . . . 2 THREE OR MORE DAYS AFTER FEVER . . . . 3 DON'T KNOW . . . 8	SAME DAY . . . . 0 NEXT DAY . . . . 1 TWO DAYS AFTER FEVER . . . . 2 THREE OR MORE DAYS AFTER FEVER . . . . 3 DON'T KNOW . . . 8
425		GO BACK TO 403 IN NEXT COLUMN; OR, IF NO MORE BIRTHS, GO TO 501.	GO BACK TO 403 IN NEXT COLUMN; OR, IF NO MORE BIRTHS, GO TO 501.	GO TO 403 IN NEXT-TO-LAST COLUMN OF NEW QUESTIONNAIRE; OR, IF NO MORE BIRTHS, GO TO 501.

SECTION 5. GENERAL MALARIA KNOWLEDGE/PRACTICES

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
501	Have you ever heard of an illness called malaria?	YES . . . . . 1 NO 2	→ 515
502	If yes,what is your source of information about the illness called malaria? MULTIPLE RESPONSES PROBE (Anything else?)	RADIO . . . . . A TV . . . . . B NEWSPAPER . . . . . C FRIENDS/FAMILY . . . . . D POSTERS . . . . . E T-SHIRTS . . . . . F BILLBOARDS . . . . . G DRAMA PERFORMANCE . . . . . H TRADITIONAL COMMUNICATORS . . . I HEALTH WORKER . . . . . J SCHOOLS . . . . . K PEER EDUCATORS . . . . . L OTHER _____ X SPECIFY	
503	What type of malaria messages/information did you see or hear? MULTIPLE RESPONSES POSSIBLE PROBE (Anything else?)	MALARIA IS DANGEROUS . . . . . A MALARIA CAN KILL . . . . . B MOSQUITOES SPREAD MALARIA . . . . . C SLEEPING UNDER MOSQUITO NET IMPORTANT D WHO SHOULD SLEEP UNDER MOSQUITO NET E SEEK TREATMENT FOR FEVER . . . . . F SEEK TREATMENT FOR FEVER WITHIN 24 HOURS/PROMPTLY . . . . . G IMPORTANCE OF HOUSE SPRAY . . . . . H NOT PLASTERING WALLS AFTER SPRAYING I ENVIRONMENTAL SANITATION ACTIVITIES J FANSIDAR TO PREVENT MALARIA IN PREGNANCY K OTHER _____ X SPECIFY CAN'T REMEMBER . . . . . Z	
504	In your opinion, what causes malaria? MULTIPLE RESPONSES PROBE (Anything else?) PROBE (Anything else?)	MOSQUITO BITES . . . . . A EATING DIRTY FOOD . . . . . B DRINKING DIRTY WATEF . . . . . C GETTING SOAKED WITH RAIN . . . . . D COLD OR CHANGING WEATHER . . . . . E WITCHCRAFT . . . . . F DIRTY WATER AND SURROUNDING . . . . . G EATING UNRIPED MANGOES . . . . . H SOUR MILK WHEN FEVERISH . . . . . I OTHER _____ X SPECIFY DON'T KNOW . . . . . Z	
505	How can you prevent yourself against malaria? MULTIPLE RESPONSES PROBE (Anything else?)	SLEEP UNDER A MOSQUITO NET . . . . . A SLEEP UNDER AN ITN . . . . . B USE MOSQUITO REPELLANT . . . . . C AVOID MOSQUITO BITES . . . . . D TAKE PREVENTIVE MEDICATION . . . . . E SPRAY HOUSE WITH INSECTICIDE . . . . . F USE MOSQUITO COILS . . . . . G CUT THE GRASS AROUND THE HOUSE . . . . . H FILL IN POT HOLES (STAGNANT WATER) . . . . . I KEEP HOUSE SURROUNDINGS CLEAN . . . . . J BURN LEAVES . . . . . K DON'T DRINK DIRTY WATER . . . . . L DRINKING SOUR MILK WHEN FEVERISH . . . . . M PUT MOSQUITO SCREENS ON THE N WINDOWS . . . . . O EATING UNRIPED MANGOES . . . . . P DON'T GET SOAKED WITH RAIN . . . . . Q OTHER _____ X SPECIFY DON'T KNOW . . . . . Z	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
506	Can you tell me the main signs and symptoms of malaria? MULTIPLE RESPONSES PROBE (Anything else?)	FEVER ..... A FEELING COLD ..... B HEADACHE ..... C NAUSEA AND VOMITING ..... D DIARRHOEA ..... E DIZZINESS ..... F LOSS OF APPETITE ..... G BODY ACHE OR JOINT PAIN ..... H PALE EYES ..... I BODY WEAKNESS ..... J REFUSING TO EAT OR DRINK ..... K JAUNDICE ..... L OTHER _____ X SPECIFY DON'T KNOW ..... Z	
506a	Where should someone go first if malaria is suspected?	HEALTH FACILITY/VHW ..... 1 VILLAGE HEALTH WORKERS ..... 2 PRIVATE PHARMACY ..... 3 DRUG STORE ..... 4 TRADITIONAL HEALER ..... 5 OTHER _____ 6 SPECIFY	
506b	After how many days long should someone who suspects malaria seek treatment?	SAME DAY ..... 1 NEXT DAY ..... 2 TWO DAYS AFTER ..... 3 THREE DAYS AFTER ..... 4 FOUR OR MORE DAYS AFTER ..... 5 DON'T KNOW 8	
507	What are the danger signs and symptoms of severe malaria? MULTIPLE RESPONSES PROBE (Anything else?)	SEIZURE/CONVULSIONS ..... A GOES UNCONSCIOUS/FAINTING ..... B ANY FEVER ..... C VERY HIGH FEVER ..... D STIFF NECK ..... E WEAKNESS ..... F NOT ACTIVE ..... G CHILLS/SHIVERING ..... H NOT ABLE TO EAT ..... I VOMITING ..... J CRYING ALL THE TIME ..... K RESTLESS, WON'T STAY STILL ..... L DIARRHOEA ..... M HALUCINATION ..... N OTHER _____ X SPECIFY DON'T KNOW ..... Z	
508	What should you do if the danger signs and symptoms of malaria are observed? MULTIPLE RESPONSES PROBE (Anything else?)	HEALTH FACILITY ..... A PRIVATE PHARMACY ..... B DRUG STORE ..... C TRADITIONAL HEALER ..... D OTHER _____ X SPECIFY	
509	Who are the most vulnerable people to malaria? MULTIPLE RESPONSES PROBE (Anything else?)	CHILDREN UNDER FIVE ..... A ADULTS ..... B PREGNANT WOMEN ..... C ELDERLY PEOPLE ..... D WHOLE POPULATION ..... E NON IMMUNE TRAVELLER ..... F IMMUNO SUPRESS ..... G INDIVIDUAL DEFICIENCY ..... H OTHER _____ X SPECIFY DON'T KNOW ..... Z	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
510	What are the effects of malaria in pregnancy? MULTIPLE RESPONSES PROBE (Anything else?)	ABORTION ..... A LOW BIRTH WEIGHT ..... B ANEMIA ..... C INTRA-UTERINE GROWTH RETARDATION ..... D PREMATURE DELIVERY ..... E STILL BIRTH ..... F MATERNAL DEATH ..... G OTHER _____ X SPECIFY DON'T KNOW ..... Z	
511	Do you know any medicine that can be used to treat malaria (Anti-malaria medicine)? MULTIPLE RESPONSES PROBE (Anything else?)	COARTEM ..... A SP/FANSIDAR ..... B ACT . ..... C CHLOROQUIN ..... D QUININE ..... E OTHER _____ X SPECIFY DON'T KNOW ..... Z	
512	Do you have children under your care ?	YES ..... 1 NO 2	→ 515
513	In general, how often do children under your care sleep under a mosquito net?	ALWAYS ..... 1 SOMETIMES ..... 2 NEVER 3	→ 515
514	Why do the children who sleep in this house sometimes not sleep under a mosquito net? MULTIPLE RESPONSES PROBE (Anything else?)	TOO HOT ..... A TOO COLD ..... B CHILD CRIES ..... C CHILD AFRAID ..... D NOT ENOUGH NETS ..... E NET NOT HUNG UP ..... F USED BY ADULTS ..... G NET NOT USED WHEN TRAVELING ..... H NET WORN OUT / POOR CONDITION ..... I NETS BAD FOR CHILDREN'S' HEALTH ..... J HOUSE SPRAYED ..... K OTHER _____ X SPECIFY DON'T KNOW ..... Z	
515	RECORD THE TIME.	HOUR ..... [ ][ ] MINUTES ..... [ ][ ]	

INTERVIEWER'S OBSERVATIONS

TO BE FILLED IN AFTER COMPLETING INTERVIEW.

COMMENTS ABOUT RESPONDENT:

COMMENTS ON SPECIFIC QUESTIONS:

ANY OTHER COMMENTS:

SUPERVISOR'S OBSERVATIONS

NAME OF SUPERVISOR: _____ **DATE:** _____

EDITOR'S OBSERVATIONS

NAME OF EDITOR: _____ **DATE:** _____

REPUBLIC OF THE GAMBIA

THE GAMBIA MALARIA INDICATOR SURVEY 2017

BIOMARKER QUESTIONNAIRE

GBoS

GAMBIA BUREAU OF STATISTICS IN COLLABORATION WITH MINISTRY OF HEALTH AND SOCIAL WELFARE

IDENTIFICATION

LOCAL GOVERNMENT AREA: ☐

1	BANJUL	5	KEREWAN NBW
2	KANIFING	6	KEREWAN NBE
3	BRIKAMA	7	KUNTAUR
4	MANSAKONKO	8	JANJANGBUREH
		9	BASSE

DISTRICT NAME: _____ D/CODE ☐☐ SETTLEMENT NAME: _____ S/CODE ☐☐☐☐☐

NAME OF HOUSEHOLD HEAD: _____ TEL ☐☐☐☐☐☐☐

Compund No ☐☐☐

EA NUMBER: ☐☐☐☐☐ CLUSTER NUMBER ☐☐☐ HOUSEHOLD NUMBER 0☐☐☐

AREA OF RESIDENCE: ☐ 1 URBAN 2 RURAL PRIMARY HEALTH CARE: ☐ 1 PHC 2 NON PHC

INTERVIEWER VISITS

	1	2	3	FINAL VISIT
DATE				DAY ☐☐ MONTH ☐☐ YEAR 2017
INTERVIEWER'S NAME				INT. NUMBER ☐☐
RESULT*				RESULT ☐
NEXT VISIT: DATE				TOTAL NUMBER OF VISITS ☐
TIME				

*RESULT CODES:

1 COMPLETED
2 PARTLY COMPLETED
3 NO HOUSEHOLD MEMBER AT HOME OR NO COMPETENT RESPONDENT AT HOME AT TIME OF VISIT
4 ENTIRE HOUSEHOLD ABSENT FOR EXTENDED PERIOD OF TIME
5 REFUSED
9 OTHER _____ (SPECIFY)

TOTAL PERSONS IN HOUSEHOLD ☐☐☐

TOTAL ELIGIBLE WOMEN ☐☐

LINE NO. OF RESPONDENT TO HOUSEHOLD QUESTIONNAIRE ☐☐☐

HH SELECTED FOR ANEMIA AND MALARIA TESTS FOR ALL HH MEMBERS: YES 1 / NO 2

HH SELECTED FOR MALARIA DBS TESTS FOR ALL HH MEMBERS: YES 1 / NO 2

SUPERVISOR	FIELD EDITOR	OFFICE EDITOR	KEYED BY
NAME _____ SU/CODE ☐☐	NAME _____ FE/CODE ☐☐	OE/CODE ☐☐	DE/CODE ☐☐

INTRODUCTION AND CONSENT

Hello. My name is _____. I am working with GBoS and MoHSW. We are conducting a survey about malaria all over The Gambia. 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 to 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.

