ZAMBIA NATIONAL MALARIA INDICATOR SURVEY 2015

Government of the Republic of Zambia, Ministry of Health

Zambia National Malaria Indicator Survey 2015

This report summarizes the findings of the 2015 Zambia National Malaria Indicator Survey carried out between April and June 2015 by the Ministry of Health; Ministry of Community Development, Mother and Child Health; Central Statistics Office; PATH Malaria Control and Elimination Partnership in Africa; United States President's Malaria Initiative; United Nations Development Programme; United Nations Children's Fund; and the World Health Organization.

Cover photo: PATH/Gabe Bienczycki

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Abbreviations and acronyms

ANC	Antenatal clinic
ART-LUM	Artemether-lumefantrine
BCC	Behaviour Change Communication
CDC	US Centers for Disease Control and Prevention
CHW	Community Health Worker
CSA	Census Supervisory Areas
CSO	Central Statistical Office
DHAp	Dihydroartemisinin-piperaquine
DHS	Demographic and Health Survey
EA	Enumeration Area
Hb	Haemoglobin
IEC	Information, Education, and Communication
IPTp	Intermittent preventive treatment during pregnancy
IRS	Indoor Residual Spraying
ITN	Insecticide-Treated Mosquito Net
LLIN	Long-Lasting Insecticide Net
MACEPA	Malaria Control and Elimination Partnership in Africa
MCDMCH	Ministry of Community Development, Mother and Child Health
MERG	Monitoring and Evaluation Reference Group
MIS	Malaria Indicator Survey
MOH	Ministry of Health
NMCC	National Malaria Control Centre
NMCP	National Malaria Control Programme
NMSP	National Malaria Strategic Plan
ORS	Oral Rehydration Solution
PDA	Personal Digital Assistant
PMI	President's Malaria Initiative
PSU	Primary Sampling Units
RBM	Roll Back Malaria
RDT	Rapid Diagnostic Test
SEA	Standard Enumeration Areas
SP	Sulfadoxine-pyrimethamine
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
WBC	White Blood Cell
WHO	World Health Organization

Acknowledgments

This report presents the results of the Zambia National Malaria Indicator Survey (MIS) 2015, a comprehensive, nationally representative household survey designed to measure progress towards achieving the goals and targets set forth in the National Malaria Strategic Plan 2011–2016. The survey represented the efforts of several agencies and many individuals. The Ministry of Health, namely the National Malaria Control Centre (NMCC), had the major responsibility of conducting the survey. The Ministry of Community Development, Mother and Child Health, was responsibile for organizing field staff and local coordination and sensitization efforts. Other agencies were instrumental in the survey, including the Central Statistical Office (CSO); the Malaria Control and Elimination Partnership in Africa (MACEPA), a programme at PATH); the United National Development Programme (UNDP); the United States President's Malaria Initiative (PMI); the United Nations Childrens Fund (UNICEF); and the World Health Organization (WHO).

At the Ministry of Health, Dr. Davy Chikamata, Permanent Secretary, and Dr. Elizabeth Chizema Kawesha, Director of Disease Control, Surveillance, and Research, provided overall survey leadership and guidance. At the NMCC, Dr. Mulakwa Kamuliwo, Deputy Director, Disease Control, Surveillance, and Research, Malaria; Dr. Mutinta Mudenda, Case Management Officer; Moonga Hawela, Chief Parasitologist; Mercy Mwanza, Surveillance and Information Officer; Dr. Busiku Hamainza, Operations Research Officer; Dr. Chadwick Sikaala, Chief Entomologist; Pauline K. Wamulume, Information Education Communication Officer; and Felix Ngoma, Accountant, took primary responsibility for survey operations and coordination. Also within the Ministry of Health, various members assisted with organization, community sensitization efforts, logistics, ordering of supplies, and training. At CSO, John Kalumbi, Director, and Batista Mwale, Survey Statistician, provided support for the sample design, sample selection, and analysis. CSO staff also provided support during the field work for identification of cluster boundaries and household listing. At MACEPA, Dr. John Miller, Chris Lungu, Kafula Silumbe, Marie Reine Rutagwire, Muleba Mwatafwali, Sosenna Assefa, Matches Mulenga, Hazel Chabala, Juliana Ngalande, and Ruben Connor provided logistics support, survey organization, accounting, support for design and analysis, and report writing. Manny Lewis and Laura Newman edited and formatted the report. From PMI, Dr. Chomba Sinyangwe of the US Agency for International Development, provided support for the MIS planning and design. At UNDP, Dr. Nawa Mukumbuta provided overall coordination and support for the planning, training, and field implementation efforts. Dr. Fred Masaninga (WHO) and Dr. Rodgers Mwale (UNICEF) provided support for activities, training, and field work. The Roll Back Malaria Monitoring and Evaluation Reference Group (RBM MERG) developed the questionnaire and survey instruments used. The training materials, methodology, and questionnaires used in the survey were mostly drawn from the work of the RBM MERG, but especially from the work of ORC Macro, which organizes the Demographic and Health Surveys (DHS).

A complete list of the field teams and individuals involved in the survey are presented in Appendix B.

Foreword

Zambia continues to make good progress in the fight against malaria although there remains much work to be done. The 2015 Malaria Indicator Survey marks a milestone not only because of the completion of the survey itself—Zambia is the first African country to hold a fifth MIS—but also because of the figures the report presents.

Over the last two years Zambia has seen the largest infusion of life-saving insecticide-treated nets that have ever crossed into it borders. Over nine million LLINs were made available through mass distribution and to pregnant mothers and young children. Together with improvements in providing indoor residual spraying to increasingly malarious rural areas of Zambia, vector control activities are the primary control tools that have brought about the current levels of malaria that we see across the country.

Of note, Southern Province has seen dramatic declines in malaria and, in addition to improvements we have seen in vector control, new community-based treatment strategies are likely contributing to the declines in malaria we are seeing there. Other areas of the country have much to learn from this and as a health system, we are eager to learn these lessons and apply them to other areas of Zambia.

The MIS also reflects the changing nature of malaria treatment service delivery. Increasingly, community members are seeking care for malaria amongst the growing cadre of community health workers who are being equipped with the training and tools to aid us in the fight against the disease. We will continue to rely heavily on these cadres at community level for the outreach that will bring us closer to eliminating malaria.

The 2015 MIS also brings new information on anaemia amongst our women of reproductive age. This information will help guide the health sector in its approaches to combating the causes of anaemia.

The 2015 MIS provides valuable information to inform our progress and we are happy to share these results with our partners and stakeholders.

Dr. Peter Mwaba
Permanent Secretary
Ministry of Health

Preface

The Zambia National Malaria Indicator Survey (MIS) 2015 represents the fifth large-scale effort to benchmark progress of malaria control efforts—particularly the indictators of malaria interventions and disease burden. Now well into our third National Malaria Strategic Plan (the current plan spanning 2011–2016), Zambia continues to be at the forefront of the malaria elimination effort in Africa.

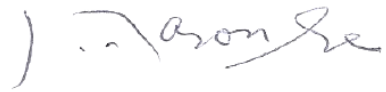
Through our strong partnerships and focused efforts, malaria elimination is a priority of the Ministry of Health, moving from accelerated burden reduction to malaria elimination by 2020. Our partners have enabled much of the progress to date including the successful mass distributions and key financing for our changing needs for vector control chemicals to fight persistent mosquitoes. For these contributions we are grateful.

Key to the success of the programme has been the continued emphasis on measurement of progress around key indicators. Measurement is critical to inform our decisions and drive ourselves forward. The 2015 MIS enables us to celebrate our successes and focus on priorities for continued progress.

Achieving malaria elimination will not be easy. As the MIS reveals, the malaria parasite and the mosquitoes that transmit it are resilient and relentless. If we take our foot off the accelerator, it can come back. Controlling malaria is simply no longer good enough. We must remove this problem from our borders if we are to remain successful in this fight.

Managing malaria elimination efforts is a very dynamic process and the Zambia programme continues to rise to the challenge of process improvement, ongoing learning, and evidenced-based decision-making. In this report we are pleased to see progress from these decisions as well as in many other key strategic areas.

With our persistence and good will, we will win this battle. With emphasis on measurement of our progress and evidenced-based decision-making, we will continue the good fight until we achieve our goal of a malaria-free Zambia.



Hon. Dr. Joseph Kasonde, MP
Minister of Health

Executive summary

The Ministry of Health, along with its partners, through the National Malaria Control Programme continues to provide quality malaria control prevention and treatment services in an aggressive approach to reducing malaria and malaria-related burden. Monitoring the status of the delivery of these services is critical for understanding progress in the fight against malaria. The Zambia Government and its partners continue to be a driving force for malaria control in the region, and these survey results indicate both the tremendous progress and the challenges that have occurred during the last two to three years.

This report presents the results of the Zambia National Malaria Indicator Survey (MIS) 2015, a nationally representative household survey assessing coverage of key malaria interventions and malaria-related burden among children under five years of age. The report also compares 2015 MIS results with results from previous surveys conducted in 2006, 2008, 2010, and 2012. The 2015 survey was developed and conducted by the Ministry of Health and several key malaria partners including the Central Statistical Office (CSO); the Malaria Control and Elimination Partnership in Africa (MACEPA), a programme at PATH; the World Health Organization (WHO); the United States President's Malaria Initiative (PMI); United Nations Children's Fund (UNICEF) and the United Nation's Development Programme (UNDP).

The MIS was based on a nationally representative two-stage cluster sample of 3,750 households surveyed from 150 standard enumeration areas randomly selected from all ten provinces to provide representative national, urban, and rural estimates. Field work was conducted during April and May 2015 by 14 field teams using standardized questionnaires pre-programmed onto Android phones to facilitate data entry, extraction, and analysis. Malaria parasite testing was done using Standard Diagnostics' Bioline® Malaria P.f HRP2 rapid diagnostic tests (RDTs) and thick blood smears for microscopy. Anaemia testing was done using Hemocue® Hb 201 analysers and microcuvettes.

The 2015 MIS found that insecticide-treated nets (ITNs) and indoor residual spraying (IRS) are the primary control strategies for preventing malaria transmission in Zambia. Results indicate 79.5% of Zambian households have at least one mosquito net, and 77.0% of households have at least one ITN, representing an increase from 2012. Sixty four percent (63.9%) of households reported sufficient ITN ownership to cover all the reported sleeping spaces within their respective households. Among all household members, 55.1% reported to have slept under an ITN the night before the survey and children and young adults aged 5–19 years are the age groups who least use ITNs. These full coverage ITN indicators suggest that the large-scale distribution efforts are steadily increasing the national coverage picture among all Zambians. With such high usage among available ITNs, the greatest barrier to further gains in ITN coverage are in providing a sufficient number of ITNs at household level to cover all sleeping spaces.

Twenty nine percent (28.9%) of households in Zambia reported their household sprayed in the previous twelve months, and the vast majority reported their households being sprayed by the government IRS programme. IRS was equally targeted between the more malarious rural areas and urban areas of the country.

Zambia continues to lead the region in coverage of intermittent preventive treatment during pregnancy in 2015. Seventy nine percent (78.8%) and 60.8% of women reported taking at least two and three treatment doses of SP, respectively, for prevention during their most recent pregnancy. This represents an increase from 2012 of an already high benchmark in preventive antimalarial treatments for pregnant women.

Treatment of fevers among children in 2015 with antimalarial medicines remained consistent with past trends. Thirty seven percent (37.3%) of children with fever were reported to have taken an antimalarial for their fever and 25.2% of children with fever reportedly took an antimalarial promptly.

Not all fevers are malaria and in many areas of Zambia, malaria represents a declining percentage of febrile illness. Among febrile children, 35.5% reported to have had a finger stick during their febrile episode. Among antimalarial drugs taken for fevers, 92.3% were reported as ART-LUM, the recommended first-line treatment for uncomplicated malaria. Finally, significant progress has been made in providing antimalarial testing and treatment at community level and this is reflected in the finding that 25.0% of febrile children are now reportedly treated at community level.

Despite the increases in coverage of key interventions, malaria parasite prevalence by microscopy increased in 2015 compared to 2012. One in five or 20.3% of children in Zambia are infected with malaria parasites compared with 14.9% in 2012. This increase was seen in rural and urban areas although the overall percentage of children infected in urban areas remained low at around 5.9%. Severe anaemia levels among children, another measure of the chronic effects of persistent infections, remained largely unchanged nationally at 6.2% in 2015 compared to 2012. Malaria remains a disease that disproportionately effects rural and less wealthy individuals.

The 2015 MIS also collected information relevant for monitoring the progress of the roll out of integrated community case management (iCCM). iCCM includes the treatment of diarrhoea and malaria at community level and an increasing awareness of communities that community health workers are present and available to provide care. This includes the prevalence and treatment of diarrhoea and malaria by community health workers.

The 2015 MIS represents a significant milestone for benchmarking progress for the Zambia Ministry of Health and malaria control partners. The results of this survey will inform the health sector and malaria-specific strategic planning processes for the country in 2015 and beyond.

Chapter 1: Introduction

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Malaria is endemic throughout Zambia and continues to be a significant public health problem in many areas. Efforts to control malaria such as long-lasting insecticidal nets (LLINs) and prompt effective case management have been scaled up through coordinated effort among Roll Back Malaria (RBM) partners. In order to assess national scale-up efforts, effective monitoring and evaluation is needed to measure progress towards select targets and goals.

The Government of the Republic of Zambia has identified malaria control and eventual elimination as one of its main public health priorities. This is emphasized in both the National Development Plan 2011–2016 and the National Health Strategic Plan 2011–2016. In this respect, the Government, through the National Malaria Control Centre (NMCC), has developed the current National Malaria Strategic Plan 2011–2016 (NMSP), aimed at significant malaria burden reduction through proven interventions throughout the country and establishing malaria-free zones, towards the achievement of the national vision of "a malaria-free Zambia." In addition to the national malaria plans, Zambia has committed to achieving regional and international targets for malaria control. Notably, 2015 marked the completion of the United Nations Millennium Development Goals.

The NMSP 2011–2016 focuses the malaria control efforts in Zambia around selected interventions. These include providing prompt, effective treatment with artemether-lumefantrine (ART-LUM) within 24 hours of symptom onset. Malaria transmission is prevented through two primary means: (1) the use of insecticide-treated nets (ITNs) and (2) indoor residual spraying (IRS). These efforts are complemented by specific interventions for pregnant women—namely provision of ITNs at no cost to beneficiaries at antenatal clinics (ANCs) and provision of intermittent preventive treatment during pregnancy (IPTp) with sulfadoxine-pyrimethamine (SP). The NMSP 2011–2016 also sets high coverage targets for these key interventions.

Objectives

The specific objectives of the Zambia National Malaria Indicator Survey (MIS) 2015 were:

1. To collect up-to-date information, building on the experience of the previous MISs (2006, 2008, 2010, and 2012) on coverage of the core malaria interventions included in the National Malaria Strategic Plan 2011–2016.
2. To assess malaria parasite prevalence.
3. To assess the status of anaemia among the target populations (in particular children 6–36 months and women 15–49 years).
4. To assess disparities in malaria intervention coverage, malaria parasite prevalence, and anaemia prevalence among the surveyed population by location and other background characteristics.
5. To implement standardized, representative household survey methods.
6. To strengthen the capacity of the NMCC and local agencies involved in order to facilitate the implementation of surveys of this type in the future.

Sample design

The 2015 MIS covered household populations in Zambia. The design for the survey was a representative probability sample to produce estimates for the country as a whole, and for rural and urban populations separately.

Zambia is administratively divided into ten provinces and each province is in turn subdivided into districts. For statistical purposes each district is subdivided into census supervisory areas (CSAs) and these are in turn subdivided into standard enumeration areas (SEAs). The most recent census was conducted in 2010 with a resulting population of 13,045,508. This population is divided and demarcated with CSAs within wards, wards within constituencies, and constituencies within districts.

The listing of SEAs has information on number of households and the population. The number of households was used as a measure of size for selecting primary sampling units. Therefore, the sample frame of this survey was the list of SEAs developed from the 2010 Population Census.

Sample sizes were calculated with the assumption that future cross-sectional surveys will be conducted for comparison with these results. Sample size determination was based on an expected reduction in parasitaemia levels among rural populations from the 2012 MIS results and according to MIS Sampling Guidelines documentation (RBM, 2013). The MIS conducted in Zambia in 2012 showed a national severe anaemia prevalence of 6.8%, measured as haemoglobin less than 8 g/dl, and a malaria parasite prevalence of 14.9% for children under age five years. For rural areas, the estimates were 8.2% and 20.2%, respectively. With an estimated 77% of households with at least one child under age five years (and assuming 46% with a child aged 6–36 months), the sample size used for the MIS was determined using 95% confidence limits, 80% power, a design effect of 2.00, and 20% adjustment for non-response (from household refusals, or abandoned households). Based on these criteria, a 10% relative standard error required at least 2,550 households in the rural domain. The 2015 MIS targeted 2,625 households for the rural domain. The 2015 MIS added an additional 300 households for oversampling in Luapula Province to provide additional precision of the survey estimates obtained.

For urban areas of Zambia, a separate domain was based on the remaining budgetary constraints and population proportional to size sample allocation, yielding additional SEAs. This was based on allocating 800 households from among 32 clusters to detect changes in ITN use among children from 50.9% (MIS 2012) and similar sample size parameters for rural domain except using a response rate of 90%.

To achieve the sample's total household count, no more than 3,750 households were selected from no more than 150 SEAs. A first-stage selection of the SEAs was conducted by the Central Statistical Office (CSO) according to the specified domains. A second stage sampling was conducted at the time of field work using hand-held smart phones. All households within an SEA were digitally listed using smart phones fitted with geo-positioning units and a random sample of 25 households from each SEA were selected for interviewing from all households listed during the field visit by a programme called ODK EpiSample developed by PATH MACEPA and based on a programme developed by the US Centers for Disease Control and Prevention (CDC). Every attempt was made to conduct interviews in the 25 selected households and up to three visits were made to ascertain compliance in case of absence of all (or any household members in the case of malaria parasite testing) to minimize potential bias.

Questionnaires

Two questionnaires were used for the Zambia National Malaria Indicator Survey 2015: the household questionnaire and the women's questionnaire. The content of each was based on model questionnaires developed by the MEASURE DHS+ programme and adopted and recommended for use by the RBM Monitoring and Evaluation Reference Group (MERG) Task Force on Household Surveys.

The household questionnaire was used to list all usual members and visitors of the selected households. Some basic characteristics of each person were collected including his or her age, sex, education, and relationship to the head of the household. The main purpose of the household questionnaire was to identify women who were eligible to answer the individual questionnaire. Eligible women were all women 15–49 years of age. Malaria-specific issues covered in the household questionnaire included:

- Fever prevalence and treatment seeking behavior for all household members.
- IRS, including whether the household in question was sprayed in the previous year, and who performed the spraying.

- ITNs, including household possession, net treatment status, and the use of nets among all household members.

The women's questionnaire was used to collect information from all eligible women aged 15–49. The following topics were included:

- Background characteristics (e.g., education level, asset-based wealth index).
- Reproductive and birth history, pregnancy status.
- General malaria knowledge.
- IPTp, including usage for their most recent birth in the last two years, number of doses, and whether the mother received IPTp during an ANC visit.
- Fever prevalence among children under five years of age and fever treatment with antimalarial drugs.

Questionnaires were programmed into hand-held smart phones to eliminate the need for paper transcribing, to allow quicker data tabulation, and to facilitate faster interviewing from available skip patterns. For the purposes of the household listing and to facilitate data entry at the time of the interview, all household names were recorded into the hand-held smart phones. Each individual was assigned a unique identification code at the time of questionnaire administration. The names of respondents and households were kept strictly confidential and were not used in the presentation of results or associated with the results in any way or available to anyone except the survey coordinator (National Malaria Control Programme coordinator).

Malaria parasite and anaemia testing

All health professionals recruited from the Ministry of Health (MOH) and the Ministry of Community Development, Mother and Child Health (MCDMCH), received standardized training to conduct finger pricks for anaemia and malaria parasitaemia among children under six years of age in every household sampled. Every effort was made to prevent secondary infection from the finger stick by using sterile lancets for each child and by cleaning the finger with an alcohol swab. Field teams were provided with sufficient supplies for this throughout the field work. Sampling in children under six ensured that all children under five—the target population—were captured. The purpose of the MIS was explained and if parental consent was given, a finger prick was done. The first drop of blood was wiped from the finger, the second drop was used to prepare a thick blood film, the third drop was used in the Hemocue photometer to determine the child's haemoglobin, and the fourth drop was applied to a rapid diagnostic test (RDT). A final drop was placed on a filter paper for confirmation of diagnosis and parasite species with polymerase chain reaction (PCR) analysis on slides which are found to be mishandled or damaged. The filter paper dried blood spot specimens were used to confirm the malaria parasite species for the tested children.

For women, only two drops of blood were taken. The first drop of blood was wiped from the finger, the second drop was used in the Hemocue photometer to determine the woman's haemoglobin level.

Results from the anaemia testing and RDTs were available immediately to the parents or caregivers for the child and to the eligible women participating. Thick smears were collected by survey-assigned laboratory supervisors and stained with Giemsa stain at the National Malaria Control Centre Reference Laboratory in Lusaka. All stained slides were read by two independent microscopists masked from RDT results. Slides with discrepant RDT results were re-analyzed by a third microscopist for final validation.

Diagnosis and treatment algorithm

The NMCC has a policy of expanding the use of RDTs for malaria diagnosis in conjunction with the use of dihydroartemisinin-piperaquine (DHAp) (branded as Eurartesim®, a fixed dose combination of dihydroartemisinin and piperaquine) for primary treatment of uncomplicated malaria. Standard

Diagnostics' Bioline P.f HRP2 RDT was used to guide treatment of parasitemic children during the survey. Thick blood slides were read within one month, if not sooner, after they were prepared in the field by qualified laboratory technicians and microscopists.

Haemoglobin results were shared with the parent/guardian or participant. Children found with haemoglobin levels of less than 7g/dl and a negative RDT were given an appropriate two-week dosage of daily iron and folate and mebendazole (chewable) and referred to a health centre and their parent/guardian was given the written results. Mebendazole was given as a presumptive treatment of helminthic infections and was only given to children at least 12 months of age as per the Integrated Management of Childhood Illnesses (IMCI). Children with a positive RDT and clinically not fitting into the severe malaria classification (severe aneamia, prostration, impaired consciousness, respiratory distress, convulsions, circulatory collapse, abnormal bleeding, jaundice, and passing black/brown [dark] urine) received immediate treatment for malaria using an artemisinin-containing combination antimalarial treatment, according to Zambia national treatment guidelines with DHAp. Treatment was administered by the MOH nurses who were part of the field team. Further children with a positive slide and classified as simple malaria with mild to moderate anaemia (Haemoglobin [Hb] between 8–11.5 g/dL) were treated with DHAp and given a two-week course of folic acid ONLY and no ferrous sulphate. Children clinically assessed by the survey nurse to have severe malaria were transported immediately to the nearest health centre. Children already treated with an antimalarial within the past two weeks were referred to the nearest facility for additional evaluation. Children who were found to be seriously ill, as determined by the survey nurses, were provided transportation to the nearest health facility.

Haemoglobin results were shared with the women. Women found with haemoglobin levels of less than 8g/dl were referred to the nearest health centre, those between 8g/dl and 10g/dl were given an appropriate two-week dosage of daily ferrous sulphate and folic acid and referred for further investigation, and those between 11g/dl and 11.9g/dl were provided with a two-week dosage of daily ferrous sulphate and folic acid.

Hemocue and RDT testing was done according to manufacturer recommendations. Blood smears were stained with Giemsa stock stain prepared in advance of the field work by the NMCC Reference Laboratory. Parasite densities were calculated by counting the number of asexual stage parasites/200+ white blood cells (WBCs), assuming 8,000 WBCs/dl of blood. Where there were less than 10 parasites per 100 fields, the slides were read up to a threshold of 500+ WBCs. Blood smears were considered negative if no parasites were found after counting 200 fields.

Data collection and programming

Smart phones were used for the second-stage sampling and recording of questionnaires and for malaria parasite and anaemia testing results. Programming of the questionnaires was done using ODK Survey developed for the Android platform. Jaiyu G3 Android-based smart phones were used used to carry out field sampling and data collection. A programme called EpiSample, developed from a programme designed by the CDC, Atlanta, USA, was used for second-stage household sampling and was similar to previous software used in Zambia for MISs from 2006 to 2012 and included a navigation component to facilitate field staff returning to selected households for interviewing.

Community sensitization

To prepare surveyed communities for impending field work, including a finger stick for anaemia and parasite testing, a series of community sensitization measures were undertaken. These included a general informational letter and accompanying flyer for districts and local communities. These documents included information about the purpose, procedures, and importance of household participation. Further, a series of radio spots were developed in local (seven) languages and aired on both national and local community radio stations with service areas matching the selected SEAs. The

radio spot contained a 45-second message from the MOH introducing the survey, the importance of doing finger sticks to determine parasitemia and anaemia, and encouraging participation.

Training, pretest activities, and field work

Data collection for the MIS took place from April to June 2015. Fourteen interviewing teams were used to carry out the field work. Each team was composed of at least two health professionals and two lab technicians. Health professionals were selected by district health management teams from districts represented within the sampling frame, with the intent of having field staff from or near the selected enurmeration areas. Teams were assigned to each of the provinces with an additional team allocated for use among provinces as appropriate.

Training was conducted in Chongwe during April 2015. The training was coordinated by the NMCC, US President's Malaria Initiative (PMI), PATH Malaria Control and Elimination Partnership in Africa (MACEPA), United Nations Development Programme (UNDP), World Health Organization (WHO), and other partners as appropriate. The training schedule included sessions on survey background, questioning methods, the questionnaire, testing procedures, and the second-stage cluster-level sampling of households. Smart phones were introduced to the field staff on the first day of training and were used in all training sessions to familiarize participants with each procedure.

A field pretest of all survey procedures was programmed for the end of the training week in clusters near the training centre. All participants in the training exercise were pre-arranged into groups corresponding to their field work assignments. During the pretest, a full enumeration area (an SEA not otherwise included in the survey sample) was listed and interviewed. Each team practiced performing the household listing, joining listed households from distinct personal digital assistants (PDAs), and conducting interviews and testing procedures.

Ethical approval

Individual consent was obtained before starting the household and women's questionnaires and blood draws. This consent based on previously approved and field-tested consent documents used in prior MISs.

The Research Ethics Committees of the University of Zambia (Ref: 004-03-15), on behalf of the MOH in Zambia; PATH, on behalf of the MACEPA project; and the CDC reviewed and either approved the protocol or approved it as non-research evaluation.

Chapter 2: Characteristics of households and women respondents

Characteristics of households

The 2015 Zambia MIS collected data on basic demographic and socioeconomic characteristics of the population in the sampled households as well as information on housing facilities and conditions. This information was used in constructing an asset-based wealth index for interpretation of survey results. The criteria used to form the wealth index were based on work done previously by the World Bank and ORC Macro through the MEASURE DHS project.

For this survey, a household was defined as a person or group of persons, related or unrelated, who live together in the same dwelling unit (under one household head) and share a common source of food. The household questionnaire collected information on all usual residents and visitors who spent the night preceding the survey in the household.

Table 1 presents the de facto household population by five-year age groups according to sex and urban and rural designation. The data show that there are slightly more women in Zambia than men, comprising 53.4% and 46.6% of the population, respectively. The population under 15 years of age makes up about 46% of the total population. **Figure 1** shows the population age-distribution pyramid for Zambia.

Table 1. Household population by age, sex, and urban and rural designation
Percent distribution of the de facto household population by five-year age groups, according to gender and urban and rural designation (Zambia 2015).

	Urban			Rural			Total		
Age	***Female***	***Male***	***Total***	***Female***	***Male***	***Total***	***Female***	***Male***	***Total***
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
0–4	14.2	16.8	15.4	18.3	18.7	18.5	17.5	18.3	17.8
5–9	12.7	15.9	14.2	16.3	17.6	16.9	15.5	17.2	16.3
10–14	11.9	11.0	11.5	12.3	12.7	12.5	12.2	12.3	12.3
15–19	11.6	10.8	11.2	8.7	9.2	8.9	9.3	9.6	9.4
20–24	10.6	8.1	9.4	8.6	7.0	7.8	9.0	7.2	8.2
25–29	8.6	7.3	8.0	6.6	5.8	6.2	7.0	6.2	6.6
30–34	8.1	7.0	7.6	6.6	5.4	6.1	6.9	5.8	6.4
35–39	5.3	7.1	6.2	5.1	6.1	5.5	5.1	6.3	5.7
40–44	4.9	5.0	5.0	3.5	4.4	3.9	3.8	4.5	4.2
45–49	2.4	3.9	3.1	3.0	3.2	3.1	2.9	3.4	3.1
50–54	2.4	2.2	2.3	3.3	2.7	3.0	3.1	2.6	2.9
55–59	1.8	1.6	1.7	2.4	2.3	2.3	2.3	2.1	2.2
60–64	1.2	0.9	1.1	1.4	1.7	1.6	1.4	1.5	1.5
65–69	1.6	1.0	1.3	1.6	1.2	1.4	1.6	1.2	1.4
70–74	1.5	0.5	1.1	0.8	0.6	0.7	0.9	0.6	0.8
75+	1.0	0.8	0.9	1.5	1.3	1.4	1.4	1.2	1.3
Total	1841	1674	3515	6765	5849	12614	8606	7523	16129
Number	14.2	16.8	15.4	18.3	18.7	18.5	17.5	18.3	17.8

Figure 1. Age pyramid of sampled population of Malaria Indicator Survey (Zambia 2015)

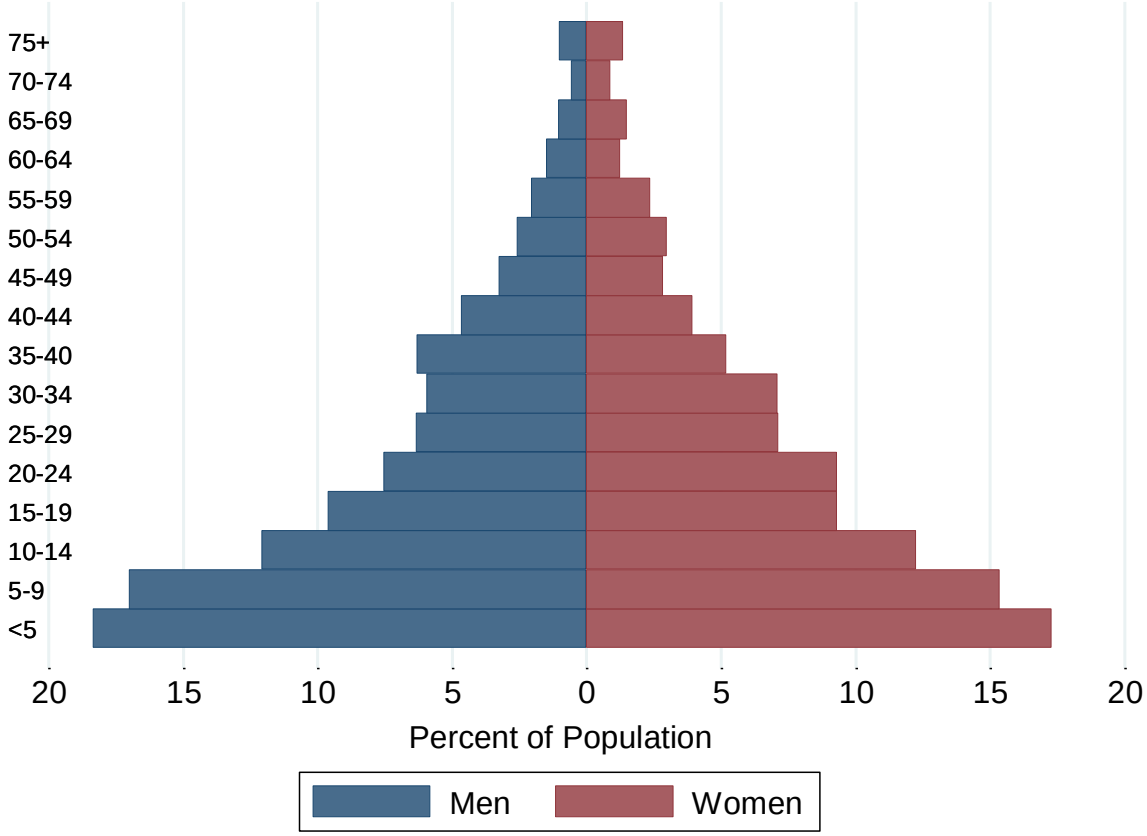


Table 2 shows that the percent of households headed by men is similar for both rural and urban areas. In the distribution of the number of usual household members, rural households tend to have a slightly higher number of usual members and are less likely to report fewer than three members.

Table 2. Household composition
Percent distribution by sex of head of household and by household size, according to rural and urban designation (Zambia 2015).

Characteristic	Urban	Rural	Total
	(1)	(2)	(3)
Sex of head of household			
Female	32.3	29.3	30.1
Male	67.7	70.7	69.9
Number of usual members			
1	11.3	8.6	9.3
2	13.9	12.5	12.9
3	19.4	14.1	15.6
4	15.1	16.8	16.3
5	13.7	15.3	14.9
6	10.5	11.5	11.2
7	6.0	8.7	8.0
8	4.3	6.0	5.5
9+	6.0	6.4	6.3
Total	100.0	100.0	100.0
Number	815	2,728	3,543

Table 3 shows that a sizeable proportion (42.9%) of urban households report having electricity, compared to only 8.0% of rural households. Nationally, the most common sources of drinking water are unprotected wells (26.0%), protected wells (22.9%), and water piped into yard or plot (13.3%). In rural areas, the most common sources of drinking water are unprotected wells (30.2%) and protected wells (27.9%), making up more than half of the water sources when taken together.

Urban households more often reported using water sources piped into their yard or plot (40.4%). The most common toilet facilities reported in all households were open pits or pit latrines without slabs (59.0%) or pit latrines with slabs (16.7%). Nationally the majority of households surveyed had natural floors (57.0%) or cement floors (34.2%). Taken as a whole, the average rural household has no electricity, draws their water from an unprotected well and has a natural floor. The average urban household might have electricity, water piped in, and a cement floor.

Table 3. Household characteristics
Percent distribution of households by household characteristics, according to rural and urban designation (Zambia 2015).

Household characteristic	Urban	Rural	Total
	(1)	(2)	(3)
Electricity			
Yes	42.9	8.0	17.3
No	57.1	92.0	82.7
Source of drinking water			
Piped into dwelling	40.4	3.4	13.3
Protected well	9.2	27.9	22.9
Unprotected well	14.4	30.2	26.0
Protected spring	7.4	9.4	8.9
Unprotected spring	7.3	9.9	9.2
Bottled water	2.6	6.7	5.6
Other	18.4	10.9	12.9
Sanitation facilities			
Flush to sewer system	9.2	2.2	4.1
Flush to septic tank or latrine	9.8	4.2	5.7
Latrine (with slab or ventilated)	30.4	11.7	16.7
Open pit / latrine	43.7	64.5	59.0
No facility/bush/field	2.2	13.4	10.4
Other	4.1	2.0	2.6
Flooring material			
Natural floor	27.2	67.8	57.0
Dung	1.9	7.2	5.8
Cement	67.4	22.2	34.2
Other	2.9	1.0	1.5
Number	815	2,728	3,543

Table 4 shows that nearly half of Zambian households possess a radio. Just under half (48.6%) of households have a phone, with cell phones making up the vast majority of these.

Table 4. Household durable goods, livestock, and land ownership
Percent of households possessing various durable consumer goods, any livestock, and land ownership, by rural and urban designation (Zambia 2015).

Household characteristic	Urban	Rural	Total
	(1)	(2)	(3)
Radio	55.7	43.2	46.5
TV	42.5	14.2	21.8
Refrigerator	29.0	5.4	11.7
Phone	63.1	43.3	48.6
Land	38.8	74.7	65.1
Cattle/livestock	26.9	55.4	47.8
Bicycle	35.5	47.3	44.1
Motorcycle	1.7	1.4	1.5
Car	8.2	2.3	3.9
None	9.3	6.5	7.3
Number	815	2,728	3,562

Wealth index

The "wealth index" is used to present results in this survey and is a proxy measure of the relative standard of living. In the 2015 MIS, the wealth index is based on the reported household ownership of consumer goods and assets, household characteristics such as the type of household toilet facilities and available source of drinking water, and other characteristics that may relate to the household's relative socioeconomic status. The wealth index was created by assigning a factor weight to each asset or characteristic generated through principal component analysis. The factors were summed for each household, creating a total score, which was subsequently ranked and divided into quintiles from one (lowest) to five (highest). The index was based on data from each household for the entire sample and the wealth index is presented for each set of indicators in the report.

Characteristics of women respondents

Eligible women aged 15 to 49 years were interviewed using the women's questionnaire. **Table 5** shows that a majority (56.5%) of women are 15 to 29 years of age, and about three-quarters live in rural areas. More than half of the women have less than secondary education (62.8%).

The women surveyed were mainly Protestants (34.8%) or Catholics (23.6%), and women most often cited belonging to either the Bemba (29.6%) or Tonga (12.3%) ethnic groups. A large percentage of respondents reported ethnic group as "Other" and the responses for this question varied widely, representing the diversity of Zambia's tribal groups.

Table 5. Background characteristics of women respondents

Distribution of women ages 15 to 49 years by background characteristics, unweighted (Zambia 2015).

Characteristic	Number	Percent
	(1)	(2)
Age		
15–19	586	19.1
20–24	634	20.7
25–29	498	16.2
30–34	506	16.5
35–39	374	12.2
40–44	278	9.1
45–49	194	6.3
Designation		
Rural	2296	74.8
Urban	766	25.0
Province		
Central	245	8.0
Copperbelt	382	12.4
Eastern	315	10.3
Luapula	592	19.3
Lusaka	289	9.4
Muchinga	201	6.5
Northern	191	6.2
North-Western	298	9.7
Southern	292	9.5
Western	257	8.4
Education		
No education	376	12.2
Primary	1552	50.6
Secondary	1035	33.7
Higher	106	3.5
Religion		
Catholic	724	23.6
Protestant	1068	34.8
Muslim	7	0.2
Traditional	108	3.5
Other	1162	37.9

continued

Table 5. Background characteristics of women respondents
Distribution of women ages 15 to 49 years by background characteristics, unweighted (Zambia 2015).

