Republic of Mozambique
Ministry of Health
National Directorate of Public Health

National Malaria Control Programme

National Malaria Indicator Survey
Mozambique
(MIS – 2007)

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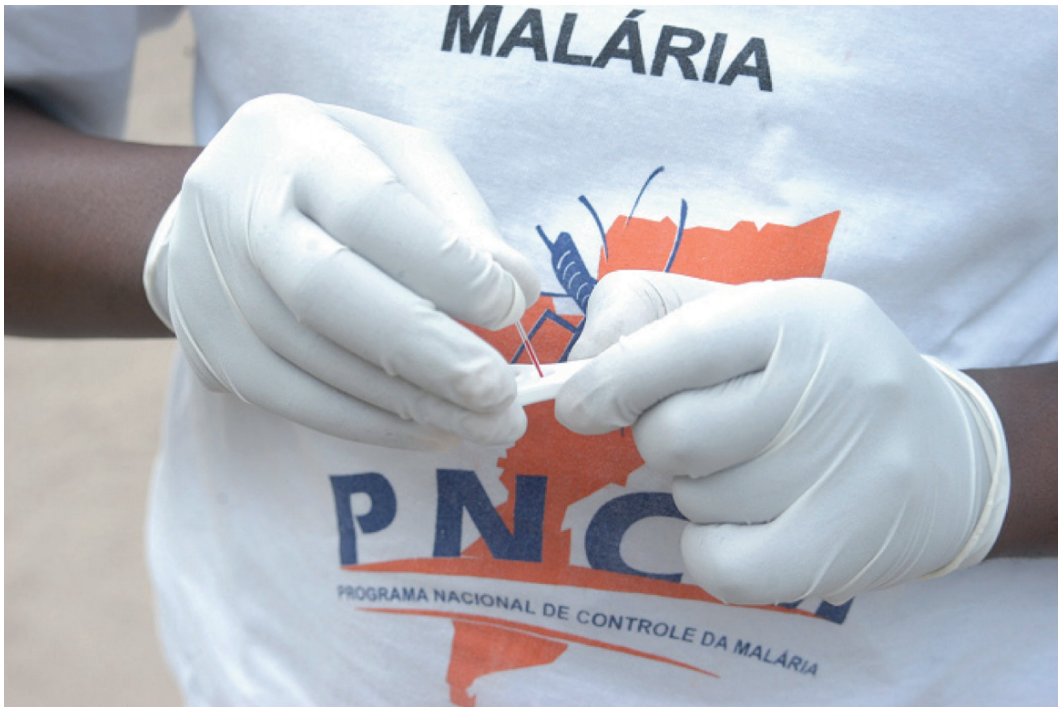

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Authors: Samuel Mabunda, Guideon Mathe, Elizabeth Streat, Susana Nery, Albert Kilian

In collaboration with: National Institute of Health, National Institute of Statistics, World Health Organisation, US Agency for International Development, Centres of Disease Control, Satellife Project, Department for International Development, Malaria Consortium

Translation: Muriel Vasconcellos and Kate Brownlow

Photography: Momed Ferat

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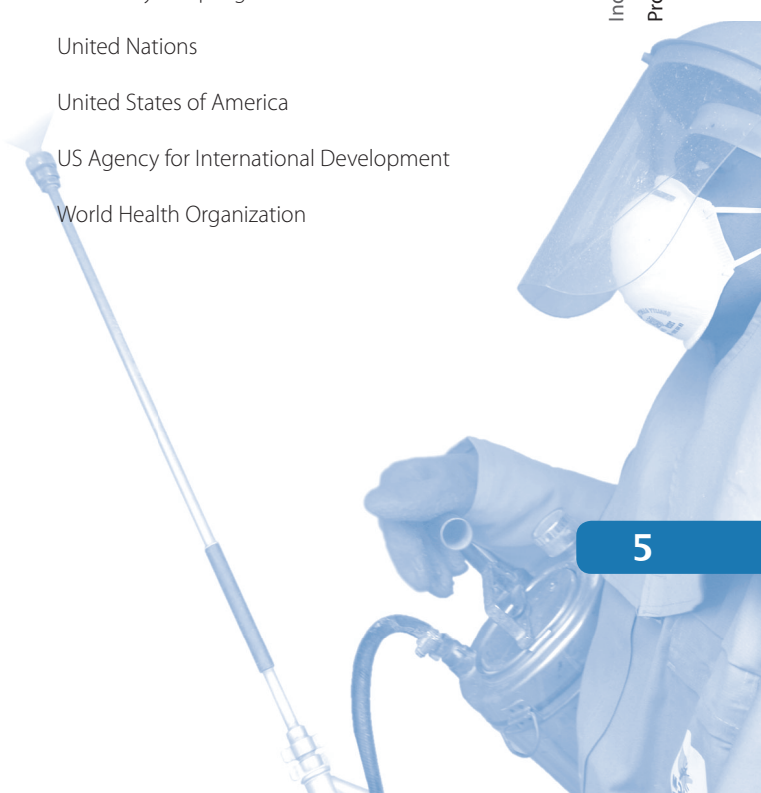
Acronyms and Abbreviations

µL	microlitres
ACT	artemisinin combination therapy
ANC	antenatal care
CDC	Centers for Disease Control (USA)
DFID	Department for International Development (UK)
DHS	Demographic and Health Survey
EA	enumeration area
g/dL	grammes per decilitre
GPS	geographical positioning system
Hb	haemoglobin
HF	health facility
HRP2	histidine-rich protein II
ICT	immunochromatographic test
IMCI	integrated management of childhood illnesses
INE	National Institute of Statistics
INS	National Institute of Health
IPT	intermittent presumptive treatment
IRS	indoor residual spraying
ITN	insecticide-treated nets
LLIN	long-lasting insecticidal nets
LSDI	Lebombo Spatial Development Initiative
M&E	monitoring and evaluation
MC	Malaria Consortium
MERG	Monitoring and Evaluation Reference Group
MIS	Malaria Indicator Survey
NGO	non-governmental organisation
NMCP	National Malaria Control Programme
NPV	negative predictive value
ORC-Macro	Opinion Research Cooperation-Macro
PDA	personal digital assistant
PMI	President's Malaria Initiative (USA)
PPS	probability proportional to size
PPV	positive predictive value
PS	primary school
PSU	primary sampling unit
RBM	Roll Back Malaria
RDT	rapid diagnostic test/-ing
RGPH	General Population and Housing Census
SP	sulphadoxine-pyrimethamine
spec	specificity
SS	secondary school
SSU	secondary sampling unit
UN	United Nations
USA	United States of America
USAID	US Agency for International Development
WHO	World Health Organization



Main partners:

National Institute of Statistics, Mozambique

World Health Organization

US Agency for International Development

Centers for Disease Control, USA

Satellife Project, USA

Department for International Development, UK

Malaria Consortium

This report summarises the main results from the Mozambique National Malaria Indicator Survey undertaken between June and July 2007 by the Ministry of Health, National Malaria Control Programme, with technical support from the National Institute of Statistics, World Health Organization, US Centres for Disease Control, Satellife, and Malaria Consortium and with financial support from the President's Malaria Initiative (PMI) through the United States Agency for International Development (USAID), and the British Department for International Development (DFID).

We thank all those who directly or indirectly contributed to making this work possible, with special thanks to the heads of households and mothers who collaborated with the field teams. Without their participation this study would not have been possible. We also thank the Provincial Directors of Health, administrative post chiefs, and community leaders for their support during the implementation of the survey, and Jonathan Cox from the London School of Hygiene & Tropical Medicine, who supplied the rainfall graphs.

SURVEY PHOTOS

Interviewer fills in questionnaire in the back garden

Health worker performs malaria test on a child under five

SURVEY PHOTOS

Health worker and interviewer at worle in household

Interviewer double checks entry of data on forms

Preface

Malaria is one of the principal health problems in Mozambique. This is due to climatic, environmental (favourable temperatures and rainfall) and socio-economic (poverty, inaccessible prevention measures) factors. In addition, the majority of Mozambican people live in areas of high risk for malaria infection.

In Mozambique, as in many other African countries, malaria is the principal cause of absenteeism from school and work, perpetuating the vicious cycle of disease and poverty.

The National Malaria Control Programme's Strategic Plan defines coverage targets for a number of interventions, with the objective of expanding efforts to fight malaria to household level.

The impact of the main interventions proposed in the strategic plan will be seen in the reduction of the burden of malaria. A comprehensive situational analysis is required in order to provide a baseline for continued monitoring and evaluation of key progress and impact indicators for these interventions.

Therefore, measuring the coverage of interventions and the burden of disease (prevalence of malarial infection and anaemia in children and pregnant women) constitutes a basic tool to evaluate the progress of efforts undertaken to reduce the impact of the disease.

In this context, the Ministry of Health, in coordination with the National Statistics Institute, carried out a Malaria Indicator Survey in 2007 in Mozambique in order to provide a reference evaluation for key indicators prior to expanding activities, as well as to provide important information towards adjusting implementation strategies.

The results of this survey show malaria and malaria-associated anaemia remain a public health problem, particularly in rural communities of Mozambique. They also indicate the absolute necessity of improving understanding and rolling out good practices in relation to malaria prevention and control measures.

Maputo, June 2009

Prof. Dr. Paulo Ivo Garrido
Minister of Health

Executive Summary

Malaria remains one of the major health problems in Mozambique. The Ministry of Health, through its National Malaria Control Programme, has defined strategies to intensify the scaling up of activities with the objective of accelerating a reduction in the malaria burden.

The systematic evaluation of these interventions, through key indicators, is extremely important for monitoring results and in turn guiding decision-making for future implementation strategies as well as adjusting ongoing malaria prevention and control interventions.

This report presents the results of the first Malaria Indicator Survey (MIS) in Mozambique, undertaken by the National Malaria Control Programme in partnership with national and international institutions between June and July 2007, as part of the effort to evaluate and establish a baseline for some key malariometric indicators (suggested by the Roll Back Malaria Partnership) at the community and household level.

The Mozambique MIS aligns with the general MIS recommendations for malaria indicator surveys published by the RBM Monitoring and Evaluation Reference Group (MERG), with some changes made in order to reflect national realities.

The sample was derived by the National Institute of Statistics from the primary or 'mother' sample--i.e. a large sample stratified according to three selection stages developed for use in the general population census of 1997, and all national, household surveys in Mozambique.In all, 346 clusters containing a total of 5990 households were selected from the 1510 clusters in the primary sample.

The design process was focused on developing a sample that would show representative probability and at the same time be stratified to produce estimates for the country as a whole, rural and urban areas separately, and for the principal domains (the provinces).

A total of 5745 completed surveys were used for the final analysis reflectinga loss rate of only 4.1%. in the households surveyed there were 5637 women between the ages of 15 to 49, 589 pregnant women, and 1268 children who had had an episode of fever episode in the 14 days preceding the survey.

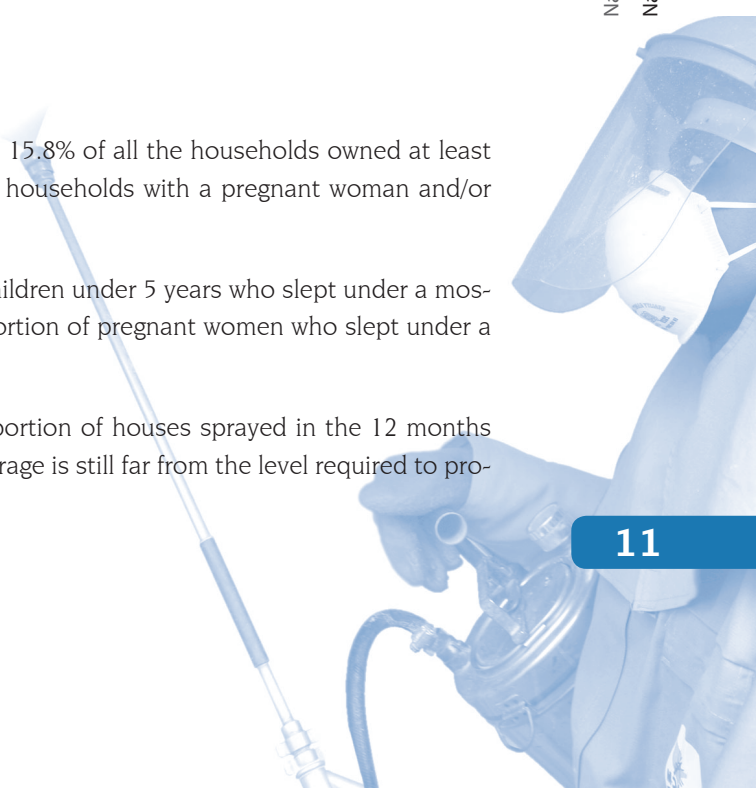
The main areas explored in this survey were coverage and use of long-lasting insecticidal nets (LLIN); coverage with indoor residual spraying (IRS); intermittent presumptive treatment (IPT) in pregnancy; prevalence of malaria infections and related anaemia; pattern of seeking health care and fever management for children; and women's knowledge of malaria.

Following is a summary of the principal results of the survey.

Coverage with mosquito nets remains very low: an estimated 15.8% of all the households owned at least one insecticide-treated net (ITN), and about 18.5% of those households with a pregnant woman and/or child under 5 years owned at least one ITN.

With regard to the use of mosquito nets, the proportion of children under 5 years who slept under a mosquito net the night before the survey was 6.7% and the proportion of pregnant women who slept under a mosquito net the night before the survey was 7.3%.

In terms of coverage from indoor residual spraying, the proportion of houses sprayed in the 12 months prior to the survey in the target districts was 52.4%. This coverage is still far from the level required to provide efficient protection.



With regard to intermittent presumptive treatment (IPT) during pregnancy, the survey showed 20.3% of the women who completed a pregnancy during the year prior to the survey received two or more doses of IPT during that pregnancy, and 23.3.% attended an antenatal consultation at least two times

The prevalence of fever (axillary temperature >37.5 oC) was 9.7%. Approximately 38.5% of the children were found to be carrying malaria parasites. The proportion of children under 5 years old with aneamia (hb<11g/dL) was 67.7%, and about 11.9% had severe anaemia (hb<8d/dL). Of the pregnant women, 16.3% were carriers of malaria parasites, 48.1 had anaemia, and about 5.1% had severe anaemia.

Another subject studied was healthcare-seeking behaviour for treatment of fever episodes in children under 5 years old. The survey showed that treatment was sought within 24 hours for 36.3% of children with fever in the two weeks prior to the survey, whilst the proportion of children under 5 years old with fever two weeks prior to the survey who received any treatment for malaria within 24 hours of onset of fever was 17.6%; of these, only 4.5% received combined treatment, i.e. antimalarials combined with artemisinin derivatives.

As for knowledge about malaria, the proportion of women who knew that fever is the main symptom of malaria was fairly high, at 70.0%, yet only 12.4% knew that anaemia is an important symptom of malaria. With regard to malaria transmission, 35.3% of the interviewees related malaria transmission only to mosquitoes. For prevention, only 28.6% of the women interviewed knew that mosquito nets are a means of prevention, yet almost 60% of them knew that pregnant women and children under 5 constitute a high-risk group.

From the results of this survey, it is possible to conclude that malaria and malaria-associated anaemia still constitute a public health problem, especially in rural communities in Mozambique.

Seeking treatment for children, especially for those with fever, is still very infrequent, and the majority of those who go to health facilities if they suspect malaria are still prescribed monotherapy, despite the current policy that recommends combination therapy with artemesinin derivatives.

The majority of women caring for children fail to associate some of the important symptoms of malaria, such as anaemia, with the disease.

At the community level, lack of knowledge about malaria is common, especially about how it is transmitted and how to prevent it. Household ownership of mosquito nets is very low, and less than half of the households reported using the net the night prior to the survey.

The MIS provides a comprehensive evaluation of coverage with key interventions and is a marker of progress reached through scaling up. As the first study of its kind, it will provide a baseline for a number of the indicators considered in the National Plan for Malaria Prevention and Control 2010- 2014.

Chapter I: Introduction

Geography

Mozambique is located on the eastern coast of Africa with Swaziland and South Africa to the south and southwest, Zimbabwe to the west, Zambia and Malawi to the northeast, and the Indian Ocean on the east. The Zambezi and the Save rivers divide the country into three topographic regions. The region to the north of the Zambezi follows the narrow coastline between the ocean and the Niassa highlands, Mount Namuli, and the Macondes plateau. The central region, located between the Zambezi and the Save rivers, goes from the interior mountains (Mashonaland plateau and the Lebombo range) to the coastal lowlands. Five major rivers criss-cross the country, the most important being the Zambezi, where the Cahora Bassa hydroelectric dam is located.

Figure 1: Map of Mozambique

Climate

Mozambique has a tropical climate with two seasons: a wet seasonfrom October to March, and a dry season from April to September. However, climatic conditions vary depending on the altitude. Rainfall is heavy along the coast and decreases in the north and south. Annual precipitation ranges from 500 to 900 mm, depending on the region, and averages 590 mm. Cyclones are also common during the wet season. In Maputo the average temperature range ranges between 13 and 24 °C in July and between 22 and 31 oC in February.

Population

The 2007 census estimated the population of Mozambique at 21,284,701. About 45% of the country's inhabitants are concentrated in the north-central provinces of Zambézia and Nampula. The population is growing at a rate of 1.7%. The birth and infant mortality rates are 38.2/1000 and 107.8/1000, respectively. Life expectancy at birth is 41 years, and the population density is 27 per km^2.

Epidemiology of Malaria in Mozambique

The malaria situation in Africa is very serious, especially in the country's poorest tropical countries [1,2,3]. Its undermining effects are enmeshed in a vicious cycle of poverty and disease, especially in areas of slow economic growth [4].

Malaria is one of the most overwhelming public health problems in Mozambique because of the many factors that interve: climate/environmental conditions, especially the temperature and rainfall patterns that favour it; the abundance of mosquitos and their breeding sites; and socio-economic conditions, including poverty and lack of access to prevention strategies. The majority of Mozambique's population live in areas at high risk of malaria infection.

Malaria is endemic throughout the country, its regions ranging between mesoendemic and hyperendemic [5]. Transmission occurs throughout the year with peaks during and after the rainy season between December and April. The intensity of transmission varies depending on annual rainfall and temperatures and also on specific environmental conditions the different regions. The arid regions are subject to epidemic outbreaks.

Malaria is the most common cause for outpatient consultations and also the most common cause for admission to health facilities. Severe and/or complicated cases exhibit cerebral malaria or severe malaria-associated anaemia, which invariably requires a blood transfusion to save the patient's life.

Malaria represents an enormous public health burden for the Mozambique health authorities. It is responsible for about 44% of all outpatient consultations; 57% of admissions to health facilities, especially paediatric services; and about 23% of in-hospital deaths [6].

Malaria infection in pregnancy is also a major public health problem. Approximately 34% of pregnant women carry malaria parasites, and primigravids have the highest prevalence of parasitaemia [5,7].

Maternal anaemia, usually associated with malaria infection [8] is the most common form presented in the health facilities. Approximately 68% of pregnant women have haematocrit levels below 33% [5,7]. Malaria infection and malaria-associated anaemia also contribute to the high maternal mortality rates observed in rural areas (400 per 100,000 births).

Plasmodium falciparum is the most common parasite and is responsible for more than 90% of the malaria cases [5].

This situation is aggravated by limited access to health care, especially at the peripheral level, where clinical and laboratory diagnostic capability is weak.

The Roll Back Malaria movement was launched in 1998 by a large group of partners committed to developing a coordinated global strategy to combat malaria [9].

Global control of malaria will be a major factor in attaining the United Nations Millennium Development Goals, which all member countries are committed to achieving by 2015. In addition to reducing the malaria burden, winning the fight against malaria will have a positive effect on maternal and child health and the reduction of poverty, which in turn will increase stability in the world.

The Strategic Plan of the National Malaria Control Program (NMCP), prepared in collaboration with several implementation partners in Mozambique, delineates malaria prevention and control activities as well as coverage targets for a number of interventions with a view to expanding efforts to combat malaria at the household level.

While the impact of the main interventions proposed in the Strategic Plan will be seen in a reduction of the malaria burden, it is also necessary to have an overall assessment of the situation to serve as a baseline for monitoring and evaluating the key indicators of progress and the impact of interventions under way.

As yet there is no information available that establishes a strong correlation between coverage with the main malaria control interventions and the degree to which the malaria burden will be reduced in the country. With this need in mind, a national malariometric survey was conducted using monitoring and evaluation techniques developed for malaria control programs by the Roll Back Malaria Monitoring and Evaluation Reference Group (MERG) to evaluate the key indicators of coverage of interventions at the household level. The method involved conducting a standardised evaluation of the prevalence of malaria and anaemia in the study population and then extrapolating these figures to determine the malaria burden at the community level.

Indeed, measuring the coverage of interventions and the disease burden (prevalence of malaria infection and malaria-associated anaemia in children and pregnant women) has turned out to be a fundamental tool for evaluating the progress and impact of efforts undertaken to reduce the serious implications of the disease.

Objectives of the Malaria Indicator Survey

General Objective

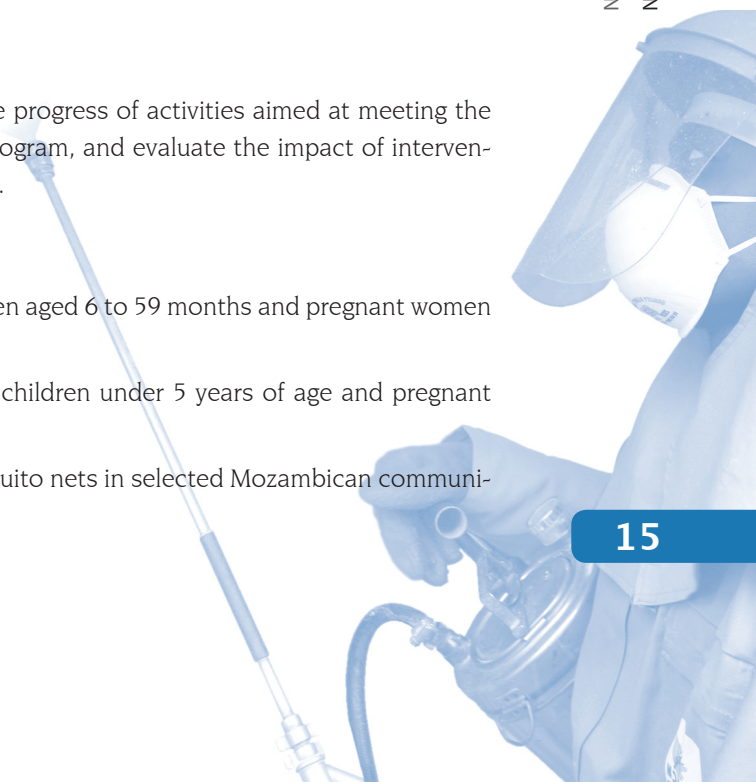
Establish a baseline that will make it possible to measure the progress of activities aimed at meeting the goals of the Strategic Plan of the National Malaria Control Program, and evaluate the impact of interventions at the community and household levels in Mozambique.

Specific Objectives

I. Determine the prevalence of malaria infection in children aged 6 to 59 months and pregnant women in selected Mozambican communities

II. Determine the prevalence and severity of anaemia in children under 5 years of age and pregnant women in selected Mozambican communities

III. Estimate the frequency of possession and use of mosquito nets in selected Mozambican communities



IV. Assess levels of knowledge and attitudes about malaria in selected Mozambican communities

V. Determine the level of coverage and degree of acceptance of indoor residual spraying in selected Mozambican communities

VI. Estimate use and access to intermittent presumptive treatment by pregnant women, as well as use and access to artemisinin-based combination therapy in the Mozambican communities.

Chapter II: Materials and Methods

Scope of the Study

The Mozambique Malaria Indicator Survey (MIS) was designed following the general MIS recommendations published by the Roll Back Malaria Monitoring and Evaluation Reference Group (MERG) with as few modifications as possible, all of them necessary to fit the country's particular circumstances.

The design process was focused on developing a sample that would ensure representative probability and at the same time be stratified to produce estimates for the country as a whole, for urban and rural areas separately, and for the principal domains (the provinces).

The sample size was calculated using standard formulas and assuming an alpha-error of 0.05, a significance level of 80%, a design effect of 2.0, and a refusal rate of 5%. It was considered that a total sample of approximately 5,600 households would be sufficient to obtain precise estimates for assessing the extent to which national targets were being met in follow-up surveys.

The principal analysis domains for the MIS-2007 were the country's 11 provinces, while the sample also reflected urban and rural areas of residence at the national and regional levels. Within each province, it was representative of the urban and rural strata, and within each stratum it was representative of different sub-strata.

Designing the Sample

The sample used for the MIS-2007 is a sub-set of the 'mother' sample (primary sample) designed by the National Institute of Statistics (INE) for the 1997 General Population and Housing Census (RGPH) [15]. The primary sample was intended to be used for the national programme of household sample surveys conducted during the intercensal period, including the MIS-2007.

In short, the primary sample is a large stratified sample that allows for three selection stages. The primary sampling unit (PSU) is defined as a cluster of adjacent enumeration areas (EAs) containing 400 to 600 households in urban areas or 400 to 500 households in rural areas. The secondary sampling unit (SSU) is the EA defined for the RGPH-1997 – namely, 120 to 150 households in urban areas or 80 to 100 households in rural areas.

The primary sample was updated through a sampling operation that utilised lists of households in the selected EAs. Thus, for the MIS-2007 lists were prepared of households within the boundaries of the sample EAs, and these lists were used in each case to select the households for the intermediate sampling stage. For each rural EA a total of 15 households were identified, and for each urban EA, 20. The primary sample has 1,510 PSUs, of which 750 are urban and 760 are rural Annex A lists each of the PSUs by province and area. Within each specific stratum, the PSUs were systematically selected based on probability proportional to size (PPV) using the number of households within the PSU that were counted during the census as the measurement of size. In this way 346 clusters with a total of 5,990 households were selected from the 1,510 clusters in the primary sample.

Sample Size and Breakdown

The MIS-2007 sample is composed of 346 EAs. Table 1 shows the breakdown of these EAs in terms of total number of households by urban/rural residence (stratum) in each of the provinces, and therefore the total number of households to be sampled by urban/rural sub-stratum.

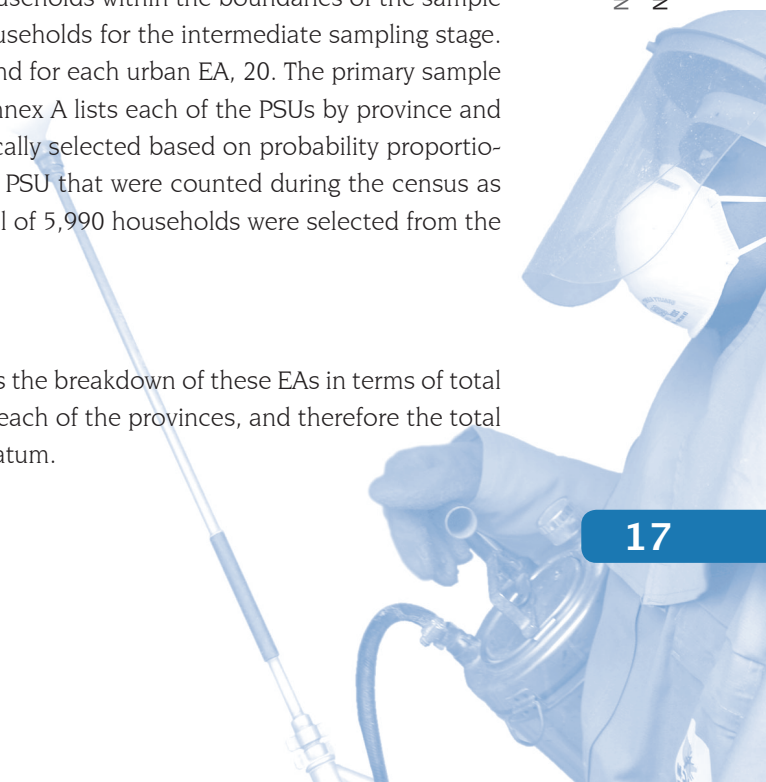


Table 1: Composition of the MIS sample derived from the sampling frame

Province	Population (1997)	Households			Households per enumeration area		Enumeration areas		
		Urban	Rural	Total	Urban	Rural	Urban	Rural	Total
Niassa	756,287	300	285	585	20	15	15	19	34
Cabo Delgado	1,287,814	300	285	585	20	15	15	19	34
Nampula	2,975,747	320	300	620	20	15	16	20	36
Zambézia	2,891,809	320	300	620	20	15	16	20	36
Tete	1,144,604	240	330	570	20	15	12	22	34
Manica	974,208	260	225	485	20	15	13	15	28
Sofala	1,289,390	280	300	580	20	15	14	20	34
Inhambane	1,123,079	240	330	570	20	15	12	22	34
Gaza	1,062,380	260	165	425	20	15	13	11	24
Maputo-Province	806,179	280	270	550	20	15	14	18	32
Maputo-City	966,837	400	0	400	20	15	20	0	20
Total	15,278,334	3200	2790	5990	--	--	160	186	346

There was an implicit stratification of the rural stratum with fewer than 15 agro-ecological sub-strata, resulting in a proportional breakdown of the sample by sub-strata. This strategy was invoked because some of the agro-ecological sub-strata had two or fewer PSUs.

Field Procedures

Composition of the Teams

Eleven field teams were formed, one for each province including Maputo City. Each had at least 10 members – specifically: four interviewers, one laboratory assistant, a nurse, a biologist, and a health professional, selected from the respective provincial directorates or districts, and two drivers. These teams were supported in turn by a central team of coordinators and facilitators that had supervision over all the provinces through the Ministry of Health (either the PNCM or the National Institute of Health – INS) or through one of the partners in the study (USAID, Malaria Consortium, World Health Organization), as well as two logisticians and an administrative assistant. Technical personnel from the National Institute of Statistics also joined the teams at the provincial level to prepare the list and update the enumeration areas. At the local level each team had a guide and a translator trained in interviewing. A list of all the team members is given in Annex C.

Training

Three training sessions were held, starting with the Southern Provinces. The workshop was also attended by all the supervisors from other provinces and the central coordinators. Since each province sent 10 candidates for the four interviewer positions and two candidates for the supervisor position, the number of participants came to 74 for the first training session and 45 and 60 for the other two, which were conducted simultaneously for the Central and Northern provinces. The training allowed for presentation and discussion of all the practical issues that might come up in the course of the interview, including practical exercises with the GPS (Garmin Etrex), entering data in the personal data assistant (PDA), and backing up the laptop computers (supervisors). The last two days included a real interview conducted in a household

in nearby area outside the cluster selected for the survey. The final selection of interviewers and supervisors took place at the end of the training.

Pilot Testing

A pilot test was conducted using clusters not selected for the actual survey. Each team became familiar with listing the household members and asking the interview questions, and at the end any doubts or challenges that may have arisen were clarified.

Sensitizing the Communities

Several steps were taken to prepare the communities for the survey, especially when the techniques to be used included pricking the finger of children and pregnant women to collect blood and test for the presence of parasites and haemoglobin concentration. These steps were directed toward local authorities, post chiefs, traditional authorities, and the communities, informing them about the procedures that would be followed and the objectives of the survey. Information was also broadcast on the radio and television to sensitise the communities.

Ethical Considerations

The survey was conducted in accordance with the principles of the Declaration of Helsinki and the International Guidelines for Ethical Review of Epidemiological Studies. The survey protocol was approved by the Mozambique National Committee on Bioethics in Health and the study was authorised by the Minister of Health.

Data Collection Instruments

Questionnaires

Two questionnaires, adapted from the model questionnaires developed by the Roll Back Malaria MERG Task Force on Household Surveys, were administered to the eligible households.

1. **Household questionnaire**: The household questionnaire was used to list all the household members and visitors in each of the selected households. The data elements collected included:

   i. Person's age
   ii. Person's sex
   iii. Person's level of schooling
   iv. Relationship to head of household
   v. Type of dwelling
   vi. Source of water
   vii. Type of fuel used by the household

It was also possible to collect data specifically related to malaria – namely: coverage or degree of acceptance of indoor residual spraying and possession, type, and use of mosquito nets.

2. **Individual questionnaire for women**: The questionnaire for women was used to gather information about women between 15 and 49 years of age. The following data elements were collected:

   i. Reproductive health history
   ii. Current pregnancy status

iii. General knowledge about malaria

iv. Intermittent presumptive treatment in the case of pregnant women

v. Any episode of fever in the past 24 hours

vi. Treatment of fever in children under 5 years of age

Clinical Tests and Laboratory Analyses

The following measurements were taken for each child under 5 years of age and each pregnant woman for whom informed consent was given:

i. Axillary temperature

ii. Haemoglobin concentration

iii. Presence of malaria parasitaemia

The laboratory assistants assigned to the survey were given special training in blood collection techniques, including the preparation of slides with thick and thin blood smears, use of the rapid test, and measurement of haemoglobin concentration

Malaria was diagnosed using the rapid diagnostic test (RDT), which detects histidine-rich protein II (HRP2) from P*lasmodium falciparum* [ICT Malaria Pf, ICT Diagnostics]). In addition, slides were prepared with thick and thin blood smears and then sent to the provincial capital in field slide containers, where they were Giemsa-stained and then shipped to the central INS laboratory in Maputo for microscopic analysis. At least 500 microscopic fields were examined before a slide could be declared negative. Parasite density was measured by counting the number of parasites per 500 white blood cells, assuming the presence of 8,000 leukocytes per μL. Haemoglobin concentration was measured using a HemoCue HB 201 or 301 device (HemoCue AB, Angelholm, Sweden).

Axillary temperature was measured in all eligible participants using electronic thermometers with readouts to one decimal place.

Participants with a positive malaria test were treated using first-line therapy pursuant to the national malaria treatment policy. Individuals who had undergone treatment with an artemisinin-based combination in the two weeks preceding the survey were referred to a health facility at a higher level with sufficient technical capacity to provide an alternative treatment.

Children with haemoglobin concentrations below 8 g/dL were referred to the nearest health facility for treatment based on the standards for the integrated management of childhood illnesses (IMCI). Children with fever were given a fever-reducing drug, and those in serious overall condition were sent to the nearest health facility.

