Angola

Malaria Indicator Survey

2006-07

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Luanda, Angola

Macro International Inc.
Calverton, Maryland USA

November 2007

CONSULTORIA – SERVIÇOS – ESTUDOS – ESTATÍSTICA – INQUERITOS
ORGANIZACÃO–GESTÃO DE EMPREENDIMENTOS– REPRESENTACÕES

PRESIDENT'S MALARIA INITIATIVE

The 2006-07 Angola Malaria Indicator Survey (AMIS 2006-07) was implemented by Consultoria de Serviços e Pesquisas–COSEP, Consultoria, Lda. and Consultoria de Gestão e Administração em Saúde–Consaúde, Lda. from November 2006 to April 2007. All activities were coordinated closely with the Angola Ministry of Health and the National Malaria Control Program. Funding for the AMIS 2006-07 was provided by USAID/Angola, the President's Malaria Initiative (PMI) and the UNDP-managed Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM). Macro International Inc. provided technical assistance through the MEASURE DHS project of the United States Agency for International Development (USAID). MEASURE DHS provides support for the implementation of population and health surveys in countries worldwide.

This publication was made possible through support provided by USAID under the terms of Contract No. GPO-C-00-03-00002-00. The opinions expressed herein are those of the authors and do not necessarily reflect the views of USAID.

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Recommended citation:

Consultoria de Serviços e Pesquisas–COSEP Lda., Consultoria de Gestão e Administração em Saúde–Consaúde Lda. [Angola], and Macro International Inc. 2007. *Angola Malaria Indicator Survey 2006-07*. Calverton, Maryland: COSEP Lda., Consaúde Lda., and Macro International Inc.

Cover note:

The Giant Sable Antelope (*Hippotragus miger variani*) pictured on the cover is unique to Angola and plays an important role in the national culture. Called "Palanca Negra" in Portuguese (Black Antelope), it appears as the logo on Angola's national airline. Also, the Angolan National Football Team is known as the *Palancas Negras*.

The Giant Sable Antelope is a large, rare subspecies of Sable Antelope native to the region between the Cuango and Luando Rivers in Angola. Both males and females are born a chestnut color and both have horns. However, at about age three, males darken to black and develop massive curving horns reaching lengths up to 165 cm. The cover photo comes from Photos.com (www.photos.com), a professional, royalty-free stock photography subscription service.

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FOREWORD

The 2006-07 Angola Malaria Indicator Survey (AMIS) was conducted under the auspices of the National Malaria Control Program (NMCP) within the Ministry of Health (MOH). It was implemented by two private organizations, the Consultoria de Serviços e Pesquisas–COSEP, Consultoria, Lda. and the Consultoria de Gestão e Administração em Saúde–Consaúde, Lda. This is the first survey of its kind in Angola, and the realization of a standardized household survey constitutes an important landmark in the reinclusion of the country into the international community.

The AMIS includes key information on household characteristics, such as the composition of the population, levels of water and sanitation, and possession of goods. It also collected information on the education and literacy of women as well as fertility and reproductive health (antenatal care and delivery).

Since the survey is specific to malaria, it asked questions on indoor residual spraying and on the availability and use of mosquito nets in the household. Women were asked whether they were given medicine for prevention and treatment of malaria during pregnancy. Finally, women were asked whether their children had recently had fever and what medicines they were given.

The survey collected blood samples for two important biomarkers: anemia and malaria. Anemia was assessed among women age 15-49 and children under age five, using a portable photometer. Malaria was assessed among pregnant women age 15-49 and children under age five using a rapid diagnostic test and a microscopic test in a subsample. All individuals who tested positive for malaria were given treatment on the spot.

COSEP, Lda. and Consaúde, Lda. would like to acknowledge the organizations and individuals who contributed greatly to the successful completion of the 2006-07 AMIS. First of all, our thanks go to the Government of Angola for its commitment to mounting the country's first malaria survey; to the Angola Instituto Nacional de Estadística, for its support of the survey even though it was embarked on important national surveys at the time; to the MOH and NMCP for their contributions towards highlighting survey needs and also for graciously donating Coartem® medicine to treat affected individuals; and to the National Laboratory, for its involvement in the training and microscopic analysis of blood samples. The agencies are particularly grateful to the United States Agency for International Development (USAID) and the President's Malaria Initiative (PMI) for financial and technical support for the survey, to the Malaria Branch of the Centers for Disease Prevention and Control (CDC) for inputs to the survey design, and to Macro International for substantial technical assistance offered throughout the survey. Thanks also are due to the United Nations Development Programme and the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM) for supplementary funding and support at critical times.

Finally, we would like to give special thanks to the field staff who traveled to many areas, including remote and dangerous locations, and, most importantly, to the survey respondents for their unforgettable contribution to this first nationwide malaria survey.

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ABBREVIATIONS

AMIS	Angola Malaria Indicator Survey
ASFR	Age-specific fertility rate
CBR	Crude birth rate
CDC	Centers for Disease Prevention and Control (United States)
CEB	Children ever born
CS	Censal section
DFID	Department for International Development (United Kingdom)
EA	Enumeration area
FNLA	Frente Nacional de Libertação de Angola
GFATM	Global Fund to Fight AIDS, Tuberculosis and Malaria
GFR	General fertility rate
INE	Instituto Nacional de Estatística
IPT	Intermittent preventive treatment
IRB	Institutional review board
ITN	Insecticide-treated (mosquito) net
JICA	Japan International Cooperation Agency
LLITN	Long-lasting insecticide-treated (mosquito) net
MERG	Monitoring and Evaluation Reference Group
MOH	Ministry of Health
MPLA	Movimiento Popular de Libertação de Angola
NGO	Non-governmental organization
NMCP	National Malaria Control Program (Angola)
PMI	President's Malaria Initiative
PVO	Private voluntary organization
RDT	Rapid diagnostic test
SP	Sulfadoxine-pyrimethamine (Fansidar)
TFR	Total fertility rate
UNICEF	United Nations Children's Fund
UNITA	União Nacional para a Independencia Total da Angola
USAID	United States Agency for International Development
WHO	World Health Organization

SUMMARY OF FINDINGS

Malaria is a major public health problem. According to the World Health Organization (WHO), about 40 percent of people in developing countries are exposed to malaria. In Angola, approximately 3.2 million cases of malaria were reported in 2004, of which two-thirds were in children under age five. An estimated 35 percent of all deaths in children under five in Angola are due to malaria.

The 2006-07 Angola Malaria Indicator Survey (AMIS) is the first survey in that country designed to collect nationally representative information on malaria-specific indicators, as part of the MEASURE DHS project. The objectives of the AMIS were to assess household ownership of mosquito nets and their use by children under five and pregnant women; to assess the coverage and timing of indoor residual spraying (IRS); to estimate the prevalence of anemia, malaria, and fever (and the type and timing of treatment) among children under age five, women of reproductive age, and pregnant women; and to assess the use of intermittent preventive treatment (IPT) for malaria among pregnant women. In addition, the survey included questions to assess who attended a woman's last delivery and where that delivery took place.

Fieldwork for the 2006-07 AMIS was conducted between November 2006 and April 2007, amidst heavy rains and flooding. The survey collected information from 2,599 households, with a household response rate of 97 percent. A total of 2,973 interviews with women were completed, for a response rate of 95 percent. Sampling was designed to represent the national level, urban and rural populations, and three recognized malaria epidemiologic regions: Hyperendemic, Mesoendemic Stable, and Mesoendemic Unstable. Each of these regions is composed of several provinces. The capital of Luanda was analyzed separately.

The main findings of the 2006-07 AMIS are presented below.

Population and household composition. Almost half (46 percent) of the household population is under age 15, and 19 percent is under age five. In the age groups spanning 25-54 years, there are relatively fewer males than females. Three-fourths of all households are headed by men, but in urban areas 28 percent of households are headed by women.

Household characteristics. Less than half (46 percent) of households obtain drinking water from an improved source. Households in urban areas have greater access to improved sources of water than those in rural areas (59 percent compared with 34 percent). About half of Angolan households have an improved sanitation facility, and 29 percent have no toilet facility at all. In rural areas, however, over half of households (54 percent) lack a toilet facility. While about one in three households (38 percent) have access to electricity, they are concentrated in urban areas, where 66 percent of households have electricity compared with just 9 percent in rural areas. Use of solid fuels is nearly universal in rural households (92 percent), while the majority of urban households cook with some form of gas fuel (83 percent).

Household possessions reflect socioeconomic status and are used to construct a wealth index. Eighty-four percent of households in urban areas and 46 percent of households in rural areas possess a radio. A television is found mostly in urban households (79 percent). Twenty-six percent of households have a mobile telephone, and a similar proportion own a refrigerator. Overall, 18 percent of households own a bicycle, and 14 percent own a car or truck. Bicycles are more common in rural areas, where 28 percent of households own one compared with 8 percent of urban households. In contrast, cars and trucks are more common in urban areas, where 27 percent of households own one compared with just 1 percent of rural households.

Education and literacy. Approximately one in four (24 percent) women age 15-49 have never been to school, 49 percent have only some primary education, 11 percent have completed primary schooling, 9 percent have some secondary education, and 8 percent have completed secondary or higher levels of education. However, there are large differences between rural and urban areas: 44 percent of urban women age 15-49 have completed primary or higher schooling, while only 4 percent of rural women have done the same. Four-fifths of women residing in urban areas are literate compared with only one-third of their rural counterparts. Literacy has risen over time: three-fourths of women age 15-19 are literate compared with less than half of women age 45-49.

Fertility. Fertility remains high in Angola, although there are large differences between urban and rural areas. The total fertility rate (TFR) is 5.8 children for the country as a whole, 4.4 children in urban areas, and 7.7 children in rural areas. The TFR is lowest in Luanda (3.9 children) and highest in the Mesoendemic Unstable region (7.6 children). At the time of the survey, 5 percent of women in urban areas and 13 percent in rural areas reported that they were pregnant.

Childbearing starts early in Angola and is nearly universal. Three out of ten adolescents age 15-19 have had a live birth, and the percentage ranges as high as 46 percent in the Hyperendemic region, 47 percent in the poorest quintile, and 57 percent among the uneducated. Only three in ten women age 20-24 have never given birth. Less than 2 percent of women remain childless at the end of the reproductive period, an indication that primary infertility is low. The median length of birth interval in Angola is slightly more than two years, at 26.5 months.

Antenatal and delivery care. Most women receive antenatal care from a skilled provider, but they are less likely to have a skilled provider assist at delivery. Eighty percent of all women had at least one antenatal care visit with a skilled provider, usually a nurse or midwife, but antenatal care coverage drops to 68 percent in rural areas and to 72 percent among women with no education. Less than half (46 percent) of deliveries take place in health facilities, and virtually all of those that do are in public health facilities. Women are far less likely to deliver their babies in health facilities if they live in rural areas (22 percent), are uneducated (19 percent), or live outside Luanda (about 33 percent).

Assistance from a skilled provider during delivery is largely limited to births in health facilities. Overall 47 percent of all births are assisted by a skilled provider, but that proportion falls to 26 percent in rural areas, 22 percent among uneducated women, and about 35 percent in regions outside Luanda.

Malaria prevention. Only 4 percent of households reported that the interior walls of their dwelling had been sprayed, nearly two-thirds of them as part of a government program. Indoor residual spraying was more common in urban areas, the Mesoendemic Unstable region and in households in the top wealth quintile.

One-third of all households own at least one mosquito net of some kind, and 28 percent of households own an insecticide-treated net (ITN). In the Hyperendemic region over half of all households had at least one mosquito net, and nearly all were ITNs. Households in the Mesoendemic Unstable (29 percent) and Hyperendemic (26 percent) regions were more likely to have obtained a mosquito net during the *Viva a Vida com Saúde* campaign than households in other regions.

Among children under age five, 21 percent slept under some type of net—and 18 percent under an ITN—during the night before the AMIS survey. Pregnant women were more likely than women generally to sleep under some type of net (25 percent compared with 17 percent) and to sleep under an ITN (22 percent compared with 14 percent). Net usage for both children and pregnant women was highest in the Hyperendemic region, where 37 percent of young children and 42 percent of pregnant women slept under some type of net the night before the survey, and 34 percent of children and 39 percent of pregnant women slept under an ITN.

Although 60 percent of women took an antimalarial drug during their last pregnancy, only 3 percent

took two or more doses of sulfadoxine-pyrimethamine (SP/Fansidar), which is recommended for intermittent preventive treatment (IPT) of malaria. For the most part, pregnant women received SP/Fansidar during antenatal care visits, and they were more likely to take the drug in urban than rural areas. Pregnant women in Luanda and the Hyperendemic region had the highest rates of all: 7 percent and 6 percent, respectively, took SP/Fansidar, and 5 and 6 percent, respectively, received it during an antenatal care visit and thus were considered to have received IPT.

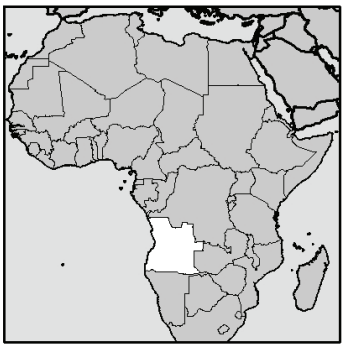
Treatment of fever. Mothers reported that in the two weeks preceding the AMIS survey, 24 percent of children under age five had had a fever and 29 percent of them were given antimalarial drugs. Eighteen percent of the sick children were treated promptly, receiving the drugs on the same day the fever started or the day after. Almost one-third of children with fever in Luanda were promptly treated with antimalarial drugs, compared with 12 to 17 percent of sick children in other regions. Of those children who received antimalarial drugs for fever, the vast majority were given either chloroquine or amodiaquine.

Blood tests of children age 6-59 months found that 20 percent had malaria. Children under the age of one year were half as likely as those age 36-59 months to be positive for malaria. The prevalence of malaria in children under five was highest in the Hyperendemic region (29 percent) and in the poorest quintile (40 percent); it was lowest in Luanda (6 percent) and in the wealthiest quintile (7 percent). Hemoglobin tests found that 4 percent of children under five were seriously anemic (Hb <8 g/dL), with a higher prevalence in rural areas and in the Mesoendemic Stable and Mesoendemic Unstable regions.

About 1 percent of women age 15-49 were found to have anemia below 8 g/dL. Serious anemia was more common among pregnant women (3 percent), especially pregnant women living in the Mesoendemic Stable and Mesoendemic Unstable regions (4 percent). Overall, 14 percent of pregnant women were found to have malaria. The proportion was higher in rural areas (19 percent) and in the Hyperendemic region (18 percent).

ANGOLA


N
Rep. of Congo
Democratic Republic
of the Congo
Cabinda
Zaire
Uíge
Luanda
Bengo
Lunda Norte
Kwanza
Norte
Malanje
Lunda Sul
Kwanza Sul
ATLANTIC
OCEAN
Angola
Benguela
Huambo
Bié
Moxico
Zambia
Huíla
Namibe
Kuando Kubango
Kunene
0 75 150 300 Kilometers
Namibia



INTRODUCTION 1

1.1 GEOGRAPHY, HISTORY, AND POPULATION

1.1.1 Geography

Angola covers 481,350 square miles (1,246,699 square kilometers) along the south Atlantic in southwest Africa. It borders the Democratic Republic of the Congo and the Republic of Congo to the north and east, Zambia to the east, and Namibia to the south. A plateau averaging 6,000 feet (1,829 meters) above sea level rises abruptly from the coastal lowlands. The majority of the country is comprised of either desert or savannah, with hardwood forests in the northeast.

1.1.2 History

Bushmen hunters were early inhabitants of Angola. During the first millennium AD, Bantu migrants from the north settled in the territories around Angola, bringing iron technology to the region. Europeans—including the Dutch, British, French, and Portuguese—first arrived during the 15th century. They established plantations of coffee, cotton, and sugar, which led to constant skirmishes between the local Kongo, Mbundu, and Ovambo peoples.

The name Angola derives from the kingdom of Ndongo, which was ruled by a *Ngola* (meaning king), under the influence of the larger kingdom of Congo. One of its most famous rulers, Queen Jinga, was able to build a successful alliance to battle the Portuguese in the early to mid-17th century, but the kingdom was forced to submit to the Portuguese crown in 1671. The Portuguese inaugurated a long period of colonization in the 1800s and built railroads to interior parts of the country, such as Malanje. The Portuguese continued to fight local kingdoms until well into the 20th century.

Beginning in the 1950s, popular movements were formed with varying international support to fight for the independence of the country. In 1956 the Movimiento Popular de Libertação de Angola (MPLA) was established, with a communist affiliation and strong support from the Soviet Union. In 1957 the Frente Nacional de Libertação de Angola (FNLA) was formed with support from the United States, and in 1966 the União Nacional para a Independencia Total da Angola (UNITA) was created with grassroots support in the southern regions.

Guerrilla movements erupted in the 1960s, and workers rebelled against forced labor in plantations, resulting in nationwide civil war. On November 11, 1975, Portugal granted independence to Angola, but civil strife continued despite attempted peace agreements in 1991 and 1994. Elections in 1992 were won by MPLA, but the results were not accepted by UNITA. Fighting continued until ceasefires were implemented in 2002, when the country slowly began a transition to a modern and peaceful government. Since independence, Angola has had two presidents: Agostinho Neto held the office in 1975-79 and was succeeded by Jose Eduardo dos Santos, who continues as president today.

During the long period of civil unrest, as many as 1.5 million Angolans may have died, an estimated 20 percent of the population was displaced, and some 20 million landmines were planted, which are now being dismantled through international efforts. Angola is currently using its oil and diamond resources to try to modernize its economy and bring essential services to its people.

1.1.3 Population

In 1999 the population of Angola was estimated to be 13,009,000 (INE, n.d.). The population is very young: approximately 45 percent of the population is under age 15, while only 3 percent is 65

years or older (Embassy of the Republic of Angola, 2007). Two-thirds of the population lives in urban areas, and one-third in rural areas.

Angola's growth rate is estimated at 2.8 percent, due to an extremely high birth rate (43.1 births per 1,000 population). Although survey data are limited, the 2001 Multiple Indicator Cluster Survey (MICS) sponsored by UNICEF provides basic information on living conditions in Angola. According to the MICS survey, 62 percent of the population has access to safe water, while 59 percent use appropriate sanitation facilities. Over half (56 percent) of children of primary school age attend school, and 67 percent of people age 15 or older—but only 54 percent of women—are literate enough to read a letter or newspaper. The infant mortality rate is 150 deaths per 1,000 live births, and the under-five mortality rate is 250 per 1,000 live births (INE and UNICEF, 2003).

1.2 MALARIA IN ANGOLA

1.2.1 Overview

Malaria is a major public health problem in Angola. Young children and pregnant women are particularly at risk. In 2004 Angola reported 3.2 million cases of malaria, two-thirds of them in children under 5 years of age, and there were approximately 38,000 malaria-related deaths. It is estimated that malaria accounts for 35 percent of overall mortality in children under five, 60 percent of hospital admissions of children under five, and 10 percent of hospital admissions of pregnant women (Ruebush et al., 2005).

Since 1958 there have been several programs aimed at curbing malaria in Angola, starting with residual spraying in the south. A three-year pilot project was implemented in Benguela province in 1970. Angola's National Malaria Control Program (NMCP) was launched in 1984, with support from the World Health Organization (WHO). Angola committed itself to the Global Malaria Control strategy endorsed by the 1992 Ministerial Conference on Malaria in Amsterdam and later signed on to the 1997 African Initiative to Accelerate the Fight against Malaria. Other agreements followed in 1998, 1999, and 2000. Only in 2001 did the government of Angola begin creating budgets and specific programs addressing malaria. In 2002 the Board of Ministers confirmed the disease's priority by creating a National Commission to Combat HIV/AIDS, Malaria and Tuberculosis (NMCP, 2005).