Characteristic	Number	Percent
	(1)	(2)
Ethnic group		
Bemba	909	29.6
Tonga	378	12.3
Kaonde	114	3.7
Baroste	121	3.9
Nyanja	218	7.1
Mambwe	166	5.4
Tumbuka	95	3.1
Other	1182	38.5
Total	3070	100.0

Chapter 3: Coverage of key malaria interventions

Ownership of mosquito nets and ITNs

The national vision for insecticide-treated mosquito nets (ITN)[1] distribution is to have universal coverage for all people where the potential exists for malaria transmission. In Zambia, universal coverage is defined as ensuring that all sleeping spaces in all households are covered by an ITN. In order to achieve high coverage, various delivery methods have been adopted. These include mass distribution campaigns, antenatal distribution targeting expectant mothers and their children, and other distribution channels including those utilizing expanded programmes for immunization, equity programmes which target vulnerable groups (orphans, aged, chronically ill), community-based distribution school health programmes, and commercial market distribution for sustainability. Mass distribution campaigns have been implemented since 2005 with expected replacements after approximately three years of use. A major, national provision of ITNs was carried from 2013 through 2014, where approximately 9.4 million ITNs were distributed with all provinces receiving ITNs through funding from the Global Fund to Fight AIDS, Tuberculosis and Malaria; PMI; and various partners, primarily through mass distribution, but also through focused antenatal care for pregnant mothers and their children.

The ownership and use of ITNs is the primary prevention strategy for reducing malaria transmission throughout Zambia, especially in rural, more malarious areas. **Table 6** shows that 79.5% of households in Zambia have a mosquito net. More importantly, 77.0% of households have an ITN and 46.9% have more than one ITN. The average number of ITNs per household is 1.6. Ownership of ITNs are fairly similar in rural and urban areas. Eastern Province has the highest ITN ownership rates, with 93.8% of households reporting at least one ITN and the average household reporting 2.1 ITNs. Lusaka Province has the lowest net ownership rate largely due to prioritizing ITNs to other areas of the country with higher levels of malaria. Lusaka District, the most populous district in Zambia and from which the current Lusaka provincial sample was largely taken, has very little local transmission due to the higher altitude and lower vector abundance. The majority of malaria cases that are reported in Lusaka District are reported with travel history from other more malarious areas of the country. Hence, ITN distribution in Lusaka District are generally targeted for ANC attendees when available, for those known to have local transmission, or for those living in outlying areas of the district where transmission is thought to occur.

The ownership and use of ITNs is fairly equal across wealth quintiles and gender categories, representing an important achievement in their equitable distribution. For example, in the lowest wealth quintile, 76.7% own at least one ITN, compared to 73.3% in the highest wealth quintile. Genders usage (Table 10) is also comparable with women having only a slightly higher rate of ITN usage, 55.7% versus 54.3% of men.

Overall ownership of nets has risen since the 2012 MIS, as has the ownership of more than one ITN (Figure 18), the average number of ITNs per household (**Table 6**), and the percentages of households with one ITN per sleeping space (Figure 3). However, since most households have more than one sleeping space, it is important for any distribution campaign to provide a sufficient number of nets to each household. There is also the possibility of people keeping nets without hanging them. Net hanging should be an integral part of distribution programs. Programmes can even demonstrate methods for hanging and ensure that the nets are opened as they are distributed.

[1] An insecticide-treated net (ITN) is 1) a factory-treated net that does not require any treatment, 2) a pretreated net obtained within the past 12 months, or 3) a net that has been soaked with insecticide within the past 12 months.

Table 6. Household ownership of mosquito nets

Households with at least one and more than one mosquito net (treated or untreated), ever-treated mosquito net, and insecticide-treated net (ITN), and average number of nets by each type per household, by background characteristics (Zambia 2015).

Background characteristic	Percentage of households that have at least one net	Percentage of households that have more than one net	Average number of nets per household	Percentage of households that have at least one ITN[1]	Percentage of households that have more than one ITN	Average number of ITNs per household	Number of households
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Designation							
Urban	76.3	48.1	1.63	72.8	45.1	1.54	816
Rural	80.7	48.8	1.63	78.5	47.6	1.59	2758
Province							
Central	73.7	46.2	1.52	72.8	45.0	1.49	275
Copperbelt	76.6	45.2	1.49	74.7	44.1	1.45	417
Eastern	94.5	66.4	2.14	93.8	66.3	2.13	319
Luapula	88.6	65.4	2.10	86.5	64.1	2.04	649
Lusaka	61.0	33.4	1.15	51.7	26.8	0.95	320
Muchinga	82.2	55.0	1.66	80.8	53.8	1.62	253
Northern	78.9	30.0	1.19	78.3	29.9	1.18	344
North-Western	81.2	55.0	1.91	79.7	53.4	1.86	273
Southern	80.2	44.1	1.53	77.8	42.7	1.48	405
Western	71.8	32.9	1.27	68.6	31.3	1.21	319

continued

Table 6. Household ownership of mosquito nets

Households with at least one and more than one mosquito net (treated or untreated), ever-treated mosquito net, and insecticide-treated net (ITN), and average number of nets by each type per household, by background characteristics (Zambia 2015).

Background characteristic	Percentage of households that have at least one net	Percentage of households that have more than one net	Average number of nets per household	Percentage of households that have at least one ITN[1]	Percentage of households that have more than one ITN	Average number of ITNs per household	Number of households
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Wealth index							
Lowest	79.0	41.0	1.36	76.7	39.8	1.31	720
Second	79.0	46.2	1.49	77.4	45.1	1.45	715
Middle	79.0	48.8	1.59	78.3	47.9	1.57	716
Fourth	81.8	51.4	1.68	79.6	50.3	1.63	709
Highest	78.6	54.0	1.96	73.3	50.2	1.83	714
Total	79.5	48.6	1.63	77.0	46.9	1.57	3,574

[1] An insecticide-treated net (ITN) is 1) a factory-treated net that does not require any treatment, 2) a pretreated net obtained within the past 12 months, or 3) a net that has been soaked with insecticide within the past 12 months.

Table 7 presents a comparison of household ownership of at least one net, an ever-treated net, an ITN, and a long-lasting insecticidal net (LLIN). As funding for LLINs has increased, the distinction between these categories has become less major.

Table 7. Household possession of long-lasting insecticidal nets (LLINs)
Percentage of households with at least one and more than one LLIN, and average number of LLINs per household, by background characteristics (Zambia 2015).

Background characteristic	Percentage of households that have at least one net	Percentage of households that have at least one ever-treated net	Percentage of households that have at least one ITN	Percentage of households that have at least one LLIN[1]	Number of households
	(1)	(2)	(3)	(4)	(5)
Designation					
Urban	76.3	75.1	72.8	71.8	816
Rural	80.7	80.3	78.5	77.1	2758
Province					
Central	73.7	73.7	72.8	68.3	275
Copperbelt	76.6	76.4	74.7	73.7	417
Eastern	94.5	93.9	93.8	93.5	319
Luapula	88.6	88.4	86.5	84.5	649
Lusaka	61.0	57.4	51.7	50.1	320
Muchinga	82.2	81.9	80.8	79.6	253
Northern	78.9	78.9	78.3	78.3	344
North-Western	81.2	81.2	79.7	79.7	273
Southern	80.2	79.9	77.8	76.6	405
Western	71.8	71.1	68.6	68.3	319
Wealth index					
Lowest	79.0	78.7	76.7	75.8	720
Second	79.0	78.6	77.4	76.0	715
Middle	79.0	78.9	78.3	76.8	716
Fourth	81.8	80.7	79.6	78.0	709
Highest	78.6	77.6	73.3	72.3	714
Total	79.5	78.9	77.0	75.7	3,574

[1] A long-lasting insecticidal net is a factory-treated net that does not require any treatment, obtained within the last three years.

Use of mosquito nets and insecticide-treated nets by children and women of reproductive age

In malaria-endemic areas, studies have shown that the use of ITNs, especially among the target populations of children under age five years and pregnant women, can result in a reduction in the occurrence of malaria episodes, all-cause child mortality, and complications associated with malaria during pregnancy. Zambia's NMSP 2011–2016 set targets of 100% coverage and 85% usage among

these populations. Attaining and maintaining high usage of ITNs is essential for reducing malaria transmission and malaria-related burden in Zambia.

In the 2015 MIS, the use of ITNs was identified in each household by means of a complete net roster. The net roster identifies and lists each mosquito net available in the house, asks questions to ascertain its treatment status, and then asks about each individual that slept under that net the night before the survey. From this net roster method, the questionnaire gathers data on the use of nets the night before the survey for children, pregnant women, and all other household members.

Table 8 presents information on the use of mosquito nets by children under age five years. The results show that 58.9% of children under age five years were reported to have slept under a mosquito net the night before the survey, and 57.7% of children under age five years were reported to have slept under an ITN. In general, the results showed a higher net usage among younger (one year old) compared to the older children (**Figure 2**). ITN use has generally increased among children under age five years over the past several years. Usage of ITNs was similar for children in rural areas and urban areas. Male and female children under age five years were about equally as likely to have slept under a net or ITN. By wealth status, poorer children were as likely as wealthier children to use ITNs.

Eastern, Luapula, and Southern provinces reported the highest percentage of children sleeping under ITNs at 77.6%, 71.6%, and 61.0%, respectively. Lusaka and Northern provinces reported the lowest percentage of ITN use among children at 42.0% and 41.8%, respectively.

Coverage of mosquito nets and insecticide-treated nets among household members

Full coverage, including the availability and use of ITNs among all households and their members, is a priority for the NMCP. In order to assess progress in achieving full coverage, this section examines the availability of ITNs to cover all sleeping spaces in households and the use of ITNs among households beyond just those most vulnerable members, such as children under age five years and pregnant women.

At the national level, during 2013 and 2014, the National Malaria Control Programme (NMCP) conducted mass distributions of LLINs with planning targets of one ITN per 1.8 people. Locally, distribution is frequently guided by more practical issues, such as how many sleeping spaces are available within each household and how many ITNs the household may already have available. Similarly, to gauge progress, the percentage of households with sufficient ITNs to cover all sleeping spaces reported in the household is used for measuring the success in achieving full coverage of ITNs.

Figure 2. Insecticide-treated net (ITN) use among children under age five years by age (Zambia 2015)

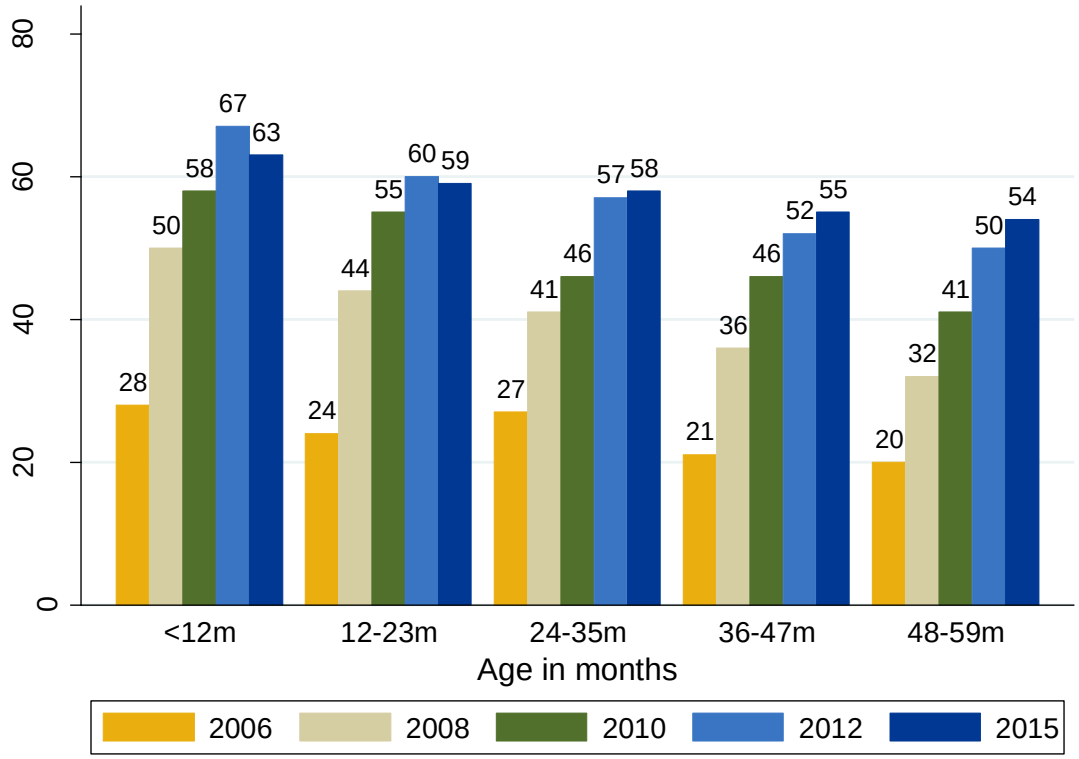


Table 8. Use of mosquito nets by children

Percentage of children under age five years who, the night before the survey, slept under a mosquito net, slept under an ever-treated net, and slept under an insecticide-treated net (ITN), by background characteristics (Zambia 2015).

Background characteristic	Percentage of children under age five years who slept under a net last night	Percentage of children under age five years who slept under an ever-treated net last night	Percentage of children under age five years who slept under an ITN[1] last night	Number of children under age five years
	(1)	(2)	(3)	(4)
Age (in months)				
<12m	64.5	63.6	63.1	599
12-23m	60.4	60.2	59.3	627
24-35m	60.0	59.5	57.8	642
36-47m	55.3	55.2	54.7	600
48-59m	54.5	54.2	53.6	648
Sex				
Female	57.4	56.9	55.7	1630
Male	60.5	60.3	59.8	1486
Designation				
Urban	58.6	57.7	57.2	594
Rural	59.0	58.8	57.8	2522
Province				
Central	56.4	56.4	55.8	222
Copperbelt	52.6	52.6	51.8	369
Eastern	78.2	78.2	77.6	277
Luapula	72.5	72.3	71.6	633
Lusaka	47.0	44.8	42.0	226
Muchinga	59.0	59.0	59.0	209
Northern	41.8	41.8	41.8	311
North-Western	50.7	50.7	50.3	259
Southern	62.6	61.5	61.0	336
Western	54.0	53.7	51.1	274
Wealth index				
Lowest	57.1	56.8	55.9	646
Second	54.9	54.8	54.2	696
Middle	64.7	64.2	63.1	638
Fourth	59.7	59.6	59.3	599
Highest	58.2	57.3	55.9	537
Total	58.9	58.5	57.7	3116

[1]An insecticide-treated net (ITN) is 1) a factory-treated net that does not require any treatment, 2) a pretreated net obtained within the past 12 months, or 3) a net that has been soaked with insecticide within the past 12 months.

Table 9 reports on mosquito net usage among reproductive-age women. This is an important indicator both in protecting reproductive-age women and in protecting young children (who may often sleep

with the mothers). Statistics were reported only for women of reproductive age because pregnancy status was not correctly ascertained during the 2015 MIS and therefore statistics for pregnant women cannot be reported separately. Coverage remained high in 2015, with more than half (60.1%) of women reporting sleeping under a net the night before and a very similar number reporting that the net was insecticide-treated (58.2%).

Eastern and Luapula show the highest percentage of ITN use among women at 84.5% and 67.5%, respectively. Eastern's high rate of use is consistent with the high rate of ownership observed in the region and could serve as a model for other provinces.

Table 9. Use of mosquito nets by women ages 15 to 49 years
All women ages 15 to 49 years and pregnant women who slept under a mosquito net (treated or untreated), an ever-treated mosquito net, or an insecticide-treated net (ITN) the night before the survey, by background characteristics (Zambia 2015).

	Percentage of women who slept under a net last night	Percentage of women who slept under an ever-treated net last night	Percentage of women who slept under an ITN[1] last night	Number of women
	(1)	(2)	(3)	(4)
Designation				
Urban	55.5	54.5	53.0	951
Rural	62.0	61.7	60.3	2843
Province				
Central	54.2	54.2	53.1	271
Copperbelt	48.1	48.1	47.4	477
Eastern	83.9	83.3	84.5	356
Luapula	69.0	68.9	67.5	701
Lusaka	43.6	40.3	36.6	327
Muchinga	60.9	60.9	59.3	262
Northern	58.3	58.3	57.7	338
North-Western	60.5	60.5	59.6	361
Southern	61.8	61.6	60.3	418
Western	57.3	56.1	54.1	283
Wealth index				
Lowest	61.1	60.6	58.7	630
Second	59.4	59.2	58.3	677
Middle	66.3	66.1	65.1	724
Fourth	62.4	61.4	60.3	824
Highest	54.1	53.6	51.7	939
Total	60.1	59.6	58.2	3794

Figure 3 shows the percentage of households with an ITN for each sleeping space among households that have an ITN. The results from previous years are shown so that progress in this indicator can be seen over time by province. This figure helps move beyond basic indicators of ITN ownership and suggests some of the possible barriers to improved ITN use (e.g., having enough ITNs to cover all sleeping spaces). Overall, in households with an ITN, 63.9% had enough ITNs to cover every sleeping space. Almost every province increased their ITN-to-sleeping-space ratio between 2012 and 2015. The most notable jumps were observed in Copperbelt, Luapula, and Eastern provinces.

Figure 3. Percentage of households with an ITN-to-sleeping-space ratio of at least one to one (Zambia 2015)

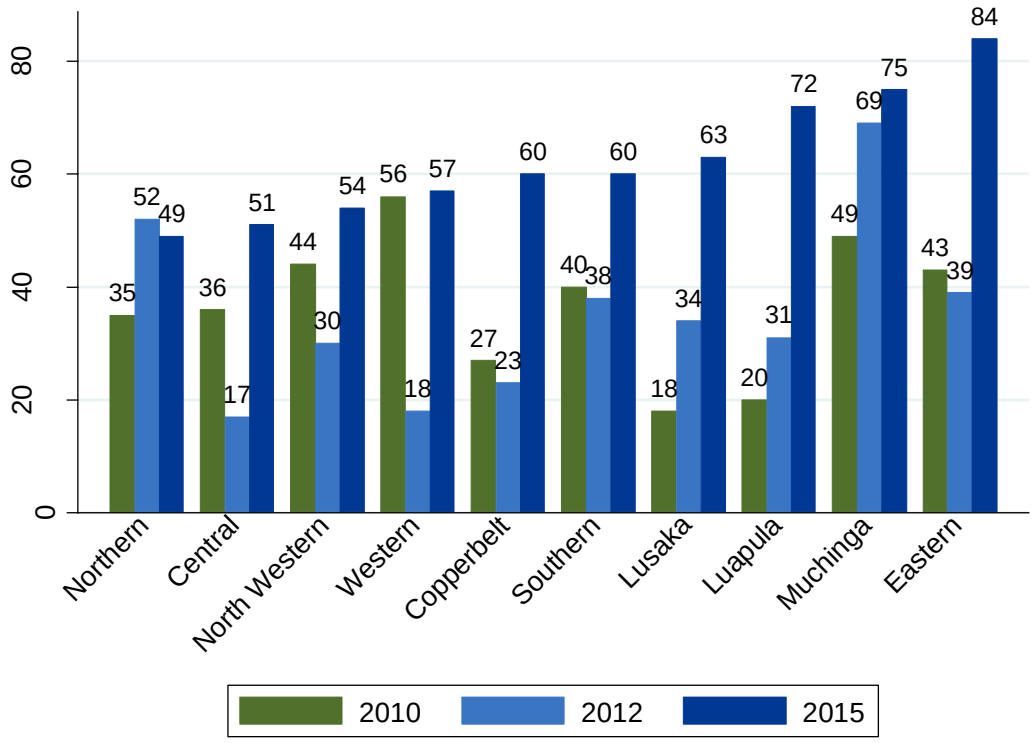


Figure 4 shows the cascade of net usage in Zambia, from possession of a single ITN to possession of enough ITNs to cover every sleeping space to actual use of the ITNs. Notably, the largest drop here is between possession of a single ITN (77.6%) to possession of enough ITNs for every sleeping space (49.7% of all households nationally). This pattern varies by province though, with Northern and North-Western having some of the largest drops. This figure helps highlight the importance of examining full coverage indicators and reaching all sleeping spaces with ITNs.

Figure 5 depicts the variation in net usage across age groups. As has been reported in previous MISs in Zambia, net use declines from age 5 until around age 19 and then begins to rise again, reaching approximately 65% usage in people over age 30. With this clear pattern, distributions and behavioural change campaigns targeting these groups could help address the reported gaps in these school-aged children.

Figure 4. Net ownership, coverage and usage (Zambia 2015)

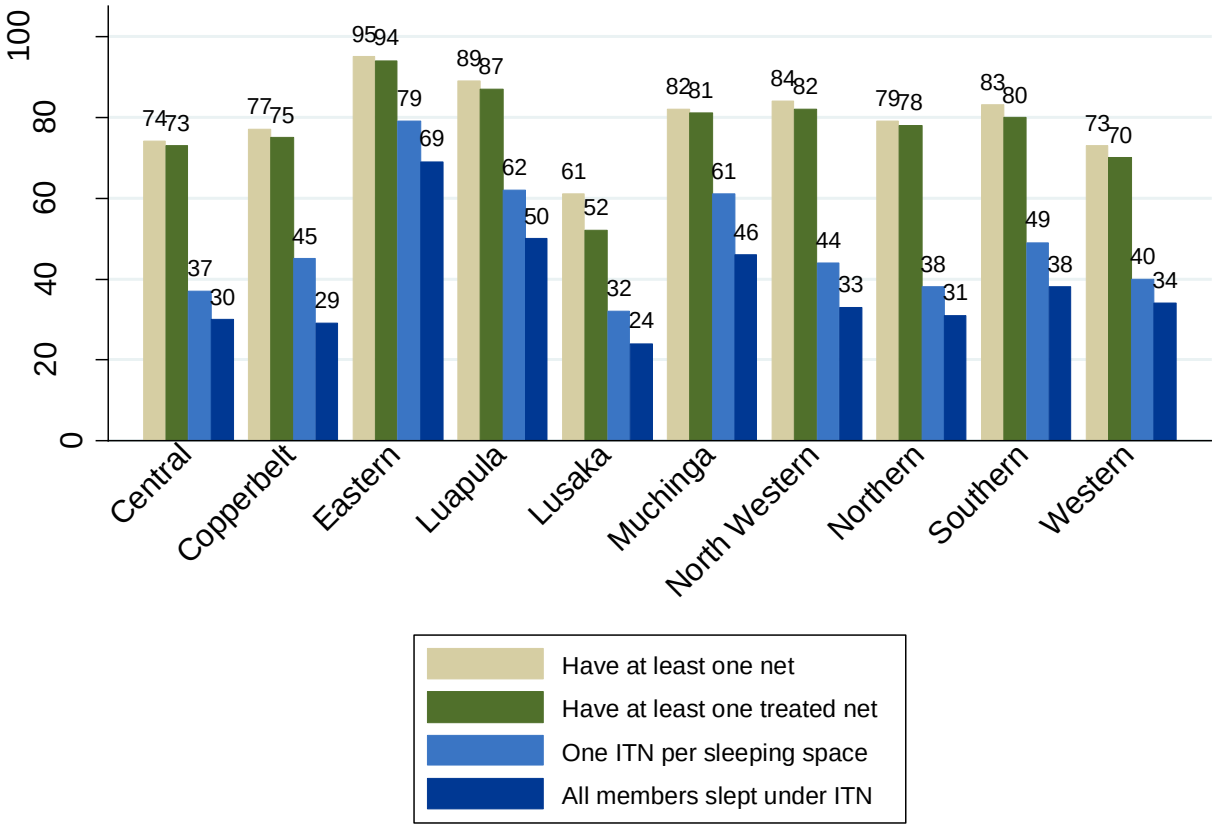
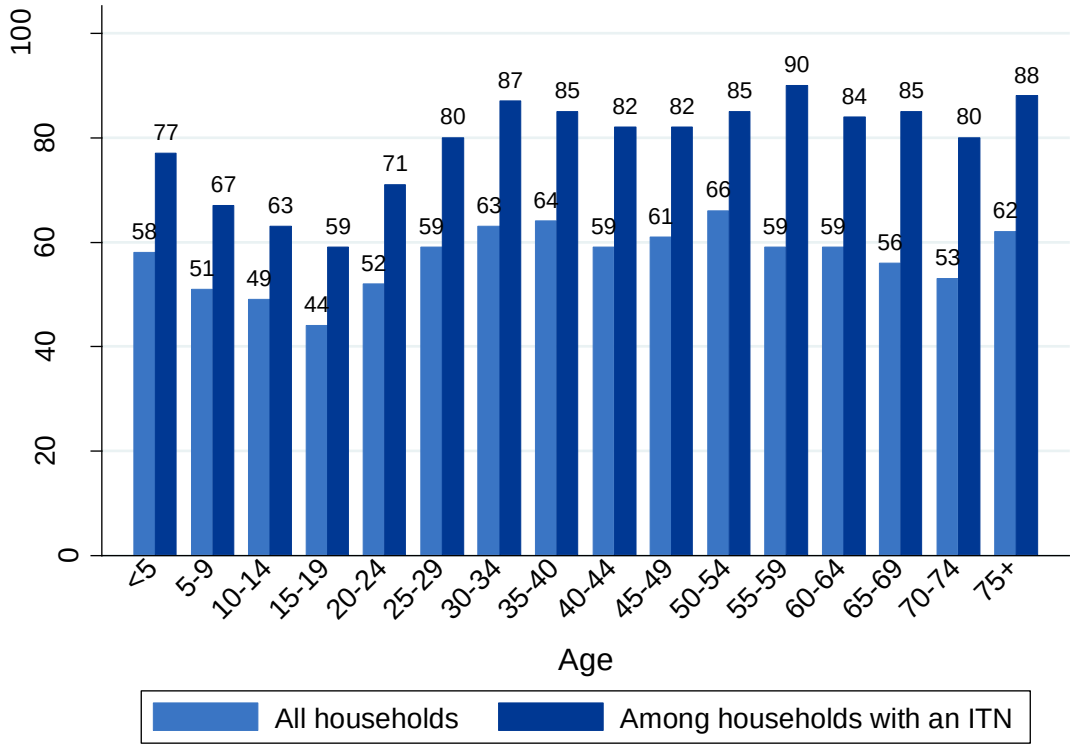


Figure 5. Insecticide-treated net (ITN) use among all household members by age category (Zambia 2015)



Use of mosquito nets and ITNs among all other household members is also important to gauge success in reaching full coverage targets for malaria prevention. **Table 10** shows that 55.1% of household members slept under an ITN the night before the survey. By gender, females and males reported similar rates of sleeping under ITNs and more household members living in rural areas reported sleeping under ITNs than in urban areas (56.2% versus 51.7%, respectively). The latter is affected by the overall availability of more ITNs in rural areas than urban areas. Among the provinces, Eastern and Luapula had the highest reported ITN use, while Lusaka and Copperbelt had the lowest.

Table 10. Use of mosquito nets among all household members
Among all household members, the percentage who slept under a mosquito net the night before the survey and percentage who slept under an insecticide-treated net (ITN), by background characteristics (Zambia 2015).

Background characteristic	Percentage of all household members who slept under a net last night	Percentage of all household members who slept under an ever-treated net last night	Percentage of all household members who slept under an ITN[1] last night	Number of all household members
	(1)	(2)	(3)	(4)
Sex				
Female	57.5	57.1	55.7	8615
Male	55.6	55.3	54.3	7529
Designation				
Urban	53.6	52.8	51.7	3517
Rural	57.6	57.4	56.2	12627
Province				
Central	52.9	52.8	51.9	1104
Copperbelt	43.3	43.2	42.7	2003
Eastern	79.7	79.5	79.1	1614
Luapula	66.2	66.1	65.0	3141
Lusaka	41.8	39.5	35.7	1269
Muchinga	58.4	58.4	57.4	1197
Northern	49.9	49.9	49.6	1292
North-Western	54.5	54.5	53.3	1510
Southern	57.3	56.9	56.0	1759
Western	52.4	51.8	49.6	1255
Wealth index				
Lowest	55.6	55.3	53.7	2947
Second	54.9	54.8	53.7	3163
Middle	62.1	61.9	61.0	3197
Fourth	58.2	57.8	56.9	3377
Highest	52.8	52.2	50.7	3460
Total	56.6	56.3	55.1	16144

[1]An insecticide-treated net (ITN) is 1) a factory-treated net that does not require any treatment, 2) a pretreated net obtained within the past 12 months, or 3) a net that has been soaked with insecticide within the past 12 months.

Indoor residual spraying

IRS is one of the primary malaria prevention strategies in Zambia and, as of 2014–2015, was conducted throughout the country. **Table 11** presents the results for IRS reported by all households included in the sample. An estimated 28.9% of Zambian households reported being sprayed in the previous 12 months, largely due to the 2014 seasonal campaign. Spray targeting was balanced among rural and urban areas and areas in Eastern Province reported the highest levels of IRS coverage. Lusaka, Northern, and Western provinces reported the lowest levels of IRS coverage.

The government-supported IRS programme was reported as the largest source of spraying throughout the country, although in the Copperbelt the mining industry operates IRS activities in a few districts which were also reported under the private sector agents.

Table 11. Indoor residual spraying (IRS)
Among all households surveyed, the percentage of households reporting indoor residual spraying in the previous 12 months, and among households that reported spraying, the percentage that reported the spraying was conducted by government and private agents and the average number of months prior that spraying was conducted, by background characteristics (Zambia 2015).

Background characteristic	Percentage of households sprayed in the previous 12 months	Number of households	Among households sprayed in the previous 12 months:			Number of sprayed houses
			Percentage sprayed by government	Percentage sprayed by private agents	Average number of months ago house sprayed	
	(1)	(2)	(3)	(4)	(5)	(6)
Designation						
Rural	29.0	2758	97.3	1.5	6.6	730
Urban	28.6	816	95.5	2.7	6.3	247
Province						
Central	21.7	275	100.0	0.0	6.1	60
Copperbelt	43.5	417	89.8	8.4	5.2	171
Eastern	56.0	319	99.0	0.0	6.6	183
Luapula	31.6	649	98.5	0.0	7.0	154
Lusaka	17.4	320	95.7	0.9	5.1	62
Muchinga	27.7	253	100.0	0.0	8.7	75
Northern	17.5	344	96.2	2.0	8.2	47
North-Western	24.5	273	98.1	1.5	7.4	60
Southern	25.8	405	97.1	1.5	6.4	106
Western	18.1	319	98.4	0.0	4.0	59
Wealth index						
Lowest	26.1	720	100.0	0.0	6.9	166
Second	21.6	715	97.9	0.0	6.7	146
Middle	29.9	716	98.3	1.5	7.1	198
Fourth	32.9	709	97.3	1.0	6.5	225
Highest	32.6	714	92.7	5.0	5.6	242

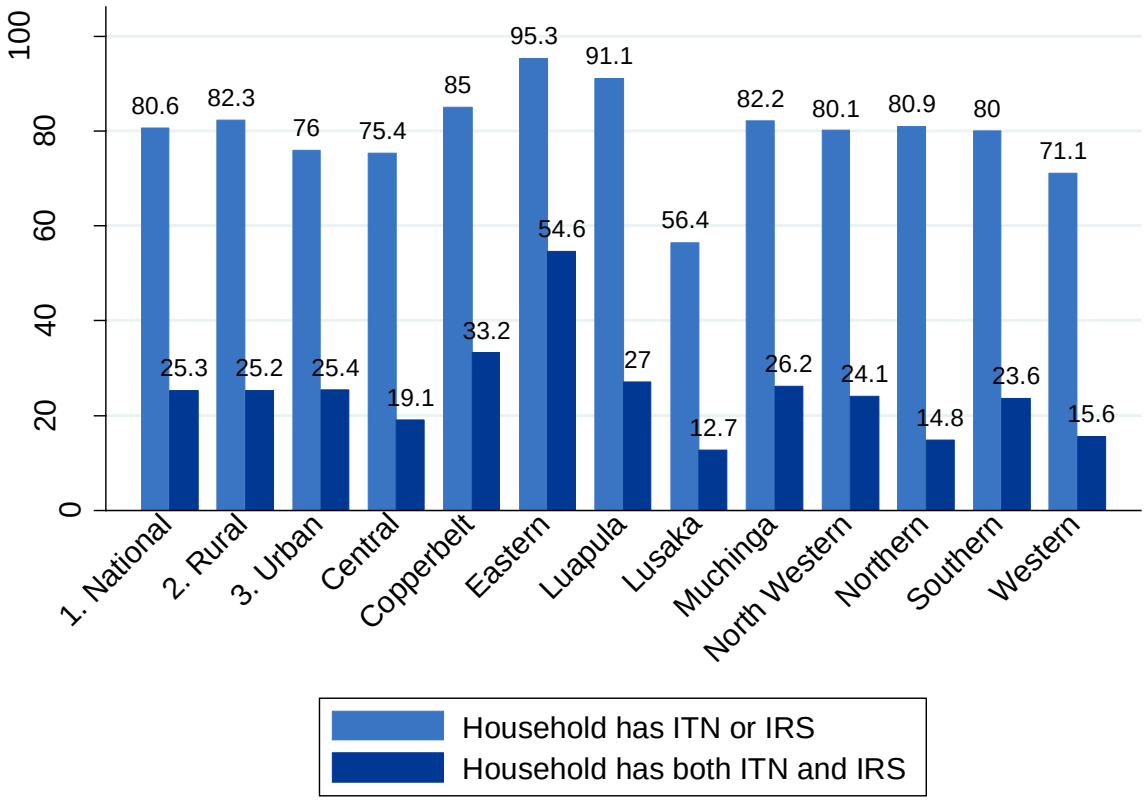
continued

Table 11. Indoor residual spraying (IRS)
Among all households surveyed, the percentage of households reporting indoor residual spraying in the previous 12 months, and among households that reported spraying, the percentage that reported the spraying was conducted by government and private agents and the average number of months prior that spraying was conducted, by background characteristics (Zambia 2015).

Background characteristic	Percentage of households sprayed in the previous 12 months	Number of households	Among households sprayed in the previous 12 months:			Number of sprayed houses
			Percentage sprayed by government	Percentage sprayed by private agents	Average number of months ago house sprayed	
	(1)	(2)	(3)	(4)	(5)	(6)
Total	28.9	3574	96.9	1.8	6.5	977

Due to the costs and logistics of running IRS campaigns, IRS is largely viewed as a complementary vector control strategy to the more widespread coverage obtained with ITNs. **Figure 6** shows the availability of at least one vector control method (IRS or ITNs) at household level as well as the combined coverage (ITNs and IRS) at household level. Eastern Province stands out for having 54.6% of households covered by both an ITN and IRS. IRS was scaled up in rural areas during the 2014 spraying campaign and urban and rural areas are now nearly equal in terms of dual coverage.

Figure 6. Percentage of households with at least one insecticide-treated net (ITN) and/or indoor residual spraying (IRS) (Zambia 2015)



Intermittent preventive treatment during pregnancy

Table 12 shows the use of intermittent preventive treatment by pregnant women (IPTp). Women were asked about their use of IPTp for their most recent birth in the last five years. An impressive number

of women reported taking IPTp, with 90.1% percentage of all women reporting a first dose. This high coverage represents a remarkable success for Zambia. The success in first dose of IPTp was fairly even across provinces, with the lowest province still reporting 83.0% coverage. There was much more variation in coverage of the third dose, with North-Western Province reporting 84.3% coverage of the third dose and Western reporting only 43.0%. Education looked to be a major predictor of IPTp coverage as women with no education had approximately 15% lower usage of first dose, second dose, and third dose.

Zambia will need to maintain high IPTp coverage as the WHO recommendations move from three doses to four or more. There are also ways to continue expanding coverage, such as encouraging earlier ANC attendance during pregnancy or the use of appropriately targeted messaging to encourage women to make their scheduled ANC visits.

Table 12. Use of intermittent preventive treatment (IPTp) by pregnant women
For the last birth in the five years preceding the survey, percentage for which the mother took antimalarial drugs for prevention during the pregnancy, by background characteristics (Zambia 2015).

Background characteristic	Percentage of mothers who took any antimalarial drug for prevention during their last pregnancy	Percentage of mothers who took any IPTp[1]	Percentage of mothers who took 2+ doses of IPTp	Percentage of mothers who took 3+ doses of IPTp	Number of mothers
	(1)	(2)	(3)	(4)	(5)
Designation					
Urban	95.2	92.7	78.4	60.7	392
Rural	92.0	89.3	78.9	60.9	1435
Province					
Central	95.3	93.6	79.5	48.1	136
Copperbelt	96.1	95.2	90.6	78.8	230
Eastern	93.7	88.4	76.9	57.8	190
Luapula	95.7	91.4	81.8	63.8	401
Lusaka	89.9	87.5	66.4	47.0	161
Muchinga	94.1	94.1	80.9	54.6	131
Northern	89.9	88.6	81.3	67.7	117
North-Western	92.1	90.9	87	84.3	94
Southern	85.3	83.0	72.2	58.0	191
Western	90.1	86.8	68.0	43.0	176
Wealth index					
Lowest	92.7	88.4	76.8	52.2	367
Second	90.4	87.8	78.0	58.6	381
Middle	91.2	88.2	78.7	62.8	364
Fourth	95.0	92.0	83.2	67.5	356
Highest	94.0	93.4	76.8	61.5	359
Education					
None	82.2	77.0	66.7	44.7	245

continued

Table 12. Use of intermittent preventive treatment (IPTp) by pregnant women
For the last birth in the five years preceding the survey, percentage for which the mother took antimalarial drugs for prevention during the pregnancy, by background characteristics (Zambia 2015).

Background characteristic	Percentage of mothers who took any antimalarial drug for prevention during their last pregnancy	Percentage of mothers who took any IPTp[1]	Percentage of mothers who took 2+ doses of IPTp	Percentage of mothers who took 3+ doses of IPTp	Number of mothers
	(1)	(2)	(3)	(4)	(5)
Primary	93.5	90.8	78.7	60.6	1021
Secondary	95.3	93.9	83.8	67.4	512
Higher	98.6	98.6	83.8	70.5	49
Total	92.7	90.1	78.8	60.8	1827

[1]IPTp is intermittent preventive treatment during pregnancy with Fansidar/SP.

Fever and treatment of fever

Table 13 presents results for prevalence of fever among children under age five years and treatment-seeking behaviour for these children. Almost one-fifth of children had a fever in the two weeks prior to the survey. Of these, 37.3% took an antimalarial drug, and 25.2% took the drug within 24 hours of symptom onset. Only 31.8% sought treatment from a health facility/provider within that time period. The highest prevalence of fever was seen in children ages 36 to 47 months (21.1%), followed by those ages 12 to 23 months (19.7%).