Data Collection

The field work in each enumeration area began with the recording of all the households, 'household' being defined as a group of persons who share their meals. The required number of households was then determined using a list of random numbers previously generated by the INE. When no one in a selected household could be reached, at least two more attempts were made before deciding to use a substitute household.

During the first week of field work, central-level staff provided intensive supervision and support in all the provinces; thereafter, supervision continued in varying degrees depending on the need. In addition, cell phone support was available at all times for trouble-shooting problems related to the GPSs, PDAs, computers, and HemoCue devices.

The household questionnaire collected information from all the usual residents and visitors who had slept in the home the night preceding the household survey.

The questionnaire data, the results of the malaria tests, the haemoglobin concentration values, and the axillary temperature were recorded on PDAs (Palm TANGTSEN E2) previously programmed for the purpose. This shortened the time spent on the interviews and facilitated transcription of the data to computers. The questionnaires were programmed using PENDAGRON 4.0 and the Microsoft Access 2007 DBMS.

At the end of each day, all the collected data were synchronised from the PDAs to computers and submitted to a previously created database residing in a directory acting as a central server.

Data Analysis

Statistical analysis was done using STATA ver. 8.2 software (Stata Corporation, College Station, TX, USA).

Data cleaning and preparation were done separately for each province before the various data modules (households, individuals, mosquito nets, etc.) were merged. All analyses were based on the multi-stage cluster sampling design, where the EA is the PSU and there are urban/rural strata for each province (21 strata).

Main Definitions and Procedures:

Fever

Axillary temperature 37.5°C or higher

Anaemia

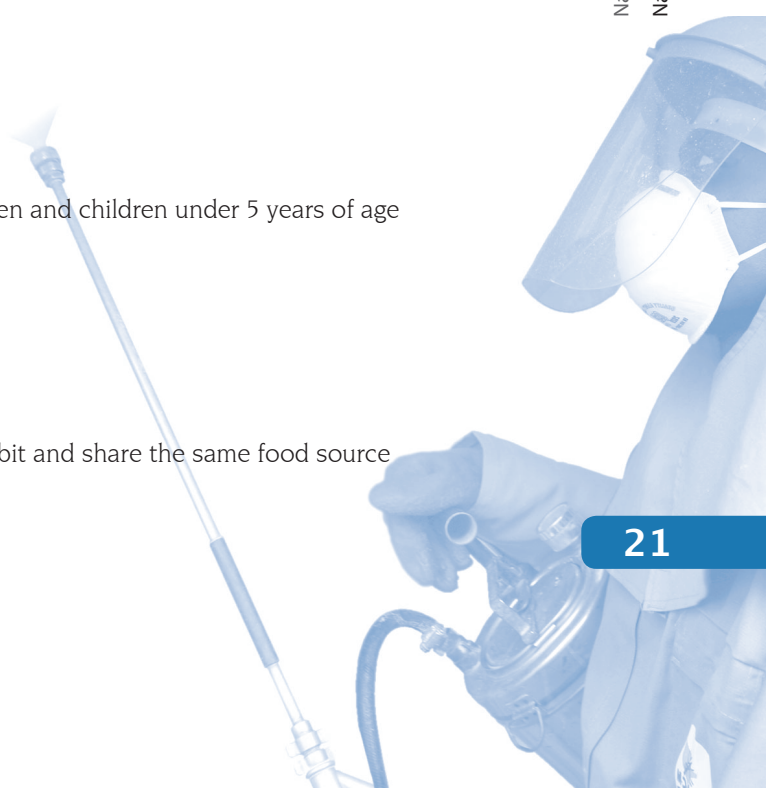
Haemoglobin concentration below 11 g/dL in pregnant women and children under 5 years of age

Severe anaemia

Haemoglobin concentration below 8 g/dL.

Household

Person or group of related or non-related persons who cohabit and share the same food source



ITN

Any mosquito net that was either reported treated with insecticide within the 12 months prior to the survey or had been categorised as an LLIN

LLIN

Any net confirmed by the interviewer with a label corresponding to one of the LLIN brands or a net not inspected by the interviewer but reported by the household to be such brand after exclusion of all evidently wrong responses based on shape and colour of the net.

Wealth index

This was based on 21 variables containing information on education of the head of household, characteristics of the dwelling (roof, floor, walls), access to water and latrines, cooking fuel used, and household assets. Principle component analysis was performed and the wealth index calculated using the first component. Data were then grouped into five equal groups to form the household wealth quintiles.

The predictive values for the RDT were calculated as follows:

Positive predictive value (PPV) = p x sens / (p x sens) + ((1-p) x (1-spec))

Negative predictive value (NPV) = (1-p) x spec / ((1-p) x spec) + (p x (1-sens)),

where ***p*** denotes prevalence; ***sens***, sensitivity; and ***spec***, specificity.

Indirect estimation of mortality

The estimation of infant and child all-cause mortality was based on birth history (children ever born and currently alive), calculated using the Mortpak-Lite 3.0 Software (United Nations, 1990) and applying the United Nations general estimation model.

Regions of the country

Northern: Niassa, Cabo Delgado, Nampula

Central: Tete, Zambézia, Manica, and Sofala

Southern: Gaza, Inhambane, Maputo Province, and Maputo City

Chapter III: Characteristics of the Households and the Respondents

The National Malaria Indicator Survey (MIS-2007) collected basic demographic and socio-economic information about the population studied. Data were also collected on household characteristics and living conditions. This information was subsequently used to calculate the wealth index as an aid to interpreting the results. The criteria used to estimate the wealth index are based on work done previously by the World Bank and ORC Macro.

Of the 5990 households intended to be reached in the sampling exercise, 5857 (97.8%) were actually visited. After data cleanup, 5745 were used for the final analysis, representing approximately 96% of the expected pool and a loss rate of 4%. Table 2 shows the reasons for unsuccessful interviews. Only 32 of the visited households refused to respond to the survey, and all of these were in the urban areas.

Table 2: Results of household interviews for households visited

Category	Households (%)		
	Urban	Rural	Total
Household questionnaires completed	**3005** (97.4)	**2740** (98.9)	**5745** (98.1)
Household questionnaires filled out but data incomplete	**13** (0.4)	**16** (0.6)	**29** (0.5)
Nobody home or family had moved	**29** (0.9)	**10** (0.4)	**39** (0.7)
Refused to participate	**32** (1.0)	**0** (0.0)	**32** (0.5)
Other or undefined	**9** (0.3)	**3** (0.1)	**12** (0.2)
TOTAL	**3088** (100)	**2769** (100)	**5857** (100)

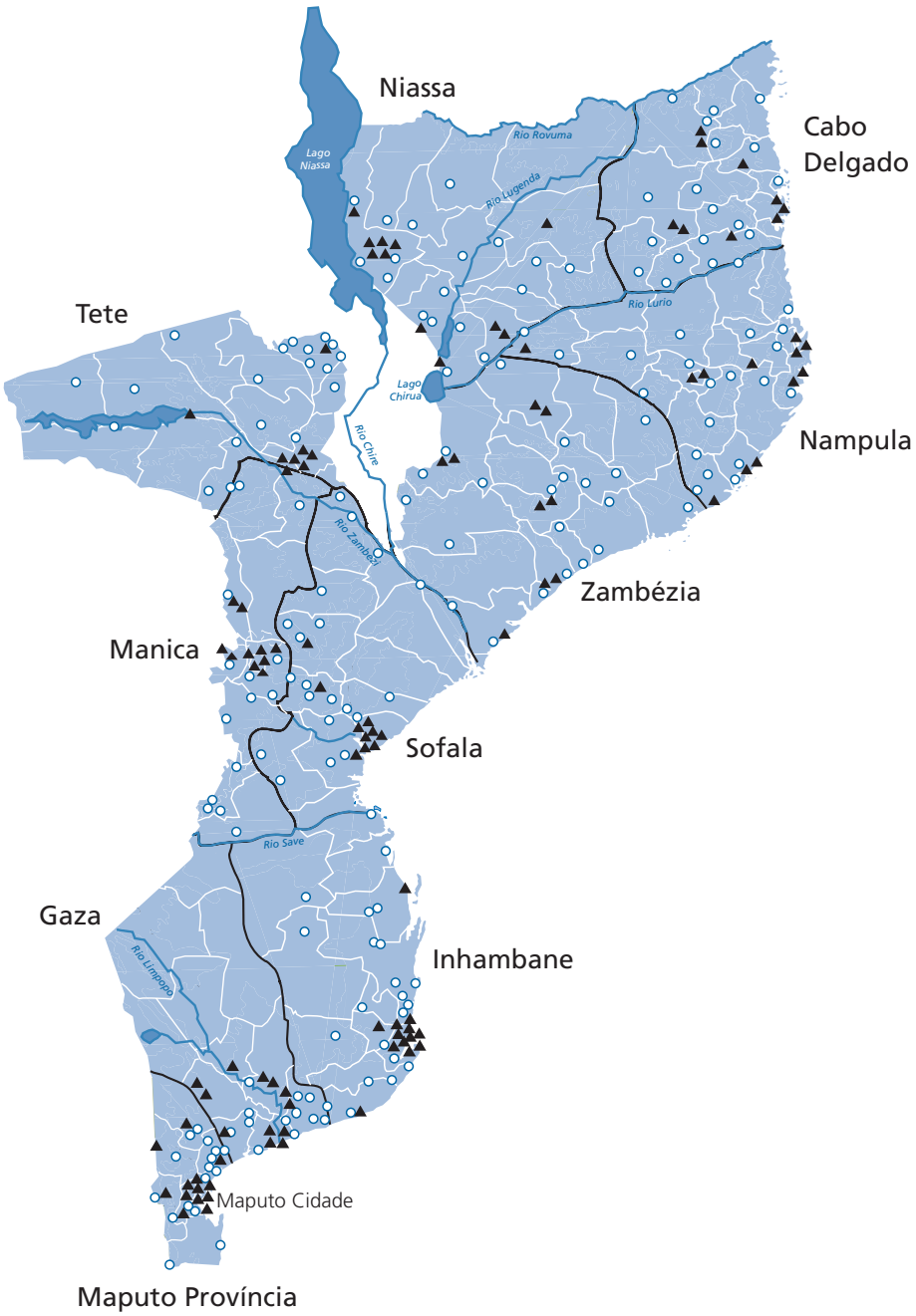
Table 3 shows the coverage expected and achieved in various sub-populations of importance to the MIS. Only the number of pregnant women differed significantly from the number expected, probably due to the relatively low fertility rates in the country's southern provinces and to the fact that pregnancies during the first trimester and in teenage girls are less likely to be reported.

Table 3: Sample size expected and size achieved in selected sub-groups

Group or sub-group	Expected number	number
Households	5990	5745
Children under 5 years of age	3921	5079
with haemoglobin measured		3839
with fever in the previous 14 days	1005	1268
Women aged 15-49 interviewed	5833	5637
currently pregnant	876	589
with haemoglobin measured		570

Figure 2 shows the geographical distribution of the MIS clusters. The altitude of the sample clusters ranged from 0 to 1455 meters, with a median of 130 meters. The majority of households interviewed were found at altitudes lower than 500 meters (72.8%), another 20.5% lived at altitudes of 501 to 1000 meters, and only 6.7% were above 1000 meters.

Figure 2: Map of survey clusters. Rural clusters shown as circles, urban clusters as triangles



The proportion of male heads of household was 71.2% overall, but female heads of household 45%-50% in the southern provinces of Gaza and Maputo and the Maputo City (Table 4). The mean number of permanent residents per household was 4.8, with the maximum recorded in Sofala Province (5.8) and the minimum in Nampula (4.5). The average number of children under 5 years of age was about one per household with little variation. Only one in every 10 households reported a currently pregnant woman.

Table 4: Characteristics of the selected household populations

	Head of household			Mean number of people in household			Number of hh
	Male (%)	Female (%)	Mean age in years	All	Children 0-4 yrs	Pregnant women	
Residence							
Urban	68.5	31.5	42.3	4.9	0.8	0.09	3005
Rural	72.1	27.9	42.6	4.8	1.0	0.11	2740
Province							
Niassa	81.0	19.0	40.2	5.0	1.1	0.14	582
Cabo Delgado	75.5	24.5	38.8	4.8	1.0	0.16	529
Nampula	83.4	16.6	36.8	4.5	1.0	0.12	554
Zambézia	77.5	22.5	40.1	4.6	0.9	0.14	596
Tete	75.2	24.8	41.5	4.9	0.9	0.09	553
Manica	71.0	29.0	40.8	4.5	0.8	0.10	480
Sofala	82.4	17.6	42.3	5.8	1.1	0.12	551
Inhambane	67.1	32.9	48.3	4.7	0.8	0.07	560
Gaza	48.5	51.5	49.1	4.9	0.8	0.09	415
Maputo Province	54.9	45.1	44.7	4.8	0.8	0.06	532
Maputo City	53.9	46.1	45.5	5.5	0.7	0.08	393
Region							
North	78.8	21.2	39.2	4.8	1.0	0.13	2218
Central	77.1	22.9	40.9	4.9	0.9	0.12	1627
South	57.9	42.1	47.6	4.9	0.8	0.08	1900
Wealth Index							
Lowest	75.1	24.9	41.7	4.6	1.0	0.12	1144
Second	71.2	28.8	42.4	4.7	0.9	0.12	1146
Middle	73.7	26.4	42.2	4.6	1.0	0.13	1151
Fourth	64.9	35.1	43.7	5.0	0.9	0.08	1155
Highest	68.7	31.3	43.4	5.8	0.9	0.08	1149
Total	71.2	28.8	42.6	4.8	0.9	0.11	5745

Table 5 presents some of the characteristics of the dwellings and the households. Like most variables studied in the MIS, many showed a clear North/South gradient. This was particularly true for access to safe water, latrines, electricity, and mobile phones. In the rural areas most dwellings had roofs made of thatch or leaves and earthen floors , while in the urban areas tin or tile roofs and cement floors where more common. Fire wood was the most common fuel for cooking in rural areas, whereas charcoal was most common in the urban areas.

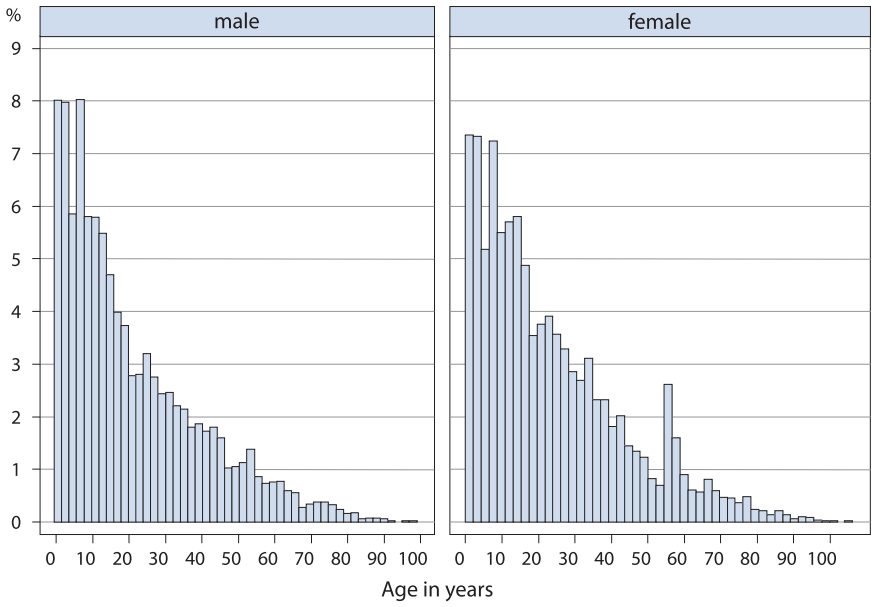
Table 5: Selected characteristics of dwellings and household assets

	Safe water*	Any latrine	Electricity	Roof	Main cooking fuel	Household assets				
			Including alternative energy	Thatch or leaves	Wood	Radio	Mobile phone	Bicycle	Car	Refrigerator
Residence										
Urban	90.7	85.0	40.7	36.0	55.8	62.4	43.0	30.5	5.8	18.6
Rural	67.4	62.2	13.1	74.9	92.3	53.5	13.9	44.4	1.9	2.0
Province										
Niassa	67.0	92.7	13.0	92.0	96.1	59.8	3.2	71.4	0.8	1.0
Cabo Delgado	61.6	67.3	3.3	91.1	95.7	41.5	4.2	41.7	0.3	1.4
Nampula	54.0	40.4	6.7	90.2	87.3	44.7	2.8	37.0	0.3	1.9
Zambézia	65.0	45.5	8.5	82.3	81.1	53.6	8.6	57.4	1.2	2.7
Tete	63.9	62.4	13.1	83.8	94.9	53.4	5.9	47.9	0.4	3.0
Manica	76.5	78.7	16.9	66.5	84.8	68.4	18.2	48.2	1.7	4.2
Sofala	82.1	41.8	31.5	62.2	71.8	66.4	20.0	58.1	1.8	6.1
Inhambane	85.1	78.7	20.6	50.2	97.5	59.4	33.9	23.7	5.6	4.4
Gaza	81.3	84.2	25.5	26.3	89.2	57.3	45.4	19.5	5.4	13.2
Maputo Province	90.0	86.0	64.4	16.8	73.8	52.2	57.0	18.5	6.8	16.9
Maputo City	100	100	67.2	1.2	10.3	70.6	79.2	7.9	16.8	41.2
Region										
North	61.6	66.2	8.7	89.6	93.5	49.5	4.0	49.6	0.5	1.7
Central	73.1	49.9	17.4	72.1	79.5	61.4	14.6	55.0	1.5	4.1
South	86.0	83.4	34.2	32.6	84.1	58.1	45.3	20.3	6.6	12.3
Wealth Index										
Lowest	41.0	14.0	6.0	96.4	98.6	32.6	0	48.2	0	0
Second	67.0	66.5	5.5	91.3	97.7	49.1	0.9	42.4	0	0
Middle	88.9	89.0	9.9	76.6	91.9	62.9	7.2	41.9	0.3	0
Fourth	88.8	94.4	27.9	16.3	78.6	65.8	49.9	35.4	2.5	0.9
Highest	94.5	99.1	85.0	3.1	39.5	87.6	87.4	30.5	20.4	51.2
Total	**73.0**	**67.7**	**19.7**	**65.5**	**86.5**	**55.6**	**20.9**	**41.1**	**2.8**	**5.9**

* Any tap water, borehole, or protected well

The survey identified a total of 28,030 permanent residents in the sampled households, of whom 97.7% had spent the previous night at home. The mean age was 20.3 years for the males and 21.3 for the females. The age distributions for males and females (Figure 3) differed only in the 20-40 year range, where there were more females than males, most likely because of work-related migration of the males, and this trend was more pronounced in the rural areas. With the exception of a clear age heap at 50 years for women, there was very little age heaping, indicating a quite reliable response with regard to age.

Figure 3: Age distribution of the sampled population (bar width = 2 years)



As already indicated by the number of pregnant women found in the households, the proportion of children under 5 in the sampled population was significantly higher in the North (21.2%) than in the South (15.9%). The proportion of pregnant women varied similarly, at 2.7% and 1.5%, respectively (Table 6).

Table 6: Characteristics of the sample population

	Proportion of sub-populations (%)			Number of people
	Children 0-4 yrs	Women 15-49 yrs	Pregnant women	
Residence				
Urban	16.3	23.5	1.9	14770
Rural	19.5	21.2	2.4	13260
Province				
Niassa	22.1	21.7	2.8	2957
Cabo Delgado	21.0	23.5	3.3	2565
Nampula	22.4	21.4	2.7	2395
Zambézia	19.4	21.3	3.0	2707
Tete	18.9	21.6	1.9	2784
Manica	18.3	21.7	2.6	2291

Sofala	18.9	21.0	1.6	3030
Inhambane	15.9	19.5	1.5	2626
Gaza	16.7	21.4	1.8	2000
Maputo Province	15.8	23.9	1.2	2558
Maputo City	12.3	27.9	1.5	2117
Region				
North	21.2	22.1	2.7	10701
Central	18.9	21.3	2.4	8028
South	15.9	21.6	1.5	9301
Wealth Index				
Lowest	20.7	20.5	2.5	5280
Second	18.9	21.2	2.5	5252
Middle	20.4	21.7	2.8	5435
Fourth	17.4	22.6	1.7	5559
Highest	14.5	23.6	1.4	6504
Total	18.7	21.7	2.2	28030

The level of schooling of the women aged 15-49 is shown in Table 7. This level varied significantly with age and wealth index, and it was higher in the urban areas and in the South. Overall, however, the level of schooling of these women was very low: more than half were illiterate, and only 1% had completed secondary education.

Table 7: Education of the women interviewed (PS1 & 2= primary school, SS1 & 2= secondary school)

	Educational level achieved (%)					Number of women
	Illiterate	PS1 1-5 year	PS2 6-7 year	SS1 8-10 year	SS2 11-12 year	
Residence						
Urban	32.5	7.8	32.7	24.0	3.0	3104
Rural	66.1	9.2	20.8	3.6	0.3	2508
Age						
15-19	35.9	7.2	38.0	18.0	0.9	1156
20-24	50.4	6.2	28.6	13.7	1.1	1232
25-29	62.3	8.6	20.4	7.1	1.7	969
30-34	65.4	11.7	17.6	4.1	1.1	859
35-40	67.4	9.8	19.5	2.9	0.5	693
40+	72.8	11.5	12.7	2.6	0.4	703
Province						
Niassa	68.6	9.7	16.4	4.7	0.6	582
Cabo Delgado	78.2	3.7	14.3	3.8	0.1	538

Nampula	79.8	6.8	11.0	2.5	0	419
Zambézia	59.8	9.5	21.9	6.9	1.8	556
Tete	65.2	7.2	19.3	7.8	0.5	504
Manica	47.1	12.6	28.2	10.8	1.4	453
Sofala	62.5	7.6	19.7	9.4	0.8	564
Inhambane	43.0	13.7	32.8	8.7	1.7	488
Gaza	44.3	11.5	31.4	12.3	0.4	423
Maputo Province	40.3	5.7	36.6	16.5	0.9	542
Maputo City	14.1	5.2	43.0	31.8	5.9	543
Region						
North	73.2	6.7	15.2	4.6	0.3	2043
Central	57.2	9.8	22.9	8.7	1.4	1573
South	39.9	10.5	34.2	13.9	1.6	1996
Wealth Index						
Lowest	81.9	6.1	10.7	1.2	0.1	972
Second	72.6	8.0	17.2	1.9	0.3	1009
Middle	59.3	11.8	24.4	4.5	0	1058
Fourth	39.0	11.7	34.6	13.8	0.9	1158
Highest	19.8	6.2	38.1	30.7	5.2	1415
Total	57.3	8.9	23.9	8.9	1.0	5612

Chapter IV: Malaria Intervention Coverage

Mosquito Net Ownership

Household ownership of any mosquito net (Table 8) was 37.5%, with only a moderate difference between urban (44.7%) and rural areas (35.2%). The highest rate was in Sofala Province (50.4%) and the lowest in Maputo Province (29.7%), an area that has been totally covered with indoor residual spraying (IRS).

Of those households with any kind of a net, less than half had an insecticide-treated net (ITN) –namely, 15.8% of all the households surveyed. The proportion was similar across the provinces except for Manica, which had the highest rate (36.9%), followed by Sofala (21.7%), andMaputo Province, which had the lowest (5.7%).

Ownership of a long-lasting insecticidal net (LLIN) was 9.5% nation-wide, but this proportion varied greatly between the provinces, ranging from 1.4% in Gaza to 35.5% in Manica.

Ownership of any net and increased with each quintile, from the poorest households to those with the highest income. However, the ratio between the lowest and the highest quintile was higher for conventional nets (0.72) than for any net (0.56), indicating a more equitable situation for ITNs. For LLINs, however, the coverage was highest among the poorest group of households (lowest/highest ratio: 1.26).

Table 9 shows the ownership of any net, ITNs, and LLINs in the sub-groups of interest, i.e. households with at least one child under 5 years of age and/or a woman pregnant at the time of the survey and households with a woman who had given birth within the 12 months preceding the survey. The rates were all higher than in the general population and highest among households with a recent birth, where net ownership reached almost 47% (ITN 22.8%, LLIN 14.7%).

Households that owned any type of net were asked about their preferences regarding shape and colour (Table10). Overall, only 12.1% preferred white nets, 14.9% had no preference, and 73.0% preferred coloured nets (mainly blue). Preference for shape was less clear; conical nets were preferred more often in urban areas, but only by slightly more than 50%. To some extent the preferences were influenced by the type of nets the households already owned, but this influence was only moderate. Households with only conical nets more often preferred a conical net (51.5%) compared with households that owned only rectangular nets, where 45.5% mentioned a preference for conical nets. Similarly, households that owned white nets only stated a preference for white nets in 19.5% of the cases, while that proportion was only 8.3% among households that owned only coloured nets. In both groups about half the responding households preferred blue nets.

Table 8: Ownership of mosquito nets by households

	Percentage of households with any net	Percentage of households with more than 1 net	Mean no. of nets per household with any net	Percentage of households with any ITN	Percentage of households with any LLIN	Percentage of households with more than 1 ITN	Mean ITN per household with any ITN	Number of households
Residence								
Urban	44.7	20.6	1.67	17.4	10.4	5.1	1.38	3005
Rural	35.2	11.1	1.42	15.2	9.3	4.1	1.34	2740
Province								
Niassa	42.2	14.7	1.42	17.7	8.6	4.4	1.31	582
Cabo Delgado	37.8	12.6	1.43	19.6	9.5	7.3	1.41	529
Nampula	32.9	11.2	1.40	8.7	5.1	1.4	1.16	554
Zambézia	36.5	14.8	1.53	17.8	11.2	4.5	1.35	596
Tete	31.7	8.5	1.35	11.9	5.3	3.2	1.33	553
Manica	44.8	9.3	1.27	36.9	35.5	5.2	1.17	480
Sofala	50.4	24.2	1.65	21.7	15.0	7.1	1.43	551
Inhambane	32.3	11.3	1.54	11.2	7.2	3.7	1.49	560
Gaza	37.3	14.6	1.64	13.3	1.4	5.0	1.61	415
Maputo Province	29.7	10.7	1.54	5.7	4.5	1.2	1.35	532
Maputo City	48.6	22.0	1.73	10.2	3.5	2.4	1.32	393
Region								
North	36.5	12.0	1.40	14.8	7.3	4.2	1.33	2218
Central	42.8	15.9	1.49	24.2	19.1	5.5	1.30	1627
South	34.4	12.9	1.59	10.1	4.6	3.5	1.51	1900
Wealth Index								
Lowest	30.7	8.2	1.32	14.1	12.0	3.0	1.26	1144
Second	34.5	9.8	1.34	15.2	9.0	3.5	1.27	1146
Middle	35.4	11.1	1.39	15.8	8.7	4.1	1.28	1151
Fourth	41.9	15.5	1.54	16.3	8.1	4.0	1.35	1155
Highest	55.1	32.9	1.96	19.5	9.5	9.5	1.75	1149
Total	37.5	13.4	1.49	15.8	9.5	4.3	1.35	5745

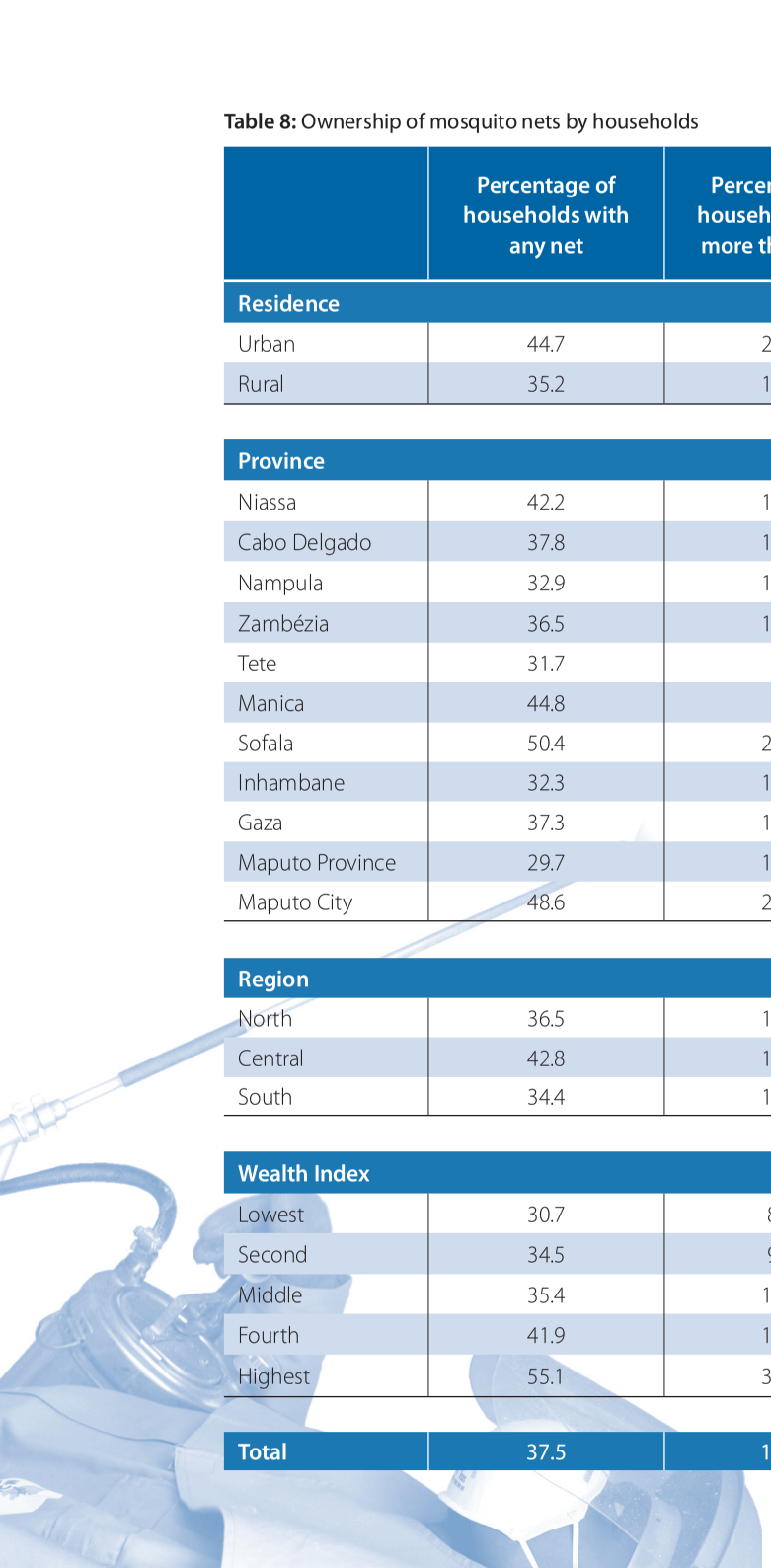


Table 9: Ownership of mosquito nets by households in sub-groups of interest

	Households with a child under 5 and/or pregnant woman				Households with a woman who had given birth in last 12 months			
	% any net	% ITN	% LLIN	Households	% any net	% ITN	% LLIN	Households
Residence								
Urban	48.2	20.3	12.3	1736	52.5	22.9	14.6	523
Rural	39.4	17.9	11.3	1782	45.0	22.7	14.7	570
Province								
Niassa	44.9	19.6	10.2	419	45.8	23.4	12.1	134
Cabo Delgado	39.9	22.3	11.1	397	45.6	26.2	15.8	125
Nampula	34.7	8.7	6.4	360	42.3	9.1	7.6	105
Zambézia	38.4	21.6	14.0	348	45.9	28.2	16.6	125
Tete	33.6	12.4	6.1	371	41.8	21.6	6.8	118
Manica	55.1	44.6	43.9	297	50.7	44.2	43.7	86
Sofala	54.0	24.9	18.8	353	58.4	26.7	19.3	114
Inhambane	37.1	11.2	8.2	288	46.3	21.3	19.6	82
Gaza	45.6	17.1	0.7	220	51.3	12.6	0	70
Maputo Province	31.0	6.9	4.8	282	30.7	10.9	9.3	83
Maputo City	51.7	9.9	4.7	183	62.7	13.7	5.8	51
Region								
North	38.8	16.4	8.7	1547	44.2	20.9	11.1	482
Central	47.7	28.9	23.6	998	50.8	31.9	24.4	325
South	39.6	12.2	4.8	973	46.0	15.5	9.4	286
Wealth Index								
Lowest	36.6	18.3	16.1	734	44.4	23.6	18.2	246
Second	40.0	17.9	11.7	725	44.9	22.7	15.4	238
Middle	39.1	19.1	10.1	758	43.9	22.4	13.2	233
Fourth	44.1	16.5	8.0	670	48.1	19.0	9.1	188
Highest	55.9	21.9	9.4	631	60.7	27.8	15.0	187
Total	41.4	18.5	11.5	3518	46.6	22.8	14.7	1093

Table 10: Household preferences for net shape and colour

	Preferences for colour of net (%)					Preference for shape of net (%)		
	White	Blue	Green	Other colour	No preference	Rectangular	Conical	No preference
Residence								
Urban	13.9	52.5	15.6	6.4	13.4	36.2	52.3	11.6
Rural	11.3	44.5	22.2	4.6	15.5	41.2	46.1	12.8
Region								
North	8.6	47.2	23.0	5.3	15.9	44.1	38.9	17.0
Central	13.0	50.4	20.3	3.2	13.0	36.3	54.9	8.8
South	15.4	42.9	17.0	9.2	15.5	37.8	51.8	10.4
Wealth Index								
Lowest	9.5	47.7	26.0	3.5	13.4	41.9	46.3	11.8
Second	9.4	46.4	21.7	5.8	16.7	43.2	41.0	15.6
Middle	12.6	43.8	22.4	6.5	14.6	40.4	43.4	16.2
Fourth	12.6	49.1	15.4	7.3	15.6	36.0	54.9	9.2
Highest	17.4	47.2	15.6	6.1	13.8	36.5	55.4	8.1
Total	12.1	46.8	20.3	5.9	14.9	39.7	47.9	12.4

Nets and net use

A total of 3509 mosquito nets were counted in the 5745 households and visited, and 59.3% of the nets were physically inspected by the interviewer (urban, 64.4%; rural, 57.3%). Information on these nets is presented in Tables 11-13 and Figures 4-10.