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	WOMEN 15-49	CHILDREN <5 YEARS 0-59 MON.	MEMBERS 5 YEARS AND OLDER
1	2	3	4	5	6	7	8	9	10
	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. AFTER LISTING THE NAMES AND RECORDING THE RELATIONSHIP AND SEX FOR EACH PERSON, ASK QUESTIONS 2A-2C TO BE SURE THAT THE LISTING IS COMPLETE. THEN ASK APPROPRIATE QUESTIONS IN COLUMNS 5-10 FOR EACH PERSON.	What is the relationship of (NAME) to the head of the household? SEE CODES BELOW.	Is (NAME) male or female?	Does (NAME) usually live here?	Did (NAME) stay here last night?	How old is (NAME)? RECORD IN COMPL-ED YEARS IF 95 OR MORE, RECORD '95'.	CIRCLE LINE NUMBER OF ALL WOMEN AGE 15-49	CIRCLE LINE NUMBER OF ALL CHILDREN AGE 0 TO 59 MONTHS (UNDER 5 YEARS}	CIRCLE LINE NUMBER OF ALL MEMBERS 5 YEARS AND OLDER
01			M F 1 2	Y N 1 2	Y N 1 2	IN YEARS	01	01	01
02			1 2	1 2	1 2		02	02	02
03			1 2	1 2	1 2		03	03	03
04			1 2	1 2	1 2		04	04	04
05			1 2	1 2	1 2		05	05	05
06			1 2	1 2	1 2		06	06	06
07			1 2	1 2	1 2		07	07	07
08			1 2	1 2	1 2		08	08	08
09			1 2	1 2	1 2		09	09	09
10			1 2	1 2	1 2		10	10	10

CODES FOR Q. 3: RELATIONSHIP TO HEAD OF HOUSEHOLD

01 = HEAD
02 = WIFE OR HUSBAND
03 = SON OR DAUGHTER
04 = SON-IN-LAW OR DAUGHTER-IN-LAW
05 = GRANDCHILD
06 = PARENT
07 = PARENT-IN-LAW
08 = BROTHER OR SISTER
09 = NIECE OR NEPHEW
10 = OTHER RELATIVE
11 = ADOPTED/FOSTER/ STEPCHILD
90 = NOT RELATED
98 = DON'T KNOW

LINE NO.	USUAL RESIDENTS AND VISITORS	RELATIONSHIP TO HEAD OF HOUSEHOLD	SEX	RESIDENCE		AGE	WOMEN 15-49	CHILDREN <5 YEARS 0-59 MON.	MEMBERS 5 YEARS AND OLDER
1	2	3	4	5	6	7	8	9	10
	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. AFTER LISTING THE NAMES AND RECORDING THE RELATIONSHIP AND SEX FOR EACH PERSON, ASK QUESTIONS 2A-2C TO BE SURE THAT THE LISTING IS COMPLETE. THEN ASK APPROPRIATE QUESTIONS IN COLUMNS 5-10 FOR EACH PERSON.	What is the relationship of (NAME) to the head of the household? SEE CODES BELOW.	Is (NAME) male or female?	Does (NAME) usually live here?	Did (NAME) stay here last night?	How old is (NAME)? RECORD IN COMPL-ED YEARS IF 95 OR MORE, RECORD '95'.	CIRCLE LINE NUMBER OF ALL WOMEN AGE 15-49	CIRCLE LINE NUMBER OF ALL CHILDREN AGE 0 TO 59 MONTHS (UNDER 5 YEARS}	CIRCLE LINE NUMBER OF ALL MEMBERS 5 YEARS AND OLDER
			M F	Y N	Y N	IN YEARS			
11			1 2	1 2	1 2		11	11	11
12			1 2	1 2	1 2		12	12	12
13			1 2	1 2	1 2		13	13	13
14			1 2	1 2	1 2		14	14	14
15			1 2	1 2	1 2		15	15	15
16			1 2	1 2	1 2		16	16	16
17			1 2	1 2	1 2		17	17	17
18			1 2	1 2	1 2		18	18	18
19			1 2	1 2	1 2		19	19	19
20			1 2	1 2	1 2		20	20	20

TICK HERE IF CONTINUATION SHEET USED

2A) Just to make sure that I have a complete listing: are there any other persons 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
02 = WIFE OR HUSBAND
03 = SON OR DAUGHTER
04 = SON-IN-LAW OR DAUGHTER-IN-LAW
05 = GRANDCHILD
06 = PARENT
07 = PARENT-IN-LAW
08 = BROTHER OR SISTER
09 = NIECE OR NEPHEW
10 = OTHER RELATIVE
11 = ADOPTED/FOSTER/ STEPCHILD
90 = NOT RELATED
98 = DON'T KNOW

HEMOGLOBIN MEASUREMENT AND MALARIA TESTING FOR CHILDREN AGE 6-59 MONTHS

201	CHECK COLUMN 9 IN HOUSEHOLD SCHEDULE. RECORD THE LINE NUMBER AND NAME FOR ALL ELIGIBLE CHILDREN < 5 YEARS IN QUESTION 202. IF MORE THAN EIGHT CHILDREN, USE ADDITIONAL QUESTIONNAIRE(S).				
		CHILD 1	CHILD 2	CHILD 3	CHILD 4
202	LINE NUMBER FROM COLUMN 9 NAME FROM COLUMN 2	LINE NUMBER . . . . . NAME ___	LINE NUMBER . . . . . NAME ___	LINE NUMBER . . . . . NAME ___	LINE NUMBER . . . . . NAME ___
203	IF MOTHER INTERVIEWED, COPY MONTH AND YEAR OF BIRTH FROM BIRTH HISTORY AND ASK DAY; IF MOTHER NOT INTERVIEWED, ASK: What is (NAME)'s birth date? RECORD 98 IF DAY OF BIRTH IN UNKNOWN	DAY . . . . MONTH . . . . . YEAR	DAY . . . . MONTH . . . . . YEAR	DAY . . . . MONTH . . . . . YEAR	DAY . . . . MONTH . . . . . YEAR
204	CHECK 203: CHILD BORN IN NOVEMBER 2012 OR LATER?	YES . . . . 1 NO . . . . 2 (GO TO 203 FOR NEXT CHILD OR, IF NO MORE CHILDREN, GO TO 300)	YES . . . . 1 NO . . . . 2 (GO TO 203 FOR NEXT CHILD OR, IF NO MORE CHILDREN, GO TO 300)	YES . . . . 1 NO . . . . 2 (GO TO 203 FOR NEXT CHILD OR, IF NO MORE CHILDREN, GO TO 300)	YES . . . . 1 NO . . . . 2 (GO TO 203 FOR NEXT CHILD OR, IF NO MORE CHILDREN, GO TO 300)
205	CHECK 203: IS CHILD AGE 0-5 MONTHS, I.E., WAS CHILD BORN IN MONTH OF INTERVIEW OR FIVE PREVIOUS MONTHS?	0-5 MONTHS . . . . 1 (GO TO 203 FOR NEXT CHILD OR, IF NO MORE CHILDREN, GO TO 300) OLDER 2	0-5 MONTHS . . . . 1 (GO TO 203 FOR NEXT CHILD OR, IF NO MORE CHILDREN, GO TO 300) OLDER 2	0-5 MONTHS . . . . 1 (GO TO 203 FOR NEXT CHILD OR, IF NO MORE CHILDREN, GO TO 300) OLDER 2	0-5 MONTHS . . . . 1 (GO TO 203 FOR NEXT CHILD OR, IF NO MORE CHILDREN, GO TO 300) OLDER 2
206	LINE NUMBER OF PARENT/ OTHER ADULT RESPONSIBLE FOR THE CHILD (FROM COLUMN 1 OF HOUSEHOLD SCHEDULE). RECORD '00' IF NOT LISTED.	LINE NUMBER	LINE NUMBER	LINE NUMBER	LINE NUMBER . . . . .
207	ASK CONSENT FOR ANEMIA TEST FROM PARENT/OTHER ADULT IDENTIFIED IN 206 AS RESPONSIBLE FOR CHILD.	As part of this survey, we are asking children all over the country to take an anemia test. Anemia is a serious health problem that usually results from poor nutrition, infection, or chronic disease. This survey will assist the government to develop programs to prevent and treat anemia. We ask that all children born in 2011 or later take part in anemia testing in this survey and give 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 anemia immediately, and the result will be told to you right away. The result 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 to the test, or you can say no. It is up to you to decide. Will you allow (NAME OF CHILD) to participate in the anemia test?			
208	CIRCLE THE APPROPRIATE CODE AND RESPONDENT SIGN OR THUMB PRINT .	GRANTED . . . . 1 ___ (SIGN) REFUSED . . . . 2 NOT PRESENT . . . . . 5 OTHER 6	GRANTED . . . . 1 ___ (SIGN) REFUSED . . . . 2 NOT PRESENT . . . . . 5 OTHER 6	GRANTED . . . . 1 ___ (SIGN) REFUSED . . . . 2 NOT PRESENT . . . . . 5 OTHER 6	GRANTED . . . . 1 ___ (SIGN) REFUSED . . . . 2 NOT PRESENT . . . . . 5 OTHER 6
209	ASK CONSENT FOR MALARIA TEST FROM PARENT/OTHER ADULT IDENTIFIED IN 206 AS RESPONSIBLE FOR CHILD.	As part of this survey, we are asking that children all over the country take a test to see if they have malaria. Malaria is a serious illness caused by a parasite transmitted by a mosquito bite. This survey will help the government to develop programs to prevent malaria. We ask that all children born in 2011 or later take part in malaria testing in this survey and give 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. (We will use blood from the same finger or heel prick made for the anemia test). One blood drop will be tested for malaria immediately, and the result will be told to you right away. A few blood drops will be collected on a slide(s) 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 to the test, or you can say no. It is up to you to decide. Will you allow (NAME OF CHILD) to participate in the malaria testing?			
210	CIRCLE THE APPROPRIATE CODE AND RESPONDENT SIGN OR THUMB PRINT .	GRANTED . . . . 1 ___ (SIGN) REFUSED . . . . 2 NOT PRESENT . . . . . 5 OTHER 6	GRANTED . . . . 1 ___ (SIGN) REFUSED . . . . 2 NOT PRESENT . . . . . 5 OTHER 6	GRANTED . . . . 1 ___ (SIGN) REFUSED . . . . 2 NOT PRESENT . . . . . 5 OTHER 6	GRANTED . . . . 1 ___ (SIGN) REFUSED . . . . 2 NOT PRESENT . . . . . 5 OTHER 6