Children in rural areas were more likely to suffer from fever than those in urban areas (18.4% and 12.4%, respectively). Among children with fever, 35.5% reported having a heel or finger stick when they sought treatment during their fever episode. This indicator is a proxy measure for testing rates among those seeing care. This rate of reporting finger sticks or heel sticks is comparable to the rate in 2012 (32.3%).

Overall proportions for testing and treatment of fever remain quite low, with 35.5% of children being tested and only 25.2% taking drugs the same or next day. Increased messaging around the importance of testing and treatment could likely improve these numbers. Messages around testing should emphasize that fever is a common symptom of malaria while acknowledging that fever can be caused by other factors as well. Messages around treatment should emphasize that prompt care is crucial in protecting the child.

Table 14 presents drugs taken for fever and the percentage taken within 24 hours of symptom onset. Artemether-lumefantrine (ART-LUM) remains the dominant anti-malarial in use in Zambia with 34.4% of children with fever in the last two weeks treated with ART-LUM. Use of SP was not reported among children and use of quinine, the available treatment option for severe malaria, remains very low, at 2.1%. Within 24 hours of onset of symptoms, 23.2% of people reported taking ART-LUM. Future communication campaigns should emphasize that malaria is a common cause of fever and that prompt healthcare seeking is best for any type of fever.

Table 15 presents the source of antimalarial drugs given to children under age five years with fever in the two weeks preceding the survey. The majority of drugs (45.7%) were obtained from a government health facility. The percentage received from community health workers (CHWs) increased substantially from previous MIS surveys though, from 2.1% in 2010 to 8.1% in 2012 and now at

25.0%. This reflects the investments the MOH and partners have made in training CHWs to provide testing and treatment services for malaria in some parts of the country. The rise of community-level case management is a hopeful trend for Zambia, especially as increasing emphasis is put on elimination at the local level, where treatment services are needed closer to communities. The source of antimalarial drugs apart from ART-LUM was more difficult to determine reliably in 2015 due to the lower reported prevalence of fevers among children and the correspondingly lower numbers of treatments that were reported for those febrile children.

Table 13. Prevalence and prompt treatment of fever among children

Children under age five years with fever in the two weeks preceding the survey, and among children with fever, percentage who took antimalarial drugs and who took the drugs the same/next day, by background characteristics (Zambia 2015).

Background characteristic	Percentage of children with fever in last two weeks	Number of children under age five years	Among children with fever:				Number of children with fever
			Percentage who reported having finger or heel stick	Percentage who took antimalarial drugs	Percentage who took antimalarial drugs same day/next day	Percentage who sought treatment from a facility/provider same day/next day	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Age (in months)							
<12	12.7	431	38.2	27.1	22.2	36.9	59
12–23	19.7	441	41.1	44.2	26.0	33.8	94
24–35	18.8	383	40.3	41.5	24.8	33.8	81
36–47	21.1	351	29.5	30.3	21.2	20.9	84
48–59	13.4	367	24.5	41.4	34.2	37.0	56
Sex							
Female	17.3	1019	36.2	36.9	24.8	29.9	193
Male	16.9	954	34.7	37.9	25.7	33.9	181
Designation							
Urban	12.4	398	31.8	36.2	21.5	29.4	53
Rural	18.4	1575	36.2	37.6	25.9	32.3	321
Province							
Central	3.4	163	*	*	*	*	*
Copperbelt	18.7	230	39.6	35.8	20.1	30.5	51

continued

Table 13. Prevalence and prompt treatment of fever among children

Children under age five years with fever in the two weeks preceding the survey, and among children with fever, percentage who took antimalarial drugs and who took the drugs the same/next day, by background characteristics (Zambia 2015).

Background characteristic	Percentage of children with fever in last two weeks	Number of children under age five years	Among children with fever:				Number of children with fever
			Percentage who reported having finger or heel stick	Percentage who took antimalarial drugs	Percentage who took antimalarial drugs same day/next day	Percentage who sought treatment from a facility/provider same day/next day	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Eastern	16.7	155	*	*	*	*	*
Luapula	23.2	443	33.0	47.7	30.7	27.3	120
Lusaka	13.1	174	*	*	*	*	*
Muchinga	16.2	126	*	*	*	*	*
Northern	10.3	145	*	*	*	*	*
North-Western	14.1	119	*	*	*	*	*
Southern	12.3	197	*	*	*	*	*
Western	30.1	221	25.7	28.1	20.3	33.5	62
Wealth index							
Lowest	23.8	415	39.8	40.4	25.2	19.1	103
Second	20.0	445	40.2	43.8	32.3	38.6	98
Middle	15.7	398	36.9	31.0	19.5	29.5	68
Fourth	14.2	353	30.8	41.3	29.7	38.4	56
Highest	11.8	362	22.1	23.1	14.3	38.5	49
Total	17.1	1973	35.5	37.3	25.2	31.8	374

Table 14. Type and timing of antimalarial drugs

Among children under age five years with fever in the two weeks preceding the survey, percentage who took first-line drug, second-line drug, or other antimalarial drugs and percentage who took each type of drug the same/next day after developing fever and/or convulsions, by background characteristics (Zambia 2015).

	Percentage of children who took drug				Percentage of children who took drug same/next day				
Background characteristic	Coartem®[1]	SP[1]	Quinine	Other antimalarial	Coartem®	SP	Quinine	Other antimalarial	**Number of children with fever**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Age (in months)									
<12	19.6	0.0	4.0	3.6	18.3	0.0	4.0	0.0	59
12–23	44.2	0.0	0.0	0.0	26.0	0.0	0.0	0.0	94
24–35	40.1	0.0	0.0	1.4	23.3	0.0	0.0	1.4	81
36–47	29.8	0.0	0.5	2.1	20.7	0.0	0.5	0.0	84
48–59	31.9	0.0	9.4	0.0	27.6	0.0	6.5	0.0	56
Designation									
Urban	32.6	0.0	0.0	6.7	21.5	0.0	0.0	0.0	53
Rural	34.7	0.0	2.5	0.4	23.6	0.0	2.0	0.4	321
Province									
Central	*	*	*	*	*	*	*	*	*
Copperbelt	35.8	0.0	0.0	3.8	20.1	0.0	0.0	0.0	51
Eastern	*	*	*	*	*	*	*	*	*
Luapula	44.0	0.0	0.8	2.9	29.0	0.0	0.8	1.0	120
Lusaka	*	*	*	*	*	*	*	*	*
Muchinga	*	*	*	*	*	*	*	*	*
Northern	*	*	*	*	*	*	*	*	*

continued

Table 14. Type and timing of antimalarial drugs

Among children under age five years with fever in the two weeks preceding the survey, percentage who took first-line drug, second-line drug, or other antimalarial drugs and percentage who took each type of drug the same/next day after developing fever and/or convulsions, by background characteristics (Zambia 2015).

	Percentage of children who took drug				Percentage of children who took drug same/next day				
Background characteristic	Coartem®[1]	SP[1]	Quinine	Other antimalarial	Coartem®	SP	Quinine	Other antimalarial	**Number of children with fever**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
North-Western	*	*	*	*	*	*	*	*	*
Southern	*	*	*	*	*	*	*	*	*
Western	28.1	0.0	0.0	0.0	20.3	0.0	0.0	0.0	62
Total	34.4	0.0	2.1	1.4	23.2	0.0	1.7	0.3	374

[1]Coartem® is artemether-lumefantrine (ART-LUM); SP is sulfadoxine-pyrimethamine.

Table 15. Source of antimalarial drugs
Percent distribution of antimalarial drugs given to children under age five years with fever in the two weeks preceding the survey, by source of the drugs (Zambia 2015).

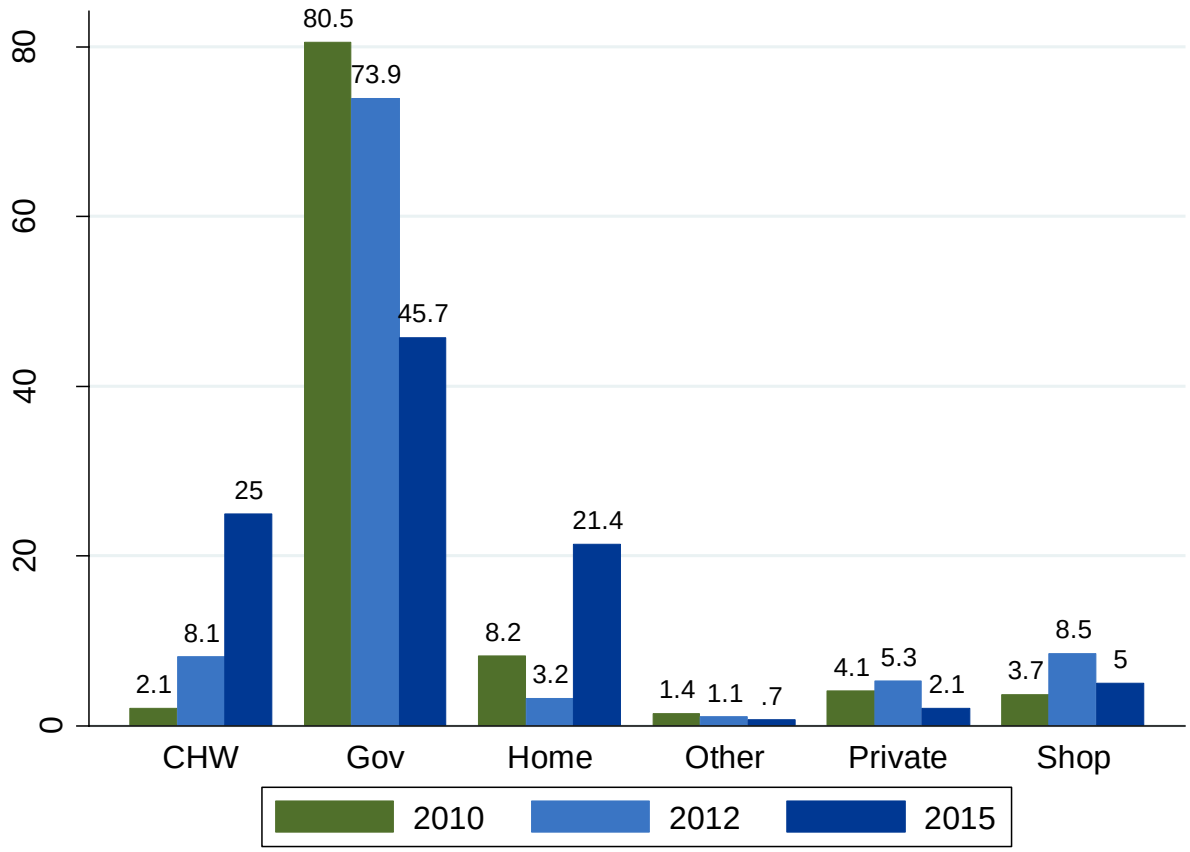
Background characteristic	Already had drug at home	Community health worker	Government health facility/ worker	Private health facility/ worker	Shop	Other	Total	Number of children who took drug
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Coartem®	20.9	25.6	45.7	2.3	4.7	0.8	100	129
Quinine	*	*	*	*	*	*	*	*
Other antimalarial	*	*	*	*	*	*	*	*
All antimalarial drugs	21.4	25.0	45.7	2.1	5.0	0.7	100	140

Note: Table excludes children whose fever started less than two days before the interview. SP is sulfadoxine-pyrimethamine.

* Figure is based on fewer than 25 cases and has been suppressed.

In **Figure 7**, the change in source of anti-malarial treatment over time can be seen. Most notable here is the shift towards acquiring anti-malarials from the CHWs. This represents a success in Zambia's decentralization of malaria care, with steady increases since 2010. Conversely, the contribution of government health facilities has declined, although government centres remain the largest source, providing 45.7% of all anti-malarials. More people reported already having ACTs at home this year, suggesting there is increasing stockpiling of medicines.

Figure 7. Source of anti-malarial drugs over time, children under age five years (Zambia 2010–2015)



Chapter 4: Malaria parasite and anaemia prevalence

Table 16 shows malaria parasite prevalence and anaemia in children. Malaria prevalence in Zambia was measured by both malaria rapid diagnostic test (RDT) and slide microscopy during the 2015 MIS. Malaria slide results show higher prevalence in older children than younger children, however prevalence was similar among boys and girls. Rural areas of Zambia reported much higher levels of malaria than urban areas. Children in the highest wealth category were least likely to test positive while the lowest wealth categories were most likely to test positive.

By province, Luapula reported the highest level of malaria prevalence, with 32.5% of children testing slide positive. Muchinga, Northern, and North-Western provinces reported the next highest levels of slide prevalence with 31.4%, 27.6% and 22.6%, respectively. Lusaka and Southern provinces reported the lowest levels of slide-positive children with less than 3% RDT positivity. Over time, North-Western Province has reported a large increase in slide prevalence, from 2010 to 2012 and on to 2015 (Figure 12). This contrasts with the situation in Eastern and Southern provinces which reported a decline between 2012 and 2015.

Anaemia and severe anaemia were measured in the 2015 MIS in both children and women of reproductive age. Children 6–11 months of age had the highest levels of severe anaemia (11.3%) followed by children 24–35 months old (9.1%). By age four, children reported the lowest level of severe anaemia. These numbers suggest an increase in severe anaemia amongst children under 12 months of age, rising from 7.2% in 2012 to 9.5% in 2015 (Figure 10).

Males had slightly higher levels of severe anaemia than females and rural areas had more severe anaemia than urban areas among children. Luapula and North-Western provinces reported the highest levels of severe anaemia among children. Southern Province had by far the lowest rates of anaemia with only 1.5% of the 281 children there testing positive. Looking over time, North-Western Province reported an increase in severe anaemia between 2012 and 2015. Eastern, Central and Western provinces all reported declines in severe anaemia between 2012 and 2015, while this trend extends back to 2010 for Luapula, Northern, and Southern provinces (Figure 15).

Table 16. Malaria parasite prevalence and anaemia in children under age five years
Among children, percentage with malaria parasites by microscopy (and who tested RDT-positive), mean haemoglobin (Hb) values, standard deviation of haemoglobin values, and percentage with any anaemia (less than 11 grams/decilitre) and severe anaemia (less than 8 grams/decilitre), by background characteristics (Zambia 2015).

Background characteristic	Percentage with malaria parasites read by microscopy	Percentage with malaria parasites by RDT	Mean haemoglobin value	Standard error of haemoglobin	Percentage of children with any anaemia	Percentage of children with severe anaemia	Number of children
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Age (in months)							
<6	3.7	6.8	10.5	1.7	62.0	3.6	86
6-11	12.9	20.7	9.7	1.5	83.1	11.3	284
12–23	15.1	24.6	10.2	1.5	71.2	6.9	592
24–35	22.0	33.6	10.3	1.7	62.5	9.1	605
36–47	22.9	36.2	10.8	1.6	52.4	3.9	551
48–59	23.5	37.2	11.1	1.5	43.1	3.8	609
Sex							
Female	18.4	29.5	10.6	1.6	57.5	5.3	1437
Male	20.5	32.0	10.4	1.7	63.4	7.7	1290
Designation							

continued

Table 16. Malaria parasite prevalence and anaemia in children under age five years

Among children, percentage with malaria parasites by microscopy (and who tested RDT-positive), mean haemoglobin (Hb) values, standard deviation of haemoglobin values, and percentage with any anaemia (less than 11 grams/decilitre) and severe anaemia (less than 8 grams/decilitre), by background characteristics (Zambia 2015).

Background characteristic	Percentage with malaria parasites read by microscopy	Percentage with malaria parasites by RDT	Mean haemoglobin value	Standard error of haemoglobin	Percentage of children with any anaemia	Percentage of children with severe anaemia	Number of children
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Urban	6.0	12.8	10.8	1.5	52.1	3.6	520
Rural	23.0	35.5	10.4	1.6	62.5	7.2	2207
Province							
Central	13.8	16.9	10.8	1.5	50.6	4.3	203
Copperbelt	15.2	26.2	10.5	1.6	64.1	5.3	316
Eastern	12.7	21.2	10.5	1.5	59.4	6.1	229
Luapula	32.5	55.5	10.3	1.7	63.9	8.8	562
Lusaka	2.4	3.5	10.8	1.6	55.2	4.6	198
Muchinga	31.4	35.6	10.5	1.7	55.2	7.7	181
Northern	27.6	43.8	10.3	1.7	63.6	7.6	293
North-Western	22.6	40.6	10.3	1.6	65.0	9.5	227
Southern	0.6	1.5	10.9	1.3	52.2	1.5	281
Western	15.6	21.3	10.5	1.5	63.5	5.3	237
Wealth index							
Lowest	32.6	50.8	10.3	1.6	63.7	7.9	563
Second	24.2	42.0	10.2	1.7	64.7	9.2	626
Middle	19.7	32.4	10.5	1.7	59.7	8.2	560
Fourth	14.3	20.0	10.6	1.5	60.9	3.5	520
Highest	5.6	6.9	10.9	1.5	51.6	3.0	458
Total	19.4	30.7	10.5	1.6	60.3	6.4	2727

Chapter 5: General malaria knowledge

Table 17 shows malaria knowledge amongst women ages 15 to 49. Overall, the vast majority of women had heard of malaria (94.5%) and a similar percentage understood that nets were used for the prevention of malaria (91.3%). Education was the best predictor for knowledge of prevention and treatment and those who reported no education scored the lowest in almost all knowledge categories. Interestingly, fewer people overall understood that mosquito bites were the cause of malaria (85.3%). This suggests that some people understand malaria as a disease and understand how to avoid it but do not understand that it is caused by mosquito bites. This may be due to communication campaigns which have traditionally emphasized the use of ITNs without explaining that ITNs work through elimination of mosquitoes and reducing biting. Future communications campaigns could focus on providing details on the connection between mosquito bites and malaria so that individuals understand the reason for sleeping under an ITN.

The connection between fever and malaria was well understood. In total, 79.7% of people reported fever as a symptom of malaria. This varied a bit by province, with only 64.5% of people in Southern Province reporting fever as a symptom of malaria and fully 94.7% reporting the same in North-Western. This could potentially be due to the different malaria prevalences in the different provinces. In areas with lower malaria prevalence, a smaller percentage of fevers will be due to malaria and therefore people might not understand the relationship as well. Communication campaigns will need to address this carefully, explaining that fever is often a symptom of malaria but that it can also be caused by other diseases.

Knowledge of the CHW and their role was fairly high among women surveyed, at 40.2% overall. This question assessed whether the respondents knew the location of the CHW and at least one activity that they perform, such as providing anti-malarials. The percentage aware of their CHW was much greater in rural areas (45.6%) than in urban areas (26.1%) and was highest in Luapula province. CHWs have taken on an increasing role in Zambia and it is encouraging that many people know about them.

Table 17. General malaria knowledge

Among eligible women ages 15 to 49 years, the percentage who reported having heard of malaria, recognized fever as a symptom of malaria, reported mosquito bites as a cause of malaria, and reported mosquito nets (treated or untreated) as a prevention method for malaria, by background characteristics (Zambia 2015).

Background characteristic	Percentage who had heard of malaria	Percentage who recognized fever as a symptom of malaria	Percentage who reported mosquito bites as a cause of malaria	Percentage who reported mosquito nets as a prevention method	Percentage who know location and role of CHW in their community	Number of women
	(1)	(2)	(3)	(4)	(5)	(6)
Designation						
Urban	94.6	82.4	89.9	91.1	26.1	766
Rural	94.5	78.7	83.8	91.4	45.6	2296
Province						
Central	97.1	89.2	94.3	97.1	38.5	245
Copperbelt	97.6	75.6	87.4	94.4	27.0	382
Eastern	93.4	80.5	80.5	90.2	39.7	315
Luapula	94.1	77.6	82.4	90.7	61.4	592
Lusaka	87.5	74.3	77.7	84.1	19.3	289
Muchinga	94.5	92.0	89.9	91.8	28.9	201
Northern	95.2	73.8	76.4	83	17.7	191
North-Western	99.4	94.7	97	96.9	53	298
Southern	93.8	64.5	83.1	91.4	50.8	292

continued

Table 17. General malaria knowledge

Among eligible women ages 15 to 49 years, the percentage who reported having heard of malaria, recognized fever as a symptom of malaria, reported mosquito bites as a cause of malaria, and reported mosquito nets (treated or untreated) as a prevention method for malaria, by background characteristics (Zambia 2015).

Background characteristic	Percentage who had heard of malaria	Percentage who recognized fever as a symptom of malaria	Percentage who reported mosquito bites as a cause of malaria	Percentage who reported mosquito nets as a prevention method	Percentage who know location and role of CHW in their community	Number of women
	(1)	(2)	(3)	(4)	(5)	(6)
Western	93.5	81.4	90.3	93.5	38.7	257
Wealth index						
Lowest	92.8	78.5	76.9	86.9	44.6	522
Second	93.4	78.7	83.2	90.4	47.8	556
Middle	96.2	78.4	85.5	92.7	51.7	571
Fourth	94.3	79.5	85.8	90.3	39.7	640
Highest	95.2	82.0	91.0	94.1	26.4	773
Education						
None	89.3	80.0	74.6	84.3	40.2	375
Primary	94.2	77.1	82.0	90.1	44.8	1548
Secondary	96.3	81.6	92.5	94.6	34.3	1033
Higher	99.0	95.1	98.3	99.0	37.5	105
Total	94.5	79.7	85.4	91.3	40.2	3062

Figure 8 presents the responses most often reported as methods of prevention of malaria. More women ages 15 to 49 years (66.2%) reported use of a mosquito net for malaria prevention, followed by use of a treated mosquito net (38.2%). Having their house sprayed and cleaning the area surrounding the home were next most often reported malaria prevention methods. Other options that received less than 1% of responses are not depicted on the graph, include burning leaves, not getting soaked during rainfall and using window screens.

Figure 8. Among women ages 15 to 49 years, knowledge of malaria prevention methods (Zambia 2015)

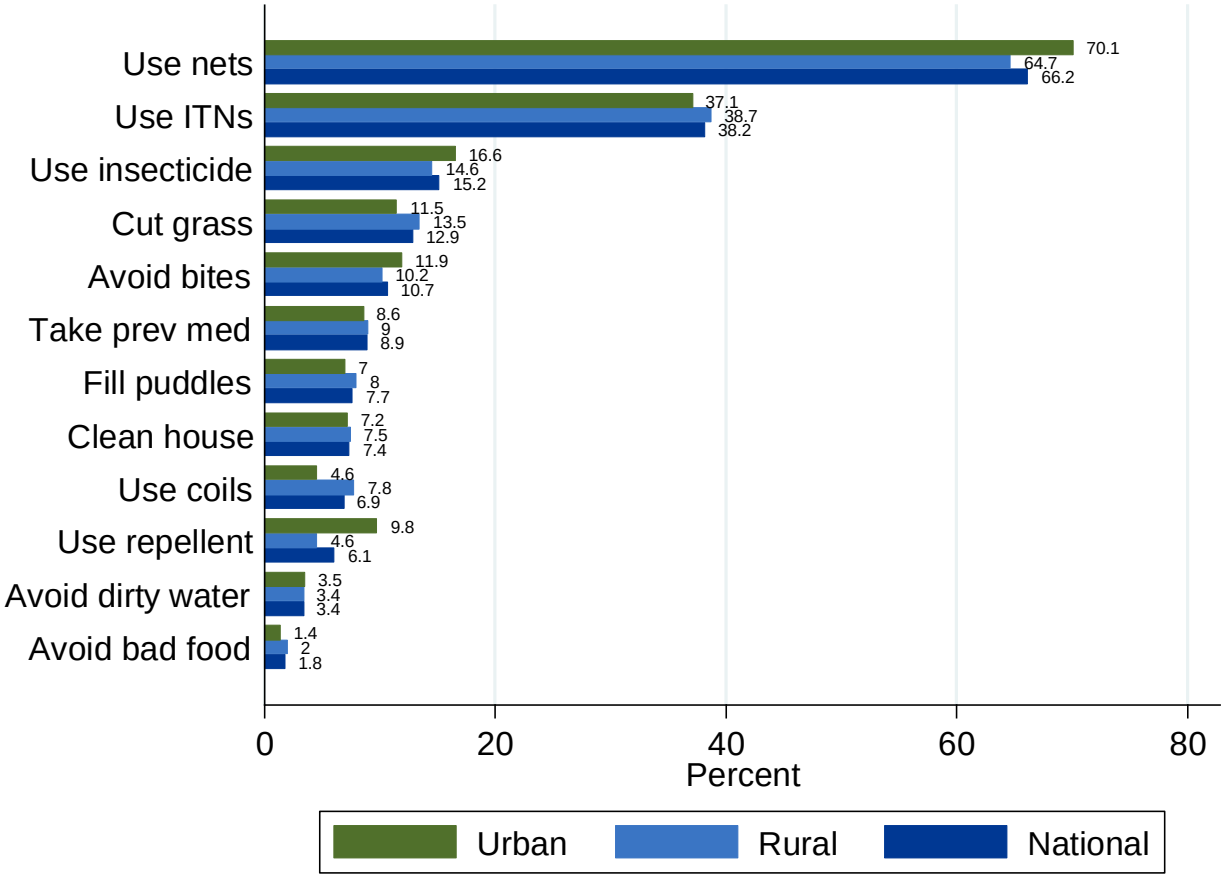


Table 18 presents information on exposure to malaria messages among women ages 15 to 49 years. In total, 60.6% of women reported hearing a message about malaria, with notable variation by province and by education level. Over half (51.0%) of women reported hearing a message from government hospitals or clinics. Community health workers were also a common source for messaging. This was particularly true in rural areas where 15.0% of people reported hearing a message from a CHW, compared to 9.3% in urban areas. When asked about the content of the messages seen or heard, 28.8% reported seeing or hearing messages about the importance of sleeping under mosquito nets, a decrease from the 2012 MIS.

The fairly low rates of reported messaging suggest that people need to be reached in new ways. It is worth noting that nearly half of households own a phone now, so mobile messaging may be an option (Table 4). Radio clips and short videos also could be used. Formative assessments are needed to determine the most effective message delivery channels.

Table 18. Malaria messaging through information, education and communication strategies
Among eligible women ages 15 to 49 years who reported hearing a malaria message, the average number of months ago the messages were heard, the percentage who reported a government hospital/clinic as the source of the malaria message, and the percentage who reported seeing/hearing a message about the importance of sleeping under a mosquito net, by background characteristics (Zambia 2015).

Background characteristic	Percent who reported hearing any message	Percentage who reported government hospital/clinic as the source of malaria message	Percentage who reported CHW as the source of malaria message	Percentage who reported seeing/hearing a message about the importance of sleeping under a mosquito net	Number of women
	(1)	(2)	(3)	(4)	(5)
Designation					
Urban	66.7	50.2	9.3	30.2	766
Rural	58.3	51.3	15.0	28.3	2296
Province					
Central	62.8	55.8	4.2	30.4	245
Copperbelt	61.3	49.5	5.9	38.6	382
Eastern	70.4	62.2	12.8	43.6	315
Luapula	44.7	36.4	17.0	21.1	592
Lusaka	58.7	34.7	2.9	19.3	289
Muchinga	88.5	68.1	7.9	14.8	201
Northern	37.1	31.5	6.1	14.1	191
North-Western	68.3	65.7	52.1	50.9	298
Southern	66.9	63.6	10.4	24.0	292
Western	66.9	64.0	3.6	27.4	257
Wealth index					
Lowest	42.8	40.1	12.4	21.7	522
Second	55.3	50.1	17.5	23.8	556
Middle	62.1	57.2	17.6	28.7	571
Fourth	60.7	52.4	13.3	28.6	640
Highest	72.3	52.3	9.1	35.8	773

continued

Table 18. Malaria messaging through information, education and communication strategies
Among eligible women ages 15 to 49 years who reported hearing a malaria message, the average number of months ago the messages were heard, the percentage who reported a government hospital/clinic as the source of the malaria message, and the percentage who reported seeing/hearing a message about the importance of sleeping under a mosquito net, by background characteristics (Zambia 2015).

Background characteristic	Percent who reported hearing any message	Percentage who reported government hospital/clinic as the source of malaria message	Percentage who reported CHW as the source of malaria message	Percentage who reported seeing/hearing a message about the importance of sleeping under a mosquito net	Number of women
	(1)	(2)	(3)	(4)	(5)
Education					
None	44.2	37.1	9.0	8.8	375
Primary	56.2	50.4	14.3	27.8	1548
Secondary	69.2	55.8	13.3	34.6	1033
Higher	89.9	57.9	17.9	52.6	105
Total	60.6	51.0	13.4	28.8	3062

Chapter 6: Comparison of malaria indicator survey results, 2006–2015

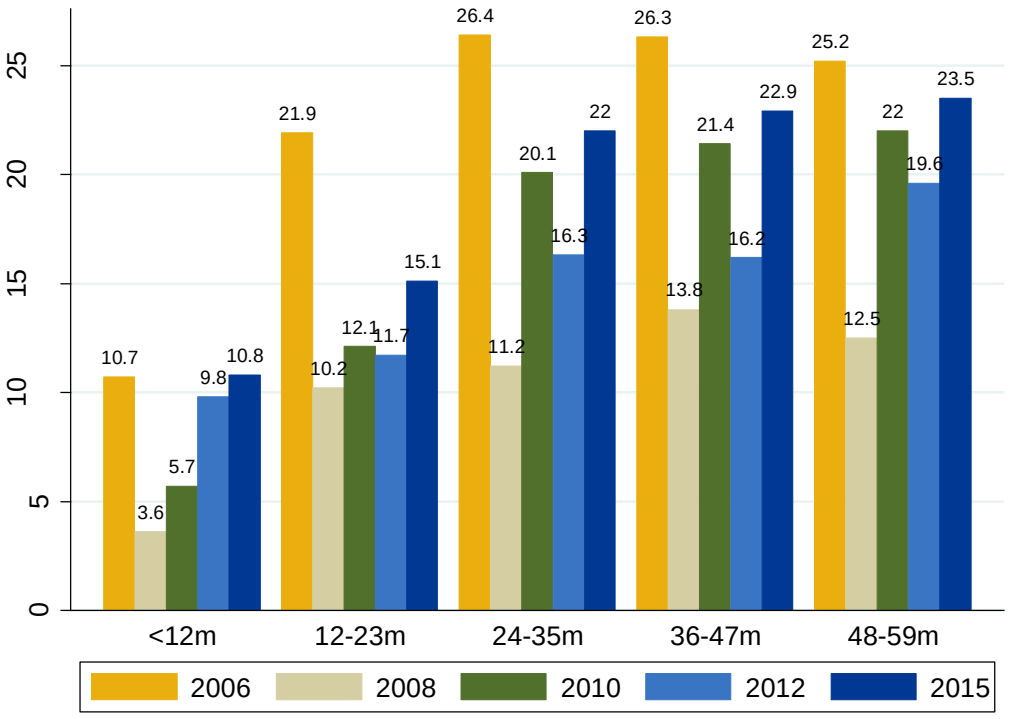
Comparison to prior malaria indicators surveys

The malaria indicator surveys were established in 2006 to provide regular updates on progress against malaria. The surveys are purposefully kept in the same format year-to-year to allow for comparisons across time. The following section provides a description of how the NMCP in Zambia has been successful and where it continues to face challenges based on the results of the previous years of surveys. In particular, changes over time can be seen in malaria parasitaemia, severe anaemia, IRS, and the coverage and usage of ITNs.

Malaria parasite and severe anaemia prevalence

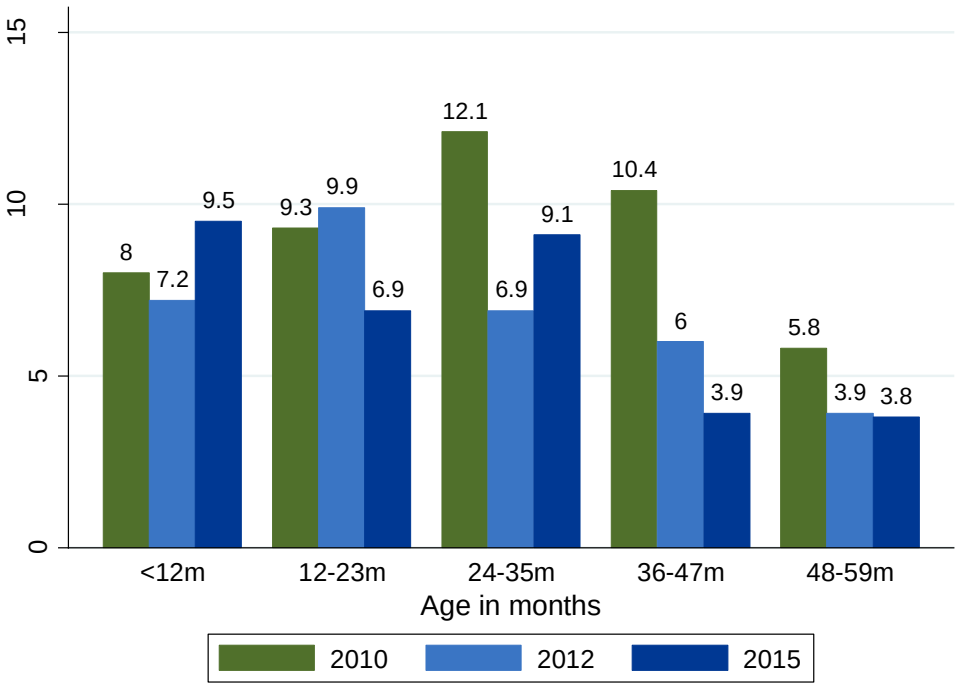
Malaria parasite prevalence, as measured by slide microscopy, and severe anaemia (Hb<8 g/dl) have changed quite dramatically across the surveys conducted. Overall, malaria parasite prevalence by microscopy was found to be 16.0%, 14.9%, 19.4% in 2010, 2012, and 2015 respectively while severe anaemia prevalence was found to be 9.0%, 6.8%, and 6.4% in 2010, 2012, and 2015, respectively. The decreasing anaemia rates during this period are encouraging and suggest that chronic infection with malaria is being reduced. Malaria parasite rates typically increase with increasing age in the first five years of life. **Figure 9** shows this pattern has been consistent since 2006. Notable is that cases of malaria seem more evenly spread across children ages two to five, rather than peaking at four or five as in previous years.

Figure 9. Malaria parasite prevalence by age among children under age five years (Zambia 2006–2015)



Across the recent surveys, among children under age five, severe anaemia prevalence generally declined (**Figure 10**). However, an increase in anaemia was seen among children <12 months and in children 24-35 months. This could be due to small sample size, with 375 children <12 months & 609 in the 24-35 month category. Other age categories reported a decline.

Figure 10. Severe anaemia prevalence (Hb <8 g/dl) by age among children under age five years (Zambia 2010–2015)



By geographic residence, malaria parasite prevalence continues to be far more of an issue in rural areas. **Figure 11** shows rural and urban prevalence since 2010. From 2006 to 2015, national malaria rates fell from 22.1 to 19.4. However, the prevalence of 19.4% does represent an increase from 2008, 2010, and 2012.