1.2.2 Epidemiology

Plasmodium falciparum is the parasite responsible for more than 90 percent of malaria infections in Angola. Malaria transmission is greatest during the rainy season and peaks between January and May. The three vector species most involved in transmission are *Anopheles gambiae, A. funestus,* and *A. melas*. Although malaria is endemic in all 18 of Angola's provinces, the country can be stratified into three regions based on levels of endemicity. As Figure 1.1 illustrates, the disease is hyperendemic in the north, mesoendemic stable in central and eastern areas, and mesoendemic unstable in southern and eastern areas. Table 1.1 provides more detail on the epidemiological characteristics of malaria in each of these three regions, as reported by the National Malaria Control Program (2005).

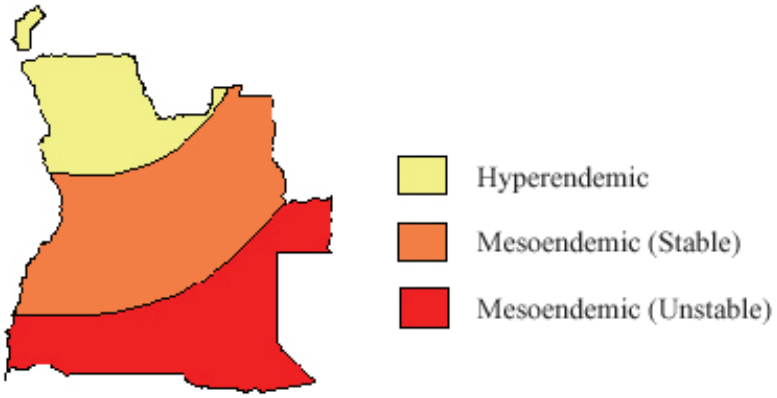
Table 1.1 Malaria epidemiologic regions in Angola

Endemicity level of malaria, provinces affected, vectors, parasites, percentage of population affected, and transmission period, Angola

Endemicity level	Provinces	Vectors	Parasites	Population affected	Transmission period
Hyperendemic	Cabinda Uige Kwanza N. Malange Lunda N. Lunda S.	*A. funestus* *A. gambiae*	*P. falciparum* (89%) *P. vivax* (7%)	28%	Year-round transmission, highest November to January
Mesoendemic Stable	Zaire Luanda Bengo Benguela Kwanza S. Huambo Bié	*A.gambiae* *A. melas* *A. arabiensis*	*P. falciparum* (93%) *P. vivax* (7%)	55%	High transmission: November to May Low transmission July to October
Mesoendemic Unstable	Moxico Kuando Kubango Kunene Huila Namibe	*A. arabiensis* *A. melas*	*P. Falciparum* (93%) *P. vivax* (7%) *P. malarie* (5%)	17%	Low transmission: May to December

Sources: MARA/ARMA, 2002; NMCP, 2005.

Figure 1.1 **Regions of Malaria Endemicity in Angola**



At present, several international programs are assisting the efforts of the Angolan government to reduce the presence of malaria in the country. These include the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM), the President's Malaria Initiative (PMI), UNICEF, the United Kingdom's Department for International Development (DFID), the Japan International Cooperation Agency (JICA), the World Bank, and other non-governmental organization (NGOs) and private voluntary organizations (PVOs).

1.2.3 Policies of the National Fight against Malaria

The overall goal of the NMCP is to reduce the prevalence of malaria in Angola to 900,000 cases by 2009. The following are the main objectives:

- At least 60 percent of malaria patients to have immediate access to a correct diagnosis and treatment within 24 hours after the start of symptoms;

- At least 60 percent of people at risk of malaria, especially children under 5 and pregnant women, to benefit from individual or community protective measures, in particular the use of insecticide-treated bednets (ITNs) and other accessible, low-cost interventions;
- At least 95 percent of pregnant women at risk of malaria, particularly those in the first trimester, to have access to intermittent preventive treatment (IPT);
- At least 60 percent of areas at risk of malaria to be able to prevent, detect, and mount an adequate response to epidemics; and
- One hundred percent of the country to have an appropriately structured and operational mechanism for coordinating and managing the prevention and control of malaria at the provincial level (NMCP, 2005).

As part of this policy, the *Viva a Vida com Saúde* (Enjoy a Healthy Life) campaign was conducted in July 2006. Over 800,000 long-lasting insecticide-treated mosquito nets (LLITN) were distributed in provinces with high risk of malaria transmission. This activity was reflected in some of the indicators assessed by the Angola Malaria Indicator Survey.

1.3 OBJECTIVES OF THE MALARIA INDICATOR SURVEY

The government's malaria control policies can benefit from current and accurate data obtained in a timely fashion. A population-based survey provides a unique opportunity for a snapshot of the country's health conditions and the characteristics of its population.

The 2006-07 Angola Malaria Indicator Survey (AMIS) is the first survey in Angola to collect nationally representative data on malaria-specific indicators. The specific objectives of the AMIS survey were to:

- Estimate the prevalence of malaria among children under five years,
- Estimate the prevalence of anemia among children under five years and women of reproductive age,
- Estimate the prevalence of fever among children under five years, as well as the type and timing of any treatment received,
- Assess household ownership of insecticide-treated and other types of bednets, as well as their use by children under five years and pregnant women,
- Assess coverage and timing of indoor residual spraying (IRS), and
- Assess the use of intermittent preventive treatment (IPT) for malaria among pregnant women.

In addition, the survey included questions to assess who attended a woman's last delivery and where that delivery took place.

1.4 SURVEY METHODOLOGY

1.4.1 Questionnaires

Questionnaires prepared by the Survey and Indicator Guidance Task Force of the Monitoring and Evaluation Reference Group (MERG) for the Roll Back Malaria Partnership were adapted for the 2006-07 AMIS. There were two main questionnaires: a household questionnaire and an individual woman's questionnaire.

The Household Questionnaire was used to list all the usual members and visitors in selected households. Some basic information was collected on the characteristics of each person listed, including age, sex, education, and relationship to the head of the household. The main purpose of the

Household Questionnaire was to identify women who were eligible for individual interviews. The Household Questionnaire also collected information on characteristics of a household's dwelling, including the water source, toilet facilities, and flooring materials; the household's ownership of durable goods and mosquito nets; and the use of mosquito nets and indoor residual spraying.

In addition, the Household Questionnaire provided for the collection of blood samples for two biomarkers: hemoglobin and the presence of malaria parasites. Hemoglobin tests were performed on all children under age five and women age 15-49, while malaria tests were performed on children under age five and pregnant women.

The Women's Questionnaire was used to interview all women age 15-49. It covered the following topics: background characteristics, education, reproduction, pregnancy and intermittent preventive treatment (IPT) of malaria, and treatment of fever in children.

The questionnaires were translated into Portuguese and six national languages: Kikongo, Kimbunda, Umbundu, Kiokwé, Nganguela, and Kuanhama.

The survey protocol was submitted to and approved by the Ethical Review Committee at the National Malaria Control Program and the Institutional Review Board (IRB) of Macro International.

1.4.2 Sampling

The 2006-07 AMIS sample was designed to provide estimates for malaria-related variables among children under five and pregnant women age 15-49 for the country as a whole; for urban and rural areas; and for epidemiologic regions corresponding to varying malaria prevalence.

There are three epidemiologic regions in Angola: Hyperendemic, Mesoendemic Stable, and Mesoendemic Unstable. However, the capital of Luanda (which is located in the Mesoendemic Stable region) was made into a separate, fourth region for the purposes of the survey. The other three regions include the following provinces:

1. Hyperendemic: Cabinda, Cuanza Norte, Lunda Norte, Lunda Sul, Malanje, Uíge
2. Mesoendemic Stable: Bengo, Benguela, Bié, Cuanza Sul, Huambo, Zaire
3. Mesoendemic Unstable: Cuando Cubango, Cunene, Huíla, Moxico, Namibe

A representative sample of approximately 2,800 households from 120 clusters was selected for the 2006-07 AMIS. The sample was designed to provide information from approximately 3,000 women of reproductive age (15-49 years) and at least 2,000 children under age five.

Angola is divided into 18 provinces. Each province is divided into *municipios* (161 in total), and each municipio is further divided into *comunas*, or communes (635 in total). Each commune is classified as urban or rural. Each urban commune is subdivided into censal sections (CSs) by Angola's National Statistics Institute (INE). Most of the rural communes are comprised of villages.

The sample was selected in three stages. In the first stage, communes were selected with probability proportional to their population size. Given that the census was conducted almost three decades ago, INE estimated the size of each CS or rural village based on recent population-based programs (e.g., UNICEF's 2005-06 measles campaign) and on information requested from commune chiefs.

The second stage selected 120 clusters, including 48 urban enumeration areas (EAs) and 72 rural villages. In the selected secondary sampling units, a complete household listing and mapping operation was conducted to obtain the name of the head of each residential household and its address or location within the boundaries of the EA or rural village.

In the third stage, a systematic random sample was drawn from the household listing to identify an approximately equal number of households for interviews from each cluster. In selected households, all eligible women were selected for interviews, including both usual residents and those who stayed in the household the night before the interview. Although sampling was not designed to be representative at the provincial level, every province contributed clusters to the sample. The number of clusters per province ranged from a minimum of 2 (e.g., in Cabinda and Zaire provinces) to a maximum of 12 (e.g., in Huíla province), with one exception. The province of Luanda, which the survey analysis treats as a separate region, contributed 30 clusters to the sample. Appendix A provides a full description of the sampling strategy, cluster sample distributions by region and province, and standard error estimates of major indicators.

1.4.3 Recruitment and Training of Personnel

Every aspect of the 2006-07 AMIS was conducted to ensure the highest quality of data collection, entry, and analysis. After the questionnaires were adapted to meet the country's needs, interviewers and health technicians were hired for the pretest and training on the administration of the questionnaires and fieldwork procedures. The pretest took place between September and October 2006, and the main training began in November 2006.

1.4.4 Fieldwork

Field work began in November 2006 following the training. Four teams—each consisting of four interviewers, one supervisor, and one editor—conducted the fieldwork, which began in Luanda and then expanded to the remainder of the country. Although fieldwork was originally scheduled to last two months, logistical difficulties, such as the lack of roads, and torrential rains during late 2006 and early 2007 created delays. Fieldwork was completed in April 2007.

1.4.5 Data Entry and Management

Data entry began two weeks after the start of data collection. Four data entry operators entered data under the supervision of a data processing manager, a questionnaire organizer, and a questionnaire editor. Check tables on the performance of individual interviewers and teams were assessed periodically, especially during the early weeks of fieldwork. Such checks showed initial weaknesses in certain teams, which required extra supervisory field trips. Once all data were entered, a consultant verified completeness of the forms and internal consistency between data entry and initial results.

1.4.6 Response Rates

Table 1.2 shows the household and individual interview response rates for the survey. A total of 2,809 households were selected, of which 2,675 proved to be occupied. The total number of households interviewed was 2,599, yielding a household response rate of 97 percent.

A total of 3,136 eligible women were identified in these households, and interviews were completed for 2,973 women, yielding a response rate of 95 percent. Response rates were slightly higher in rural areas than urban areas.

Table 1.2 Results of household and individual interviews

Number of households, number of women interviewed, and response rates, according to residence (unweighted), Angola MIS 2006-07

	Residence		
Result	Urban	Rural	Total
Household interviews			
Households selected	1,187	1,622	2,809
Households occupied	1,143	1,532	2,675
Households interviewed	1,099	1,500	2,599
Household response rate[1]	96.2	97.9	97.2
Interviews with women age 15-49			
Number of eligible women	1,654	1,482	3,136
Number of eligible women interviewed	1,564	1,409	2,973
Eligible women response rate[2]	94.6	95.1	94.8

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

HOUSEHOLD POPULATION AND BACKGROUND CHARACTERISTICS OF RESPONDENTS

2

This chapter describes the demographic and socioeconomic characteristics of the population in the sampled households. It also provides information on household facilities and assets. This is important for studying and identifying major indicators, such as the wealth index, that reflect the status of households and characteristics of household members. The 2006-07 Angola Malaria Indicator Survey (AMIS) defines a household as a person or group of related and unrelated persons who live together in the same dwelling unit(s) or in connected premises, who acknowledge one adult member as head of the household, and who have common arrangements for cooking and eating.

The survey collected information from all usual residents of a selected household (the de jure population) and also persons who had stayed in the selected household the night before the interview (the de facto population). The difference between these two populations is very small, and all tables in this report refer to the de facto population unless otherwise specified.

2.1 HOUSEHOLD POPULATION BY AGE AND SEX

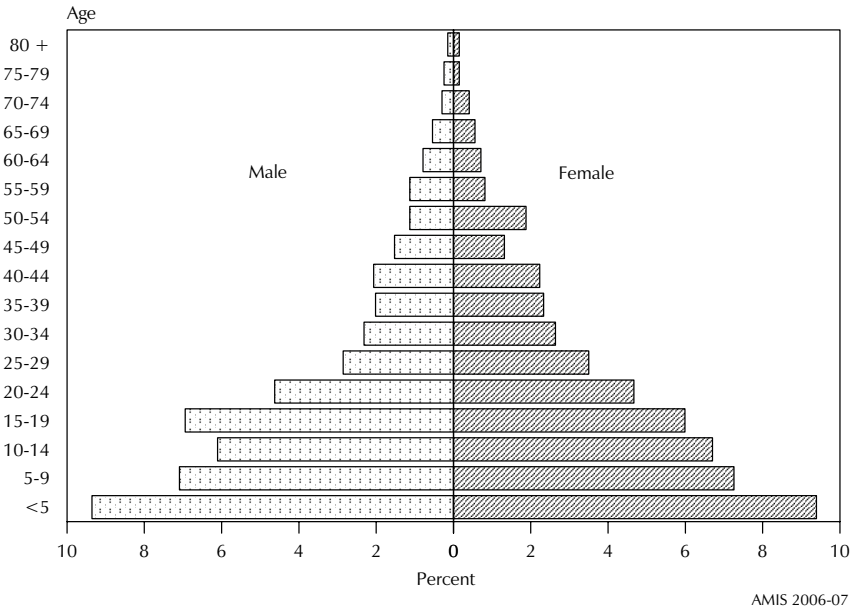
Table 2.1 shows the distribution of the de facto household population by age and sex, according to urban and rural residence. The 2006-07 AMIS enumerated a total of 14,633 persons, with females slightly outnumbering males at 51 percent. A large proportion (46 percent) was under 15 years of age, with 19 percent under age five. Persons age 65 and over accounted for just 3 percent of the total household population (Figure 2.1). The data also reveal a dearth of males relative to females between the ages of 25 and 54. While this may be due to excess mortality or emigration of men during the long period of civil war, this conjecture cannot be confirmed in the absence of further analyses.

Table 2.1 Household population by age, sex, and residence

Percent distribution of the de facto household population by five-year age groups, according to sex and residence, Angola MIS 2006-07

	Urban			Rural			Total		
Age	Male	Female	Total	Male	Female	Total	Male	Female	Total
<5	15.9	16.0	16.0	22.8	21.4	22.1	19.0	18.5	18.7
5-9	13.9	12.9	13.4	14.9	16.1	15.5	14.4	14.3	14.3
10-14	12.1	13.3	12.7	12.8	13.0	12.9	12.4	13.2	12.8
15-19	15.2	13.8	14.5	12.7	9.4	11.0	14.1	11.8	13.0
20-24	10.9	10.5	10.7	7.6	7.5	7.6	9.4	9.2	9.3
25-29	7.3	7.6	7.4	4.0	6.0	5.0	5.8	6.9	6.3
30-34	4.6	5.4	5.0	4.7	5.1	4.9	4.7	5.2	5.0
35-39	4.4	4.3	4.3	3.7	4.9	4.3	4.1	4.6	4.3
40-44	4.3	4.8	4.6	4.0	4.0	4.0	4.2	4.4	4.3
45-49	3.1	2.5	2.8	3.2	2.7	2.9	3.1	2.6	2.8
50-54	2.3	3.5	2.9	2.2	3.9	3.1	2.3	3.7	3.0
55-59	2.2	1.7	1.9	2.4	1.5	1.9	2.3	1.6	1.9
60-64	1.5	1.3	1.4	1.8	1.6	1.7	1.6	1.4	1.5
65-69	1.0	1.1	1.0	1.2	1.1	1.1	1.1	1.1	1.1
70-74	0.4	0.6	0.5	0.9	1.1	1.0	0.6	0.8	0.7
75-79	0.4	0.2	0.3	0.6	0.4	0.5	0.5	0.3	0.4
80 +	0.2	0.5	0.3	0.5	0.2	0.4	0.3	0.3	0.3
Don't know/missing	0.2	0.0	0.1	0.1	0.1	0.1	0.2	0.0	0.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	3,963	4,104	8,067	3,241	3,325	6,566	7,204	7,429	14,633

Figure 2.1 Population Pyramid



2.2 HOUSEHOLD COMPOSITION

Table 2.2 presents information on household composition. Three-quarters of all households are headed by men. The proportion of female-headed households is higher in urban than rural areas (28 percent compared with 22 percent). This may be due to wartime migration of female-headed families to the capital following the death of male household members; another contributing factor may be the movement of men from urban families to work in remote areas of the country, for example, in the oil and mining industries.

Average household size is smaller in rural areas than in urban areas (5 percent compared with 6 persons). While 21 percent of urban households have nine or more members, only 9 percent of rural households are that large. This is evidence of the critically crowded conditions that exist in urban areas, particularly in the capital, Luanda.

2.3 HOUSEHOLD CHARACTERISTICS

To assess the general wellbeing and socioeconomic status of household members, the survey examined certain physical characteristics of the household, including access to electricity, source of drinking water, type of sanitation facility, main flooring material, and type of cooking fuel.

Table 2.2 Household composition

Percent distribution of households by sex of head of household and by household size, according to urban-rural residence; and mean size of household, Angola MIS 2006-07

Characteristic	Residence		Total
	Urban	Rural	
Sex of head of household			
Male	72.2	78.2	75.2
Female	27.8	21.8	24.8
Total	100.0	100.0	100.0
Number of usual members			
1	3.5	4.6	4.0
2	4.8	8.3	6.5
3	10.6	14.4	12.5
4	13.7	17.3	15.5
5	12.8	16.6	14.7
6	13.8	12.0	12.9
7	9.7	11.2	10.4
8	10.0	6.8	8.4
9+	21.2	8.9	15.0
Total	100.0	100.0	100.0
Mean size of households	6.2	5.1	5.7
Number of households	1,301	1,298	2,599

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

2.3.1 Drinking Water

Table 2.3 presents information on the distribution of households and the de jure population by source of drinking water. Less than half (46 percent) of households obtain drinking water from an improved source. Households in urban areas are more likely to have access to an improved water source than households in rural areas (59 percent compared with 34 percent). In urban areas tanker trucks and carts are the most common source of drinking water, supplying more than one-third of urban households. In rural areas surface water, including lakes and streams, is the most common source of drinking water, supplying 42 percent of rural households. These findings highlight the need for increased access to safe drinking sources.