		CHILD 1	CHILD 2	CHILD 3	CHILD 4
	NAME FROM COLUMN 2	NAME ______________	NAME ______________	NAME ______________	NAME ______________
211	PREPARE EQUIPMENT AND SUPPLIES ONLY FOR THE TEST(S) FOR WHICH CONSENT HAS BEEN OBTAINED AND PROCEED WITH THE TEST(S).				
212	BAR CODE LABEL FOR MALARIA TEST . PUT THE 2ND BAR CODE LABEL ON THE SLIDE, THE 3RD ON THE FILTER PAPER WHEN NECESSARY, THE 4TH ON THE TRANSMITTAL FORM FOR THE SLIDE, AND THE 5TH FOR THE TRANSMITTAL FORM FOR THE FILTER PAPER, WHEN NECESSARY	PUT THE 1ST BAR CODE LABEL HERE.FOR THE (THIS FOR THE SLIDE AND THE FILTER PAPER WHEN NECESSARY) NOT PRESENT 99994 REFUSED ..... 99995 OTHER 99996	PUT THE 1ST BAR CODE LABEL HERE.FOR THE (THIS FOR THE SLIDE AND THE FILTER PAPER WHEN NECESSARY) NOT PRESENT 99994 REFUSED ..... 99995 OTHER 99996	PUT THE 1ST BAR CODE LABEL HERE.FOR THE (THIS FOR THE SLIDE AND THE FILTER PAPER WHEN NECESSARY) NOT PRESENT 99994 REFUSED ..... 99995 OTHER 99996	PUT THE 1ST BAR CODE LABEL HERE.FOR THE (THIS FOR THE SLIDE AND THE FILTER PAPER WHEN NECESSARY) NOT PRESENT 99994 REFUSED ..... 99995 OTHER 99996
213	RECORD HEMOGLOBIN LEVEL HERE AND IN THE ANEMIA AND MALARIA BROCHURE .	G/DL [ ][ ] . [ ] NOT PRESENT .....994 REFUSED ....995 OTHER 996	G/DL [ ][ ] . [ ] NOT PRESENT .....994 REFUSED ....995 OTHER 996	G/DL [ ][ ] . [ ] NOT PRESENT .....994 REFUSED ....995 OTHER 996	G/DL [ ][ ] . [ ] NOT PRESENT .....994 REFUSED ....995 OTHER 996
214	RECORD RESULT CODE OF THE MALARIA RDT.	TESTED .... 1 NOT PRESENT ..... 2 REFUSED .... 3 OTHER .... 6 (SKIP TO 216)	TESTED .... 1 NOT PRESENT ..... 2 REFUSED .... 3 OTHER .... 6 (SKIP TO 216)	TESTED .... 1 NOT PRESENT ..... 2 REFUSED .... 3 OTHER .... 6 (SKIP TO 216)	TESTED .... 1 NOT PRESENT ..... 2 REFUSED .... 3 OTHER .... 6 (SKIP TO 216)
215	RECORD THE RESULT OF THE MALARIA RDT HERE AND IN THE ANEMIA AND MALARIA BROCHURE.	POSITIVE........... 1 (SKIP TO 218) NEGATIVE .... 2 OTHER 6	POSITIVE........... 1 (SKIP TO 218) NEGATIVE .... 2 OTHER 6	POSITIVE........... 1 (SKIP TO 218) NEGATIVE .... 2 OTHER 6	POSITIVE........... 1 (SKIP TO 218) NEGATIVE .... 2 OTHER 6
216	CHECK 213: HEMOGLOBIN RESULT	BELOW 8.0 G/DL, SEVERE ANEMIA 1 8.0 G/DL OR ABOVE 2 NOT PRESENT ..... 4 REFUSED .... 5 OTHER .... 6 (SKIP TO 229)	BELOW 8.0 G/DL, SEVERE ANEMIA 1 8.0 G/DL OR ABOVE 2 NOT PRESENT ..... 4 REFUSED .... 5 OTHER .... 6 (SKIP TO 229)	BELOW 8.0 G/DL, SEVERE ANEMIA 1 8.0 G/DL OR ABOVE 2 NOT PRESENT ..... 4 REFUSED .... 5 OTHER .... 6 (SKIP TO 229)	BELOW 8.0 G/DL, SEVERE ANEMIA 1 8.0 G/DL OR ABOVE 2 NOT PRESENT ..... 4 REFUSED .... 5 OTHER .... 6 (SKIP TO 229)
217	SEVERE ANEMIA REFERRAL STATEMENT	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. SKIP TO 229			
218	Does (NAME) suffer from the any of following illnesses or symptoms : Extreme weakness? Heart problems? Loss of consciousness? Rapid or difficult breathing? Seizures? Abnormal bleeding? Jaundice or yellow skin? Dark urine? IF NONE OF THE ABOVE SYMPTOMS, CIRCLE CODE Y	EXTREME WEAKNESS A HEART PROBLEMS . . . B LOSS OF CONSCIOUSNESS C RAPID BREATHING . . . D SEIZURES .... E BLEEDING .... F JAUNDICE .... G DARK URINE .... H NONE OF ABOVE SYMPTOMS ...... Y	EXTREME WEAKNESS A HEART PROBLEMS . . . B LOSS OF CONSCIOUSNESS C RAPID BREATHING . . . D SEIZURES .... E BLEEDING .... F JAUNDICE .... G DARK URINE .... H NONE OF ABOVE SYMPTOMS ...... Y	EXTREME WEAKNESS A HEART PROBLEMS . . . B LOSS OF CONSCIOUSNESS C RAPID BREATHING . . . D SEIZURES .... E BLEEDING .... F JAUNDICE .... G DARK URINE .... H NONE OF ABOVE SYMPTOMS ...... Y	EXTREME WEAKNESS A HEART PROBLEMS . . . B LOSS OF CONSCIOUSNESS C RAPID BREATHING . . . D SEIZURES .... E BLEEDING .... F JAUNDICE .... G DARK URINE .... H NONE OF ABOVE SYMPTOMS ...... Y
219	CHECK 218: ANY CODE A-H CIRCLED?	ONLY CODE Y CIRCLED .... 1 ANY CODE A-H CIRCLED ..... 2 (SKIP TO 222)	ONLY CODE Y CIRCLED .... 1 ANY CODE A-H CIRCLED ..... 2 (SKIP TO 222)	ONLY CODE Y CIRCLED .... 1 ANY CODE A-H CIRCLED ..... 2 (SKIP TO 222)	ONLY CODE Y CIRCLED .... 1 ANY CODE A-H CIRCLED ..... 2 (SKIP TO 222)

		CHILD 1	CHILD 2	CHILD 3	CHILD 4
	NAME FROM COLUMN 2	NAME ____________	NAME ____________	NAME ____________	NAME ____________
220	CHECK 213: HEMOGLOBIN RESULT	BELOW 8.0 G/DL, SEVERE ANEMIA 1 (SKIP TO 222) 8.0 G/DL OR ABOVE 2 NOT PRESENT ..... 4 REFUSED .... 5 OTHER 6	BELOW 8.0 G/DL, SEVERE ANEMIA 1 (SKIP TO 222) 8.0 G/DL OR ABOVE 2 NOT PRESENT ..... 4 REFUSED .... 5 OTHER 6	BELOW 8.0 G/DL, SEVERE ANEMIA 1 (SKIP TO 222) 8.0 G/DL OR ABOVE 2 NOT PRESENT ..... 4 REFUSED .... 5 OTHER 6	BELOW 8.0 G/DL, SEVERE ANEMIA 1 (SKIP TO 222) 8.0 G/DL OR ABOVE 2 NOT PRESENT ..... 4 REFUSED .... 5 OTHER 6
221	In the past two weeks has (NAME) taken or is taking [FIRST LINE MEDICATION] (10) given by a doctor or health center to treat the malaria? VERIFY BY ASKING TO SEE TREATMENT.	YES .... 1 (SKIP TO 223) NO .... 2 (SKIP TO 224)	YES .... 1 (SKIP TO 223) NO .... 2 (SKIP TO 224)	YES .... 1 (SKIP TO 223) NO .... 2 (SKIP TO 224)	YES .... 1 (SKIP TO 223) NO .... 2 (SKIP TO 224)
222	SEVERE MALARIA REFERRAL STATEMENT	The malaria test shows that (NAME OF CHILD) has malaria. Your child also has symptoms of severe malaria. The malaria treatment I have will 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. SKIP TO 228			
223	ALREADY TAKING [FIRST LINE MEDICATION] REFERRAL STATEMENT (10)	You have told me that (NAME OF CHILD) has already received [FIRST LINE MEDICATION] for malaria. Therefore, I cannot give you additional [FIRST LINE MEDICATION]. However, the test shows that he/she has malaria. If your child has a fever for two days after the last dose of [FIRST LINE MEDICATION], you should take the child to the nearest health facility for further examination. SKIP TO 228			
224	READ INFORMATION FOR MALARIA TREATMENT AND CONSENT STATEMENT TO PARENT OR OTHER ADULT RESPONSIBLE FOR THE CHILD.	The malaria test shows that your child has malaria. We can give you free medicine. The medicine is called [FIRST LINE MEDICATION]. [FIRST LINE MEDICATION] 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.			
225	CIRCLE THE APPROPRIATE CODE AND RESPONDENT SIGN OR THUMB PRINT .	ACCEPTED MEDICINE 1 ____________ (SIGN) REFUSED .... 2 OTHER 6	ACCEPTED MEDICINE 1 ____________ (SIGN) REFUSED .... 2 OTHER 6	ACCEPTED MEDICINE 1 ____________ (SIGN) REFUSED .... 2 OTHER 6	ACCEPTED MEDICINE 1 ____________ (SIGN) REFUSED .... 2 OTHER 6
226	CHECK 225: MEDICATION ACCEPTED	ACCEPTED MEDICINE 1 REFUSED .... 2 OTHER .... 6 (SKIP TO 228)	ACCEPTED MEDICINE 1 REFUSED .... 2 OTHER .... 6 (SKIP TO 228)	ACCEPTED MEDICINE 1 REFUSED .... 2 OTHER .... 6 (SKIP TO 228)	ACCEPTED MEDICINE 1 REFUSED .... 2 OTHER .... 6 (SKIP TO 228)
227	TREATMENT FOR CHILDREN WITH POSITIVE MALARIA TESTS	[INSERT DOSAGE INSTRUCTIONS] ALSO TELL THE PARENT/ADULT RESPONSIBLE FOR THE CHILD : 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 two days, you should take him/her to a health professional for treatment right away.			
228	RECORD THE RESULT CODE OF MALARIA TREATMENT OR REFERRAL.	MEDICATION GIVEN 1 MEDS REFUSED ..... 2 SEVERE MALARIA REFERRAL .... 3 ALREADY TAKING ACTS REFERRAL .... 4 OTHER 6	MEDICATION GIVEN 1 MEDS REFUSED ..... 2 SEVERE MALARIA REFERRAL .... 3 ALREADY TAKING ACTS REFERRAL .... 4 OTHER 6	MEDICATION GIVEN 1 MEDS REFUSED ..... 2 SEVERE MALARIA REFERRAL .... 3 ALREADY TAKING ACTS REFERRAL .... 4 OTHER 6	MEDICATION GIVEN 1 MEDS REFUSED ..... 2 SEVERE MALARIA REFERRAL .... 3 ALREADY TAKING ACTS REFERRAL .... 4 OTHER 6
229	GO BACK TO 203 IN NEXT COLUMN OF THIS QUESTIONNAIRE OR IN THE FIRST COLUMN OF THE NEXT PAGE; IF NO MORE CHILDREN, GO TO 300				