Figure 11. Malaria parasite prevalence among children under age five years by urban and rural areas (Zambia 2006–2015)

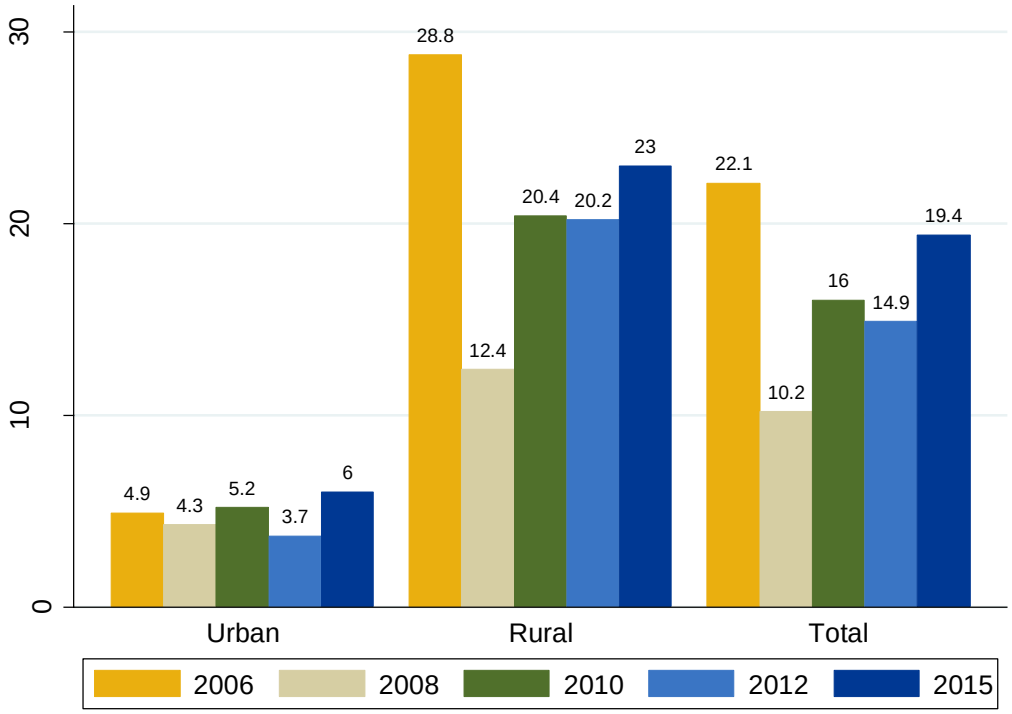
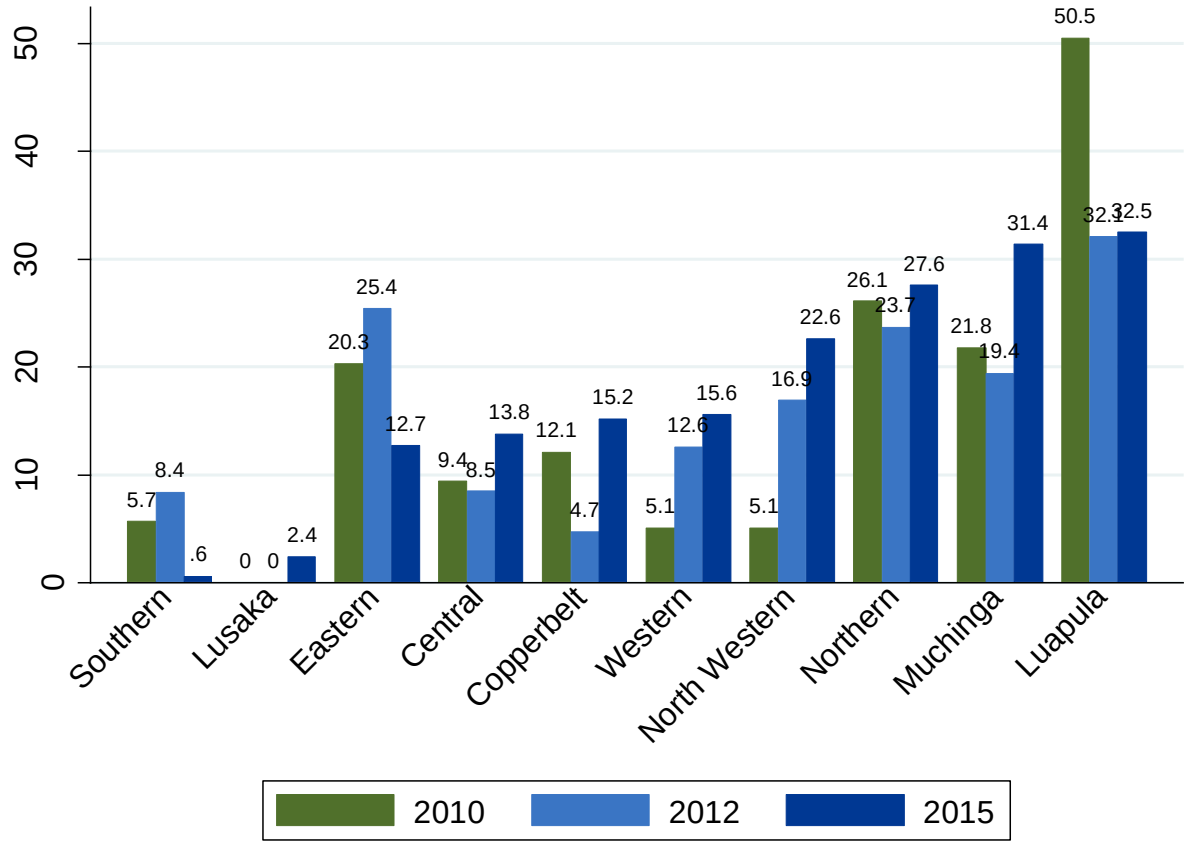


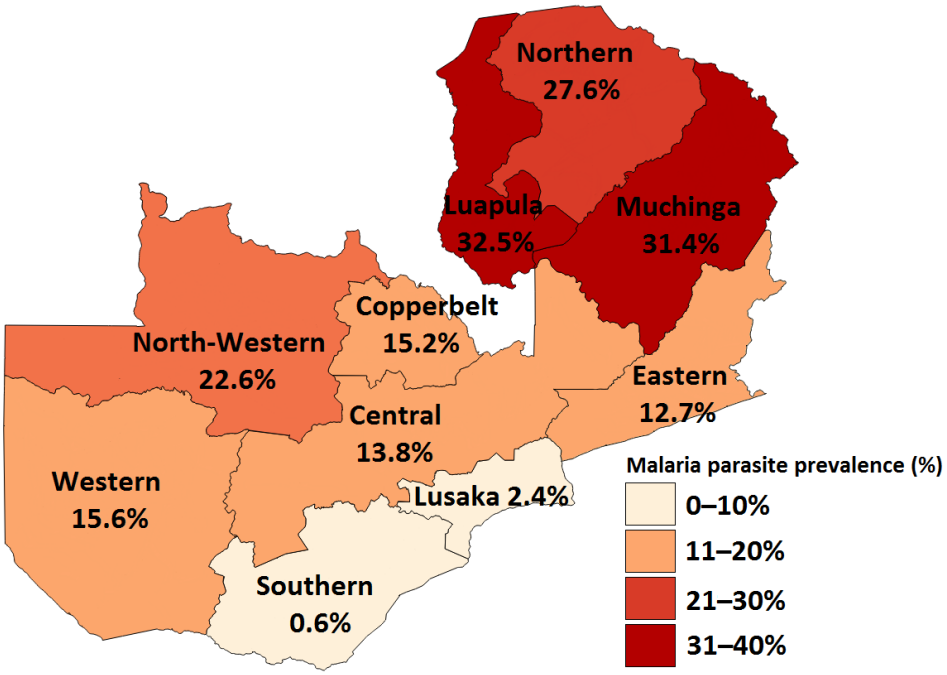
Figure 12 shows malaria parasite prevalence by microscopy patterns across the ten provinces in Zambia. Lusaka Province has had quite low levels of transmission and this has stayed very low and stable over the last several years. Southern has recently succeeded in reducing their malaria rates to similar amounts as those in Lusaka, 0.6% in 2015, down from 8.4% in 2012. This reduction is likely due to the mass drug administration efforts being carried out in large parts of Southern Province. Another notable decline was in Eastern, which also reported the most dramatic increase in IRS and highest level of IRS coverage (56.0%). Many provinces reported an increase from 2012 to 2015, Muchinga and Copperbelt being particularly worrisome.

Figure 12. Malaria parasite prevalence among children under age five years, by province (Zambia 2010–2015)



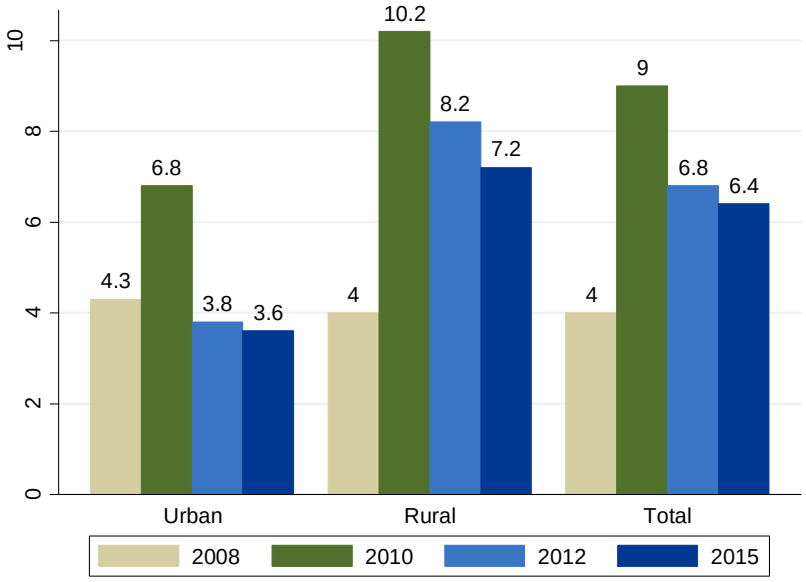
The distribution of malaria is shown in vivid color in **Figure 13**. A few patterns are notable here. First, as mentioned before, is the large decline in Southern province, the result of intensive malaria elimination activities there. Second, malaria remains highest in the farthest north provinces: Luapuala, Muchinga and Northern. In moving towards elimination, Zambia may consider eliminating in lower prevalence provinces first and slowly moving north.

Figure 13. Map showing percentage malaria parasite prevalence by province among children under age five years (Zambia 2015)



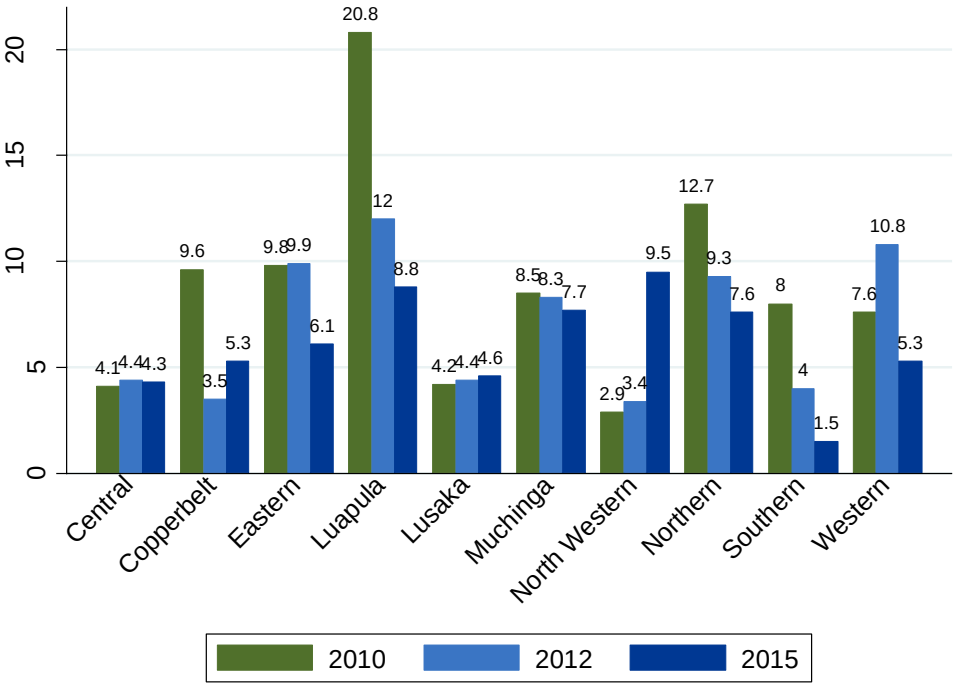
Severe anaemia prevalence has exhibited a geographic pattern similar to malaria parasite prevalence across the four surveys. Severe anaemia was much more prevalent in rural areas and, despite the apparent anomaly year in 2008, both urban and rural areas reported a consistent decline across 2010 to 2015 (**Figure 14**).

Figure 14. Severe anaemia prevalence among children under age five years by urban and rural areas (Zambia 2008–2015)



Among provinces, North-Western showed a worrisome spike. Eastern and Southern both had declines, consistent with their decreases in malaria prevalence. Many other provinces also achieved declines from 2012 (**Figure 15**). The declines in anaemia are encouraging, considering the slight increase in malaria prevalence over this period. It is possible that the declines in anaemia are due to lower chronic infection.

Figure 15. Severe anaemia prevalence among children under age five years by province (Zambia 2010–2015)



The trends in wealth quintile (**Figure 16**) demonstrate that malaria remains a disease heavily influenced by socioeconomic background. Trends across the years were not entirely clear and it does not yet appear that

malaria is being more successfully reduced in lower wealth quintiles as might be hoped from an equity standpoint. On the other hand, severe anaemia prevalence did show notable declines, particularly among the poorest. This suggests that nutrition may have improved in this group or that malaria has lessened. The reduction of anaemia in the lowest wealth quintile is an impressive feat, dropping from 14.4% in 2010 to 7.9% in 2015. (**Figure 17**).

Figure 16. Malaria parasite prevalence among children under age five years by wealth quintile (Zambia 2010–2015)

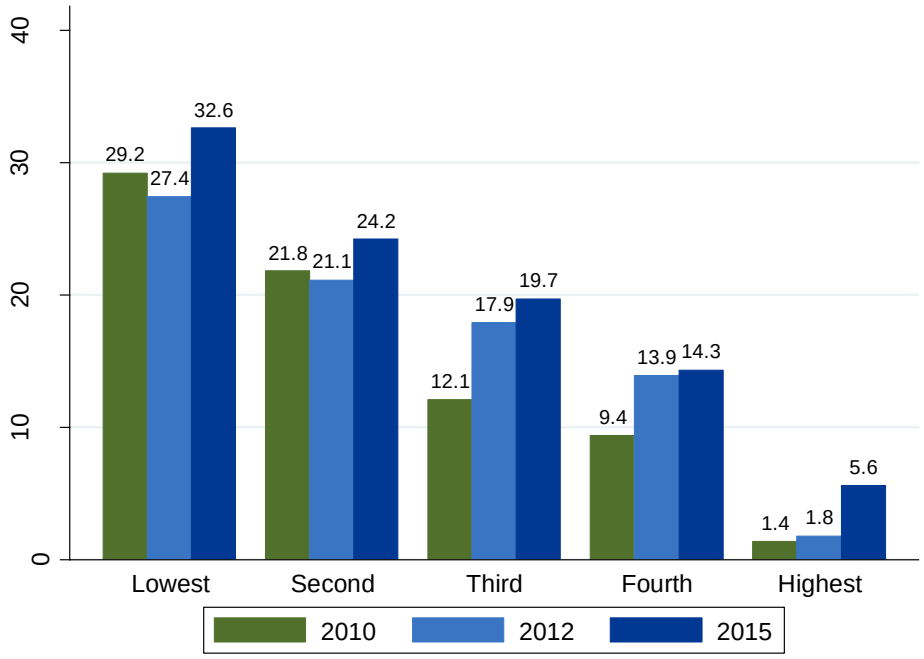
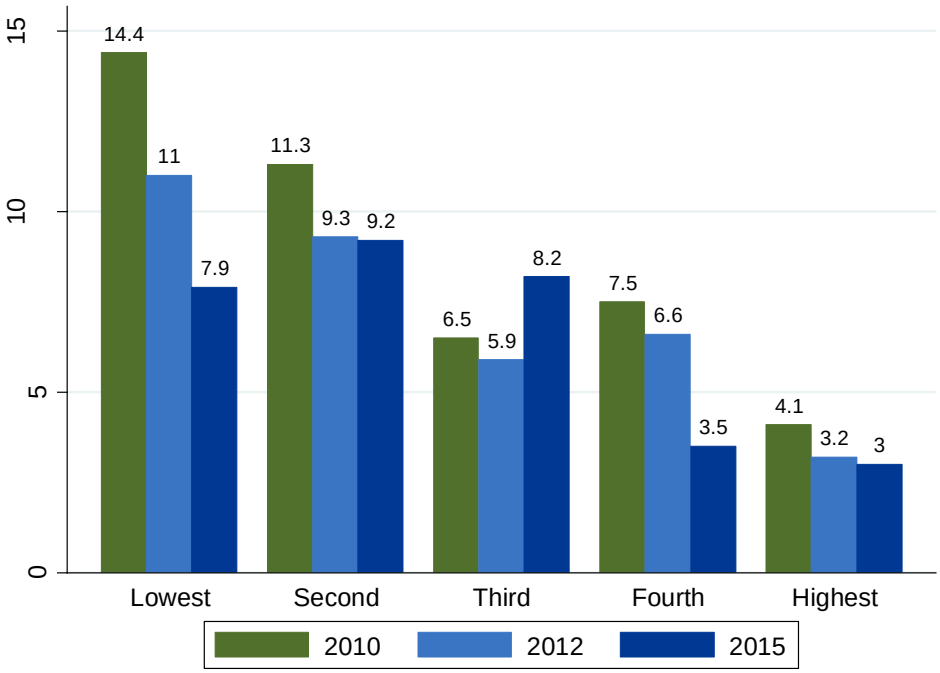


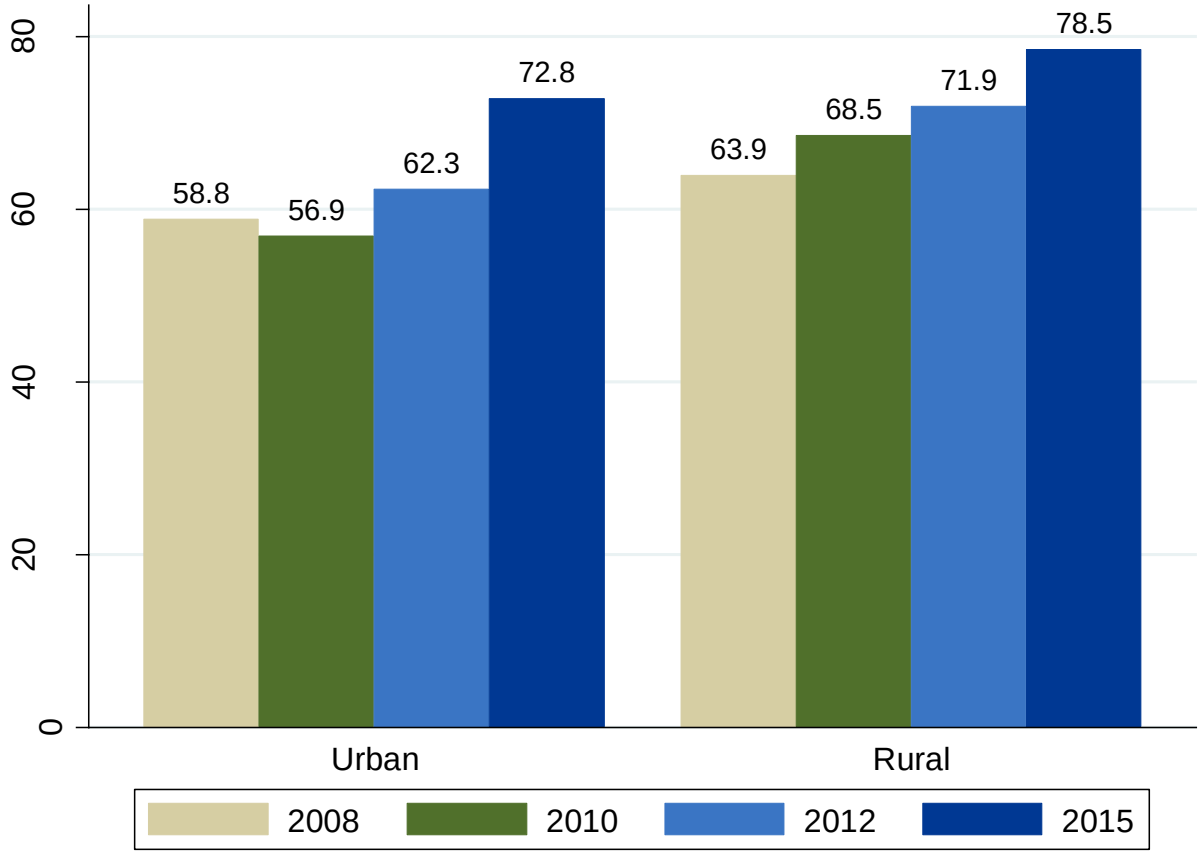
Figure 17. Severe anaemia prevalence among children under age five years by wealth quintile (Zambia 2010–2015)



Insecticide-treated mosquito net ownership

ITNs are a critical component of the malaria control programme in Zambia, serving as the primary transmission prevention intervention for rural areas where malaria is more prevalent. Since 2006, Zambia has consistently increased coverage of ITNs at the household level in rural areas with large rolling mass distributions every year. Large mass distributions were conducted in all provinces immediately prior to the 2015 MIS and this increase is notable in the graph below (**Figure 18**).

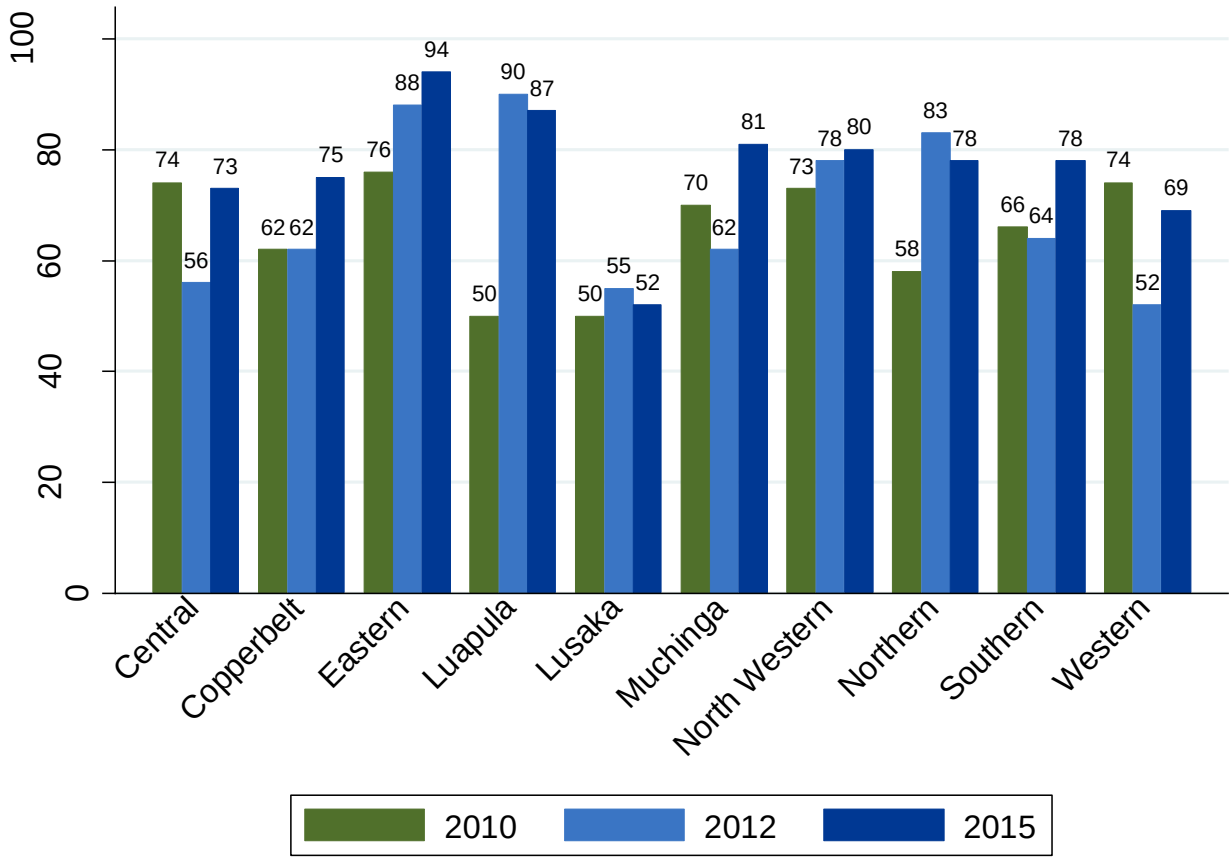
Figure 18. Household ownership of at least one insecticide-treated net by rural and urban areas (Zambia 2008–2015)



ITN ownership has varied by province in (**Figure 19**). Many provinces are now approaching 80% coverage of households with at least one ITN. Lusaka is the only province with a coverage of less than 60%. In terms of change over time, only Central Province showed a decrease from 2010 and the decrease was small. Multiple provinces showed an increase of approximately 10%.

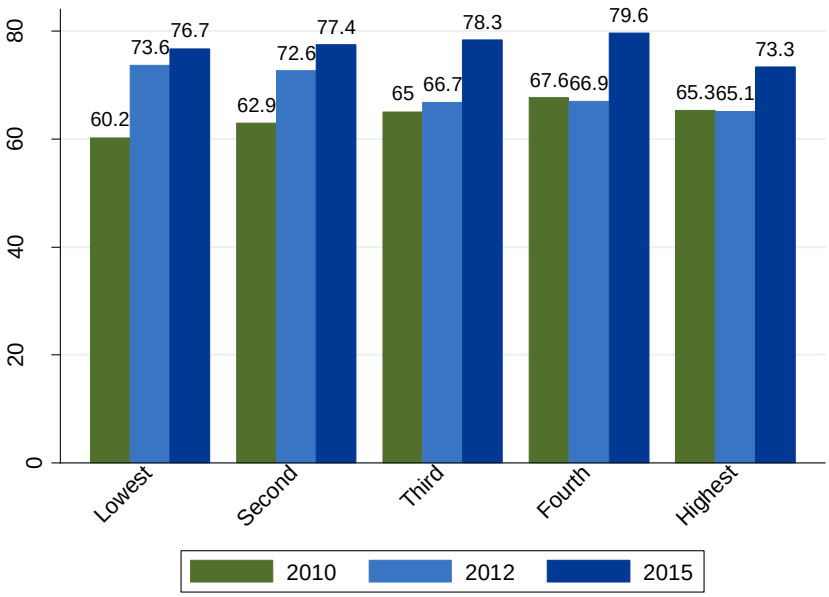
The scheduled system of rolling mass distributions for replacing ITNs is likely to continue to lead to a pattern of some areas being higher and then lower from one year to the next. The current NMSP 2011–2015 calls for a more consolidated approach to mass ITN distribution to avoid gap years in provinces and to increase coverage in more provinces during a single calendar year with measurement of progress in the immediate transmission season following the distribution.

Figure 19. Household ownership of at least one insecticide-treated net by province (Zambia 2010–2015)



Household ITN ownership is almost equal across wealth quintiles (**Figure 20**). This is in contrast to 2012, where poorer households had slightly higher ownership. The overall increase compared to previous years is a good sign but seeing larger increases in poorer households would be desirable.

Figure 20. Household ownership of at least one insecticide-treated net by wealth quintile (Zambia 2010–2015)



As households report high coverage of at least one ITN, it becomes important to look at more detailed indicators. One such indicator is full coverage availability of ITNs (i.e., a one-to-one ratio of ITNs to sleeping spaces). **Figure 21** shows continued increases in this indicator across both rural and urban areas. Among households that have ITNs, the number of households achieving full coverage—sufficient ITNs to cover all the sleeping spaces—has been substantial. This is an indication that resources to distribute ITNs are being more efficiently used per household visited. Further, this creates the potential for increasing numbers of fully protected houses, an optimal approach towards malaria reduction.

Figure 21. Percentage of households with an insecticide-treated net (ITN)-to-sleeping-space ratio of least one to one (Zambia 2008–2015)

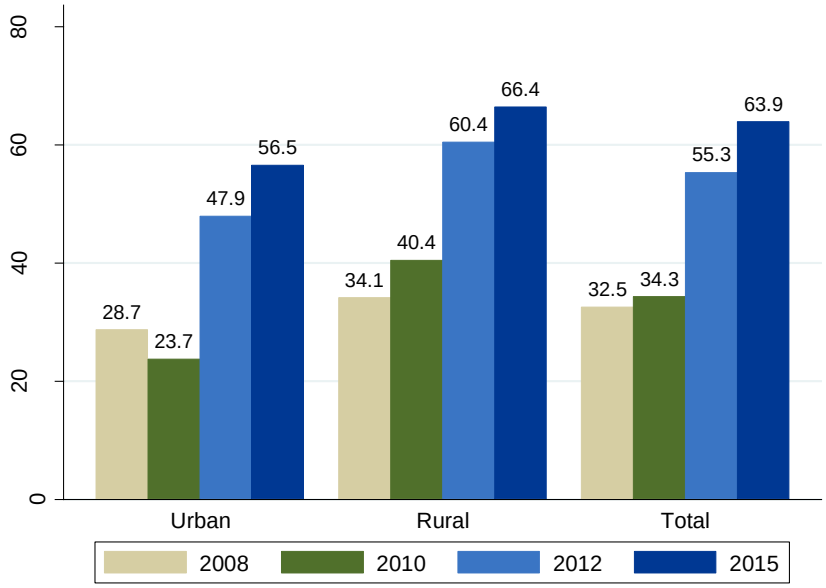
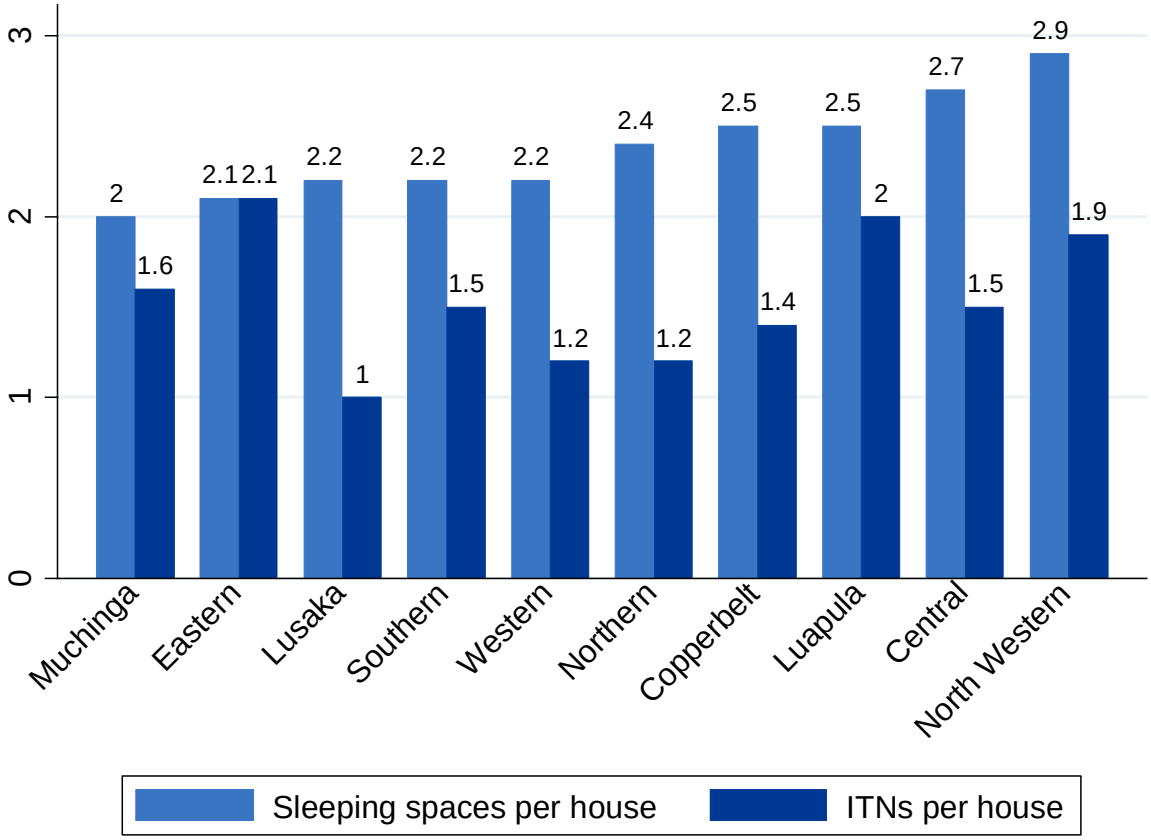


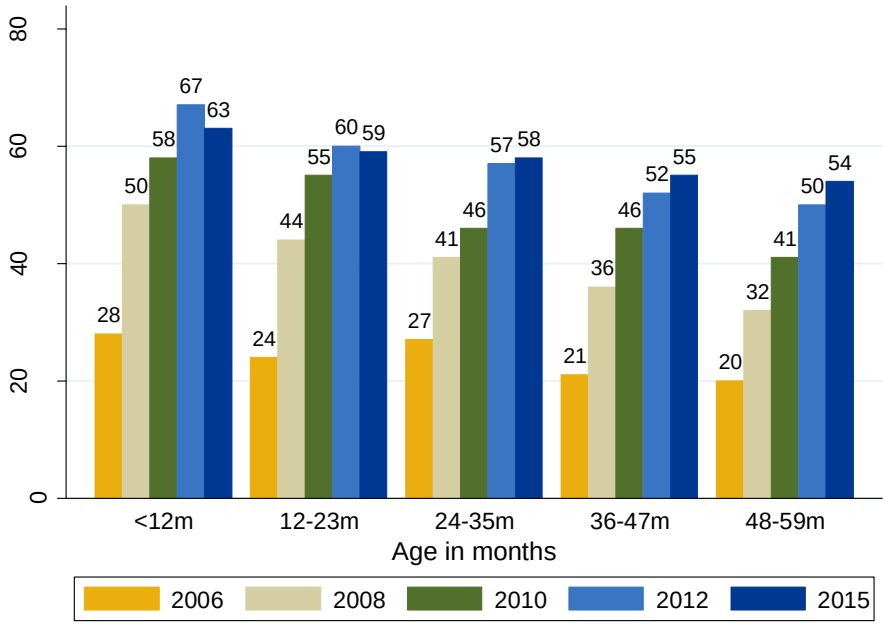
Figure 22 shows the number of ITNs per house compared to the number of sleeping spaces per house at the provincial level. Across the country, the average household had 2.4 sleeping spaces but only 1.6 ITNs, resulting in uncovered sleeping spaces. The MIS results show that people do generally sleep under an ITN when there are sufficient ITNs available in the household. Wider dispersal of ITNs would ensure a higher percentage of the population sleeping in a covered space. Eastern Province leads the way currently with 2.1 ITNs per household and 2.1 sleeping spaces per household.

Figure 22. The shortfall in full coverage of sleeping spaces by province



ITN use among Zambian children is generally increasing. The only group for whom this is not true is children under 12 months old, who showed a decline in ITN use. This is consistent with the rise in anaemia in this group and is unexplained so far. (**Figure 23**).

Figure 23. Insecticide-treated net (ITN) use by children under age five years by age (Zambia 2006–2015)



In almost all years prior to 2015, ITN use was higher among children in rural areas. This year saw a marked increase in children in urban areas using sleeping nets, bringing them almost equal with children in rural areas. Communication campaigns around net usage should take efforts to target rural areas, where ITN use is especially important. (**Figure 24**).

Figure 24. Insecticide-treated net (ITN) use by children under age five years by rural and urban areas (Zambia 2008–2015)

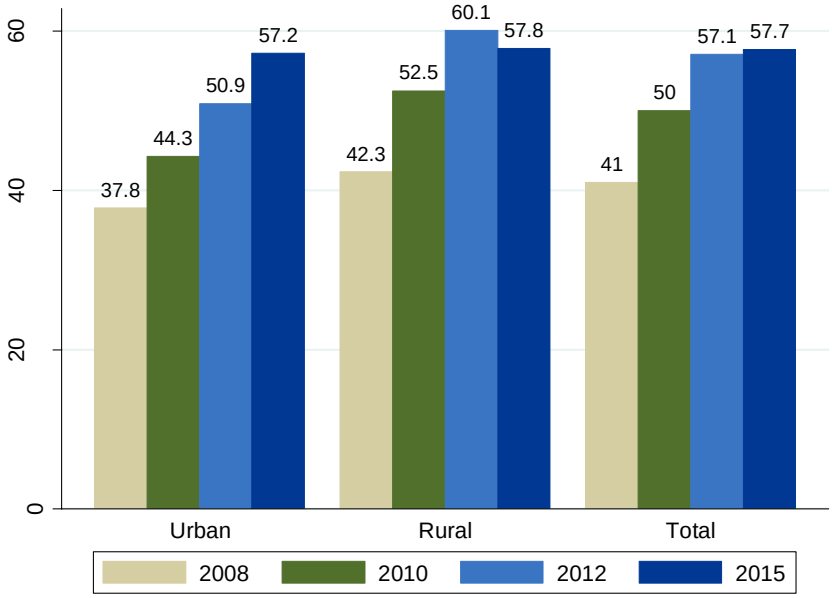


Figure 25 shows that ITN use among children has varied by province since 2010. Most provinces remained fairly constant in this variable, with gains in Southern Province in 2015 and in Northern a spike in 2012 followed by a drop in 2015. Eight of the ten Zambian provinces reported at least 50% of children sleeping under an ITN by 2015, including the areas with the highest level of malaria burden.

Figure 25. Insecticide-treated net (ITN) use by children under age five years by province (Zambia 2010–2015)

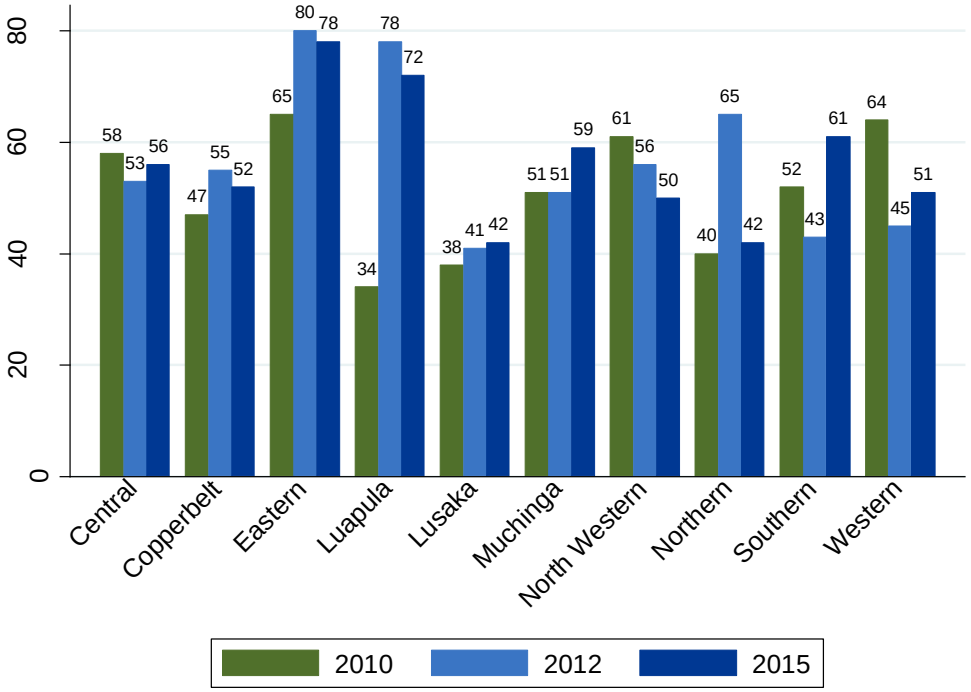
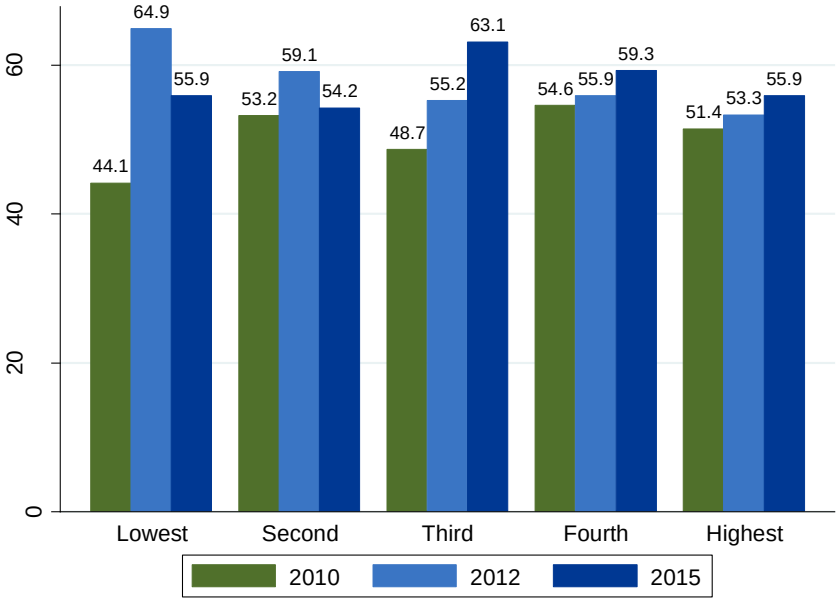


Figure 26 shows ITN use by wealth quintile. ITN use was previously the lowest in the poorest households but has increased over time, although falling a bit in 2015. ITN use is fairly constant across wealth quintiles presently.