Table 2.3 Household drinking water

Percent distribution of households and de jure population by source of drinking water, according to urban-rural residence, Angola MIS 2006-2007

	Households			Population[1]		
Characteristic	Urban	Rural	Total	Urban	Rural	Total
Improved source	58.6	34.3	46.4	58.0	38.3	49.1
Piped water into dwelling/yard/plot	31.3	1.0	16.2	31.3	1.3	17.8
Public tap/standpipe	11.6	7.5	9.6	11.9	8.3	10.3
Tube well or borehole	1.2	0.9	1.1	1.3	1.0	1.2
Protected dug well	10.6	15.0	12.8	10.3	17.1	13.4
Protected spring	3.8	9.7	6.7	3.1	10.4	6.4
Rainwater	0.1	0.2	0.1	0.0	0.1	0.1
Non-improved source	41.4	65.7	53.5	42.0	61.7	50.9
Unprotected dug well	2.5	14.2	8.4	2.5	14.0	7.7
Unprotected spring	0.3	6.7	3.5	0.2	6.3	2.9
Tanker truck/cart with small tank	35.3	2.9	19.1	36.8	3.7	21.8
Surface water	3.3	41.9	22.5	2.5	37.8	18.4
Total	100.0	100.0	100.0	100.0	100.0	100.0
Number	1,301	1,298	2,599	8,116	6,666	14,782

[1] This refers to the de jure population, i.e., the usual residents of the household..

2.3.2 Sanitation

Table 2.4 presents information on household sanitation facilities by type of toilet or latrine. Almost half of all Angolan households have an improved sanitation facility, for the most part a pit latrine with a slab (18 percent) or a facility that flushes to a septic tank (17 percent). About one in five households (22 percent) have an unimproved facility consisting of a pit latrine without a slab or an open pit. Less than one-third of all households (29 percent), almost all in rural areas, have no toilet facility. In rural areas, more than half of households (54 percent) lack a toilet facility.

Table 2.4 Household sanitation facilities

Percent distribution of households and de jure population by type of toilet or latrine, according to urban-rural residence, Angola MIS 2006-07

Type of toilet or latrine facility	Households			Population[1]		
	Urban	Rural	Total	Urban	Rural	Total
Improved facility						
Flush to piped sewer system	15.0	0.1	7.5	14.4	0.2	8.0
Flush to septic tank	31.5	2.6	17.1	35.0	4.0	21.0
Flush to pit latrine	1.6	0.2	0.9	1.8	0.3	1.1
Ventilated improved pit (VIP) latrine	1.8	0.5	1.1	1.7	0.7	1.3
Pit latrine with slab	29.6	7.2	18.4	29.4	8.8	20.1
Composting toilet	1.4	4.0	2.7	1.4	4.3	2.7
Non-improved facility						
No facility/bush/field	3.7	54.4	29.0	3.0	50.9	24.6
Pit latrine without slab/open pit	14.8	29.6	22.2	12.9	29.9	20.6
Flush not to sewer/septic tank/ pit latrine	0.1	0.1	0.1	0.1	0.1	0.1
Bucket	0.0	0.2	0.1	0.0	0.0	0.0
Hanging toilet /hanging latrine	0.2	0.6	0.4	0.1	0.6	0.4
Other/missing	0.3	0.3	0.3	0.1	0.2	0.2
Total	100.0	100.0	100.0	100.0	100.0	100.0
Number	1,301	1,298	2,599	8,116	6,666	14,782

[1] This refers to the de jure population, i.e., the usual residents of the household.

2.3.3 Housing Characteristics

Table 2.5 presents information on the availability of electricity, type of flooring material, and type of cooking fuel, by residence. About one in three households (38 percent) in Angola has access to electricity. Electricity is far more common among urban households (66 percent) than rural households (9 percent).

Half of all households—including 90 percent of rural households—use earth or sand as the main material for flooring. By contrast, cement is the most common flooring material in urban areas, where it is found in 61 percent of households.

Marked differences are also found in the fuel used for cooking. While the majority of urban households cook with some form of gas fuel (83 percent), nearly all rural households cook with either wood (66 percent) or charcoal (24 percent). Use of solid fuels is nearly universal in rural households (92 percent) but relatively uncommon in urban households (17 percent).

Table 2.5 Housing characteristics

Percent distribution of households and de jure population by access to electricity and main flooring material, and percentage of households using solid fuel for cooking, according to urban-rural residence, Angola MIS 2006-07

Housing characteristic	Households			Population[1]		
	Urban	Rural	Total	Urban	Rural	Total
Electricity						
Yes	66.1	8.8	37.5	66.6	10.7	41.4
No	33.5	90.8	62.1	32.9	88.8	58.1
Total	100.0	100.0	100.0	100.0	100.0	100.0
Flooring material						
Earth, sand	13.1	90.4	51.7	12.1	88.0	46.3
Dung	0.2	0.1	0.2	0.3	0.1	0.2
Wood planks	0.0	0.0	0.0	0.0	0.0	0.0
Parquet or polished wood	0.8	0.0	0.4	0.6	0.0	0.3
Ceramic tiles	21.2	0.5	10.8	23.5	0.7	13.2
Cement	61.1	8.8	35.0	61.1	11.0	38.5
Carpet	3.7	0.2	1.9	2.4	0.2	1.4
Total	100.0	100.0	100.0	100.0	100.0	100.0
Cooking fuel						
Electricity	0.2	0.3	0.2	0.1	0.2	0.2
LPG/natural gas/biogas[2]	83.1	7.8	45.5	86.0	10.4	51.9
Charcoal	15.2	24.2	19.7	13.0	25.7	18.7
Wood	1.5	66.6	34.0	0.9	62.2	28.5
Straw/shrubs/grass	0.0	0.3	0.2	0.0	0.3	0.1
Animal dung	0.0	0.8	0.4	0.0	1.0	0.4
Other	0.0	0.1	0.0	0.0	0.1	0.1
Total	100.0	100.0	100.0	100.0	100.0	100.0
Percentage using solid fuel for cooking[3]	16.7	91.8	54.2	13.9	89.3	47.9
Number	1,301	1,298	2,599	8,116	6,666	14,782

[1] This refers to the de jure population, i.e., the usual residents of the household.
[2] LPG = Liquid petroleum gas
[3] Includes charcoal, wood, straw/shrubs/grass, and animal dung

2.4 HOUSEHOLD POSSESSIONS

Table 2.6 shows the percentage of households that own various durable goods and means of transportation, by residence. Ownership of durable goods and other items reflects the socioeconomic status of households. Radios are a very common possession, with 84 percent of urban households and 46 percent of rural households owning one. Almost half of households have a television, which is considered a luxury item and is found mostly in urban households (79 percent). Overall, 26 percent of households have a mobile telephone and almost as many have a refrigerator, but there are large differences between rural and urban areas.

Overall, 18 percent of households own a bicycle, and 14 percent own a car or truck. Bicycles are more common in rural than urban areas: 28 percent of rural households own a bicycle compared with 8 percent of urban households. The opposite is true for cars and trucks: 27 percent of urban households own a car or truck, compared with just 1 percent of rural households.

Table 2.6 Household durable goods

Percentage of households and de jure population possessing various household effects and means of transportation, by urban-rural residence, Angola MIS 2006-07

	Households			Population[1]		
Possessions	Urban	Rural	Total	Urban	Rural	Total
Household effects						
Radio	84.3	45.7	65.0	85.5	51.0	69.9
Television	79.2	12.3	45.8	81.5	16.8	52.4
Mobile telephone	45.0	6.9	26.0	45.6	9.3	29.2
Non-mobile telephone	79.3	8.8	44.1	82.4	11.7	50.5
Refrigerator	46.5	2.6	24.6	50.0	3.7	29.1
Means of transport						
Bicycle	7.6	28.1	17.9	8.8	29.9	18.3
Animal drawn cart	1.2	1.5	1.4	1.4	2.4	1.8
Motorcycle/scooter	7.2	11.2	9.2	6.9	14.5	10.3
Car/truck	26.5	1.4	14.0	29.9	2.0	17.3
Number	1,301	1,298	2,599	8,116	6,666	14,782

[1] This refers to the de jure population, i.e., the usual residents of the household.

2.5 CHARACTERISTICS OF FEMALE RESPONDENTS

Table 2.7 presents the background characteristics of the 2,973 respondents to the Women's Questionnaire. Almost half (47 percent) are under age 25. The proportion of women in each age group declines as age increases, reflecting the comparatively young age structure of the population in Angola.

Where people live may determine their access to services and exposure to malaria. Three out of five respondents (59 percent) reside in urban areas. Forty-one percent of respondents live in Luanda, 31 percent in the Mesoendemic Stable region, 16 percent in the Hyperendemic region, and 13 percent in the Mesoendemic Unstable region.

Table 2.7 Background characteristics of respondents

Percent distribution of women age 15-49 according to selected background characteristics, Angola MIS 2006-07

Background characteristic	Weighted percent	Weighted number	Unweighted number
Age			
15-19	26.5	787	778
20-24	20.7	615	601
25-29	15.3	456	441
30-34	11.7	348	374
35-39	10.1	301	301
40-44	10.1	300	293
45-49	5.6	167	185
Residence			
Urban	58.9	1,750	1,548
Rural	41.1	1,223	1,425
Region			
Hyperendemic	15.9	473	684
Mesoendemic Stable	30.5	905	703
Mesoendemic Unstable	12.9	383	506
Luanda	40.8	1,212	1,080
Education[1]			
No education	23.8	707	828
Primary	59.2	1,759	1,719
Secondary	15.6	463	384
More than secondary	1.2	37	34
Total	100.0	2,973	2,973

[1] Education categories refer to the highest level of education attended, whether or not that level was completed. The total includes 8 women for whom educational level is missing.

2.5.1 Educational Attainment and Literacy

Tables 2.8 and 2.9 show the distribution of respondents by educational attainment and literacy, according to background characteristics. Approximately one in four (24 percent) women age 15-49 have never attended school, 49 percent have only some primary education, 11 percent have completed primary school, 9 percent have only some secondary education, and 8 percent have completed secondary or higher levels of education.

Table 2.8 Educational attainment of women

Percent distribution of women age 15-49 by highest level of schooling attended or completed, and median years of schooling completed, according to background characteristics, Angola MIS 2006-07

Background characteristic	Highest level of schooling attended							Total	Median years completed	Number of women
	No education	Some primary	Completed primary	Some secondary	Completed secondary	More than secondary	Missing			
Age										
15-19	13.6	58.0	13.0	11.7	3.7	0.0	0.0	100.0	5.1	787
20-24	19.3	43.5	11.7	15.9	7.7	1.6	0.3	100.0	5.0	615
25-29	25.1	44.4	11.0	8.9	7.3	3.1	0.3	100.0	4.1	456
30-34	29.6	51.5	6.2	3.2	7.1	1.7	0.7	100.0	3.2	348
35-39	31.1	44.6	11.6	4.4	7.2	0.3	0.8	100.0	3.4	301
40-44	33.1	44.5	9.9	4.3	7.5	0.8	0.0	100.0	3.3	300
45-49	42.5	43.9	1.5	1.8	8.2	2.1	0.0	100.0	1.8	167
Residence										
Urban	7.8	48.5	16.2	14.9	10.5	2.1	0.1	100.0	6.3	1,750
Rural	46.7	48.9	2.4	0.9	0.7	0.0	0.6	100.0	1.0	1,223
Region										
Hyperendemic	32.9	54.6	5.2	3.5	2.6	0.8	0.4	100.0	2.8	473
Mesoendemic Stable	36.7	48.8	4.3	4.1	4.5	1.2	0.5	100.0	2.4	905
Mesoendemic Unstable	35.3	53.2	7.1	2.9	1.0	0.0	0.5	100.0	2.6	383
Luanda	6.9	44.7	18.4	17.0	11.2	1.9	0.0	100.0	6.9	1,212
Total	23.8	48.6	10.5	9.1	6.5	1.2	0.3	100.0	4.1	2,973

Older women and rural women are far more likely than other women to have no education. For example, 44 percent of urban women age 15-49 have completed primary school or beyond while only 4 percent of rural women have done the same. As expected, nearly half of women from Luanda have completed primary school or beyond, compared with 12 percent to 15 percent of women in each of the other regions.

Only about 60 percent of women in Angola are literate (Table 2.9). The level of literacy consistently declines with age. This suggests that younger generations have had more opportunity for learning than the older generation. Three-fourths of women age 15-19 are literate, compared with less than half of women age 45-49. Literacy status also varies by place of residence: four-fifths of urban women are literate compared with only one-third of their rural counterparts. Similarly, less than half of women living in the three malaria epidemiological regions are literate, compared with 85 percent of women in Luanda.

Table 2.9 Women's literacy

Percent distribution of women age 15-49 by highest level of schooling attended and level of literacy, and percentage of women who are literate, according to background characteristics, Angola MIS 2006-07

Background characteristic	Attended secondary school or higher	No schooling or primary school only						Total	Percentage literate[1]	Number
		Can read a whole sentence	Can read part of a sentence	Cannot read at all	No card with required language	Blind/ visually impaired	Missing			
Age										
15-19	15.4	36.1	23.0	25.5	0.0	0.0	0.0	100.0	74.5	787
20-24	25.1	26.2	12.7	35.8	0.1	0.0	0.0	100.0	64.0	615
25-29	19.3	24.6	14.8	41.2	0.0	0.1	0.0	100.0	58.7	456
30-34	12.0	26.2	13.6	47.9	0.2	0.0	0.0	100.0	51.8	348
35-39	12.0	27.3	13.5	47.0	0.0	0.0	0.2	100.0	52.8	301
40-44	12.6	29.9	17.3	40.3	0.0	0.0	0.0	100.0	59.7	300
45-49	12.1	20.7	12.7	53.6	0.5	0.2	0.1	100.0	45.6	167
Residence										
Urban	27.5	36.2	18.2	18.0	0.1	0.0	0.0	100.0	81.9	1,750
Rural	1.5	18.1	13.8	66.4	0.1	0.0	0.1	100.0	33.4	1,223
Region										
Hyperendemic	6.9	21.7	18.6	52.7	0.0	0.0	0.0	100.0	47.2	473
Mesoendemic Stable	9.7	24.6	10.2	55.4	0.1	0.0	0.0	100.0	44.5	905
Mesoendemic Unstable	3.9	22.2	23.0	50.5	0.0	0.1	0.2	100.0	49.1	383
Luanda	30.0	36.6	18.1	15.1	0.1	0.0	0.0	100.0	84.8	1,212
Total	16.8	28.7	16.4	37.9	0.1	0.0	0.0	100.0	61.9	2,973

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

FERTILITY AND REPRODUCTIVE HEALTH 3

This chapter discusses current, cumulative, and past fertility in Angola based on the levels, patterns, and trends observed by the 2006-07 Angola Malaria Indicator Survey (AMIS). Data on fertility come from pregnancy histories of women age 15-49. Each woman interviewed was asked about all of the births she ever had in her lifetime. To ensure that responses were complete, interviewers recorded the duration and result of each pregnancy, as well as the month and year it ended. Questions were asked separately about sons and daughters who live with the mother, those who live elsewhere, and those who have died. Subsequently, a list of all births was recorded along with name, age if still alive, and age at death if dead.

This chapter also presents findings on two areas of importance to maternal health: antenatal care and delivery. The health care that a mother receives during pregnancy, at delivery, and soon after delivery is vital to the survival and well-being of both mother and child.

3.1 FERTILITY

3.1.1 Current Fertility

Current fertility levels reflect the prevailing situation and are relevant to population policies and programs. The measures of fertility presented in this chapter refer to the three-year period prior to the survey. This generates a sufficient number of births to provide robust and current estimates.

The most commonly used measure of current fertility is the total fertility rate (TFR). This refers to the number of live births that a woman would have if she were subject to current age-specific fertility rates (ASFRs) throughout her reproductive years (age 15-49). Table 3.1 shows that, on average, an Angolan woman would have 5.8 children by the end of her reproductive years if the current fertility pattern were to prevail.

Table 3.1 also presents two more generalized indicators of fertility: the general fertility rate (GFR), which is expressed as the number of live births per 1,000 women of reproductive age, and the crude birth rate (CBR), which is expressed as the number of live births per 1,000 population. The 2006-07 Angola MIS found a GFR of 197 live births per 1,000 women and a CBR of 42 live births per 1,000 population.

Table 3.1 Current fertility

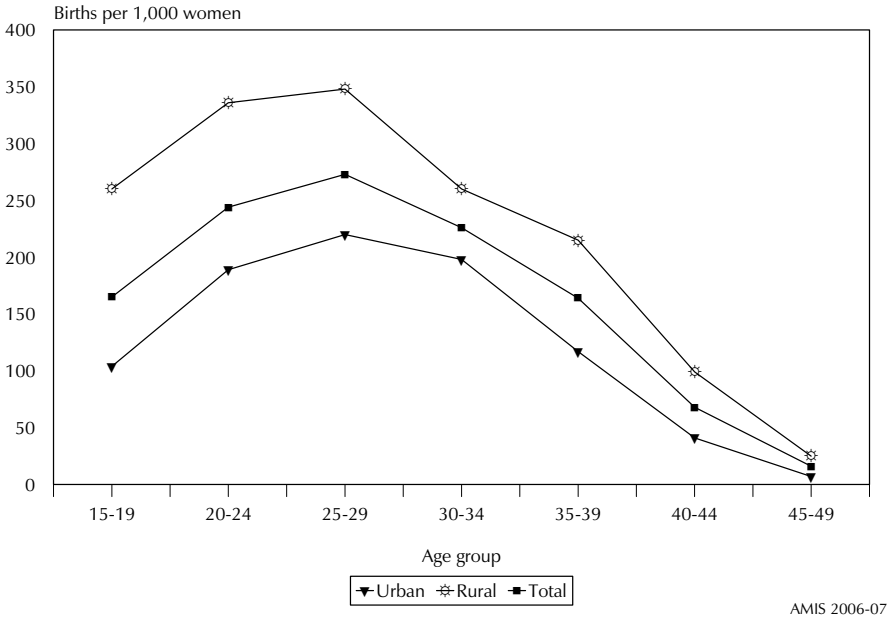
Age-specific fertility rates (ASFRs), the total fertility rate (TFR), the general fertility rate (GFR), and the crude birth rate (CBR) for the three years preceding the survey, by residence, Angola MIS 2006-07

ASFR[1] (by age group)	Residence		
	Urban	Rural	Total
15-19	104	260	165
20-24	189	336	244
25-29	220	348	273
30-34	198	260	226
35-39	117	215	164
40-44	41	99	68
45-49	7	25	16
TFR (15-49)[2]	4.4	7.7	5.8
GFR[3]	148	265	197
CBR[4]	35.0	50.2	42.4

Note: All rates are for the period 1-36 months prior to the interview.
[1] ASFR is expressed per 1,000 women. Rates for age group 45-49 may be slightly biased due to truncation.
[2] TFR is expressed per woman.
[3] GFR is expressed per 1,000 women.
[4] CBR is expressed per 1,000 population.

Figure 3.1 shows current age-specific fertility rates according to urban-rural residence. In every age group, fertility rates are lower in urban areas than rural areas. As a result, the TFR in urban areas is much lower than the TFR in rural areas: 4.4 children compared with 7.7 children.

Figure 3.1 Age-specific Fertility Rates by Urban-Rural Residence



Fertility is known to vary by residence, educational background, and other background characteristics of a woman. Table 3.2 shows three different indicators of fertility: the TFR, the mean number of births to women age 40-49, and the percentage of women age 15-49 who are currently pregnant. The mean number of births to women age 40-49 is an indicator of cumulative fertility. Because it reflects the fertility performance of older women who are nearing the end of their reproductive period, it can be viewed as a measure of completed fertility. When fertility remains stable over time, the two measures—the TFR and the mean number of births to older women—tend to be very similar. The percentage of women who are pregnant provides a useful additional measure of current fertility, even though it may not capture all pregnancies in an early stage.

Table 3.2 shows that there is substantial regional variation in the TFR in Angola. The TFR in Luanda (3.9 children) is well below the national average of 5.8 children. At current fertility levels, women living in the Mesoendemic Unstable area will have almost twice as many children as women living in Luanda (7.6 children compared with 3.9 children).