HEMOGLOBIN MEASUREMENT AND MALARIA TESTING FOR CHILDREN AGE 6-59 MONTHS

201	CHECK COLUMN 9 IN HOUSEHOLD SCHEDULE. RECORD THE LINE NUMBER AND NAME FOR ALL ELIGIBLE CHILDREN < 5 YEARS IN QUESTION 202. IF MORE THAN EIGHT CHILDREN, USE ADDITIONAL QUESTIONNAIRE(S).				
		CHILD 5	CHILD 6	CHILD 7	CHILD 8
202	LINE NUMBER FROM COLUMN 9 NAME FROM COLUMN 2	LINE NUMBER . . . . . [ ][ ] NAME ______	LINE NUMBER . . . . . [ ][ ] NAME ______	LINE NUMBER . . . . . [ ][ ] NAME ______	LINE NUMBER . . . . . [ ][ ] NAME ______
203	IF MOTHER INTERVIEWED, COPY MONTH AND YEAR OF BIRTH FROM BIRTH HISTORY AND ASK DAY; IF MOTHER NOT INTERVIEWED, ASK: What is (NAME)'s birth date? RECORD 98 IF DAY OF BIRTH IN UNKNOWN	DAY . . . . [ ][ ] MONTH . . . . . [ ][ ] YEAR [ ][ ][ ][ ]	DAY . . . . [ ][ ] MONTH . . . . . [ ][ ] YEAR [ ][ ][ ][ ]	DAY . . . . [ ][ ] MONTH . . . . . [ ][ ] YEAR [ ][ ][ ][ ]	DAY . . . . [ ][ ] MONTH . . . . . [ ][ ] YEAR [ ][ ][ ][ ]
204	CHECK 203: CHILD BORN IN NOVEMBER 2011 OR LATER?	YES . . . . 1 NO . . . . 2 (GO TO 203 FOR NEXT CHILD OR, IF NO MORE CHILDREN, GO TO 300)	YES . . . . 1 NO . . . . 2 (GO TO 203 FOR NEXT CHILD OR, IF NO MORE CHILDREN, GO TO 300)	YES . . . . 1 NO . . . . 2 (GO TO 203 FOR NEXT CHILD OR, IF NO MORE CHILDREN, GO TO 300)	YES . . . . 1 NO . . . . 2 (GO TO 203 FOR NEXT CHILD OR, IF NO MORE CHILDREN, GO TO 300)
205	CHECK 203: IS CHILD AGE 0-5 MONTHS, I.E., WAS CHILD BORN IN MONTH OF INTERVIEW OR FIVE PREVIOUS MONTHS?	0-5 MONTHS . . . . 1 (GO TO 203 FOR NEXT CHILD OR, IF NO MORE CHILDREN, GO TO 300) OLDER 2	0-5 MONTHS . . . . 1 (GO TO 203 FOR NEXT CHILD OR, IF NO MORE CHILDREN, GO TO 300) OLDER 2	0-5 MONTHS . . . . 1 (GO TO 203 FOR NEXT CHILD OR, IF NO MORE CHILDREN, GO TO 300) OLDER 2	0-5 MONTHS . . . . 1 (GO TO 203 FOR NEXT CHILD OR, IF NO MORE CHILDREN, GO TO 300) OLDER 2
206	LINE NUMBER OF PARENT/ OTHER ADULT RESPONSIBLE FOR THE CHILD (FROM COLUMN 1 OF HOUSEHOLD SCHEDULE). RECORD '00' IF NOT LISTED.	LINE NUMBER . . . . . [ ][ ]	LINE NUMBER . . . . . [ ][ ]	LINE NUMBER . . . . . [ ][ ]	LINE NUMBER . . . . . [ ][ ]
207	ASK CONSENT FOR ANEMIA TEST FROM PARENT/OTHER ADULT IDENTIFIED IN 206 AS RESPONSIBLE FOR CHILD.	As part of this survey, we are asking children all over the country to take an anemia test. Anemia is a serious health problem that usually results from poor nutrition, infection, or chronic disease. This survey will assist the government to develop programs to prevent and treat anemia. We ask that all children born in 2011 or later take part in anemia testing in this survey and give 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 anemia immediately, and the result will be told to you right away. The result 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 to the test, or you can say no. It is up to you to decide. Will you allow (NAME OF CHILD) to participate in the anemia test?			
208	CIRCLE THE APPROPRIATE CODE AND RESPONDENT SIGN OR THUMB PRINT .	GRANTED . . . . 1 ______ (SIGN) REFUSED . . . . 2 NOT PRESENT . . . . . 5 OTHER 6	GRANTED . . . . 1 ______ (SIGN) REFUSED . . . . 2 NOT PRESENT . . . . . 5 OTHER 6	GRANTED . . . . 1 ______ (SIGN) REFUSED . . . . 2 NOT PRESENT . . . . . 5 OTHER 6	GRANTED . . . . 1 ______ (SIGN) REFUSED . . . . 2 NOT PRESENT . . . . . 5 OTHER 6
209	ASK CONSENT FOR MALARIA TEST FROM PARENT/OTHER ADULT IDENTIFIED IN 206 AS RESPONSIBLE FOR CHILD.	As part of this survey, we are asking that children all over the country take a test to see if they have malaria. Malaria is a serious illness caused by a parasite transmitted by a mosquito bite. This survey will help the government to develop programs to prevent malaria. We ask that all children born in 2011 or later take part in malaria testing in this survey and give 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. (We will use blood from the same finger or heel prick made for the anemia test). One blood drop will be tested for malaria immediately, and the result will be told to you right away. A few blood drops will be collected on a slide(s) 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 to the test, or you can say no. It is up to you to decide. Will you allow (NAME OF CHILD) to participate in the malaria testing?			
210	CIRCLE THE APPROPRIATE CODE AND RESPONDENT SIGN OR THUMB PRINT .	GRANTED . . . . 1 ______ (SIGN) REFUSED . . . . 2 NOT PRESENT . . . . . 5 OTHER 6	GRANTED . . . . 1 ______ (SIGN) REFUSED . . . . 2 NOT PRESENT . . . . . 5 OTHER 6	GRANTED . . . . 1 ______ (SIGN) REFUSED . . . . 2 NOT PRESENT . . . . . 5 OTHER 6	GRANTED . . . . 1 ______ (SIGN) REFUSED . . . . 2 NOT PRESENT . . . . . 5 OTHER 6

		CHILD 5	CHILD 6	CHILD 7	CHILD 8
	NAME FROM COLUMN 2	NAME ______	NAME ______	NAME ______	NAME ______
211	PREPARE EQUIPMENT AND SUPPLIES ONLY FOR THE TEST(S) FOR WHICH CONSENT HAS BEEN OBTAINED AND PROCEED WITH THE TEST(S).				
212	BAR CODE LABEL FOR MALARIA TEST . PUT THE 2ND BAR CODE LABEL ON THE SLIDE, THE 3RD ON THE FILTER PAPER WHEN NECESSARY, THE 4TH ON THE TRANSMITTAL FORM FOR THE SLIDE, AND THE 5TH FOR THE TRANSMITTAL FORM FOR THE FILTER PAPER, WHEN NECESSARY	PUT THE 1ST BAR CODE LABEL HERE.FOR THE (THIS FOR THE SLIDE AND THE FILTER PAPER WHEN NECESSARY) NOT PRESENT 99994 REFUSED ..... 99995 OTHER 99996	PUT THE 1ST BAR CODE LABEL HERE.FOR THE (THIS FOR THE SLIDE AND THE FILTER PAPER WHEN NECESSARY) NOT PRESENT 99994 REFUSED ..... 99995 OTHER 99996	PUT THE 1ST BAR CODE LABEL HERE.FOR THE (THIS FOR THE SLIDE AND THE FILTER PAPER WHEN NECESSARY) NOT PRESENT 99994 REFUSED ..... 99995 OTHER 99996	PUT THE 1ST BAR CODE LABEL HERE.FOR THE (THIS FOR THE SLIDE AND THE FILTER PAPER WHEN NECESSARY) NOT PRESENT 99994 REFUSED ..... 99995 OTHER 99996
213	RECORD HEMOGLOBIN LEVEL HERE AND IN THE ANEMIA AND MALARIA BROCHURE (8).	G/DL [ ][ ].[ ] NOT PRESENT .....994 REFUSED ....995 OTHER 996	G/DL [ ][ ].[ ] NOT PRESENT .....994 REFUSED ....995 OTHER 996	G/DL [ ][ ].[ ] NOT PRESENT .....994 REFUSED ....995 OTHER 996	G/DL [ ][ ].[ ] NOT PRESENT .....994 REFUSED ....995 OTHER 996
214	RECORD RESULT CODE OF THE MALARIA RDT.	TESTED .... 1 NOT PRESENT ..... 2 REFUSED .... 3 OTHER .... 6 (SKIP TO 216)	TESTED .... 1 NOT PRESENT ..... 2 REFUSED .... 3 OTHER .... 6 (SKIP TO 216)	TESTED .... 1 NOT PRESENT ..... 2 REFUSED .... 3 OTHER .... 6 (SKIP TO 216)	TESTED .... 1 NOT PRESENT ..... 2 REFUSED .... 3 OTHER .... 6 (SKIP TO 216)
215	RECORD THE RESULT OF THE MALARIA RDT HERE AND IN THE ANEMIA AND MALARIA BROCHURE.	POSITIVE........... 1 (SKIP TO 218) NEGATIVE .... 2 OTHER 6	POSITIVE........... 1 (SKIP TO 218) NEGATIVE .... 2 OTHER 6	POSITIVE........... 1 (SKIP TO 218) NEGATIVE .... 2 OTHER 6	POSITIVE........... 1 (SKIP TO 218) NEGATIVE .... 2 OTHER 6
216	CHECK 213: HEMOGLOBIN RESULT	BELOW 8.0 G/DL, SEVERE ANEMIA 1 8.0 G/DL OR ABOVE 2 NOT PRESENT ..... 4 REFUSED .... 5 OTHER .... 6 (SKIP TO 229)	BELOW 8.0 G/DL, SEVERE ANEMIA 1 8.0 G/DL OR ABOVE 2 NOT PRESENT ..... 4 REFUSED .... 5 OTHER .... 6 (SKIP TO 229)	BELOW 8.0 G/DL, SEVERE ANEMIA 1 8.0 G/DL OR ABOVE 2 NOT PRESENT ..... 4 REFUSED .... 5 OTHER .... 6 (SKIP TO 229)	BELOW 8.0 G/DL, SEVERE ANEMIA 1 8.0 G/DL OR ABOVE 2 NOT PRESENT ..... 4 REFUSED .... 5 OTHER .... 6 (SKIP TO 229)
217	<u>SEVERE ANEMIA REFERRAL</u> STATEMENT	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. SKIP TO 229			
218	Does (NAME) suffer from the any of following illnesses or symptoms (9): Extreme weakness? Heart problems? Loss of consciousness? Rapid or difficult breathing? Seizures? Abnormal bleeding? Jaundice or yellow skin? Dark urine? IF NONE OF THE ABOVE SYMPTOMS, CIRCLE CODE Y	EXTREME WEAKNESS A HEART PROBLEMS ... B LOSS OF CONSCIOUSNESS C RAPID BREATHING ... D SEIZURES .... E BLEEDING .... F JAUNDICE .... G DARK URINE .... H NONE OF ABOVE SYMPTOMS ...... Y	EXTREME WEAKNESS A HEART PROBLEMS ... B LOSS OF CONSCIOUSNESS C RAPID BREATHING ... D SEIZURES .... E BLEEDING .... F JAUNDICE .... G DARK URINE .... H NONE OF ABOVE SYMPTOMS ...... Y	EXTREME WEAKNESS A HEART PROBLEMS ... B LOSS OF CONSCIOUSNESS C RAPID BREATHING ... D SEIZURES .... E BLEEDING .... F JAUNDICE .... G DARK URINE .... H NONE OF ABOVE SYMPTOMS ...... Y	EXTREME WEAKNESS A HEART PROBLEMS ... B LOSS OF CONSCIOUSNESS C RAPID BREATHING ... D SEIZURES .... E BLEEDING .... F JAUNDICE .... G DARK URINE .... H NONE OF ABOVE SYMPTOMS ...... Y
219	CHECK 218: ANY CODE A-H CIRCLED?	ONLY CODE Y CIRCLED .... 1 ANY CODE A-H CIRCLED ..... 2 (SKIP TO 222)	ONLY CODE Y CIRCLED .... 1 ANY CODE A-H CIRCLED ..... 2 (SKIP TO 222)	ONLY CODE Y CIRCLED .... 1 ANY CODE A-H CIRCLED ..... 2 (SKIP TO 222)	ONLY CODE Y CIRCLED .... 1 ANY CODE A-H CIRCLED ..... 2 (SKIP TO 222)