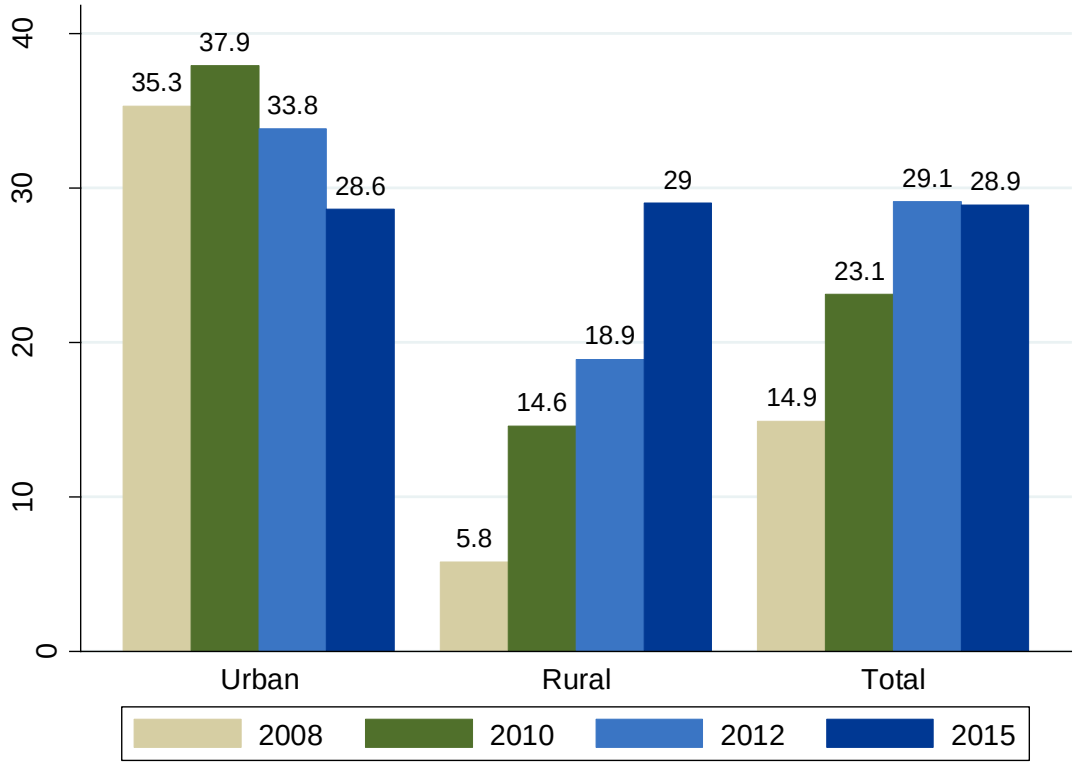
Figure 26. Insecticide-treated net (ITN) use by children under age five years by wealth quintile (Zambia 2010–2015)



Indoor residual spraying

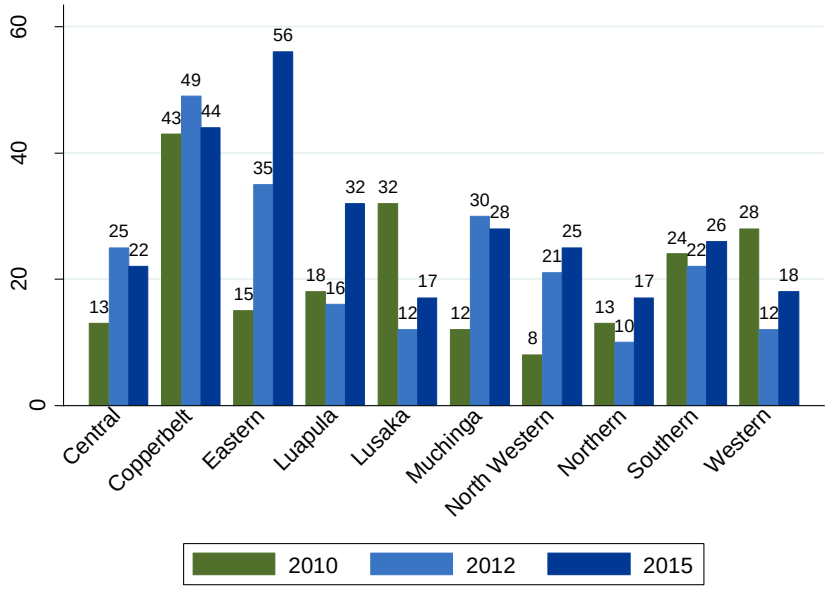
Over the last several years, Zambia has increased the number of districts where IRS is deployed—from 15 districts in 2005–2006 to all districts in the current spray season. IRS activities continue to expand within existing spray districts as funding allows and current spraying campaigns seem to have reached a similar number of households as in 2012. Although IRS initially was targeted towards urban and peri-urban areas of selected districts, since 2007 an increasing number of rural areas have also been sprayed to align service delivery better with malaria burden. Nationally, reported IRS coverage rates have increased from 14.9% in 2008 to 28.9% in 2015 (**Figure 27**). This increase is most obvious in rural areas where in 2008 very few rural households reported spraying, but, by 2015, 29.0% of households reported spraying. IRS coverage continued a slight decline in urban areas in 2015 compared to the peak in 2010 due to the prioritization of spraying in more malarious rural areas of targeted districts.

Figure 27. Households sprayed within the previous 12 months (Zambia 2008–2015)



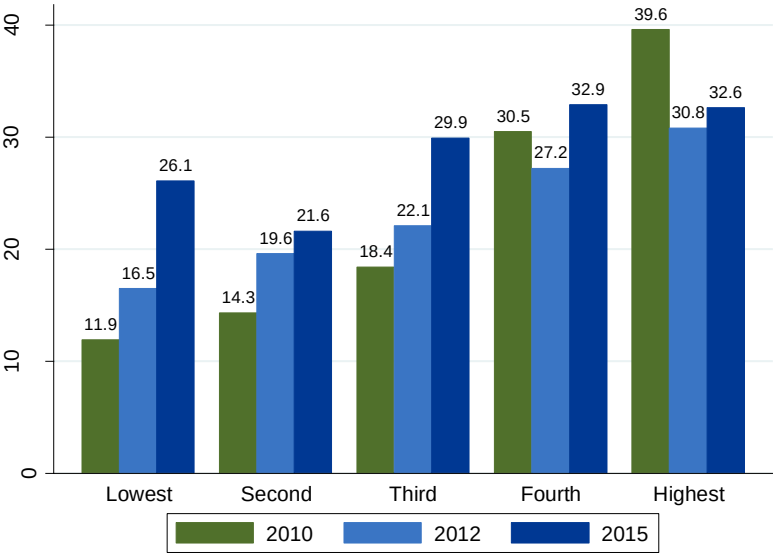
By province, IRS activities in 2015 were varied (**Figure 28**). Eastern stands out from the crowd with a dramatic increase in coverage up to 56% (the highest in the country). Many other provinces had smaller gains, including Luapula, Northern, North-Western, Southern, Lusaka, and Western. The remaining districts reported a small decrease. Most provinces had roughly 20% of households sprayed. This number is constrained by budgets but the Ministry of Health is working to target houses appropriately and reach a larger number of houses.

Figure 28. Households sprayed within the previous 12 months, by province (Zambia 2010–2015)



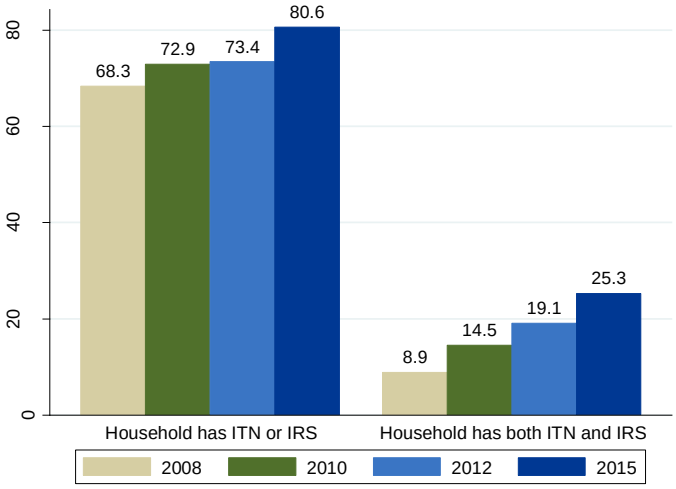
When an asset-based wealth index is considered, urban areas are more likely to account for higher wealth quintiles and therefore IRS tends to target wealthier households in urban and peri-urban areas (**Figure 29**). By wealth quintile, IRS targeted a larger share of the poorest households by 2015 than in previous years meaning that the IRS, meaning that the campaigns are doing well at moving towards equality.

Figure 29. Households sprayed in the previous 12 months by wealth quintile (Zambia 2010–2015)



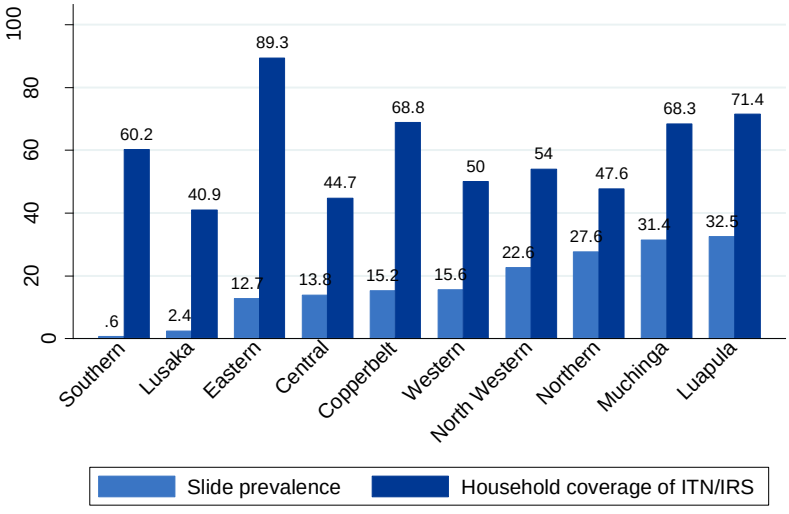
Combining available interventions to further reduce malaria burden is an emerging issue for the NMCP and for the general community of malaria research. The coverage of either ITNs or IRS as well as the combined coverage of both ITNs and IRS at the household level from 2008 to 2015 is presented in **Figure 30**. In 2008, 68.3% of households reported having either an ITN or IRS. This increased to 80.6% by 2015. For households reporting having at least one ITN *and* their house sprayed, the percentage increased from 8.9% in 2006 to 25.3% in 2015. With above 80% coverage of an ITN or IRS, Zambia has one of the highest rates of coverage in the region. A major policy question in future years is the necessity of dual coverage for elimination.

Figure 30. Households reporting either at least one insecticide-treated net (ITN) or house sprayed or both (Zambia 2008–2015)



In examining the relationship between intervention coverage and the prevalence of malaria, we hope that places with higher coverage would have lower prevalence. However, interventions also might be expected to be more concentrated in areas with higher burden. **Figure 31** shows that some provinces with high intervention coverage do have reduced malaria parasitaemia, such as Southern and Eastern provinces. However, some provinces, such as Muchinga and Luapula have high malaria prevalence despite reasonably high rates of coverage.

Figure 31. Comparison of prevention coverage and slide prevalence, by province (Zambia 2015)

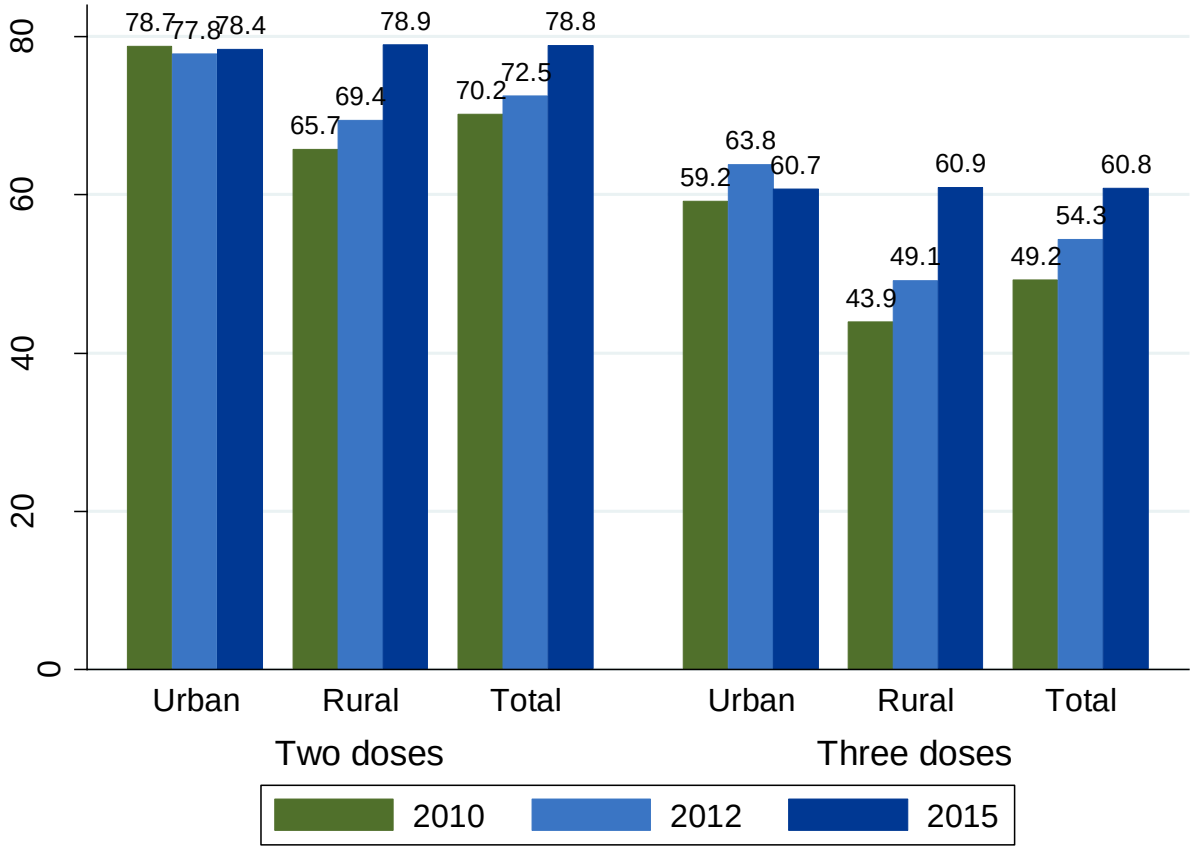


Note: Coverage is defined as either: 1) Household has sufficient ITNs to cover all sleeping spaces or 2) Household has been sprayed with IRS in the last 12 months

Intermittent preventive treatment during pregnancy

Zambia is one of the leading countries in Africa for coverage of intermittent preventive treatment during pregnancy (IPTp). **Figure 32** presents coverage results among women with a recent birth from 2010, 2012, and 2015 for two doses and three doses of IPTp. An increasing percentage of women reported taking two doses and three doses in 2015 with nearly 80% of pregnant women reporting at least two doses.

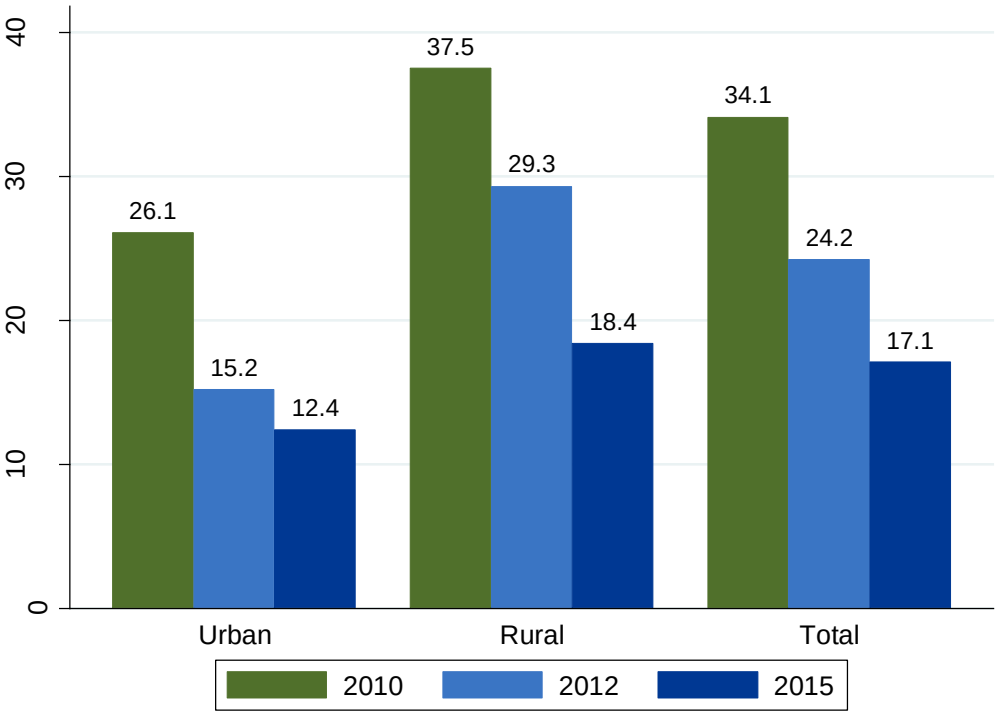
Figure 32. Women with recent births reporting coverage of two doses and three doses of intermittent preventive treatment during pregnancy, by urban and rural areas (Zambia 2010–2015)



Fever prevalence and integrated community case management indicators for diarrhoea

Fever prevalence is an indicator for malaria and for general child health. **Figure 33** represents fever prevalence among children during the two weeks preceding the survey by age and by urban and rural areas. Fever prevalence remains higher in rural areas but has declined markedly in both rural and urban areas.

Figure 33. Fever prevalence in the preceding two weeks among children under age five years (Zambia 2010–2015)



The 2015 MIS was the first MIS to include questions about diarrhoea and treatment-seeking behaviour. Overall, 9.2% of children had diarrhoea in the two weeks preceding the survey and nearly half (49.0%) of those children received some type of care for diarrhoea and 37.7% reported receiving oral rehydration solution (ORS). Children were the most likely to have diarrhoea between 12–23 months. More children with diarrhoea received care in rural areas than in urban areas (54.9% received care versus 37.1% in urban areas), despite the generally shorter distances to care in urban areas. Only a small percentage of appropriate care for diarrhoea was provided by community agents. Diarrhoea remains one of the major threats to children's health internationally and future surveys will be able to measure the change in diarrhoea prevalence over time.

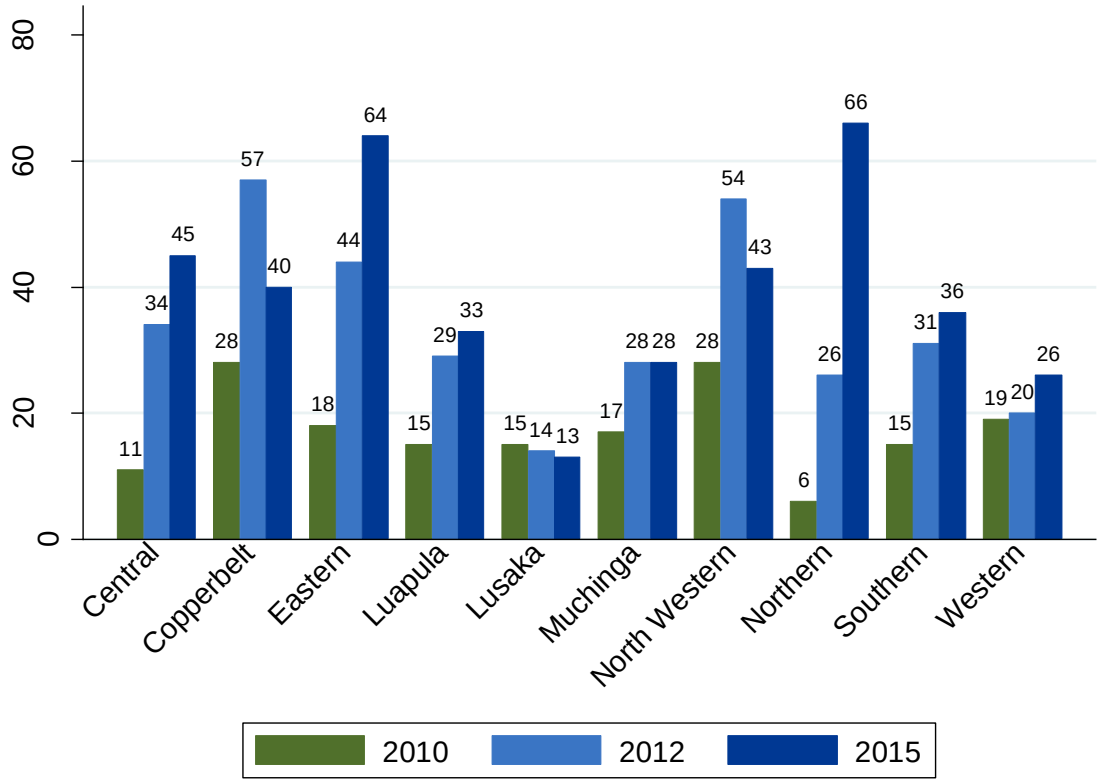
Table 19. Prevalence and treatment of diarrhoea among children
Children under age five years with diarrhoea in the two weeks preceding the survey, and among children with diarrhoea, percentage who received care or received ORS, by background characteristics (Zambia 2015).

Background characteristic	Percentage of children with diarrhoea in last two weeks	Number of children under age five years	Among children with diarrhoea:				Number of children with diarrhoea
			Percentage who received care	Percentage who received appropriate care*	Percentage who received appropriate care from a CHW	Percentage who received ORS	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Age (in months)							
<12	15.5	441	59.5	53.1	4.6	54.5	65
12–23	11.4	383	38.7	36.0	3.5	30.1	40
24–35	5.6	351	38.5	35.3	0.0	18.8	22
36–47	4.2	367	41.3	37.1	0.0	32.7	14
48–59	7.9	431	50.1	44.1	3.3	26.7	35
Sex							
Female	8.2	1019	53.8	51.8	5.3	43.5	83
Male	10.3	954	45.0	37.6	1.5	32.9	93
Designation							
Rural	7.9	1575	54.9	49.3	2.5	41.6	125
Urban	14.1	398	37.1	33.7	4.6	30.0	51
Wealth index							
Lowest	6.5	415	46.8	39.4	0.0	43.0	28
Second	7.4	445	60.8	58.6	4.7	49.3	32
Middle	6.3	398	47.6	42.2	6.2	32.1	24
Fourth	12.0	353	39.1	36.6	6.0	33.8	43
Highest	14.1	362	52.2	45.0	0.0	34.7	49
Total	9.2	1973	49.0	44.1	3.2	37.7	176

* Appropriate care includes public or private healthcare providers but excludes traditional healers

Since 2008, malaria surveys have asked questions on the prevalence of finger sticks for febrile children who sought care for fever. This can provide some insight as to the availability of diagnostic testing services and thus parasitologic confirmation for children with malaria symptoms. **Figure 34** shows that the percentage of febrile children receiving finger sticks during care-seeking generally increased since 2012. Almost all provinces reported increases in the percentage of febrile children receiving finger sticks. While it is difficult to ascertain facility-level clinical practices from household surveys, it is assumed that many of the finger sticks are likely malaria RDTs, which have been scaled up throughout the country since 2007. The high rates of testing are encouraging and suggest that many febrile children are being tested once they report to a health clinic.

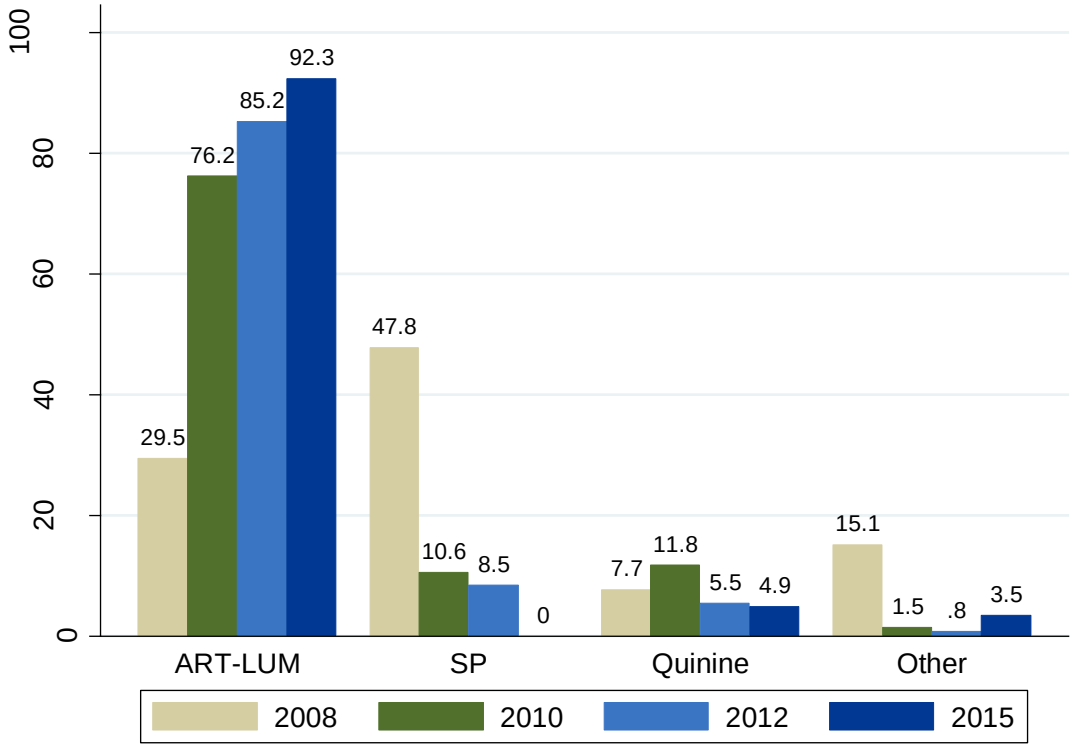
Figure 34. Percentage of febrile children under age five years with a reported finger stick for presumed diagnostic testing services and parasitologic confirmation (Zambia 2010–2015)



Antimalarial treatment practices among febrile children have seen a slight decrease since 2008. Overall treatment of febrile children with antimalarial drugs varied from 43.1% in 2008, 34.0% in 2010, 36.9% in 2012 to 34.4% in 2015. Due to the increasing availability of malaria RDTs, it is assumed that this declining percentage of antimalarial treatments offered to children with fever is largely due to health care providers offering more appropriate treatment advice as a result of parasitological confirmation of clinical diagnoses. In short, it may be that fewer patients with symptomatic fever are being given antimalarial drugs in part because RDT results indicate that they do not have malaria.

Also encouraging are the trends in which antimalarial treatments are given. **Figure 35** shows that use of ART-LUM, the first-line treatment of malaria in Zambia, has steadily grown to become the antimalaria drug most often taken for febrile children. This has largely been at the expense of SP, which was not reported by any person in 2015. The use of other antimalarials, which included any antimalarial medicines such as artemisinin monotherapies, remains negligible.

Figure 35. Among febrile children taking antimalarial drugs, the percentage of each drug taken (Zambia 2010–2015)



Anaemia among women of reproductive age

The 2015 MIS marks the first time anaemia prevalence in women of reproductive age was measured by an MIS in Zambia. While anaemia in women is an important health marker, it may not be associated with malaria control service delivery as closely as is the measure of severe anaemia in children. Unlike in younger populations, where malaria is often the primary driver of anaemia, the anaemia levels in adults depends upon more factors.

The pattern of anaemia among women by province (**Figure 36**) shows that Lusaka, the main urban centre of Zambia, has the highest level of anaemia, whereas Copperbelt, also a largely urban province, has the lowest levels of anaemia. Lusaka Province also reported the highest levels of moderate and severe anaemia.

Figure 36. Anaemia prevalence among women (<12 g/dl) across provinces (Zambia 2015)

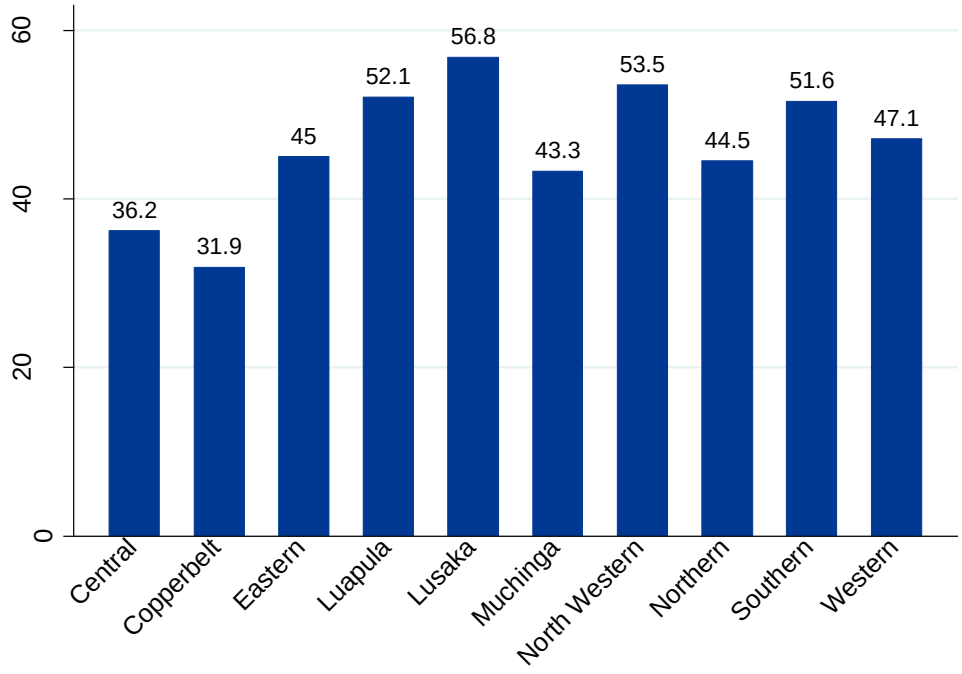


Table 20 shows the breakdown of anaemia by severity. Severe anaemia varies by province and is particularly notable in Lusaka with over 5% of women having severe anaemia. Women with more education tend to have less moderate and severe anaemia. Interestingly, mild anaemia seems slightly more common in rural areas but severe anaemia more common in urban areas (mostly due to the concentration in Lusaka). There was no clear pattern by age.

Table 20. Anaemia in women of reproductive age (15–49 years)
Among women of reproductive age, the percentage with any anaemia (less than 12 grams/decilitre), mild anaemia (11–11.9 g/dl), moderate anaemia (8–10.9 g/dl), and severe anaemia (less than 8 grams/decilitre) by background characteristics (Zambia 2015).

Background characteristic	Percentage of women with any anaemia	Percentage of women with mild anaemia	Percentage of women with moderate anaemia	Percentage of women with severe anaemia	Number of women
	(1)	(2)	(3)	(4)	(5)
Age (in years)					
15-19	48.8	24.0	23.6	1.2	601
20-34	45.0	21.7	21.2	2.1	1615
35-49	49.5	25.1	22.2	2.2	828
Designation					
Urban	44.9	21.9	20.1	3.0	754
Rural	47.8	23.5	22.7	1.6	2290
Province					
Central	36.2	22.0	13.7	0.4	232
Copperbelt	31.9	15.0	15.8	1.2	362
Eastern	45.0	23.5	20.5	1.0	302
Luapula	52.1	23.8	26.4	1.9	596
Lusaka	56.8	25.7	25.9	5.2	276
Muchinga	43.3	22.7	17.6	3.0	189
Northern	44.5	22.3	22.2	0.0	268
North-Western	53.5	25.9	26.1	1.5	275
Southern	51.6	27.6	21.6	2.4	301
Western	47.1	22.4	21.9	2.9	243
Education					
None	49.8	22.4	24.9	2.5	332
Primary	48.8	23.9	23.0	1.9	1436
Secondary	45.7	23.1	20.5	2.2	949
Higher	35.6	23.1	12.1	0.4	91
Wealth index					
Lowest	55.2	28.9	24.8	1.6	529

continued

Table 20. Anaemia in women of reproductive age (15–49 years)

Among women of reproductive age, the percentage with any anaemia (less than 12 grams/decilitre), mild anaemia (11–11.9 g/dl), moderate anaemia (8–10.9 g/dl), and severe anaemia (less than 8 grams/decilitre) by background characteristics (Zambia 2015).

Background characteristic	Percentage of women with any anaemia	Percentage of women with mild anaemia	Percentage of women with moderate anaemia	Percentage of women with severe anaemia	Number of women
	(1)	(2)	(3)	(4)	(5)
Second	48.1	22.5	23.8	1.9	552
Middle	44.9	22.1	21.7	1.0	579
Fourth	48.2	22.5	23.1	2.6	639
Highest	42.0	21.2	18.5	2.3	745
Total	47.0	23.1	22.0	2.0	3044

Chapter 7: Conclusions/recommendations

The 2015 Zambia National Malaria Indicator Survey builds on nearly a decade of focused measurement activities to document progress towards control in the last few years and to guide policy forward into elimination. Zambia continues to be one of the best performing countries in terms of ITN distribution, IPTp, and other community-based strategies. The survey continues to provide the data necessary to assess prior anti-malaria programmes, as well as provide a baseline for future programmes.

The 2015 MIS reveals good progress generated by the 2014 mass distribution of ITNs, including improvements in equity across wealth and gender. However, a sufficient number of ITNs were still not available to ensure full coverage of all sleeping spaces in all areas that were surveyed. Future distributions should ensure that all issues affecting availability are considered so that the full coverage goals of one ITN per sleeping space and all household members sleeping under an ITN can be achieved. ITN distribution planners should reflect carefully on the 1.8 nets per sleeping space for net procurement calculations for mass or other distribution channels and ensure community registers are updated to better reflect true population estimates.

The usage of ITNs was high among households with a sufficient number of ITNs. However, use remains problematic among certain populations, in particular school age children (aged 5–19 years old). Information, education, and communication (IEC) and behaviour change communication (BCC) activities should be designed to appeal to these specific groups. There should also be continued engagement with community leaders and communities more broadly, especially in the use of interpersonal communication and ways to avoid ITN misuse.

Efforts to sustain coverage of ITNs at the current high levels are critical. Promoting multiple channels of ITN distribution will be important to sustain high coverage between mass distribution campaigns. The current distribution network in Zambia is based almost entirely around periodic campaigns and efforts are underway to diversify this approach, though it is not yet clear which methods provide the best alternative. Given that ITN usage and accessibility within households is problematic for school aged children, a school-based strategy to complement periodic mass distribution and antenatal distribution is warranted.

IRS campaigns should be optimized to improve planning, timely implementation, and proper targeting of households. IRS campaigns have been expanded significantly in rural areas and in future years it may be possible to better coordinate these campaigns with ITN distributions. Most provinces have substantial room for expansion in their IRS activities and the success of Eastern Province suggests that increases in IRS can have a dramatic effect on malaria prevalence. IRS must be conducted consistently in order to maximize the reduction in malaria burden and minimize malaria rebound.

There is a need for effective IEC/BCC to explain the benefits of participation in IRS while exploring potential reasons for refusals. Innovative ways to communicate IEC/BCC messages around IRS are needed, particularly using new methods such as social media and cell-phone messaging. Continued engagement of community leaders and communities more broadly in the importance of IRS should be stressed.

Despite the success in IRS and ITN provision, there appeared to be a small increase in national malaria prevalence. This is a discouraging finding considering Zambia's success in scaling up malaria interventions. The increase could be due to seasonal factors and this bears further investigation. However, this finding also suggests the need for new approaches to further reduce malaria in Zambia as the current intervention packages reach a high saturation point. Treatment-based strategies to complement vector control methods are currently being explored in Southern Province and likely contributed to the substantial decline in malaria noted in those clusters. To move towards elimination, Zambia will likely have to initiate malaria reduction strategies beyond what is currently in place.

The 2015 MIS provided the first nationally representative estimate of anaemia levels among women of reproductive age. Nationally, almost half of reproductive-age women tested as anaemic (defined as <12 g/dl). This represents a large health threat to the population as long-term anaemia can result in various

health problems, including fatigue and cardiovascular issues. Zambian women would benefit from programmes that better address anaemia prevention, including iron supplementation or dietary guidance. Surveys such as this one provide a baseline for future programmes and it is hoped that this high level of anaemia will motivate more programmes in this area.

Several important integrated community case management indicators were assessed in the 2015 MIS. The survey found 9.2% of children reported diarrhoea in the previous two weeks and also found a reasonably high rate of care-seeking for diarrhoea, with 49% of children reportedly seeking some treatment and 38% reporting ORS use. The results also showed a decline in fever prevalence (despite the rise in malaria prevalence) and an increase in the use of finger-pricks for malaria testing. Encouragingly, the survey also found an increase in use of CHWs as a source for anti-malarial drugs. Zambia continues to show improvement in community management of cases.

With an increase in malaria treatment services offered at community level, routine reporting systems are needed that effectively capture the demand for malaria services. This is important for capturing the ongoing diagnosis and treatment of malaria cases and improving targeting of malaria interventions. DHIS2 has been valuable for local and national decision-makers and more complete data in other areas will be useful.

IPTp coverage of two and three doses continued to improve between 2012 and 2015. Zambia remains exceptionally successful in this area compared to surrounding countries. Further success requires close collaboration with the delivery of antenatal care and reproductive health care service providers to improve early attendance for ANC and repeated visits to qualified care providers.

In messaging about malaria, IEC/BCC efforts that stress prompt treatment seeking can help ensure that those suspected of having malaria receive timely treatment. IEC/BCC activities should be responsive to the needs of specific areas and should have a specific target in mind, not necessarily the general population. More nuanced, informative, and appealing messaging for IEC/BCC are needed to engage audiences more broadly in malaria intervention uptake and help communities realize their benefits.

Overall, the 2015 MIS showed the progress that Zambia has made against malaria in the last decade. The report demonstrated the continued success of ITN distribution and the increasing use of IRS in rural areas. Nationally, malaria prevalence did not decline as much as it had in previous years. However, some provinces showed dramatic improvements, likely due to increased IRS and treatment-based strategies. Zambia remains an example of a well-coordinated malaria programme working nationally to reduce morbidity and mortality.