Table 3.2 Fertility by background characteristics

Total fertility rate (TFR) for the three years preceding the survey, percentage of women age 15-49 who are currently pregnant, and mean number of children ever born to women age 40-49 years, by background characteristics, Angola MIS 2006-07

Background characteristic	TFR[1]	Percentage of women age 15-49 currently pregnant	Mean number of children ever born to women age 40-49
Residence			
Urban	4.4	5.3	6.0
Rural	7.7	13.2	7.3
Region			
Hyperendemic	7.0	12.2	7.4
Mesoendemic Stable	6.8	10.2	6.5
Mesoendemic Unstable	7.6	13.9	7.8
Luanda	3.9	4.1	5.9
Education			
No education	7.8	11.5	7.3
Primary	5.9	9.1	6.6
Secondary or higher	2.5	1.8	4.9
Wealth quintile			
Lowest	8.0	13.7	7.0
Second	7.4	12.6	7.3
Middle	6.7	9.2	6.9
Fourth	4.9	5.9	6.4
Highest	2.8	3.4	5.5
Total	5.8	8.5	6.6

[1] Total fertility rates are for the period 1-36 months prior to interview.

The difference between the TFR and completed fertility is an indicator of the magnitude and direction of fertility change. For Angola as a whole, the difference between the TFR and the mean number of children born to women age 40-49 is small: 0.8 children. This reflects only a moderate change in fertility in the past 20 to 25 years. Once again, however, Luanda stands apart from the other regions. In Luanda, the difference between the TFR and the number of children born to women age 40-49 is considerably larger: 2 children. This implies that over the past few decades, fertility has declined more steeply in the capital city than in the country as a whole.

Two socioeconomic indicators—woman's education and household wealth—show a strong relationship with fertility levels. The TFR decreases dramatically with the level of education, declining from 7.8 births among women with no education to 2.5 births among women with secondary or higher education. The TFR varies even more sharply with household wealth, falling from a high of 8 births per woman in the poorest quintile of the population to 2.8 births per woman in the richest quintile of the population. Among women with the most education and women from the richest households, the TFR is considerably lower than the mean number of births to women age 40-49. This provides evidence that fertility has declined in recent decades among these groups.

At the time of the survey, 9 percent of the women interviewed reported that they were pregnant. This figure varies by residence, region, education, and wealth in much the same way as current fertility. Thus, 5 percent of urban women report being currently pregnant compared with 13 percent of rural women, 4 percent of women in Luanda compared with 14 percent in the Unstable Mesoendemic area, 2 percent of highly educated women compared with 12 percent of uneducated women, and 3 percent of women from the richest households compared with 14 percent from the poorest households.

3.1.2 Children Ever Born and Living

Table 3.3 presents the distribution of all women by number of children ever born, according to five-year age groups. The table also shows the mean number of children ever born. Data on the number of children ever born reflect the accumulation of births to women over their entire reproductive lifetime. Therefore, this measure does not necessarily reflect current fertility levels, particularly when a country has experienced a decline in fertility.

Table 3.3 Children ever born and living

Percent distribution of women age 15-49 by number of children ever born, mean number of children ever born, and mean number of living children, according to age group, Angola MIS 2006-07

	Number of children ever born														
Age	0	1	2	3	4	5	6	7	8	9	10+	Total	Number of women	Mean number of children ever born	Mean number of living children
15-19	71.4	22.8	5.1	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	100.0	787	0.35	0.33
20-24	31.1	22.6	26.4	12.3	4.9	1.6	1.0	0.0	0.0	0.0	0.0	100.0	615	1.46	1.27
25-29	7.3	15.7	19.2	19.0	17.1	11.5	5.0	2.9	0.8	0.7	0.6	100.0	456	3.08	2.56
30-34	2.5	5.3	10.9	13.8	17.8	20.1	12.8	9.0	5.0	1.5	1.4	100.0	348	4.48	3.68
35-39	1.1	2.1	6.3	7.4	12.4	17.9	16.7	13.7	10.9	6.5	5.1	100.0	301	5.72	4.69
40-44	3.4	1.4	5.5	5.8	10.8	15.9	12.4	9.9	11.3	7.0	16.6	100.0	300	6.34	4.95
45-49	1.8	0.9	2.6	7.2	5.9	8.6	11.4	20.2	9.6	12.1	19.8	100.0	167	7.07	5.43
Total	27.3	14.1	12.4	8.9	8.5	8.4	6.0	5.0	3.5	2.3	3.6	100.0	2,973	3.01	2.45

Childbearing starts early in Angola and is nearly universal. While seven in ten women age 15-19 have never given birth, by age 20-24 only three in ten women have still not given birth. The proportion declines to less than 10 percent among women age 25-29. On average, a woman in Angola has given birth to three children by her late twenties and to almost six children by her late thirties. Because voluntary childlessness is rare in Angola, it is assumed that most women with no births are physiologically unable to bear children. Thus the percentage of women who are childless at the end of the reproductive period is an indirect measure of primary infertility, that is, the proportion of women who are unable to bear children at all. Table 3.3 shows that primary infertility in Angola is low, at less than 2 percent.

In addition to describing average family size, information on the number of children ever born and the number of children surviving also gives some indication of the extent of childhood and adult mortality. Data from the 2006-07 AMIS indicate that, on average, Angolan women of all ages have 2.5 surviving children. The difference between the mean number of children ever born and children still living increases with women's age. By their late forties, women have lost more than 20 percent of their children.

3.1.3 Birth Intervals

Studying birth intervals is important in understanding fertility levels and the health status of young children. Evidence that women with closely spaced births have higher fertility than women with longer birth intervals has been observed in many countries. It has also been shown that short birth intervals, particularly intervals less than 24 months, elevate the risk of death for the child. Maternal health is also jeopardized when births are closely spaced.

Two measures are used to assess birth intervals: median birth interval and the proportion of non–first births that are born 24 months or less after the previous birth. Table 3.4 examines non-first births in the five years preceding the survey. It shows the percent distribution of these births by the number of months since the preceding birth, according to selected demographic and socioeconomic variables.

Overall, the median birth interval in Angola is 26.5 months. About one birth in five (19 percent) occurs less than 18 months after the previous birth. Nearly half (45 percent) of births follow an interval of 24 to 35 months. Only 4 percent of births come four years or longer after a previous birth. Differences in birth intervals across subgroups of women are generally small with one exception: the survival status of the preceding birth. The median birth interval is shorter if the preceding child has died (21 months) than if the preceding child is still alive (27 months).

Table 3.4 Birth intervals

Percent distribution of non-first births in the five years preceding the survey by number of months since the preceding birth, and median number of months since the preceding birth, according to background characteristics, Angola MIS 2006-07

Background characteristic	Months since preceding birth					Total	Number of non-first births	Median number of months since preceding birth
	7-17	18-23	24-35	36-47	48+			
Age								
15-19	11.1	27.1	50.5	9.3	2.0	100.0	44	24.9
20-29	19.5	19.4	41.9	15.6	3.5	100.0	562	26.4
30-39	19.2	16.1	46.0	14.3	4.5	100.0	358	26.6
40-49	16.2	9.5	55.3	14.2	4.7	100.0	88	27.6
Sex of preceding birth								
Male	19.1	17.4	45.7	13.5	4.3	100.0	529	26.5
Female	18.4	18.2	43.8	16.1	3.5	100.0	522	26.5
Survival of preceding birth								
Living	15.7	18.1	46.0	16.0	4.2	100.0	926	27.0
Dead	41.9	15.3	35.9	5.9	1.1	100.0	125	21.2
Residence								
Urban	21.5	17.0	41.3	16.6	3.6	100.0	420	26.1
Rural	17.0	18.3	47.1	13.6	4.0	100.0	631	26.7
Region								
Hyperendemic	13.4	20.7	47.6	14.9	3.4	100.0	205	26.8
Mesoendemic Stable	21.3	16.0	45.9	13.0	3.7	100.0	395	26.8
Mesoendemic Unstable	16.9	20.8	43.9	14.4	3.9	100.0	202	25.9
Luanda	20.7	15.8	41.3	17.9	4.3	100.0	249	26.3
Education								
No education	20.3	17.8	42.6	16.2	3.2	100.0	382	26.3
Primary	17.2	18.9	46.1	13.5	4.2	100.0	610	26.6
Secondary or higher	(29.7)	(5.4)	(37.8)	(18.9)	(8.1)	(100.0)	37	(27.5)
Wealth quintile								
Lowest	17.7	14.6	44.7	19.4	3.5	100.0	258	27.3
Second	19.0	17.5	48.1	11.8	3.6	100.0	278	26.8
Middle	20.8	23.1	40.2	10.7	5.2	100.0	262	24.9
Fourth	14.7	18.2	48.3	17.8	1.0	100.0	164	27.1
Highest	22.5	11.7	41.9	17.4	6.5	100.0	89	26.7
Total	18.8	17.8	44.8	14.8	3.9	100.0	1,051	26.5

Note: First-order births are excluded. The interval for multiple births is the number of months since the preceding pregnancy that ended in a live birth. Figures in parentheses are based on 25-49 unweighted cases.

3.1.4 Adolescent Motherhood

Adolescent childbearing has potentially negative demographic and social consequences. Children born to very young mothers face an increased risk of illness and death. This may be due to the fact that teenage mothers are more likely to suffer from pregnancy and delivery complications than older mothers, resulting in higher morbidity and mortality for both themselves and their children. In addition, early childbearing may foreclose a teenager's ability to pursue educational or job opportunities.

Table 3.5 shows the percentage of women age 15-19 who are mothers by various background characteristics. Three in ten adolescents have begun childbearing. Rural teenagers are more than twice as likely to have born a child as urban teenagers (47 percent compared with 18 percent). At the regional level, the proportion of teenagers who have started childbearing is highest in the Hyperendemic region (46 percent), followed by the Mesoendemic Unstable (42 percent) and Mesoendemic Stable regions (38 percent). The capital, Luanda, has the lowest proportion of teenagers who have given birth (14 percent).

There is a negative relationship between education and childbearing among adolescents. Over half (57 percent) of teenagers with no education are mothers, compared with just 8 percent of teenagers with secondary or higher education. A similar pattern is found for wealth: 47 percent of adolescents in the poorest quintile have given birth, compared with 7 percent of adolescents in the richest quintile.

Table 3.5 Adolescent motherhood

Percentage of women age 15-19 who have had a live birth, by background characteristics, Angola MIS 2006-07

Background characteristic	Percentage who have had a live birth	Number of women
Age		
15	2.9	161
16	13.9	147
17	27.6	150
18	46.1	196
19	51.5	132
Residence		
Urban	18.3	499
Rural	46.5	287
Region		
Hyperendemic	46.3	111
Mesoendemic Stable	37.5	234
Mesoendemic Unstable	42.4	90
Luanda	13.5	351
Education		
No education	57.1	107
Primary	27.6	558
Secondary or higher	7.9	121
Wealth quintile		
Lowest	46.6	111
Second	44.6	137
Middle	39.2	151
Fourth	21.2	182
Highest	7.2	207
Total	28.6	787

3.2 REPRODUCTIVE HEALTH

3.2.1 Antenatal Care

Proper care during pregnancy and delivery is important for the health of both the mother and the baby. Antenatal care from a trained provider can monitor the pregnancy and reduce the risks facing the mother and child during pregnancy and at delivery. In the 2006-07 AMIS, women who had given birth during the five years preceding the survey were asked a number of questions about maternal care, including whether they had obtained antenatal care prior to their last live birth. For women with two or more live births during the five-year period, data refer to the most recent birth.

Table 3.6 shows the percent distribution of mothers by the source of antenatal care received during the last pregnancy, according to various background characteristics. Women were asked to report on all providers seen for antenatal care for their last birth. If a woman was seen by more than one provider, the provider with the highest qualification was recorded.

Eighty percent of women who gave birth in the five years preceding the survey received antenatal care at least once from a skilled provider—which was defined as a doctor, nurse, midwife, or auxiliary nurse/midwife. Most women (70 percent) received antenatal care from a nurse or midwife, but 10 percent saw a doctor. Only 1 percent of women received antenatal care from a traditional birth attendant, and 13 percent received no antenatal care.

Urban women were significantly more likely to receive antenatal care from a skilled provider than rural women (92 percent and 68 percent, respectively). Antenatal care coverage is highest in Luanda, where 93 percent of women received antenatal care from a skilled provider. In the Hyperendemic region, almost one-fourth of women (24 percent) received no antenatal care at all.

Table 3.6 Antenatal care

Among women age 15-49 who had a live birth in the five years preceding the survey, percent distribution by source of antenatal care (ANC) received during the pregnancy for the most recent birth, and the percentage receiving antenatal care from a skilled provider for the most recent birth, according to background characteristics, Angola MIS 2006-07

Background characteristic	Source of antenatal care[1]							Total	Percentage receiving antenatal care from a skilled provider[2]	Number of women
	Doctor	Nurse/ midwife	Auxiliary nurse/ midwife	Traditional birth attendant	Other	No one	Missing			
Mother's age at delivery										
<20	8.8	73.9	0.5	1.9	0.6	9.4	5.0	100.0	83.2	451
20-34	10.3	68.9	0.5	1.0	0.8	14.2	4.3	100.0	79.7	800
35-49	8.0	63.3	0.0	1.2	0.1	19.8	7.7	100.0	71.2	171
Residence										
Urban	12.7	79.0	0.7	0.8	0.0	2.1	4.7	100.0	92.4	679
Rural	6.6	61.4	0.2	1.8	1.2	23.6	5.2	100.0	68.2	743
Region										
Hyperendemic	4.7	62.9	0.1	5.1	0.1	23.9	3.2	100.0	67.7	297
Mesoendemic Stable	11.0	69.1	0.0	0.0	1.3	13.9	4.6	100.0	80.1	489
Mesoendemic Unstable	7.4	63.3	0.7	0.6	1.0	18.7	8.3	100.0	71.4	228
Luanda	12.6	79.2	1.0	0.5	0.0	2.0	4.7	100.0	92.8	408
Mother's education										
No education	5.2	57.3	0.1	3.4	1.1	27.9	5.0	100.0	62.6	417
Primary	10.2	75.3	0.7	0.5	0.5	8.3	4.5	100.0	86.2	857
Secondary or higher	19.3	72.9	0.0	0.0	0.0	0.0	7.7	100.0	92.3	140
Total	9.6	69.8	0.4	1.3	0.6	13.3	4.9	100.0	79.8	1,422

[1] If more than one source of ANC was mentioned, only the provider with the highest qualifications is included in this tabulation.
[2] Skilled provider includes doctor, nurse, midwife, and auxiliary nurse/midwife

The likelihood of receiving antenatal care varies with a woman's education. Women with a secondary level of education or higher are more likely to receive antenatal care from a skilled provider (92 percent) than women with only a primary education (86 percent) or with no education (63 percent). A relatively high proportion of women with no education (28 percent) do not receive any antenatal care at all.

3.2.2 Place of Delivery

Increasing the number of babies that are delivered in health facilities can improve health outcomes for mothers and children. Proper medical attention and hygienic conditions during delivery can reduce the risks of complications and infections and the resulting morbidity and mortality. Table 3.7 presents the percent distribution of live births in the five years preceding the survey by place of delivery, according to background characteristics.

Most births (54 percent) occurred at home. Virtually all of the rest of the deliveries (46 percent) took place in public health facilities. Less than one percent of the births took place in private health facilities.

Table 3.7 Place of delivery

Percent distribution of last live births in the five years preceding the survey by place of delivery, and percentage delivered in a health facility, according to background characteristics, Angola MIS 2006-07

Background characteristic	Place of delivery				Total	Percentage delivered in a health facility	Number of births
	Public-sector health facility	Private-sector health facility	Home	Other			
Mother's age at delivery							
<20	46.5	0.3	52.8	0.4	100.0	46.8	451
20-34	44.7	1.2	53.9	0.2	100.0	45.9	800
35-49	41.3	0.9	57.5	0.4	100.0	42.2	171
Residence							
Urban	70.2	1.8	27.8	0.2	100.0	72.1	679
Rural	21.7	0.1	77.9	0.3	100.0	21.7	743
Region							
Hyperendemic	32.0	0.1	66.9	1.0	100.0	32.2	297
Mesoendemic Stable	32.2	0.2	67.6	0.0	100.0	32.4	489
Mesoendemic Unstable	34.1	0.2	65.3	0.4	100.0	34.3	228
Luanda	75.4	2.7	21.9	0.0	100.0	78.1	408
Mother's education							
No education	18.7	0.7	80.4	0.2	100.0	19.4	417
Primary	51.5	0.6	47.7	0.2	100.0	52.1	857
Secondary or higher	84.5	3.6	11.2	0.8	100.0	88.1	140
Total	44.9	0.9	54.0	0.3	100.0	45.8	1,422

Place of delivery varies greatly by urban-rural residence, region, and mother's education. Fully 72 percent of births in urban areas occur in a health facility, compared with only 22 percent of births in rural areas. In Luanda 78 percent of births take place in health facilities, compared with 32 to 34 percent of births in the other regions. Mothers with secondary and higher education are four and a half times more likely to deliver in a health facility than mothers with no education (88 percent compared with 19 percent).

3.2.3 Assistance during Delivery

Obstetric care from a trained provider during delivery is recognized as a critical element for the reduction of maternal and neonatal mortality. Home deliveries are more likely to proceed without assistance from a health professional, whereas deliveries at a health facility are more likely to be attended by a trained health professional. Table 3.8 shows the type of assistance during delivery by selected background characteristics.

In all, 47 percent of babies were delivered with the assistance of a skilled provider, for the most part a nurse. Only 4 percent of all births were attended by a doctor and 1 percent by an auxiliary nurse/midwife. Twenty-one percent of births were assisted by a traditional birth attendant, and 16 percent by a relative; 11 percent of births took place with no assistance at all.

Table 3.8 Assistance during delivery

Percent distribution of last live births in the five years preceding the survey by person providing assistance during delivery, and percentage of births assisted by a skilled provider, according to background characteristics, Angola MIS 2006-07

Background characteristic	Person providing assistance during delivery[1]								Percentage delivered by a skilled provider[2]	Number of births
	Doctor	Nurse/ midwife	Auxiliary nurse/ midwife	Traditional birth attendant	Relative/ other	No one	Don't know/ missing	Total		
Mother's age at delivery										
<20	4.3	43.9	0.8	20.9	18.6	6.5	5.0	100.0	49.0	451
20-34	5.0	42.1	0.7	19.6	16.1	12.2	4.3	100.0	47.8	800
35-49	1.5	38.9	0.6	23.9	11.1	16.4	7.7	100.0	41.0	171
Place of delivery										
Health facility	10.1	88.4	1.1	0.0	0.5	0.0	0.0	100.0	99.5	615
Elsewhere	0.0	7.1	0.4	36.2	28.4	19.2	8.7	100.0	7.5	806
Residence										
Urban	6.9	63.5	0.8	9.5	10.2	4.4	4.7	100.0	71.3	679
Rural	2.0	22.9	0.6	30.6	21.8	16.9	5.2	100.0	25.5	743
Region										
Hyperendemic	0.8	32.1	0.7	41.4	11.9	10.0	3.2	100.0	33.5	297
Mesoendemic Stable	5.1	31.0	0.4	21.3	18.7	18.9	4.6	100.0	36.4	489
Mesoendemic Unstable	2.4	32.1	0.4	19.6	30.6	6.5	8.3	100.0	35.0	228
Luanda	7.2	68.9	1.3	4.9	8.6	4.3	4.7	100.0	77.4	408
Mother's education										
No education	2.9	18.4	0.2	37.0	20.0	16.4	5.0	100.0	21.6	417
Primary	4.0	49.2	1.0	15.4	16.2	9.7	4.5	100.0	54.1	857
Secondary or higher	11.3	71.8	0.6	1.8	4.7	2.1	7.7	100.0	83.7	140
Total	4.4	42.3	0.7	20.5	16.3	10.9	4.9	100.0	47.3	1,422

[1] If the respondent mentioned more than one person attending the delivery, only the most qualified person is included in this tabulation.
[2] Skilled provider includes doctor, nurse, midwife, and auxiliary nurse/midwife.