One of the most important observations is the finding that overall only 51.3% of the nets had been used the night preceding the survey. Newer nets were more likely to be used than older ones (Figure 5). This may have been influenced by the fact that the survey was done 4-8 weeks after the rains had ended (Annex B). However, the proportion also varied widely between the provinces, with the highest values observed in Zambézia (84.8%) and Nampula (72.8%). Reasonably high user rates were also found in Niassa (65.7%) and Sofala (63.9%), while use was generally low in the South, and lowest of all was in Gaza (21.8%).

The majority of nets (60.9%) were untreated, i.e. were not long-lasting insecticidal nets or had not been dipped within the previous 12 months. The proportion of LLINs among all nets was 21.7%, with little diffe-

rence between the provinces except for Manica, where it was 74.3% (69.5% among the nets seen by the interviewers). However, Figure 5 shows that the proportion of LLINs has steadily increased in recent years and was 34.6% among nets obtained in the previous 12 months.

Fewer than half (44.4%) of the non-LLINs had ever been treated with insecticide, but in the case of nets that come with the insecticide packet inside the bag (bundled nets) the proportion of ever-treated was significantly higher (71.1%). At the same time, however, when insecticide treatment within the past 12 months was considered. the proportion was only 22.5% for non-LLINs and 35.0% for bundled nets. Figure 6 shows that nets were more likely to be treated in the first year (52.6% for bundled nets) than thereafter, indicating that only 20%-27% of the non-LLINs were ever retreated. In contrast, only 15.1% of the LLINs were reported to have been treated with insecticide at any time and only 7.4% within the previous 12 months.

More nets were reported to have been obtained from the commercial sector (47.3%) than from the public sector (40.0%), but as Figure 7 shows, access to nets through the public sector has steadily increased in recent years and actually reached 49% in the year preceding the survey. The most common source for commercial nets was markets (66.9%), followed by hawkers (19.4%), and shops or pharmacies (13.7%). For the public sector, the most common outlet was the health facilities (68.2%), followed by mobile brigades (16.3%), campaigns (8.3%), and NGOs (7.2%).

Table 12 summarises the findings regarding the age, colour, and shape of the nets. Age of the nets was similar across the provinces and only differed significantly in Gaza, where almost half the nets (46.8%) were obtained three or more years ago, possibly a reference to the nets distributed during the floods in 2002. Figure 8 shows that in recent years the proportion of rectangular nets has been increasing, since the majority of nets distributed through the public sector have been rectangular.

The use of nets and ITNs the night before by the different population groups (excluding visitors) is presented in Table 13. Only 15.7% of the children and 19.3% of the pregnant women had slept under a net the night before, and 6.7% and 7.3%, respectively, under an ITN. However, there was some evidence that these target groups had been given priority, since the rates of net use were clearly higher than for other family members except the male heads of household or male spouses of the heads of household, who had similar rates. Figure 9 also shows that children were more likely to have slept under a net or ITN, and the younger they were, the greater the likelihood, with 19.7% of infants (0-11 months old) sleeping under a net of any kind and 9.0% under an ITN.

The mean number of people sharing one net for those nets that had been used at all was 2.1 and for nets that had been used by any children under 5 the number these children sharing the same net was 1.2. The number of persons sharing one net declined as the number of nets in the household increased, from 2.3 in the case of only one net to 2.1 when there were two nets, and 1.8 if there were three or more nets . The number sharing also increased with the number of people living in the household: when four people or fewer lived in the house, the number was 1.9, but when there were five or more in the household it was 2.2. The number also declined with rising social-economic status (Figure 10), from 2.4 among the poorest to 1.8 among thehouseholds with the highest wealth indexes. Interestingly, the number of households with under five members sharing a net was always close to 1.2 without much variation.

Figure 4: Proportion of nets used the night before

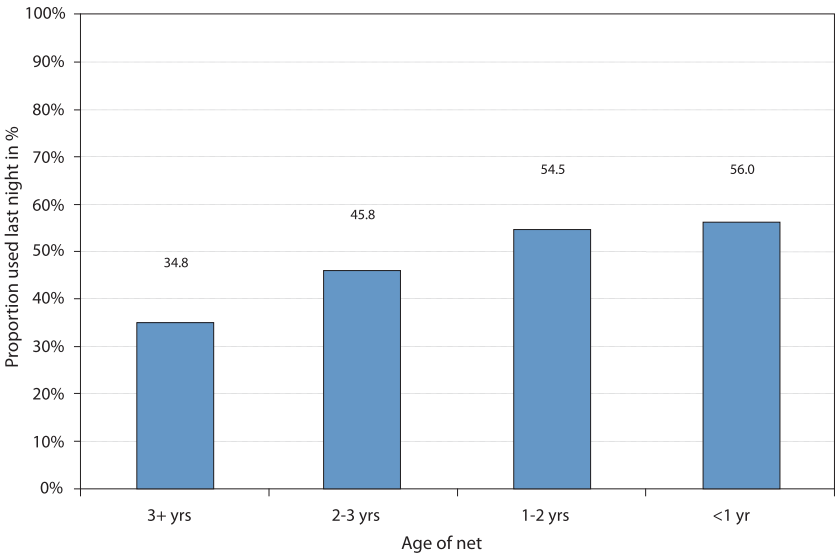


Table 11: Information on mosquito nets

	Percentage of nets used the night before	Percentage of ITN	Percentage of LLIN	Percentage of non- LLINs ever dipped	Percentage of non- LLINs dipped in last 12 months	Percentage of non-LLINs that came with insecticide pack	Percentage of bundled nets ever treated	Percentage obtained from private sector	Percentage obtained from public sector	Number of nets
Residence										
Urban	57.1	33.3	18.0	40.6	18.8	50.0	69.3	61.8	25.0	2224
Rural	48.8	44.7	23.4	46.2	24.3	53.3	71.9	40.5	47.1	1285
Province										
Niassa	65.7	39.2	15.1	48.0	28.4	63.1	73.6	47.4	41.2	364
Cabo Delgado	47.7	52.1	22.5	57.1	38.3	49.4	69.6	53.2	36.5	313
Nampula	72.8	22.7	12.7	21.7	12.9	59.5	33.7	74.2	8.3	258
Zambézia	84.8	44.1	22.5	76.6	26.8	81.8	89.1	53.9	33.5	314
Tete	36.4	40.3	20.7	58.2	24.6	71.3	76.8	32.9	60.3	303
Manica	41.7	77.0	74.3	29.3	10.3	38.8	37.0	22.1	75.0	313
Sofala	63.9	38.1	25.4	25.8	17.5	30.3	58.6	41.3	47.1	455
Inhambane	37.6	31.4	20.4	23.9	14.2	22.3	76.2	45.9	42.9	335
Gaza	21.8	34.0	2.7	63.6	32.3	71.2	79.6	30.4	53.3	258
Maputo Province	27.3	17.0	13.7	18.1	3.9	22.2	69.0	61.9	11.0	281
Maputo City	54.3	16.0	4.8	31.8	12.1	39.7	71.0	69.5	1.1	315
Region										
North	56.8	39.7	17.8	46.1	27.0	59.8	63.7	52.8	35.5	1238
Central	66.2	50.0	37.2	49.9	20.9	54.9	75.8	40.9	49.4	1082
South	32.3	28.2	11.5	39.1	19.1	43.0	77.1	47.7	34.9	1189
Wealth Index										
Lowest	52.6	45.1	38.0	36.1	11.5	51.0	56.5	38.6	50.0	438
Second	59.5	42.5	23.5	46.8	26.0	57.2	72.0	42.3	46.4	517
Middle	55.5	42.3	20.3	50.3	27.5	53.2	76.1	45.5	43.2	581
Fourth	44.8	35.0	16.4	43.8	22.4	50.0	72.9	50.5	35.9	743
Highest	45.4	32.3	13.5	42.7	22.0	50.5	73.1	60.4	23.6	1194
Total	51.3	39.1	21.7	44.4	22.5	52.3	71.1	47.3	40.0	3509

Table 12: Age, colour, and shape of nets (not including "missing" and "other" categories)

	Age of net				Percentage of white nets	Percentage of blue nets	Percentage of green nets	Percentage of rectangular nets	Percentage of conical nets	Number of nets
	< 1 year	1-2 yrs	2-3 yrs	3+ yrs						
Residence										
Urban	34.2	40.2	11.2	12.0	32.3	41.3	22.9	52.9	46.8	2224
Rural	32.3	43.8	10.2	12.4	29.0	39.4	29.4	72.5	27.1	1285
Province										
Niassa	34.5	50.6	11.9	2.3	2.7	51.7	45.2	64.0	35.4	364
Cabo Delgado	33.3	40.9	15.7	8.5	26.9	43.6	27.7	73.0	27.1	313
Nampula	35.2	44.9	12.8	4.9	30.7	43.8	25.4	73.4	25.5	258
Zambézia	34.4	47.3	8.8	9.6	22.1	48.4	29.0	80.6	19.4	314
Tete	42.3	40.0	7.1	10.0	17.2	52.5	28.0	78.5	21.5	303
Manica	40.9	53.0	5.1	1.0	80.8	14.3	3.1	75.4	24.4	313
Sofala	36.9	43.6	10.9	6.1	34.7	43.2	17.5	61.1	37.8	455
Inhambane	29.8	44.2	12.3	11.1	45.2	31.4	18.2	65.9	33.8	335
Gaza	18.6	27.1	3.5	46.8	12.0	31.4	55.3	64.7	35.1	258
Maputo Province	30.2	38.4	17.2	12.4	38.3	40.3	14.0	29.9	69.6	281
Maputo City	31.4	35.0	13.5	19.3	36.7	40.3	17.8	30.6	69.4	315
Region										
North	35.6	44.6	12.4	6.0	18.6	47.7	32.7	71.2	28.3	1238
Central	37.0	47.3	8.7	6.2	41.5	38.0	18.2	72.0	27.6	1082
South	26.2	36.4	10.2	24.4	31.7	33.8	30.1	55.7	44.1	1189
Wealth Index										
Lowest	35.1	46.4	11.4	6.0	38.8	41.1	19.1	81.8	17.6	438
Second	38.6	43.9	9.9	6.9	26.6	42.1	29.7	79.5	20.2	517
Middle	30.0	49.8	11.1	8.1	26.0	42.0	30.0	63.0	36.4	581
Fourth	29.7	42.4	11.4	15.5	30.2	36.0	30.1	62.5	37.5	743
Highest	31.3	32.3	9.4	22.9	30.2	38.8	26.8	48.1	51.5	1194
Total	32.9	42.7	10.5	12.3	30.1	40.0	27.3	66.2	33.4	3509

Table 13: Net usage in the population

	Slept under any net the night before					Slept under an ITN the night before				
	Child 0-4	Pregnant woman	Woman age 15-49 who gave birth last 2 yrs	Male head or spouse	Other family members	Child 0-4	Pregnant woman	Woman 15-49 birth last 2 yrs	Male head or spouse of head	Other family members
Number	5067	589	1971	4189	16324	5067	589	1971	4189	16324
Residence										
Urban	19.9	20.8	22.6	19.9	12.6	8.1	7.9	8.6	7.3	4.6
Rural	14.6	18.9	18.5	15.5	7.0	6.3	7.2	8.7	5.7	2.7
Province										
Niassa	21.3	--	22.8	25.8	10.8	8.6	--	10.1	9.6	4.7
Cabo Delgado	11.8	--	17.5	12.6	7.0	6.8	--	12.1	6.7	3.2
Nampula	18.9	--	24.3	19.2	9.6	3.4	--	5.9	4.1	2.1
Zambézia	27.4	--	31.2	26.2	17.6	13.7	--	16.5	10.8	7.5
Tete	8.0	--	11.0	9.9	4.6	3.2	--	6.6	4.1	1.6
Manica	14.4	--	13.3	14.1	7.9	12.9	--	12.4	10.7	5.8
Sofala	27.4	--	30.4	22.3	14.9	12.0	--	12.6	7.9	5.7
Inhambane	9.6	--	16.9	12.5	4.9	2.7	--	3.4	2.7	1.6
Gaza	5.7	--	9.9	5.5	3.5	1.8	--	2.4	0.5	0.8
Maputo Province	4.2	--	6.2	5.9	3.9	0.4	--	0.3	0.7	0.5
Maputo City	21.4	--	26.5	18.5	12.6	4.8	--	6.3	5.9	2.1
Region										
North	15.5	21.2	19.1	17.2	8.0	5.8	7.3	9.1	6.2	3.0
Central	24.1	24.6	26.2	21.8	14.1	12.9	10.3	14.3	9.9	6.4
South	8.0	9.0	13.1	9.9	4.9	2.1	3.5	2.6	1.9	1.2
Wealth Index										
Lowest	14.9	12.2	15.2	13.6	6.8	6.7	4.1	8.3	4.2	2.5
Second	17.7	23.8	22.7	16.6	8.2	7.8	7.7	11.5	7.6	3.1
Middle	15.5	24.0	21.4	17.9	7.5	6.3	10.6	9.2	6.5	3.3
Fourth	13.7	15.2	17.2	16.1	8.4	6.2	6.9	6.4	5.9	3.4
Highest	17.1	19.1	21.4	20.5	12.2	5.8	6.4	6.2	6.1	3.8
Total	15.7	19.3	19.4	16.5	8.4	6.7	7.3	8.7	6.1	3.2

Figure 5: Distribution of net types, among nets sampled, by age of net. ITN here refers to conventionally treated nets.

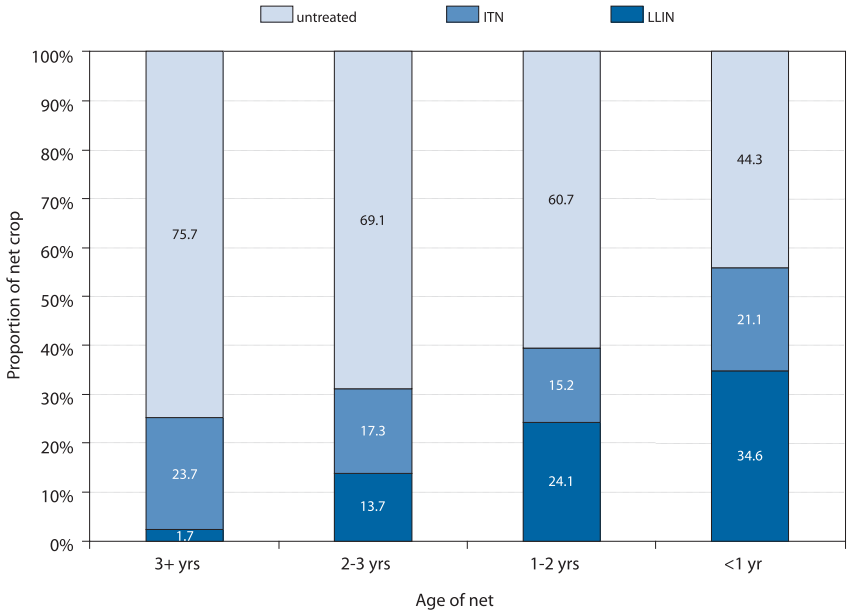


Figure 6: Proportion of non-LLINs and nets dipped within the previous 12 months, by age of net.

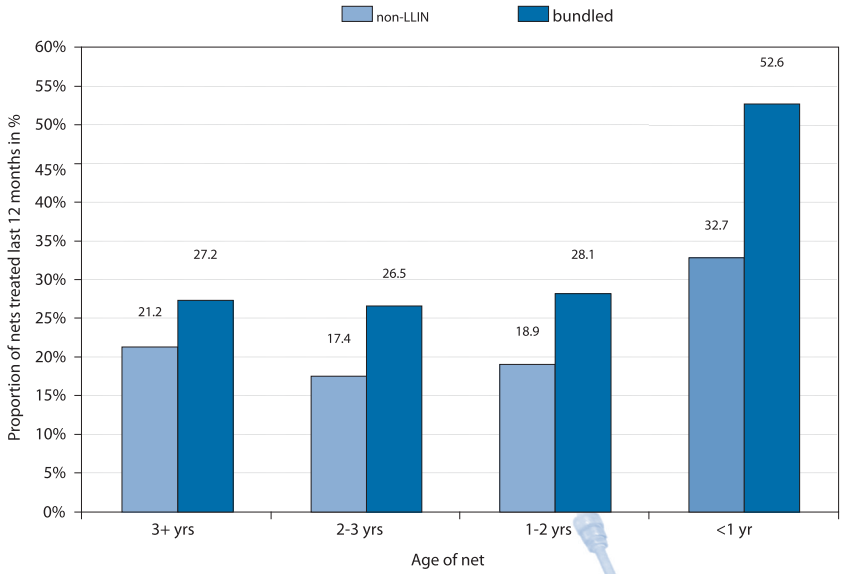


Figure 7: Source of nets among all nets sampled by age of net

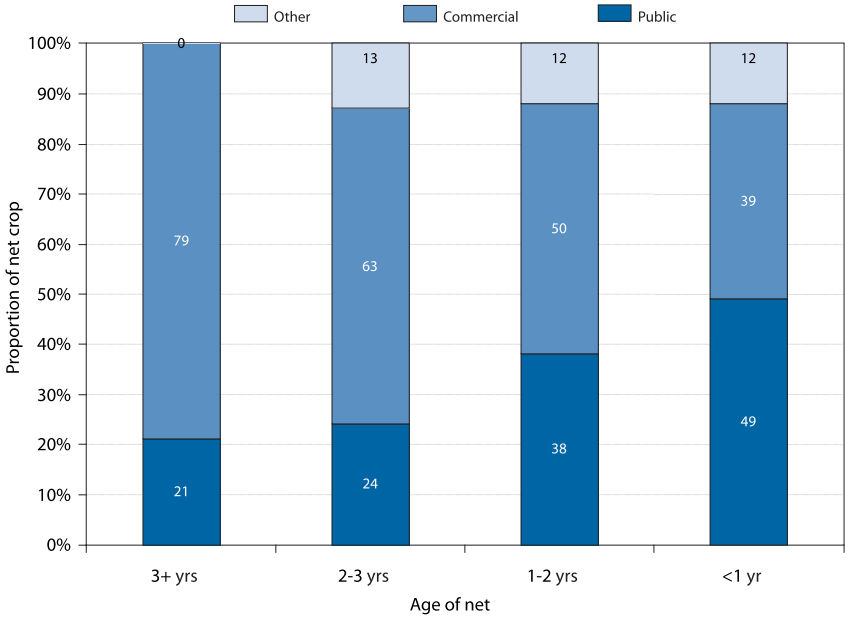


Figure 8: Shape of nets, by age of net

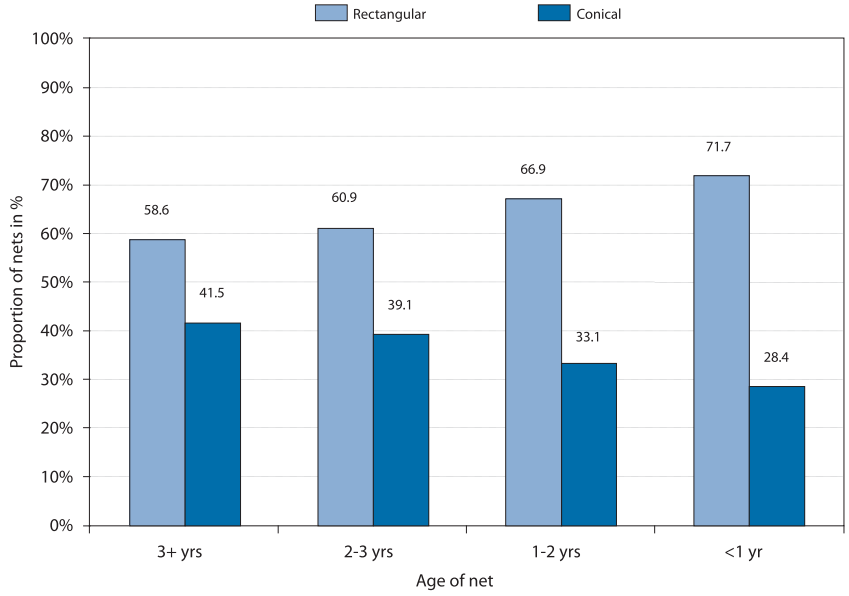


Figure 9: Proportion of children under 5 sleeping under a net the night before by age of the child.

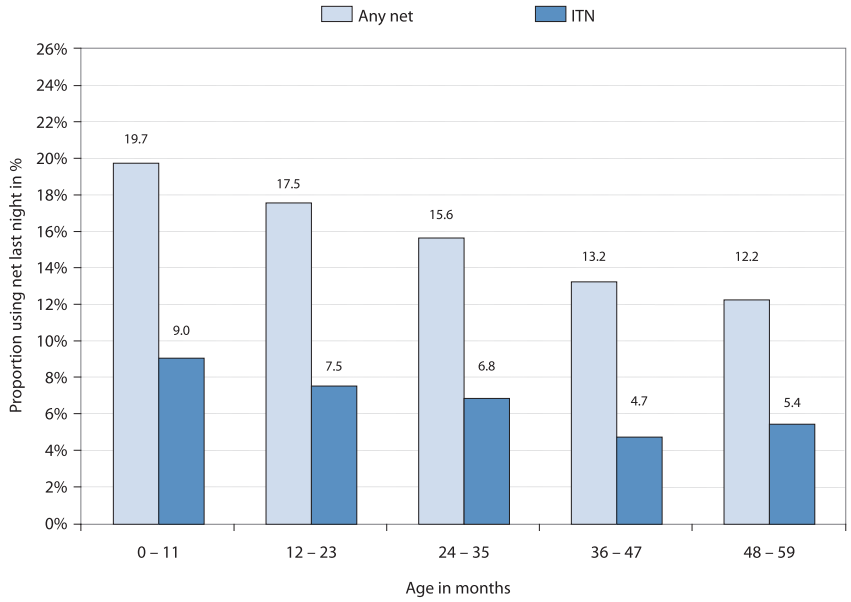
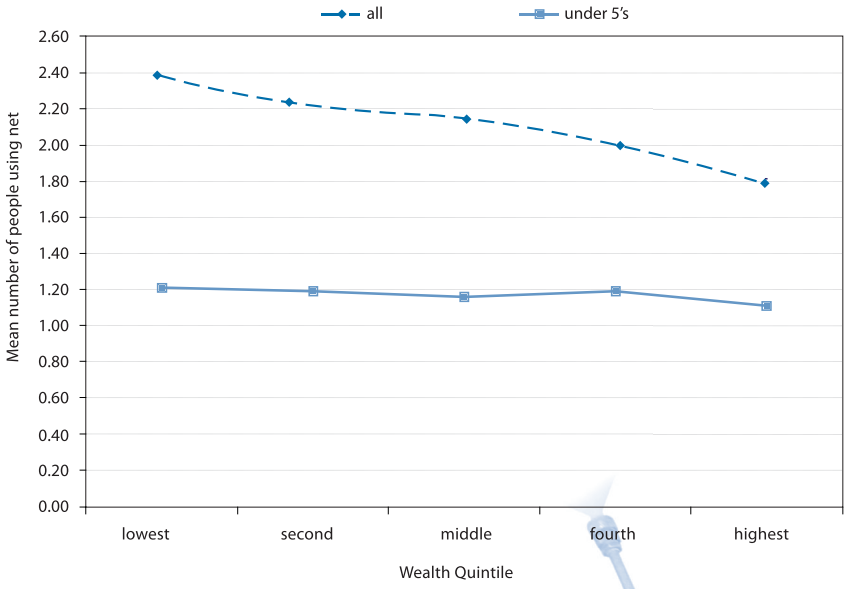


Figure 10: Mean number of people sharing one net per household by wealth quintile. (For children under five years, only nets being used by at least one child were considered)



Indoor Residual Spraying

Based on the knowledge of whether or not any spraying had been planned by the National Malaria Programme, the districts within each province were categorised in terms of whether or not they were targeted for IRS. A total of 3124 of the households visited were in districts targeted for IRS, and of these, 52.4% had been sprayed within the previous 12 months (Table 14) and another 11.7% did not know whether the house had been sprayed or not. The reasons for not spraying were that the team did not come (20.2%), the family was not home at the time (13.0%) or the households refused to have their dwelling sprayed. Only 1.4% of the spraying was reported to have been done by parties other than the government (e.g., a private company or household member).

Households that were sprayed were asked whether they liked the spraying or not and 88.9% said that they did, with no difference between rural and urban households. Of those who did not like it, 3.4% claimed it did not work, 0.9% said that it triggered allergies (this was more common in urban areas), 0.1% cited the spray teams' bad behaviour, and the remaining 6.7% did not offer any reason.

Figure 11 shows the cumulative proportion of spraying in targeted districts over time relative to the rainfall in Maputo Province. As it can be seen in Annex B, the rainfall pattern over time is not much different in other parts of the country, although the intensity varies. In the southern and central provinces, less than 40% of the spraying had been completed by the end of February, and in the North, less than 10%. Considering only spraying that was done before the end of February as effective for malaria prevention, the proportion of households in districts targeted for IRS that were effectively sprayed was 10.2% overall, but only 4.2% in the North (Table 14).

Figure 11: Cumulative proportion of dwellings sprayed by month and comparison with average rainfall in Maputo Province.

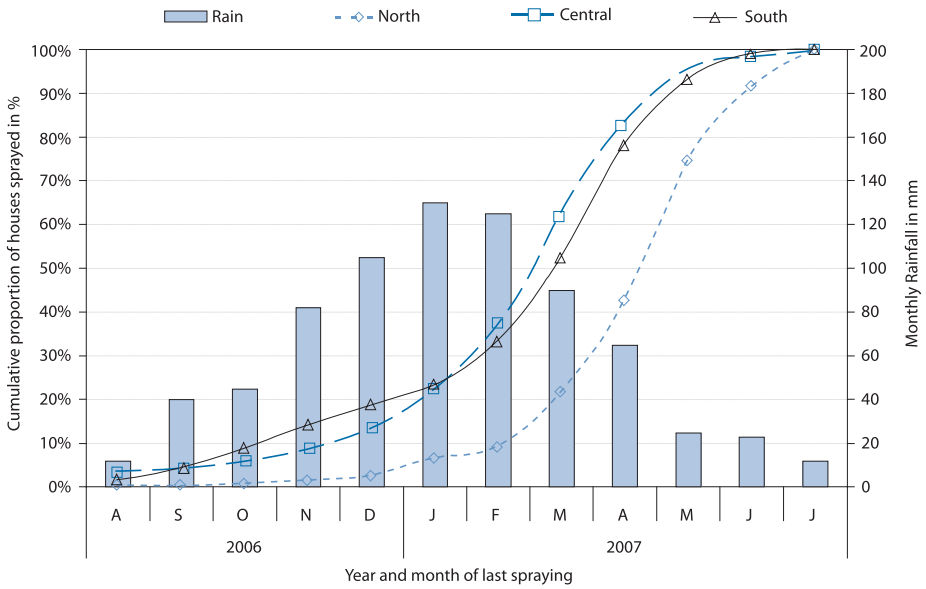
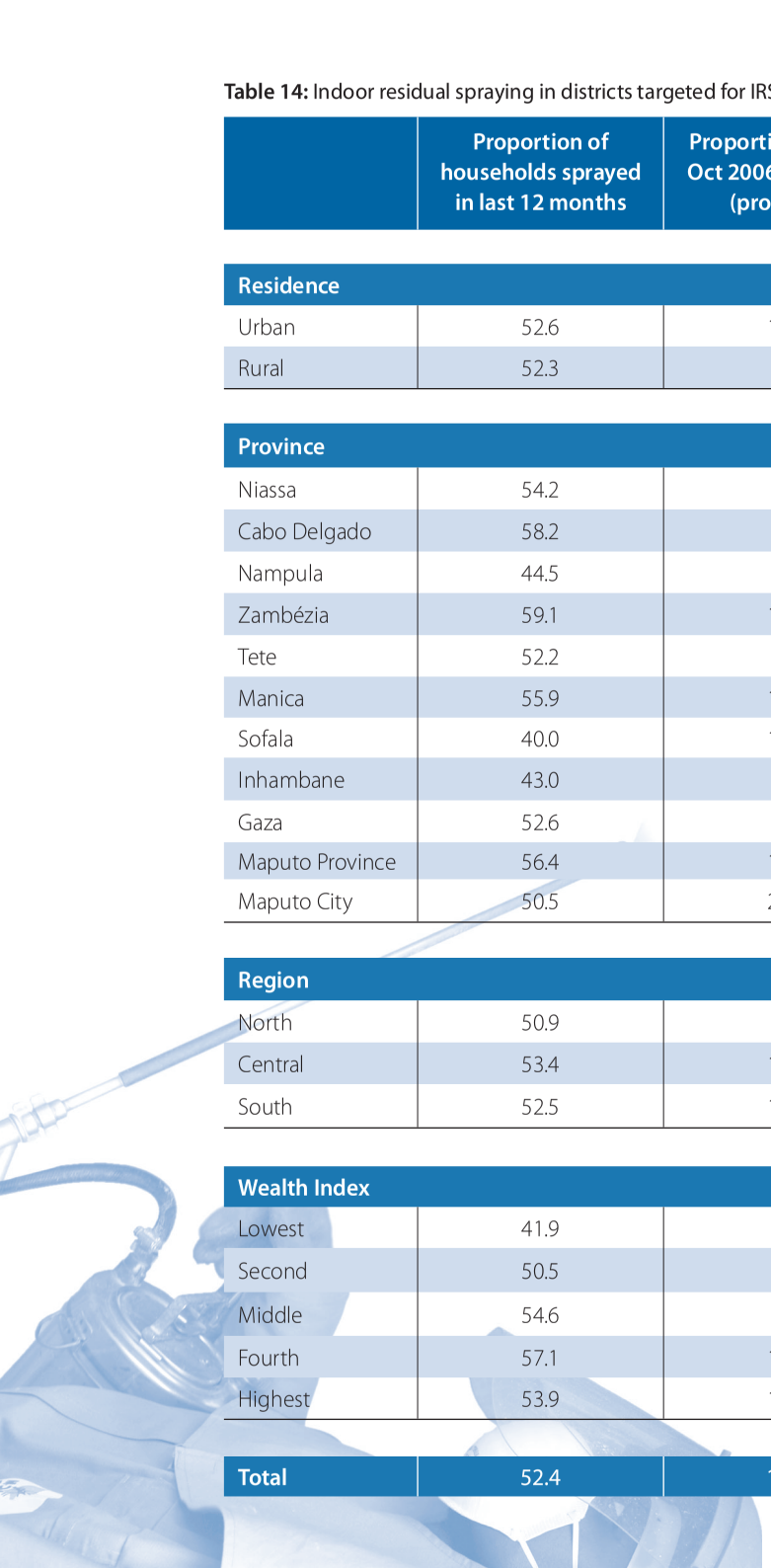


Table 14: Indoor residual spraying in districts targeted for IRS

	Proportion of households sprayed in last 12 months	Proportion sprayed Oct 2006 - Feb 2007 (protected)	Reasons dwellings were not sprayed in areas targeted for spraying				Number of households
			They did not come	We refused	We were not home	Other or don't know	
Residence							
Urban	52.6	12.3	15.7	4.9	17.1	9.7	2317
Rural	52.3	8.5	24.0	0.8	9.6	13.3	807
Province							
Niassa	54.2	1.1	12.7	4.2	21.0	7.9	248
Cabo Delgado	58.2	0.8	18.7	3.1	19.1	0.9	101
Nampula	44.5	8.8	30.6	6.8	17.1	1.0	214
Zambézia	59.1	11.7	21.2	0.8	8.3	10.5	342
Tete	52.2	3.2	35.1	0.7	10.5	1.6	268
Manica	55.9	19.0	21.4	0.8	20.8	1.1	209
Sofala	40.0	14.1	41.8	3.3	10.4	4.5	254
Inhambane	43.0	2.3	18.4	4.4	16.9	17.3	202
Gaza	52.6	8.1	19.8	1.5	11.1	15.0	415
Maputo Province	56.4	13.3	5.5	3.3	12.5	22.3	532
Maputo City	50.5	25.6	14.8	5.7	16.2	12.8	339
Region							
North	50.9	4.2	25.5	4.0	16.4	3.0	831
Central	53.4	13.6	26.8	1.5	10.9	7.4	805
South	52.5	10.6	14.7	2.8	12.7	17.3	1488
Wealth Index							
Lowest	41.9	8.8	34.4	1.4	7.1	15.3	341
Second	50.5	5.9	22.3	1.8	17.1	8.4	339
Middle	54.6	7.6	19.9	1.4	15.2	8.8	530
Fourth	57.1	10.6	15.7	2.9	12.5	11.8	903
Highest	53.9	15.6	14.1	5.1	13.7	13.1	1011
Total	52.4	10.2	20.2	2.7	13.0	11.7	3124



Protection of Population through IRS or ITN

The protection of households with any measure of malaria prevention, either at least one ITN or spraying of the house in the previous 12 months, was 34.5% overall (Table 15), but with a considerable difference between urban (52.4%) and rural (28.8%) areas. The rate was also lower in the North. The highest rate was in Maputo Province, where almost 60% of the households were protected at thislevel. However, when protection is defined more narrowly as households having at least one ITN or having been sprayed before the peak of the rainy season (i.e. before the end of February), this proportion was only 19.5% (urban 25.7%, rural 17.5%). The rates were slightly higher when only households with one or more children under 5 years of age or a pregnant woman were considered, but the differences were not great.

Table 16 shows coverage with malaria prevention measures at the individual level. Nationally, 37% of the population slept in a house that had at least one ITN or had been sprayed in the previous 12 months. The highest rates were in Maputo Province (61.6%) and Gaza (61.1%), while the lowest were in Nampula (23.0%) and Cabo Delgado (26.7%). When effective malaria protection was defined more narrowly as household members having slept under an ITN the night before or a house having been sprayed before the end of February, the proportion protected was only 9.3%. When only children under 5 years of age and women currently pregnant are considered, this proportion rises to 11.2%. For all the criteria there were considerable differences between the wealth quintiles (lowest/highest), with a ratio of 0.38 for the general population and 0.51 for children under 5 and pregnant women.