		CHILD 5	CHILD 6	CHILD 7	CHILD 8
	NAME FROM COLUMN 2	NAME ______________	NAME ______________	NAME ______________	NAME ______________
220	CHECK 213: HEMOGLOBIN RESULT	BELOW 8.0 G/DL, SEVERE ANEMIA 1 (SKIP TO 222) 8.0 G/DL OR ABOVE 2 NOT PRESENT ..... 4 REFUSED .... 5 OTHER 6	BELOW 8.0 G/DL, SEVERE ANEMIA 1 (SKIP TO 222) 8.0 G/DL OR ABOVE 2 NOT PRESENT ..... 4 REFUSED .... 5 OTHER 6	BELOW 8.0 G/DL, SEVERE ANEMIA 1 (SKIP TO 222) 8.0 G/DL OR ABOVE 2 NOT PRESENT ..... 4 REFUSED .... 5 OTHER 6	BELOW 8.0 G/DL, SEVERE ANEMIA 1 (SKIP TO 222) 8.0 G/DL OR ABOVE 2 NOT PRESENT ..... 4 REFUSED .... 5 OTHER 6
221	In the past two weeks has (NAME) taken or is taking [FIRST LINE MEDICATION] (10) given by a doctor or health center to treat the malaria? VERIFY BY ASKING TO SEE TREATMENT.	YES .... 1 (SKIP TO 223) NO .... 2 (SKIP TO 224)	YES .... 1 (SKIP TO 223) NO .... 2 (SKIP TO 224)	YES .... 1 (SKIP TO 223) NO .... 2 (SKIP TO 224)	YES .... 1 (SKIP TO 223) NO .... 2 (SKIP TO 224)
222	<u>SEVERE MALARIA REFERRAL</u> STATEMENT	The malaria test shows that (NAME OF CHILD) has malaria. Your child also has symptoms of severe malaria. The malaria treatment I have will 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. SKIP TO 228			
223	<u>ALREADY TAKING [FIRST LINE MEDICATION] REFERRAL STATEMENT (10)</u>	You have told me that (NAME OF CHILD) has already received [FIRST LINE MEDICATION] for malaria. Therefore, I cannot give you additional [FIRST LINE MEDICATION]. However, the test shows that he/she has malaria. If your child has a fever for two days after the last dose of [FIRST LINE MEDICATION], you should take the child to the nearest health facility for further examination. SKIP TO 228			
224	READ INFORMATION FOR MALARIA TREATMENT AND CONSENT STATEMENT TO PARENT OR OTHER ADULT RESPONSIBLE FOR THE CHILD.	The malaria test shows that your child has malaria. We can give you free medicine. The medicine is called [FIRST LINE MEDICATION]. [FIRST LINE MEDICATION] 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.			
225	CIRCLE THE APPROPRIATE CODE AND RESPONDENT SIGN OR THUMB PRINT .	ACCEPTED MEDICINE 1 ____________ (SIGN) REFUSED .... 2 OTHER 6	ACCEPTED MEDICINE 1 ____________ (SIGN) REFUSED .... 2 OTHER 6	ACCEPTED MEDICINE 1 ____________ (SIGN) REFUSED .... 2 OTHER 6	ACCEPTED MEDICINE 1 ____________ (SIGN) REFUSED .... 2 OTHER 6
226	CHECK 225: MEDICATION ACCEPTED	ACCEPTED MEDICINE 1 REFUSED .... 2 OTHER .... 6 (SKIP TO 228)	ACCEPTED MEDICINE 1 REFUSED .... 2 OTHER .... 6 (SKIP TO 228)	ACCEPTED MEDICINE 1 REFUSED .... 2 OTHER .... 6 (SKIP TO 228)	ACCEPTED MEDICINE 1 REFUSED .... 2 OTHER .... 6 (SKIP TO 228)
227	TREATMENT FOR CHILDREN WITH POSITIVE MALARIA TESTS	[INSERT DOSAGE INSTRUCTIONS] ALSO TELL THE PARENT/ADULT RESPONSIBLE FOR THE CHILD: 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 two days, you should take him/her to a health professional for treatment right away.			
228	RECORD THE RESULT CODE OF <u>MALARIA TREATMENT OR REFERRAL.</u>	MEDICATION GIVEN 1 MEDS REFUSED ..... 2 SEVERE MALARIA REFERRAL .... 3 ALREADY TAKING ACTS REFERRAL .... 4 OTHER 6	MEDICATION GIVEN 1 MEDS REFUSED ..... 2 SEVERE MALARIA REFERRAL .... 3 ALREADY TAKING ACTS REFERRAL .... 4 OTHER 6	MEDICATION GIVEN 1 MEDS REFUSED ..... 2 SEVERE MALARIA REFERRAL .... 3 ALREADY TAKING ACTS REFERRAL .... 4 OTHER 6	MEDICATION GIVEN 1 MEDS REFUSED ..... 2 SEVERE MALARIA REFERRAL .... 3 ALREADY TAKING ACTS REFERRAL .... 4 OTHER 6
229	GO BACK TO 203 IN NEXT COLUMN OF THIS QUESTIONNAIRE OR IN THE FIRST COLUMN OF THE NEXT PAGE; IF NO MORE CHILDREN, GO TO 300				

HEMOGLOBIN MEASUREMENT AND MALARIA TESTING FOR ALL HOUSEHOILD MEMBERS IN THE SELECTED HOUSEHOLDS EXCLUDING THE CHILDREN 0-59 MONTHS

300	CHECK COVER PAGE OF THE QUESTIONNAIRE IF THIS HOUSEHOLDS IS AMONG THE 1/4 SELECTED FOR MALARIA TESTING FOR ALL HOUSEHOLD MEMBERS	"YES=1" : CONTINUE "NO=2" END OF INTERVIEW							
301	CHECK COLUMN 10 IN HOUSEHOLD SCHEDULE. RECORD THE LINE NUMBER AND NAME FOR ALL ALL HOUSEHOLD MEMBERS 5 YEARS AND OLDER								
		1	2	3	4	5	6	7	8
302	LINE NUMBER FROM COLUMN 10 NAME FROM COLUMN 2	LINE NUMBER ..... NAME ______	LINE NUMBER ..... NAME ______	LINE NUMBER ..... NAME ______	LINE NUMBER ..... NAME ______	LINE NUMBER ..... NAME ______	LINE NUMBER ..... NAME ______	LINE NUMBER ..... NAME ______	LINE NUMBER ..... NAME ______
303	What is (NAME)'s birth date?	DAY .... MONTH ..... YEAR	DAY .... MONTH ..... YEAR	DAY .... MONTH ..... YEAR	DAY .... MONTH ..... YEAR	DAY .... MONTH ..... YEAR	DAY .... MONTH ..... YEAR	DAY .... MONTH ..... YEAR	DAY .... MONTH ..... YEAR
307	ASK CONSENT FOR ANEMIA AND MALARIA TESTING	As part of this survey, we are 1 in 4 household members all over the country to take an anemia and malaria tests. Anemia is a serious health problem that usually results from poor nutrition, infection, or chronic disease. This survey will assist the government to develop programs to prevent and treat anemia. Malaria is a serious illness caused by a parasite transmitted by a mosquito bite. This survey will help the government to develop programs to prevent malaria.							
308	CIRCLE THE APPROPRIATE CODE AND SIGN YOUR NAME.	GRANTED .... 1 (SIGN) REFUSED .... 2 NOT PRESENT ...... 5 OTHER 6	GRANTED .... 1 (SIGN) REFUSED .... 2 NOT PRESENT ...... 5 OTHER 6	GRANTED .... 1 (SIGN) REFUSED .... 2 NOT PRESENT ...... 5 OTHER 6	GRANTED .... 1 (SIGN) REFUSED .... 2 NOT PRESENT ...... 5 OTHER 6	GRANTED .... 1 (SIGN) REFUSED .... 2 NOT PRESENT ...... 5 OTHER 6	GRANTED .... 1 (SIGN) REFUSED .... 2 NOT PRESENT ...... 5 OTHER 6	GRANTED .... 1 (SIGN) REFUSED .... 2 NOT PRESENT ...... 5 OTHER 6	GRANTED .... 1 (SIGN) REFUSED .... 2 NOT PRESENT ...... 5 OTHER 6
311	PREPARE EQUIPMENT AND SUPPLIES ONLY FOR THE TEST(S) FOR WHICH CONSENT HAS BEEN OBTAINED AND PROCEED WITH THE TEST(S).								
312	BAR CODE LABEL FOR MALARIA TEST . PUT THE 2ND BAR CODE LABEL ON THE SLIDE, THE 3RD ON THE FILTER PAPER WHEN NECESSARY, THE 4TH ON THE TRANSMITTAL FORM FOR THE SLIDE, AND THE 5TH FOR THE TRANSMITTAL FORM FOR THE FILTER PAPER, WHEN NECESSARY	PUT THE 1ST BAR CODE LABEL HERE. (THIS FOR THE SLIDE AND THE FILTER PAPER WHEN NECESSARY) NOT PRESENT 99994 REFUSED ..... 99995 OTHER 99996	PUT THE 1ST BAR CODE LABEL HERE. (THIS FOR THE SLIDE AND THE FILTER PAPER WHEN NECESSARY) NOT PRESENT 99994 REFUSED ..... 99995 OTHER 99996	PUT THE 1ST BAR CODE LABEL HERE. (THIS FOR THE SLIDE AND THE FILTER PAPER WHEN NECESSARY) NOT PRESENT 99994 REFUSED ..... 99995 OTHER 99996	PUT THE 1ST BAR CODE LABEL HERE. (THIS FOR THE SLIDE AND THE FILTER PAPER WHEN NECESSARY) NOT PRESENT 99994 REFUSED ..... 99995 OTHER 99996	PUT THE 1ST BAR CODE LABEL HERE. (THIS FOR THE SLIDE AND THE FILTER PAPER WHEN NECESSARY) NOT PRESENT 99994 REFUSED ..... 99995 OTHER 99996	PUT THE 1ST BAR CODE LABEL HERE. (THIS FOR THE SLIDE AND THE FILTER PAPER WHEN NECESSARY) NOT PRESENT 99994 REFUSED ..... 99995 OTHER 99996	PUT THE 1ST BAR CODE LABEL HERE. (THIS FOR THE SLIDE AND THE FILTER PAPER WHEN NECESSARY) NOT PRESENT 99994 REFUSED ..... 99995 OTHER 99996	PUT THE 1ST BAR CODE LABEL HERE. (THIS FOR THE SLIDE AND THE FILTER PAPER WHEN NECESSARY) NOT PRESENT 99994 REFUSED ..... 99995 OTHER 99996
313	RECORD HEMOGLOBIN LEVEL HERE AND IN THE ANEMIA AND MALARIA BROCHURE.	G/DL . NOT PRESENT .....994 REFUSED ....995 OTHER 996	G/DL . NOT PRESENT .....994 REFUSED ....995 OTHER 996	G/DL . NOT PRESENT .....994 REFUSED ....995 OTHER 996	G/DL . NOT PRESENT .....994 REFUSED ....995 OTHER 996	G/DL . NOT PRESENT .....994 REFUSED ....995 OTHER 996	G/DL . NOT PRESENT .....994 REFUSED ....995 OTHER 996	G/DL . NOT PRESENT .....994 REFUSED ....995 OTHER 996	G/DL . NOT PRESENT .....994 REFUSED ....995 OTHER 996
314	RECORD RESULT CODE OF THE MALARIA RDT.	TESTED .... 1 NOT PRESENT ..... 2 REFUSED .... 3 OTHER .... 6 (SKIP TO 316)	TESTED .... 1 NOT PRESENT ..... 2 REFUSED .... 3 OTHER .... 6 (SKIP TO 316)	TESTED .... 1 NOT PRESENT ..... 2 REFUSED .... 3 OTHER .... 6 (SKIP TO 316)	TESTED .... 1 NOT PRESENT ..... 2 REFUSED .... 3 OTHER .... 6 (SKIP TO 316)	TESTED .... 1 NOT PRESENT ..... 2 REFUSED .... 3 OTHER .... 6 (SKIP TO 316)	TESTED .... 1 NOT PRESENT ..... 2 REFUSED .... 3 OTHER .... 6 (SKIP TO 316)	TESTED .... 1 NOT PRESENT ..... 2 REFUSED .... 3 OTHER .... 6 (SKIP TO 316)	TESTED .... 1 NOT PRESENT ..... 2 REFUSED .... 3 OTHER .... 6 (SKIP TO 316)
315	RECORD THE RESULT OF THE MALARIA RDT HERE AND IN THE ANEMIA AND MALARIA BROCHURE.	POSITIVE............ 1 (SKIP TO 318) NEGATIVE .... 2 OTHER 6	POSITIVE............ 1 (SKIP TO 318) NEGATIVE .... 2 OTHER 6	POSITIVE............ 1 (SKIP TO 318) NEGATIVE .... 2 OTHER 6	POSITIVE............ 1 (SKIP TO 318) NEGATIVE .... 2 OTHER 6	POSITIVE............ 1 (SKIP TO 318) NEGATIVE .... 2 OTHER 6	POSITIVE............ 1 (SKIP TO 318) NEGATIVE .... 2 OTHER 6	POSITIVE............ 1 (SKIP TO 318) NEGATIVE .... 2 OTHER 6	POSITIVE............ 1 (SKIP TO 318) NEGATIVE .... 2 OTHER 6
316	CHECK 313: HEMOGLOBIN RESULT	BELOW 8.0 G/DL, SEVERE ANEMIA 1 8.0 G/DL OR ABOVE 2 NOT PRESENT ..... 4 REFUSED .... 5 OTHER .... 6 (SKIP TO 329)	BELOW 8.0 G/DL, SEVERE ANEMIA 1 8.0 G/DL OR ABOVE 2 NOT PRESENT ..... 4 REFUSED .... 5 OTHER .... 6 (SKIP TO 329)	BELOW 8.0 G/DL, SEVERE ANEMIA 1 8.0 G/DL OR ABOVE 2 NOT PRESENT ..... 4 REFUSED .... 5 OTHER .... 6 (SKIP TO 329)	BELOW 8.0 G/DL, SEVERE ANEMIA 1 8.0 G/DL OR ABOVE 2 NOT PRESENT ..... 4 REFUSED .... 5 OTHER .... 6 (SKIP TO 329)	BELOW 8.0 G/DL, SEVERE ANEMIA 1 8.0 G/DL OR ABOVE 2 NOT PRESENT ..... 4 REFUSED .... 5 OTHER .... 6 (SKIP TO 329)	BELOW 8.0 G/DL, SEVERE ANEMIA 1 8.0 G/DL OR ABOVE 2 NOT PRESENT ..... 4 REFUSED .... 5 OTHER .... 6 (SKIP TO 329)	BELOW 8.0 G/DL, SEVERE ANEMIA 1 8.0 G/DL OR ABOVE 2 NOT PRESENT ..... 4 REFUSED .... 5 OTHER .... 6 (SKIP TO 329)	BELOW 8.0 G/DL, SEVERE ANEMIA 1 8.0 G/DL OR ABOVE 2 NOT PRESENT ..... 4 REFUSED .... 5 OTHER .... 6 (SKIP TO 329)