Of the births that took place in a health facility, nearly all were assisted by a skilled provider, compared with only 8 percent of births outside of a health facility. Seventy-one percent of babies in urban areas were delivered by a skilled provider, compared with only 26 percent in rural areas. Doctors assisted 7 percent of births in urban areas, compared with 2 percent in rural areas.

Three out of four births in Luanda (77 percent) were assisted by a skilled provider. In all other regions, between 34 and 36 percent of births were assisted by skilled providers. Almost one-third of babies in the Mesoendemic Unstable region were delivered by a relative.

Maternal education is strongly related to assistance from health professionals during delivery. Women with secondary and higher education are more likely to seek assistance from a health professional during delivery. A doctor, nurse, midwife, or auxiliary nurse/midwife assisted 84 percent of births to women with a secondary education or higher, compared with only 22 percent of births to mothers with no education.

MALARIA 4

The strategies that the government of Angola has put into place to combat malaria include indoor residual spraying (IRS) of dwellings, the distribution and promotion of insecticide-treated bednets (ITNs), and intermittent preventive treatment (IPT) for malaria during pregnancy.

The 2006-07 Angola Malaria Indicator Survey (AMIS) collected information on the use of indoor residual spraying and mosquito nets to prevent malaria, the use of IPT during pregnancy, and the prevalence and treatment of fever among children under five. In addition, fieldworkers collected blood samples from children age 6-59 months and from pregnant women age 15-49 years. These were tested for malaria and anemia. The results are presented in this chapter.

4.1 INDOOR RESIDUAL SPRAYING

Indoor residual spraying is an important component of efforts to control malaria transmission in Angola. All households interviewed in the 2006-07 AMIS were asked if the interior walls of their dwelling had been sprayed against mosquitoes during the 12-month period before the survey and, if yes, who had sprayed the dwelling and how many months it had been since the dwelling had been sprayed.

Table 4.1 shows that only 2 percent of households reported that the interior walls of their dwelling had been sprayed, principally as part of a government program (67 percent of sprayed households). Among households reporting that the walls of their dwelling had been sprayed, the median time since the walls had been sprayed was 5.5 months. More than one in five respondents did not know who sprayed the dwelling or reported an unspecified source of spraying.

Table 4.1 Indoor residual spraying

Percentage of households in which the interior walls were sprayed with insecticide during the 12 months prior to the survey and among these, percent distribution by source of spraying and median number of months since walls were sprayed, according to background characteristics, Angola MIS 2006-07

	Households							
	Households in which interior walls were sprayed during the 12 months prior to the survey	Number of households	Source of spraying				Median time (in months) since household spraying	Number of households whose interior walls were sprayed
Background characteristic			Government program	Private company	Household member	Other/ don't know		
Residence								
Urban	3.6	1,301	64.8	8.5	2.7	24.0	5.7	47
Rural	1.0	1,298	*	*	*	*	*	13
Region								
Hyperendemic	1.4	498	*	*	*	*	*	7
Mesoendemic Stable	0.7	928	*	*	*	*	*	6
Mesoendemic Unstable	10.0	360	69.5	0.0	6.9	23.6	5.7	36
Luanda	1.3	813	*	*	*	*	*	11
Wealth quintile								
Lowest	0.5	650	*	*	*	*	*	4
Second	2.5	566	(73.0)	(0.0)	(0.0)	(27.0)	(5.1)	14
Middle	1.9	489	*	*	*	*	*	9
Fourth	1.6	451	*	*	*	*	*	7
Highest	6.0	443	(64.2)	(15.2)	(0.0)	(20.7)	(5.6)	26
Total	2.3	2,599	67.0	6.7	4.1	22.2	5.5	60

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

The use of indoor residual spraying varies markedly by residence, region, and wealth. Urban households are almost four times as likely as rural households to report that the interior walls of their dwelling have been sprayed (3.6 percent versus 1 percent). The prevalence of indoor spraying is much higher in the Mesoendemic Unstable malaria region, where 10 percent of households report the treatment, compared with the other regions, where only about 1 percent report their walls have been sprayed. Households in the top wealth quintile are much more likely than those in the bottom quintile to report that their walls have been sprayed.

4.2 OWNERSHIP OF MOSQUITO NETS

All households in the 2006-07 AMIS were asked whether they owned any mosquito nets and, if so, how many. Respondents were asked to show the nets to the interviewer so that he or she could identify them and record the brand name. Brand name and treatment history were used to classify the nets as treated or untreated. Table 4.2 shows the percentage of households with at least one mosquito net, with at least one ever-treated net, and with at least one insecticide-treated net (ITN), by background characteristics. For the purposes of the survey, an ITN is defined as (1) a factory treated net that does not require any further treatment, (2) a pretreated net obtained within the past 12 months, or (3) a net that has been soaked with insecticide within the past 12 months.

Table 4.2 Ownership of mosquito nets

Percentage of households with one and more than one mosquito net, ever-treated net, and insecticide-treated net, and the average number of nets per household, by background characteristics, Angola MIS 2006-07

Background characteristic	Any type of mosquito net			Ever-treated mosquito net[1]			Insecticide-treated mosquito net[2] (ITN)			Number of households
	Percentage with at least one net	Percentage with more than one net	Average number of nets per household	Percentage with at least one net	Percentage with more than one net	Average number of nets per household	Percentage with at least one net	Percentage with more than one net	Average number of nets per household	
Residence										
Urban	34.0	15.6	0.6	29.8	13.1	0.5	29.1	12.5	0.5	1,301
Rural	31.3	11.6	0.5	26.5	9.8	0.4	25.9	9.3	0.4	1,298
Region										
Hyperendemic	53.8	23.3	0.8	51.3	21.5	0.8	51.0	21.4	0.8	498
Mesoendemic Stable	25.0	9.5	0.4	21.0	7.9	0.3	20.4	7.3	0.3	928
Mesoendemic Unstable	34.0	15.4	0.5	23.7	10.8	0.4	22.6	10.1	0.4	360
Luanda	27.8	11.5	0.4	24.1	9.7	0.4	23.4	9.0	0.4	813
Wealth quintile										
Lowest	29.4	9.1	0.4	25.6	8.1	0.4	25.5	8.1	0.4	650
Second	25.8	8.2	0.4	22.4	7.4	0.3	22.1	7.2	0.3	566
Middle	39.6	18.7	0.6	33.5	14.7	0.5	32.6	13.7	0.5	489
Fourth	33.5	14.1	0.5	29.8	12.4	0.5	28.6	12.4	0.5	451
Highest	37.6	20.9	0.7	31.6	17.0	0.6	30.6	15.3	0.5	443
Total	32.6	13.6	0.5	28.1	11.5	0.4	27.5	10.9	0.4	2,599

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

One-third of households in Angola have at least one mosquito net, whether treated or untreated, and 14 percent have more than one net. Twenty-eight percent of all households—the vast majority of households owning any net—have a mosquito net that has been treated with insecticide at some time, and 12 percent of the households have more than one ever-treated mosquito net. Finally, 28 percent of households own at least one ITN, while 11 percent own more than one ITN.

The percentage of households with at least one mosquito net (treated or untreated) does not vary greatly by urban-rural residence. However, there are marked differences between the malaria epidemiologic regions. In the Hyperendemic region, over half of households have at least one mosquito net, and nearly all are ITNs. Fewer households in the Mesoendemic Unstable (34 percent) and Mesoendemic Stable (25 percent) regions own at least one mosquito net. Looking at the relationship with wealth, households in the highest wealth quintile were slightly more likely to own mosquito nets, regardless of type, than the poorest households.

For each mosquito net that was reportedly acquired less than six months prior to the survey, the respondent was asked whether or not the net was obtained during the *Viva a Vida com Saúde* (Enjoy a Healthy Life) campaign. This nationwide public health campaign was launched by the Angolan government in July 2006 and targeted malaria, measles, and polio. During the campaign, over 800,000 mosquito nets were distributed in provinces at high risk for malaria. Table 4.3 shows the percentage of households with nets that reported obtaining a mosquito net during the Viva a Vida com Saúde campaign, by background characteristics.

Among households with at least one mosquito net, 17 percent obtained a net during the Viva a Vida com Saúde campaign. Households in rural areas are twice as likely to have obtained nets during the campaign as urban households (23 percent and 12 percent, respectively). Households in the Mesoendemic Unstable (29 percent) and Hyperendemic (26 percent) regions were more likely to have obtained nets during the campaign than households in other regions. In general, poorer households were more likely to have obtained a net during the campaign than wealthier households.

Table 4.3 Ownership of mosquito nets obtained during the *Viva a Vida com Saúde* campaign

Among households with at least one mosquito net, percent which obtained a net during the *Viva a Vida com Saúde* campaign, by background characteristics, Angola MIS 2006-07

Background characteristic	Percentage that obtained a net during the *Viva a Vida com Saúde* campaign	Number of households with at least one mosquito net
Residence		
Urban	11.7	442
Rural	23.2	406
Region		
Hyperendemic	26.1	268
Mesoendemic Stable	9.8	232
Mesoendemic Unstable	28.9	122
Luanda	7.8	226
Wealth quintile		
Lowest	25.7	191
Second	26.7	146
Middle	8.9	194
Fourth	17.0	151
Highest	8.8	167
Total	17.2	848

4.3 USE OF MOSQUITO NETS

The 2006-07 AMIS asked about the use of mosquito nets by household members during the night before the survey. Tables 4.4 and 4.5 use these data to assess mosquito net usage among the two groups most vulnerable to malaria's effects: children under age five and pregnant women.

4.3.1 Children under Age Five

The use of mosquito nets is especially important for young children because of their vulnerability to malaria. For about six months following birth, antibodies acquired from the mother during pregnancy protect children born in areas of endemic malaria. This immunity is gradually lost, and children start to develop their own immunity to malaria. The pace at which immunity is developed depends on their exposure to malaria infection. In areas where malaria is endemic and transmission is intense, children are thought to achieve a high level of immunity by their fifth birthday. Before then, young children may experience repeated episodes of malaria, some of them life-threatening (e.g., cerebral malaria). This

contributes to high childhood mortality rates in a number of countries. In areas of low malaria transmission, immunity is acquired more slowly.

Table 4.4 examines the extent to which children under age five slept under various types of mosquito nets during the night before the interview. Overall, 21 percent of children slept under some kind of net, 18 percent under an ever-treated net, and 18 percent under an ITN. The likelihood of sleeping under a mosquito net generally declined with the child's age. The proportion of children sleeping under mosquito nets was slightly higher in rural areas than urban areas (22 percent and 19 percent, respectively, in the case of any net, and 19 percent and 17 percent, respectively, in the case of an ITN). Young children were twice as likely to sleep under a net in the Hyperendemic region as elsewhere in the country: over one-third of young children in that region slept under some kind of net (37 percent), and almost as many slept under an ITN (34 percent).

Table 4.4 Use of mosquito nets by children

Percentage of children under five years of age who slept under any mosquito net (treated or untreated), an ever-treated mosquito net, and an insecticide-treated net (ITN) the night before the survey, by background characteristics, Angola MIS 2006-07

Background characteristic	Percentage who slept under: Any net	An ever-treated net[1]	An ITN[2]	Number of children under age five
Age (in months)				
<12	25.5	22.9	22.6	562
12-23	23.5	20.6	19.8	576
24-35	20.3	19.0	19.0	505
36-47	16.4	13.7	12.9	569
48-59	17.4	15.0	14.3	526
Sex				
Male	20.5	18.3	18.0	1,372
Female	20.8	18.2	17.5	1,368
Residence				
Urban	19.2	16.9	16.7	1,287
Rural	22.0	19.5	18.7	1,452
Region				
Hyperendemic	36.5	33.8	33.8	577
Mesoendemic Stable	17.8	16.4	15.6	950
Mesoendemic Unstable	14.6	10.3	9.4	456
Luanda	16.0	13.5	13.2	756
Wealth quintile				
Lowest	19.9	17.2	17.2	641
Second	17.9	16.8	16.3	646
Middle	25.3	22.9	22.0	631
Fourth	19.5	17.7	17.1	485
Highest	20.6	15.0	14.3	337
Total	20.7	18.2	17.7	2,739

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

4.3.2 Pregnant Women

In areas where malaria is endemic, adults usually have acquired some degree of immunity to severe, life-threatening malaria. However, pregnancy depresses the immune system so that pregnant women, especially those in their first pregnancy, face a higher risk of malaria. Moreover, malaria among pregnant women may be asymptomatic. Malaria during pregnancy is a major contributor to low birth weight, maternal anaemia, infant mortality, spontaneous abortion, and stillbirth. Pregnant women can reduce the risk of the adverse effects of malaria by sleeping under insecticide-treated mosquito nets.

Table 4.5 shows the percentage of all women and of currently pregnant women who slept under a mosquito net during the night before the survey. Among women generally, 17 percent slept under some type of net, most under an ever-treated net (15 percent) or ITN (14 percent).

The use of mosquito nets is considerably higher among pregnant women. Among pregnant women age 15-49 years, 25 percent slept under a mosquito net during the night before the survey, most under an ever-treated net (23 percent) or ITN (22 percent).

Table 4.5 Use of mosquito nets by pregnant women

Percentage of all women age 15-49 and percentage of pregnant women age 15-49 who slept under any mosquito net (treated or untreated), an ever-treated mosquito net, and an insecticide-treated net (ITN) during the night before the survey, by background characteristics, Angola MIS 2006-07

Background characteristic	Percentage of all women who slept under:			Number of women age 15-49	Percentage of pregnant women who slept under:			Number of pregnant women age 15-49
	Any net	An ever-treated net[1]	An ITN[2]		Any net	An ever-treated net[1]	An ITN[2]	
Residence								
Urban	14.2	12.1	11.9	2,006	17.9	16.7	14.8	101
Rural	20.5	18.1	17.4	1,316	28.7	26.4	26.4	168
Region								
Hyperendemic	35.5	32.9	32.9	528	41.8	38.8	38.8	62
Mesoendemic Stable	14.8	13.4	12.7	1,008	24.1	23.5	23.5	101
Mesoendemic Unstable	15.3	9.7	9.2	421	16.5	11.7	11.7	52
Luanda	11.3	9.6	9.3	1,365	13.6	13.6	9.9	54
Education								
No education	16.6	15.8	15.7	772	23.5	22.4	22.4	96
Primary	16.8	14.1	13.6	2,014	26.7	24.2	22.9	156
Secondary or higher	15.9	13.2	13.1	523	*	*	*	18
Wealth quintile								
Lowest	21.1	18.8	18.8	573	26.5	23.0	23.0	75
Second	16.3	15.3	14.9	614	24.3	24.3	24.3	75
Middle	20.0	17.5	16.7	620	27.4	26.9	26.9	53
Fourth	15.2	13.6	12.9	693	(19.3)	(19.3)	(14.4)	40
Highest	12.7	9.2	9.1	821	*	*	*	26
Total	16.7	14.5	14.1	3,322	24.6	22.8	22.0	269

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

[1] An ever-treated net is a pretreated net or a non-pretreated net which has subsequently been soaked with insecticide at any time.

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

Pregnant women in rural areas were almost twice as likely to sleep under a mosquito net, regardless of the type, as pregnant women in urban areas (29 percent compared with 18 percent in the case of any net, and 26 percent compared with 15 percent in the case of an ITN). Pregnant women in the Hyperendemic region were far more likely to sleep under any type of net (42 percent) or under an ITN (39 percent) than women in other regions. Poorer women seem more likely to use nets than wealthier women, although small numbers preclude analyses among pregnant women. There is no clear pattern to mosquito net usage according to a woman's education level.

4.4 USE OF ANTIMALARIAL DRUGS DURING PREGNANCY

As a protective measure, it is recommended that pregnant women at risk of malaria receive intermittent preventive treatment (IPT) with sulfadoxine-pyrimethamine (SP/Fansidar) during antenatal care. The 2006-07 AMIS asked women who gave birth within the past two years whether they took any medications during their pregnancy to keep them from getting malaria and, if so, which drugs were taken. They were also asked whether they received the drugs as part of an antenatal care visit. Women who received SP/Fansidar during an antenatal visit are considered to have received IPT. It should be noted that obtaining information about drugs can be difficult, and some respondents may not have known or remembered the name or even the type of drug they received.

Table 4.6 shows the percentage of women who took any antimalarial drugs for prevention, who took SP/Fansidar, and who received IPT during the pregnancy for their last live birth in the two years preceding the survey, by background characteristics. Three out of five women who gave birth in the past two years took some kind of antimalarial drug during the pregnancy. However, only a small proportion—5 percent—took SP/Fansidar during their pregnancy, and even fewer took two or more doses as the IPT protocol calls for. Almost all of the women who took SP/Fansidar were given the drug during an antenatal care visit and thus are considered to have had IPT.

Overall, prophylactic use of antimalarial drugs during pregnancy is almost twice as high among urban as rural women (77 percent and 46 percent, respectively). Use of antimalarial drugs among pregnant women is highest in Luanda (73 percent) and the Mesoendemic Stable region (65 percent) and lowest in the Hyperendemic region (42 percent). The higher a woman's level of education, the more likely she is to have taken antimalarial drugs during her pregnancy. Women from the wealthiest quintile are almost three times as likely as women in the poorest quintile to take antimalarial drugs during pregnancy (79 percent and 29 percent, respectively).

SP/Fansidar use and IPT are reported more often by urban than rural women. Pregnant women from Luanda and the Hyperendemic region have the highest usage rates for SP/Fansidar (7 and 6 percent, respectively) and for IPT (5 percent and 6 percent, respectively).

Table 4.6 Prophylactic use of antimalarial drugs and intermittent preventive treatment during pregnancy

Among women who had a live birth in the two years preceding the survey, percentage who took any antimalarial drugs for prevention, who took sulfadoxine-pyrimethamine (SP/Fansidar), and who received intermittent preventive treatment (IPT) during an antenatal care (ANC) visit during their last pregnancy, by background characteristics, Angola MIS 2006-07

		SP/Fansidar		IPT[1]		
Background characteristic	Percentage who took any antimalarial drug	Percentage who took any SP/Fansidar	Percentage who took 2+ doses	Percentage who received any SP/Fansidar during an ANC visit	Percentage who received 2+ doses, at least one during an ANC visit	Number of women who had a live birth in the two years preceding the survey
Residence						
Urban	77.0	6.9	4.5	5.5	3.8	448
Rural	45.5	3.1	1.5	2.9	1.4	563
Region						
Hyperendemic	41.8	6.3	5.6	6.0	5.2	209
Mesoendemic Stable	65.4	2.9	2.1	2.6	1.8	386
Mesoendemic Unstable	48.2	3.8	1.2	3.5	1.0	169
Luanda	72.9	6.9	2.9	5.1	2.1	246
Education						
No education	38.0	2.0	1.2	1.9	1.2	332
Primary	68.4	6.4	3.9	5.3	3.2	607
Secondary & higher	87.1	3.2	2.0	3.2	2.0	66
Wealth quintile						
Lowest	29.1	0.8	0.0	0.8	0.0	255
Second	54.7	5.1	4.1	4.2	3.3	253
Middle	75.2	4.9	3.0	4.9	3.0	232
Fourth	78.8	9.3	3.5	6.7	2.4	173
Highest	79.2	5.9	5.6	5.7	5.4	98
Total	59.5	4.7	2.8	4.1	2.5	1,011

[1] IPT is preventive intermittent treatment with SP/Fansidar given to pregnant women (whether or not they have symptoms of malaria) during ANC visits. IPT should be given as a single dose after quickening of the fetus or after 16 weeks of pregnancy, followed by at least a second dose a month later or in the next trimester.