There was very little overlap between ITN and IRS protection. Only 3.9% of the households and 4.6% of the individuals both had an ITN in the house and had been sprayed within the previous 12 months. When only timely IRS was considered, these proportions dropped to 0.7% and 0.8%, respectively.

Table 15: Protection of households with ITN or IRS (hh=households)

	Proportion of hh with any ITN or sprayed in the previous 12 months	Proportion of hh with any ITN or sprayed during Oct 2006–Feb 2007	Number of hh	Proportion of hh with children <5 or as pregnant woman with any ITN or sprayed in the previous 12 months	Proportion of hh with children <5 or a pregnant woman andwith any ITN or sprayed during Oct 2006–Feb 2007	Number of hh
Residence						
Urban	52.4	25.7	3005	54.7	28.8	1736
Rural	28.8	17.5	2740	31.2	20.3	1782
Province						
Niassa	30.0	18.3	582	31.4	20.1	419
Cabo Delgado	24.4	19.7	529	27.3	22.3	397
Nampula	21.7	10.8	554	22.4	11.4	360
Zambézia	43.6	22.9	596	46.3	27.2	348
Tete	24.3	12.8	553	25.3	13.4	371
Manica	44.2	40.0	480	52.9	48.4	297
Sofala	33.5	26.7	551	36.8	30.1	353
Inhambane	17.0	10.7	560	17.4	11.6	288
Gaza	56.4	19.5	415	62.1	25.1	220
Maputo Province	58.7	18.1	532	60.6	19.8	282
Maputo City	54.0	32.8	393	54.4	33.7	183
Region						
North	25.2	15.7	2218	26.9	17.4	1547
Central	40.9	28.8	1627	45.2	33.8	998
South	40.1	16.4	1900	42.8	19.0	973
Wealth Index						
Lowest	25.3	16.4	1144	28.3	20.8	734
Second	24.6	16.2	1146	27.7	19.2	725
Middle	33.2	18.2	1151	34.9	21.3	758
Fourth	48.4	22.3	1155	49.3	23.1	670
Highest	55.2	30.6	1149	56.2	32.4	631
Total	34.5	19.5	5745	36.4	22.2	3518

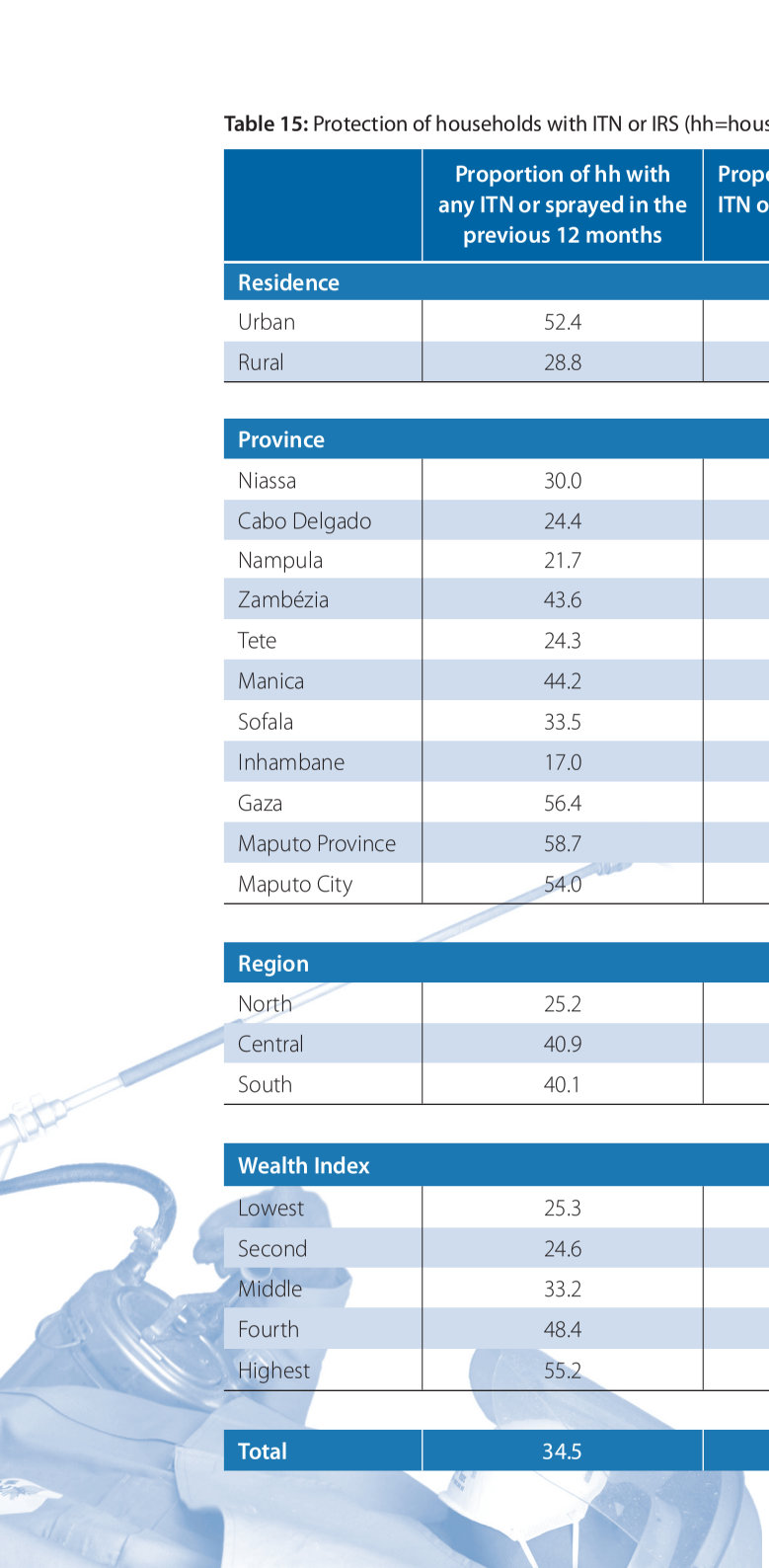


Table 16: Protection of population with ITNs or IRS

	Proportion of hh that slept in a house with any ITN or had house sprayed in the previous 12 months	Proportion of hh that slept under ITN or had house sprayed during Oct 2006 –Feb 2007	Number of people	Proportion of children and pregnant women who slept under ITN or had house sprayed in the previous 12 months	Proportion of children and pregnant women who slept under ITN or had house sprayed during Oct 2006 –Feb 2007	Number of people
Residence						
Urban	54.9	16.4	14770	54.5	17.5	2709
Rural	31.2	7.0	13260	32.4	9.5	2947
Province						
Niassa	31.4	7.3	2957	31.9	9.7	691
Cabo Delgado	26.7	5.6	2565	28.2	7.3	661
Nampula	23.0	5.7	2395	22.5	5.7	579
Zambézia	45.7	15.7	2707	44.2	17.7	584
Tete	26.0	3.5	2784	27.0	4.0	562
Manica	50.3	14.7	2291	54.9	18.8	466
Sofala	35.2	13.9	3030	39.2	18.2	605
Inhambane	18.5	2.4	2626	17.7	2.8	445
Gaza	61.1	9.5	2000	63.5	14.4	346
Maputo Province	61.6	13.8	2558	61.6	15.9	426
Maputo City	54.6	29.6	2117	54.2	30.2	291
Region						
North	27.0	5.6	10701	27.6	7.0	2493
Central	43.4	14.8	8028	45.3	18.1	1655
South	43.2	9.0	9301	37.1	10.9	1508
Wealth Index						
Lowest	28.4	6.7	5280	30.3	9.0	1219
Second	25.3	6.9	5252	27.8	9.4	1167
Middle	35.3	8.0	5435	35.6	10.0	1248
Fourth	48.8	11.1	5559	51.2	14.7	1037
Highest	57.3	17.2	6504	54.7	17.5	985
Total	37.0	9.3	28030	37.1	11.2	5656

Antenatal Care and Intermittent Presumptive Treatment in Pregnancy

This section presents the results from the birth history of interviewed women aged 15-49 years, as well as their ante-natal care, delivery, and protection with intermittent presumptive treatment (IPT) for malaria using sulpahdoxine-pyrimethamine (SP).

The proportion of women who had at least one birth within the previous 5 years was 61.2%, but the figure differed significantly with age, education, and wealth quintile (Table 17) and showed a strong North-South gradient with higher rates in the North. This trend was also visible in the proportion of women currently pregnant, shown in Figure 12. While the proportion was quite similar in all three regions for women aged 15-19 (10.8%-14.0%), it varied greatly in the other age groups. Births were not evenly distributed throughout the year; the curve peaked between March and May and then declined steadily until November, after which it began to rise again (Figure 13). Only 58.4% of the births had been assisted by formally trained personnel (Table 18), mainly midwives and nurses, while 19.4% had been assisted by friends or relatives and 16.% by traditional birth attendants.

Among women aged 15-49 who had given birth in the previous 5 years, 87.9% had attended ANC services at least once, 84.0% at least twice, and 55.7% three or more times. These rates varied significantly, however, with level of schooling, region, and household wealth quintile (Table 19). ANC services were provided almost exclusively by health facilities (97.9%); only 1.7% of the women consulted private facilities and 0.4% were served by the mobile brigades. In the urban areas almost half the women (44.9%) were able to reach their ANC service provider within half an hour and 80.0% within an hour (Figure 14). By contrast, in the rural areas less than half (48.8%) were able to reachtheir provider within an hour and 21.2% needed more than two hours. The major mode of travel to ANC services was by foot (77.0%), but a considerable proportion travelled by boat (14.4%), mainly in the southern provinces, where between 25% and 39% used boats. This was also the only transport for which money was paid. Bicycles were less common (7.7%), ranging from 22% to 11% in Zambézia, Nampula, Niassa and Sofala.

Tables 20 and 21 show the results for IPT for women who had given birth in the previous two years and the last year. Since IPT was only recently rolled out in many provinces, the rates were higher for the latter than for the former. Again, the rates varied most by schooling, region, andhousehold wealth quintile.

Figure 12: Proportion of women reported to be currently pregnant, by age and region

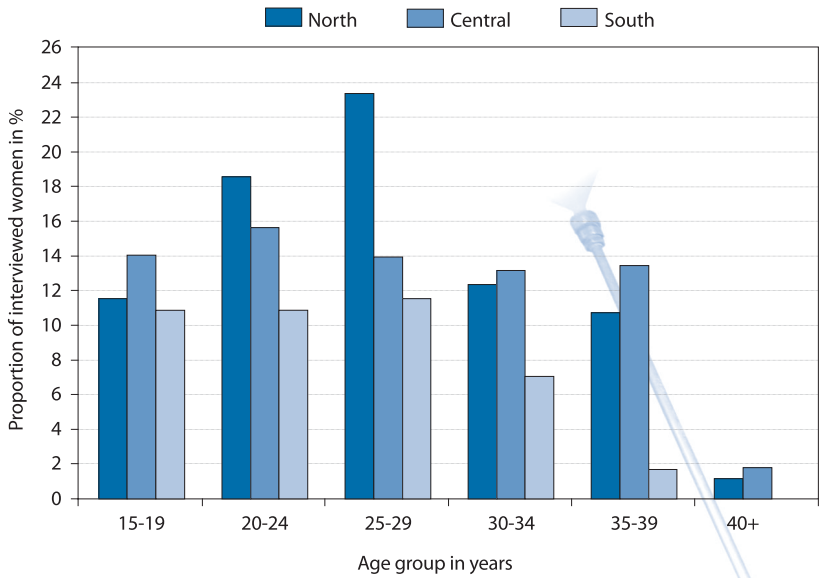


Table 17: Birth history of women 15-19 years of age

	Birth history					Number of women
	Any births (%)	Previous 5 yrs (%)	Mean births in previous 5 yrs	Previous 2 yrs (%)	Previous year (%)	
Residence						
Urban	77.5	51.7	1.36	31.4	17.5	3115
Rural	85.6	64.6	1.45	39.3	21.9	2522
Age						
15-24	64.1	57.7	1.35	39.6	24.3	2398
25-34	96.1	76.4	1.51	44.7	23.5	1833
35+	96.6	46.9	1.42	24.0	12.0	1406
Education						
Illiterate	89.5	66.0	1.50	39.8	22.2	2708
Primary	80.8	59.4	1.36	36.2	19.8	1959
Secondary	57.8	40.1	1.22	26.0	15.8	945
Province						
Niassa	85.8	69.4	1.49	41.8	24.0	582
Cabo Delgado	85.5	67.3	1.46	43.3	23.0	538
Nampula	88.9	69.1	1.43	43.6	24.1	419
Zambézia	82.7	62.8	1.59	40.3	24.1	558
Tete	84.7	69.0	1.43	40.8	24.2	506
Manica	79.6	61.4	1.37	37.6	22.0	455
Sofala	83.3	62.0	1.52	38.5	22.0	564
Inhambane	85.4	55.6	1.27	30.4	15.0	502
Gaza	83.9	55.8	1.40	31.6	18.5	423
Maputo Province	79.6	49.8	1.33	31.9	16.2	544
Maputo City	66.3	34.9	1.28	21.8	10.4	546
Region						
North	86.1	68.6	1.46	42.4	23.7	2045
Central	82.1	62.2	1.51	39.0	22.9	1577
South	81.8	52.4	1.33	30.2	15.8	2015
Wealth Index						
Lowest	88.5	70.1	1.47	43.8	25.2	977
Second	85.0	63.5	1.49	39.8	23.1	1012
Middle	84.9	65.9	1.43	39.5	22.8	1060
Fourth	82.6	55.5	1.39	32.0	15.7	1167
Highest	72.9	45.8	1.32	27.6	14.7	1421
Total	83.5	61.2	1.43	37.2	20.7	5637

Table 18: Assisted deliveries among women who gave birth in the previous 5 years

	Proportion receiving professional assistance	Source of delivery assistance						
		Doctor	Midwife Nurse	Nursing assistant	TBA or Matrone	Friend, relative, etc	Nobody	Don't know
Residence								
Urban	79.0	3.2	74.8	1.0	5.8	9.6	1.3	4.2
Rural	52.5	0.7	51.4	0.5	19.5	22.1	1.9	3.9
Age								
15-24	64.5	1.7	61.7	1.0	13.9	16.4	1.2	4.0
25-34	55.9	1.0	54.5	0.4	17.8	21.4	1.8	3.0
35+	52.3	0.7	51.1	0.5	18.5	20.7	2.9	5.7
Education								
Illiterate	47.6	0.3	46.6	0.7	21.9	23.9	2.4	4.3
Primary	72.6	2.6	69.6	0.5	9.0	13.8	1.0	3.5
Secondary	90.2	3.9	85.3	1.0	1.0	3.4	0.3	3.2
Pregnancy								
First	68.8	1.7	66.4	0.6	12.7	13.1	1.1	4.3
Second	60.3	2.3	57.1	0.9	14.2	20.7	1.7	3.1
Third or more	54.4	0.7	53.1	0.6	18.5	21.0	2.1	4.1
Province								
Niassa	68.6	0.3	68.2	0.1	4.0	19.5	0	7.8
Cabo Delgado	32.0	0.4	31.6	0	33.5	30.1	2.6	1.7
Nampula	44.6	0	44.6	0	31.8	12.2	0.1	11.2
Zambézia	48.9	0	48.4	0.5	17.6	25.4	1.3	6.8
Tete	60.1	0.2	59.1	0.8	27.9	9.8	1.6	0.5
Manica	62.8	0	62.8	0	22.9	12.1	2.1	0.2
Sofala	61.7	1.9	59.4	0.5	11.0	22.7	2.4	2.1
Inhambane	60.1	1.7	58.1	0.3	8.6	28.6	0.4	2.4
Gaza	72.6	2.1	67.3	2.9	6.3	13.0	5.1	3.0
Maputo Province	84.2	5.5	76.4	2.3	1.5	9.0	3.2	2.0
Maputo City	89.8	11.1	78.7	0	0.8	4.0	2.2	3.2
Region								
North	50.8	0.3	50.4	0.2	23.6	19.3	1.1	5.1
Central	56.5	0.6	55.6	0.4	17.0	21.1	1.9	3.6
South	71.0	3.2	66.2	1.5	5.9	17.9	2.7	2.6
Wealth Index								
Lowest	34.9	0.3	34.6	0	26.7	31.5	2.2	4.7
Second	51.7	0.1	51.6	0	20.9	20.1	2.5	4.8
Middle	62.2	0.7	60.4	1.1	16.8	16.3	0.9	3.8
Fourth	76.6	2.6	72.9	1.1	4.8	13.8	1.7	3.1
Highest	87.1	4.4	81.0	1.6	3.2	6.2	1.2	2.2
Total	58.4	1.2	56.5	0.6	16.5	19.4	1.7	3.9

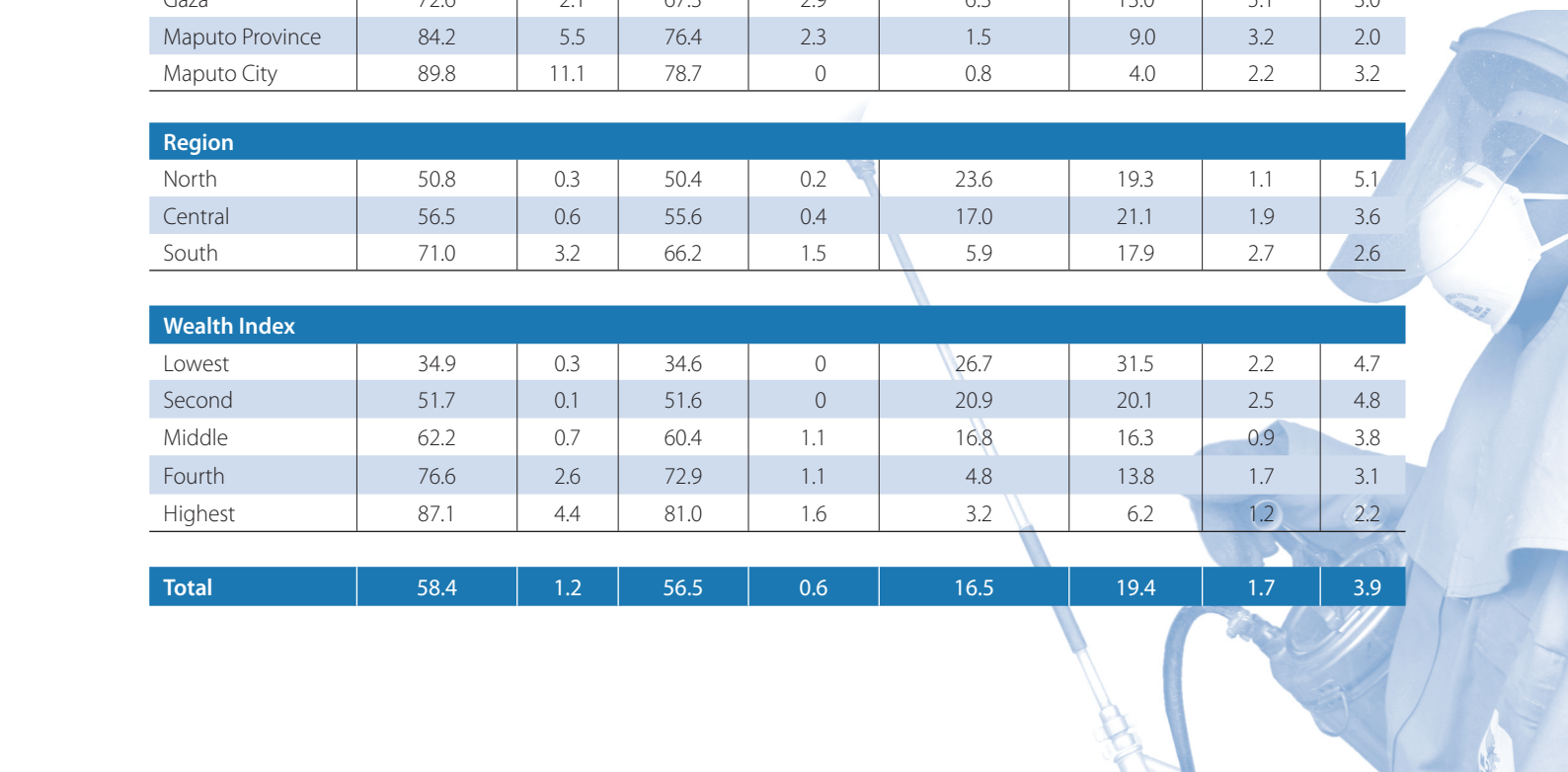


Table 19: Antenatal care visits among women who gave birth in the previous 5 years[1]

	Any ANC visit	Number of ANC visits				Number of women
		None	1	2-3	4+	
Residence						
Urban	93.4	6.6	3.9	24.3	65.2	1543
Rural	86.3	13.7	3.9	29.4	52.9	1559
Age						
15-24	89.4	10.6	4.1	29.1	56.2	1252
25-34	86.9	13.1	4.2	28.1	54.6	1259
35+	87.1	12.9	3.1	27.1	57.0	582
Education						
Illiterate	83.9	16.1	5.0	30.7	48.3	1654
Primary	93.3	6.7	2.3	25.6	65.4	1076
Secondary	98.6	1.4	1.9	19.2	77.4	350
Pregnancy						
First	90.6	9.4	4.1	28.5	58.0	696
Second	87.2	12.8	4.9	26.3	56.0	598
Third or more	87.2	12.8	3.6	28.8	54.8	1799
Province						
Niassa	92.5	7.5	2.0	39.2	51.2	376
Cabo Delgado	94.5	6.5	9.2	35.3	48.9	321
Nampula	57.1	42.9	1.5	27.7	27.9	254
Zambézia	76.4	23.6	6.4	22.5	47.5	334
Tete	94.8	5.2	2.5	30.5	61.9	342
Manica	88.3	11.7	3.6	23.0	61.6	270
Sofala	85.0	15.0	2.3	26.8	55.9	336
Inhambane	93.0	7.0	5.1	26.4	61.6	230
Gaza	97.6	2.4	1.9	26.8	68.9	195
Maputo Province	98.2	1.8	2.2	18.8	77.2	249
Maputo City	95.3	4.7	2.6	19.7	73.1	186
Region						
North	86.2	13.8	4.1	33.9	48.2	1293
Central	82.3	17.7	4.4	24.0	53.9	940
South	95.8	4.2	3.2	24.5	68.1	860
Wealth Index						
Lowest	74.9	25.1	5.5	27.1	42.3	645
Second	87.8	12.2	5.7	31.6	50.5	614
Middle	91.3	8.7	2.5	28.8	60.0	656
Fourth	96.2	3.8	1.7	26.8	67.6	606
Highest	96.6	3.4	2.7	25.2	68.7	572
Total	87.9	12.1	3.9	28.3	55.7	3093

[1] No information on ANC visits available for 144 women

Table 20: Intermittent presumptive treatment (IPT) in pregnancy, women who gave birth in the previous 2 years

	Number of IPT doses			Number of women	Proportion of women receiving IPT2 if >1 ANC visit
	At least 1	At least 2	3 or more		
Residence					
Urban	38.3	24.7	16.0	956	28.5
Rural	22.0	13.8	10.0	1016	16.1
Age					
15-24	30.7	19.2	14.9	898	21.9
25-34	21.5	12.8	7.2	764	15.4
35+	22.7	16.4	12.4	310	20.2
Education					
Illiterate	19.5	11.6	7.3	1061	14.2
Primary	31.9	21.9	16.6	677	23.8
Secondary	50.0	29.4	23.4	224	30.9
Pregnancy					
First	30.9	19.0	15.0	466	21.6
Second	31.5	22.2	15.5	394	26.9
Third or more	22.0	13.4	8.8	1112	15.7
Province					
Niassa	14.0	1.6	0.9	233	1.9
Cabo Delgado	7.2	1.8	1.0	233	1.7
Nampula	17.9	5.0	4.0	180	3.4
Zambézia	15.9	12.5	6.7	211	17.1
Tete	40.9	26.2	15.2	201	28.9
Manica	45.9	35.7	27.2	162	40.8
Sofala	45.6	37.6	27.6	205	43.5
Inhambane	14.7	8.7	4.3	154	9.3
Gaza	40.9	26.2	25.2	120	25.6
Maputo Province	34.3	25.6	15.8	161	26.9
Maputo City	51.8	34.4	24.3	112	35.4
Region					
North	17.9	7.2	4.3	847	8.3
Central	32.6	26.1	18.3	578	32.3
South	30.3	20.0	15.1	547	21.3
Wealth Index					
Lowest	15.2	9.8	6.1	416	13.0
Second	18.2	12.7	8.8	407	15.7
Middle	32.7	17.4	13.5	426	20.0
Fourth	31.6	21.3	16.2	369	22.6
Highest	42.0	28.0	17.0	354	28.6
Total	26.6	16.2	11.3	1972	18.9

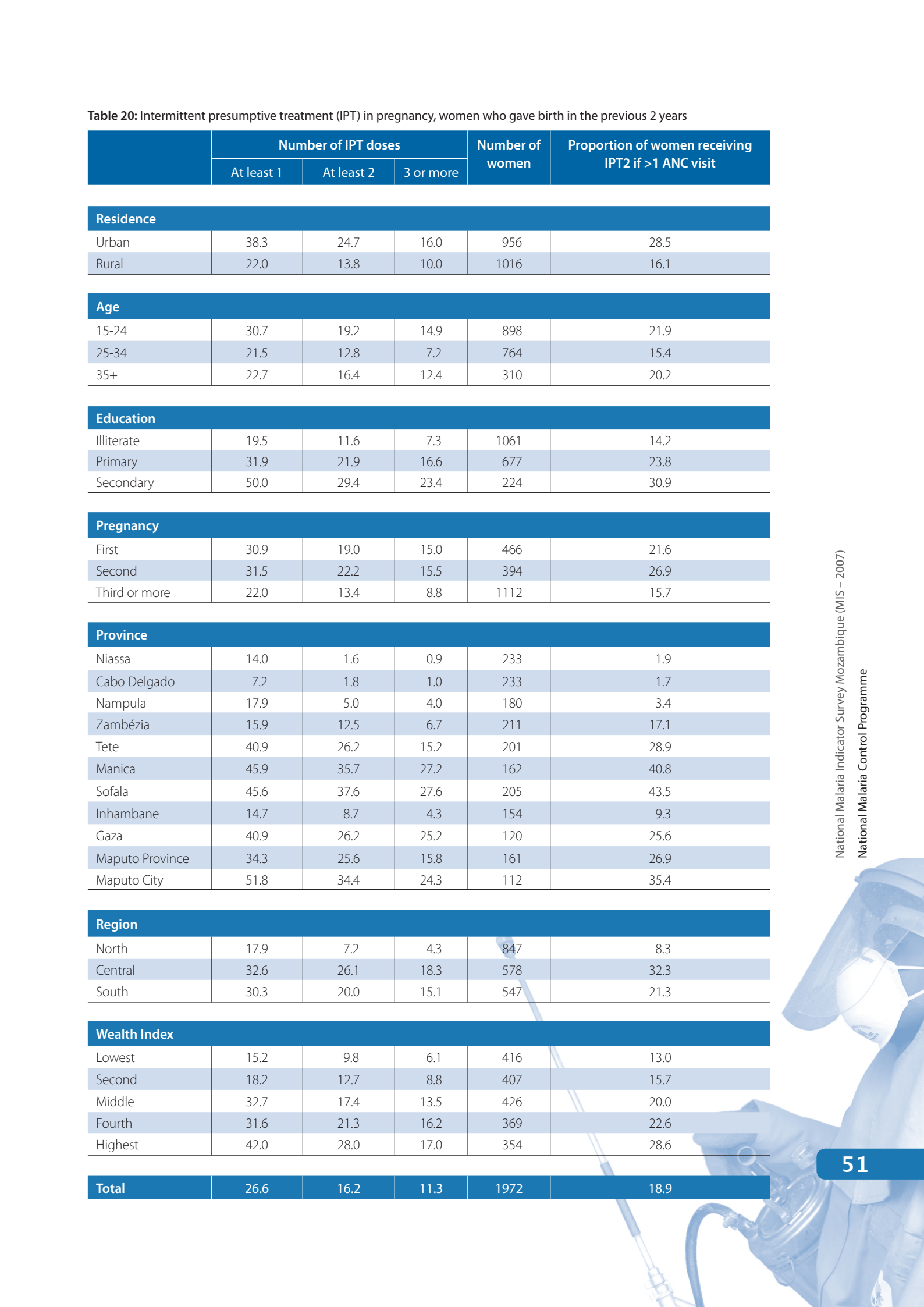


Table 21: Intermittent presumptive treatment (IPT) in pregnancy, women who gave birth in the previous year

	Number of IPT doses			Number of women	Proportion of women receiving IPT2 if >1 ANC visit
	At least 1	At least2	3 or more		
Residence					
Urban	47.3	31.8	21.5	527	36.4
Rural	27.0	17.0	12.7	572	19.5
Age					
15-24	35.7	22.7	18.2	539	25.4
25-34	26.7	16.2	9.2	401	19.5
35+	30.4	22.8	17.6	159	26.1
Education					
Illiterate	22.3	13.3	9.1	597	15.9
Primary	41.6	28.7	21.6	367	31.4
Secondary	61.6	39.3	32.0	130	40.0
Pregnancy					
First	37.8	23.8	18.9	258	26.1
Second	37.5	28.2	20.1	230	33.9
Third or more	27.1	16.4	11.3	611	18.9
Province					
Niassa	14.7	1.7	1.0	134	2.0
Cabo Delgado	10.1	3.4	1.8	127	3.2
Nampula	21.9	5.4	5.2	104	4.6
Zambézia	20.9	15.5	9.1	126	22.1
Tete	44.7	29.1	17.7	118	32.1
Manica	46.0	32.6	26.7	87	37.5
Sofala	48.1	43.4	31.1	114	47.6
Inhambane	25.7	13.6	5.8	81	14.7
Gaza	54.0	36.3	35.3	71	35.8
Maputo Province	50.9	42.5	28.0	83	45.6
Maputo City	69.4	52.5	40.4	54	52.5
Region					
North	21.0	8.7	5.6	483	9.9
Central	35.3	28.1	20.1	327	34.8
South	44.2	30.5	23.5	289	31.5
Wealth Index					
Lowest	16.7	9.7	6.6	247	13.2
Second	23.0	16.8	11.4	237	19.5
Middle	35.3	19.6	16.6	239	22.1
Fourth	46.7	29.7	23.1	189	31.3
Highest	58.3	42.9	26.0	187	43.2
Total	31.4	20.3	14.6	1099	23.3

Figure 13: Births by month of the year

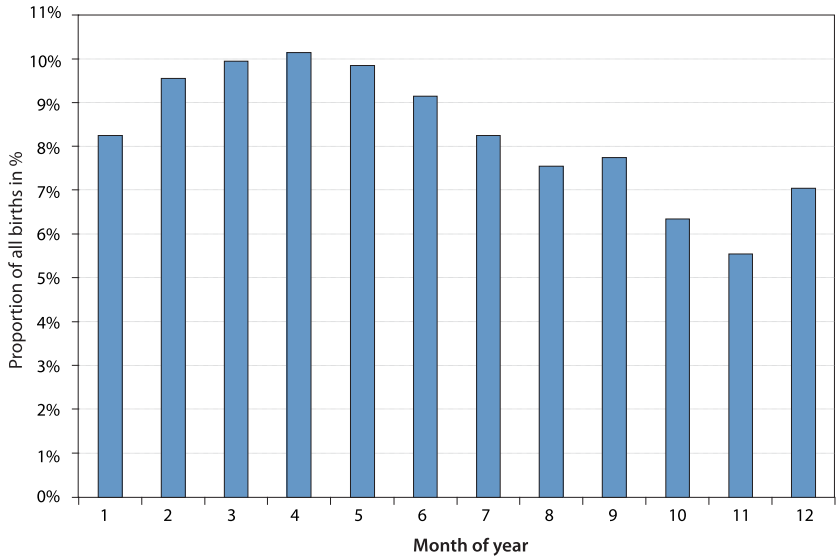
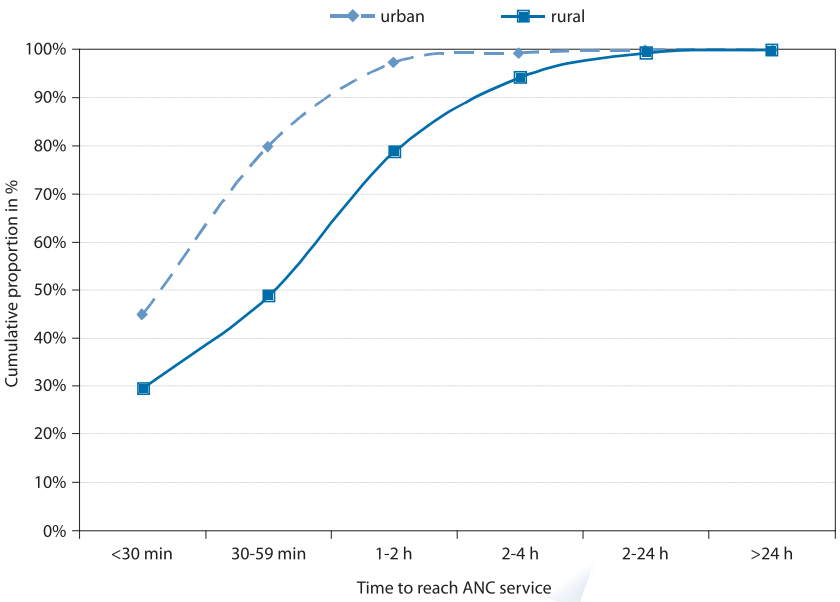


Figure 14: Travel time needed to reach ANC services;
cumulative proportion of women accessing services relative to travel time



Treatment of Fever in Children

Out of 3891 children interviewed through their mother or caretaker, 1268 were reported to have had a fever in the previous two weeks, giving a national estimated 14-day fever prevalence of 35.0% (Table 22). In 6.3% of the children who had a fever episode their fever had started the same day or the day before, in 56.3% it had started between 2 and 6 days earlier, and for 35.4% it started one to two weeks before. Only 2.0% of the children were reported to have had fever that had started before the two-week period.