		1	2	3	4	5	6	7	8
317	SEVERE ANEMIA REFERRAL STATEMENT	The anemia test shows that /you have/ (NAME OF HOUSEHOLD MEMBER) has/ severe anemia and must be taken to a health facility immediately. SKIP TO 329							
318	Does (NAME) suffer from the any of following illnesses or symptoms: Extreme weakness? Heart problems? Loss of consciousness? Rapid or difficult breathing? Seizures? Abnormal bleeding? Jaundice or yellow skin? Dark urine? IF NONE OF THE ABOVE SYMPTOMS, CIRCLE CODE Y	EXTREME WEAKNESS A HEART PROBLEMS . . . B LOSS OF CONSCIOUSNESS C RAPID BREATHING . . . D SEIZURES . . . . E BLEEDING . . . . F JAUNDICE . . . . G DARK URINE . . . . H NONE OF ABOVE SYMPTOMS . . . . . . Y	EXTREME WEAKNESS A HEART PROBLEMS . . . B LOSS OF CONSCIOUSNESS C RAPID BREATHING . . . D SEIZURES . . . . E BLEEDING . . . . F JAUNDICE . . . . G DARK URINE . . . . H NONE OF ABOVE SYMPTOMS . . . . . . Y	EXTREME WEAKNESS A HEART PROBLEMS . . . B LOSS OF CONSCIOUSNESS C RAPID BREATHING . . . D SEIZURES . . . . E BLEEDING . . . . F JAUNDICE . . . . G DARK URINE . . . . H NONE OF ABOVE SYMPTOMS . . . . . . Y	EXTREME WEAKNESS A HEART PROBLEMS . . . B LOSS OF CONSCIOUSNESS C RAPID BREATHING . . . D SEIZURES . . . . E BLEEDING . . . . F JAUNDICE . . . . G DARK URINE . . . . H NONE OF ABOVE SYMPTOMS . . . . . . Y	EXTREME WEAKNESS A HEART PROBLEMS . . . B LOSS OF CONSCIOUSNESS C RAPID BREATHING . . . D SEIZURES . . . . E BLEEDING . . . . F JAUNDICE . . . . G DARK URINE . . . . H NONE OF ABOVE SYMPTOMS . . . . . . Y	EXTREME WEAKNESS A HEART PROBLEMS . . . B LOSS OF CONSCIOUSNESS C RAPID BREATHING . . . D SEIZURES . . . . E BLEEDING . . . . F JAUNDICE . . . . G DARK URINE . . . . H NONE OF ABOVE SYMPTOMS . . . . . . Y	EXTREME WEAKNESS A HEART PROBLEMS . . . B LOSS OF CONSCIOUSNESS C RAPID BREATHING . . . D SEIZURES . . . . E BLEEDING . . . . F JAUNDICE . . . . G DARK URINE . . . . H NONE OF ABOVE SYMPTOMS . . . . . . Y	EXTREME WEAKNESS A HEART PROBLEMS . . . B LOSS OF CONSCIOUSNESS C RAPID BREATHING . . . D SEIZURES . . . . E BLEEDING . . . . F JAUNDICE . . . . G DARK URINE . . . . H NONE OF ABOVE SYMPTOMS . . . . . . Y
319	CHECK 318: ANY CODE A-H CIRCLED?	ONLY CODE Y CIRCLED . . . . 1 ANY CODE A-H CIRCLED . . . . . 2 (SKIP TO 322)	ONLY CODE Y CIRCLED . . . . 1 ANY CODE A-H CIRCLED . . . . . 2 (SKIP TO 322)	ONLY CODE Y CIRCLED . . . . 1 ANY CODE A-H CIRCLED . . . . . 2 (SKIP TO 322)	ONLY CODE Y CIRCLED . . . . 1 ANY CODE A-H CIRCLED . . . . . 2 (SKIP TO 322)	ONLY CODE Y CIRCLED . . . . 1 ANY CODE A-H CIRCLED . . . . . 2 (SKIP TO 322)	ONLY CODE Y CIRCLED . . . . 1 ANY CODE A-H CIRCLED . . . . . 2 (SKIP TO 322)	ONLY CODE Y CIRCLED . . . . 1 ANY CODE A-H CIRCLED . . . . . 2 (SKIP TO 322)	ONLY CODE Y CIRCLED . . . . 1 ANY CODE A-H CIRCLED . . . . . 2 (SKIP TO 322)
320	CHECK 313: HEMOGLOBIN RESULT	BELOW 8.0 G/DL, SEVERE ANEMIA 1 (SKIP TO 222) 8.0 G/DL OR ABOVE 2 NOT PRESENT . . . . . 4 REFUSED . . . . 5 OTHER 6	BELOW 8.0 G/DL, SEVERE ANEMIA 1 (SKIP TO 222) 8.0 G/DL OR ABOVE 2 NOT PRESENT . . . . . 4 REFUSED . . . . 5 OTHER 6	BELOW 8.0 G/DL, SEVERE ANEMIA 1 (SKIP TO 222) 8.0 G/DL OR ABOVE 2 NOT PRESENT . . . . . 4 REFUSED . . . . 5 OTHER 6	BELOW 8.0 G/DL, SEVERE ANEMIA 1 (SKIP TO 222) 8.0 G/DL OR ABOVE 2 NOT PRESENT . . . . . 4 REFUSED . . . . 5 OTHER 6	BELOW 8.0 G/DL, SEVERE ANEMIA 1 (SKIP TO 222) 8.0 G/DL OR ABOVE 2 NOT PRESENT . . . . . 4 REFUSED . . . . 5 OTHER 6	BELOW 8.0 G/DL, SEVERE ANEMIA 1 (SKIP TO 222) 8.0 G/DL OR ABOVE 2 NOT PRESENT . . . . . 4 REFUSED . . . . 5 OTHER 6	BELOW 8.0 G/DL, SEVERE ANEMIA 1 (SKIP TO 222) 8.0 G/DL OR ABOVE 2 NOT PRESENT . . . . . 4 REFUSED . . . . 5 OTHER 6	BELOW 8.0 G/DL, SEVERE ANEMIA 1 (SKIP TO 222) 8.0 G/DL OR ABOVE 2 NOT PRESENT . . . . . 4 REFUSED . . . . 5 OTHER 6
321	In the past two weeks has (NAME) taken or is taking [FIRST LINE MEDICATION] given by a doctor or health center to treat the malaria? VERIFY BY ASKING TO SEE TREATMENT.	YES . . . . 1 (SKIP TO 323) NO . . . . 2 (SKIP TO 324)	YES . . . . 1 (SKIP TO 323) NO . . . . 2 (SKIP TO 324)	YES . . . . 1 (SKIP TO 323) NO . . . . 2 (SKIP TO 324)	YES . . . . 1 (SKIP TO 323) NO . . . . 2 (SKIP TO 324)	YES . . . . 1 (SKIP TO 323) NO . . . . 2 (SKIP TO 324)	YES . . . . 1 (SKIP TO 323) NO . . . . 2 (SKIP TO 324)	YES . . . . 1 (SKIP TO 323) NO . . . . 2 (SKIP TO 324)	YES . . . . 1 (SKIP TO 323) NO . . . . 2 (SKIP TO 324)
322	SEVERE MALARIA REFERRAL STATEMENT	The malaria test shows that you have/ (NAME OF CHILD) has/ malaria. You have/your child also has/ symptoms of severe malaria. The malaria treatment I have will not help you/your child, and I cannot give you the medication. You are/Your child is/ very ill and must/ go/be taken to a health facility right away. SKIP TO 328							
323	ALREADY TAKING [FIRST LINE MEDICATION] REFERRAL STATEMENT	You have told me that you have/(NAME OF CHILD) has/ already received [FIRST LINE MEDICATION] for malaria. Therefore, I cannot give you additional [FIRST LINE MEDICATION]. However, the test shows that you have/he/she has/ malaria. If you have/your child has/ a fever for two days after the last dose of [FIRST LINE MEDICATION], you should go/ take the child/ to the nearest health facility for further examination. SKIP TO 328							
324	READ INFORMATION FOR MALARIA TREATMENT TO HOUSEHOLD MEMBERS.	The malaria test shows that you have/your child has/ malaria. We can give you free medicine. The medicine is called [FIRST LINE MEDICATION]. [FIRST LINE MEDICATION] is very effective and in a few days it should get rid of the fever and other symptoms. You do not have to take/give the child/the medicine. This is up to you. Please tell me whether you accept the medicine or not.							
325	CIRCLE THE APPROPRIATE CODE AND RESPONDENT SIGN OR THUMB PRINT .	ACCEPTED MEDICINE 1 ________ (SIGN) REFUSED . . . . 2 OTHER 6	ACCEPTED MEDICINE 1 ________ (SIGN) REFUSED . . . . 2 OTHER 6	ACCEPTED MEDICINE 1 ________ (SIGN) REFUSED . . . . 2 OTHER 6	ACCEPTED MEDICINE 1 ________ (SIGN) REFUSED . . . . 2 OTHER 6	ACCEPTED MEDICINE 1 ________ (SIGN) REFUSED . . . . 2 OTHER 6	ACCEPTED MEDICINE 1 ________ (SIGN) REFUSED . . . . 2 OTHER 6	ACCEPTED MEDICINE 1 ________ (SIGN) REFUSED . . . . 2 OTHER 6	ACCEPTED MEDICINE 1 ________ (SIGN) REFUSED . . . . 2 OTHER 6
326	CHECK 325: MEDICATION ACCEPTED	ACCEPTED MEDICINE 1 REFUSED . . . . 2 OTHER . . . . 6 (SKIP TO 328)	ACCEPTED MEDICINE 1 REFUSED . . . . 2 OTHER . . . . 6 (SKIP TO 328)	ACCEPTED MEDICINE 1 REFUSED . . . . 2 OTHER . . . . 6 (SKIP TO 328)	ACCEPTED MEDICINE 1 REFUSED . . . . 2 OTHER . . . . 6 (SKIP TO 328)	ACCEPTED MEDICINE 1 REFUSED . . . . 2 OTHER . . . . 6 (SKIP TO 328)	ACCEPTED MEDICINE 1 REFUSED . . . . 2 OTHER . . . . 6 (SKIP TO 328)	ACCEPTED MEDICINE 1 REFUSED . . . . 2 OTHER . . . . 6 (SKIP TO 328)	ACCEPTED MEDICINE 1 REFUSED . . . . 2 OTHER . . . . 6 (SKIP TO 328)
327	TREATMENT FOR CHILDREN WITH POSITIVE MALARIA TESTS	[INSERT DOSAGE INSTRUCTIONS] ALSO TELL THE PARENT/ADULT RESPONSIBLE FOR THE CHILD (10): 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 two days, you should take him/her to a health professional for treatment right away.							
328	RECORD THE RESULT CODE OF MALARIA TREATMENT OR REFERRAL.	MEDICATION GIVEN 1 MEDS REFUSED . . . . . 2 SEVERE MALARIA REFERRAL . . . . 3 ALREADY TAKING ACTS REFERRAL . . . . 4 OTHER 6	MEDICATION GIVEN 1 MEDS REFUSED . . . . . 2 SEVERE MALARIA REFERRAL . . . . 3 ALREADY TAKING ACTS REFERRAL . . . . 4 OTHER 6	MEDICATION GIVEN 1 MEDS REFUSED . . . . . 2 SEVERE MALARIA REFERRAL . . . . 3 ALREADY TAKING ACTS REFERRAL . . . . 4 OTHER 6	MEDICATION GIVEN 1 MEDS REFUSED . . . . . 2 SEVERE MALARIA REFERRAL . . . . 3 ALREADY TAKING ACTS REFERRAL . . . . 4 OTHER 6	MEDICATION GIVEN 1 MEDS REFUSED . . . . . 2 SEVERE MALARIA REFERRAL . . . . 3 ALREADY TAKING ACTS REFERRAL . . . . 4 OTHER 6	MEDICATION GIVEN 1 MEDS REFUSED . . . . . 2 SEVERE MALARIA REFERRAL . . . . 3 ALREADY TAKING ACTS REFERRAL . . . . 4 OTHER 6	MEDICATION GIVEN 1 MEDS REFUSED . . . . . 2 SEVERE MALARIA REFERRAL . . . . 3 ALREADY TAKING ACTS REFERRAL . . . . 4 OTHER 6	MEDICATION GIVEN 1 MEDS REFUSED . . . . . 2 SEVERE MALARIA REFERRAL . . . . 3 ALREADY TAKING ACTS REFERRAL . . . . 4 OTHER 6
329	GO BACK TO 302 IN NEXT COLUMN OF THIS QUESTIONNAIRE OR IN THE FIRST COLUMN OF THE NEXT PAGE; IF NO MORE HOUSEHOLD MEMBER, END INTERVIEW								