4.5 PREVALENCE AND PROMPT TREATMENT OF FEVER AMONG YOUNG CHILDREN

Fever is a major manifestation of malaria in young children, although it also accompanies various other illnesses. In the 2006-07 AMIS, mothers were asked whether each child under age five had had a fever in the two weeks preceding the survey and, if so, what was done to treat the fever. Table 4.7 shows the percentage of children under five who had a fever in the two weeks preceding the survey, the percentage of those with fever who took antimalarial drugs, and the percentage of those with fever who received prompt treatment, which is defined as receiving drugs on the same day or the day after a fever begins. Table 4.8 shows what type of antimalarial drugs these children received and whether they received the drugs promptly. Table 4.9 shows whether the drugs were available at home when the child became ill.

Table 4.7 Prevalence and prompt treatment of fever

Percentage of children under age five with fever in the two weeks preceding the survey, and among these, the percentage who took antimalarial drugs and the percentage who took the drugs on the same day or the next day following after developing the fever, by background characteristics, Angola MIS 2006-07

Background characteristic	Among children under age five:		Among children under age five with fever:		
	Percentage with fever in the two weeks preceding the survey	Number of children	Percentage who took antimalarial drugs	Percentage who took antimalarial drugs the same or next day	Number of children
Age (in months)					
<12	29.4	504	32.3	18.2	148
12-23	31.5	497	24.1	16.2	157
24-35	25.7	402	33.1	22.0	103
36-47	13.8	451	24.2	11.8	62
48-59	16.5	364	33.8	23.6	60
Residence					
Urban	22.5	1,026	38.0	26.9	231
Rural	25.1	1,192	22.5	11.5	299
Region					
Hyperendemic	20.3	469	24.7	17.4	95
Mesoendemic Stable	26.1	786	21.0	11.7	205
Mesoendemic Unstable	24.1	369	27.3	13.0	89
Luanda	23.7	594	45.6	31.6	141
Mother's education					
No education	22.1	720	20.5	11.0	159
Primary	24.4	1,327	30.5	19.0	324
Secondary or higher	25.9	160	(47.3)	(37.3)	41
Wealth quintile					
Lowest	25.8	528	16.9	6.6	136
Second	23.5	533	27.5	16.9	125
Middle	21.6	508	27.7	17.1	110
Fourth	25.3	385	39.5	24.9	97
Highest	23.6	264	46.4	37.6	62
Total	23.9	2,218	29.3	18.2	530

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

Twenty-four percent of children under age five had a fever in the two weeks preceding the survey. This figure is similar to the results of the 2001 MICS survey in Angola, which found that 25 percent of children had a fever in the prior two weeks. It should be noted that fieldwork for the 2001 MICS was conducted between April and October, while the 2006-07 AMIS was conducted between the months of November and April. The prevalence of recent fever is higher in children under the age of three than in older children, but it does not vary significantly with other background characteristics.

Among children age 0-59 months who were sick with fever, 29 percent received antimalarial drugs, and 18 percent were treated promptly. Children with fever in urban areas were more than twice as likely to receive prompt treatment with antimalarial drugs as those in rural areas (27 percent and 12 percent, respectively). Almost one-third of children with fever in Luanda received prompt treatment with antimalarial drugs, compared with 12 to 17 percent of children in other regions. Treatment of fever with antimalarial drugs, whether prompt or not, increases with the education of the mother and the wealth of the household.

Table 4.8 shows that the vast majority of children given antimalarial drugs for fever received either chloroquine or amodiaquine (14 percent and 11 percent of children with fever, respectively). Of the children who developed fever, eight percent received chloroquine the same or the next day and six percent received amodiaquine the same or the next day. For six percent of sick children who received antimalarial drugs, the drug was available at home when the child became ill (Table 4.9).

Table 4.8 Type and timing of antimalarial drugs

Among children under age five with fever in the two weeks preceding the survey, percentage who took specific antimalarial drugs and percentage who took each type of drug on the same day or the next day after developing the fever, by background characteristics, Angola MIS 2006-07

Background characteristic	Percentage of children who took:						Percentage of children who took the drug on the same or the next day:						Number of children with fever
	SP/ Fansidar	Chloro-quine	Amodia-quine	Quinine	ACT[1]	Other anti-malarial	SP/ Fansidar	Chloro-quine	Amodia-quine	Quinine	ACT[1]	Other anti-malarial	
Age (in months)													
<12	0.0	17.7	10.6	2.6	1.4	0.0	0.0	10.7	4.8	1.2	1.4	0.0	148
12-23	0.1	10.9	7.3	4.7	0.7	1.2	0.0	7.8	3.7	3.6	0.7	1.2	157
24-35	0.0	15.0	17.7	0.9	0.6	1.2	0.0	8.5	13.9	0.7	0.0	1.2	103
36-47	0.9	15.7	4.9	1.4	1.3	1.6	0.9	5.5	2.8	1.4	1.3	1.6	62
48-59	1.5	9.5	13.2	3.5	6.1	0.0	1.5	6.7	6.9	2.6	6.1	0.0	60
Residence													
Urban	0.4	16.0	14.5	3.9	2.3	1.7	0.4	12.5	8.3	2.8	2.0	1.7	231
Rural	0.2	12.4	7.7	2.0	1.0	0.0	0.2	5.1	4.7	1.4	1.0	0.0	299
Region													
Hyperendemic	0.8	11.4	7.2	3.2	3.6	0.0	0.6	8.6	2.9	3.2	3.6	0.0	95
Mesoendemic Stable	0.0	10.7	7.7	3.2	0.0	0.0	0.0	4.5	6.3	1.4	0.0	0.0	205
Mesoendemic Unstable	0.0	14.1	10.1	0.2	2.5	0.3	0.0	6.5	3.6	0.0	2.5	0.3	89
Luanda	0.6	20.6	17.6	3.7	1.9	2.7	0.6	14.8	10.1	3.3	1.4	2.7	141
Mother's education													
No education	0.4	12.2	6.1	1.4	0.4	1.2	0.4	4.4	5.4	0.9	0.0	1.2	159
Primary	0.0	14.5	10.9	4.0	1.8	0.1	0.0	10.1	5.0	2.8	1.8	0.1	324
Secondary or higher	(2.1)	(18.5)	(18.0)	(0.0)	(4.2)	(4.4)	(2.1)	(11.0)	(15.6)	(0.0)	(4.2)	(4.4)	41
Wealth quintile													
Lowest	0.5	12.4	4.0	0.0	0.0	0.0	0.4	3.9	2.3	0.0	0.0	0.0	136
Second	0.0	12.7	9.1	4.2	1.4	0.2	0.0	6.7	5.9	2.7	1.4	0.2	125
Middle	0.0	14.0	9.7	3.7	2.8	0.0	0.0	8.1	5.0	3.7	2.8	0.0	110
Fourth	0.0	12.0	19.3	5.9	2.3	2.0	0.0	12.0	7.9	3.3	1.7	2.0	97
Highest	1.4	23.5	16.5	0.0	2.0	2.9	1.4	15.9	15.3	0.0	2.0	2.9	62
Total	0.3	14.0	10.7	2.8	1.6	0.8	0.3	8.3	6.3	2.0	1.5	0.8	530

Note: Figures in parentheses are based on 25-49 unweighted cases.
[1] Artemisinin-based combination therapy

Table 4.9 Availability of antimalarial drugs at home

Among children under age five who had fever in the two weeks preceding the survey and who took specific antimalarial drugs, the percentage for whom the drug was available at home when the child developed a fever, Angola MIS 2006-07

Drug	Percentage for whom the drug was at home when child became ill with fever	Number of children who took the specific antimalarial drug
Chloroquine	7.7	74
Amodiaquine	6.1	57
Other antimalarial[1]	(0.0)	25
Any antimalarial drugs	5.9	155

Note: Figures in parentheses are based on 25-49 unweighted cases.
[1] SP/Fansidar, quinine and artemisinin-based combination therapy

4.6 PREVALENCE OF MALARIA AND ANEMIA

As part of the AMIS, all children above six months of age but less than 5 years who were eligible to participate in the survey were tested for anemia and malaria. In addition, all women between the ages of 15-49 were tested for anemia, and a subsample of pregnant women was tested for malaria as well.

Fieldworkers used a portable photometer to measure hemoglobin levels and identify anemia in children and women. A malaria rapid diagnostic test (RDT) was used to identify those who were positive for malaria. The ease of use and relatively low costs of RDTs make them suitable for use in population-based surveys. These tests are based on the detection of parasite antigens in blood. There are various types of RDTs based on the detection of different types of antigens, but the test principle for all detection systems is similar.

The rapid diagnostic test used in the 2006-07 AMIS is the Paracheck Pf™ device (Orchid Biomedical, India) which is based on the detection of *P. falciparum*-specific histidine-rich protein 2 (HRP2 Pf). The test has relatively high sensitivity and specificity and is deemed appropriate for clinical and epidemiologic assessment of malaria, especially of placental malaria (Guthmann et al, 2002; Singh et al, 2005).

Test results for anemia (indicating whether the person has no anemia, mild anemia, moderate anemia, or severe anemia) and test results for malaria (indicating whether the person has detectable malaria or not) were given to the respondents in the field. Respondents with severe anemia (<7 g/dL) were referred for medical treatment. Respondents who tested positive for malaria were offered a free full-course treatment with Coartem® (arthemeter 20 mg + lumefantrine 120 mg). Information was given about contraindications and potential side effects during treatment, and respondents were offered the option of declining treatment with no repercussions, if the respondent so desired. Pregnant women were offered treatment with quinine.

4.6.1 Children under Age Five

Among all children age 6-59 months, 21 percent were found to have malaria using the rapid diagnostic test (Table 4.10). The prevalence of malaria increases with the age of the child. For example, children under the age of one year are almost half as likely as those age 36-59 months to test positive for malaria.

The prevalence of malaria in young children is more than four times higher in rural areas (33 percent) than in urban areas (8 percent). As would be expected, the prevalence of malaria in children is highest in the Hyperendemic region (31 percent) and lowest in Luanda (6 percent).

Levels of malaria in children are also highest among the poorest households. Children from the poorest quintile are six times more likely to test positive for malaria than those from the wealthiest quintile (43 percent compared with 7 percent).

Overall, four percent of children were found to be seriously anemic. In contrast to malaria, the prevalence of serious anemia tends to decline with the age of the child. Children age 48-59 months are almost one third as likely to have anemia below 8 g/dL as those age 6-23 months. The prevalence of this serious form of anemia is almost twice as high in rural areas (5 percent) as urban areas (3 percent); it is higher in the Mesoendemic Stable and Mesoendemic Unstable regions (4 percent and 5 percent, respectively) than the other regions (3 percent); and it is more than twice as high in the two poorest quintiles (over 4 percent) as in the wealthiest quintile (2 percent).

Table 4.10 Malaria and anemia in children

Among children age 6-59 months, percentage positive for malaria using a rapid diagnostic test (RDT), and percentage with anemia <8 grams/deciliter, by background characteristics, Angola MIS 2006-07

Background characteristic	Percentage positive for malaria	Number of children tested	Percentage of children with anemia <8 g/dL	Number of children tested
Age (in months)				
6-11	13.7	262	5.6	269
12-23	14.9	544	5.5	552
24-35	22.7	476	3.5	481
36-47	24.8	542	2.4	549
48-59	26.4	478	2.0	496
Residence				
Urban	7.8	1,072	2.5	1,099
Rural	32.7	1,230	4.6	1,248
Region				
Hyperendemic	30.6	480	2.6	487
Mesoendemic Stable	26.4	843	4.1	861
Mesoendemic Unstable	21.1	373	4.9	375
Luanda	6.2	605	3.1	624
Wealth quintile				
Lowest	42.9	532	4.7	537
Second	26.1	549	4.4	561
Middle	12.3	545	2.9	550
Fourth	6.7	396	3.4	409
Highest	7.3	280	1.9	289
Total	21.1	2,302	3.6	2,347

4.6.2 Women Age 15-49

About 1 percent of all women age 15-49 were found to have anemia below 8 g/dL (Table 4.11). The prevalence of this severe form of anemia is higher in urban than in rural areas. There is no consistent pattern with regard to household wealth.

Severe anemia is more prevalent among pregnant women: 3 percent of pregnant women are seriously anemic, almost three times higher than among women generally. The prevalence of anemia below 8 g/dL is slightly higher in urban areas than in rural areas. It is considerably lower in the Hyperendemic region than elsewhere in Angola.

Fourteen percent of pregnant women were found to have malaria. In contrast to anemia, malaria is much more prevalent in rural areas (19 percent) than urban areas (7 percent). As is the case among children, the prevalence of malaria among pregnant women is highest in the Hyperendemic region (18 percent) and lowest in Luanda (7 percent). It is also higher in the poorest quintile of households (25 percent).

Table 4.11 Malaria and anemia in women

Among women age 15-49 years, percentage with anemia <8 grams/deciliter, and among pregnant women age 15-49 years, percentage positive for malaria using a rapid diagnostic test (RDT) and percentage with anemia <8 grams/deciliter, by background characteristics, Angola MIS 2006-07

	All women age 15-49		Pregnant women age 15-49		
Background characteristic	Percentage with anemia <8 g/dL	Number of women	Percentage positive for malaria	Percentage with anemia <8 g/dL	Number of pregnant women
Residence					
Urban	1.6	1,778	6.9	3.5	141
Rural	0.9	1,198	19.1	2.7	204
Region					
Hyperendemic	1.6	495	17.9	0.6	78
Mesoendemic Stable	1.4	941	16.0	3.7	135
Mesoendemic Unstable	1.6	318	15.4	4.4	48
Luanda	1.0	1,221	6.9	3.4	84
Wealth quintile					
Lowest	1.0	524	24.5	1.7	91
Second	0.6	561	13.2	2.2	92
Middle	1.4	549	8.8	2.5	72
Fourth	1.4	625	(8.0)	(6.2)	46
Highest	1.8	717	(10.0)	(4.8)	45
Total	1.3	2,976	14.2	3.0	345

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

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SAMPLE DESIGN AND IMPLEMENTATION

Appendix A

A.1 INTRODUCTION

The 2006-07 Angola Malaria Indicator Survey (2006-07 AMIS) is based on a representative probability sample of households. The sample provides information on women of reproductive age (15-49) and children under five, specifically for malaria-related indicators. The survey covered the entire country.

The sample was designed to provide estimates with acceptable levels of precision for key malaria-related indicators and for two sub-populations: pregnant women age 15-49 and children under five. The major sample domains for which these estimates are computed are:

1. Angola at a national level,
2. Total urban areas and total rural areas of Angola, and
3. Major malaria epidemiologic regions, defined as:
   a) Hyperendemic,
   b) Mesoendemic Stable,
   c) Mesoendemic Unstable, and
   d) Luanda, which was extracted from the Mesoendemic Stable region and represents the capital city.

A.2 SAMPLE FRAME

Angola is divided into 18 provinces, and they can be grouped into eight sub-regions (e.g., North, East, and Center) according to factors that make some provinces homogeneous among themselves. Each province is subdivided into municipalities (161 in total); each municipality is subdivided into communes (635 in total); and each commune is classified as either urban or rural. Each urban commune is subdivided into administrative areas called censal sections (CSs). Each rural commune has a list of villages, with estimated populations in each village. Therefore, the list of CSs in each urban commune and the list of villages in each rural commune constitute the sample frames for the 2006-07 AMIS.

A.3 STRATIFICATION

The communes were grouped by major regions, by rural and urban location, by sub-regions, and by provinces, in order to find homogeneous sampling units. In addition, within each urban commune, several CSs were grouped together to take advantage of the existence of *bairros* (sub-districts). These groupings were used to stratify the sample.

A.4 SAMPLE SIZE

The sample size for the AMIS was estimated based on the minimum size needed to obtain malaria-related indicators with acceptable levels of precision. The precision levels were calculated for each domain. Since the maximum accepted number of domains for Angola was four (i.e., the three epidemiologic regions plus Luanda), the sample size estimate would have to be multiplied by four.

The key indicator selected for the survey was malaria prevalence. Since little was known about its actual level, an assumption was made about its nationwide level. It was estimated between 25 and 30 percent, and the lower level was selected for increased confidence.

Given an estimated malaria prevalence of 25 percent in each domain, at a relative error level of 15 percent, the sample would require 533 children under age five. This is roughly equivalent to 630 households per domain or about 2,500 households nationwide. However, it was possible that the survey would find other indicators at lower percentage values, e.g., children under five sleeping under a bednet. Also, some indicators would be obtained from a smaller sub-population, such as pregnant women. Therefore, the recommended sample size per domain was 750 households, or 3,000 households nationwide. With a sample of this size, depending on the values found, it was possible that some indicators might not be susceptible to analysis at the domain level, but only at the national and urban-rural levels.

A.5 SAMPLE ALLOCATION

For the 2006-07 AMIS, a cluster was defined as a CS (censal section) in urban communes or a village in rural communes. The 120 clusters considered for the 2006-07 AMIS were equally allocated to each domain, that is, 30 clusters per domain. An average of 25 households per cluster was required to obtain the total sample size of 3,000 households. Following the urban-rural population distribution in Angola, the selected households were further distributed between 48 clusters in urban areas and 72 clusters in rural areas. Table A.1 shows the distribution of selected clusters by urban and rural areas in each major domain.

Table A.1 Cluster sample distribution by domain

Number of clusters in each major domain, by urban and rural areas, Angola MIS 2006-07

Major domain	Residence		Total
	Urban	Rural	
Mesoendemic Stable	6	24	30
Hyperendemic	5	25	30
Mesoendemic Unstable	7	23	30
Luanda	30	-	30
Total	48	72	120

Table A.2 Cluster sample distribution by province

Number of clusters in each province, by urban and rural areas, Angola MIS 2006-07

Province	Residence		Total
	Urban	Rural	
Bengo	1	2	3
Benguela	3	4	7
Bie	-	5	5
Cabinda	1	1	2
Cunene	1	4	5
Huambo	1	7	8
Huila	4	8	12
Kuando Kubango	-	5	5
Kwanza Norte	1	3	4
Kwanza Sul	1	4	5
Lunda Sul	-	3	3
Luanda	30	-	30
Lunda Norte	-	4	4
Malange	1	7	8
Moxico	-	4	4
Namibe	2	2	4
Uige	2	7	9
Zaire	-	2	2
Total	48	72	120

Although the sample was not intended to provide estimates by province, all provinces contributed to the overall sample. Table A.2 shows the distribution of selected clusters by urban and rural areas in each province. Luanda, which is both a province and a domain, is the only province with representation.

Under the final allocation of the sample, it was expected that each of the four major domains would yield a minimum of about 880 completed interviews with women, which would provide information on 640 children under five and 80 pregnant women.

The sample of 120 clusters is not distributed proportionally to the estimated population of major regions. Therefore, the 2006-07 AMIS sample is unbalanced for residence (urban-rural area) and region and requires a final weighing adjustment to provide valid estimates for every domain of study.

A.6 SAMPLE SELECTION

The 2006-07 AMIS sample was selected using a stratified three-stage cluster design providing 120 clusters, 48 in urban and 72 in rural areas. In each urban or rural area in a given domain, clusters were selected systematically with probability proportional to size. The selection was done using the following formulas at different stages.