Slightly more than one-third of the febrile children (36.3%) received some kind of treatment within the first 24 hours of symptoms, but this rate differed considerably between the provinces (Zambézia 24.1%, Manica 55.0%), by wealth quintile, and by schooling of the mother (illiterate, 32.6%; primary school, 42.1%; secondary school, 49.6%).

Overall, only 59.9% of the febrile children were seen within the government health services, 11.6% were treated by the mother or caregiver, 2.4% sought support from traditional healers, and 0.4% attended a private sector facility. The remaining 25.7 did not receive any treatment. As shown in Figure 15, the source of treatment varied with the educational status of the mother: 30.8% of the children remained without treatment when the mother was illiterate.

The proportion of febrile children who received any malaria treatment was 23.0%, and 17.6% received treatment within 24 hours of fever onset. Rates were slightly better among those children who were seen at public facilities (Table 22). The proportion who received any ACT within 24 hours of fever onset was 4.5% for all children and 7.3% for those seen in public facilities. Table 23 gives a more detailed breakdown of the malaria drugs given: 74.3% of those receiving any malaria medicines were treated with monotherapy, while only 25.7% received a combination therapy of some kind (23.0% receiving ACT). Again, a similar picture emerges: access to combination therapy was lower when the mother was illiterate (Figure 16).

Figure 15: Treatment source for febrile children by educational status of mother

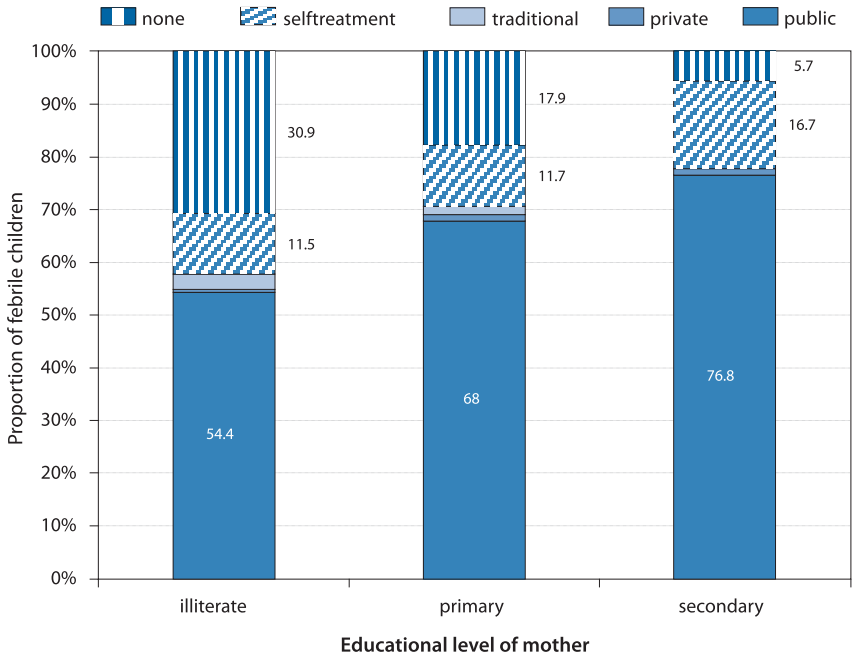


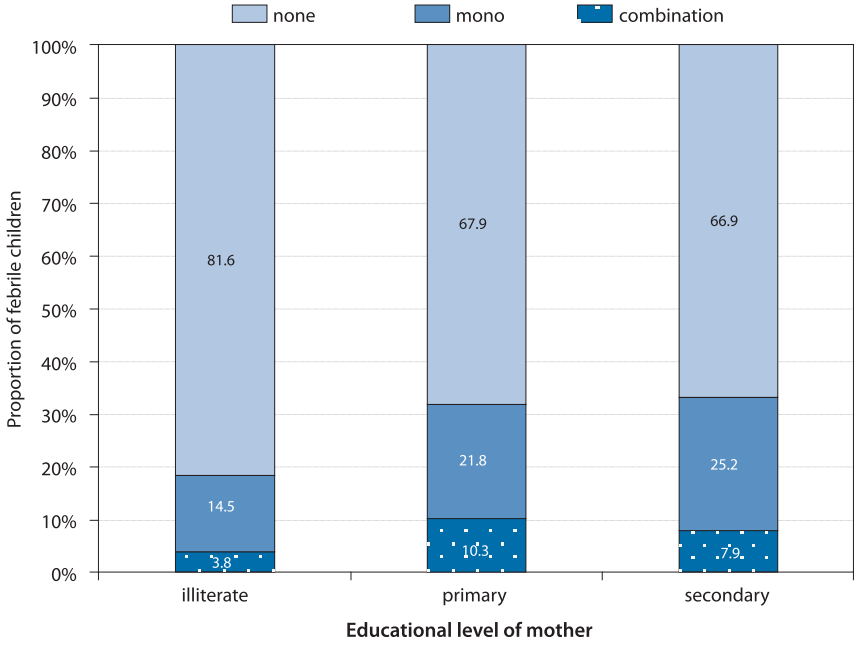
Table 22: Treatment of children aged 0-4 years with fever in previous 14 days

	Fever in previous 2 weeks	Treat-ment sought within 24 h	Seen in public sector	All febrile children				Children seen in public sector		
				Received malaria medicine	Received malaria medicine within 24 h	Received ACT within 24 h	Number of children	Received malaria medicine	Received malaria medicine within 24 h	Received ACT within 24 h
Residence										
Urban	30.6	44.8	68.2	23.8	19.6	5.5	528	32.6	26.9	7.8
Rural	36.1	34.6	58.1	22.8	17.2	4.2	740	35.7	26.7	7.2
Province										
Niassa	25.2	36.9	47.5	20.0	14.9	1.3	118	--	--	--
Cabo Delgado	55.2	29.8	48.1	12.5	10.6	6.1	221	--	--	--
Nampula	25.5	47.7	76.7	31.2	29.1	4.5	93	--	--	--
Zambézia	48.4	24.1	47.2	15.5	13.1	0.2	217	--	--	--
Tete	27.4	44.4	80.7	30.1	15.5	3.1	116	--	--	--
Manica	20,9	55.0	81.6	45.7	43.3	6.3	65	--	--	--
Sofala	33.7	29.8	59.2	27.9	17.3	8.8	144	--	--	--
Inhambane	43.9	37.5	75.4	34.4	23.5	3.3	115	--	--	--
Gaza	27.3	53.6	63.6	27.0	23.2	10.6	67	--	--	--
Maputo Province	21.4	51.6	61.7	12.5	12.5	9.2	59	--	--	--
Maputo City	30.3	50.2	53.8	10.4	6.1	0	53	--	--	--
Region										
North	34.4	36.4	57.6	19.8	15.1	4.3	548	31.8	24.1	7.4
Central	37.5	29.6	55.0	22.9	18.1	3.5	426	37.3	29.8	6.3
South	33.4	44.3	69.4	28.6	21.2	5.8	294	37.9	27.6	8.2
Wealth Index										
Lowest	39.5	23.9	47.9	20.8	14.3	2.6	342	40.3	27.3	5.4
Second	38.9	37.5	60.1	16.4	13.2	2.5	297	22.7	19.3	4.1
Middle	32.9	37.4	66.1	28.5	20.7	6.7	258	41.9	30.2	10.2
Fourth	28.7	46.1	66.4	28.2	23.3	3.0	202	36.3	29.3	4.5
Highest	29.5	57.7	74.1	29.9	25.8	14.7	169	39.7	34.2	19.2
Total	35.0	36.3	59.9	23.0	17.6	4.5	1268	35.1	26.7	7.3

Table 23: Type of treatment among those receiving any malaria medicines

Type of malaria treatment	Proportion (%) (N=282)
Combination treatment	**25.7**
ACT	***23.0***
Artesunate plus sulphadoxine-pyrimethamine (SP)	22.0
Artemether-lumefantrine (Coartem)	1.0
Non-ACT	***2.7***
SP + amodiaquine or chloroquine	2.5
Quinine + SP or chloroquine	0.2
Monotherapy	**74.3**
Sulphadoxine-pyrimethamine	43.0
Chloroquine	22.3
Amodiaquine	0.6
Artesunate	5.6
Quinine	2.8

Figure 16: Treatment of malaria in children under 5 with fever during previous two weeks by type of treatment and educational level of the mother or caregiver



Chapter V: Anaemia, Fever, and Parasite Prevalence

Among children under 5 years of age, 67.7% had some degree of anaemia (haemoglobin <11g/dL) and 11.9% had severe anaemia (hb <8g/dL). Among the currently pregnant women, the rates were 48.1% and 5.1%, respectively (Table 24). The anaemia rate was higher among women in their first or second pregnancy (58.8%) compared to those with three or more pregnancies (42.8%), and the same was true for severe anaemia (7.1% and 4.3%, respectively).

When haemoglobin levels and the proportion of severe anaemia in children were compared against whether or not the household owned an ITN , a clear protective effect of ITNs could be demonstrated (Figures 17 and 18), except in the youngest age group, where severe anaemia was higher in the ITN group. On the other hand, it made no difference whether the child was actually sleeping under the ITN or not. This could indicate either that the nets were used more frequently during the rainy season or that a beneficial effect was achieved even when the child did not use the net; most likely it is a combination of the two.

Axillary temperature was measured in all but one province, Sofala. In total, 9.7% of the children and 1.7% of the pregnant women recorded a fever at the time of the survey (Table 25). This table also presents positivity rates for blood slides and rapid diagnostic tests (RDT), the latter usually being higher than the former. The lowest parasite rates were in the South, Maputo Province (3.9% based on slides) and Maputo City (5.7%). In contrast, the highest rates were found in Nampula (60.4%) and Zambézia (50.3%). Table 26 breaks down the prevalence of trophozoites, gametocytes, and parasite density by age group for children and by number of pregnancies for pregnant women. Parasite prevalence and density peaked in the 2-4 year age group, and the pattern was similar pattern in all the provinces except in the South, where the levels were much lower (Figure 19). As for severe anaemia, there were clear age differences in the parasite rates and also differences between children from households with at least one ITN and those with no net or an untreated net (Figure 20). Adding IRS lowered the curve slightly. For pregnant women there was a clear trend of decreasing parasite prevalence with increasing numbers of pregnancies (Table 26) ranging from 30.1% (first pregnancy) to 10.2% (four or more pregnancies).

A detailed breakdown of parasite species is given in Table 27. P*lasmodium falciparum* was present in 97.7% of all positive blood slides. In 87.8% of the slides it occurred as a monoinfection and in 9.9% as mixed infection, mainly with P. *malariae* (7.8%).

Using microscopy as the "gold standard," RDT gave a sensitivity of 86.2%, which increased to 92.8% when parasite density of the slide was 1000 parasites/μL or greater (Table 28). Sensitivity was 72.6%. Positive and negative predictive values for given sensitivity and specificity levels across the spectrum of parasite prevalence are shown in Figure 21. The results demonstrate that at the range of parasite prevalence found in children under 5 years old in this survey the predictive values for a negative RDT were over 80% and therefore can be considered reliable.

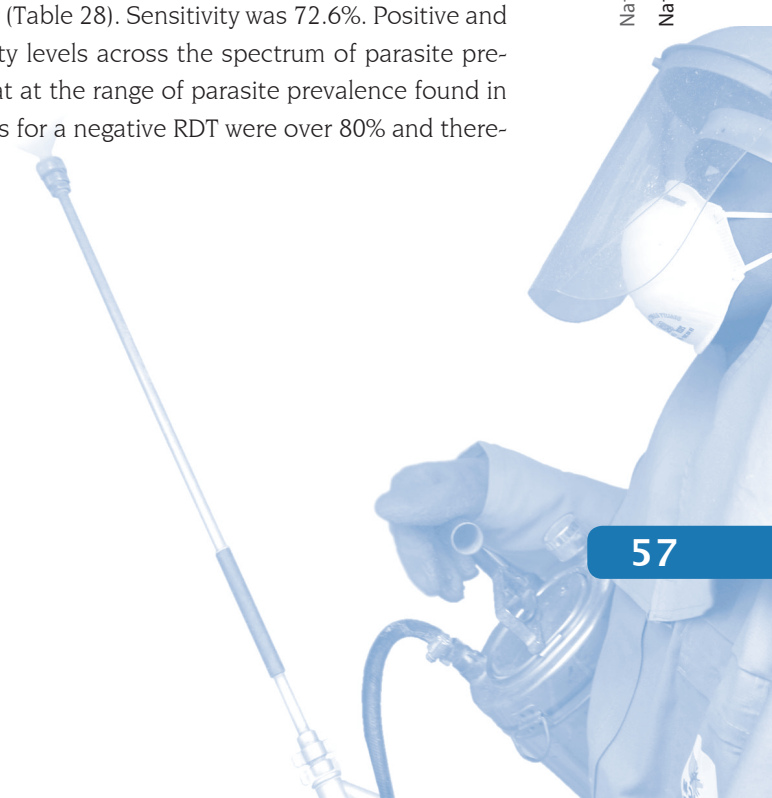


Table 24: Haemoglobin levels and anaemia in children and pregnant women

	Children under 5 years olf				Pregnant women			
	Mean hb (g/dL)	Any anaemia (%)	Severe anaemia (%)	Total Number	Mean hb (g/dL)	Any anaemia (%)	Severe anaemia (%)	Number
Residence								
Urban	10.4	60.5	7.9	1818	10.8	51.8	3.1	217
Rural	10.0	69.6	13.0	2011	10.8	47.2	5.7	239
Province								
Niassa	10.6	56.4	6.6	442	--	--	--	--
Cabo Delgado	10.2	67.9	9.4	431	--	--	--	--
Nampula	9.4	82.1	17.9	398	--	--	--	--
Zambézia	9.3	80.6	23.0	429	--	--	--	--
Tete	10.5	55.6	8.2	417	--	--	--	--
Manica	10.4	58.1	7.7	312	--	--	--	--
Sofala	9.5	73.6	11.5	365	--	--	--	--
Inhambane	10.0	67.9	11.3	332	--	--	--	--
Gaza	10.1	64.5	12.4	260	--	--	--	--
Maputo Province	10.2	65.4	5.6	269	--	--	--	--
Maputo City	10.8	49.6	1.9	174	--	--	--	--
Region								
North	10.2	65.9	10.6	1688	11.2	37.7	4.8	205
Central	9.8	73.0	15.7	1106	10.6	56.6	5.3	162
South	10.1	65.3	10.2	1035	10.6	55.5	5.6	89
Wealth Index								
Lowest	9.7	75.6	16.7	838	10.3	62.0	9.3	112
Second	10.1	68.7	11.9	777	11.0	37.6	6.1	100
Middle	10.1	65.0	11.34	842	11.3	38.1	0	117
Fourth	10.2	64.4	9.6	737	10.4	53.4	6.2	69
Highest	10.5	57.8	5.4	635	11.0	55.1	1.9	58
Total	10.1	67.7	11.9	3829	10.8	48.1	5.1	456

Figure 17: Distribution of haemoglobin levels in children 0-4 years old with at least one ITN in the home (dashed line) versus children with no nets or only untreated nets (solid line).

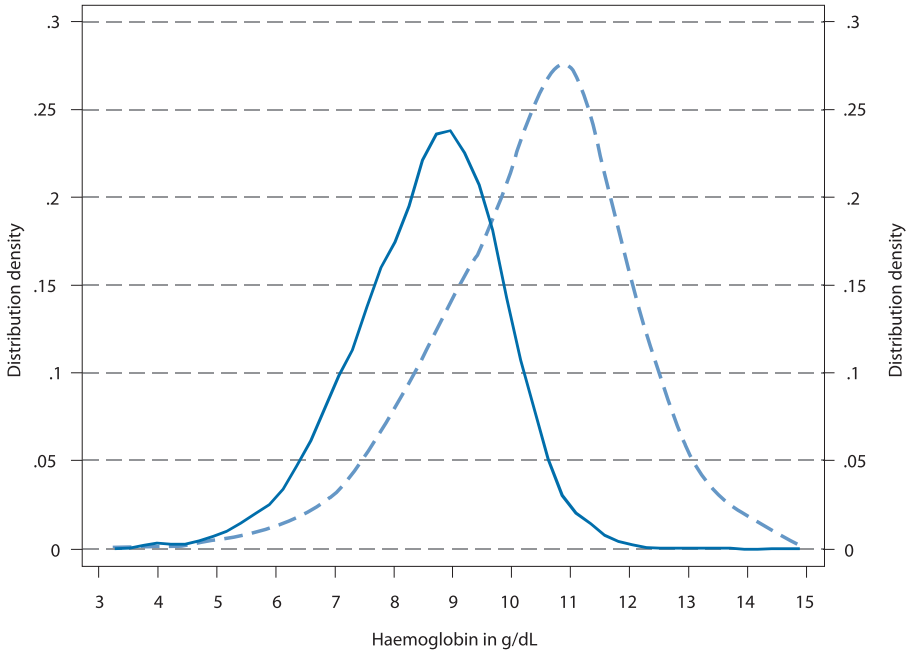


Figure 18: Proportion of children with severe anaemia (hb< 8 g/dL) by age and ITN status of the household

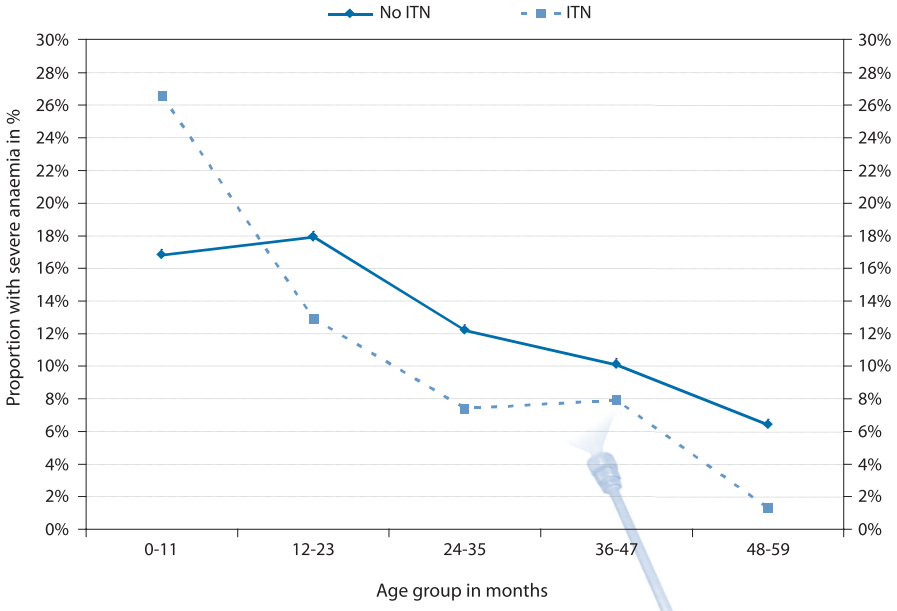


Table 25: Measured fever and parasitaemia[2]

	Children 6-59 months old				Pregnant women			
	Temperature >37.5°C (%)	Blood slide positive (%)	RDT positive (%)	RDT positive (number)	Temperature >37.5°C	Blood slide positive (%)	RDT positive (%)	RDT positive (number)
Residence								
Urban	5.1	20.0	26.5	1783	2.8	14.8	11.4	214
Rural	10.7	42.9	57.8	2046	1.5	16.6	19.4	245
Province								
Niassa	13.3	31.6	60.5	443	--	--	--	--
Cabo Delgado	7.2	36.8	70.8	460	--	--	--	--
Nampula	7.5	60.4	75.2	402	--	--	--	--
Zambézia	29.2	50.3	66.4	428	--	--	--	--
Tete	6.8	42.2	51.4	416	--	--	--	--
Manica	1.2	27.8	35.6	298	--	--	--	--
Sofala	--	40.8	40.2	382	--	--	--	--
Inhambane	7.0	45.6	51.1	331	--	--	--	--
Gaza	2.7	19.0	22.7	226	--	--	--	--
Maputo Province	1.3	3.9	5.2	268	--	--	--	--
Maputo City	1.1	5.7	2.6	175	--	--	--	--
Region								
North	8.7	42.4	65.2	1720	2.2	17.1	25.1	210
Central	19.1	44.8	50.9	1108	1.5	14.0	12.1	159
South	4.4	27.7	31.2	1000	1.1	17.1	11.8	90
Wealth Index								
Lowest	13.0	52.6	67.5	856	2.3	20.5	21.8	111
Second	11.2	44.7	61.2	798	2.1	9.8	18.6	106
Middle	8.5	35.3	54.7	845	2.1	16.7	20.0	118
Fourth	8.2	26.6	30.1	718	0	25.6	11.8	68
Highest	2.8	15.9	17.5	612	0	7.8	4.1	56
Total	**9.7**	**38.5**	**51.5**	**3829**	**1.7**	**16.3**	**17.9**	**459**

[2] No temperature taken in Sofala

Table 26: Malaria parasites in children and pregnant women

	Proportion with trophozoites	Geometric mean parasite density/µL	Proportion with gametocytes	Number examined
Children 0-59 months old	38.5	882	6.8	3236
Age in months				
0-11	30.5	737	6.2	421
12-23	34.6	980	6.0	690
24-35	38.2	1097	8.8	763
36-47	44.1	1042	6.6	738
48-59	41.2	564	5.9	624
Pregnant women	16.3	435	2.3	406
Pregnancies				
First	30.1	2657	5.7	72
Second	20.9	192	0.0	84
Third	14.8	168	2.1	58
Fourth or more	10.2	210	1.0	178

Table 27: Distribution of malaria species in positive subjects by urban/rural stratification

Species	Urban	Rural	Total
	N=326	N=780	N=1106
P. falciparum[3]	99.1	97.5	97.7
P. malariae	8.0	9.4	9.3
P. vivax	0	0.3	0.2
P. ovale	1.8	3.5	3.3
Distribution of mono-and mixed infections			
P.f monoinfection	90.2	87.6	87.8
P.m monoinfection	0.2	1.1	1.0
P.o. monoinfection	0.7	1.2	1.2
P.v monoinfection	0	0	0
P.f + p.m	7.8	7.8	7.8
P.f+ p.v/p.o	1.1	1.7	1.7
p.m + p.v/p.o	0	0.2	0.1
p.f + p.m + p.v/p.o	0	0.4	0.3

[3] Not mutually exclusive; percentage exceeds 100% because of mixed infections.

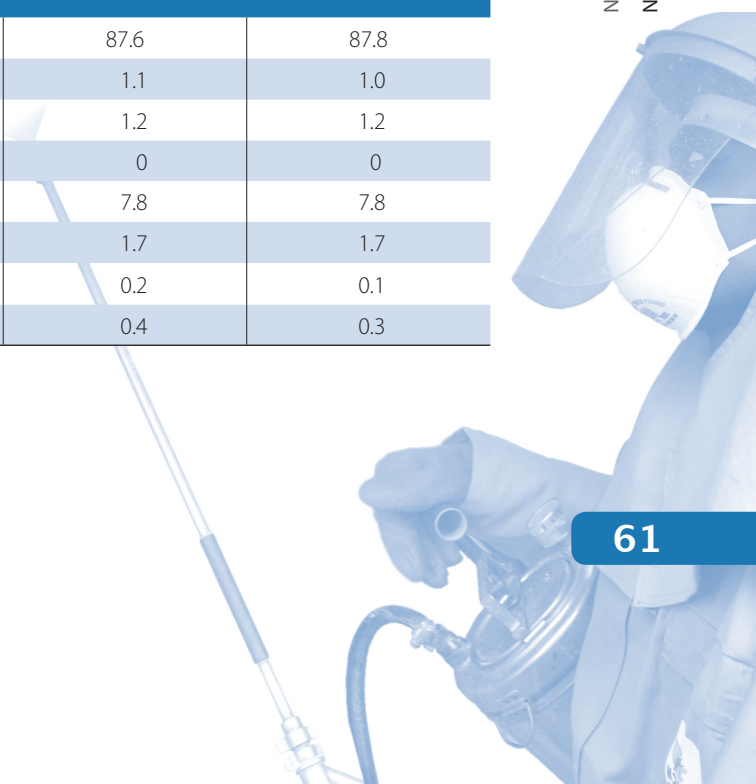


Figure 19: Parasite prevalence (all species) by age of child and region

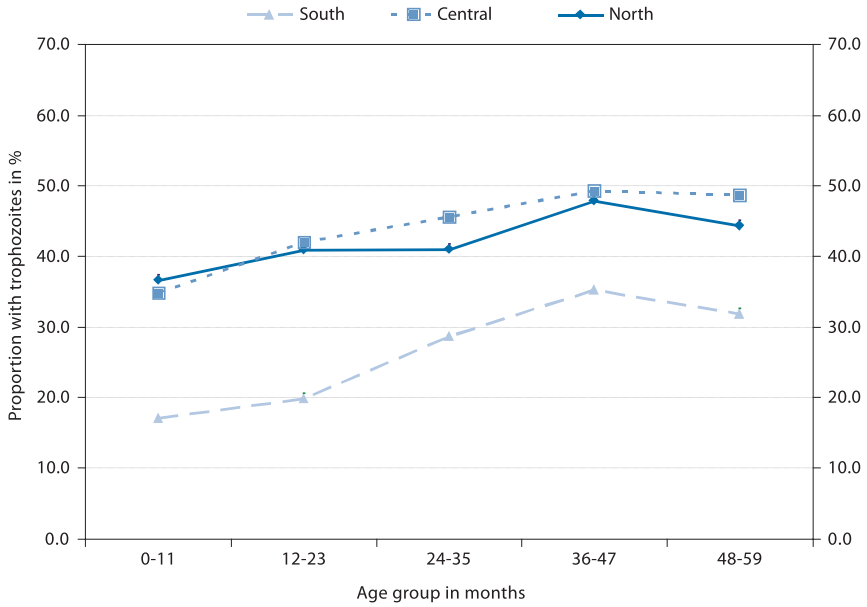


Figure 20: Parasite prevalence (all species) by age of child and protection status of household.

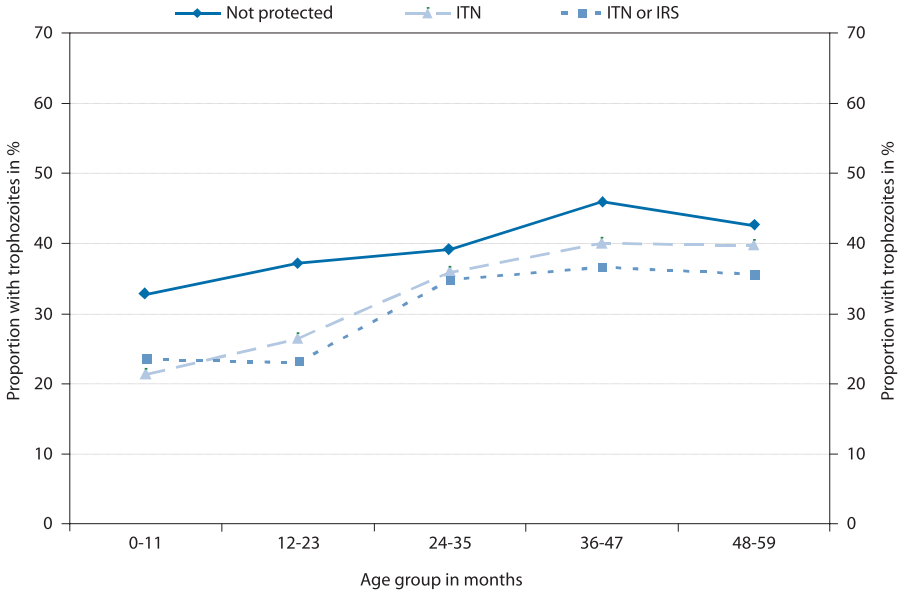
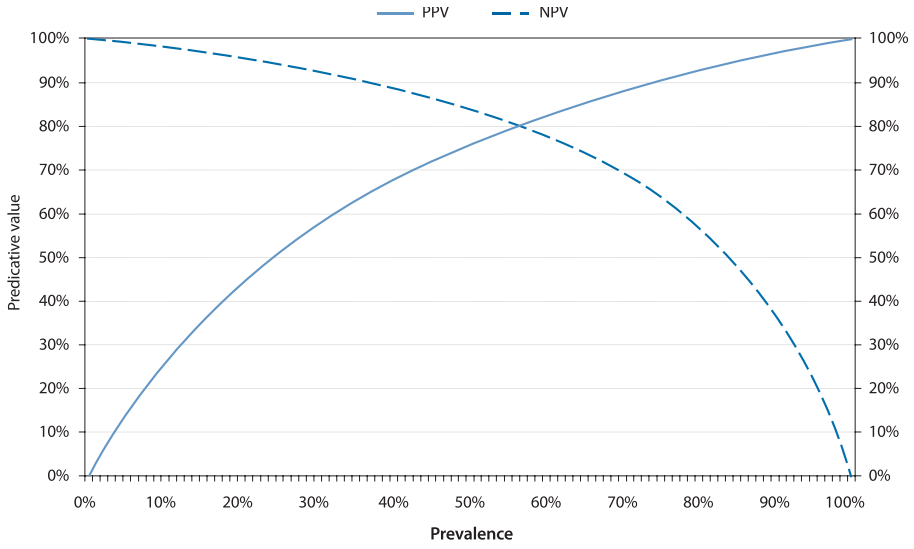


Table 28: Sensitivity and specificity of RDT using microscopy as the standard

Measure	Value (%)	Number examined
RDT sensitivity	86.2	894
By parasite density/µL		
<100	66.5	620
<1000	80.5	971
>99	89.4	808
>999	92.8	457
RDT specificity	72.6	1832

Figure 21: Positive predictive value (PPV) and negative predictive value (NPV) of RDT as a function of parasite prevalence based on sensitivity and specificity found in the sample.



Chapter VI: Women's Knowledge about Malaria

As part of the women's interview, the survey assessed their knowledge of malaria symptoms, transmission, and prevention . Table 29 presents the main findings regarding their knowledge of symptoms and risk groups for malaria. The key symptom of fever (either as "feeling hot" of "chills, shivering") was known by about two-thirds of the women (69.6%), but the importance of anaemia ("weakness/loss of blood") was only known to 12.4% of the women. Although the results may be biased by the way in which the questions were phrased, but they were clearly better in Solafa and Manica Provinces, where the IPT programme had been under way the longest, suggesting that awareness of anaemia as an important symptom of malaria had increased with the implementation of ITP.

Although 60.4% of the women were aware that mosquitoes are involved in the transmission of malaria, only one-third (35.3%) knew that it is not transmitted by other mechanisms mentioned, such as eating certain foods. The most commonly named incorrect mode of transmission was "garbage around the house" (20.6%), followed by "poor personal hygiene" (9.7%), "drinking dirty water" (8.8%), "eating contaminated food" (3.8%) and "bed bugs, lice etc." (2.4%). Only 1.7% of women said that spells, voodoo, or witchcraft could cause malaria.

Less than one-third of the women mentioned mosquito nets as one of the ways to prevent malaria (28.6%). More common was a fatalistic view that nothing could stop malaria, which was mentioned by 47.2% of the respondents in the rural areas and 28.7% in the urban areas. Other suggested interventions were "improve household hygiene" (21.0%) and "burn garbage" (12.0%). Coils and sprays (7.3%) or burning of eucalyptus leaves (9.0%) were also mentioned, and 2.2% recommended traditional treatments (Table 30).

There was generally a strong trend towards better knowledge with increasing educational level, but interestingly, knowledge about transmission and prevention was also better among women in their first and to some extent also their second pregnancy.

Table 29: Knowledge about malaria symptoms and risk groups in women aged 15-49

	Proportion knowing fever is main symptom of malaria	Proportion knowing weakness/loss of blood is symptom of malaria	Proportion knowing risk group (children or pregnant)	Number of women interviewed
Residence				
Urban	69.0	15.9	64.5	3115
Rural	69.8	11.1	59.2	2522
Age				
15-24	67.1	11.6	60.2	2398
25-34	72.9	12.2	63.0	1833
35+	69.2	13.8	57.9	1406
Education				
Illiterate	69.4	10.6	58.5	2708
Primary	69.5	12.4	60.7	1959
Secondary	72.3	22.6	71.1	945
Pregnancy				
First	61.6	11.2	52.7	1081
Second	68.1	13.1	60.2	995
Third or more	72.0	12.5	62.3	3561
Province				
Niassa	91.9	3.4	68.0	582
Cabo Delgado	61.5	4.8	61.5	538
Nampula	86.8	11.3	77.5	419
Zambézia	78.5	7.6	68.0	558
Tete	66.8	16.9	49.3	506
Manica	91.4	21.1	58.8	455
Sofala	82.0	27.0	59.1	564
Inhambane	62.3	12.6	61.9	502
Gaza	38.4	12.3	40.3	423
Maputo Province	53.5	13.7	59.5	544
Maputo City	50.9	17.3	64.7	546
Region				
North	76.3	8.2	64.1	2045
Central	83.0	17.2	62.8	1577
South	51.9	13.2	55.0	2015
Wealth Index				
Lowest	74.3	10.5	61.5	977
Second	73.9	9.0	58.9	1012
Middle	74.1	10.7	64.0	1060
Fourth	61.5	16.1	57.5	1167
Highest	60.6	17.5	61.1	1421
Total	69.6	12.4	60.6	5637

Table 30: Knowledge about malaria transmission and prevention in women aged 15-49

	Proportion knowing that mosquitoes transmit malaria	Proportion knowing that mosquitoes but not other things mentioned (e.g. food) transmit malaria	Proportion knowing that mosquito nets prevent malaria	Number of women interviewed
Residence				
Urban	74.3	40.7	38.9	3115
Rural	55.5	33.3	24.9	2522
Age				
15-24	61.8	36.2	29.8	2398
25-34	61.0	34.7	29.8	1833
35+	57.6	34.5	25.2	1406
Education				
Illiterate	51.2	30.2	22.3	2708
Primary	67.6	38.3	32.5	1959
Secondary	88.9	53.6	51.7	945
Pregnancy				
First	65.4	39.5	31.4	1081
Second	62.3	37.9	30.0	995
Third or more	58.7	33.6	27.5	3561
Province				
Niassa	82.5	58.4	48.7	582
Cabo Delgado	32.0	21.3	20.2	538
Nampula	62.1	41.1	14.1	419
Zambézia	56.6	32.9	28.7	558
Tete	48.8	41.2	16.4	506
Manica	88.7	4.8	56.0	455
Sofala	67.0	22.4	46.0	564
Inhambane	55.6	41.7	20.7	502
Gaza	51.6	40.4	17.8	423
Maputo Province	64.9	32.7	19.8	544
Maputo City	85.9	51.2	36.9	546
Region				
North	55.8	39.8	26.2	2045
Central	68.4	22.1	41.3	1577
South	59.4	40.5	21.3	2015
Wealth Index				
Lowest	49.4	26.3	19.5	977
Second	51.7	31.8	25.8	1012
Middle	64.8	38.4	32.5	1060
Fourth	64.6	37.7	27.6	1167
Highest	78.2	45.9	42.0	1421
Total	60.4	35.3	28.6	5637

Chapter VII: Indirect Estimation of Infant and Child Mortality

Results from the indirect estimation of infant and childhood mortality are presented in Tables 31 and 32 and compared with previous results from Demographic and Health Surveys (DHS) in Figures 22 and 23. Both infant and under-5-year mortality showed a declining trend over the last six years: the decline was most pronounced in the South, moderate in the central provinces, and marginal in the North. Although the data point for the year 2000 differed significantly between DHS 2003 and MIS 2007, the overall downward trend seems to be very much in keeping with previous results. The difference for 2000 may be explained by the slightly different data analysis processed used by MIS and DHS and by the fact that the most recent data point in these estimates always tends to be less reliable.