Additional resources

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Appendix A: Sample design

Introduction

The 2015 Malaria Indicator Survey (MIS) covered household population in Zambia. A representative probability sample to produce estimates for the country as a whole, and rural and urban separately, was drawn. Overall, a representative sample of 3,750 households was selected. A two-stage stratified cluster sampling design was used to select the sample.

Sampling frame

The sampling frame for the selection of households was constructed from the 2015 census frame. The structure of the census frame is as described below.

There are ten provinces in Zambia and each province is subdivided into districts. For statistical purposes each district is subdivided into Census Supervisory Areas (CSAs) and these are in turn subdivided into Enumeration Areas (EAs). CSAs are grouped in wards, wards in constituencies, constituencies in districts, and districts in provinces. The listing of EAs contains information on number of households and the population. The number of households was used as a measure of size for selecting primary sampling units (PSUs), which are the EAs or clusters.

The sample was selected in two stages. This means the primary sampling units were selected from the census frame in the first stage and the households were selected from the selected EAs in the second stage. The EAs on the frame are stratified by province and by rural and urban.

Sample allocation and selection

Initially 3,450 households were allocated between rural and urban, in proportion to the population of each domain according to the 2010 census results. Adjustments to the proportional distribution were made to allow for reasonable comparison of the sample between the strata. The distribution is given in the table below:

Table A1. Sample distribution of clusters and households for the 2015 MIS

	# of clusters			# of households		
Province	Rural	Urban	Total	Rural	Urban	Total
Central	12	3	15	300	75	375
Copperbelt	8	7	15	200	175	375
Eastern	14	2	16	350	50	400
Luapula	11	2	13	275	50	325
Lusaka	7	7	14	175	175	350
Muchinga	9	2	11	225	50	275
Northern	11	3	14	275	75	350
North-Western	9	2	11	225	50	275
Southern	13	3	16	325	75	400
Western	11	2	13	275	50	325
Total	105	33	138	2,625	825	3,450

The MIS sample was selected using a stratified two-stage cluster design as mentioned earlier. Once the households were allocated to the strata (provinces, rural and urban), the number of clusters (SEAs) to be

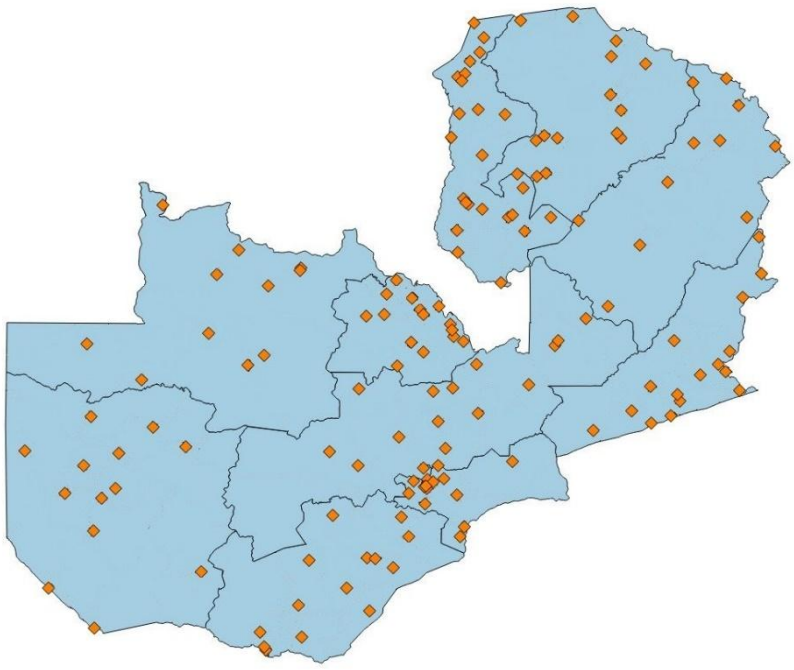
selected were calculated based on an average cluster take of 25 completed interviews of all respondents. Clusters were selected systematically with probability proportional to the number of households.

The design of this survey required an oversample in Luapula Province, selecting an additional 12 clusters above what was initially drawn. Therefore the 12 clusters were distributed by rural and urban proportionally to their sizes. This worked out to be ten clusters selected from rural and two from urban. The final sample allocation is therefore as follows:

Table A2. Sample distribution of clusters and households for the 2015 MIS taking into account oversampling in Luapula Province

	# of clusters			# of households		
Province	Rural	Urban	Total	Rural	Urban	Total
Central	12	3	15	300	75	375
Copperbelt	8	7	15	200	175	375
Eastern	14	2	16	350	50	400
Luapula	21	4	25	525	100	625
Lusaka	7	7	14	175	175	350
Muchinga	9	2	11	225	50	275
Northern	11	3	14	275	75	350
North-Western	9	2	11	225	50	275
Southern	13	3	16	325	75	400
Western	11	2	13	275	50	325
Total	115	35	150	2,875	875	3,750

Figure A1. Sample clusters included in the 2015 Zambia MIS



Selection of clusters

The following steps were used to select the clusters (SEAs) in each stratum:

(i) Calculate the sampling interval, I, for each stratum

$$I_h = \frac{\sum_{i=1}^{N_h} M_{hi}}{a_h}$$

where Mhi is the number of households in SEA (or cluster) i and stratum h, $\sum_{i=1}^{N_h} M_{hi}$ is the size of the stratum (total number of households in the stratum according to the 2010 census) and a is the number of clusters (SEAs) to be selected in the stratum.

(ii) Calculate the cumulated size of each SEA.

(iii) Calculate the sampling numbers

$$R, R+I, R+2I, \ldots, R + (a-1)I,$$

where R is a random number between 1 and *I*.

(iv) Compare each sampling number with the cumulated sizes of the SEAs.

The first SEA (or cluster) whose cumulated size is equal to or greater than the random number generated in (iii) was selected. The next SEA to be selected was the one with cumulated size equal to or greater than *R+I*. Each of the rest of the SEAs were selected using the same procedure, making sure to add *I* at each subsequent selection.

Selection of households

A frame of households was determined by listing all the households in all the selected SEAs. Upon completion of household listing, the household lists were given new household numbers, which were sampling serial numbers assigned to each household in the cluster. The sampling numbers were assigned sequentially within each SEA starting from 1. The total number of households in the SEA was equal to the last serial number assigned.

In summary, the following steps were used to select the households:

1. Calculate the sampling interval for each category

$$I = \frac{B}{b}$$

where *B* is the number of households listed in the selected SEA and *b* is the number of households to be selected in that SEA.

2. Generate a random number (R) between 1 and the interval *I*; the first selection will hence be R.
3. Add the interval to the random number to get the next selection.
4. Add the interval repeatedly until you get your desired sample size.

Estimation procedure

Weights

Sampling weights were required to ensure that the sample was representative at the national level. The sampling probabilities at first-stage selection of SEAs and probabilities of selecting the households were used to calculate the weights. The weights of the sample were equal to the inverse of the probability of selection.

The probability of selecting cluster *i* was calculated as

$$P_{hi} = \frac{a_h M_{hi}}{\sum_{i=1}^{N_h} M_{hi}}.$$

The weight or boosting factor is, thus, given as

$$w_{hi} = \frac{1}{P_{hi}}$$

where: P_{hi} is the first-stage sampling probability of (SEA), a_h is the number of SEAs selected in stratum *h*, M_{hi} is the size (households according to the census frame) of the i^{th} SEA in stratum *h*, and ΣM_{hi} is the total size of stratum *h*.

The selection probability of the household was calculated as:

$$p_h = \frac{n_h}{N_h}$$

where n_h is the number of households selected from stratum *h* and N_h is the total number of households in stratum *h*.

Let y_{hij} be an observation on variable *y* for the j^{th} household in the i^{th} SEA of the h^{th} stratum. Then the estimated total for the h^{-th} stratum is:

$$y_h = \sum_{i=1}^{a_h} \sum_{j=1}^{n_h} w_{hi} y_{hij}$$

where, y_h is the estimated total for the h^{th} stratum, w_{hi} is the weight for the j^{th} household in the I^{th} SEA of the h^{th} stratum, i=1-a_h is the number of selected clusters in the stratum, and j=1-n_h is the number of sample households in the stratum. The national estimate is given by:

$$y = \sum_{h=1}^{H} y_h$$

where y is the national estimate, h=1, …, H is the total number of strata. For this survey, H = 2 (the rural/urban areas taken as a separate domains).

Table A3. Number of interviews and response rates: household and women's sample

Result	Residence		Total
	Urban	Rural	
Household interviews			
Selected households	875	2,875	3,750
Occupied households	869	2,811	3,680
Interviewed households	816	2,758	3,574
Household response rate (HRR)	93.90%	98.11%	97.12%
Interviews with women			
Number of eligible women	951	2,843	3,794
Number of eligible women interviewed	766	2,296	3,062
Eligible women response rate	80.55%	80.76%	80.71%
Finger-pricks			
Number of elligible children	594	2,522	3,116
Number of elligible children finger-pricked	516	2,178	2,694
Finger-prick response rate	86.87%	86.36%	86.46%

Appendix B: Survey personnel

Survey coordination, management, analysis and writing

Dr. Peter Mwaba	Ministry of Health
Dr. Elizabeth Chizema	Ministry of Health
Dr. Mulakwa Kamuliwo	Ministry of Health
Mercy Mwanza	Ministry of Health
Busiku Haimanza	Ministry of Health
Moonga Hawela	Ministry of Health
Tadious Chimombe	Ministry of Health
Brenda Sichone	Ministry of Health
Evans Banda	Ministry of Health
Dr. Chomba Sinyangwe	PMI USAID
Dr. Nawa Mukumbuta	UNDP
Dr. John Miller	PATH MACEPA
Ruben Conner	PATH MACEPA
Chris Lungu	PATH MACEPA
Kafula Silumbe	PATH MACEPA
Sosenna Asefaw	PATH MACEPA
Mulenga Matches	PATH MACEPA
Dr. Fred Masaninga	World Health Organization

Sample design and selection

Batista Mwale	Central Statistical Office
John Miller	PATH MACEPA

Laboratory training and analysis

Moonga Hawela	Ministry of Health
Jacob Chirwa	Ministry of Health
Timothy Nzangwa	Malaria Care
Mwenda Mulenga	

Episample and ODK programming

Belendia Serda	PATH MACEPA, Ethiopia
Neil Hendricks	Consultant
Benjamin Kayungwa	Consultant
Tim MacDonald	WideNet

Communication and editing

Pauline Wamulume	Ministry of Health
Manny Lewis	PATH MACEPA
Laura Newman	PATH MACEPA

Members of the Roll Back Malaria Information, Education, and Communication Working Group

Field work teams

Peter Akombwa	Lab technician
Lenia Banda	Nurse
Thandiwe Banda	Nurse/team leader
Chishimba Bonaventure	Enumerator
Rita Phiri Bwanga	Lab technician
Josephine Mumbi Chatama	Nurse/team leader

Kelvin Chibwalwe	Lab technician
Stephen Chibuta	Lab technician/team leader
Sydney Chipili	Nurse
Ireen Mutamina Chomba	Nurse
Samuel Chonya	Nurse
Kamocha Collins	Enumerator
Justina Phiri Dowatt	Lab technician
Mpatisha Ernest	Enumerator
Siwanasoto Fredrick	Enumerator
Nzima Gersom	Lab technician
Justine Hambamba	Enumerator
Perinah Hamutete	Lab technician
Siame Ivwananjiji	Nurse
Margert Kafwelu	Nurse
Beatrice Kakhuni	Nurse/team leader
Allan Kalapa	Lab technician
Kamaya Kalimbwe	Nurse
Clymore Kalyangile	Enumerator
Prisca Kamena	Nurse
Wamundila Kamwi	Lab technician
Frank Kapeka	Lab technician
Albert Kasuba	Nurse
Everlyn Banda Kasukumya	Nurse/team leader
Getrude Katongo	Nurse
Susan Katwishi	Lab technician/team leader
Jairos Khondowe	Lab technician
Raphael Likando	Lab technician
Bridget Lubinda	Nurse
Florence Kayombo Lumbala	Nurse
Catherine Lunda	Lab technician
Leah Makanta	Nurse
Romu Makwakwa	Nurse/team leader
Mordecai Malambo	Lab technician/team leader
Kate Kelewa Manyando	Nurse/team leader
Hebert Mbewe	Lab technician/team leader
Baptista Kasumo Mofya	Nurse
Brenda Mudenda	Nurse
Mweemba Munachilau	Enumerator
Albert Munkanda	Enumerator
Agness Mupeta	Nurse
Gershom Musenge	Enumerator
Christine Musonda	Lab technician
Sophie Musonda	Lab technician
Flonny Mutabali	Nurse
Beatrice Mutale	Nurse
Patricia Mwale	Lab technician
Judy Mwanza	Lab technician
Zakeyo Mwanza	Lab technician
Martin Mweshi	Lab technician
Joseph Mwewa	Lab technician/team leader
Maggie Mwila	Nurse
Owen Mwimbu	Enumerator
Aggripa Mwinga	Enumerator
Hilda Mutampuka Nakawala	Nurse

Ngosa Elizabeth Ndili	Lab technician
Richard Ngwenya	Lab technician
Josphat Nkole	Lab technician
Aaron Phiri	Enumerator
Hellen Phiri	Nurse
Mike Phiri	Lab technician/team leader
Melody Chisopo Shawa	Nurse
Chipo Siantebele	Lab technician/team leader
Thomas Silumbwe	Lab technician
Conrad Sinkanyiti	Enumerator
Sinyembe Sinyemba	Enumerator
Emmanuel Vwavwa	Nurse/team leader

Appendix C: National Malaria Indicator Survey 2015 Questionnaire

Zambia Malaria Indicator Survey 2015

Household Questionnaire

ZAMBIA MALARIA INDICATOR SURVEY
MODEL HOUSEHOLD QUESTIONNAIRE

IDENTIFICATION[1]

PLACE NAME _____

NAME OF HOUSEHOLD HEAD _____

CLUSTER NUMBER.....

HOUSEHOLD NUMBER.....

REGION .....

URBAN/RURAL (URBAN=1, RURAL=2).....

LARGE CITY/SMALL CITY/TOWN/COUNTRYSIDE[2].....
(LARGE CITY=1, SMALL CITY=2, TOWN=3, COUNTRYSIDE=4)

INTERVIEWER VISITS

	1	2	3	FINAL VISIT
DATE	_____	_____	_____	DAY / MONTH / YEAR
INTERVIEWER'S NAME	_____	_____	_____	NAME
RESULT*	_____	_____	_____	RESULT
NEXT VISIT: DATE	_____	_____		TOTAL NO. OF VISITS
TIME	_____	_____		

*RESULT CODES:

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

TOTAL PERSONS IN HOUSEHOLD

TOTAL ELIGIBLE WOMEN

LINE NUMBER OF RESPONDENT TO HOUSEHOLD QUESTIONNAIRE

SUPERVISOR	OFFICE EDITOR	KEYED BY
NAME _____		
DATE _____		

[1] This section should be adapted for country-specific survey design.

[2] The following guidelines should be used to categorize urban sample points: “Large cities” are national capitals and places with over 1 million population; “small cities” are places with between 50,000 and 1 million population; the remaining urban sample points are “towns.”

HOUSEHOLD LISTING

Now we would like some information about the people who usually live in your household or who are staying with you now.

LINE NO.	USUAL RESIDENTS AND VISITORS	RELATIONSHIP TO HEAD OF HOUSEHOLD	SEX	RESIDENCE		AGE	TIME INDOORS / OUTDOORS				ELIGIBLE WOMEN
	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.	What is the relationship of (NAME) to the head of the household?*	Is (NAME) male or female?	Does (NAME) usually live here?	Did (NAME) stay here last night?	How old is (NAME)?	To the nearest hour, what time last night did (NAME) go indoors for the evening? RECORD HOUR ON 24 HOUR CLOCK	To the nearest hour, what time last night did (NAME) go to bed? RECORD HOUR ON 24 HOUR CLOCK	To the nearest hour, what time this morning did (NAME) get out of bed? RECORD HOUR ON 24 HOUR CLOCK	To the nearest hour, what time this morning did (NAME) go outdoors? RECORD HOUR ON 24 HOUR CLOCK	CIRCLE LINE NUMBER OF ALL WOMEN AGE 15-49
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(7.1)	(7.2)	(7.3	(7.4	(8)
			M F	YES NO	YES NO	IN YEARS	TIME (24 Hours)	TIME (24 Hours)	TIME (24 Hours)	TIME (24 Hours)	
01			1 2	1 2	1 2						01
02			1 2	1 2	1 2						02
03			1 2	1 2	1 2						03
04			1 2	1 2	1 2						04
05			1 2	1 2	1 2						05

* CODES FOR Q.3 RELATIONSHIP TO HEAD OF HOUSEHOLD:
01 = HEAD
05 = GRANDCHILD
06 = PARENT
07 = PARENT-IN-LAW

02 = WIFE/HUSBAND
03 = SON OR DAUGHTER
04 = SON-IN-LAW OR DAUGHTER-IN-LAW
08 = BROTHER OR SISTER
09 = OTHER RELATIVE
10 = ADOPTED/FOSTER/ STEPCHILD
11 = NOT RELATED
98 = DON'T KNOW

LINE NO.	FEVER PREVALENCE AND TREATMENT									
	Has (NAME) been ill with a fever at any time in the last 2 weeks? IF NO SKIP TO NEXT PERSON,	How many days ago did the fever start? IF LESS THAN ONE DAY, THEN RECORD '00'.	Did (NAME) seek advice or treatment for the fever from any source?	Where did you seek advice or treatment? Anywhere else? RECORD ALL SOURCES MENTIONED	How many days after the fever began did (NAME) first seek advice or treatment? IF SAME DAY, RECORD '00'.	Is (NAME) still sick with a fever?	At any time during the illness, did (NAME) take any drugs for the fever?	What drugs did (NAME) take?[1] Any other drugs? RECORD ALL MENTIONED.	How long after the fever started did (NAME) first take DRUG NAME?	For how many days did (NAME) take the DRUG NAME? IF 7 OR MORE DAYS, RECORD '7'
(1)	(9.1)	(9.2)	(9.3)	(9.4)	(9.5)	(9.6)	(9.7)	(9.8)	(9.9)	(9.10)
01	YES NO DK 1 2 8	DK = 99	YES NO DK 1 2 8	PUBLIC SECTOR GOVT. HOSPITAL……A GOVT. HEALTH CENTER…….B GOVT. HEALTH POST ……..C MOBILE CLINIC……D FIELD WORKER……F OTHER PUBLIC _____G (SPEC) PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC……H PHARMACY ……I PRIVATE DOCTOR……J MOBILE CLINIC……K FIELD WORKER……L OTHER PVT. MED. _____M (SPECIY) OTHER SOURCE SHOP……N TRAD. PRACTITIONER……O OTHER _____ X (SPECIFY)	DK = 99 DAYS… . .	YES NO DK 1 2 8	YES NO DK 1 2 8	DK = 8 SP/FANSIDAR……A QUININE……B COARTEM……C DHAP……D ASPIRIN……E PARACETAMOL….F IBUPROFEN……G OTHER _____….X DON'T KNOW…….Z	DK = 8 SAME DAY……0 NEXT DAY……1 2 DAYS AFTER THE FEVER..2 3 DAYS AFTER THE FEVER..3 4 OR MORE DAYS AFTER THE FEVER……..4 DON'T KNOW ….8	DK = 99
02	1 2 8		1 2 8	PUBLIC SECTOR GOVT. HOSPITAL……A GOVT. HEALTH CENTER…….B GOVT. HEALTH POST ……..C MOBILE CLINIC……D FIELD WORKER……F OTHER PUBLIC _____G (SPEC) PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC……H PHARMACY ……I PRIVATE DOCTOR……J MOBILE CLINIC……K FIELD WORKER……L OTHER PVT. MED. _____M (SPECIY) OTHER SOURCE SHOP……N TRAD. PRACTITIONER……O OTHER _____ X (SPECIFY)	DAYS… . .	1 2 8	1 2 8	SP/FANSIDAR……A QUININE……B COARTEM……C DHAP……D ASPIRIN……E PARACETAMOL….F IBUPROFEN……G OTHER _____….X DON'T KNOW…….Z	SAME DAY……0 NEXT DAY……1 2 DAYS AFTER THE FEVER..2 3 DAYS AFTER THE FEVER..3 4 OR MORE DAYS AFTER THE FEVER……..4 DON'T KNOW ….8	
03	1 2 8		1 2 8	PUBLIC SECTOR GOVT. HOSPITAL……A GOVT. HEALTH CENTER…….B GOVT. HEALTH POST ……..C MOBILE CLINIC……D FIELD WORKER……F OTHER PUBLIC _____G (SPEC) PRIVATE MEDICAL SECTOR	DAYS… . .	1 2 8	1 2 8	SP/FANSIDAR……A QUININE……B COARTEM……C DHAP……D ASPIRIN……E PARACETAMOL….F IBUPROFEN……G OTHER _____….X	SAME DAY……0 NEXT DAY……1 2 DAYS AFTER THE FEVER..2 3 DAYS AFTER THE FEVER..3 4 OR MORE DAYS AFTER THE FEVER……..4 DON'T KNOW ….8	

				PVT. HOSPITAL/CLINIC……..H PHARMACY ……..I PRIVATE DOCTOR……J MOBILE CLINIC……K FIELD WORKER……L OTHER PVT. MED. _____M (SPECIY) OTHER SOURCE SHOP.....N TRAD. PRACTITIONER.....O OTHER _____ X (SPECIFY)				DON'T KNOW…….Z		
04	1 2 8		1 2 8	PUBLIC SECTOR GOVT. HOSPITAL……A GOVT. HEALTH CENTER…….B GOVT. HEALTH POST ……..C MOBILE CLINIC……D FIELD WORKER……F OTHER PUBLIC _____G (SPEC) PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC……..H PHARMACY ……..I PRIVATE DOCTOR……J MOBILE CLINIC……K FIELD WORKER……L OTHER PVT. MED. _____M (SPECIY) OTHER SOURCE SHOP.....N TRAD. PRACTITIONER.....O OTHER _____ X (SPECIFY)	DAYS… . .	1 2 8	1 2 8	SP/FANSIDAR……A QUININE……B COARTEM……C DHAP……D ASPIRIN……E PARACETAMOL….F IBUPROFEN……..G OTHER _____….X DON'T KNOW…….Z	SAME DAY……0 NEXT DAY……1 2 DAYS AFTER THE FEVER..2 3 DAYS AFTER THE FEVER..3 4 OR MORE DAYS AFTER THE FEVER……..4 DON'T KNOW ….8	
05	1 2 8		1 2 8	PUBLIC SECTOR GOVT. HOSPITAL……A GOVT. HEALTH CENTER…….B GOVT. HEALTH POST ……..C MOBILE CLINIC……D FIELD WORKER……F OTHER PUBLIC _____G (SPEC) PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC……..H PHARMACY ……..I PRIVATE DOCTOR……J MOBILE CLINIC……K FIELD WORKER……L OTHER PVT. MED. _____M (SPECIY) OTHER SOURCE SHOP.....N TRAD. PRACTITIONER.....O OTHER _____ X (SPECIFY)	DAYS… . .	1 2 8	1 2 8	SP/FANSIDAR……A QUININE……B COARTEM……C DHAP……D ASPIRIN……E PARACETAMOL….F IBUPROFEN……..G OTHER _____….X DON'T KNOW…….Z	SAME DAY……0 NEXT DAY……1 2 DAYS AFTER THE FEVER..2 3 DAYS AFTER THE FEVER..3 4 OR MORE DAYS AFTER THE FEVER……..4 DON'T KNOW ….8	

Continued….

LINE NO.	USUAL RESIDENTS AND VISITORS	RELATIONSHIP TO HEAD OF HOUSEHOLD	SEX	RESIDENCE		AGE	TIME INDOORS / OUTDOORS				ELIGIBLE WOMEN
	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.	What is the relationship of (NAME) to the head of the household?*	Is (NAME) male or female?	Does (NAME) usually live here?	Did (NAME) stay here last night?	How old is (NAME)?	To the nearest hour, what time last night did (NAME) go indoors for the evening? RECORD HOUR ON 24 HOUR CLOCK	To the nearest hour, what time last night did (NAME) go to bed? RECORD HOUR ON 24 HOUR CLOCK	To the nearest hour, what time this morning did (NAME) get out of bed? RECORD HOUR ON 24 HOUR CLOCK	To the nearest hour, what time this morning did (NAME) go outdoors? RECORD HOUR ON 24 HOUR CLOCK	CIRCLE LINE NUMBER OF ALL WOMEN AGE 15-49
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(7.1)	(7.2)	(7.3	(7.4	(8)
			M F	YES NO	YES NO	IN YEARS	TIME (24 Hours)	TIME (24 Hours)	TIME (24 Hours)	TIME (24 Hours)	
06			1 2	1 2	1 2						01
07			1 2	1 2	1 2						02
08			1 2	1 2	1 2						03
09			1 2	1 2	1 2						04
10			1 2	1 2	1 2						05

* CODES FOR Q.3 RELATIONSHIP TO HEAD OF HOUSEHOLD:
01 = HEAD
02 = WIFE/HUSBAND
03 = SON OR
05 = GRANDCHILD
06 = PARENT
07 = PARENT-IN-LAW
08 = BROTHER OR SISTER
09 = OTHER RELATIVE
10 = ADOPTED/FOSTER/

DAUGHTER
04 = SON-IN-LAW OR DAUGHTER-IN-LAW

STEPCHILD
11 = NOT RELATED
98 = DON'T KNOW

LINE NO.	FEVER PREVALENCE AND TREATMENT									
	Has (NAME) been ill with a fever at any time in the last 2 weeks? IF NO SKIP TO NEXT PERSON,	How many days ago did the fever start? IF LESS THAN ONE DAY, THEN RECORD '00'.	Did (NAME) seek advice or treatment for the fever from any source?	Where did you seek advice or treatment? Anywhere else? RECORD ALL SOURCES MENTIONED	How many days after the fever began did (NAME) first seek advice or treatment? IF SAME DAY, RECORD '00'.	Is (NAME) still sick with a fever?	At any time during the illness, did (NAME) take any drugs for the fever?	What drugs did (NAME) take?[1] Any other drugs? RECORD ALL MENTIONED.	How long after the fever started did (NAME) first take DRUG NAME?	For how many days did (NAME) take the DRUG NAME? IF 7 OR MORE DAYS, RECORD '7'
(1)	(9.1)	(9.2)	(9.3)	(9.4)	(9.5)	(9.6)	(9.7)	(9.8)	(9.9)	(9.10)
06	YES NO DK 1 2 8	DK = 99 ▒▒	YES NO DK 1 2 8	PUBLIC SECTOR GOVT. HOSPITAL……A GOVT. HEALTH CENTER…….B GOVT. HEALTH POST ……..C MOBILE CLINIC……D COMMUNITY HEALTH WOKER / FIELD WORKER……F OTHER PUBLIC _____G (SPEC) PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC……..H MISSION HOSPITAL/ CLINIC……I PHARMACY ……..J PRIVATE DOCTOR……K MOBILE CLINIC……L COMMUNITY HEALTH WOKER / FIELD WORKER……M OTHER PVT. MED. _____N (SPECIY) OTHER SOURCE SHOP……O TRAD. PRACTITIONER……P OTHER _____ X (SPECIFY)	DK = 99 DAYS… ▒▒	YES NO DK 1 2 8	YES NO DK 1 2 8	DK = 8 SP/FANSIDAR……A QUININE……B COARTEM……C DHAP……D ASPIRIN……E PARACETAMOL….F IBUPROFEN……G OTHER _____….X DON'T KNOW…….Z	DK = 8 SAME DAY……0 NEXT DAY……1 2 DAYS AFTER THE FEVER..2 3 DAYS AFTER THE FEVER..3 4 OR MORE DAYS AFTER THE FEVER……4 DON'T KNOW ….8	DK = 99 ▒▒
07	1 2 8 ▒▒	▒▒	1 2 8	PUBLIC SECTOR GOVT. HOSPITAL……A GOVT. HEALTH CENTER…….B GOVT. HEALTH POST ……..C MOBILE CLINIC……D COMMUNITY HEALTH WOKER / FIELD WORKER……F OTHER PUBLIC _____G (SPEC) PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC……..H MISSION HOSPITAL/ CLINIC……I PHARMACY ……..J PRIVATE DOCTOR……K MOBILE CLINIC……L COMMUNITY HEALTH WOKER / FIELD WORKER……M OTHER PVT. MED. _____N (SPECIY) OTHER SOURCE SHOP……O TRAD. PRACTITIONER……P OTHER _____ X (SPECIFY)	DAYS… ▒▒	1 2 8	1 2 8	SP/FANSIDAR……A QUININE……B COARTEM……C DHAP……D ASPIRIN……E PARACETAMOL….F IBUPROFEN……G OTHER _____….X DON'T KNOW…….Z	SAME DAY……0 NEXT DAY……1 2 DAYS AFTER THE FEVER..2 3 DAYS AFTER THE FEVER..3 4 OR MORE DAYS AFTER THE FEVER……4 DON'T KNOW ….8	▒▒
		▒▒		PUBLIC SECTOR GOVT. HOSPITAL……A	DAYS…			SP/FANSIDAR……A QUININE……B	SAME DAY……0 NEXT DAY……1	▒▒

08	1 2 8		1 2 8	GOVT. HEALTH CENTER.....B GOVT. HEALTH POST .....C MOBILE CLINIC.....D COMMUNITY HEALTH WOKER / FIELD WORKER.....F OTHER PUBLIC _____G (SPEC) PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC.....H MISSION HOSPITAL/ CLINIC.....I PHARMACY .....J PRIVATE DOCTOR.....K MOBILE CLINIC.....L COMMUNITY HEALTH WOKER / FIELD WORKER.....M OTHER PVT. MED. _____N (SPECIY) OTHER SOURCE SHOP.....O TRAD. PRACTITIONER.....P OTHER _____ X (SPECIFY)		1 2 8	1 2 8	COARTEM.....C DHAP.....D ASPIRIN.....E PARACETAMOL....F IBUPROFEN.....G OTHER _____....X DON'T KNOW.....Z	2 DAYS AFTER THE FEVER..2 3 DAYS AFTER THE FEVER..3 4 OR MORE DAYS AFTER THE FEVER.....4 DON'T KNOW 8	
09	1 2 8		1 2 8	PUBLIC SECTOR GOVT. HOSPITAL.....A GOVT. HEALTH CENTER.....B GOVT. HEALTH POST .....C MOBILE CLINIC.....D COMMUNITY HEALTH WOKER / FIELD WORKER.....F OTHER PUBLIC _____G (SPEC) PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC.....H MISSION HOSPITAL/ CLINIC.....I PHARMACY .....J PRIVATE DOCTOR.....K MOBILE CLINIC.....L COMMUNITY HEALTH WOKER / FIELD WORKER.....M OTHER PVT. MED. _____N (SPECIY) OTHER SOURCE SHOP.....O TRAD. PRACTITIONER.....P OTHER _____ X (SPECIFY)	DAYS...	1 2 8	1 2 8	SP/FANSIDAR.....A QUININE.....B COARTEM.....C DHAP.....D ASPIRIN.....E PARACETAMOL....F IBUPROFEN.....G OTHER _____....X DON'T KNOW.....Z	SAME DAY.....0 NEXT DAY.....1 2 DAYS AFTER THE FEVER..2 3 DAYS AFTER THE FEVER..3 4 OR MORE DAYS AFTER THE FEVER.....4 DON'T KNOW 8	
10	1 2 8		1 2 8	PUBLIC SECTOR GOVT. HOSPITAL.....A GOVT. HEALTH CENTER.....B GOVT. HEALTH POST .....C MOBILE CLINIC.....D COMMUNITY HEALTH WOKER / FIELD WORKER.....F OTHER PUBLIC _____G (SPEC) PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC.....H MISSION HOSPITAL/ CLINIC.....I PHARMACY .....J PRIVATE DOCTOR.....K MOBILE CLINIC.....L COMMUNITY HEALTH WOKER / FIELD WORKER.....M OTHER PVT. MED. _____N (SPECIY) OTHER SOURCE SHOP.....O TRAD. PRACTITIONER.....P OTHER _____ X (SPECIFY)	DAYS...	1 2 8	1 2 8	SP/FANSIDAR.....A QUININE.....B COARTEM.....C DHAP.....D ASPIRIN.....E PARACETAMOL....F IBUPROFEN.....G OTHER _____....X DON'T KNOW.....Z	SAME DAY.....0 NEXT DAY.....1 2 DAYS AFTER THE FEVER..2 3 DAYS AFTER THE FEVER..3 4 OR MORE DAYS AFTER THE FEVER.....4 DON'T KNOW 8	

TICK HERE IF CONTINUATION SHEET USED	☐					
Just to make sure that I have a complete listing:						
1)	Are there any other persons such as small children or infants that we have not listed?	YES	☐→	ENTER EACH IN TABLE	NO	☐
2)	In addition, are there any other people who may not be members of your family, such as domestic staff, lodgers or friends who usually live here?	YES	☐→	ENTER EACH IN TABLE	NO	☐
3)	Are there any guests or temporary visitors staying here, or anyone else who stayed here last night, who have not been listed?	YES	☐→	ENTER EACH IN TABLE	NO	☐

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
9.11	For the head of household, did he/she ever **attend** school?	YES.....1 NO.....2	<10
9.12	For the head of household, what is the highest level of school **attended**: primary, secondary, or higher?[1]	PRIMARY.....1 SECONDARY.....2 HIGHER.....3	
10	What is the main source of drinking water for members of your household?[1]	PIPED WATER PIPED INTO DWELLING.....11 PIPED INTO YARD/PLOT.....12 PUBLIC TAP/STANDPIPE.....13 TUBE WELL OR BOREHOLE.....21 DUG WELL PROTECTED WELL.....31 UNPROTECTED WELL.....32 WATER FROM SPRING PROTECTED SPRING.....41 UNPROTECTED SPRING.....42 RAINWATER..... 51 TANKER TRUCK .....61 CART WITH SMALL TANK .....71 SURFACE WATER (RIVER/DAM/ LAKE/POND/STREAM/CANAL/ IRRIGATION CHANNEL.....81 BOTTLED WATER.....91 OTHER _____ 96 (SPECIFY)	
11	What kind of toilet facility does your household use?[1]	FLUSH OR POUR FLUSH TOILET FLUSH TO PIPED SEWER SYSTEM .....11 FLUSH TO SEPTIC TANK.....12 FLUSH TO PIT LATRINE .....13 FLUSH TO SOMEWHERE ELSE .....14 FLUSH, DON'T KNOW WHERE.....15 PIT LATRINE VENTILATED IMPROVED PIT LATRINE (VIP).....21 PIT LATRINE WITH SLAB.....22 PIT LATRINE WITHOUT SLAB/ OPEN PIT.....23 COMPOSTING TOILET.....31 BUCKET TOILET .....41 HANGING TOILET/HANGING LATRINE.....51 NO FACILITY/BUSH/FIELD.....61 OTHER _____ 96 (SPECIFY)	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
12	Does your household have:[2]	YES NO	
	Electricity?	ELECTRICITY 1 2	
	A radio?	RADIO 1 2	
	A television?	TELEVISION 1 2	
	A mobile telephone?	MOBILE TELEPHONE 1 2	
	A non-mobile telephone?	NON-MOBILE TELEPHONE..... 1 2	
	A refrigerator?	REFRIGERATOR 1 2	
	A bed?	BED 1 2	
	A chair?	CHAIR..... 1 2	
	A table?	TABLE 1 2	
	A Cupboard?	CUPBOARD 1 2	
	A sofa?	SOFA..... 1 2	
	A clock?	CLOCK 1 2	
	A fan?	FAN 1 2	
	A sewing machine?	SEWING MACHINE..... 1 2	
	A cassette player?	CASSETTE PLAYER 1 2	
	A plough?	PLOUGH..... 1 2	
	A grain grinder?	GRAIN GRINDER..... 1 2	
	A VCR/DVD?	VCR/DVD 1 2	
	A tractor?	TRACTOR..... 1 2	
	A vehicle?	VEHICLE 1 2	
	A hammer mill?	HAMMER MILL 1 2	
13	What type of fuel does your household mainly use for cooking?	ELECTRICITY ..... 01 LPG/NATURAL GAS ..... 02 BIOGAS ..... 03 KEROSENE ..... 04 COAL/LIGNITE..... 05 CHARCOAL ..... 06 FIREWOOD/STRAW ..... 07 DUNG ..... 08 OTHER _____ 96 (SPECIFY)	

[1] Coding categories to be developed locally and revised based on the pretest; however, the broad categories must be maintained.
[2] Additional indicators of socioeconomic status should be added, especially to distinguish among lower socioeconomic classes.