In the first sampling stage, communes were stratified by urban-rural area and by province in each major domain. Then communes were selected with probability proportional to their estimated population using the following formula:

$$P_{1i} = (30 \times m_i / \Sigma m_i)$$

where

30 is the number of clusters to be selected in a specific domain,

m_i is the estimated population of i-th commune in the domain,

Σm_i is the estimated total population for the domain.

In each selected commune, the second sampling stage selected clusters (censal sections in urban communes and villages in rural communes) with probability proportional to their estimated population size using the following formula:

$$P_{2ji} = (a_i \times m_{ji} / \Sigma_j m_{ji})$$

where

a_i is the number of clusters (CSs or villages) to be selected in the selected commune *i*-th,

m_{ji} is the estimated measure of size of *j*-th cluster (CS village), within commune *i*-th,

$\Sigma_j m_{ji}$ is the estimated total measure of size for the commune *i*-th.

Before the third stage of household selection was done, a household listing operation was performed in each selected cluster in 2006 to obtain a complete frame and enable the final selection of 25 households from that frame.

The third stage constituted the final selection of households in a given cluster, using the following formula:

$$P_{3ji} = (c / L_{ji})$$

where

c is the fixed number (25) of selected households,

(L_{ji}) is found in the 2006 listing process for the ji-th cluster.

The final household overall probability through the entire sampling process can be determined as:

$$f_{ji} = P_{1i} * P_{2ji} * P_{3ji}$$

and the sampling design weight for the ji-th cluster is given as:

$$1/f_{ji} = 1/(P_{1i} * P_{2ji} * P_{3ji})$$

A.7 SAMPLE IMPLEMENTATION

The results of the sample implementation for the households and individual interviews are shown in Table A.3. The results indicate that 2,809 potential households were selected, and fieldworkers successfully completed interviews with 97.2 percent of them. In the interviewed households, 3,136 eligible women were identified, of whom 95 percent were successfully interviewed.

Table A.3 Sample implementation: women

Percent distribution of households and eligible women by results of the household and individual interviews; and household, eligible women, and overall response rates, according to urban-rural residence and region, Angola MIS 2006-07

	Residence		Region				
Result	Urban	Rural	Hyper-endemic	Meso-endemic Stable	Meso-endemic Unstable	Luanda	Total
Selected households							
Completed (C)	92.6	92.5	99.5	97.4	77.5	94.0	92.5
Household present but no competent respondent at home (HP)	1.6	0.8	0.0	0.1	3.4	1.2	1.1
Postponed (P)	0.1	0.2	0.0	0.0	0.5	0.1	0.1
Refused (R)	1.7	0.7	0.0	0.7	2.5	1.5	1.1
Dwelling not found (DNF)	0.3	0.2	0.0	0.0	1.3	0.0	0.3
Household absent (HA)	1.8	3.0	0.0	0.3	9.1	1.4	2.5
Dwelling vacant/address not a dwelling (DV)	1.3	0.9	0.3	0.3	2.5	1.2	1.0
Dwelling destroyed (DD)	0.3	0.7	0.0	0.1	2.0	0.1	0.5
Other (O)	0.3	1.0	0.3	1.0	1.3	0.4	0.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of sampled households	1,187	1,622	737	694	639	739	2,809
Household response rate (HRR)[1]	96.2	97.9	100.0	99.1	91.0	97.1	97.2
Eligible women							
Completed (EWC)	94.5	95.1	96.9	97.1	87.2	95.8	94.8
Not at home (EWNH)	3.7	4.4	2.4	2.3	10.2	3.0	4.0
Postponed (EWP)	0.4	0.0	0.3	0.0	0.3	0.2	0.2
Refused (EWR)	1.1	0.2	0.1	0.1	1.7	0.8	0.7
Partly completed (EWPC)	0.1	0.0	0.0	0.0	0.0	0.2	0.1
Incapacitated (EWI)	0.2	0.3	0.3	0.4	0.5	0.0	0.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	1,654	1,482	706	724	580	1,126	3,136
Eligible women response rate (EWRR)[2]	94.5	95.1	96.9	97.1	87.2	95.8	94.8
Overall response rate (ORR)[3]	90.9	93.1	96.9	96.2	79.4	93.0	92.1

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

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

[2] Using the number of eligible women falling into specific response categories, the eligible woman response rate (EWRR) is calculated as:

$$\frac{100 * EWC}{EWC + EWNH + EWP + EWR + EWPC + EWI}$$

[3] The overall response rate (ORR) is calculated as: ORR = HRR * EWRR/100

ESTIMATES OF SAMPLING ERRORS

Appendix B

The estimates from a sample survey are affected by two types of errors: nonsampling errors and sampling errors. Nonsampling errors are the results of mistakes made in implementing data collection and data processing, such as the failure to locate and interview the correct household, the interviewer or respondent misunderstanding a question, and data entry errors. Although numerous efforts were made during the implementation of the 2006-07 Angola Malaria Indicator Survey (AMIS) to minimize this type of error, nonsampling errors are impossible to avoid and difficult to evaluate statistically.

In contrast, sampling errors can be evaluated statistically. The sample of respondents selected in the 2006-07 AMIS is only one of many samples that could have been selected from the same population, using the same design and expected size. Each of these samples would yield results that differ somewhat from the results of the actual sample selected. Sampling errors are a measure of the variability between all possible samples. Although the degree of variability is not known exactly, it can be estimated from the survey results.

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

If the sample of respondents had been selected as a simple random sample, it would have been possible to use straightforward formulas for calculating sampling errors. However, the 2006-07 AMIS sample is the result of a multi-stage stratified design, and, consequently, it is necessary to use more complex formulae. The computer software used to calculate sampling errors for the 2006-07 AMIS is the ISSA Sampling Error Module. This module uses the Taylor linearization method of variance estimation for survey estimates that are means or proportions. The Jackknife repeated replication method is used for variance estimation of more complex statistics, such as fertility and mortality rates.

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

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

in which

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

where

h represents the stratum which varies from 1 to H,

m_h is the total number of clusters selected in the h^{th} stratum,

y_{hi} is the sum of the weighted values of variable y in the i^{th} cluster in the h^{th} stratum,

x_{hi} is the sum of the weighted number of cases in the i^{th} cluster in the h^{th} stratum, and

f is the overall sampling fraction, which is so small that it is ignored.

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

Sampling errors for the 2006-07 AMIS are calculated for selected variables considered to be of primary interest for the survey. The results are presented for the country as a whole, for urban and rural areas, and for each of the three malaria epidemiologic regions plus Luanda, the capital city. Table B.1 gives the type of statistic (mean or proportion) and the base population for each selected variable. Tables B.2 through B.8 present the value of the statistic (R), its standard error (SE), the number of unweighted (N) and weighted (WN) cases, the design effect (DEFT), the relative standard error (SE/R), and the 95 percent confidence limits (R±2SE) for each variable. The DEFT is considered undefined when the standard error considering simple random sample is zero (when the estimate is close to 0 or 1). In the case of the total fertility rate, the number of unweighted cases is not relevant, as there is no known unweighted value for woman-years of exposure to childbearing.

For an example of how the confidence interval should be interpreted, look at the variable "households with at least one ITN" in Table B.2. The overall proportion from the national sample is 0.275 (or 27.5 percent), and the standard error is 0.019. To obtain the 95 percent confidence limits, one adds and subtracts twice the standard error to the sample estimate, i.e., $0.275 \pm 2 \times 0.019$. Thus, there is a high probability (95 percent) that the *true* average proportion of households with at least one ITN lies between 0.236 and 0.314.

Sampling errors are analyzed for the national sample and for six separate groups (the two residence areas and the four malaria regions) for estimates of means and proportions. The relative standard errors (SE/R) for the means and proportions in the national sample range between 4.2 percent and 23 percent, with an average of 16.6 percent; the highest relative standard errors are for estimates of very low values (such as "pregnant women who took any SP/Fansidar," with a 23 percent relative error) or small sample sizes (such as "pregnant women who slept under any net last night," with a 16 percent relative error). All but four indicators have relative errors of 10 percent or less for the national sample. When these four indicators are excluded, the average relative error drops to 7.65 percent. Thus, the relative standard errors for most estimates for the country as a whole are small.

There are differentials in the relative standard errors for estimates of sub-populations. For example, for the variable "children under five who slept under any net last night," the relative standard errors as a percent of the estimated mean for the entire country and for urban areas are 9 percent and 11 percent, respectively.

For the total sample, the value of the design effect (DEFT), averaged over all variables, is 1.84. This means that, due to multi-stage clustering of the sample, the average standard error is increased by a factor of 1.84 over that in an equivalent simple random sample.

Table B.1 List of selected variables for sampling errors, Angola MIS 2006-07

Variable	Estimate	Base population
Households with at least one mosquito net	Proportion	All households
Number of mosquito nets per household	Mean	All households
Households with at least one ever-treated mosquito net	Proportion	All households
Ever-treated mosquito nets per household	Mean	All households
Households with at least one ITN	Proportion	All households
Number of ITNs per household	Mean	All households
Children under five who slept under any net last night	Proportion	All children under five
Children under five who slept under treated net last night	Proportion	All children under five
Children under five who slept under ITN last night	Proportion	All children under five
Pregnant women who slept under any net last night	Proportion	All pregnant women
Pregnant women who slept under treated net last night	Proportion	All pregnant women
Pregnant women who slept under ITN last night	Proportion	All pregnant women
Pregnant women who took any antimalarial	Proportion	All women
Pregnant women who took any SP/Fansidar	Proportion	All women
Prevalence of fever among children under five	Proportion	All children under five
Proportion of children who took antimalarial drugs	Proportion	All children under five with fever in past 2 weeks

Table B.2 Sampling errors: National sample, Angola MIS 2006-07

Variable	Value (R)	Standard error (SE)	Number of cases Unweighted (N)	Number of cases Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence limits R-2SE	Confidence limits R+2SE
Households with at least one mosquito net	0.326	0.021	2599	2599	2.322	0.065	0.284	0.369
Number of mosquito nets per household	0.514	0.037	2599	2599	2.186	0.071	0.440	0.587
Households with at least one ever-treated mosquito net	0.281	0.020	2599	2599	2.259	0.071	0.242	0.321
Number of ever-treated mosquito nets per household	0.435	0.033	2599	2599	2.149	0.077	0.368	0.502
Households with at least one ITN	0.275	0.019	2599	2599	2.216	0.071	0.236	0.314
Number of ITNs per household	0.422	0.032	2599	2599	2.104	0.077	0.357	0.486
Children under five who slept under any net last night	0.207	0.019	2750	2739	1.874	0.090	0.170	0.244
Children under five who slept under treated net last night	0.182	0.018	2750	2739	1.946	0.101	0.146	0.219
Children under five who slept under an ITN last night	0.177	0.018	2750	2739	1.904	0.100	0.142	0.213
Pregnant women who slept under any net last night	0.246	0.040	273	269	1.507	0.161	0.167	0.326
Pregnant women who slept under treated net last night	0.228	0.038	273	269	1.500	0.168	0.151	0.304
Pregnant women who slept under an ITN last night	0.220	0.038	273	269	1.488	0.170	0.145	0.296
Pregnant women who took any antimalarial	0.595	0.030	1092	1011	2.037	0.051	0.534	0.655
Pregnant women who took any SP/Fansidar	0.041	0.009	1092	1011	1.562	0.230	0.022	0.059
Prevalence of fever among children under five	0.239	0.010	2358	2218	1.036	0.042	0.219	0.259
Proportion of chidren under five with fever who took antimalarial drugs	0.293	0.030	534	530	1.411	0.102	0.233	0.352

Table B.3 Sampling errors: Urban sample, Angola MIS 2006-07

Variable	Value (R)	Standard error (SE)	Number of cases: Unweighted (N)	Number of cases: Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence limits: R-2SE	Confidence limits: R+2SE
Households with at least one mosquito net	0.340	0.019	1099	1301	1.346	0.057	0.301	0.378
Number of mosquito nets per household	0.569	0.039	1099	1301	1.380	0.068	0.491	0.646
Households with at least one ever-treated mosquito net	0.298	0.019	1099	1301	1.341	0.062	0.261	0.335
Number of ever-treated mosquito nets per household	0.484	0.034	1099	1301	1.319	0.071	0.416	0.553
Households with at least one ITN	0.291	0.018	1099	1301	1.305	0.061	0.256	0.327
Number of ITNs per household	0.470	0.032	1099	1301	1.261	0.068	0.406	0.534
Children under five who slept under any net last night	0.192	0.021	1109	1287	1.365	0.108	0.150	0.233
Children under five who slept under treated net last night	0.169	0.018	1109	1287	1.249	0.107	0.132	0.205
Children under five who slept under ITN last night	0.167	0.018	1109	1287	1.262	0.109	0.131	0.203
Pregnant women who slept under any net last night	0.179	0.045	89	101	1.093	0.253	0.088	0.270
Pregnant women who slept under treated net last night	0.167	0.042	89	101	1.051	0.254	0.082	0.252
Pregnant women who slept under and ITN last night	0.148	0.034	89	101	0.882	0.230	0.080	0.215
Pregnant women who took any antimalarial	0.770	0.037	402	448	1.740	0.048	0.696	0.843
Pregnant women who took any SP/Fansidar	0.055	0.017	402	448	1.512	0.312	0.021	0.090
Prevalence of fever among children under five	0.225	0.011	936	1026	0.724	0.048	0.204	0.247
Proportion of children under five with fever who took antimalarial drugs	0.380	0.048	199	231	1.331	0.127	0.284	0.477

Table B.4 Sampling errors: Rural sample, Angola MIS 2006-07

Variable	Value (R)	Standard error (SE)	Number of cases: Unweighted (N)	Number of cases: Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence limits: R-2SE	Confidence limits: R+2SE
Households with at least one mosquito net	0.313	0.038	1500	1298	3.167	0.121	0.237	0.389
Number of mosquito nets per household	0.459	0.062	1500	1298	3.084	0.135	0.335	0.582
Households with at least one ever-treated mosquito net	0.265	0.035	1500	1298	3.081	0.132	0.195	0.335
Number of ever-treated mosquito nets per household	0.385	0.058	1500	1298	3.090	0.150	0.270	0.500
Households with at least one ITN	0.259	0.034	1500	1298	3.026	0.132	0.190	0.327
Number of ITNs per household	0.374	0.056	1500	1298	3.037	0.150	0.262	0.485
Children under five who slept under any net last night	0.220	0.030	1641	1452	2.287	0.135	0.161	0.280
Children under five who slept under a treated net last night	0.195	0.031	1641	1452	2.473	0.157	0.134	0.256
Children under five who slept under ITN last night	0.187	0.029	1641	1452	2.408	0.157	0.128	0.245
Pregnant women who slept under any net last night	0.287	0.056	184	168	1.731	0.196	0.174	0.399
Pregnant women who slept under treated net last night	0.264	0.055	184	168	1.738	0.208	0.154	0.374
Pregnant women who slept under an ITN last night	0.264	0.055	184	168	1.738	0.208	0.154	0.374
Pregnant women who took any antimalarial	0.455	0.039	690	563	2.060	0.086	0.377	0.533
Pregnant women who took any SP/Fansidar	0.029	0.010	690	563	1.542	0.339	0.009	0.049
Prevalence of fever among children under five	0.251	0.016	1422	1192	1.296	0.063	0.219	0.283
Proportion of children under five with fever who took antimalarial drugs	0.225	0.035	335	299	1.474	0.154	0.156	0.294

Table B.5 Sampling errors: Mesoendemic Stable region, Angola MIS 2006-07

Variable	Value (R)	Standard error (SE)	Number of cases: Unweighted (N)	Number of cases: Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence limits: R-2SE	Confidence limits: R+2SE
Households with at least one mosquito net	0.250	0.045	676	928	2.685	0.179	0.160	0.339
Number of mosquito nets per household	0.382	0.073	676	928	2.482	0.190	0.237	0.527
Households with at least one ever-treated mosquito net	0.210	0.037	676	928	2.374	0.177	0.136	0.285
Number of ever-treated mosquito nets per household	0.317	0.060	676	928	2.234	0.189	0.197	0.437
Households with at least one ITN	0.204	0.035	676	928	2.285	0.174	0.133	0.275
Number of ITNs per household	0.304	0.056	676	928	2.139	0.185	0.192	0.417
Children under five who slept under any net last night	0.178	0.038	672	950	1.991	0.212	0.102	0.253
Children under five who slept under treated net last night	0.164	0.035	672	950	1.924	0.214	0.094	0.234
Children under five who slept under ITN last night	0.156	0.032	672	950	1.795	0.204	0.092	0.220
Pregnant women who slept under any net last night	0.241	0.079	68	101	1.590	0.328	0.083	0.400
Pregnant women who slept under treated net last night	0.235	0.079	68	101	1.604	0.337	0.076	0.393
Pregnant women who slept under an ITN last night	0.235	0.079	68	101	1.604	0.337	0.076	0.393
Pregnant women who took any antimalarial	0.654	0.048	303	386	1.769	0.074	0.557	0.750
Pregnant women who took any SP/Fansidar	0.026	0.013	303	386	1.414	0.498	0.000	0.052
Prevalence of fever among children under five	0.261	0.019	607	786	1.032	0.075	0.222	0.300
Proportion of children under five with fever who took antimalarial drugs	0.210	0.045	161	205	1.414	0.216	0.119	0.300

Table B.6 Sampling errors: Hyperendemic region, Angola MIS 2006-07

Variable	Value (R)	Standard error (SE)	Number of cases: Unweighted (N)	Number of cases: Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence limits: R-2SE	Confidence limits: R+2SE
Households with at least one mosquito net	0.538	0.045	733	498	2.432	0.083	0.449	0.628
Number of mosquito nets per household	0.846	0.081	733	498	2.314	0.096	0.684	1.009
Households with at least one ever-treated mosquito net	0.513	0.051	733	498	2.746	0.099	0.411	0.614
Number of ever-treated mosquito nets per household	0.802	0.085	733	498	2.449	0.107	0.631	0.973
Households with at least one ITN	0.510	0.050	733	498	2.690	0.098	0.410	0.609
Number of ITNs per household	0.793	0.083	733	498	2.402	0.105	0.627	0.960
Children under five who slept under any net last night	0.365	0.055	804	577	2.579	0.151	0.254	0.475
Children under five who slept under treated net last night	0.338	0.061	804	577	2.936	0.182	0.215	0.461
Children under five who slept under ITN last night	0.338	0.061	804	577	2.936	0.182	0.215	0.461
Pregnant women who slept under any net last night	0.418	0.084	89	62	1.633	0.201	0.250	0.586
Pregnant women who slept under treated net last night	0.388	0.084	89	62	1.654	0.217	0.220	0.557
Pregnant women who slept under ITN last night	0.388	0.084	89	62	1.654	0.217	0.220	0.557
Pregnant women who took any antimalarial	0.418	0.072	330	209	2.662	0.173	0.273	0.563
Pregnant women who took any SP/Fansidar	0.060	0.026	330	209	1.974	0.432	0.008	0.111
Prevalence of fever among children under five	0.203	0.018	706	469	1.117	0.090	0.167	0.240
Proportion of chilfren under five with fever who took antimalarial drugs	0.247	0.056	133	95	1.462	0.228	0.135	0.360