Table 31: Infant mortality estimates per 1000 live births

	Reference year		
	2000	2002	2004
Residence			
Urban	109	92	81
Rural	131	128	117
Education			
Illiterate	132	138	124
Primary	115	85	89
Secondary	93	83	53
Region			
North	132	118	127
Central	128	138	121
South	114	107	66
Wealth Index			
Lowest	133	131	122
Second	139	137	126
Middle	141	112	119
Fourth	93	116	73
Highest	87	88	82
Total	127	121	108

Table 32: Mortality estimates for children under 5 years old per 1000 live births

	Reference year		
	2000	2002	2004
Residence			
Urban	172	139	119
Rural	217	211	189
Education			
Illiterate	219	233	203
Primary	185	126	135
Secondary	142	123	71
Region			
North	220	190	209
Central	211	232	197
South	182	169	93
Wealth Index			
Lowest	221	218	199
Second	235	231	208
Middle	239	179	193
Fourth	142	187	105
Highest	130	132	121
Total	208	197	171

Figure 22: Indirect estimate of infant mortality comparing MIS with results from the previous DHS

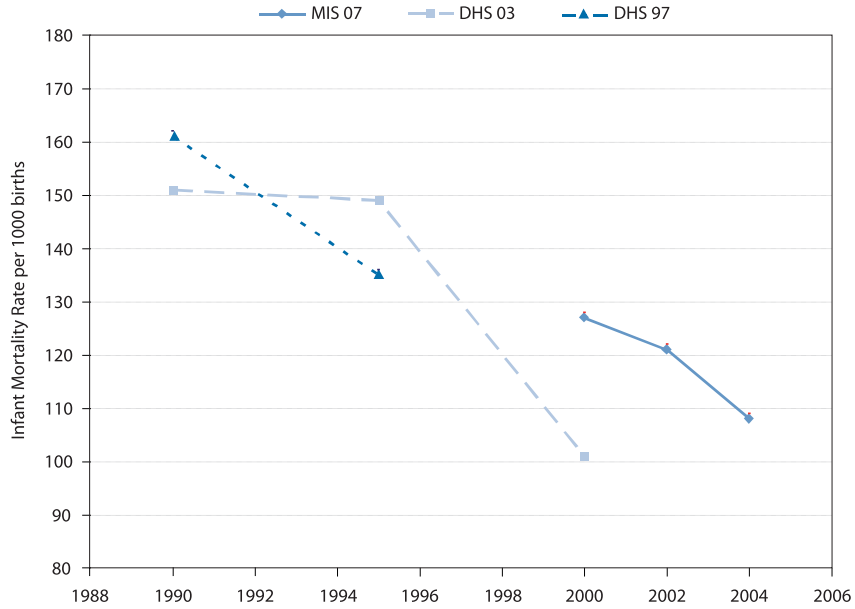
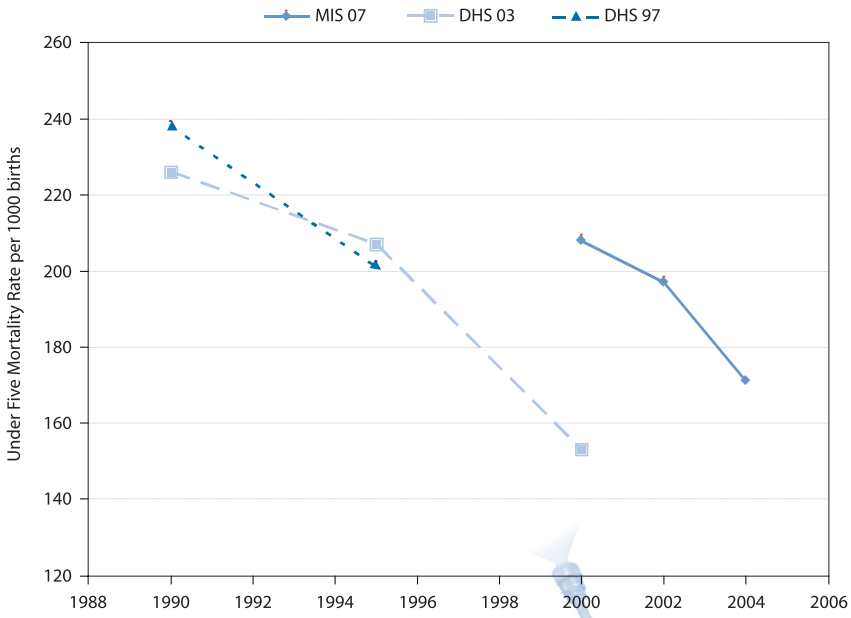


Figure 23: Indirect estimate of mortality under the age of 5 comparing MIS with results from the previous DHS



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Annexes

Annex A:

Table 33: Attribution of the PSUs selected for the mother sample, by province and area

Province	TOTAL		URBAN		RURAL	
	Entire mother sample	Each national sub-sample	Entire mother sample	Each national sub-sample	Entire mother sample	Each national sub-sample
Niassa	80	8	40	4	40	4
Cabo Delgado	120	12	40	4	80	8
Nampula	300	30	130	13	170	17
Zambézia	240	24	70	7	170	17
Tete	100	10	40	4	60	6
Manica	80	8	40	4	40	4
Sofala	130	13	80	8	50	5
Inhambane	100	10	40	4	60	6
Gaza	90	9	40	4	50	5
Maputo Province	120	12	80	8	40	4
All provinces	1360	136	600	60	760	76
Maputo City	150	15	150	15		
Mozambique	1510	151	750	75	760	76

Fixed attribution for urban and rural domains and Maputo City, quasi-proportional attribution for the provinces.

1)Modified to ensure a minimum of 40 PSUs in each sub-area, with proportional reallocation of the remainder, and

2) Rounded to multiples of 10 to allow subdivision of the sample into 10 national sub-samples.

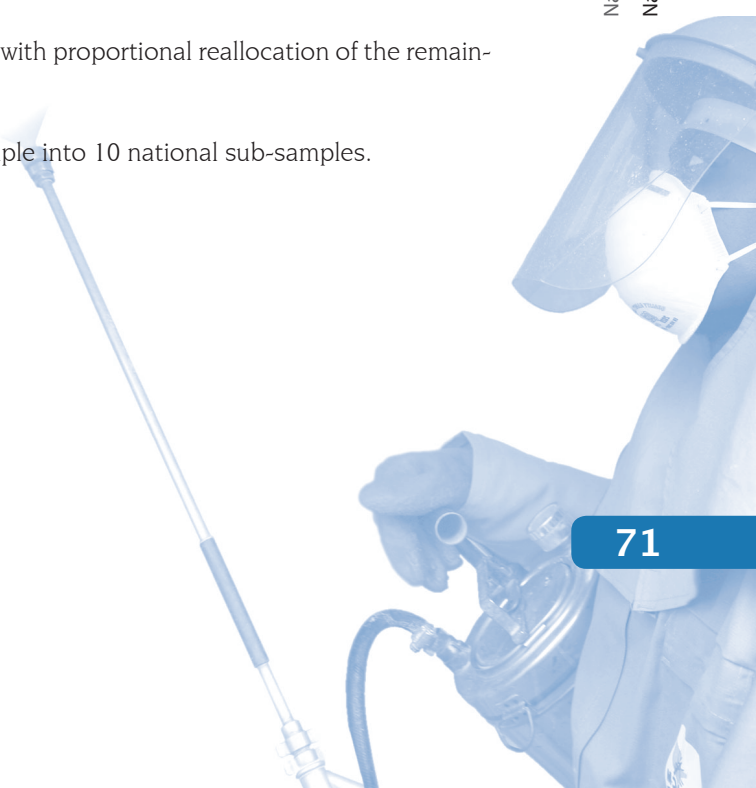


Table 34. MIS-2007 sample attribution for the urban strata and sub-strata

MIS-2007 sample attribution for the urban strata and sub-strata					
Stratum/ city code	**Name of provice/ city**	**Number of clusters in 1997 Census**	**Number of PSUs in 1997 Census**	**Number of PSUs in mother sample**	**Number of PSUs in MIS 2007**
01 1	**NIASSA – URBAN**	**38,558**	**76**	**40**	**15**
01 1 01	Capital – Lichinga	17,824	33	18	7
01 1 99	Remaining urban area	20,734	43	22	8
02 1	**CABO DELGADO - URBAN**	**49,994**	**97**	**40**	**15**
02 1 01	Capital - Pemba	16,850	34	13	5
02 1 99	Remaining urban area	33,144	63	27	10
03 1	**NAMPULA – URBAN**	**182,556**	**384**	**130**	**16**
03 1 01	Capital – Nampula City	66,841	166	48	6
03 1 02	City with 20.000+ clusters - Nacala-Porto	37,391	70	27	3
03 1 03	City with 20.000+ clusters - Angoche	20,425	38	14	2
03 1 99	Remaining urban area	57,899	110	41	5
04 1	**ZAMBÉZIA - URBAN**	**99,977**	**197**	**70**	**16**
04 1 01	Capital - Quelimane	31,192	59	22	5
04 1 02	City with 20.000+ clusters - Mocuba	24,792	49	17	4
04 1 03	City with 20.000+ clusters - Gurue	23,008	51	16	4
04 1 99	Remaining urban area	20,985	38	15	3
05 1	**TETE – URBAN**	**35,749**	**70**	**40**	**12**
05 1 01	Capital – Tete City	21,993	39	25	7
05 1 99	Remaining urban area	13,756	31	15	5
06 1	**MANICA – URBAN**	**53,764**	**114**	**40**	**13**
06 1 01	Capital – Chimoio	33,022	73	25	8
06 1 99	Remaining urban area	20,742	41	15	5
07 1	**SOFALA – URBAN**	**111,249**	**214**	**80**	**14**
07 1 01	Capital – Beira	82,394	154	59	10
07 1 99	Remaining urban area	28,855	60	21	4
08 1	**INHAMBANE – URBAN**	**52,011**	**100**	**40**	**12**
08 1 01	Capital – Inhambane City	12,696	24	10	3
08 1 02	City with 20.000+ clusters - Maxixe	22,617	42	17	5
08 1 99	Remaining urban area	16,698	34	13	4
09 1	**GAZA – URBAN**	**53,384**	**107**	**40**	**13**
09 1 01	Capital - Xai-Xai	19,599	38	15	5
09 1 99	Remaining urban area	33,785	69	25	8
10 1	**MAPUTO PROVINCE - URBAN**	**100,852**	**195**	**80**	**14**
10 1 01	Capital – Matola	82,883	159	66	12
10 1 99	Remaining urban area	17,969	36	14	2
11 1	**MAPUTO CITY**	**178,802**	**348**	**150**	**20**
11 1 01	Socio-economic level 1 (low)	46,669	88	39	5
11 1 02	Socio-economic level 2 (medium-low)	42,537	82	36	5
11 1 03	Socio-economic level 3 (medium-high)	52,187	101	44	6
11 1 04	Socio-economic level 4 (high)	37,409	77	31	4

Appendix B: Rainfall Data

Figure 24: Rainfall in 2007 compared with averages for 1995-2007: Maputo Province

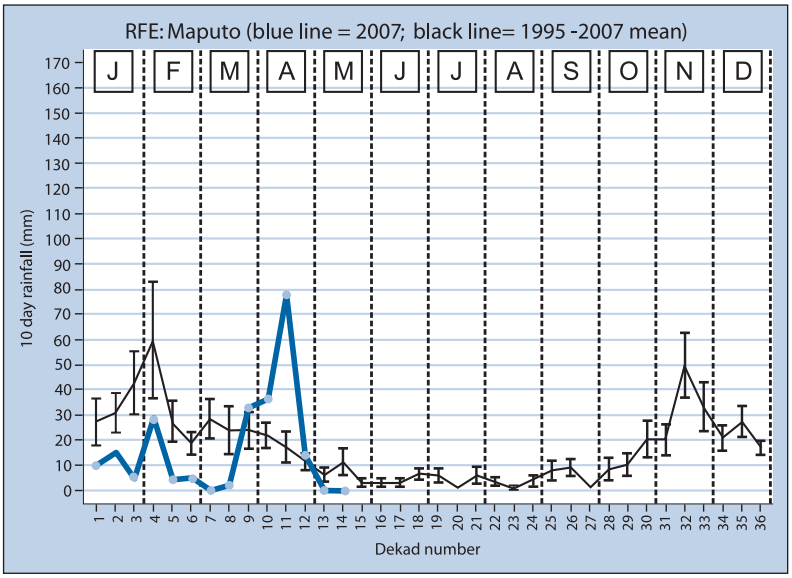


Figure 25: Rainfall in 2007 compared with averages for 1995-2007: Manica Province

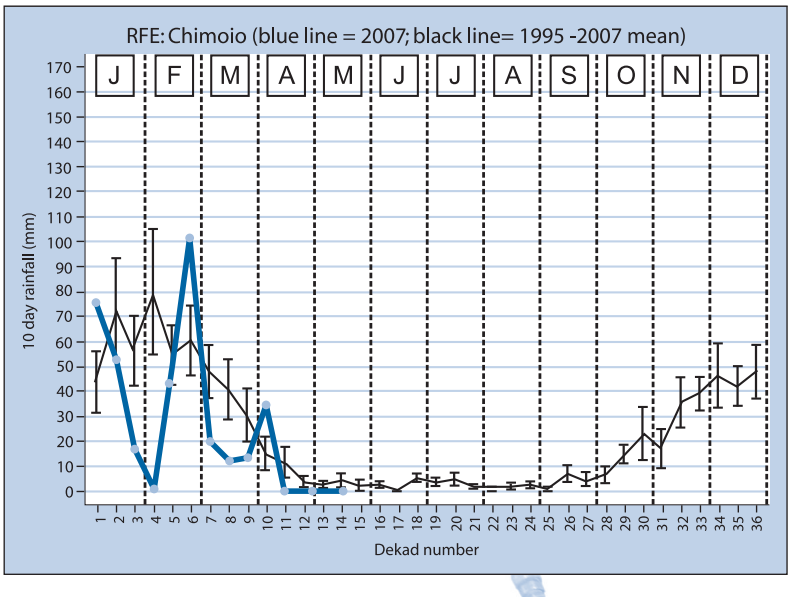


Figure 26: Rainfall in 2007 compared with averages for 1995-2007: Inhambane Province

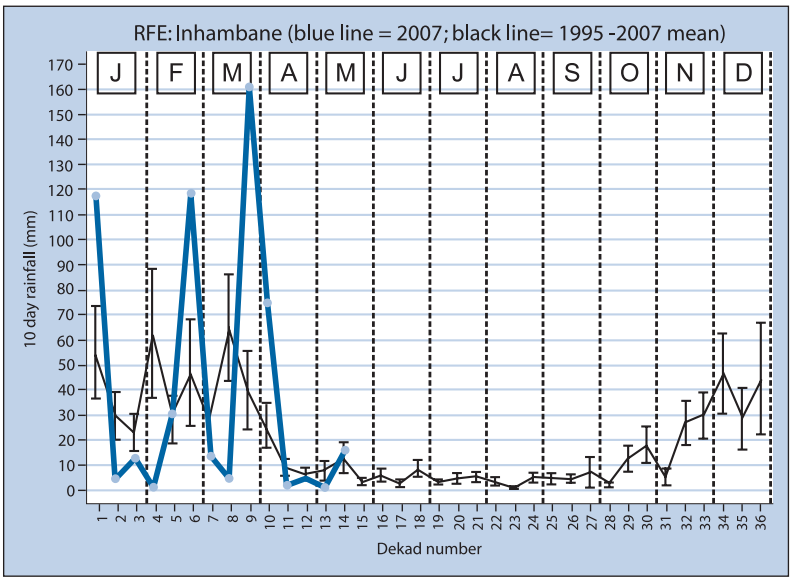


Figure 27: Rainfall in 2007 compared with averages for 1995-2007: Nampula Province

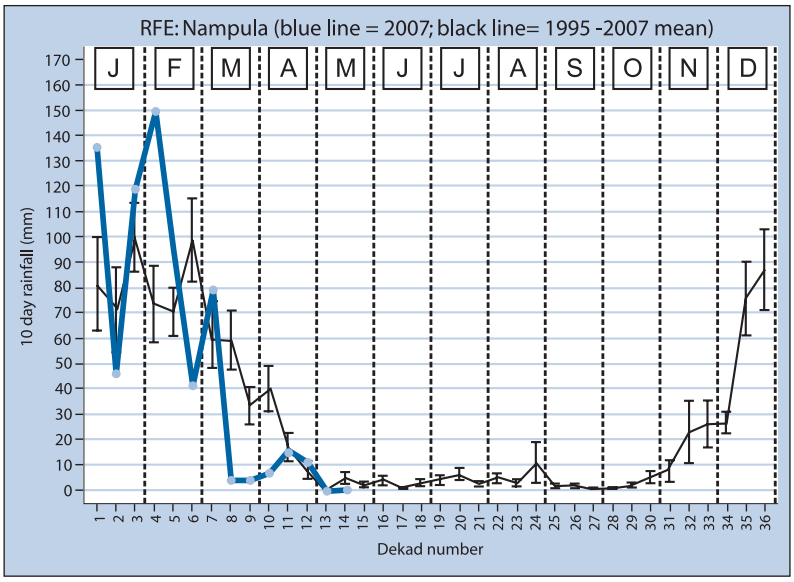
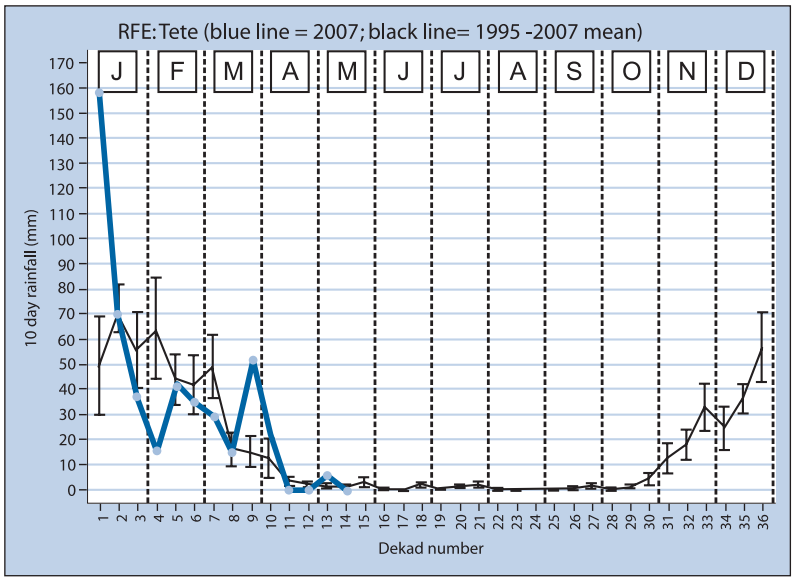


Figure 28: Rainfall in 2007 compared with averages for 1995-2007: Tete Province



Appendix C: Survey Personnel

Table 34: Central level

Name	Job	Affiliation
Ministry of Health		
Samuel Mabunda	Principal Investigator	NMCP/INS
Rafael Mausse	Laboratory supervisor	NMCP
Anastacio Macaringue	Laboratory supervisor	NMCP
António Chimene	Laboratory supervisor	INS
Guidion Mathe	Supervisor	NMCP
Partners		
Carlos Creva	Facilitator and sample selection	INE
Rosa Chambisse	Supervisor	Ministry of Defence
Balasz Kosaras	PDA programmar	Satellife
Eva Carvalho	Facilitator	WHO
Cicero Nhantumbo	PDA facilitator	LSDI
Luís Fortunato	GPS facilitator	LSDI
Francisco Matsinhe	Facilitator	LSDI
Juliette Morgan	Facilitator	CDC/PMI
Albert Kilian	Data analysis facilitator	MC
Elizabeth Streat	Facilitator	MC
Susana Nery	Supervisor	MC
Tunísio Camba	Supervisor	MC
José Tanago	Logistician	MC
Danial Mussa	Logistician	MC
Augusta Ferrão	Administration	MC
Piedade Muchave	Finances	MC

Table 36: Provincial teams

Nº	Name	Job	Province
1	Ana Isabel de Sousa	Interviewer	Zambézia
2	Idalina Raúl Frio	Interviewer	
3	Rosa Maria Aprígio António da Rocha	Interviewer	
4	Rita Luciano Bragança Ratia	Interviewer	
5	Francisco Basílio Molumbila	Supervisor	
6	Filomena Tameliua	Supervisor (Cabo Delgado)	
7	Justino Moniz Nebeue	Laboratory support staff	
8	Hermínio Henriques Alberto	Laboratory support staff	
9	Roque Valentin	Driver	
10	Driver (SR)	Driver	
11	Mariamo Teodoro Peixote	Interviewer	Nampula
12	Célia Arlindo Murrula	Interviewer	
13	Farzila Morais Struquel	Interviewer	
14	Rabia Salis Momade	Interviewer	
15	Francisco André Manda	Supervisor	
16	Agostinho Piasse	Supervisor (Niassa)	
17	Francisco Buanahaque	Laboratory support	
18	Margarida Hilário	Laboratory support	
19	Aristides Vicente António	Driver	
20	Jorge Varine	Driver	
21	Elizabeth Joaquim Olímpio Dias	Interviewer	Cabo Delgado
22	Gisela Jocias da Conceição Azevedo	Interviewer	
23	Anrifa Amido	Interviewer	
24	Anifa Jamal	Interviewer	
25	Eunice Maria Almeida Jepa	Interviewer (INE)	
26	Isac Rodrigues Comia	Supervisor (Nampula)	
27	Baltazarina Constantino	Supervisor	
28	Lourinho Juma Abrijal	Laboratory support	
29	Francisco Amede Rachide	Laboratory support	
30	Assuba Suluho	Driver	
31	Sr Mtupua	Driver	
32	Issufo Ali	Driver	
33	Justina Raimundo Salaha	Interviewer	Niassa
34	Rosalina Joaquim	Interviewer	
35	Margarida Bernardo	Interviewer	
36	Arlete Razão N´tompe	Interviewer	
37	Dadine Laurinda Ricardo	Interviewer	
38	Nelsa Idalina Guente	Interviewer	
39	Ermelindo Graciano	Supervisor	
40	Bernardo Luis Wiriarte	Supervisor (INE)	
41	Eugénio António Botomane	Laboratory support staff	
42	Luciano António Nicuva	Laboratory support	
43	João Dias Manuel	Driver (SR)	
44	Feleciano Custódio Amido	Driver	

Nº	Name	Job	Province
45	Leonor Tavares Gabriel	Interviewer	Tete
46	Eugenia João de Souza Moreira	Interviewer	
47	Cândida Augusta Dias Mendes Carvalho	Interviewer	
48	Joana Julia Seifana Mucambe	Interviewer	
49	Nelsa António C. Tomo	Supervisor (INE)	
50	Dr. Inocencio Marcos Quive	Supervisor DPS	
51	Carlos Chaima	Laboratory support DDS	
52	Virgínia Cordeiro	Laboratory support DDS	
53	Beto Joaquim	Driver (SR)	
54	Taibo Abibo	Driver (SR)	
55	Florentina Baptista José	Interviewer	Manica
56	Helena Augusto Roque	Interviewer	
57	Helena Nacai António	Interviewer	
58	Sandra Augusto Roque	Interviewer	
59	Daniel António Sarita Chamussora	Supervisor DPS	
60	Helena Felipe Davison	Supervisor DPS	
61	João Boi	Laboratory support DDS	
62	Arminda Manuel	Laboratory support DDS	
63	Helder Frederico Gaspar	Driver (SR Beira)	
64	Sulemane Paulo	Driver (SR Beira)	
65	Russana Charifo Mussa	Interviewer	Sofala
66	Melú da Conceição Justina Albino Chamboco	Interviewer	
67	Filomena Justino Neves Alfândega Augusto	Interviewer	
68	Ana Júlia Mafuca	Interviewer	
69	Valance Antonio Simbine	Supervisor DPS	
70	Zacarias Zaca Alfredo Júlio	Supervisor DPS	
71	Lourenço Tiago	Laboratory support DDS	
72	Gilberto Mujamaze	Laboratory support DDS	
73	Augusto João Jone	Driver (SR)	
74	Armando Tomo Cantundze	Driver (DPS)	
75	Lara Sion Mazitemba	Interviewer	Inhambane
76	Elisabeth Mutola	Interviewer	
77	Gertrudes Ricardo Vilanculos	Interviewer	
78	Rabeca Rosalina Nhavene	Interviewer	
79	Maria da Graça Filimone	Supervisor (INE)	
80	Olinda Francisco Muguande	Supervisor DPS	
81	Paulo Arnaldo Carlos	Supervisor DPS	
82	Inácio Zero Fernando	Laboratory support DDS	
83	Meneses Francisco Mesa	Laboratory support DDS	
84	Américo José Troveja	Health Staff DPS	
85	Mauro Marcelino	Driver (SR)	
86	Amone Machavane	Driver (SR)	

Nº	Name	Job	Province
87	Marta Lucas Conde	Interviewer	Gaza
88	Carlota Moises Cumbe	Interviewer	
89	Nilza Arnaldo Branco	Interviewer	
90	Nilsa Manuel F. Langa	Interviewer	
91	Alexandra Manalda Fonseca	Supervisor (INE)	
92	Augusto Bata	Supervisor DPS	
93	Alcida Muchanga	Supervisor DPS	
94	Samuel Fanuel Chambal	Laboratory support PNCM	
95	Belinda Simão Zunguene	Laboratory support DPS	
96	Guilhermina Uqueio	Health Staff DDS	
97	Jorge Candeia	Driver (SR)	
98	Belmiro Mangoba	Driver (SR)	
99	Albertina Chilenque	Interviewer	Maputo Province
100	Florentina Muiambo	Interviewer	
101	Nádia Ismael	Interviewer	
102	Célia Mindu	Interviewer	
103	Zaida Mula	Supervisor (INE)	
104	António Gaspar Tomboloco	Supervisor DPS	
105	Elsa Nhantumbo	Supervisor DPS	
106	Manecas David	Laboratory support DDS	
107	Jorge Francisco Tivane	Laboratory support DDS	
108	António Macanja	Driver	
109	José Massingue	Driver	
110	Agostinho Lourenço Govene	Driver	
111	Inês Júlio Nhaca	Interviewer	Maputo City
112	Feliciana Ernesto Murione	Interviewer	
113	Cristina Tomás	Interviewer	
114	Clara Paula Ferrão Welicene	Interviewer	
115	Carla Amélia Tivane	Supervisor (INE)	
116	Guilhermina M. G. Fernandes	Supervisor DDS	
117	Clara António Manjate	Health Staff DDS	
118	Teotonio Simão Macuacua	Laboratory support DDS	
119	Ângelo Agostinho Massingue	Laboratory support DDS	
120	Joaquim Fernando Chirindza	Driver	

June, 2007

MALARIA INDICATOR SURVEY

HOUSEHOLD SURVEY QUESTIONAIRE

Mozambique

IDENTIFICATION	
1.1.1.1.1.1.1.1 QUESTIONNAIRE NUMBER	☐☐☐☐☐☐
NAME OF SUBURB/ VILLAGE _____	
NAME OF HEAD OF HOUSEHOLD _____	☐☐☐
ENUMERATION AREA	☐☐☐
HOUSEHOLD NUMBER	☐☐
PROVINCE	☐
TYPE OF RESIDENTIAL AREA (URBAN=1, RURAL=2)	☐
DISTRICT	

INTERVIEWIER´S VISITS				
	1	2	3	FINAL VISIT
DATE	_____	_____	_____	DAY _____ __ __ __
				MONTH _____ __ __ __
				YEAR _____ __ __ __ __ __
INTERVIEWER´S NAME	_____	_____	_____	_____
RESULT*	_____	_____	_____	INTERVIEWER CODE. __ __ __
				RESULT _____ __ __
				_____

INTERVIEWIER´S VISITS				
NEXT VISIT: DATE TIME	_____ _____	_____ _____		TOTAL NUMBER OF VISITS ___

* RESULT CODES:		
1	COMPLETE	
2	NO HOUSEHOLD MEMBERS AT HOME OR NO COMPETENT RESPONDENT AT HOME AT TIME OF VISIT	
3	ENTIRE HOUSEHOLD IS ABSENT FOR A LONG TIME	
4	POSTPONED	
5	REFUSED	
6	UNOCCUPIED RESIDENCE OR ADDRESS IS NOT A RESIDENCE	
7	RESIDENCE DESTROYED	
8	RESIDENCE NOT FOUND	
9	OTHER	
	(SPECIFY)	

TOTAL NUMBER OF PEOPLE IN HOUSEHOLD _____ — — — _____

TOTAL NUMBER OF ELEGIBLE WOMEN _____ — — — _____

LINE NUMBER OF RESPONDENT TO HOUSEHOLD QUESTIONNAIRE _____ — — — _____

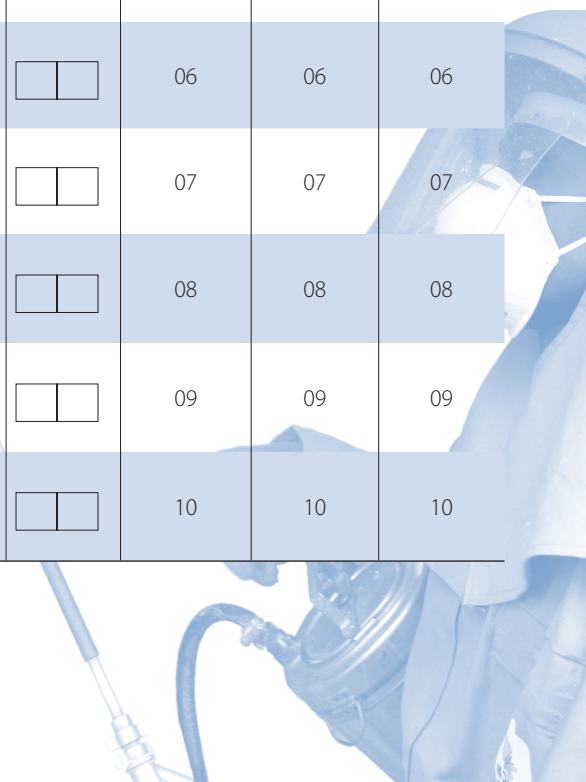
LANGUAGE IN WHICH SURVEY WAS CONDUCTED (Portuguese/local language) _____

SUPERVISOR	OFFICE EDITOR	ENTERED BY
NAME _____ _____ — — —	_____ — — —	_____ — — —
DATE _____ _____	_____	_____

HOUSEHOLD TABLE

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

LINE NO.	NORMAL RESIDENTS AND VISITORS	RELATIONSHIP TO HEAD OF HOUSEHOLD	SEX	RESIDENCE		AGE		ELIGIBLE WOMEN		ELEGIBLE CHILDREN
	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? Male=H Female= M	Does (NAME) usually live here?	Did (NAME) stay here last night?	How old is (NAME)? If under 1 year, write ""0" in the square and the number of MONTHS in the next column		CIRCLE THE LINE NUMBER OF ALL WOMEN AGED 15-49 YEARS	CIRCLE THE LINE No. OF ALL ELEGIBLE WOMAN PREGNANT AT THIS TIME	CIRCLE THE LINE NUMBER OF ALL CHILDREN 0 TO 5 YEARS OLD
(1)	(2)	(3)	(4)	(5)	(6)	(7)		(8)	(8 A)	(9)
			H M	YES NO	YES NO	YEARS	MONTHS			
01		_____ __ __ __ _____	1 2	1 2	1 2	_____ __ __ __ _____	☐☐	01	01	01
02		_____ __ __ __ _____	1 2	1 2	1 2	_____ __ __ __ _____	☐☐	02	02	02
03		_____ __ __ __ _____	1 2	1 2	1 2	_____ __ __ __ _____	☐☐	03	03	03
04		_____ __ __ __ _____	1 2	1 2	1 2	_____ __ __ __ _____	☐☐	04	04	04
05		_____ __ __ __ _____	1 2	1 2	1 2	_____ __ __ __ _____	☐☐	05	05	05
06		_____ __ __ __ _____	1 2	1 2	1 2	_____ __ __ __ _____	☐☐	06	06	06
07		_____ __ __ __ _____	1 2	1 2	1 2	_____ __ __ __ _____	☐☐	07	07	07
08		_____ __ __ __ _____	1 2	1 2	1 2	_____ __ __ __ _____	☐☐	08	08	08
09		_____ __ __ __ _____	1 2	1 2	1 2	_____ __ __ __ _____	☐☐	09	09	09
10		_____ __ __ __ _____	1 2	1 2	1 2	_____ __ __ __ _____	☐☐	10	10	10



* CODES FOR Q.3

RELATIONSHIP TO HEAD OF HOUSEHOLD:

01 = HEAD
02=WIFE/HUSBAND
03 = SON OR DAUGHTER
04 =SON-IN-LAW OR DAUGHTER-IN-LAW
05 = GRANDCHILD
06 = FATHER/MOTHER
07 = FATHER/MOTHER-IN-LAW
08 = BROTHER OR SISTER
09 = ANOTHER PARENT
10 = ADOPTED, FOSTER, STEPCHILD, STEPSON, STEPDAUGHTER
11 = NOT RELATED
98 = DON'T KNOW

LINE NO.	NORMAL RESIDENTS AND VISITS	RELATIONSHIP WITH THE HEAD OF THE HOUSEHOLD	SEX	RESIDÊNCE		AGE		ELEGIBLE WOMEN		ELEGIBLE CHILDREN
	Please, give me the names of the persons who usually live in your household and guests who stayed here last night here, starting with the head of the household.	What is the relation of (Name) to the head of the household? *	Is (NAME) a male or female? Male=H Female= M	Does (NAME) usually live here?	Did (NAME) stay here last night?	How old is (NAME)? If under 1 year, write ""0" in the square and the number of MONTHS in the next column		CIRCLE LINE NUMBER OF ALL WOMEN AGED 15-49	CIRCLE THE LINE NUMBER OF ALL ELEGIBLE WOMEN PREGNANT AT THIS TIME	CIRCLE THE LINE NUMBER OF OF ALL CHILDREN 0 TO 5 YEARS OLD
(1)	(2)	(3)	(4)	(5)	(6)	(7)		(8)	(8 A)	(9)
			H M	YES NO	YES NO	YEARS	MONTHS			
11			1 2	1 2	1 2			11	11	11
12			1 2	1 2	1 2			12	12	12
13			1 2	1 2	1 2			13	13	13
14			1 2	1 2	1 2			14	14	14
15			1 2	1 2	1 2			15	15	15
16			1 2	1 2	1 2			16	16	16
17			1 2	1 2	1 2			17	17	17

18		_____ __ __ __ _____	1 2	1 2	1 2	_____ __ __ __ _____	☐☐	18	18	18
19		_____ __ __ __ _____	1 2	1 2	1 2	_____ __ __ __ _____		19	19	19
20		_____ __ __ __ _____	1 2	1 2	1 2	_____ __ __ __ _____		20	20	20

TICK HERE IF CONTINUATION SHEET USED ___ ___

Only to make sure that I have a complete list:

1) Are there any other persons such as small children or infants that we have not listed? YES ___ _____> INTRODUCE EACH ONE IN THE TABLE NO ___ ___

2) In addition, are there any other people who may not be members of your family, such as domestic servants, lodgers, or friends who usually live here? YES ___ _____> INTRODUCE EACH ONE IN THE 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 ___ _____> INTRODUCE EACH ONE IN THE TABLE NO ___ ___

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
10	What is the main source of water here at your house or that your household uses?[1]	PIPED INTO DWELLING ..... 11 PUBLIC TAP/STANDPIPE ..... 12 PUBLIC TUBE WELL OR BOREHOLE ..... 21 PROTECTED WELL ..... 31 RAIN WATER/ GUTTER PIPE ..... 41 SURFACE WATER (RIVER/WEIR/ LAKE/SMALL LAKE/SMALL STREAM/ CHANNEL/IRRIGATION CHANNEL ..... 51 OTHER _____ 96 (SPECIFY)	
11	What kind of toilet facility is used by members of your household?[1]	FLUSH TOILET TO PIPED SEWER SYSTEM ..... 11 IMPROVED LATRINE ..... 21 LATRINE ..... 22 NO SPECIFIC PLACE/BUSH/FIELD ..... 61 OTHER _____ 96 (SPECIFY)	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
12	Does your household use:	YES NO	
	Public electricity?	ELECTRICIDADE PÚBLICA 1 2	
	Alternative source of electricity source (generator, solar panel)?	ELECTRICIDADE ALTERNATIVA 1 2	
	Radio?	RÁDIO 1 2	
	Television set?	TELEVISOR 1 2	
	Telephone (landline or mobile)	TELEFONE FIXO 1 2	
		TELEFONE MÓVEL 1 2	
	Refrigerator?	GELEIRA 1 2	
	Large animals (cows, donkeys, buffalo)?	GRANDE PORTE 1 2	
	Small animals (goats, sheep, pigs)?	PEQUENO PORTE 1 2	
	Birds	AVES 1 2	
13	What kind of fuel does your household use for cooking?	ELECTRICITY ..... 01 LPG/NATURAL GAS ..... 02 KEROSENE ..... 03 WOOD ..... 04 COAL ..... 05 SAW DUST ..... 06 DUNG/EXCREMENT ..... 07 OTHER ..... 96 (SPECIFY)	

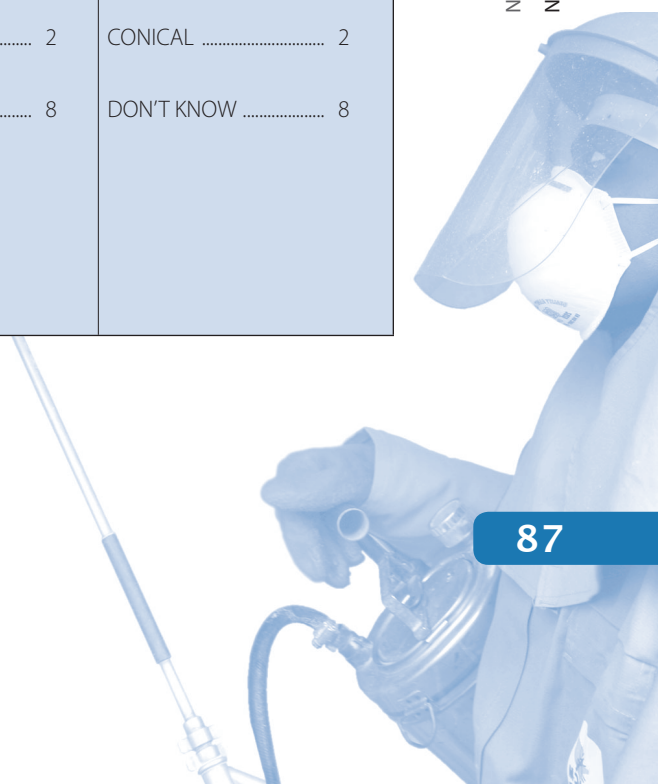
NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	OMIT
14A	FLOOR MATERIAL. RECORD OBSERVATION.	**NATURAL FLOOR** EARTH/SAND ..... 11 CLAY ..... 12 **RUDIMENTAR FLOOR** WOODEN FLOOR BOARDS/BAMBOO ..... 21 **FINISHED FLOOR** PARQUET OR POLISHED WOOD ..... 31 VINYL/PLASTIC STRIPS ..... 32 CERAMICS/MOSAIC/TILES ..... 33 CEMENT ..... 34 OTHER _____ 96 (SPECIFY)	
14B	CEILING MATERIAL RECORD OBSERVATION.	CANVAS ..... 11 STRAW/LEAVES/ GRASS ..... 21 CORRUGATED IRON SHEET/ FIBERS/ROOFING TILES ..... 31 OTHER _____ 96 (SPECIFY)	

14C	WALL MATERIAL. RECORD OBSERVATION.	CANVAS/ZINC ..... 11 REEDS ..... 21 WOOD, STONE & CLAY ..... 31 FINISHED WITH CLAY PLASTER ..... 41 STONE WALLING ..... 51 OTHER _____ 96 (SPECIFY)	
15	Does any household member have: A bicycle? A motorbike? A car, a truck, or tractor? Cart or handcart ("txova")? Wheelbarrow?	YES NO BICYCLE ..... 1 2 MOTORBIKE ..... 1 2 CAR/TRUCK/TRACTOR ..... 1 2 CART/HANDCART ("TXOVA") ..... 1 2 WHEELBARROW 1 2	
15A	At any time in the past 12 months, has anyone sprayed the interior walls of your home against mosquitoes?	YES ..... 1 NO ..... 2 DON'T KNOW 8	15B 15G
15B	How many months ago was the house sprayed? IF LESS THAN ONE MONTH, RECORD '00' MONTHS AGO.	MONTHS..... _ _ _ DON'T KNOW..... 8	
15C	Who sprayed the house?	GOVERNMENT WORKER/ PROGRAM ..... 1 NAME OF THE PROGRAM (IF YOU KNOW) _____ PRIVATE COMPANY ..... 2 NAME OF THE COMPANY (IF YOU KNOW) _____ HOUSEHOLD MEMBER ..... 3 OTHER _____ 6 (SPECIFY) DON'T KNOW 8	
15D	Did you pay for the spraying? Ifso, how much?	YES ..... 1 NO ..... 2 DON'T KNOW ..... 8 MT ☐☐☐☐	
15E	Would you like to have your house sprayed again in the future?	YES ..... 1 NO ..... 2 DON'T KNOW 8	

15F	If not, why don't you want to have your house sprayed again?	PRODUCT DOES NOT WORK ..... 1 BRINGS MORE INSECTS ..... 2 CAUSES ALLERGIC REACTIONS ..... 3 BAD BEHAVIOUR OF THE SPRAYER OPERATORS ..... 4 OTHER _____ 6 (SPECIFY)	→27
15G	If your house was not sprayed in the last twelve months, why was it not sprayed?	THE TEAM DID NOT TURN UP ..... 1 REFUSED (DIDN´T WANT) ..... 2 WAS NOT AT HOME AT THE TIME ..... 3 OTHER ..... 6 (SPECIFY) DON'T KNOW 8	
16	Does your household have any mosquito nets that can be used while sleeping?	YES ..... 1 NO ..... 2 DON'T KNOW 8	→27
17	How many mosquito nets does your household have?	NUMBER OF MOSQUITO NETS ☐☐☐☐	

18	ASK RESPONDENT TO SHOW YOU THE NET(S) IN THE HOUSEHOLD. IF MORE THAN THREE NETS, USE ADDITIONAL QUESTIONNAIRE(S).	MOSQUITO NET #1 OBSERVED ..... 1 NOT OBSERVED 2	MOSQUITO NET #2 OBSERVED ..... 1 NOT OBSERVED 2	MOSQUITO NET #3 OBSERVED ..... 1 NOT OBSERVED 2
19	How long ago did your household obtain the mosquito net?	LESS THAN 12 MONTHS AGO ..... 1 1 TO 2 YEARS AGO ..... 2 2 TO 3 YEARS AGO ..... 3 MORE THAN 3 YEARS AGO ..... 95 (SKIP TO 20) DON'T KNOW 8	LESS THAN 12 MONTHS AGO ..... 1 1 TO 2 YEARS AGO ..... 2 2 A 3 YEARS AGO ..... 3 MORE THAN 3 YEARS AGO ..... 95 (SKIPTO 20) DON'T KNOW 8	LESS THAN 12 MONTHS AGO ..... 1 1 A 2 YEARS AGO ..... 2 2 A 3 YEARS AGO ..... 3 MORE THAN 3 YEARS AGO ..... 95 (SKIP TO 20) DON'T KNOW 8

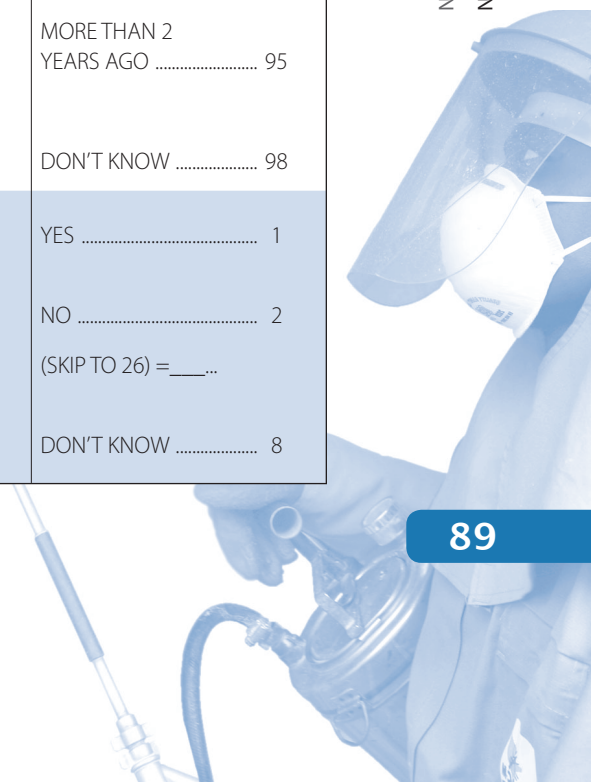
19A	Where did you get the mosquito net?	Health facility ..... 11 Mobile team ..... 12 NGO programme ..... 13 Campaign ..... 14 Shop/chemist's shop ... 21 Market ..... 22 Street vendor ..... 23 Acquired in another country ..... 31 Gift ..... 41 Other ..... 51 Specify ..... Don't know 98	Health facility ..... 11 Mobile team ..... 12 NGO programme ..... 13 Campaigns ..... 14 Shop/chemist's shop ... 21 Market ..... 22 Street vendor ..... 23 Acquired in another country ..... 31 Gift ..... 41 Other ..... 51 Specify ..... Don't know 98	Health facility ..... 11 Mobile team ..... 12 NGO programme ..... 13 Campaigns ..... 14 Shop/chemist's shop ... 21 Market ..... 22 Street vendor ..... 23 Acquired in another country ..... 31 Gift ..... 41 Other ..... 51 Specify ..... Don't know 98
19B	Did you pay for the mosquito net? If so, how much?	YES ..... 1 NO ..... 2 DON´T KNOW ..... 8 MTN ☐☐☐☐ NÃO SABE	YES ..... 1 NO ..... 2 DON´T KNOW ..... 8 MTN ☐☐☐☐	YES ..... 1 NO ..... 2 DON´T KNOW ..... 8 MTN ☐☐☐☐
20A	Observe or ask about the shape of the mosquito net. If the shape is unknown and you cannot observe the net, show photos of typical mosquito net types/brands	RECTANGULAR ..... 1 CONICAL ..... 2 DON'T KNOW 8	RECTANGULAR ..... 1 CONICAL ..... 2 DON'T KNOW 8	RECTANGULAR ..... 1 CONICAL ..... 2 DON'T KNOW 8



20B	Observe or ask about the color of the mosquito net. If the color is unknown and you cannot observe the net, show pictures of typical net types/ brands to respondent.	GREEN ..... 1 BLUE ..... 2 BROWN ..... 3 WHITE ..... 4 OTHER ..... 6 Specify... ..... DON'T KNOW 8	GREEN ..... 1 BLUE ..... 2 BROWN ..... 3 WHITE ..... 4 OTHER ..... 6 Specify... ..... DON'T KNOW 8	GREEN ..... 1 BLUE ..... 2 BROWN ..... 3 WHITE ..... 4 OTHER ..... 6 Specify... ..... DON'T KNOW 8
20	Observe or ask about the brand of mosquito net. If brand is unknown and you cannot observe the net, show pictures of typical net types/brands to respondent.	**'LONG-LASTING' NET[1]** Olyset ..... 11 Permanet ..... 12 SalvaPermaNet ..... 13 MCP-treated nets ..... 14 OTHER BRAND/ UNMARKED ..... 16 (SKIP TO) 24) **'BUNDLED' NET[2]** UNICEF ..... 21 Safi ..... 22 Chieso ..... 23 Salva ..... 24 OTHER /NS BRAND ..... 26 _____ (SPECIFY) (SKIP TO) 24) OTHER ..... 31 _____ (SPECIFY) DON'T KNOW TIPE NI BRAND 98	**'LONG-LASTING' NET** Olyset ..... 11 Permanet ..... 12 SalvaPermaNet ..... 13 Rede Tratada MCP ..... 14 OTHER BRAND/ UNMARKED ..... 16 (SKIP TO) 24) **'BUNDLED' NET** UNICEF ..... 21 Safi ..... 22 Chieso ..... 23 Salva ..... 24 OTHER /NS BRAND ..... 26 _____ (SPECIFY) (SKIP TO) 24) OTHER ..... 31 _____ (SPECIFY) DON'T KNOW TIPE NI BRAND 98	**'LONG-LASTING' NET** Olyset ..... 11 Permanet ..... 12 SalvaPermaNet ..... 13 Rede Tratada MCP ..... 14 OTHER BRAND/ UNMARKED ..... 16 (SKIP TO) 24) **'BUNDLED' NET** UNICEF ..... 21 Safi ..... 22 Chieso ..... 23 Salva ..... 24 OTHER /NS BRAND ..... 26 _____ (SPECIFY) (SKIP TO) 24) OTHER ..... 31 _____ (SPECIFY) DON'T KNOW TIPE NI BRAND 98

[1]'Long-lasting' is a factory-treated net that does not require any further treatment.
[2] 'Bundled' is a net that has been pre-treated but requires further treatment after 6-12 months.

21	**When you got the net,** was it already factory-treated with an insecticide to kill or repel mosquitoes?	YES ..... 1 NO ..... 2 DON'T KNOW ..... 8 (IF NO OR DON'T KNOW, SKIP TO Q21A)	YES ..... 1 NO ..... 2 DON'T KNOW ..... 8 (IF NO OR DON'T KNOW, SKIP TO Q21A)	YES ..... 1 NO ..... 2 DON'T KNOW ..... 8 (IF NO OR DON'T KNOW, SKIP TO Q21A)
21A	**When you got the net,** was there any packet of insecticide inside the packaging?	YES ..... 1 NO ..... 2 DON'T KNOW 8	YES ..... 1 NO ..... 2 DON'T KNOW 8	YES ..... 1 NO ..... 2 DON'T KNOW 8
22	Since you got the net, have you ever dipped it in insecticide to kill or repel mosquitoes?	YES ..... 1 NO ..... 2 (SKIP TO 24) ___ DON'T KNOW 8	YES ..... 1 NO ..... 2 (SKIP TO 24) ___ DON'T KNOW 8	YES ..... 1 NO ..... 2 (SKIP TO 24) ___ DON'T KNOW 8
23	How long ago was the net last soaked or dipped? IF LESS THAN 1 MONTH AGO, RECORD >'00'MONTHS. IF LESS THAN 1 YEAR AGO, RECORD MONTHS. IF '12 MONTHS AGO' OR '1 YEAR AGO,'TRY TO FIND OUT EXACT NUMBER OF MONTHS.	_____ MONTHS __ __ __ AGO _____ 1 to 2 YEARS ..... 2 MORE THAN 2 YEARS AGO ..... 95 DON'T KNOW 98	_____ MONTHS __ __ __ AGO _____ 1 a 2 YEARS ..... 2 MORE THAN 2 YEARS AGO ..... 95 DON'T KNOW 98	_____ MONTHS __ __ __ AGO _____ 1 a 2 YEARS ..... 2 MORE THAN 2 YEARS AGO ..... 95 DON'T KNOW 98
24	Did anyone sleep under this mosquito net last night?	YES ..... 1 NO ..... 2 (SKIP TO 26) = ___... DON'T KNOW 8	YES ..... 1 NO ..... 2 (SKIP TO 26) = ___... DON'T KNOW 8	YES ..... 1 NO ..... 2 (SKIP TO 26) =___... DON'T KNOW 8



NO.		MOSQUITO NET #1	MOSQUITO NET #2	MOSQUITO NET #3
25	Who slept under this MOSQUITO NET last night? RECORD THE RESPECTIVE LINE NUMBER FROM THE HOUSEHOLDTABLE.	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 THE NEXT MOSQUITO NET; OR, IF THERE ARE NO MORE MOSQUITO NETS, CONSULT THE HOUSEHOLD TABLE TO IDENTIFY THE ELEGIBLE WOMEN AND START AN INDIVIDUAL QUESTIONNAIRE FOR EACH ONE.	GO BACK TO 18 FOR THE NEXT MOSQUITO NET; OR, IF THERE ARE NO MORE MOSQUITO NETS, CONSULT THE HOUSEHOLD TABLE TO IDENTIFY THE ELEGIBLE WOMEN AND START AN INDIVIDUAL QUESTIONNAIRE FOR EACH ONE.	GO BACK TO 18 FOR THE NEXT MOSQUITO NET; OR, IF THERE ARE NO MORE MOSQUITO NETS, CONSULT THE HOUSEHOLD TABLE TO IDENTIFY THE ELEGIBLE WOMEN AND START AN INDIVIDUAL QUESTIONNAIRE FOR EACH ONE.

26A	What shape mosquito net do you prefer?	RECTANGULAR .... 1 CONICAL .... 2 NO PREFERENCE 8	→ 27
26B	What colour mosquito net do you prefer?	GREEN .... 1 BLUE .... 2 BROWN .... 3 WHITE .... 4 OTHER .... 6 Specify .... NO PREFERENCE 8	→ 27

Parasitological and haemoglobin survey sheet pregnant women and children 6 to 59 months of age

Consult the list of household members and select all eligible persons.

Tick here if an extra sheet was used for more pregnant women or children. ☐ ENUMERATION AREA No. ____________

In the event of positive RDT or Hb <8g/dL, then follow instructions on page 13 HOUSEHOLD No.____________

Line No. (from Q1)	Name (from Q2)	Age (from Q7)	Line No. of child's caregiver Write '00' if not on the list	Consent for blood sampling		Temperature (oC)	Haemoglobin (g/dL)	RDT					Slide code (see below)	Slide		Filter paper	
27	28	29	30	31		32	33	34					35	36		37	
				Given	Refused			Y	N	Pos	Neg	Invalid		Y	N	Y	N
Pregnant women																	
☐☐		☐☐	☐☐	1	2	☐☐☐	☐☐☐	1	2	1	2	9		1	2	1	2
☐☐		☐☐	☐☐	1	2	☐☐☐	☐☐☐	1	2	1	2	9		1	2	1	2
☐☐		☐☐	☐☐	1	2	☐☐☐	☐☐☐	1	2	1	2	9		1	2	1	2
Children > 6 mo. and < 5 years old																	
☐☐		☐☐	☐☐	1	2	☐☐☐	☐☐☐	1	2	1	2	9		1	2	1	2
☐☐		☐☐	☐☐	1	2	☐☐☐	☐☐☐	1	2	1	2	9		1	2	1	2
☐☐		☐☐	☐☐	1	2	☐☐☐	☐☐☐	1	2	1	2	9		1	2	1	2
☐☐		☐☐	☐☐	1	2	☐☐☐	☐☐☐	1	2	1	2	9		1	2	1	2

MALARIA TEST AND TREATMENT

NOTICE OF PRESCRIPTION FOR MALARIA-POSITIVE CASES IN CHILDREN UNDER 5 YEARS OLD

READ THIS STATEMENT TO WOMEN WITH CHILDREN UNDER 5 YEARS OLD WHO HAVE A POSITIVE RAPID DIAGNOSTIC TEST RESULT

The test result was positive. This means that your child/ren appear to have malaria. We can give him/her a complete treatment at no cost with a drug combination called artesunate and sulfadoxine-pyrimethamine (Fansidar)®. This combination is very effective. Within a few days it can help your child/ren get rid of the fever and other symptoms. This medicine is also very safe. However, like any medicine, it may also cause undesirable effects. The most common effects are dizziness, fatigue, lack of appetite, and heart palpitations. It should not be taken by people with severe heart problems or severe malaria (e.g. cerebral), or salt imbalances [ASK IF THE CHILD HAS ANY OF THESE PROBLEMS THAT THEY KNOW ABOUT OR IF HE/SHE TOOK THESE DRUGS IN THE LAST TWO WEEKS; IF SO, DO NOT GIVE THIS DRUG. EXPLAIN THE RISKS OF MALARIA AND DIRECT HER TO THE NEAREST HEALTH CENTRE].

Even though [NAME OF THE CHILD/REN] may feel better after the treatment, you have the right to refuse [TO GIVE THE CHILD/REN]'s treatment, without any repercussions for you [OR THE CHILD/REN]. Please tell us whether or not you accept the treatment.

PRESCRIPTION OF ARTESUNATE (50mg) AND SULFADOXINE-PYRIMETHAMINE

Weight (in Kg) – approximate age		Dosage *
	ARTESUNATE (50 mg)	Sulfadoxine (500 mg) – pyrimethamine (125mg)
6 to 11 months (>10kg)	0.5 tablet a day for three days	0.5 tablet on the first day
1 to 6 years old	1 tablet a day for three days	1 tablet on the first day

IN THE CASE OF PREGNANT WOMEN OR CHILDREN WITH SIGNS OR SYMPTOMS OF COMPLICATED MARLARIA AND POSITIVE RDT, FILL OUT A SLIP TO REFER PATIENT TO THE HEALTH FACILITY

MOZAMBIQUE HOUSEHOLD MALARIA INDICATOR SURVEY

INDIVIDUAL QUESTIONNAIRE FOR WOMEN

MURIELIDENTIFICATION	
QUESTIONNAIRE NUMBER	☐☐☐☐☐
NAME OF THE DISTRICT/ VILLAGE _____	
NAME OF HOUSEHOLD HEAD _____	
NUMBER OF INVENTORY AREA	☐☐☐ ☐☐☐
HOUSEHOLD NUMBER	☐☐ ☐ ☐
REGION	
AREA (URBAN=1, RURAL=2)	
DISTRICT	
NAME AND LINE NUMBER OF WOMAN	

INTERVIEWER VISITS				
	1	2	3	FINAL VISIT
DATE	_____	_____	_____	DAY _____ __ __ __ MONTH _____ __ __ __ YEAR _____ __ __ __ __ __
INTERVIEWER'S NAME	_____	_____	_____	INQ CODE _____ __ __ __
RESULT*	_____	_____	_____	RESULT _____ __ __
NEXT VISIT: DATE	_____	_____		NUMBER _____ TOTAL OF VISITS _____ __ __
TIME	_____	_____		
* RESULT CODES: 1 COMPLETED 2 NOT AT HOME 3 POSTPONED	4 REFUSED 5 PARTIALLY COMPLETED 6 HANDICAPPED PERSON		7 OTHER _____ (SPECIFY)	

COUNTRY: SPECIFIC INFORMATION

LANGUAGE OF QUESTIONNAIRE, LANGUAGE OF INTERVIEW, NATIVE LANGUAGE OF RESPONDENT, WHETHER OR NOT A TRANSLATOR IS USED

SUPERVISOR	OFFICE EDITOR	KEYED BY
NAME _____ _____ __ __ __ DATE _____ _____	_____ __ __ __ _____	_____ __ __ __ _____

NO.	QUESTIONS AND FILTERS	CODE CATEGORIES	SKIP
101	TIME REGISTER	_____ HOUR ..... __ __ __ _____ MINUTES ..... __ __ __ _____	
102	MONTH AND YEAR OF BIRTH	_____ MONTH ..... __ __ __ _____ MONTH UNKNOWN ..... 98 _____ YEAR ..... __ __ __ __ __ _____ YEAR UNKNOWN 9998	
103	How old were you on your last birthday? Check and correct 102 and/or 103 if they don't match.	_____ AGE IN COMPLETED YEARS ..... __ __ __ _____	
104	Have you ever been to school?	YES ..... 1 NO 2	_<108
105	What was your highest level of education? Primary school, Secondary School, or higher education?[1]	EP1. (Grade 1-5) ..... 1 EP2. (Grade 6-7) ..... 2 Secondary School...1a.(grade 8-10) ..... 3 Secondary School....2a.(grade 11-12) ..... 4 HIGHER EDUCATION 5	
106	What's the highest grade/ year you have completed at that level?[1]	_____ Grade/Year_ ..... _____	
107	CHECK 105: EPI1 1 _____ EPI 2 _____ _____ _____ OR MORE _____ ↓		_<201

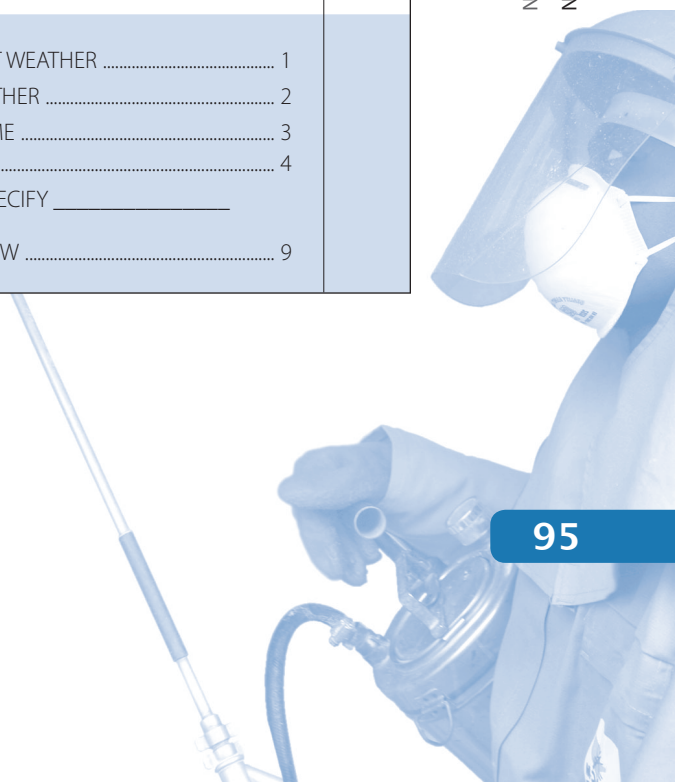
[1] Revise according to the local educational system

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
108	Now would like you to read this sentence for me **SHOW CARD TO THE RESPONDENT** [1] IF THE RESPONDENT CANNOT READ THE FULL SENTENCE, PROBE: Could you read a part of the sentence for me?	SHE CANNOT READ AT ALL ..... 1 SHE IS ABLE TO READ ONLY SOME PARTS OF THE SENTENCE ..... 2 SHE'S ABLE TO READ THE FULL SENTENCE. ..... 3 NO CONNECTION TO required language ..... 4 (Specify language) BLIND/ WITH A VISION DIFICULTY 5	

[1] Each card should have four simple sentences (for ex:;" parents love their children","Farming is hard work","The child is reading a book","Children work a lot in school"). Cards must be prepared for all languages that respondents are more likely to be literate in.

Section 1. KNOWLEDGE, ATTITUDES AND PRACTICES

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
109	What are the symptoms of malaria? RECORD ALL MENTIONED	WARM BODY/FEVER ..... 1 COLD/SWEATING/ TREMBLING ..... 2 BODY ACHES ..... 3 HEADACHES ..... 4 JOINTS ACHE ..... 5 DIARRHEA ..... 6 VOMITING ..... 7 LOSS OF APETITE ..... 8 WEAKNESS/LACK OF BLOOD ..... 9 OTHERS ..... 10 Specify _____	
110	At what time of the year is there more Malaria?	RAINY/ HOT WEATHER ..... 1 COLD WEATHER ..... 2 ALL THE TIME ..... 3 OTHERS ..... 4 SPECIFY _____ DON'T KNOW 9	



111	How can one be infected by malaria? RECORD ALL MENTIONED	MOSQUITO BITE ..... 1 FLEAS/LICE/BEDBUGS ..... 2 EATING CONTAMINATED FOOD ..... 3 DRINKING DIRTY WATER ..... 4 GARBAGE/ DIRT AROUND THE HOUSE ..... 5 SPELLS/VOODOO ..... 6 POOR PERSONAL HYGIENE ..... 7 OTHERS ..... 8 Specify _____ DOESN'T KNOW 9	
112	Who is more easily infected by Malaria?	NOBODY ..... 1 ADULTS ..... 2 PREGNANT WOMEN ..... 3 CHILDREN ..... 4 EVERYONE ..... 5 OTHERS ..... 8 Specify _____ DOESN'T KNOW 9	
113	What do you do to prevent Malaria? RECORD ALL MENTIONED	NOTHING ..... 1 BURN LEAVES/ EUCALYPTUS ..... 2 COIL/BAYGON ..... 3 MOSQUITO NETTING ..... 4 BURN GARBAGE ..... 5 TRADITIONAL TREATMENTS ..... 6 IMPROVE HOUSE HYGIENE ..... 7 IMPROVE PERSONAL HYGIENE ..... 8 OTHERS ..... 10 Specify _____ DOESN'T KNOW 9	
114	What do you do to avoid mosquito bite?	NOTHING ..... 1 BURN LEAVES/ EUCALYPTUS ..... 2 COIL/BAYGON ..... 3 MOSQUITO NETING ..... 4 OTHERS ..... 8 Specify _____ DOESN'T KNOW 9	<208

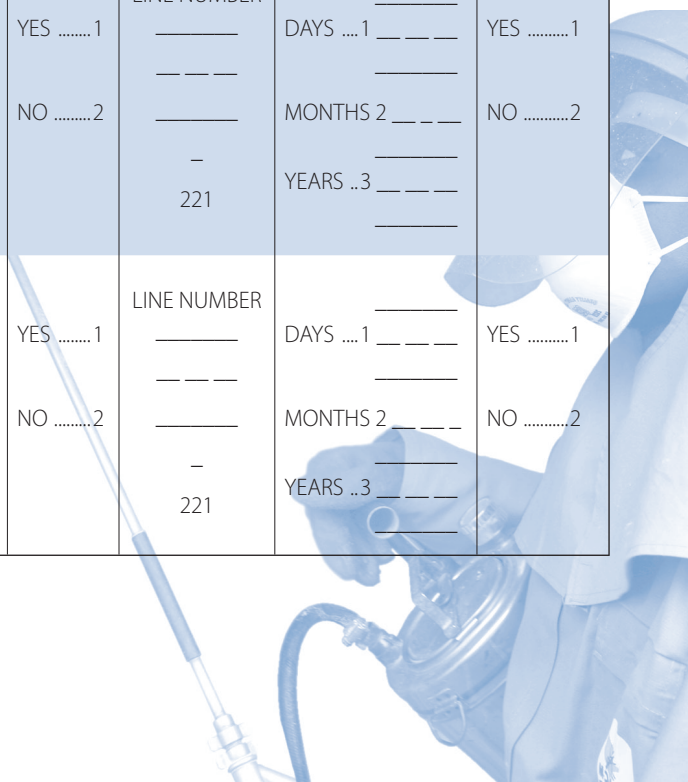
Section 2. REPRODUCTION

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
201	Now I would like to ask you about all the times you have given birth during your life. Have you ever given birth?	YES ..... 1 NO 2	_<206
202	Have you given birth to any sons or daughters that are now living with you?	YES ..... 1 NO 2	_<204
203	How many of your sons live with you? And how many of your daughters live with you? IF NONE, RECORD "00"	SONS AT HOME ..... _____ __ __ __ DAUGHTERS AT HOME ..... _____ __ __ __	
204	Are any of the children to whom you have given birth 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 child that was born alive but later died? IF NOT, PROBE: Any child that cried or showed other life signs but did not survive?	YES ..... 1 NO 2	_<208
207	How many boys died? How many girls died? IF NONE, RECORD "00"	DECEASED SONS ..... _____ __ __ __ DECEASED DAUGHTERS ..... _____ __ __ __	
208	SUM ANSWERS TO 203, 205, AND ENTER TOTAL	NONE ..... 00 TOTAL ..... _____ __ __ __	_<345

209	CHECK 208: Just to make sure that I have this right: you have given birth to a TOTAL of _____ children during your life. Is that correct? YES ____ ____ _ ↓ NO ____ _____< PROBE AND CORRECT 201-208 AS NECESSARY			
210	CHECK 208: ONE BIRTH ____ ____ ì Was this child born in the last six years? IF NOT, CIRCLE "00"	TWO OR MORE BIRTHS ____ ____ ì How many of these children were born in the last six years?	NONE ..... 00 TOTAL IN PAST 5 YEARS. ..... _____ __ __ __ _____	_<345
211	Now I would like to record the names of all your births in the last five years (since 2002), whether they still alive or not, starting with the first to the most recent one you had. RECORD THE NAMES OF ALL BIRTHS IN THE LAST FIVE YEARS IN 212. RECORD TWINS AND TRIPLETS ON SEPARATE LINES.			