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
14a	MAIN MATERIAL OF THE FLOOR.[1] RECORD OBSERVATION.	NATURAL FLOOR EARTH/SAND ..... 11 DUNG..... 12 RUDIMENTARY FLOOR WOOD PLANKS..... 21 PALM/BAMBOO..... 22 FINISHED FLOOR PARQUET OR POLISHED WOOD..... 31 VINYL OR ASPHALT STRIPS..... 32 CERAMIC TILES..... 33 CEMENT..... 34 CARPET..... 35 OTHER _____ 96 (SPECIFY)	
14b	MAIN MATERIAL OF THE WALL.[1] RECORD OBSERVATION.	NATURAL WALL No walls..... 11 Cane/sticks/bamboo/reed..... 12 RUDIMENTARY WALL Bamboo/wood with mud ..... 21 Stone with mud..... 22 Uncovered abode ..... 23 Plywood..... 24 Carton ..... 25 FINISHED WALL Cement..... 31 Stone with lime/cement..... 32 Bricks ..... 33 Cement blocks..... 34 Covered Adobe ..... 35 Wood planks/shingles..... 36 OTHER _____ 96 (SPECIFY)	
14c	MAIN MATERIAL OF THE ROOF.[1] RECORD OBSERVATION.	NATURAL ROOF Thatch/Leaf ..... 11 Sticks and mud..... 12 RUDIMENTARY ROOF Rustic mat/plastic sheet..... 21 Reed/bamboo..... 22 Wood planks..... 23 FINISHED WALL Corrugated iron ..... 31 Wood..... 32 Calamine/cement fiber..... 33 Cement/concrete ..... 34 Roofing shingles..... 35 OTHER _____ 96 (SPECIFY)	
14c1	ARE THE EAVES OF THE HOUSE OR BUILDING OCCUPIED BY THIS HOUSEHOLD OPEN OR CLOSED? RECORD OBSERVATION.	OPEN..... 1 CLOSED .....2 PARTIALLY OPEN.....3	
14c2	DOES THE PART OF THE HOUSE OR BUILDING OCCUPIED BY THE HOUSEHOLD HAVE A CEILING? RECORD OBSERVATION.	NONE..... 1 PARTIAL/POORLY SEALED/WORN OUT.....2 COMPLETE AND SEALED.....3	

14c3	IF A CEILING IS PRESENT, WHAT TYPE OF MATERIAL IS THE CEILING PRIMARILY CONSTRUCTED OF? RECORD OBSERVATION.	WOOD / PLYWOOD BOARDS……. 1 GYPSUM / PLASTERCASTE……..2 MUD AND WADDLE……..……..3 WOVEN PALM THATCH…….……4 OTHER……..……..5	
14d	TYPE OF WINDOWS RECORD OBSERVATION.	YES NO ANY WINDOW……1 2 WINDOWS WITH GLASS..... 1 2 WINDOWS WITH SCREENS...1 2 WINDOWS WITH CURTAINS OR SHUTTERS……....1 2	
14d1	Are the windows and any airbrick gaps in the house or building boarded up, glazed or screened against mosquito entry with netting ? ASK OR RECORD OBSERVATION.	COMPLETE……. 1 COMPLETE WITH HOLES……..…2 INCOMPLETE OR BADLY DAMAGED…3 ABSENT……4	—<14e
14d2	If windows are boarded up, glazed or screened, what primary material is used to do so ? ASK OR RECORD OBSERVATION.	WOOD BOARDS……. 1 GLASS……..2 METAL NETTING…..……..3 FABRIC NETTING……..……4 PLASTIC NETTING……..……..……5 OTHER……..……..6	—<14e
14e	How many separate rooms are in this household? INCLUDE ALL ROOMS, INCLUDING KITCHEN, TOILET, SLEEPING ROOMS, SALON, etc.	NUMBER OF ROOMS ☐☐	

14f	How many rooms in this household are used for sleeping? INCLUDE ONLY ROOMS WHICH ARE USUALLY USED FOR SLEEPING.	NUMBER OF SLEEPING ROOMS ☐☐	
14g	How many separate sleeping spaces are there in your household? INCLUDE ALL SLEEPING SPACES, INCLUDING IF THERE IS MORE THAN ONE SLEEPING SPACE IN EACH ROOM USED FOR SLEEPING.	NUMBER OF SLEEPING SPACES ☐☐	
14h	Does any member of the household own any agricultural land?	YES.....1 NO.....2	—<14j
14i	How much agricultural land do members of this household own?	Lima…….. ☐☐ Acres…….. ☐☐ Hectares…… ☐☐ 95 or more hectares……995 Don't know……998	
14j	Does this household own any livestock, herds other farm animals, or poultry?	YES.....1 NO.....2	
14k	How many of the following animals does this household own? IF NONE, ENTER '0' IF MORE THAN 95, ENTER '95' IF UNKNOWN, ENTER '98': Traditional cattle? Dairy cattle? Beef cattle? Horses, donkeys, mules? Goats? Sheep? Pigs? Chickens? Other poultry? Other livestock?	TRADITIONAL ☐☐ DAIRY ☐☐ BEEF ☐☐ HORSES/DONKEYS/MULES ☐☐ GOATS ☐☐ SHEEP ☐☐ PIGS ☐☐ CHICKEN ☐☐ OTHER POULTRY ☐☐ OTHER LIVESTOCK ☐☐	

15	Does any member of your 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 banana boat?	YES NO WATCH ..... 1 2 BICYCLE ..... 1 2 MOTORCYCLE/SCOOTER ..... 1 2 ANIMAL-DRAWN CART ..... 1 2 CAR/TRUCK ..... 1 2 BOAT WITH MOTOR ..... 1 2 BANANA BOAT 1 2	
15A	At any time in the past 12 months, has anyone sprayed the interior walls of your dwelling against mosquitoes?[2]	YES ..... 1 NO ..... 2 DON'T KNOW 8	→ 15D
15B	How many months ago was the house sprayed?[2] IF LESS THAN ONE MONTH, RECORD '00' MONTHS AGO.	MONTHS AGO ..... ☐☐	
15C	Who sprayed the house?[2]	GOVERNMENT WORKER/PROGRAM ... 1 PRIVATE COMPANY ..... 2 HOUSEHOLD MEMBER ..... 3 OTHER _____ 6 (SPECIFY) DON'T KNOW 8	
15D	At any time in the past 12 months, have the walls in your dwelling been plastered or painted?	YES ..... 1 NO ..... 2 DON'T KNOW 8	→ 16
15E	How many months ago were the walls plastered or painted? IF LESS THAN ONE MONTH, RECORD '00' MONTHS AGO.	MONTHS AGO ☐☐	
15F	Have any of the following been used in your living space over the last week: Mosquito coils? Insecticide spray (eg. DOOM, Rungu, Expel)? Repellents?	YES NO Mosquito coils ..... 1 2 Insecticide spray ..... 1 2 Repellents 1 2	
16	Does your household have any mosquito nets that can be used while sleeping?	YES ..... 1 NO 2	→ 27
17	How many mosquito nets does your household have? IF 7 OR MORE NETS, RECORD '7'.	NUMBER OF NETS ..... ☐	
17a	Has anyone in your household ever sold or given away a mosquito net?	YES, SOLD A MOSQUITO NET ..... 1 YES, GAVE AWAY A MOSQUITO NET... 2 NO 3	

		DON'T KNOW .... 4 REFUSED 5	

[1] Categories to be developed locally and revised based on the pretest; however, the broad categories must be maintained. In some countries, it may be desirable to ask an additional question on the material of walls or ceilings.

[2] This question should be deleted in countries that do not have an indoor residual spraying program for mosquitoes.

		NET #1	NET #2	NET #3
18	ASK RESPONDENT TO SHOW YOU THE NET(S) IN THE HOUSEHOLD. IF MORE THAN THREE NETS, USE ADDITIONAL QUESTIONNAIRE(S).	OBSERVED .... 1 NOT OBSERVED 2	OBSERVED............. 1 NOT OBSERVED............. 2	OBSERVED .... 1 NOT OBSERVED 2
19	How long ago did your household obtain the mosquito net?	MOS AGO [ ][ ] MORE THAN 3 YEARS AGO.......................... 95	MOS AGO [ ][ ] MORE THAN 3 YEARS AGO 95	MOS AGO [ ][ ] MORE THAN 3 YEARS AGO 95
20	OBSERVE OR ASK THE BRAND OF MOSQUITO NET. IF BRAND IS UNKNOWN, AND YOU CANNOT OBSERVE THE NET, SHOW PICTURES OF TYPICAL NET TYPES/BRANDS TO RESPONDENT.	'PERMANENT' NET[1] Permanet…………11 Olyset…………….12 MamaSafeNite…..13 NetProtect……….14 Other/Don't Know……16 (SKIP TO 24) 'PRETREATED' NET[2] ICONET………..21 Fennet…………22 KO Nets………..23 Safinet………...24 Other/Don't Know….. 26 (SKIP TO 22) OTHER……………….31 DON'T KNOW BRAND……………..98	'PERMANENT' NET[1] Permanet………11 Olyset…………12 MamaSafeNite…13 NetProtect…….14 Other/Don't Know……16 (SKIP TO 24) 'PRETREATED' NET[2] ICONET………..21 Fennet…………22 KO Nets………..23 Safinet………...24 Other/Don't Know. 26 (SKIP TO 22) OTHER……………….31 DON'T KNOW BRAND……………..98	'PERMANENT' NET[1] Permanet………11 Olyset…………12 MamaSafeNite..13 NetProtect……….14 Other/Don't Know……16 (SKIP TO 24) 'PRETREATED' NET[2] ICONET………..21 Fennet…………22 KO Nets………..23 Safinet………...24 Other/Don't Know….. 26 (SKIP TO 22) OTHER……………….31 DON'T KNOW BRAND……………..98
20a	Where did you obtain the net?	GOVERNMENT CLINIC/HOSPITAL NEIGHBORHOOD HEALTH COMMITTEE (NHC) COMMUNITY HEALTH WORKER (CHW) / AGENT RETAIL SHOP PHARMACY WORKPLACE OTHER (SPECIFY)__________ DON'T KNOW	GOVERNMENT CLINIC/HOSPITAL NEIGHBORHOOD HEALTH COMMITTEE (NHC) COMMUNITY HEALTH WORKER (CHW) / AGENT RETAIL SHOP PHARMACY WORKPLACE OTHER (SPECIFY)_______ DON'T KNOW	GOVERNMENT CLINIC/HOSPITAL NEIGHBORHOOD HEALTH COMMITTEE (NHC) COMMUNITY HEALTH WORKER (CHW) / AGENT RETAIL SHOP PHARMACY WORKPLACE OTHER (SPECIFY)__________ DON'T KNOW
20b	Did you purchase the net?	YES…............................1 NO.(skip to 21)….........2 NOT SURE….................8	YES….........................1 NO.(skip to 21)….......2 NOT SURE…............8	YES…............................1 NO.(skip to 21)….........2 NOT SURE….................8

20c	How much did you pay for the net when it was purchased?	In Kwacha	In Kwacha	In Kwacha
21	When you got the net, was it already factory-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
22	Since you got the mosquito net, was it ever soaked or dipped in a liquid to kill or repel mosquitoes or bugs?	YES..............................1 NO................................2 (SKIP TO 24) NOT SURE...................8	YES .... 1 NO .... 2 (SKIP TO 24) NOT SURE 8	YES..............................1 NO................................2 (SKIP TO 24) NOT SURE...................8
23	How long ago was the net last soaked or dipped? IF LESS THAN 1 MONTH AGO, RECORD >00' MONTHS. IF LESS THAN 2 YEARS AGO, RECORD MONTHS AGO. IF '12 MONTHS AGO' OR '1 YEAR AGO,' PROBE FOR EXACT NUMBER OF MONTHS.	MOS AGO MORE THAN 2 YEARS AGO...........95 NOT SURE 98	MOS AGO MORE THAN 2 YEARS AGO .... 95 NOT SURE 98	MOS AGO MORE THAN 2 YEARS AGO...........95 NOT SURE 98
23a	Where was the net soaked or dipped?	HOME…………………1 GOVERNMENT CLINIC/HOSPITAL…..2 RETAIL SHOP………..3 PHARMACY………….4 WORKPLACE………..5 OTHER (SPECIFY)_______.....6 DON'T KNOW………..7	HOME GOVERNMENT CLINIC/HOSPITAL RETAIL SHOP PHARMACY WORKPLACE OTHER (SPECIFY)_______ DON'T KNOW	HOME GOVERNMENT CLINIC/HOSPITAL RETAIL SHOP PHARMACY WORKPLACE OTHER (SPECIFY)__________ DON'T KNOW
23b	Did you pay to soak or dip the net?	YES..............................1 NO.(skip to 23d).............2 NOT SURE..................8	YES...........................1 NO.(skip to 23d)...........2 NOT SURE...............8	YES..............................1 NO.(skip to 23d).............2 NOT SURE..................8
23c	How much did you pay to soak or dip the net?	In Kwacha	In Kwacha	In Kwacha
23d	PLEASE RECORD OR ASK THE GENERAL CONDITION OF THE NET.	1 Good (no holes) 2 Fair (no holes that fit a torch battery) 3 Poor (1-4 holes that fit a torch battery) 4 Unsafe (>5 Holes that fit a torch battery) 5 Unused (still in package) 98 Unknown	1 Good (no holes) 2 Fair (no holes that fit a torch battery) 3 Poor (1-4 holes that fit a torch battery) 4 Unsafe (>5 Holes that fit a torch battery) 5 Unused (still in package) 98 Unknown	1 Good (no holes) 2 Fair (no holes that fit a torch battery) 3 Poor (1-4 holes that fit a torch battery) 4 Unsafe (>5 Holes that fit a torch battery) 5 Unused (still in package) 98 Unknown
23e	PLEASE RECORD OR ASK THE COLOR OF THE NET.	1. Green 2. Blue 3. Red 4. White 5. Black Other ________	1. Green 2. Blue 3. Red 4. White 5. Black Other ________	1. Green 2. Blue 3. Red 4. White 5. Black Other ________
23f	PLEASE RECORD OR ASK THE SHAPE OF THE NET.	1. Conical 2. Rectangular 3. Other ________	1. Conical 2. Rectangular 3. Other ________	1. Conical 2. Rectangular 3. Other ________

23g	In the last month, has the net gotten any new holes?	YES.....1 NO.(skip to 24).....2 DON'T KNOW.....8	YES …….....1 NO.(skip to 24).....2 DON'T KNOW.....8	YES.....1 NO.(skip to 24).....2 DON'T KNOW.....8
23h	What caused the new holes?	1 Tore or split when caught on object 2 Was burned 3 Was caused by animals 4 Children 5 In another way (specify) _____ 98 Don't Know	1 Tore or split when caught on object 2 Was burned 3 Was caused by animals 4 Children 5 In another way (specify) _____ 98 Don't Know	1 Tore or split when caught on object 2 Was burned 3 Was caused by animals 4 Children 5 In another way (specify) _____ 98 Don't Know
23i	Have you tried to repair the new holes?	YES.....1 NO.(skip to 23k).....2 DON'T KNOW.....8	YES …….....1 NO.(skip to 23k).....2 DON'T KNOW.....8	YES.....1 NO.(skip to 23k).....2 DON'T KNOW.....8
23j	If yes, what did you use to repair the holes? SKIP TO	1 Stitch 2 Know/tie 3 Patch 5 Other 98 Don't Know	1 Stitch 2 Know/tie 3 Patch 5 Other 98 Don't Know	1 Stitch 2 Know/tie 3 Patch 5 Other 98 Don't Know
23k	If no, what it the main reason you did not try to repair the holes?	1 Too busy 2 Not necessary 3 Don't know how to repair 5 Other 98 Don't Know	1 Too busy 2 Not necessary 3 Don't know how to repair 5 Other 98 Don't Know	1 Too busy 2 Not necessary 3 Don't know how to repair 5 Other 98 Don't Know
23l	Which of these statements best describes the net? PLEASE ASK THE RESPONDENT.	1 Still in good condition 2 Net is beginning to fall apart and should be replaced soon 3 Net is no longer useable and needs to be replaced 98 Don't Know	1 Still in good condition 2 Net is beginning to fall apart and should be replaced soon 3 Net is no longer useable and needs to be replaced 98 Don't Know	1 Still in good condition 2 Net is beginning to fall apart and should be replaced soon 3 Net is no longer useable and needs to be replaced 98 Don't Know
23m	Is the net hanging for sleeping? PLEASE OBSERVE OR ASK IF THE NET IS HANGING	YES.....1 NO.....2	YES.....1 NO.....2	YES.....1 NO.....2
24	Did anyone sleep under this mosquito net last night?	YES.....1 NO.....2 (SKIP TO 26) =——┤ NOT SURE.....8	YES ..... 1 NO ..... 2 (SKIP TO 26) =——┤ NOT SURE 8	YES.....1 NO.....2 (SKIP TO 26) =——┤ NOT SURE.....8

"Permanent" is a factory treated net that does not require any further treatment.
[2] "Pretreated" is a net that has been pretreated, but requires further treatment after 6-12 months.

		NET #1	NET #2	NET #3
25	Who slept under this mosquito net last night? RECORD THE RESPECTIVE 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
26		GO BACK TO 18 FOR NEXT NET; OR, IF NO MORE NETS, GO TO 27.	GO BACK TO 18 FOR NEXT NET; OR, IF NO MORE NETS, GO TO 27.	GO BACK TO 18 IN THE FIRST COLUMN OF NEW QUESTIONNAIRE; OR, IF NO MORE NETS, GO TO 27.

HAEMOGLOBIN/MALARIA PARASITE MEASUREMENT

CHECK COLUMN (7) OF HOUSEHOLD LISTING: RECORD THE LINE NUMBER, NAME AND AGE OF ALL CHILDREN UNDER AGE 6 and eligible women aged 15-49 years. THEN ASK THE DATE OF BIRTH.

CHILDREN UNDER AGE 6 YEARS/HOUSEHOLD MEMBER					CONSENT STATEMENT FOR CHILDREN UNDER SIX (BORN IN 2002 OR AFTER) (AND HOUSEHOLD MEMBERS)	
LINE NUMBER FROM COL. (1)	NAME FROM COL. (2)	Is (NAME) present for a malaria/anemia test?	AGE FROM COL. (7)	What is (NAME's) date of birth? COPY MONTH AND YEAR OF BIRTH FROM 215 IN MOTHER'S BIRTH HISTORY AND ASK DAY. FOR CHILDREN NOT INCLUDED IN ANY BIRTH HISTORY, ASK DAY, MONTH AND YEAR.	LINE NUMBER OF PARENT/ADULT RESPONSIBLE FOR THE CHILD or participant RECORD '00' IF NOT LISTED IN HOUSEHOLD SCHEDULE	READ CONSENT STATEMENT TO PARENT/ADULT RESPONSIBLE FOR THE CHILD
(27)	(28)	(28.5)	(29)	(30)	(31)	(32)
☐☐		YES………...1 NO…………2 IF NO, SKIP TO NEXT PERSON.	☐☐	DAY MONTH YEAR ☐☐ ☐☐ ☐☐☐☐	☐☐	GRANTED YES……………………....1 NO…………………………2
☐☐		YES………...1 NO…………2 IF NO, SKIP TO NEXT PERSON.	☐☐	☐☐ ☐☐ ☐☐☐☐	☐☐	YES……………………....1 NO…………………………2
☐☐		YES………...1 NO…………2 IF NO, SKIP TO NEXT PERSON.	☐☐	☐☐ ☐☐ ☐☐☐☐	☐☐	YES……………………....1 NO…………………………2
☐☐		YES………...1 NO…………2 IF NO, SKIP TO NEXT PERSON.	☐☐	☐☐ ☐☐ ☐☐☐☐	☐☐	YES……………………....1 NO…………………………2
☐☐		YES………...1 NO…………2 IF NO, SKIP TO NEXT PERSON.	☐☐	☐☐ ☐☐ ☐☐☐☐	☐☐	YES……………………....1 NO…………………………2
☐☐		YES………...1 NO…………2 IF NO, SKIP TO NEXT PERSON.	☐☐	☐☐ ☐☐ ☐☐☐☐	☐☐	YES……………………....1 NO…………………………2

[1] For fieldwork beginning in 2006, 2007 or 2008, the year should be 2001, 2002 or 2003, respectively.	TICK HERE IF CONTINUATION SHEET USED ☐	CONSENT STATEMENT: READ ATTACHED Consent. NOTE: In countries where some enumeration areas are higher than 1,000 meters, altitude information should be collected in a separate form for each enumeration area higher than 1,000 meters so that the anaemia estimates can be adjusted appropriately.	

LINE NUMBER FROM COL. (1)	HAEMOGLOBIN LEVEL (G/DL)	RESULT 1 MEASURED 2 NOT PRESENT 3 REFUSED 4 OTHER	ANEAMIA TREATMENT	RDT RESULT	TREATMENT	BLOODSLIDE 1 DONE 2 NOT PRESENT 3 REFUSED 4 OTHER	BLOODSLIDE NUMBER
(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)
	.		CoArtem……………1 Iron…………………2 Albendazole……….3	Pf positive…………....1 NEGATIVE…………2 NOT VALID…………3 NOT DONE…………4	CoArtem………………1 DHAp…………………2 SP……………………..3 Quinine……………….4 Artesunate……………5 No treatment………...6		A / / B / /
	.		CoArtem……………1 Iron…………………2 Albendazole……….3	Pf positive…………....1 NEGATIVE…………2 NOT VALID…………3 NOT DONE…………4	CoArtem………………1 DHAp…………………2 SP……………………..3 Quinine……………….4 Artesunate……………5 No treatment………...6		A / / B / /
	.		CoArtem……………1 Iron…………………2 Albendazole……….3	Pf positive…………....1 NEGATIVE…………2 NOT VALID…………3 NOT DONE…………4	CoArtem………………1 DHAp…………………2 SP……………………..3 Quinine……………….4 Artesunate……………5 No treatment………...6		A / / B / /
	.		CoArtem……………1 Iron…………………2 Albendazole……….3	Pf positive…………....1 NEGATIVE…………2 NOT VALID…………3 NOT DONE…………4	CoArtem………………1 DHAp…………………2 SP……………………..3 Quinine……………….4 Artesunate……………5 No treatment………...6		A / / B / /
	.		CoArtem……………1 Iron…………………2 Albendazole……….3	Pf positive…………....1 NEGATIVE…………2 NOT VALID…………3 NOT DONE…………4	CoArtem………………1 DHAp…………………2 SP……………………..3 Quinine……………….4 Artesunate……………5 No treatment………...6		A / / B / /
	.		CoArtem……………1 Iron…………………2 Albendazole……….3	Pf positive…………....1 NEGATIVE…………2 NOT VALID…………3 NOT DONE…………4	CoArtem………………1 DHAp…………………2 SP……………………..3 Quinine……………….4 Artesunate……………5 No treatment………...6		A / / B / /

41	CHECK 34: NUMBER OF CHILDREN WITH HAEMOGLOBIN LEVEL BELOW 7 G/DL ONE OR MORE ☐ → GIVE EACH PARENT/ADULT RESPONSIBLE FOR THE CHILD THE RESULT OF THE HAEMOGLOBIN MEASUREMENT, AND CONTINUE WITH 36.[1] NONE ☐ → GIVE EACH PARENT/ADULT RESPONSIBLE FOR THE CHILD THE RESULT OF THE HAEMOGLOBIN MEASUREMENT AND END THE HOUSEHOLD INTERVIEW.
42	We detected a low level of haemoglobin in the blood of [NAME OF CHILD(REN)]. This indicates that (NAME OF CHILD(REN) has/have developed severe anaemia, which is a serious health problem. We would like to inform the doctor at _____ about the condition of [NAME OF CHILD(REN)]. This will assist you in obtaining appropriate treatment for the condition. Do you agree that the information about the level of haemoglobin in the blood of [NAME OF CHILD(REN)] may be given to the doctor?

NAME OF CHILD WITH HAEMOGLOBIN BELOW 7 G/DL	NAME OF PARENT/RESPONSIBLE ADULT	AGREES TO REFERRAL?
		YES……..1 NO……2
		YES……..1 NO……2
		YES……..1 NO……2
		YES……..1 NO……2
		YES……..1 NO……2
		YES……..1 NO……2
		YES……..1 NO……2
		YES……..1 NO……2
		YES……..1 NO……2
		YES……..1 NO……2

[1] If more than one child is below 7 g/dl, read statement in Q.42 to each parent/adult responsible for a child who is below the cutoff point..

Zambia Malaria Indicator Survey 2015

Women's Questionnaire

IDENTIFICATION[1]

PLACE NAME _____

NAME OF HOUSEHOLD HEAD _____

CLUSTER NUMBER.....

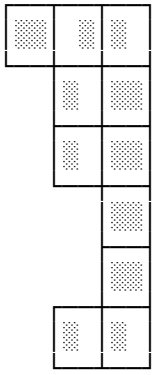
HOUSEHOLD NUMBER.....

REGION .....

URBAN/RURAL (URBAN=1, RURAL=2).....

LARGE CITY/SMALL CITY/TOWN/COUNTRYSIDE[2].....
(LARGE CITY=1, SMALL CITY=2, TOWN=3, COUNTRYSIDE=4)

NAME AND LINE NUMBER OF WOMAN _____



INTERVIEWER VISITS

	1	2	3	FINAL VISIT
DATE	_____	_____	_____	DAY / MONTH / YEAR
INTERVIEWER'S NAME	_____	_____	_____	NAME
RESULT*	_____	_____	_____	RESULT
NEXT VISIT: DATE	_____	_____		
TIME	_____	_____		TOTAL NO. OF VISITS

*RESULT CODES:

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

COUNTRY-SPECIFIC INFORMATION: LANGUAGE OF QUESTIONNAIRE, LANGUAGE OF INTERVIEW, NATIVE LANGUAGE OF RESPONDENT, AND WHETHER TRANSLATOR USED

SUPERVISOR	OFFICE EDITOR	KEYED BY
NAME _____		
DATE _____		

[1] This section should be adapted for country-specific survey design.

[2] The following guidelines should be used to categorize urban sample points: “Large cities” are national capitals and places with over 1 million population; “small cities” are places with between 50,000 and 1 million population; and the remaining urban sample points are “towns”.

SECTION 1: RESPONDENT'S BACKGROUND

INTRODUCTION AND CONSENT

INFORMED CONSENT

Hello. My name is _____ and I am working with Ministry of Health. The National Malaria Control Centre, Ministry of Health, Ministry of Community Development, Mother and Child Health, and malaria control partners want to learn how well malaria prevention program is working in Zambia. We would like to ask you some questions about you and your children, the history of children to whom you may have given birth, bednet use in your home, and also some general questions about your child[ren]'s health. We would appreciate your participation in this survey. The information you provide will help the government to plan health services. The survey usually takes between 10 and 20 minutes to complete. Whatever information you provide will be kept confidential and will not be shown to other persons who are not investigators as part of this survey.

Participation in this survey is voluntary and you can choose not to answer any individual question or all of the questions.

At this time, do you want to ask me anything about the survey? If you have any questions or clarification pertaining to this survey please feel free to ask the field nurse or the medical officer in charge in the field whose name and contact information is given below. (field nurse name and telephone here) _____. or Study Coordinator: Dr. Mulakwa Kamuliwo, Deupty Director, Disease Control, Surveillance, and Research, National Malaria Control Centre, Chainama Hospital College Grounds, Lusaka, Zambia, Tel: 282455; Fax: 282427.

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
105	What is the highest level of school you attended: primary, secondary, or higher?[1]	PRIMARY..... 1 SECONDARY..... 2 HIGHER 3	
106	What is the highest (grade/form/year) you completed at that level?[1]	GRADE..... ▒▒	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
107	CHECK 105: PRIMARY ☐ → SECONDARY OR HIGHER ☐		→ 109

[1] Revise according to the local education system.

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
108	Now I would like you to read this sentence to me. SHOW CARD TO RESPONDENT.[1] 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?	CATHOLIC PROTESTANT MUSLIM TRADITIONAL OTHER _____(specify)	
110	What tribe do you belong to?	BEMBA……1 TONGA……2 NORTH-WESTERN……..3 BAROSTE……..4 NYANJA……..5 MAMBWE……...6 TUMBUKU……..7 OTHER _____(specify)	

[1]Each card should have four simple sentences appropriate to the country (e.g., “Parents love their children”, “Farming is hard work”, “The child is reading a book”, “Children work hard at school”). Cards should be prepared for every language in which respondents are likely to be literate.

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, AND 207, AND ENTER TOTAL.	NONE.....00 TOTAL..... ▒▒	—<345
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 six years? IF NO, CIRCLE '00.' TWO OR MORE BIRTHS: How many of these children were born in the last six years?	NONE.....00 TOTAL IN LAST SIX YEARS..... ▒▒	—<345

211	Now I would like to record the names of all your births in the last six years, whether still alive or not, starting with the most recent one you had. RECORD NAMES OF ALL BIRTHS IN THE LAST 6 YEARS IN 212. RECORD TWINS AND TRIPLETS ON SEPARATE LINES.

212	213	214	215	216	217 IF ALIVE:	218 IF ALIVE	219a IF ALIVE:	219b IF DEAD:	220
What name was given to your (most recent/previous) birth? (NAME)	Were any of these births twins?	Is (NAME) a boy or a girl?	In what month and year was (NAME) born? PROBE: What is his/her birthday?	Is (NAME) still alive?	How old was (NAME) at his/her last birthday? RECORD AGE IN COMPLETED YEARS.	Is (NAME) living with you?	RECORD HOUSEHOLD LINE NUMBER OF CHILD (RECORD '00' IF CHILD NOT LISTED IN HOUSEHOLD).	How old was (NAME) when he/she died? IF '1 YR' PROBE: How many months old was (NAME)?	Were there any other live births between (NAME) and (NAME OF BIRTH ON PREVIOUS LINE)?
01	SING...1 MULT..2	BOY...1 GIRL..2	MONTH ▒▒ YEAR ▒▒▒▒	YES.....1 NO.....2 (NEXT BIRTH)	AGE IN YEARS ▒▒	YES .....1 NO 2	LINE NUMBER ▒▒ (NEXT BIRTH)	DAYS...1 ▒▒ MONTHS...2 ▒▒ YEARS....3 ▒▒	
02	SING...1 MULT..2	BOY...1 GIRL..2	MONTH ▒▒ YEAR ▒▒▒▒	YES.....1 NO.....2 (GO TO 220)	AGE IN YEARS ▒▒	YES .....1 NO 2	LINE NUMBER ▒▒	DAYS...1 ▒▒ MONTHS...2 ▒▒ YEARS....3 ▒▒	YES.....1 NO.....2
03	SING...1 MULT..2	BOY...1 GIRL..2	MONTH ▒▒ YEAR ▒▒▒▒	YES.....1 NO.....2 (GO TO 220)	AGE IN YEARS ▒▒	YES .....1 NO 2	LINE NUMBER ▒▒	DAYS...1 ▒▒ MONTHS...2 ▒▒ YEARS....3 ▒▒	YES.....1 NO.....2
04	SING...1 MULT..2	BOY...1 GIRL..2	MONTH ▒▒ YEAR ▒▒▒▒	YES.....1 NO.....2 (GO TO 220)	AGE IN YEARS ▒▒	YES .....1 NO 2	LINE NUMBER ▒▒	DAYS...1 ▒▒ MONTHS...2 ▒▒ YEARS....3 ▒▒	YES.....1 NO.....2
05	SING...1 MULT..2	BOY...1 GIRL..2	MONTH ▒▒ YEAR ▒▒▒▒	YES.....1 NO.....2 (GO TO 220)	AGE IN YEARS ▒▒	YES .....1 NO 2	LINE NUMBER ▒▒	DAYS...1 ▒▒ MONTHS...2 ▒▒ YEARS....3 ▒▒	YES.....1 NO.....2
06	SING...1 MULT..2	BOY...1 GIRL..2	MONTH ▒▒ YEAR ▒▒▒▒	YES.....1 NO.....2 (GO TO 220)	AGE IN YEARS ▒▒	YES .....1 NO 2	LINE NUMBER ▒▒	DAYS...1 ▒▒ MONTHS...2 ▒▒ YEARS....3 ▒▒	YES.....1 NO.....2

07	SING…1 MULT..2	BOY…1 GIRL..2	MONTH YEAR	YES.....1 NO.....2 (GO TO 220)	AGE IN YEARS	YES .....1 NO 2	LINE NUMBER	DAYS. . …1 MONTHS…2 YEARS….3	YES.....1 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 BIRTH TABLE.	YES.....1 NO.....2	
222	COMPARE 210 WITH NUMBER OF BIRTHS IN HISTORY ABOVE AND MARK: NUMBERS ARE SAME ☐ NUMBERS ARE DIFFERENT ☐ < (PROBE AND RECONCILE) CHECK: FOR EACH BIRTH: YEAR OF BIRTH IS RECORDED. FOR EACH LIVING CHILD: CURRENT AGE IS RECORDED. FOR EACH DEAD CHILD: AGE AT DEATH IS RECORDED. FOR AGE AT DEATH 12 MONTHS OR ONE YEAR: PROBE TO DETERMINE EXACT NUMBER OF MONTHS		
223	CHECK 215 AND ENTER THE NUMBER OF BIRTHS IN 2010[1] OR LATER. IF NONE, RECORD '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.	MONTHS.....	
226	CHECK 223: ONE OR MORE BIRTHS IN 2010[1] OR LATER ☐ NO BIRTHS IN 2010 OR LATER ☐		<345

[1]For fieldwork beginning in 2011, 2012, 2013, 2014 or 2015, the year should be 2006, 2007, 2008, 2009 or 20010, respectively.

SECTION 3: GENERAL MALARIA KNOWLEDGE / PRACTICES / Media Exposure

240	HOW MANY TIMES IN A WEEK DO YOU READ A NEWSPAPER ?	NONE……..1 ONCE A WEEK……..2 2-3 TIMES PER WEEK……3 4-5 TIMES PER WEEK……4 MORE THAN 5 TIMES PER WEEK…….5	
241	HOW MANY TIMES IN A WEEK DO YOU WATHC TELEVISION?	NONE……..1 ONCE A WEEK……..2 2-3 TIMES PER WEEK……3 4-5 TIMES PER WEEK……4 MORE THAN 5 TIMES PER WEEK…….5	
242	HOW MANY TIMES IN A WEEK DO YOU LISTEN TO THE RADIO?	NONE……..1 ONCE A WEEK……..2 2-3 TIMES PER WEEK……3 4-5 TIMES PER WEEK……4 MORE THAN 5 TIMES PER WEEK…….5	
249	WHAT ARE THE SIGNS OF ILLNESS THAT WOULD INDICATE TO YOU THAT YOUR CHILD NEEDS TO BE TAKEN SOMEWHERE FOR TREATMENT? MULTIPLE RESPONSES POSSIBLE PROBE ONCE (ANYTHING ELSE?)	LOOKS UNWELL……..1 NOT PLAYING NORMALLY……..2 NOT EATING/DRINKING……3 NOT BREASTFEEDING……4 LETHARGIC……5 HIGH FEVER……..6 FAST OR DIFFICULT BREATHING……7 VOMITING……8 BLOOD IN STOOL……9 CONVULSIONS……..10 OTHER (SPECIFY)_____ _____..13 DON'T KNOW……14	
250	HAVE YOU EVER HEARD OF AN ILLNESS CALLED MALARIA?	YES.....1 NO.....2	IF 2, SKIP TO 264
251	CAN YOU TELL ME THE MAIN SIGNS OR SYMPTOMS OF MALARIA? MULTIPLE RESPONSES POSSIBLE PROBE ONCE (ANYTHING ELSE?)	FEVER……..1 FEELING COLD……..2 HEADACHE……3 NAUSEA AND VOMITING……4 DIARRHEA……5 DIZZINESS……..6 LOSS OF APPETITE……7 BODY ACHE OR JOINT PAIN……8 PALE EYES……9 SALTY TASTING PALMS……..10 BODY WEAKNESS……11 REFUSING TO EAT OR DRINK……12 OTHER (SPECIFY)_____ _____..13 DON'T KNOW……14	
252	IN YOUR OPINION, WHAT CAUSES MALARIA? MULTIPLE RESPONSES POSSIBLE PROBE ONCE (ANYTHING ELSE?)	MOSQUITO BITES……1 EATING IMMATURE SUGARCANE……..2 EATING COLD NSHIMA……..3 EATING OTHER DIRTY FOOD……...4 DRINKING DIRTY WATER……..5 GETTING SOAKED WITH RAIN……6 COLD OR CHANGING WEATHER……7 WITCHCRAFT……8 OTHER (SPECIFY)_____ _____....9	

		DON'T KNOW.....10	
253	HOW CAN SOMEONE PROTECT THEMSELVES AGAINST MALARIA? MULTIPLE RESPONSES POSSIBLE PROBE ONCE (ANYTHING ELSE?)	SLEEP UNDER A MOSQUITO NET.....1 SLEEP UNDER A INSECTICIDE TREATED MOSQUITO NET.....2 USE MOSQUITO REPELLANT.....3 AVOID MOSQUITO BITES.....4 TAKE PREVENTIVE MEDICATION.....5 SPRAY HOUSE WITH INSECTICIDE.....6 USE MOSQUITO COILS.....7 CUT THE GRASS AROUND THE HOUSE.....8 FILL IN PUDDLES (STAGNANT WATER).....9 KEEP HOUSE SURROUNDINGS CLEAN.....10 BURN LEAVES.....11 DON'T DRINK DIRTY WATER.....12 DON'T EAT BAD FOOD (IMMATURE SUGARCANE/LEFTOVER FOOD).....13 PUT MOSQUITO SCREENS ON THE WINDOWS.....14 DON'T GET SOAKED WITH RAIN.....15 OTHER (SPECIFY)_____ _____.....16 DON'T KNOW.....17	
254	WHAT ARE THE DANGER SIGNS AND SYMPTOMS OF MALARIA? MULTIPLE RESPONSES POSSIBLE PROBE ONCE (ANYTHING ELSE?)	SEIZURE / CONVULSIONS.....1 GOES UNCONSCIOUS.....2 ANY FEVER.....3 VERY HIGH FEVER.....4 STIFF NECK.....5 WEAKNESS.....6 NOT ACTIVE.....7 CHILLS/SHIVERING.....8 NOT ABLE TO EAT.....9 VOMITING.....10 FAINTING.....11 CRYING ALL THE TIME.....12 RESTLESS, WON'T STAY STILL.....13 DIARRHEA.....14 OTHER (SPECIFY:_____) .....15 DON'T KNOW.....16	
255A	IN YOUR OPINION, WHICH PEOPLE ARE MOST AFFECTED BY MALARIA IN YOUR COMMUNITY? MULTIPLE RESPONSES POSSIBLE PROBE ONCE (ANYTHING ELSE?)	CHILDREN.....1 ADULTS.....2 PREGNANT WOMEN.....3 OLDER ADULTS.....4 EVERYONE.....5 OTHER (SPECIFY)_____ _____....6 DON'T KNOW.....7	
255B	IN THE PAST YEAR, HOW OFTEN HAVE YOU SPOKEN WITH FAMILY AND FRIENDS ABOUT THE PROBLEM OF MALARIA IN YOUR COMMUNITY?	VERY OFTEN.....1 SOMETIMES.....2 NOT VERY OFTEN.....3 NEVER.....4	
256	HAVE YOU EVER HEARD OR SEEN ANY MESSAGES / INFORMATION ABOUT MALARIA?	YES.....1 NO.....2	IF 2, SKIP TO 260