HEMOGLOBIN MEASUREMENT AND MALARIA TESTING FOR ALL HOUSEHOILD MEMBERS IN THE SELECTED HOUSEHOLDS EXCLUDING THE CHILDREN 0-59 MONTHS

301	CHECK COLUMN 10 IN HOUSEHOLD SCHEDULE. RECORD THE LINE NUMBER AND NAME FOR ALL HOUSEHOLD MEMBERS 5 YEARS AND OLDER								
		9	10	11	12	13	14	15	16
302	LINE NUMBER FROM COLUMN 10 NAME FROM COLUMN 2	LINE NUMBER ...... NAME ________	LINE NUMBER ...... NAME ________	LINE NUMBER ...... NAME ________	LINE NUMBER ...... NAME ________	LINE NUMBER ...... NAME ________	LINE NUMBER ...... NAME ________	LINE NUMBER ...... NAME ________	LINE NUMBER ...... NAME ________
303	What is (NAME)'s birth date?	DAY .... MONTH ...... YEAR	DAY .... MONTH ...... YEAR	DAY .... MONTH ...... YEAR	DAY .... MONTH ...... YEAR	DAY .... MONTH ...... YEAR	DAY .... MONTH ...... YEAR	DAY .... MONTH ...... YEAR	DAY .... MONTH ...... YEAR
307	ASK CONSENT FOR ANEMIA and MALARIA TESTING	As part of this survey, we are 1 in 4 household members all over the country to take an anemia and malaria tests. Anemia is a serious health problem that usually results from poor nutrition, infection, or chronic disease. This survey will assist the government to develop programs to prevent and treat anemia. Malaria is a serious illness caused by a parasite transmitted by a mosquito bite. This survey will help the government to develop programs to prevent malaria.							
308	CIRCLE THE APPROPRIATE CODE AND SIGN YOUR NAME.	GRANTED .... 1 (SIGN) REFUSED .... 2 NOT PRESENT ..... 5 OTHER 6	GRANTED .... 1 (SIGN) REFUSED .... 2 NOT PRESENT ..... 5 OTHER 6	GRANTED .... 1 (SIGN) REFUSED .... 2 NOT PRESENT ..... 5 OTHER 6	GRANTED .... 1 (SIGN) REFUSED .... 2 NOT PRESENT ..... 5 OTHER 6	GRANTED .... 1 (SIGN) REFUSED .... 2 NOT PRESENT ..... 5 OTHER 6	GRANTED .... 1 (SIGN) REFUSED .... 2 NOT PRESENT ..... 5 OTHER 6	GRANTED .... 1 (SIGN) REFUSED .... 2 NOT PRESENT ..... 5 OTHER 6	GRANTED .... 1 (SIGN) REFUSED .... 2 NOT PRESENT ..... 5 OTHER 6
311		PREPARE EQUIPMENT AND SUPPLIES ONLY FOR THE TEST(S) FOR WHICH CONSENT HAS BEEN OBTAINED AND PROCEED WITH THE TEST(S).							
312	BAR CODE LABEL FOR MALARIA TEST . PUT THE 2ND BAR CODE LABEL ON THE SLIDE, THE 3RD ON THE FILTER PAPER WHEN NECESSARY, THE 4TH ON THE TRANSMITTAL FORM FOR THE SLIDE, AND THE 5TH FOR THE TRANSMITTAL FORM FOR THE FILTER PAPER, WHEN NECESSARY	PUT THE 1ST BAR CODE LABEL HERE. (THIS FOR THE SLIDE AND THE FILTER PAPER WHEN NECESSARY) NOT PRESENT 99994 REFUSED ...... 99995 OTHER 99996	PUT THE 1ST BAR CODE LABEL HERE. (THIS FOR THE SLIDE AND THE FILTER PAPER WHEN NECESSARY) NOT PRESENT 99994 REFUSED ...... 99995 OTHER 99996	PUT THE 1ST BAR CODE LABEL HERE. (THIS FOR THE SLIDE AND THE FILTER PAPER WHEN NECESSARY) NOT PRESENT 99994 REFUSED ...... 99995 OTHER 99996	PUT THE 1ST BAR CODE LABEL HERE. (THIS FOR THE SLIDE AND THE FILTER PAPER WHEN NECESSARY) NOT PRESENT 99994 REFUSED ...... 99995 OTHER 99996	PUT THE 1ST BAR CODE LABEL HERE. (THIS FOR THE SLIDE AND THE FILTER PAPER WHEN NECESSARY) NOT PRESENT 99994 REFUSED ...... 99995 OTHER 99996	PUT THE 1ST BAR CODE LABEL HERE. (THIS FOR THE SLIDE AND THE FILTER PAPER WHEN NECESSARY) NOT PRESENT 99994 REFUSED ...... 99995 OTHER 99996	PUT THE 1ST BAR CODE LABEL HERE. (THIS FOR THE SLIDE AND THE FILTER PAPER WHEN NECESSARY) NOT PRESENT 99994 REFUSED ...... 99995 OTHER 99996	PUT THE 1ST BAR CODE LABEL HERE. (THIS FOR THE SLIDE AND THE FILTER PAPER WHEN NECESSARY) NOT PRESENT 99994 REFUSED ...... 99995 OTHER 99996
313	RECORD HEMOGLOBIN LEVEL HERE AND IN THE ANEMIA AND MALARIA BROCHURE.	G/DL __ __ . __ NOT PRESENT .....994 REFUSED ....995 OTHER 996	G/DL __ __ . __ NOT PRESENT .....994 REFUSED ....995 OTHER 996	G/DL __ __ . __ NOT PRESENT .....994 REFUSED ....995 OTHER 996	G/DL __ __ . __ NOT PRESENT .....994 REFUSED ....995 OTHER 996	G/DL __ __ . __ NOT PRESENT .....994 REFUSED ....995 OTHER 996	G/DL __ __ . __ NOT PRESENT .....994 REFUSED ....995 OTHER 996	G/DL __ __ . __ NOT PRESENT .....994 REFUSED ....995 OTHER 996	G/DL __ __ . __ NOT PRESENT .....994 REFUSED ....995 OTHER 996
314	RECORD RESULT CODE OF THE MALARIA RDT.	TESTED .... 1 NOT PRESENT ...... 2 REFUSED .... 3 OTHER .... 6 (SKIP TO 316)	TESTED .... 1 NOT PRESENT ...... 2 REFUSED .... 3 OTHER .... 6 (SKIP TO 316)	TESTED .... 1 NOT PRESENT ...... 2 REFUSED .... 3 OTHER .... 6 (SKIP TO 316)	TESTED .... 1 NOT PRESENT ...... 2 REFUSED .... 3 OTHER .... 6 (SKIP TO 316)	TESTED .... 1 NOT PRESENT ...... 2 REFUSED .... 3 OTHER .... 6 (SKIP TO 316)	TESTED .... 1 NOT PRESENT ...... 2 REFUSED .... 3 OTHER .... 6 (SKIP TO 316)	TESTED .... 1 NOT PRESENT ...... 2 REFUSED .... 3 OTHER .... 6 (SKIP TO 316)	TESTED .... 1 NOT PRESENT ...... 2 REFUSED .... 3 OTHER .... 6 (SKIP TO 316)
315	RECORD THE RESULT OF THE MALARIA RDT HERE AND IN THE ANEMIA AND MALARIA BROCHURE.	POSITIVE............ 1 (SKIP TO 318) NEGATIVE .... 2 OTHER 6	POSITIVE............ 1 (SKIP TO 318) NEGATIVE .... 2 OTHER 6	POSITIVE............ 1 (SKIP TO 318) NEGATIVE .... 2 OTHER 6	POSITIVE............ 1 (SKIP TO 318) NEGATIVE .... 2 OTHER 6	POSITIVE............ 1 (SKIP TO 318) NEGATIVE .... 2 OTHER 6	POSITIVE............ 1 (SKIP TO 318) NEGATIVE .... 2 OTHER 6	POSITIVE............ 1 (SKIP TO 318) NEGATIVE .... 2 OTHER 6	POSITIVE............ 1 (SKIP TO 318) NEGATIVE .... 2 OTHER 6
316	CHECK 313: HEMOGLOBIN RESULT	BELOW 8.0 G/DL, SEVERE ANEMIA 1 8.0 G/DL OR ABOVE 2 NOT PRESENT ...... 4 REFUSED .... 5 OTHER .... 6 (SKIP TO 329)	BELOW 8.0 G/DL, SEVERE ANEMIA 1 8.0 G/DL OR ABOVE 2 NOT PRESENT ...... 4 REFUSED .... 5 OTHER .... 6 (SKIP TO 329)	BELOW 8.0 G/DL, SEVERE ANEMIA 1 8.0 G/DL OR ABOVE 2 NOT PRESENT ...... 4 REFUSED .... 5 OTHER .... 6 (SKIP TO 329)	BELOW 8.0 G/DL, SEVERE ANEMIA 1 8.0 G/DL OR ABOVE 2 NOT PRESENT ...... 4 REFUSED .... 5 OTHER .... 6 (SKIP TO 329)	BELOW 8.0 G/DL, SEVERE ANEMIA 1 8.0 G/DL OR ABOVE 2 NOT PRESENT ...... 4 REFUSED .... 5 OTHER .... 6 (SKIP TO 329)	BELOW 8.0 G/DL, SEVERE ANEMIA 1 8.0 G/DL OR ABOVE 2 NOT PRESENT ...... 4 REFUSED .... 5 OTHER .... 6 (SKIP TO 329)	BELOW 8.0 G/DL, SEVERE ANEMIA 1 8.0 G/DL OR ABOVE 2 NOT PRESENT ...... 4 REFUSED .... 5 OTHER .... 6 (SKIP TO 329)	BELOW 8.0 G/DL, SEVERE ANEMIA 1 8.0 G/DL OR ABOVE 2 NOT PRESENT ...... 4 REFUSED .... 5 OTHER .... 6 (SKIP TO 329)
317	SEVERE ANEMIA REFERRAL STATEMENT	The anemia test shows that you have/(NAME OF HOUSEHOLD MEMBER) has/ severe anemia and must be taken to a health facility immediately. SKIP TO 329							