212	213	214	215	216	217 IF ALIVE:	218 IF ALIVE:	219 IF ALIVE:	220 IF DECEASED:	221
What name was given to your (first/ next)baby? (NAME)	Were any of those births twins?	Is (NAME) a boy or a girl?	In what month and year was (NAME) born?	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 YEAR OLD", PROBE: How months old was (NAME)? RECORD THE DAYS IF LESS THAN A MONTH; MONTHS IF LESS THAN 2 YEARS;OR YEARS.	Was there any other child still alive between (NAME OF THE LAST CHILD) and (NAME)?
01	SINGLE . 1 MULT ... 2	BOY ..... 1 GIRL 2	_____ MONTH _ __ __ _____ YEAR _____ .....__ __ __ __ _____	YES ..... 1 NO ..... 2 _ 220	AGE IN YEARS _____ __ __ __ _____	YES ..... 1 NO 2	LINE NUMBER _____ __ __ __ _____ _ (NEXT BIRTH.)	_____ DAYS .... 1 __ __ __ _____ MONTHS 2 __ __ _ _____ YEARS ..3 __ __ __ _____	

02	SINGLE . 1 MULT ... 2	BOY ..... 1 GIRL 2	MONTH __ __ __ YEAR .....__ __ __ __	YES ..... 1 NO ..... 2 _ 220	AGE IN YEARS __ __ __	YES ..... 1 NO 2	LINE NUMBER __ __ __ _ 221	DAYS .... 1 __ __ __ MONTHS 2 __ __ _ YEARS ..3 __ __ __	YES ..... 1 NO 2
03	SINGLE . 1 MULT ... 2	BOY ..... 1 GIRL 2	MONTH __ __ __ YEAR .....__ __ __ __	YES ..... 1 NO ..... 2 _ 220	AGE IN YEARS __ __ __	YES ..... 1 NO 2	LINE NUMBER __ __ __ _ 221	DAYS .... 1 __ __ __ MONTHS 2 __ _ __ YEARS ..3 __ __ __	YES ..... 1 NO 2
04	SINGLE . 1 MULT ... 2	BOY ..... 1 GIRL 2	MONTH __ __ __ YEAR .....__ __ __ __	YES ..... 1 NO ..... 2 _ 220	AGE IN YEARS __ __ __	YES ..... 1 NO 2	LINE NUMBER __ __ __ _ 221	DAYS .... 1 __ __ __ MONTHS 2 __ _ __ YEARS ..3 __ __ __	YES ..... 1 NO 2
05	SINGLE . 1 MULT ... 2	BOY ..... 1 GIRL 2	MONTH __ __ __ YEAR .....__ __ __ __	YES ..... 1 NO ..... 2 _ 220	AGE IN YEARS __ __ __	YES ..... 1 NO 2	LINE NUMBER __ __ __ _ 221	DAYS .... 1 __ __ __ MONTHS 2 __ _ __ YEARS ..3 __ __ __	YES ..... 1 NO 2
06	SINGLE . 1 MULT ... 2	BOY ..... 1 GIRL 2	MONTH __ __ __ YEAR .....__ __ __ __	YES ..... 1 NO ..... 2 _ 220	AGE IN YEARS __ __ __	YES ..... 1 NO 2	LINE NUMBER __ __ __ _ 221	DAYS .... 1 __ __ __ MONTHS 2 __ _ __ YEARS ..3 __ __ __	YES ..... 1 NO 2
07	SINGLE . 1 MULT ... 2	BOY ..... 1 GIRL 2	MONTH __ __ __ YEAR .....__ __ __ __	YES ..... 1 NO ..... 2 _ 220	AGE IN YEARS __ __ __	YES ..... 1 NO 2	LINE NUMBER __ __ __ _ 221	DAYS .... 1 __ __ __ MONTHS 2 __ __ _ YEARS ..3 __ __ __	YES ..... 1 NO 2

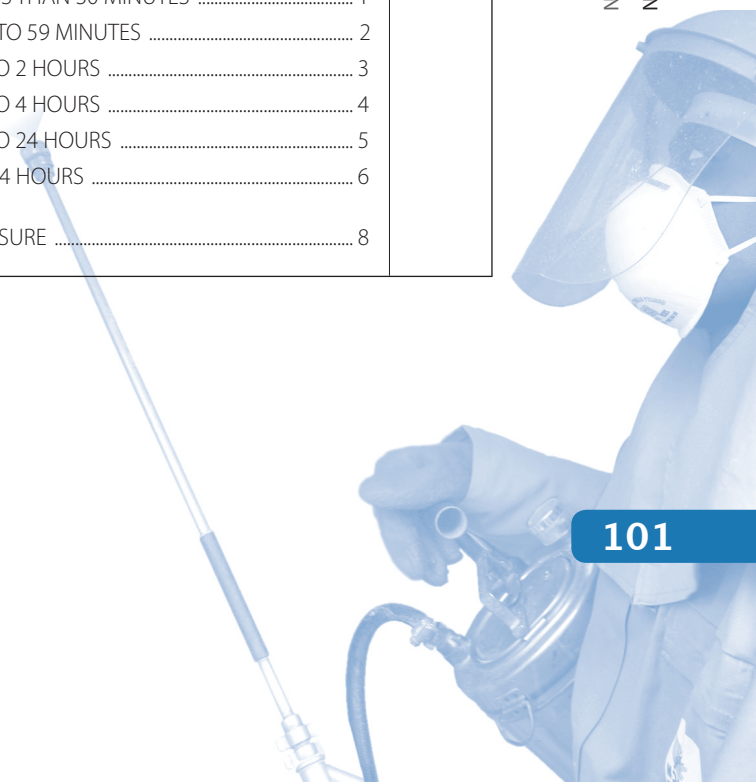


NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
222	Have you had any live births since the birth of (NAME OF MOST RECENT BIRTH)? IF SO, RECORD BIRTH(S) IN BIRTH TABLE.	YES ..... 1 NO 2	
223	COMPARE 210 WITH NUMBER OF BIRTHS IN HISTORY AND MARK: NUMBERS ____ NUMBERS ARE ____ ARE THE SAME ____ DIFERENT _____< (PROBE AND RECONCILE) _ ì **CHECK:** MAKE CERTAIN THAT THE YEAR OF BIRTH IS RECORDED FOR EACH LIVE BIRTH. MAKE CERTAIN THAT THE CURRENT AGE IS RECORDED FOR EACH LIVING CHILD		____ _ _ ____ _ _ ____
224	CHECK 215 AND ENTER THE NUMBER OF BIRTHS IN 20011 OR LATER. IF NONE, RECORD"0"		____ _ _ ____
225	Are you pregnant now?	YES ..... 1 NO ..... 2 UNSURE 8	_ _<227
226	IF SO, CHECK THE HOUSEHOLD QUESTIONNAIRE, COLUMN 63, AND RECORD THE NUMBER OF COMPLETED MONTHS AND WEEKS OF PREGNANCY.	_____ _ _ _ _____ MONTHS _____ _ _ _ _____ WEEKS	
227	**CHECK 224** ONE OR MORE ____ NO ____ CHILDREN 0-59 MONTHS OLD ____ CHILDREN 0-59 MONTHS OLD _____ _		_<310

[1] If fieldwork begins in 2007, the year should be 2002

Section 3. PREGNANCY AND INTERMITTENT PRESUMPTIVE TREATMENT

301	ENTER IN 302 THE NAME AND SURVIVAL STATUS OF THE MOST RECENT BIRTH IN THE PAST FIVE YEARS. Now I would like to ask you some questions about your last pregnancy that ended in a live birth, in the last 5 years.		
302	FROM QUESTION 212:	LAST BIRTH NAME _____ LIVING DEAD ____ ____ ____ ____ ì ì	SKIP
303	When you were pregnant with (NAME), did you see anyone for a antenatal care?[1] IF SO: Where did you go? RECORD ALL STATED TO IDENTIFY THE KIND OF PLACE CIRCLE THE APRPRIATED CODE WRITE THE NAME OF THE PLACE _____ (PLACE NAME)	YES ..... 1 NO ..... 2 PRIVATE HEALTH CARE FACILITY ..... A PUBLIC HEALTH CARE FACILITY ..... B MOBILE CLINIC ..... C TRADITIONAL BIRTH ATTENDANT ..... D MIDWIFE ..... E OTHER PERSON ..... X _____ (SPECIFY) NONE ..... **Y**	–> 304
303A	How long does it take to get there?	LESS THAN 30 MINUTES ..... 1 30 TO 59 MINUTES ..... 2 1 TO 2 HOURS ..... 3 2 TO 4 HOURS ..... 4 4 TO 24 HOURS ..... 5 > 24 HOURS ..... 6 UNSURE 8	



303B	What transport do you take to get there?	BY FOOT ..... 1 FREE TRANSPORT BICYCLE ..... 21 DONKEY /WHEELBARROW ..... 22 BOAT ..... 23 OWN VEHICLE ..... 24 PAID TRANSPORT BICYCLE ..... 31 DONKEY/TROLLEY ..... 32 CHAPA/BUS/BOAT ..... 33 TAXI ..... 34 UNSURE 8	
303C	How many antenatal visits did you make during this pregnancy?	☐	
304	During this pregnancy, did you take any drugs in order to prevent you from getting malaria?	YES ..... 1 NO ..... 2 DOESN'T KNOW 8	_ _<309A
305	Which drugs did you take to prevent malaria?[2] Any other drugs? RECORD ALL MENTIONED IF TYPE OF DRUG IS NOT DETERMINED, SHOW TYPICAL ANTIMALARIAL DRUGS TO RESPONDENT	FANSIDAR (SP) ..... **A** CHLOROQUINE ..... **B** OTHER ..... X (SPECIFY) DOESN'T KNOW ..... Z	
306	**CHECK 305:** DRUGS TAKEN FOR MALARIA PREVENTION	CODE **"A"** CIRCLED ____ ____ 307 CODE **"A2"** NOT CIRCLED ____ _____	_309A
307	How many times did you take SP/Fansidar during this pregnancy?	TIMES ..... __ __ __ __	
308	**CHECK 303:** WHERE DID ANTENATAL CARE HEALTH TAKE PLACE, DURING PREGNANCY?	CODE 'A', 'B', OR 'C' ____ ____ OTHER CIRCLED ____ _____	_309A

[1] Coding categories to be developed locally and revised based onfeedback; 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.

309	Did you get the Fansidar (SP) 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)	
309A	Who assisted (NAME) birth? Anyone else? VERIFY ALL KIND OF STAFF AND RECORD ALL MENTIONED IF RESPONDENT SAYS THAT NOBODY ASSISTED IT, TRY TO FIND IF ANY ADULT WAS PRESENT AT BIRTH TIME	HEALTH PROFESSIONAL/DOCTOR ..... **A** NURSE/MIDWIFE ..... **B** NURSE ASSISTENT ..... **C** OTHER PERSON MIDWIFE/TRADITIONAL BIRTH ATTENDANCE ..... D RELATIVE- FRIEND ..... E OTHER _____ **X** (SPECIFY) NOBODY ..... **Y**	
309B	Where did you give birth to (NAME)? TO IDENTIFY THE KIND OF PLACE, CIRCLE THE APROPPRIATE CODE WHEN NOT POSSIBLE TO DETERMINE WHETER IT HAS BEEN IN AN HOSPITAL, PUBLIC OR PRIVATE HEALTH FACILITY CENTRE, WRITE THE NAME OF THE PLACE _____ (NAME OF THE PLACE) QUESTIONS AND FILTERS	**AT HOME** MY HOME ..... 11 OTHER HOUSE ..... 12 **PUBLIC SECTOR** HOSPITAL ..... 21 HEALTH CENTRE ..... 22 MEDICAL PRACTICE ..... 23 OTHER _____ 26 (SPECIFY) **PRIVATE SECTOR** HOSPITAL/ MEDICAL PRACTICE ..... 31 OTHER _____ 36 (SPECIFY) OTHER _____ 96 (SPECIFY)	
309C	Is there any kind of meeting with local authorities in your district to prevent malaria?	YES ..... 1 NO ..... 2 Don't know 8	

310. VERIFY IF THE MOTHER HAS A CHILD WITH LESS THAN FIVE YEARS AND IF SO, CONTINUE WITH SECTION 6: FEVER IN CHILDREN WITH LESS TAHN FIVE

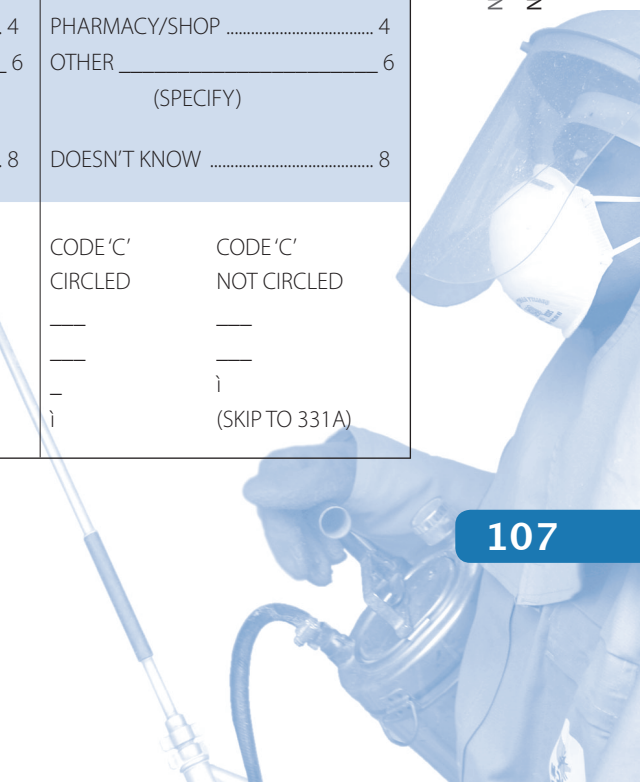
Section 4. FEVER IN CHILDREN WITH LESS THAN 5 YEARS OLD

311	VERIFY IN Q.215 – 219 LIVING CHILDREN THAT LIVE WITH THEIR MOTHER AND ARE LESSTHAN 5 YEARS OLD. INSERT LINE NUMBER AND NEME OF THOSE ELIGIVELCHILDREN, IN THE TABLE. (IF THERE ARE MORE THAN 2 LIVING ELEGIVEL CHILDREN, USE ADDITIONAL SHEETS) Now I would like to ask you some questions about 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 _____
313	Has (NAME) been ill with a fever at any time in the last 2 weeks?	YES ..... 1 NO ..... 2 DOESN'T KNOW ..... 8 (GO TO 313 FOR NEXT CHILD OR, IF NO MORE CHILDREN, SKIP TO 345)	YES ..... 1 NO ..... 2 DOESN'T KNOW ..... 8 (GO TO 313 FOR NEXT CHILD OR, IF NO MORE CHILDREN, SKIP TO 345)
314	How many days ago did the fever start? IF LESS THAN ONE DAY, RECORD"00"	DAYS ___ ___ ___ DOESN'T KNOW 98	DAYS ___ ___ ___ DOESN'T KNOW 98
315	Did you seek advice or treatment for the fever from any source?	YES ..... 1 NO ..... 2 DOESN'T KNOW ..... 8 (SKIP TO 317)	YES ..... 1 NO ..... 2 DOESN'T KNOW ..... 8 (SKIP TO317)

316	Where did you seek advice or treatment? Anywhere else? RECORD ALL MENTIONED SOURCES	**PUBLIC SECTOR** GOVT. HOSPITAL ..... A GOVT. HEALTH CENTRE ..... B GOVT. HEALTH POST ..... C MOBILE CLINIC ..... D COMUNITY AGENTS ..... E WORK PLACE ..... F PHARMACY ..... G (PRIVATE CHARACTERISTIC) (OTHER) _____ H (SPECIFY) **PRIVATE MEDICAL SECTOR** PRIV. CLINIC ..... I PHARMACY ..... J OTHER PVT. MEDICAL PRIVADA ...K (SPECIFY) **OTHER SOURCE** TRADITIONAL HEALER ..... L SHOP ..... **OTHER** _____ X (SPECIFY)	**PUBLIC SECTOR** GOVT. HOSPITAL ..... A GOVT. HEALTH CENTRE ..... B GOVT. HEALTH POST ..... C MOBILE CLINIC ..... D COMUNITY AGENTS ..... E WORK PLACE ..... F PHARMACY ..... G (PRIVATE CHARACTERISTIC) (OTHER) _____ H (SPECIFY) **PRIVATE MEDICAL SECTOR** PRIV. CLINIC ..... I PHARMACY ..... J OTHER PVT. MEDICAL PRIVADA ...K (SPECIFY) **OTHER SOURCE** TRADITIONAL HEALER ..... L SHOP ..... **OTHER** _____ X (SPECIFY)
316A	How many days after the fever began did you first seek treatment for (NAME)? IF THE SAME DAY, RECORD "00"	_____ DAYS ..... ___ ___ ___ _____	_____ DAYS ..... ___ ___ ___ _____
		YOUNGEST CHILD **NAME** _____	**NEXT-TO-YOUNGEST CHILD** **NAME** _____
317	Is (NAME) still sick with fever?	YES ..... 1 NO ..... 2 DOES'T KNOW 8	YES ..... 1 NO ..... 2 DOESN'T KNOW 8
318	At any time during the illness, did (NAME) take any drugs for the fever?	YES ..... 1 NO ..... 2 (SKIP 344) = ___ DOESN'T KNOW 8	YES ..... 1 NO ..... 2 (SKIP 344) = ___ DOESN'T KNOW 8

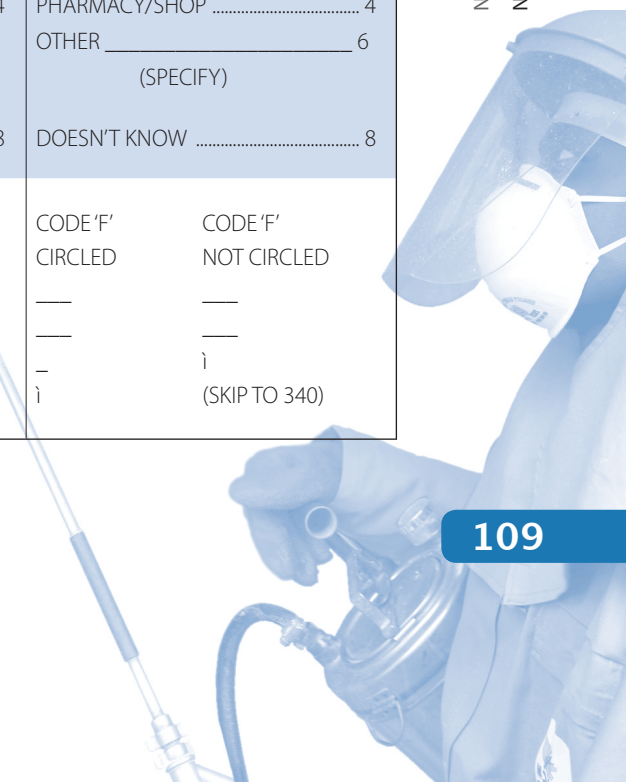
319	What drugs did (NAME) take?1 Any other drugs? RECORD ALL MENTIONED. ASK TO SEE DRUG(S) IF TYPE OF DRUG IS NOT DETERMINED, SHOW TYPICAL ANTIMALARIAL DRUGS TO RESPONDENT.	**ANTIMALARIAL** SP/FANSIDAR ..... A CHLOROQUINE ..... B AMODIAQUINE ..... C ARTESUNATE ..... D QUININE ..... E COARTEM ..... F OTHER ANTIMALARIAL _____ G (SPECIFY) **OTHER DRUGS** ASPIRIN ..... H ACETAMINOPHEN PARACETAMO ..... I IBUPROFEN ..... J OTHERS _____ X (SPECIFY) DOESN'T KNOW ..... Z	**ANTIMALARIAL** FANSIDAR (SP) ..... A CHLOROQUINE ..... B AMODIAQUINE ..... C ARTESUNATE ..... D QUININE ..... E COARTEM ..... F OTHER ANTIMALARIAL _____ G (SPECIFY) **OTHER DRUGS** ASPIRIN ..... H ACETAMINOPHEN PARACETAMOL ..... I IBUPROFEN ..... J OTHERS _____ X (SPECIFY) DOESN'T KNOW ..... Z
320	**CHECK 319:** ANY CODE A-G CIRCLED?	YES NO (GO BACK TO 313 ___ ___ IN NEXT COLUMN OR, ___ ___ IF NO MORE _ ì CHILDREN, SKIP TO 345) ì	YES NO (GO BACK TO 313 ___ ___ IN NEXT COLUMN OR, ___ ___ IF NO MORE _ ì CHILDREN, SKIP TO 345) ì
320A	**CHECK 319:** FANSIDAR (SP) ('A') GIVEN?	CODE'A' CIRCLED / CODE 'A' NOT CIRCLED ___ ___ ___ ___ _ ì (SKIP TO 324) ì	CODE 'A' CIRCLED / CODE 'A' NOT CIRCLED ___ ___ ___ ___ _ ì(SKIP TO 324) ì
321	How long after the fever started did (NAME) first take Fansidar (SP)?	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 DOESN'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 DOESN'T KNOW 8
		YOUNGEST CHILD **NAME** _____	**NEXT TO YOUNGEST CHILD** **NAME** _____
322	For how many days did (NAME) take the Fansidar (SP)? IF SEVEN OR MORE, RECORD "7"	_____ DAYS ..... ____ ____ _____ DOESN'T KNOW 8	_____ DAYS ..... ____ ____ _____ DOESN'T KNOW 8

323	Did you have the Fansidar (SP) at home or did you get it from somewhere else? IF SOMEWHERE ELSE, TRY TO FIND OUT SOURCE. IF MORE THAN ONE SOURCE MENTIONED ASK: Where did you get the SP/Fansidar first?	AT HOME ..... 1 GOVERNMENT HOSPITAL/ HEALTH FACILITY ..... 2 PRIVATE CLINIC ..... 3 PHARMACY/SHOP ..... 4 OTHER _____ 6 (SPECIFY) DOESN'T KNOW 8	AT HOME ..... 1 GOVERNMENT HOSPITAL/ HEALTH FACILITY ..... 2 PRIVATE CLINIC ..... 3 PHARMACY/SHOP ..... 4 OTHER _____ 6 (SPECIFY) DOESN'T KNOW 8
324	**CHECK 319:** CHLOROQUINE ('B') GIVEN?	CODE 'B' CIRCLED ___ ___ _ ì CODE 'B' NOT CIRCLED ___ ___ ì (SKIP TO 328)	CODE 'B' CIRCLED ___ ___ _ ì CODE 'B' NOT CIRCLED ___ ___ ì (SKIP TO 328)
325	How long after the fever begin did (NAME) first take Chloroquine?	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 DOESN'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 DOESN'T KNOW 8
326	For how many days did (NAME) take Chloroquine?) IF SEVEN OR MORE, RECORD "7"	_____ DAYS .....____ ____ _____ DOESN'T KNOW 8	_____ DAYS .....____ ____ _____ DOESN'T KNOW 8
327	Did you have the chloroquine at home or did you get it from somewhere else? IF SOMEWHERE ELSE, TRY TO FIND OUT THE PLACE. IF MORE THAN ONE SOURCE MENTIONED, ASK: Where did you first get the Chloroquine?	AT HOME ..... 1 GOVERNMENT HOSPITAL/ HEALTH FACILITY ..... 2 PRIVATE CLINIC ..... 3 PHARMACY/SHOP ..... 4 OTHER _____ 6 (SPECIFY) DOESN'T KNOW 8	AT HOME ..... 1 GOVERNMENT HOSPITAL/ HEALTH FACILITY ..... 2 PRIVATE CLINIC ..... 3 PHARMACY/SHOP ..... 4 OTHER _____ 6 (SPECIFY) DOESN'T KNOW 8
328	**CHECK 319:** AMODIAQUINE ('C') GIVEN?	CODE 'C' CIRCLED ___ ___ _ ì CODE 'C' NOT CIRCLED ___ ___ ì (SKIP TO 331A)	CODE 'C' CIRCLED ___ ___ _ ì CODE 'C' NOT CIRCLED ___ ___ ì (SKIP TO 331A)



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 DOESN'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 DOESN'T KNOW 8
		YOUNGEST CHILD **NAME** _____	**NEXT TO YOUNGEST CHILD** **NAME** _____
330	For how many days did (NAME) take Amodiaquine? IF SEVEN OR MORE DAYS, RECORD "7"	DAYS ..... ____ ____ DOESN'T KNOW 8	DAYS ..... ____ ____ DOESN'T KNOW 8
331	Did you have the amodiaquine at home or did you get it from somewhere else? IF SOMEWHERE ELSE, TRY TO FIND OUT SOURCE. IF MORE THAN ONE SOURCE MENTIONED, ASK: Where did you get the Almodiaquine first?	AT HOME ..... 1 GOVERNMENT HOSPITAL/ HEALTH FACILITY ..... 2 PRIVATE CLINIC ..... 3 PHARMACY/SHOP ..... 4 OTHER _____ 6 (SPECIFY) DOESN'T KNOW 8	AT HOME ..... 1 GOVERNMENT HOSPITAL/ HEALTH FACILITY ..... 2 PRIVATE CLINIC ..... 3 PHARMACY/SHOP ..... 4 OTHER _____ 6 (SPECIFY) DOESN'T KNOW 8
331A	**CHECK 319:** ARTESUNATE ('D') GIVEN?	CODE 'D' CIRCLED: ___ ___ _ ì CODE 'D' NOT CIRCLED: ___ ___ ì (SKIP TO 332)	CODE 'D' CIRCLED: ___ ___ _ ì CODE 'D' NOT CIRCLED: ___ ___ ì (SKIP TO 332)
331B	How long after the fever started did (NAME) first take Artesunate?	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 DOESN'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 DOESN'T KNOW 8
331C	For how many days did (NAME) take Artesunate? IF SEVEN OR MORE DAYS, RECORD "7".	DAYS ..... ____ ____ DOESN'T KNOW 8	DAYS ..... ____ ____ DOESN'T KNOW 8

331D	Did you have the Artesunate at home or did you get it from somewhere else? IF SOMEWHERE ELSE, TRY TO FIND OUT SOURCE. IF MORE THAN ONE SOURCE MENTIONED, ASK: Where did you get the Artesunate first?	AT HOME ..... 1 GOVERNMENT HOSPITAL/ HEALTH FACILITY ..... 2 PRIVATE CLINIC ..... 3 PHARMACY/SHOP ..... 4 OTHER _____ 6 (SPECIFY) DOESN'T KNOW 8	AT HOME ..... 1 GOVERNMENT HOSPITAL/ HEALTH FACILITY ..... 2 PRIVATE CLINIC ..... 3 PHARMACY/SHOP ..... 4 OTHER _____ 6 (SPECIFY) DOESN'T KNOW 8
332	**CHECK 319:** QUININE ('E') GIVEN?	CODE 'E' CIRCLED ___ ___ _ ì CODE 'E' NOT CIRCLED ___ ___ ì (SKIP TO 336)	CODE 'E' CIRCLED ___ ___ _ ì CODE 'E' NOT CIRCLED ___ ___ ì (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 FEVERE ..... 2 THREE DAYS AFTER THE FEVER ..... 3 FOUR OR MORE DAYS AFTER THE FEVER ..... 4 DOESN'T KNOW 8	SAME DAY ..... 0 NEXT DAY ..... 1 TWO DAYS AFTER THE FEVERE ..... 2 THREE DAYS AFTER THE FEVER ..... 3 FOUR OR MORE DAYS AFTER THE FEVER ..... 4 DOESN'T KNOW 8
334	For how many days did (NAME) take Quinine? IF SEVEN OR MORE DAYS, RECORD "7"	_____ DAYS .....____ ____ _____ DOESN'T KNOW 8	_____ DAYS .....____ ____ _____ DOESN'T KNOW 8
335	Did you have the Quinine at home or did you get it from somewhere else? IF SOMEWHERE ELSE, TRY TO FIND OUT SOURCE. IF MORE THAN ONE SOURCE MENTIONED, ASK: Where did you get the Quinine first?	AT HOME ..... 1 GOVERNMENT HOSPITAL/ HEALTH FACILITY ..... 2 PRIVATE CLINIC ..... 3 PHARMACY/SHOP ..... 4 OTHER _____ 6 (SPECIFY) DOESN'T KNOW 8	AT HOME ..... 1 GOVERNMENT HOSPITAL/ HEALTH FACILITY ..... 2 PRIVATE CLINIC ..... 3 PHARMACY/SHOP ..... 4 OTHER _____ 6 (SPECIFY) DOESN'T KNOW 8
336	**CHECK 319:** COARTEM ('F') GIVEN?	CODE 'F' CIRCLED ___ ___ _ ì CODE 'F' NOT CIRCLED ___ ___ ì (SKIP TO 340)	CODE 'F' CIRCLED ___ ___ _ ì CODE 'F' NOT CIRCLED ___ ___ ì (SKIP TO 340)



337	How long after the fever started did (NAME) first take Coartem?	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 DOESN'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 DOESN'T KNOW 8
338	For how many days did (NAME) take COARTEM? IF SEVEN OR MORE DAYS, RECORD "7"	DAYS ..... ____ ____ DOESN'T KNOW 8	DAYS ..... ____ ____ DOESN'T KNOW 8
339	Did you have the COARTEM at home or did you get it from somewhere else? IF SOMEWHERE ELSE, TRY TO FIND OUT SOURCE. IF MORE THAN ONE SOURCE MENTIONED, ASK: Where did you get the COARTEM first?	AT HOME ..... 1 GOVERNMENT HOSPITAL/ HEALTH FACILITY ..... 2 PRIVATE CLINIC ..... 3 PHARMACY/SHOP ..... 4 OTHER _____ 6 (SPECIFY) DOESN'T KNOW 8	AT HOME ..... 1 GOVERNMENT HOSPITAL/ HEALTH FACILITY ..... 2 PRIVATE CLINIC ..... 3 PHARMACY/SHOP ..... 4 OTHER _____ 6 (SPECIFY) DOESN'T KNOW 8
340	**CHECK 319:** OTHER ANTIMALARIAL (G) GIVEN?	CODE 'G' CIRCLED ___ ___ _ ì CODE 'G' NOT CIRCLED ___ ___ ì (SKIP TO344)	CODE 'G' CIRCLED ___ ___ _ ì CODE 'G' NOT CIRCLED ___ ___ ì (SKIP TO344)
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 FOUR OR MORE DAYS AFTER THE FEVER ..... 4 DOESN'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 DOESN'T KNOW 8
342	For how many days did (NAME) take (NAME OF OTHER ANTIMALARIAL)? IF SEVEN OR MORE, RECORD "7".	DAYS ..... ____ ____ DOESN'T KNOW 8	DAYS ..... ____ ____ DOESN'T KNOW 8

343	Did you have (NAME OF OTHER ANTIMALRIAL) at home or did you get it somewhere else? IF SOMEWHERE ELSE, TRY TO FIND OUT SOURCE. IF MORE THAN ONE SOURCE MENTIONED, ASK: Where did you get the (NAME OF THE OTHER ANTIMALARIAL) first?	AT HOME ..... 1 GOVERNMENT HOSPITAL/ HEALTH FACILITY ..... 2 PRIVATE CLINIC ..... 3 PHARMACY/SHOP ..... 4 OTHER _____ 6 (SPECIFY) DOESN'T KNOW 8	AT HOME ..... 1 GOVERNMENT HOSPITAL/ HEALTH FACILITY ..... 2 PRIVATE CLINIC ..... 3 PHARMACY/SHOP ..... 4 OTHER _____ 6 (SPECIFY) DOESN'T KNOW 8
344		GO BACK TO 313 IN THE NEXT COLUMN OR, IF NO MORE CHILDREN, GO TO 345.	GO TO 313 IN THE FIRST COLUMN OF ADDITIONAL QUESTIONNAIRE, OR, IF NO MORE CHILDREN, GO TO 345.
345	**TIME RECORDED**	HOUR ..... __ __ __ MINUTES ..... __ __ __	
GO BACK TO HOUSEHOLD'S QUESTIONNAIRE TO MAKE QUICK TESTS ON HEMOGLOBIN AND MALARIA TO ELIGIBLE PEOPLE (WOMEN BETWEEN 15 AND 49 YEARS OLD, PREGNANT WOMEN AND CHILDREN FROM 6 TO 59 MONTHS OLD)			

INTERVIEWER'S OBSERVATIONS

TO BE FILLED IN AFTER COMPLETING INTERVIEW

COMMENTS ABOUT RESPONDENT:

COMMENTS ON SPECIFIC QUESTIONS:

OTHER COMMENTS:

SUPERVISOR'S OBSERVATIONS

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