257	WHERE DID YOU SEE OR HEAR THESE MESSAGES/INFORMATION? MULTIPLE RESPONSES POSSIBLE PROBE ONCE (ANYTHING ELSE?)	GOVERNMENT CLINIC/HOSPITAL…….1 COMMUNITY HEALTH WORKER……2 FRIENDS/FAMILY……3 WORKPLACE……4 DRAMA GROUPS……5 PEER EDUCATORS……6 POSTERS/BILLBOARDS……7 ON TV……8 ON THE RADIO……9 IN THE NEWSPAPER……10 T-SHIRT……11 LEAFLET/FACTSHEET……12 OTHER (SPECIFY) _____ _____.....13 DON'T KNOW……14	
258	HOW LONG AGO DID YOU SEE OR HEAR THESE MESSAGES?	MONTHS..... ☐☐	
259A	WHAT TYPE OF MALARIA MESSAGES/INFORMATION DID YOU SEE OR HEAR? MULTIPLE RESPONSES POSSIBLE PROBE ONCE (ANYTHING ELSE?)	MALARIA IS DANGEROUS……1 MALARIA CAN KILL……2 MOSQUITOES SPREAD MALARIA……3 SLEEPING UNDER MOSQUITO NET IMPORTANT……4 WHO SHOULD SLEEP UNDER MOSQUITO NET……5 SEEK TREATMENT FOR FEVER……6 SEEK TREATMENT FOR FEVER WITHIN 24 HOURS/PROMPTLY……7 IMPORTANCE OF HOUSE SPRAYING…8 NOT PLASTERING WALLS AFTER SPRAYING……9 ENVIRONMENTAL SANITATION ACTIVITIES……10 OTHER(SPECIFY)……11 DON'T KNOW……12	
259B	DO YOU HAVE A COMMUNITY HEALTH WORKER WORKING IN YOUR COMMUNITY?	YES.....1 NO.....2 (IF 'NO' SKIP TO 260) DON'T KNOW……3	
259B	DO YOU KNOW WHERE THE COMMUNITY HEALTH WORKER IS LOCATED IN YOUR COMMUNITY?	YES.....1 NO.....2 DON'T KNOW……3	
259C	DOES YOUR COMMUNITY HEALTH WORKER PROVIDE ANY OF THE FOLLOWING SERVICES?	Y N DK MALARIA TESTING……1 2 8 MALARIA TREATMENT……1 2 8 ANTIBIOTIC TREATMENTS..1 2 8 OTHER TREATMENTS……1 2 8 HEALTH EDUCATION……1 2 8 OTHER……..1 2 8 (PLEASE SPECIFY _____)	
260	HAS ANYONE EVER PROVIDED YOU WITH EDUCATION / INFORMATION ON MALARIA **AT YOUR HOME**?	YES……1 NO……2	IF 2, SKIP TO 264
261	FROM WHOM DID YOU RECEIVE THIS EDUCATION / INFORMATION **AT YOUR HOME**? PROBE, BUT DO NOT PROVIDE ANSWERS	HEALTH CARE WORKER……1 COMMUNITY HEALTH WORKER……2 FRIENDS/FAMILY……3 EMPLOYER……4 PEER EDUCATORS……5	

		OTHER (SPECIFY)_____.....6 DON'T KNOW……7	
262	HOW LONG AGO DID SOMEONE VISIT YOUR HOME TO PROVIDE EDUCATION / INFORMATION **AT YOUR HOME**?	MONTHS.....| | |	
263	WHAT TYPE OF INFORMATION/EDUCATION ABOUT MALARIA DID YOU RECEIVE **AT YOUR HOME**? PROBE, BUT DO NOT PROVIDE ANSWERS. MULTIPLE ANSWERS POSSIBLE. POSSIBLE ANSWERS INCLUDE:	MALARIA IS DANGEROUS……1 MALARIA CAN KILL……2 MOSQUITOES SPREAD MALARIA……3 SLEEPING UNDER MOSQUITO NET IMPORTANT……4 WHO SHOULD SLEEP UNDER MOSQUITO NET……5 SEEK TREATMENT FOR FEVER…….6 SEEK TREATMENT FOR FEVER WITHIN 24 HOURS/PROMPTLY……7 IMPORTANCE OF HOUSE SPRAYING…8 NOT PLASTERING WALLS AFTER SPRAYING……..9 ENVIRONMENTAL SANITATION ACTIVITIES……10 OTHER(SPECIFY)……11 DON'T KNOW……12	
264	HAS THE COMMUNITY HEALTH WORKER IN YOUR VILLAGE EVER HELPED HANG A MOSQUITO NET IN THIS HOUSE?	YES.....1 NO.....2 DON'T KNOW……3	
265	HAVE ANY MOSQUITO NETS IN THIS HOUSE BEEN USED FOR ANY REASON OTHER THAN SLEEPING?	YES.....1 NO.....2	IF 2 SKIP TO 267
266	WHAT WAS IT USED FOR? PROBE, BUT DO NOT PROVIDE ANSWERS. MULTIPLE ANSWERS POSSIBLE. POSSIBLE ANSWERS INCLUDE:	FISHING……1 COVERING / PROTECTION……2 SCREENS FOR WINDOWS……3 CLOTHING, WEDDING VEILS……..4 OTHER_____..5 DON"T KNOW……..6	
267	WHAT MOSQUITO NET COLOR DO YOU PREFER? PROBE, BUT DO NOT PROVIDE ANSWERS. MULTIPLE ANSWERS POSSIBLE. POSSIBLE ANSWERS INCLUDE:	BLUE……1 GREEN……2 RED……..3 WHITE……4 BLACK……5 OTHER _____...6	
268	WHAT MOSQUITO NET SHAPE DO YOU PREFER? PROBE, BUT DO NOT PROVIDE ANSWERS. MULTIPLE ANSWERS POSSIBLE. POSSIBLE ANSWERS INCLUDE:	CONICAL……..1 RECTANGULAR……2 OTHER _____.....3	
269	IN GENERAL, HOW OFTEN DO YOUR CHILDREN SLEEP UNDER A MOSQUITO NET?	ALWAYS ……1 SOMETIMES…..……2 NEVER…….……3	
270	WHY DO THE CHILDREN WHO SLEEP IN THIS HOUSE SOMETIMES NOT SLEEP UNDER A MOSQUITO NET? MULTIPLE RESPONSES PROBE ONCE (ANYTHING ELSE?)	THEY ALWAYS DO SLEEP UNDER NET……1 TOO HOT……..2 TOO COLD……3 CHILD CRIES……4 CHILD AFRAID……5 NOT ENOUGH NETS……6 NET NOT HUNG UP……..7 USED BY ADULTS……8 NET NOT USED WHEN TRAVELING…..9 NET WORN OUT / POOR CONDITION..10	

		NETS BAD FOR CHILDERS' HEALTH…11 OTHER (SPECIFY)_____ _____...12 DON'T KNOW……..13	
271	HOW OFTEN DO YOU DISCUSS SLEEPING UNDER MOSQUITO NETS WITH YOUR FAMILY OR FRIENDS>	VERY OFTEN…….1 SOMETIMES……2 NOT VERY OFTEN……3 NEVER……..4	
272	GENERALLY, IN HOW MANY HOUSEHOLDS IN YOUR COMMUNITY DO PEOPLE SLEEP UNDER MOSQUITO NETS?	ALL HOUSEHOLDS…….1 MOST HOUSEHOLDS……2 AT LEAST HALF OF THE HOUSEHOLDS……3 FEWER THAN HALF OF THE HOUSEHOLDS……..4 NONE……5	
273	NOW I WOULD LIKE YOU TO THINK OF PEOPLE OUTSIDE YOUR HOUSEHOLD WITH WHOM YOU TALK ABOUT PERSONAL MATTERS. HOW MANY OF THESE PEOPLE DO YOU THINK SLEEP UNDER A MOSQUITO NET?	ALL …….1 MOST ……2 AT LEAST HALF……3 FEWER THAN HALF……..4 NONE……5	

301	ENTER IN 302 THE NAME AND SURVIVAL STATUS OF THE MOST RECENT BIRTH. Now I would like to ask you some questions about your last pregnancy that ended in a live birth, in the last 6 years.		
302	FROM QUESTIONS 212 AND 216 (LINE 01)	LAST BIRTH NAME _____ LIVING ☐ DEAD ☐ (1) (1)	
303	When you were pregnant with (NAME), did you see anyone for antenatal care?[1] IF YES: Whom did you see? Anyone else? PROBE FOR THE TYPE OF PERSON AND RECORD ALL PERSONS SEEN.	HEALTH PROFESSIONAL DOCTOR.....A NURSE/MIDWIFE .....B AUXILIARY MIDWIFE ..... C OTHER PERSON TRADITIONAL BIRTH ATTENDANT……D COMMUNITY/VILLAGE HEALTH WORKER……E OTHER _____ X (SPECIFY) NO ONE .....Y	
304	During this pregnancy, did you take any drugs in order to prevent you from getting malaria?	YES .....1 NO .....2 DON'T KNOW 8	☐ →310
305	Which drugs did you take to prevent malaria?[2] RECORD ALL MENTIONED. IF TYPE OF DRUG IS NOT DETERMINED, SHOW TYPICAL ANTIMALARIAL DRUGS TO RESPONDENT.	SP/FANSIDAR.....A CHLOROQUINE ..... B OTHER_____ X (SPECIFY) DON'T KNOW ..... Z	
306	CHECK 305: DRUGS TAKEN FOR MALARIA PREVENTION	CODE 'A' CIRCLED ☐ (1) CODE 'A' NOT CIRCLED ☐	→310
307	How many times did you take SP/Fansidar during this pregnancy?	TIMES ..... ☐☐	

[1]Coding categories to be developed locally and revised based on the pretest; however, the broad categories must be maintained. Include all drugs or drug combinations that are commonly given as separate categories.

[2] Add response categories for additional drugs used to prevent malaria during pregnancy, if any. Repeat Questions 306-309 for any other recommended IPT drugs.

		LAST BIRTH NAME _____	
308	CHECK 303: ANTENATAL CARE FROM A HEALTH PROFESSIONAL RECEIVED DURING THIS PREGNANCY?	CODE 'A', 'B', OR 'C' CIRCLED ☐ (2) OTHER ☐_____	→310
309	Did you get the SP/Fansidar during an antenatal visit, during another visit to a health facility, or from some other source?	ANTENATAL VISIT.....1 ANOTHER FACILITY VISIT.....2 OTHER SOURCE _____ 6 (SPECIFY)	
	Did you purchase the SP/Fansidar?	YES.....1 NO.....2 DON'T KNOW 8	→310
	How much did you pay for the SP/Fansidar?	In Kwacha ☐☐☐☐	
310	CHECK 215 AND 216: ONE OR MORE LIVING CHILDREN BORN IN 2003[1] OR LATER ☐ (2) NO LIVING CHILDREN BORN IN 2003[1] OR LATER ☐_____		→345

[1] For fieldwork beginning in 2006, 2007, or 2008, the year should be 2001, 2002, or 2003, respectively.

SECTION 4. FEVER IN CHILDREN

311	ENTER IN THE TABLE THE LINE NUMBER AND NAME OF EACH LIVING CHILD BORN IN 2010[1] OR LATER. (IF THERE ARE MORE THAN 2 LIVING CHILDREN BORN IN 2010[1] OR LATER, USE ADDITIONAL QUESTIONNAIRES). Now I would like to ask you some questions about the health of all your children less than 5 years old. (We will talk about each one separately.)		
312	NAME AND LINE NUMBER FROM 212	YOUNGEST CHILD LINE NUMBER..... ▒▒ NAME _____	NEXT-TO-YOUNGEST CHILD LINE NUMBER..... ▒▒ NAME _____
312 a	Has (NAME) had diarrhea at any time in the last 2 weeks?	YES.....1 NO .....2 (GO TO 312a FOR NEXT CHILD OR, IF NO MORE CHILDREN, SKIP TO 313) DON'T KNOW 8	YES .....1 NO.....2 (GO BACK TO 312a FOR NEXT CHILD OR, IF NO MORE CHILDREN, SKIP TO 313) DON'T KNOW.....8
312 b	Now I would like to know how much (NAME) was given to drink during the diarrhea (including breastmilk). Was he/she given less than usual to drink, about the same amount, or more than usual to drink? IF LESS, PROBE: Was he/she given much less than usual to drink or somewhat less?	MUCH LESS .....1 SOMEWHAT LESS .....2 ABOUT THE SAME.....3 MORE .....4 NOTHING TO DRINK.....5 DON'T KNOW 8	MUCH LESS.....1 SOMEWHAT LESS.....2 ABOUT THE SAME .....3 MORE.....4 NOTHING TO DRINK .....5 DON'T KNOW.....8
312 c	When (NAME) had diarrhea, was he/she given less than usual to eat, about the same amount, more than usual, or nothing to eat? IF LESS, PROBE: Was he/she given much less than usual to eat or somewhat less?	MUCH LESS .....1 SOMEWHAT LESS .....2 ABOUT THE SAME.....3 MORE .....4 STOPPED FOOD.....5 NEVER GAVE FOOD.....6 DON'T KNOW 8	MUCH LESS.....1 SOMEWHAT LESS.....2 ABOUT THE SAME .....3 MORE.....4 STOPPED FOOD .....5 NEVER GAVE FOOD .....6 DON'T KNOW.....8
312d	Did you seek advice or treatment for the diarrhea from any source?	YES ..... 1 NO..... 2 (SKIP TO 312g)	YES.....1 NO .....2 (SKIP TO 312g)
312 e	Where did you seek advice or treatment?[2] Anywhere else? RECORD ALL SOURCES MENTIONED. IF UNABLE TO DETERMINE IF PUBLIC OR PRIVATE SECTOR, WRITETHE NAME OF THE PLACE _____ (NAME OF THE PLACE(S))	PUBLIC SECTOR GOVT. HOSPITAL .....A GOVT. HEALTH CENTER.....B GOVT. HEALTH POST ..... C MOBILE CLINIC..... D COMMUNITY HEALTH WORKER or FIELD WORKER .....F OTHER PUBLIC _____G (SPECIFY) PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC..... H PHARMACY.....I PRIVATE DOCTOR .....J	PUBLIC SECTOR GOVT. HOSPITAL.....A GOVT. HEALTH CENTER.....B GOVT. HEALTH POST.....C MOBILE CLINIC .....D COMMUNITY HEALTH WORKER or FIELD WORKER ..... F OTHER PUBLIC _____G (SPECIFY) PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC.....H PHARMACY ..... I PRIVATE DOCTOR..... J

		MOBILE CLINIC ..... K FIELD WORKER ..... L OTHER PVT. MEDICAL _____ M (SPECIFY) OTHER SOURCE SHOP ..... N TRAD. PRACTITIONER ..... O OTHER _____ X (SPECIFY)	MOBILE CLINIC ..... K FIELD WORKER ..... L OTHER PVT. MEDICAL _____ M (SPECIFY) OTHER SOURCE SHOP ..... N TRAD. PRACTITIONER ..... O OTHER _____ X (SPECIFY)
312f	Where did you first seek advice or treatment? USE LETTER CODE FROM 312e	FIRST PLACE ..... [ ]	FIRST PLACE ..... [ ]
312g	Was he/she given any of the following to drink at any time since he/she started having diarrhea: a) Fluid made from a special packet called [ORS]? b) A pre-packaged ORS liquid? c) A government-recommended home-made fluid for diarrhea?	Y N DK Fluid from ORS Packet 1 2 8 ORS LQD 1 2 8 Homemade fluid 1 2 8	Y N DK Fluid from ORS Packet 1 2 8 ORS LQD 1 2 8 Homemade fluid 1 2 8
312 h	Was anything (else) given to treat the diarrhea?	YES ..... 1 NO ..... 2 (If 'NO' GO TO 313) DON"T KNOW 8	YES ..... 1 NO ..... 2 (If 'NO' GO TO 313) DON"T KNOW 8
312i	What (else) was given to treat the diarrhea? Anything else? RECORD ALL TREATMENTS MENTIONED	PILL OR SYRUP ANTIBIOTIC ..... A ANTIMOTILITY ..... B ZINC ..... C OTHER ..... D UNKNOWN PILL OR SYRUP ..... E INJECTION ANTIBIOTIC ..... F NON_ANTIBIOTIC ..... G UNKNOWN PILL OR SYRUP ..... H (I.V.) INTRAVENOUS ..... I HOME REMEDIES/HERBAL MEDICINES ..... J OTHER _____ ..... X (specify)	PILL OR SYRUP ANTIBIOTIC ..... A ANTIMOTILITY ..... B ZINC ..... C OTHER ..... D UNKNOWN PILL OR SYRUP ..... E INJECTION ANTIBIOTIC ..... F NON_ANTIBIOTIC ..... G UNKNOWN PILL OR SYRUP ..... H (I.V.) INTRAVENOUS ..... I HOME REMEDIES/HERBAL MEDICINES ..... J OTHER _____ ..... X (specify)
313	Has (NAME) been ill with a fever at any time in the last 2 weeks?	YES ..... 1 NO ..... 2 (GO TO 313 FOR NEXT CHILD OR, IF NO MORE CHILDREN, SKIP TO 345) DON'T KNOW 8	YES ..... 1 NO ..... 2 (GO BACK TO 313 FOR NEXT CHILD OR, IF NO MORE CHILDREN, SKIP TO 345) DON'T KNOW 8

314	How many days ago did the fever start? IF LESS THAN ONE DAY, RECORD '00'.	DAYS AGO ..... ▒▒ DON'T KNOW……98	DAYS AGO ..... ▒▒ DON'T KNOW……98
315	Did you seek advice or treatment for the fever from any source?	YES ..... 1 NO ..... 2 (SKIP TO 316c) =——┘	YES ..... 1 NO ..... 2 (SKIP TO 316c) =——┘
316a	Where did you seek advice or treatment?[2] Anywhere else? RECORD ALL SOURCES MENTIONED. IF UNABLE TO DETERMINE IF PUBLIC OR PRIVATE SECTOR, WRITETHE NAME OF THE PLACE _____ (NAME OF THE PLACE(S)	PUBLIC SECTOR GOVT. HOSPITAL ..... A GOVT. HEALTH CENTER ..... B GOVT. HEALTH POST ..... C MOBILE CLINIC ..... D COMMUNITY HEALTH WORKER or FIELD WORKER ..... F OTHER PUBLIC _____ G (SPECIFY) PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC ..... H PHARMACY ..... I PRIVATE DOCTOR ..... J MOBILE CLINIC ..... K FIELD WORKER ..... L OTHER PVT. MEDICAL _____ M (SPECIFY) OTHER SOURCE SHOP ..... N TRAD. PRACTITIONER ..... O OTHER _____ X (SPECIFY)	PUBLIC SECTOR GOVT. HOSPITAL ..... A GOVT. HEALTH CENTER ..... B GOVT. HEALTH POST ..... C MOBILE CLINIC ..... D COMMUNITY HEALTH WORKER or FIELD WORKER ..... F OTHER PUBLIC _____ G (SPECIFY) PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC ..... H PHARMACY ..... I PRIVATE DOCTOR ..... J MOBILE CLINIC ..... K FIELD WORKER ..... L OTHER PVT. MEDICAL _____ M (SPECIFY) OTHER SOURCE SHOP ..... N TRAD. PRACTITIONER ..... O OTHER _____ X (SPECIFY)
316b	Where did you first seek advice or treatment? USE LETTER CODE FROM 316a	FIRST PLACE ..... ▒	FIRST PLACE ..... ▒
316c	How many days after the fever began did you first seek advice or treatment for (NAME)? IF THE SAME DAY, RECORD '00'.	DAYS ..... ▒▒	DAYS ..... ▒▒

[1] For fieldwork beginning in 2013, 2014, or 2015, the year should be 2008, 2009, or 2010, respectively.
[2] Coding categories to be developed locally and revised based on the pretest; however, the broad categories must be maintained.

		YOUNGEST CHILD NAME _____	NEXT-TO-YOUNGEST CHILD NAME _____
316d	Did (NAME) receive a finger stick or heal stick to test the fever/illness?	YES ..... 1 NO ..... 2 DON'T KNOW 8	YES ..... 1 NO ..... 2 DON'T KNOW 8
316e	Was a diagnostic blood test for malaria performed?	YES ..... 1 NO ..... 2 DON'T KNOW ..... 8 (2 or 8 THEN SKIP TO 317) =——┘	YES ..... 1 NO ..... 2 DON'T KNOW ..... 8 2 or 8 THEN SKIP TO 317) =——┘
316f	Did you request the test or was it offered to	OFFERED 1	OFFERED 1

	you?	REQUESTED 2	REQUESTED 2
316g	What type of diagnostic blood test for malaria performed?	Microscopy..... 1 Malaria test kit/ rapid diagnostic test 2 DON'T KNOW..... 8	Microscopy ..... 1 Malaria test kit/ rapid diagnostic test 2 DON'T KNOW 8
316h	Was the result of the diagnostic blood test for malaria shared with you?	YES ..... 1 NO ..... 2 DON'T KNOW..... 8 (2 or 8 THEN SKIP TO 317) =——┘	YES ..... 1 NO..... 2 DON'T KNOW ..... 8 2 or 8 THEN SKIP TO 317) =——┘
316i	What was the result of the diagnostic blood test for malaria?	Positive for malaria ..... 1 Negative for malaria..... 2 DON'T KNOW..... 8	Positive for malaria ..... 1 Negative for malaria..... 2 DON'T KNOW 8
317	Is (NAME) still sick with a fever?	YES ..... 1 NO ..... 2 DON'T KNOW..... 8	YES ..... 1 NO..... 2 DON'T KNOW 8
318	At any time during the illness, did (NAME) take any drugs for the fever?	YES ..... 1 NO ..... 2 (SKIP 344) =——┐ DON'T KNOW..... 8	YES.....1 NO.....2 (SKIP 344) =——┐ DON'T KNOW.....8
319	What drugs did (NAME) take?[1] Any other drugs? RECORD ALL MENTIONED. ASK TO SEE DRUG(S) IF TYPE OF DRUG IS NOT KNOWN. IF TYPE OF DRUG IS STILL NOT DETERMINED, SHOW TYPICAL ANTIMALARIAL DRUGS TO RESPONDENT.	ANTIMALARIAL SP/FANSIDAR ..... A CHLOROQUINE..... B AMODIAQUINE..... C QUININE ..... D ARTESUNATE……E AL/COARTEM/LUMET……F DHAP……G OTHER ANTIMALARIAL_____ H (SPECIFY) ANTIBIOTIC DRUGS PILLS/SYRUP ..... I INJECTION ....J OTHER DRUGS ASPIRIN..... K ACETAMINOPHEN/ PARACETAMOL.....L IBUPROFEN .....M OTHER _____ X (SPECIFY) DON'T KNOW..... Z	ANTIMALARIAL SP/FANSIDAR ..... A CHLOROQUINE ..... B AMODIAQUINE..... C QUININE ..... D ARTESUNATE……E AL/COARTEM/LUMET……F DHAP……G OTHER ANTIMALARIAL_____ H (SPECIFY) ANTIBIOTIC DRUGS PILLS/SYRUP .....I INJECTION ....J OTHER DRUGS ASPIRIN..... K ACETAMINOPHEN/ PARACETAMOL.....L IBUPROFEN .....M OTHER _____ X (SPECIFY) DON'T KNOW..... Z
320	CHECK 319: ANY CODE A-F CIRCLED?	YES ☐ NO ☐ (GO BACK TO 313 IN NEXT COLUMN; OR IF NO MORE BIRTHS, SKIP TO 344)	YES ☐ NO ☐ (GO BACK TO 313 IN NEXT COLUMN; OR IF NO MORE BIRTHS, SKIP TO 344)
320A	CHECK 319: SP/FANSIDAR ('A') GIVEN?	CODE 'A' CIRCLED ☐ CODE 'A' NOT CIRCLED ☐ (SKIP TO 324)	CODE 'A' CIRCLED ☐ CODE 'A' NOT CIRCLED ☐ (SKIP TO 324)

321	How long after the fever started did (NAME) first take SP/Fansidar?	SAME DAY .....0 NEXT DAY.....1 TWO DAYS AFTER THE FEVER.....2 THREE DAYS AFTER THE FEVER..3 FOUR OR MORE DAYS AFTER THE FEVER.....4 DON'T KNOW.....8	SAME DAY .....0 NEXT DAY.....1 TWO DAYS AFTER THE FEVER .....2 THREE DAYS AFTER THE FEVER..3 FOUR OR MORE DAYS AFTER THE FEVER .....4 DON'T KNOW.....8

[1] Revise list of drugs as appropriate; however, the broad categories must be maintained. Include all drugs or drug combinations that are commonly given as separate categories.

		YOUNGEST CHILD NAME _____	NEXT-TO-YOUNGEST CHILD NAME _____
322	For how many days did (NAME) take the SP/Fansidar? IF 7 OR MORE DAYS, RECORD '7'.	DAYS..... ▒▒ DON'T KNOW 8	DAYS..... ▒▒ DON'T KNOW 8
323	Did you have the SP/Fansidar at home or did you get it from somewhere else? IF SOMEWHERE ELSE, PROBE FOR SOURCE. IF MORE THAN ONE SOURCE MENTIONED, ASK: Where did you get the SP/Fansidar first?	AT HOME .....1 COMMUNITY HEALTH WORKER....2 GOVERNMENT HEALTH FACILITY/WORKER .....3 PRIVATE HEALTH FACILITY/WORKER .....4 SHOP .....5 OTHER_____6 (SPECIFY) DON'T KNOW.....8	AT HOME .....1 COMMUNITY HEALTH WORKER....2 GOVERNMENT HEALTH FACILITY/WORKER .....3 PRIVATE HEALTH FACILITY/WORKER .....4 SHOP .....5 OTHER_____6 (SPECIFY) DON'T KNOW.....8
339a	Did you purchase the SP/Fansidar?	YES ..... 1 NO ..... 2 If NO, Skip to 340	YES .....1 NO.....2 If NO, Skip to 340
339b	How much did you pay for the SP/Fansidar?	In Kwacha ▒▒▒	In Kwacha ▒▒▒
324	CHECK 319: WHICH MEDICINES?	CODE 'B' CIRCLED ☐ CODE 'B' NOT CIRCLED ☐ (SKIP TO 328)	CODE 'B' CIRCLED ☐ CODE 'B' NOT CIRCLED ☐ (SKIP TO 328)
325	How long after the fever started did (NAME)	SAME DAY .....0 NEXT DAY.....1	SAME DAY .....0 NEXT DAY.....1

	first take chloroquine?	TWO DAYS AFTER THE FEVER.....2 THREE DAYS AFTER THE FEVER 3 FOUR OR MORE DAYS AFTER THE FEVER.....4 DON'T KNOW.....8	TWO DAYS AFTER THE FEVER .....2 THREE DAYS AFTER THE FEVER..3 FOUR OR MORE DAYS AFTER THE FEVER .....4 DON'T KNOW.....8
326	For how many days did (NAME) take chloroquine? IF 7 OR MORE DAYS, RECORD '7'.	DAYS..... ▒▒ DON'T KNOW 8	DAYS..... ▒▒ DON'T KNOW 8
327	Did you have the chloroquine at home or did you get it from somewhere else? IF SOMEWHERE ELSE, PROBE FOR SOURCE. IF MORE THAN ONE SOURCE MENTIONED, ASK: Where did you get the chloroquine first?	AT HOME .....1 COMMUNITY HEALTH WORKER....2 GOVERNMENT HEALTH FACILITY/WORKER .....3 PRIVATE HEALTH FACILITY/WORKER .....4 SHOP .....5 OTHER_____6 (SPECIFY) DON'T KNOW.....8	AT HOME .....1 COMMUNITY HEALTH WORKER....2 GOVERNMENT HEALTH FACILITY/WORKER .....3 PRIVATE HEALTH FACILITY/WORKER .....4 SHOP .....5 OTHER_____ 6 (SPECIFY) DON'T KNOW.....88
327a	Did you purchase the cholorquine?	YES ..... 1 NO ..... 2 If NO, Skip to 340	YES .....1 NO.....2 If NO, Skip to 340
327b	How much did you pay for the choloquine	In Kwacha ▒▒▒	In Kwacha ▒▒▒
328	CHECK 319: WHICH MEDICINES?	CODE 'C' CIRCLED ☐ CODE 'C' NOT CIRCLED ☐ (SKIP TO 332)	CODE 'C' CIRCLED ☐ CODE 'C' NOT CIRCLED ☐ (SKIP TO 332)
329	How long after the fever started did (NAME) first take Amodiaquine?	SAME DAY .....0 NEXT DAY.....1 TWO DAYS AFTER THE FEVER.....2 THREE DAYS AFTER THE FEVER..3 FOUR OR MORE DAYS AFTER THE FEVER.....4 DON'T KNOW.....8	SAME DAY .....0 NEXT DAY.....1 TWO DAYS AFTER THE FEVER .....2 THREE DAYS AFTER THE FEVER..3 FOUR OR MORE DAYS AFTER THE FEVER .....4 DON'T KNOW.....8

		YOUNGEST CHILD NAME _____	NEXT-TO-YOUNGEST CHILD NAME _____
330	For how many days did (NAME) take Amodiaquine?	▒▒	▒▒

	IF 7 OR MORE DAYS, RECORD '7'.	DAYS..... ▒▒ DON'T KNOW 8	DAYS..... ▒▒ DON'T KNOW 8
331	Did you have the Amodiaquine at home or did you get it from somewhere else? IF SOMEWHERE ELSE, PROBE FOR SOURCE. IF MORE THAN ONE SOURCE MENTIONED, ASK: Where did you get the Amodiaquine first?	AT HOME .....1 COMMUNITY HEALTH WORKER....2 GOVERNMENT HEALTH FACILITY/WORKER .....3 PRIVATE HEALTH FACILITY/WORKER .....4 SHOP .....5 OTHER_____6 (SPECIFY) DON'T KNOW.....8	AT HOME .....1 COMMUNITY HEALTH WORKER....2 GOVERNMENT HEALTH FACILITY/WORKER .....3 PRIVATE HEALTH FACILITY/WORKER .....4 SHOP .....5 OTHER_____6 (SPECIFY) DON'T KNOW.....8
331a	Did you purchase the Amodiaquine?	YES ..... 1 NO ..... 2 If NO, Skip to 340	YES .....1 NO .....2 If NO, Skip to 340
331b	How much did you pay for the Amodiaquine?	In Kwacha ▒▒▒	In Kwacha ▒▒▒
332	CHECK 319: WHICH MEDICINES?	CODE 'D' CIRCLED ☐ CODE 'D' NOT CIRCLED ☐ (SKIP TO 336)	CODE 'D' CIRCLED ☐ CODE 'D' NOT CIRCLED ☐ (SKIP TO 336)
333	How long after the fever started did (NAME) first take Quinine?	SAME DAY .....0 NEXT DAY.....1 TWO DAYS AFTER THE FEVER.....2 THREE DAYS AFTER THE FEVER..3 FOUR OR MORE DAYS AFTER THE FEVER.....4 DON'T KNOW.....8	SAME DAY .....0 NEXT DAY.....1 TWO DAYS AFTER THE FEVER .....2 THREE DAYS AFTER THE FEVER..3 FOUR OR MORE DAYS AFTER THE FEVER .....4 DON'T KNOW.....8
334	For how many days did (NAME) take Quinine? IF 7 OR MORE DAYS, RECORD '7'.	DAYS..... ▒▒ DON'T KNOW 8	DAYS..... ▒▒ DON'T KNOW 8
335	Did you have the Quinine at home or did you get it from somewhere else? IF SOMEWHERE ELSE, PROBE FOR SOURCE. IF MORE THAN ONE SOURCE MENTIONED, ASK: Where did you get the Quinine first?	AT HOME .....1 COMMUNITY HEALTH WORKER....2 GOVERNMENT HEALTH FACILITY/WORKER .....3 PRIVATE HEALTH FACILITY/WORKER .....4 SHOP .....5 OTHER_____6 (SPECIFY) DON'T KNOW.....8	AT HOME .....1 COMMUNITY HEALTH WORKER....2 GOVERNMENT HEALTH FACILITY/WORKER .....3 PRIVATE HEALTH FACILITY/WORKER .....4 SHOP .....5 OTHER_____6 (SPECIFY) DON'T KNOW.....8

335a	Did you purchase the Quinine?	YES ..... 1 NO ..... 2 If NO, Skip to 340	YES .....1 NO .....2 If NO, Skip to 340
335b	How much did you pay for the Quinine?	In Kwacha ☐☐☐	In Kwacha ☐☐☐
336	CHECK 319: WHICH MEDICINES?	CODE 'E' CIRCLED ☐ CODE 'E' NOT CIRCLED ☐ (SKIP TO 340)	CODE 'E' CIRCLED ☐ CODE 'E' NOT CIRCLED ☐ (SKIP TO 340)
337	How long after the fever started did (NAME) first take Artemether-lumefantrine (AL or COARTEM or LUMET)?	SAME DAY .....0 NEXT DAY.....1 TWO DAYS AFTER THE FEVER.....2 THREE DAYS AFTER THE FEVER..3 FOUR OR MORE DAYS AFTER THE FEVER.....4 DON'T KNOW.....8	SAME DAY .....0 NEXT DAY.....1 TWO DAYS AFTER THE FEVER .....2 THREE DAYS AFTER THE FEVER..3 FOUR OR MORE DAYS AFTER THE FEVER .....4 DON'T KNOW.....8
338	For how many days did (NAME) take AL/COARTEM/LUMET ? IF 7 OR MORE DAYS, RECORD '7'.	DAYS..... ☐☐ DON'T KNOW 8	DAYS..... ☐☐ DON'T KNOW 8
339	Did you have the AL/Coartem/Lumet at home or did you get it from somewhere else? IF SOMEWHERE ELSE, PROBE FOR SOURCE. IF MORE THAN ONE SOURCE MENTIONED, ASK: Where did you get the ACT first?	AT HOME .....1 COMMUNITY HEALTH WORKER....2 GOVERNMENT HEALTH FACILITY/WORKER .....3 PRIVATE HEALTH FACILITY/WORKER .....4 SHOP .....5 OTHER_____6 (SPECIFY) DON'T KNOW.....8	AT HOME .....1 COMMUNITY HEALTH WORKER....2 GOVERNMENT HEALTH FACILITY/WORKER .....3 PRIVATE HEALTH FACILITY/WORKER .....4 SHOP .....5 OTHER_____6 (SPECIFY) DON'T KNOW.....8
339a	Did you purchase the AL/Coartem/LUMET ?	YES ..... 1 NO ..... 2 If NO, Skip to 339c	YES .....1 NO .....2 If NO, Skip to 339c
339b	How much did you pay for the AL/Coartem/LUMET ?	In Kwacha ☐☐☐	In Kwacha ☐☐☐

339c	CHECK 319: WHICH MEDICINES?	CODE 'E' CIRCLED CODE 'E' NOT CIRCLED (SKIP TO 340)	CODE 'E' CIRCLED CODE 'E' NOT CIRCLED (SKIP TO 340)
339d	How long after the fever started did (NAME) first take DHAP?	SAME DAY .....0 NEXT DAY.....1 TWO DAYS AFTER THE FEVER.....2 THREE DAYS AFTER THE FEVER..3 FOUR OR MORE DAYS AFTER THE FEVER.....4 DON'T KNOW.....8	SAME DAY .....0 NEXT DAY.....1 TWO DAYS AFTER THE FEVER .....2 THREE DAYS AFTER THE FEVER..3 FOUR OR MORE DAYS AFTER THE FEVER .....4 DON'T KNOW.....8
339e	For how many days did (NAME) take DHAP? IF 7 OR MORE DAYS, RECORD '7'.	DAYS DON'T KNOW 8	DAYS DON'T KNOW 8
339f	Did you have the DHAP at home or did you get it from somewhere else? IF SOMEWHERE ELSE, PROBE FOR SOURCE. IF MORE THAN ONE SOURCE MENTIONED, ASK: Where did you get the ACT first?	AT HOME .....1 COMMUNITY HEALTH WORKER....2 GOVERNMENT HEALTH FACILITY/WORKER .....3 PRIVATE HEALTH FACILITY/WORKER .....4 SHOP .....5 OTHER_____ 6 (SPECIFY) DON'T KNOW.....8	AT HOME .....1 COMMUNITY HEALTH WORKER....2 GOVERNMENT HEALTH FACILITY/WORKER .....3 PRIVATE HEALTH FACILITY/WORKER .....4 SHOP .....5 OTHER_____ 6 (SPECIFY) DON'T KNOW.....8
339g	Did you purchase the DHAP?	YES 1 NO 2 If NO, Skip to 340	YES 1 NO 2 If NO, Skip to 340
339h	How much did you pay for the DHAP?	In Kwacha	In Kwacha
340	CHECK 319: WHICH MEDICINES?	CODE 'F' CIRCLED CODE 'F' NOT CIRCLED (SKIP TO 344)	CODE 'F' CIRCLED CODE 'F' NOT CIRCLED (SKIP TO 344)
341	How long after the fever started did (NAME) first take (NAME OF OTHER ANTIMALARIAL)?	SAME DAY .....0 NEXT DAY.....1 TWO DAYS AFTER THE FEVER.....2 THREE DAYS AFTER THE FEVER..3	SAME DAY .....0 NEXT DAY.....1 TWO DAYS AFTER THE FEVER .....2 THREE DAYS AFTER THE FEVER..3

		FOUR OR MORE DAYS AFTER THE FEVER.....4 DON'T KNOW.....8	FOUR OR MORE DAYS AFTER THE FEVER .....4 DON'T KNOW.....8
342	For how many days did (NAME) take (NAME OF OTHER ANTIMALARIAL)? IF 7 OR MORE DAYS, RECORD '7'.	DAYS..... ▒▒ DON'T KNOW 8	DAYS..... ▒▒ DON'T KNOW 8
343	Did you have the (NAME OF OTHER ANTIMALARIAL) at home or did you get it from somewhere else? IF SOMEWHERE ELSE, PROBE FOR SOURCE. IF MORE THAN ONE SOURCE MENTIONED, ASK: Where did you get the (NAME OF OTHER ANTIMALARIAL) first?	AT HOME .....1 COMMUNITY HEALTH WORKER....2 GOVERNMENT HEALTH FACILITY/WORKER .....3 PRIVATE HEALTH FACILITY/WORKER .....4 SHOP .....5 OTHER_____ 6 (SPECIFY) DON'T KNOW.....8	AT HOME .....1 COMMUNITY HEALTH WORKER....2 GOVERNMENT HEALTH FACILITY/WORKER .....3 PRIVATE HEALTH FACILITY/WORKER .....4 SHOP .....5 OTHER_____ 6 (SPECIFY) DON'T KNOW.....8
344		GO BACK TO 313 IN NEXT COLUMN, OR, IF NO MORE CHILDREN, GO TO 345.	GO BACK TO 313 IN FIRST COLUMN OF NEW QUESTIONNAIRE, OR, IF NO MORE CHILDREN, GO TO 345.
345	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 THE SUPERVISOR:_____ DATE: _____

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