		9	10	11	12	13	14	15	16
318	Does (NAME) suffer from the any of following illnesses or symptoms (9): Extreme weakness? Heart problems? Loss of consciousness? Rapid or difficult breathing? Seizures? Abnormal bleeding? Jaundice or yellow skin? Dark urine? IF NONE OF THE ABOVE SYMPTOMS, CIRCLE CODE Y	EXTREME WEAKNESS A HEART PROBLEMS . . . B LOSS OF CONSCIOUSNESS C RAPID BREATHING . . . D SEIZURES . . . . E BLEEDING . . . . F JAUNDICE . . . . G DARK URINE . . . . H NONE OF ABOVE SYMPTOMS . . . . Y	EXTREME WEAKNESS A HEART PROBLEMS . . . B LOSS OF CONSCIOUSNESS C RAPID BREATHING . . . D SEIZURES . . . . E BLEEDING . . . . F JAUNDICE . . . . G DARK URINE . . . . H NONE OF ABOVE SYMPTOMS . . . . Y	EXTREME WEAKNESS A HEART PROBLEMS . . . B LOSS OF CONSCIOUSNESS C RAPID BREATHING . . . D SEIZURES . . . . E BLEEDING . . . . F JAUNDICE . . . . G DARK URINE . . . . H NONE OF ABOVE SYMPTOMS . . . . Y	EXTREME WEAKNESS A HEART PROBLEMS . . . B LOSS OF CONSCIOUSNESS C RAPID BREATHING . . . D SEIZURES . . . . E BLEEDING . . . . F JAUNDICE . . . . G DARK URINE . . . . H NONE OF ABOVE SYMPTOMS . . . . Y	EXTREME WEAKNESS A HEART PROBLEMS . . . B LOSS OF CONSCIOUSNESS C RAPID BREATHING . . . D SEIZURES . . . . E BLEEDING . . . . F JAUNDICE . . . . G DARK URINE . . . . H NONE OF ABOVE SYMPTOMS . . . . Y	EXTREME WEAKNESS A HEART PROBLEMS . . . B LOSS OF CONSCIOUSNESS C RAPID BREATHING . . . D SEIZURES . . . . E BLEEDING . . . . F JAUNDICE . . . . G DARK URINE . . . . H NONE OF ABOVE SYMPTOMS . . . . Y	EXTREME WEAKNESS A HEART PROBLEMS . . . B LOSS OF CONSCIOUSNESS C RAPID BREATHING . . . D SEIZURES . . . . E BLEEDING . . . . F JAUNDICE . . . . G DARK URINE . . . . H NONE OF ABOVE SYMPTOMS . . . . Y	EXTREME WEAKNESS A HEART PROBLEMS . . . B LOSS OF CONSCIOUSNESS C RAPID BREATHING . . . D SEIZURES . . . . E BLEEDING . . . . F JAUNDICE . . . . G DARK URINE . . . . H NONE OF ABOVE SYMPTOMS . . . . Y
319	CHECK 318: ANY CODE A-H CIRCLED?	ONLY CODE Y CIRCLED . . . . 1 ANY CODE A-H CIRCLED . . . . . . 2 (SKIP TO 322)	ONLY CODE Y CIRCLED . . . . 1 ANY CODE A-H CIRCLED . . . . . . 2 (SKIP TO 322)	ONLY CODE Y CIRCLED . . . . 1 ANY CODE A-H CIRCLED . . . . . . 2 (SKIP TO 322)	ONLY CODE Y CIRCLED . . . . 1 ANY CODE A-H CIRCLED . . . . . . 2 (SKIP TO 322)	ONLY CODE Y CIRCLED . . . . 1 ANY CODE A-H CIRCLED . . . . . . 2 (SKIP TO 322)	ONLY CODE Y CIRCLED . . . . 1 ANY CODE A-H CIRCLED . . . . . . 2 (SKIP TO 322)	ONLY CODE Y CIRCLED . . . . 1 ANY CODE A-H CIRCLED . . . . . . 2 (SKIP TO 322)	ONLY CODE Y CIRCLED . . . . 1 ANY CODE A-H CIRCLED . . . . . . 2 (SKIP TO 322)
320	CHECK 313: HEMOGLOBIN RESULT	BELOW 8.0 G/DL, SEVERE ANEMIA 1 (SKIP TO 222) 8.0 G/DL OR ABOVE 2 NOT PRESENT . . . . . . 4 REFUSED . . . . 5 OTHER 6	BELOW 8.0 G/DL, SEVERE ANEMIA 1 (SKIP TO 222) 8.0 G/DL OR ABOVE 2 NOT PRESENT . . . . . . 4 REFUSED . . . . 5 OTHER 6	BELOW 8.0 G/DL, SEVERE ANEMIA 1 (SKIP TO 222) 8.0 G/DL OR ABOVE 2 NOT PRESENT . . . . . . 4 REFUSED . . . . 5 OTHER 6	BELOW 8.0 G/DL, SEVERE ANEMIA 1 (SKIP TO 222) 8.0 G/DL OR ABOVE 2 NOT PRESENT . . . . . . 4 REFUSED . . . . 5 OTHER 6	BELOW 8.0 G/DL, SEVERE ANEMIA 1 (SKIP TO 222) 8.0 G/DL OR ABOVE 2 NOT PRESENT . . . . . . 4 REFUSED . . . . 5 OTHER 6	BELOW 8.0 G/DL, SEVERE ANEMIA 1 (SKIP TO 222) 8.0 G/DL OR ABOVE 2 NOT PRESENT . . . . . . 4 REFUSED . . . . 5 OTHER 6	BELOW 8.0 G/DL, SEVERE ANEMIA 1 (SKIP TO 222) 8.0 G/DL OR ABOVE 2 NOT PRESENT . . . . . . 4 REFUSED . . . . 5 OTHER 6	BELOW 8.0 G/DL, SEVERE ANEMIA 1 (SKIP TO 222) 8.0 G/DL OR ABOVE 2 NOT PRESENT . . . . . . 4 REFUSED . . . . 5 OTHER 6
321	In the past two weeks has (NAME) taken or is taking [FIRST LINE MEDICATION] given by a doctor or health center to treat the malaria? VERIFY BY ASKING TO SEE TREATMENT.	YES . . . . 1 (SKIP TO 323) NO . . . . 2 (SKIP TO 324)	YES . . . . 1 (SKIP TO 323) NO . . . . 2 (SKIP TO 324)	YES . . . . 1 (SKIP TO 323) NO . . . . 2 (SKIP TO 324)	YES . . . . 1 (SKIP TO 323) NO . . . . 2 (SKIP TO 324)	YES . . . . 1 (SKIP TO 323) NO . . . . 2 (SKIP TO 324)	YES . . . . 1 (SKIP TO 323) NO . . . . 2 (SKIP TO 324)	YES . . . . 1 (SKIP TO 323) NO . . . . 2 (SKIP TO 324)	YES . . . . 1 (SKIP TO 323) NO . . . . 2 (SKIP TO 324)
322	SEVERE MALARIA REFERRAL STATEMENT	The malaria test shows that you have/ (NAME OF CHILD) has/ malaria. You have/your child also has/ symptoms of severe malaria. The malaria treatment I have will not help you/your child, and I cannot give you the medication. You are/Your child is/ very ill and must be taken to a health facility right away. SKIP TO 328							
323	ALREADY TAKING [FIRST LINE MEDICATION] REFERRAL STATEMENT.	You have told me that you have/(NAME OF CHILD) has/ already received [FIRST LINE MEDICATION] for malaria. Therefore, I cannot give you additional [FIRST LINE MEDICATION]. However, the test shows that you have/he/she has/ malaria. If you have/your child has/ a fever for two days after the last dose of [FIRST LINE MEDICATION], you should go/ take the child/ to the nearest health facility for further examination. SKIP TO 328							
324	READ INFORMATION FOR MALARIA TREATMENT TO HOUSEHOLD MEMBER.	The malaria test shows that you have/your child has/ malaria. We can give you free medicine. The medicine is called [FIRST LINE MEDICATION]. [FIRST LINE MEDICATION] is very effective and in a few days it should get rid of the fever and other symptoms. You do not have to take/give the child/the medicine. This is up to you. Please tell me whether you accept the medicine or not.							
325	CIRCLE THE APPROPRIATE CODE AND RESPONDENT SIGN OR THUMB PRINT .	ACCEPTED MEDICINE 1 (SIGN) REFUSED . . . . 2 OTHER 6	ACCEPTED MEDICINE 1 (SIGN) REFUSED . . . . 2 OTHER 6	ACCEPTED MEDICINE 1 (SIGN) REFUSED . . . . 2 OTHER 6	ACCEPTED MEDICINE 1 (SIGN) REFUSED . . . . 2 OTHER 6	ACCEPTED MEDICINE 1 (SIGN) REFUSED . . . . 2 OTHER 6	ACCEPTED MEDICINE 1 (SIGN) REFUSED . . . . 2 OTHER 6	ACCEPTED MEDICINE 1 (SIGN) REFUSED . . . . 2 OTHER 6	ACCEPTED MEDICINE 1 (SIGN) REFUSED . . . . 2 OTHER 6
326	CHECK 325: MEDICATION ACCEPTED	ACCEPTED MEDICINE 1 REFUSED . . . . 2 OTHER . . . . 6 (SKIP TO 328)	ACCEPTED MEDICINE 1 REFUSED . . . . 2 OTHER . . . . 6 (SKIP TO 328)	ACCEPTED MEDICINE 1 REFUSED . . . . 2 OTHER . . . . 6 (SKIP TO 328)	ACCEPTED MEDICINE 1 REFUSED . . . . 2 OTHER . . . . 6 (SKIP TO 328)	ACCEPTED MEDICINE 1 REFUSED . . . . 2 OTHER . . . . 6 (SKIP TO 328)	ACCEPTED MEDICINE 1 REFUSED . . . . 2 OTHER . . . . 6 (SKIP TO 328)	ACCEPTED MEDICINE 1 REFUSED . . . . 2 OTHER . . . . 6 (SKIP TO 328)	ACCEPTED MEDICINE 1 REFUSED . . . . 2 OTHER . . . . 6 (SKIP TO 328)
327	TREATMENT FOR CHILDREN WITH POSITIVE MALARIA TESTS	[INSERT DOSAGE INSTRUCTIONS] ALSO TELL THE PARENT/ADULT RESPONSIBLE FOR THE CHILD (10): 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 two days, you should take him/her to a health professional for treatment right away.							
328	RECORD THE RESULT CODE OF MALARIA TREATMENT OR REFERRAL.	MEDICATION GIVEN 1 MEDS REFUSED . . . . . . 2 SEVERE MALARIA REFERRAL . . . . 3 ALREADY TAKING ACTS REFERRAL . . . . 4 OTHER 6	MEDICATION GIVEN 1 MEDS REFUSED . . . . . . 2 SEVERE MALARIA REFERRAL . . . . 3 ALREADY TAKING ACTS REFERRAL . . . . 4 OTHER 6	MEDICATION GIVEN 1 MEDS REFUSED . . . . . . 2 SEVERE MALARIA REFERRAL . . . . 3 ALREADY TAKING ACTS REFERRAL . . . . 4 OTHER 6	MEDICATION GIVEN 1 MEDS REFUSED . . . . . . 2 SEVERE MALARIA REFERRAL . . . . 3 ALREADY TAKING ACTS REFERRAL . . . . 4 OTHER 6	MEDICATION GIVEN 1 MEDS REFUSED . . . . . . 2 SEVERE MALARIA REFERRAL . . . . 3 ALREADY TAKING ACTS REFERRAL . . . . 4 OTHER 6	MEDICATION GIVEN 1 MEDS REFUSED . . . . . . 2 SEVERE MALARIA REFERRAL . . . . 3 ALREADY TAKING ACTS REFERRAL . . . . 4 OTHER 6	MEDICATION GIVEN 1 MEDS REFUSED . . . . . . 2 SEVERE MALARIA REFERRAL . . . . 3 ALREADY TAKING ACTS REFERRAL . . . . 4 OTHER 6	MEDICATION GIVEN 1 MEDS REFUSED . . . . . . 2 SEVERE MALARIA REFERRAL . . . . 3 ALREADY TAKING ACTS REFERRAL . . . . 4 OTHER 6
329	GO BACK TO 302 IN NEXT COLUMN OF THIS QUESTIONNAIRE OR IN THE FIRST COLUMN OF THE NEXT PAGE; IF NO MORE HOUSEHOLD MEMBERS, END INTERVIEW								

TREATMENT FOR CHILDREN WITH POSITIVE MALARIA TESTS

INSERT DOSING SCHEDULE

[INSERT DOSAGE INSTRUCTIONS]

ALSO TELL THE PARENT/ADULT RESPONSIBLE FOR THE CHILD: 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 two days, you should take him/her to a health professional for treatment right away.

HEALTH TECHNICIAN'S OBSERVATIONS

TO BE FILLED IN AFTER COMPLETING TESTING

COMMENTS ABOUT INDIVIDUALS TESTED

COMMENTS ON SPECIFIC TESTS

ANY OTHER COMMENTS:

SUPERVISOR'S OBSERVATIONS

NAME OF SUPERVISOR: _____ DATE: _____

EDITOR'S OBSERVATIONS

NAME OF EDITOR: _____ DATE: _____