Table B.7 Sampling errors: Mesoendemic Unstable region, Angola MIS 2006-07

Variable	Value (R)	Standard error (SE)	Number of cases: Unweighted (N)	Number of cases: Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence limits: R-2SE	Confidence limits: R+2SE
Households with at least one mosquito net	0.340	0.046	495	360	2.147	0.135	0.248	0.431
Number of mosquito nets per household	0.549	0.095	495	360	2.383	0.173	0.359	0.739
Households with at least one ever-treated mosquito net	0.237	0.055	495	360	2.850	0.230	0.128	0.346
Number of ever-treated mosquito nets per household	0.376	0.105	495	360	3.061	0.278	0.167	0.586
Households with at least one ITN	0.226	0.057	495	360	3.015	0.251	0.113	0.340
Number of ITNs per household	0.359	0.107	495	360	3.184	0.298	0.145	0.573
Children under five who slept under any net last night	0.146	0.029	611	456	1.641	0.197	0.088	0.203
Children under five who slept under treated net last night	0.103	0.031	611	456	2.010	0.299	0.042	0.165
Children under five who slept under ITN last night	0.094	0.032	611	456	2.159	0.339	0.030	0.158
Pregnant women who slept under any net last night	0.165	0.058	64	52	1.317	0.351	0.049	0.281
Pregnant women who slept under treated net last night	0.117	0.036	64	52	0.955	0.311	0.044	0.190
Pregnant women who slept under ITN last night	0.117	0.036	64	52	0.955	0.311	0.044	0.190
Pregnant women who took any antimalarial	0.482	0.085	227	169	2.566	0.177	0.312	0.653
Pregnant women who took any SP/Fansidar	0.035	0.015	227	169	1.186	0.412	0.006	0.064
Prevalence of fever among children under five	0.241	0.025	479	369	1.249	0.105	0.190	0.292
Proportion of children under five with fever who took antimalarial drugs	0.273	0.070	115	89	1.513	0.257	0.133	0.413

Table B.8 Sampling errors: Luanda sample, Angola MIS 2006-07

Variable	Value (R)	Standard error (SE)	Number of cases: Unweighted (N)	Number of cases: Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence limits: R-2SE	Confidence limits: R+2SE
Households with at least one mosquito net	0.278	0.020	695	813	1.189	0.073	0.238	0.319
Number of mosquito nets per household	0.444	0.038	695	813	1.203	0.085	0.368	0.520
Households with at least one ever-treated mosquito net	0.241	0.020	695	813	1.227	0.083	0.201	0.280
Number of ever-treated mosquito nets per household	0.370	0.033	695	813	1.165	0.089	0.304	0.435
Households with at least one ITN	0.234	0.019	695	813	1.183	0.081	0.196	0.272
Number of ITNs per household	0.356	0.032	695	813	1.162	0.091	0.291	0.420
Children under five who slept under any net last night	0.160	0.024	663	756	1.374	0.151	0.111	0.208
Children under five who slept under treated net last night	0.135	0.018	663	756	1.139	0.137	0.098	0.172
Children under five who slept under ITN last night	0.132	0.019	663	756	1.164	0.142	0.095	0.170
Pregnant women who slept under any net last night	0.136	0.057	52	54	1.130	0.421	0.022	0.250
Pregnant women who slept under treated net last night	0.136	0.057	52	54	1.130	0.421	0.022	0.250
Pregnant women who slept under ITN last night	0.099	0.031	52	54	0.703	0.312	0.037	0.161
Pregnant women who took any antimalarial	0.729	0.028	232	246	0.968	0.039	0.672	0.786
Pregnant women who took any SP/Fansidar	0.051	0.022	232	246	1.489	0.421	0.008	0.095
Prevalence of fever among children under five	0.237	0.015	566	594	0.745	0.064	0.207	0.268
Proportion of children under five with fever who took antimalarial drugs	0.456	0.052	125	141	1.075	0.115	0.352	0.561

DATA QUALITY TABLES

Appendix C

Table C.1 Household age distribution

Single-year distribution of the de facto household population by sex (weighted), Angola MIS 2006-07

	Females		Males			Females		Males	
Age	Number	Percent	Number	Percent	Age	Number	Percent	Number	Percent
0	306	4.1	276	3.8	36	80	1.1	55	0.8
1	266	3.6	304	4.2	37	70	0.9	53	0.7
2	245	3.3	250	3.5	38	78	1.0	77	1.1
3	290	3.9	279	3.9	39	52	0.7	58	0.8
4	264	3.6	258	3.6	40	99	1.3	86	1.2
5	205	2.8	151	2.1	41	53	0.7	37	0.5
6	222	3.0	262	3.6	42	67	0.9	82	1.1
7	234	3.2	188	2.6	43	45	0.6	60	0.8
8	204	2.8	220	3.1	44	66	0.9	39	0.5
9	196	2.6	213	3.0	45	62	0.8	76	1.1
10	226	3.0	208	2.9	46	38	0.5	39	0.5
11	149	2.0	150	2.1	47	50	0.7	35	0.5
12	203	2.7	208	2.9	48	26	0.4	41	0.6
13	190	2.6	156	2.2	49	14	0.2	33	0.5
14	213	2.9	174	2.4	50	114	1.5	46	0.6
15	188	2.5	191	2.6	51	39	0.5	23	0.3
16	156	2.1	178	2.5	52	53	0.7	36	0.5
17	170	2.3	198	2.8	53	38	0.5	32	0.4
18	225	3.0	265	3.7	54	30	0.4	27	0.4
19	141	1.9	185	2.6	55	40	0.5	41	0.6
20	218	2.9	227	3.2	56	31	0.4	44	0.6
21	106	1.4	88	1.2	57	19	0.3	21	0.3
22	155	2.1	132	1.8	58	27	0.4	33	0.5
23	98	1.3	114	1.6	59	3	0.0	24	0.3
24	106	1.4	119	1.6	60	44	0.6	48	0.7
25	127	1.7	108	1.5	61	11	0.2	9	0.1
26	100	1.3	85	1.2	62	24	0.3	23	0.3
27	91	1.2	75	1.0	63	13	0.2	17	0.2
28	100	1.3	84	1.2	64	15	0.2	19	0.3
29	93	1.2	66	0.9	65	18	0.2	21	0.3
30	106	1.4	109	1.5	66	20	0.3	16	0.2
31	71	1.0	37	0.5	67	10	0.1	14	0.2
32	95	1.3	86	1.2	68	21	0.3	17	0.2
33	66	0.9	62	0.9	69	10	0.1	9	0.1
34	52	0.7	41	0.6	70+	111	1.5	105	1.5
35	58	0.8	54	0.8	Don't know missing	3	0.0	13	0.2
					Total	7,429	100.0	7,204	100.0

Table C.2 Age distribution of eligible and interviewed women

De facto household population of women age 10-54, interviewed women age 15-49, and percentage of eligible women who were interviewed (weighted), by five-year age groups, Angola MIS 2006-07

Age group	Household population of women 10-54	Interviewed women age 15-49		Percentage of eligible women interviewed
		Number	Percent	
10-14	980	na	na	na
15-19	880	844	26.6	96.0
20-24	682	656	20.7	96.1
25-29	511	486	15.3	95.1
30-34	390	370	11.7	94.9
25-39	338	318	10.0	93.9
40-44	330	318	10.0	96.1
45-49	190	181	5.7	95.1
50-54	274	na	na	na
15-49	3,322	3,172	100.0	95.5

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

Table C.3 Births by calendar years

Number of births, percentage with complete birth date, sex ratio at birth, and calendar year ratio by calendar year, according to living, dead, and total children (weighted), Angola MIS 2006-07

Year	Number of births			Percentage with a complete birth date[1]			Sex ratio at birth[2]			Calendar year ratio[3]		
	Living	Dead	Total	Living	Dead	Total	Living	Dead	Total	Living	Dead	Total
2007	19	1	20	98.3	100.0	98.4	61.5	162.6	64.9	na	na	na
2006	523	28	551	99.9	99.0	99.8	87.3	117.9	88.7	na	na	na
2005	495	38	533	98.6	94.9	98.4	124.6	59.0	118.2	106.6	97.8	105.9
2004	406	50	457	99.6	89.1	98.5	98.6	121.0	100.9	82.7	113.1	85.2
2003	488	51	538	99.6	91.0	98.8	96.2	176.4	101.7	123.4	119.7	123.1
2002	384	34	418	99.2	97.9	99.1	89.6	116.4	91.5	104.5	98.5	104.0
2001	247	19	266	97.1	85.3	96.3	85.0	58.1	82.8	na	na	na
Total	2,561	221	2,782	99.2	92.9	98.7	97.0	108.5	97.9	na	na	na

[1] Both year and month of birth given
[2] $(B_m/B_f)*100$, where B_m and B_f are the numbers of male and female births, respectively
[3] $[2B_x/(B_{x-1}+B_{x+1})]*100$, where B_x is the number of births in calendar year x
na = Not applicable

Table C.4 Reporting of age at death in days

Distribution of reported deaths under one month of age by age at death in days and the percentage of neonatal deaths reported to occur at age 0-6 days, for five-year periods preceding the survey (weighted), Angola MIS 2006-07

Age at death in days	Number of years preceding the survey		Total
	0-4	5-9	
<1	7	0	7
1	17	0	17
2	10	0	10
3	3	0	4
4	5	0	5
5	2	0	2
7	3	1	3
8	1	0	1
9	0	0	0
13	3	0	3
14	0	0	0
15	2	0	2
17	1	0	1
18	0	2	2
20	0	0	0
21	3	0	3
23	1	0	1
24	2	0	2
28	4	0	4
30	1	0	1
Total 0-30 days	65	3	68
Percent early neonatal[1]	68.0	11.0	66.0

[1] 0-6 days/0-30 days

Table C.5 Reporting of age at death in months

Distribution of reported deaths under two years of age by age at death in months and the percentage of infant deaths reported to occur at age under one month, for five-year periods preceding the survey (weighted), Angola MIS 2006-07

Age at death in months	Number of years preceding the survey		Total
	0-4	5-9	
<1 month[1]	65	3	68
1	7	0	7
2	18	2	20
3	5	0	5
4	4	2	5
5	10	0	10
6	18	3	21
7	9	3	12
8	6	0	6
9	10	0	11
10	2	0	2
11	2	0	2
12	14	4	18
13	0	1	1
17	2	0	2
18	1	0	1
24 or more	4	0	4
1 year	3	0	3
Total 0-11	158	13	171
Percent neonatal[2]	41.0	20.0	40.0

[1] Includes deaths under one month reported in days
[2] Under one month/under one year

PERSONS INVOLVED IN THE 2006-07 ANGOLA MALARIA INDICATOR SURVEY

Appendix ***D***

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QUESTIONNAIRES

Appendix ***E***

November, 2006

ANGOLA MALARIA INDICATOR SURVEY
HOUSEHOLD QUESTIONNAIRE

ANGOLA
COSEP – CONSULTORIA, LDA / CONSAUDE

IDENTIFICATION

PLACE NAME _____

NAME OF HOUSEHOLD HEAD _____

CLUSTER NUMBER .....

HOUSEHOLD NUMBER .....

REGION .....

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

MALARIA ENDEMIC REGION .....
1 = Hyperendemic (Cabinda, Uige, K. Norte, Malange, L. Norte, L. Sul
2 = Mesoendemic Stable (Zaire, Luanda, Bengo, Benguela, K. Sul, Huambo, Bié)
3 = Mesoendemic Unstable (Moxico, K. Kubango, Kunene, Huila, Namibe)

INTERVIEWER VISITS

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

*RESULT CODES:

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

TOTAL PERSONS IN HOUSEHOLD

TOTAL ELIGIBLE WOMEN

LINE NUMBER OF RESPONDENT TO HOUSEHOLD QUESTIONNAIRE

SUPERVISOR	OFFICE EDITOR	KEYED BY
NAME _____		
DATE _____		

INFORMED CONSENT

Hello. My name is _____ and I am working with (NAME OF ORGANIZATION). We are conducting a national survey about malaria. We would very much appreciate your participation in this survey. The information you provide will help the government to plan health services. The survey usually takes about 20 minutes to complete. Whatever information you provide will be kept strictly confidential and will not be shown to other persons.

Participation in this survey is voluntary and you can choose not to answer any individual question or all of the questions. However, we hope that you will participate in this survey since your views are important.

At this time, do you want to ask me anything about the survey?
May I begin the interview now?

Signature of interviewer: _____ Date: _____

RESPONDENT AGREES TO BE INTERVIEWED..... 1 ↓ RESPONDENT DOES NOT AGREE TO BE INTERVIEWED .... 2 —▸END

HOUSEHOLD LISTING

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

LINE NO.	USUAL RESIDENTS AND VISITORS	RELATIONSHIP TO HEAD OF HOUSEHOLD	SEX	RESIDENCE		AGE	ELIGIBLE WOMEN	ELIGIBLE 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?	Does (NAME) usually live here?	Did (NAME) stay here last night?	How old is (NAME)?	CIRCLE LINE NUMBER OF ALL WOMEN AGE 15-49	CIRCLE LINE NUMBER OF ALL CHILDREN AGE 0-5 YEARS
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
			M F	YES NO	YES NO	IN YEARS		
01			1 2	1 2	1 2		01	01
02			1 2	1 2	1 2		02	02
03			1 2	1 2	1 2		03	03
04			1 2	1 2	1 2		04	04
05			1 2	1 2	1 2		05	05
06			1 2	1 2	1 2		06	06
07			1 2	1 2	1 2		07	07
08			1 2	1 2	1 2		08	08
09			1 2	1 2	1 2		09	09
10			1 2	1 2	1 2		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 = PARENT
07 = PARENT-IN-LAW
08 = BROTHER OR SISTER
09 = OTHER RELATIVE
10 = ADOPTED/FOSTER/ STEPCHILD
11 = NOT RELATED
98 = DON'T KNOW

LINE NO.	USUAL RESIDENTS AND VISITORS	RELATIONSHIP TO HEAD OF HOUSEHOLD	SEX	RESIDENCE		AGE	ELIGIBLE WOMEN	ELIGIBLE 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?	Does (NAME) usually live here?	Did (NAME) stay here last night?	How old is (NAME)?	CIRCLE LINE NUMBER OF ALL WOMEN AGE 15-49	CIRCLE LINE NUMBER OF ALL CHILDREN AGE 0-5 YEARS
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
			M F	YES NO	YES NO	IN YEARS		
11			1 2	1 2	1 2		11	11
12			1 2	1 2	1 2		12	12
13			1 2	1 2	1 2		13	13
14			1 2	1 2	1 2		14	14
15			1 2	1 2	1 2		15	15
16			1 2	1 2	1 2		16	16
17			1 2	1 2	1 2		17	17
18			1 2	1 2	1 2		18	18
19			1 2	1 2	1 2		19	19
20			1 2	1 2	1 2		20	20

TICK HERE IF CONTINUATION SHEET USED ☐

Just to make sure that I have a complete listing:

1) Are there any other persons such as small children or infants that we have not listed? YES ☐→ ENTER EACH IN TABLE NO ☐

2) In addition, are there any other people who may not be members of your family, such as domestic servants, lodgers or friends who usually live here? YES ☐→ ENTER EACH IN TABLE NO ☐

3) Are there any guests or temporary visitors staying here, or anyone else who stayed here last night, who have not been listed? YES ☐→ ENTER EACH IN TABLE NO ☐

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
10	What is the main source of drinking water for members of your household?	PIPED WATER PIPED INTO DWELLING ..... 11 PIPED INTO YARD/PLOT..... 12 PUBLIC TAP/STANDPIPE..... 13 TUBE WELL OR BOREHOLE ..... 21 DUG WELL PROTECTED WELL ..... 31 UNPROTECTED WELL ..... 32 WATER FROM SPRING PROTECTED SPRING ..... 41 UNPROTECTED SPRING ..... 42 RAINWATER ..... 51 TANKER TRUCK ..... 61 CART WITH SMALL TANK ..... 71 SURFACE WATER (RIVER/DAM/ LAKE/POND/STREAM/CANAL/ IRRIGATION CHANNEL ..... 81 BOTTLED WATER..... 91 OTHER _____ 96 (SPECIFY)	
11	What kind of toilet facilities does your household use?[1]	FLUSH OR POUR FLUSH TOILET FLUSH TO PIPED SEWER SYSTEM..... 11 FLUSH TO SEPTIC TANK ..... 12 FLUSH TO PIT LATRINE..... 13 FLUSH TO SOMEWHERE ELSE . 14 FLUSH, DON'T KNOW WHERE . .... 15 PIT LATRINE VENTILATED IMPROVED PIT LATRINE (VIP)..... 21 PIT LATRINE WITH SLAB..... 22 PIT LATRINE WITHOUT SLAB/ OPEN PIT..... 23 COMPOSTING TOILET..... 31 BUCKET TOILET..... 41 HANGING TOILET/HANGING LATRINE..... 51 NO FACILITY/BUSH/FIELD..... 61 OTHER _____ 96 (SPECIFY)	
12	Does your household have: Public electricity? Alternative source of electricity (generator; solar panel)? A radio? A television? A telephone (fixed or mobile)? A refrigerator?	YES NO PUBLIC ELECTRICITY ..... 1 2 ALTERNATIVE ELECTRICITY .... 1 2 RADIO ..... 1 2 TELEVISION ..... 1 2 TELEPHONE (FIXED)..... 1 2 TELEPHONE (MOBILE)..... 1 2 REFRIGERATOR..... 1 2	
13	What type of fuel does your household mainly use for cooking?	ELECTRICITY ..... 01 LPG/NATURAL GAS..... 02 OIL..... 03 FIREWOOD..... 04 COAL..... 05 STRAW ..... 06 DUNG..... 07 OTHER _____ 96 (SPECIFY)	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
14	MAIN MATERIAL OF THE FLOOR. RECORD OBSERVATION.	NATURAL FLOOR EARTH/SAND ..... 11 DUNG ..... 12 RUDIMENTARY FLOOR WOOD PLANKS ..... 21 PALM/BAMBOO ..... 22 FINISHED FLOOR PARQUET OR POLISHED WOOD ..... 31 VINYL OR ASPHALT STRIPS ..... 32 CERAMIC TILES ..... 33 CEMENT ..... 34 CARPET ..... 35 OTHER _____ 96 (SPECIFY)	
15	Does any member of your household own: A bicycle? A motorcycle or motor scooter? A car or truck? A wagon? A horse/donkey?	YES NO BICYCLE ..... 1 2 MOTORCYCLE/SCOOTER ..... 1 2 CAR/TRUCK ..... 1 2 WAGON ..... 1 2 HORSE/DONKEY 1 2	
15A	At any time in the past 12 months, has anyone sprayed the interior walls of your dwelling against mosquitoes?	YES ..... 1 NO ..... 2 DON'T KNOW 8	→ 16
15B	How many months ago was the house sprayed? IF LESS THAN ONE MONTH, RECORD '00' MONTHS AGO.	MONTHS AGO ..... [ ][ ]	
15C	Who sprayed the house?[2]	GOVERNMENT WORKER/PROGRAM ..... 1 NAME OF PROGRAM (IF KNOWN) _____ PRIVATE COMPANY ..... 2 NAME OF COMPANY (IF KNOWN) _____ HOUSEHOLD MEMBER ..... 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	→ 27
17	How many mosquito nets does your household have? IF 7 OR MORE NETS, RECORD '7'.	NUMBER OF NETS ..... [ ]	

		NET # 1	NET #2	NET #3
18	ASK RESPONDENT TO SHOW YOU THE NET(S) IN THE HOUSEHOLD. IF MORE THAN THREE NETS, USE ADDITIONAL QUESTIONNAIRE(S).	OBSERVED .... 1 NOT OBSERVED 2	OBSERVED .... 1 NOT OBSERVED 2	OBSERVED .... 1 NOT OBSERVED 2
19	How long ago did your household obtain the mosquito net?	MOS AGO [ ][ ] MORE THAN 3 YEARS AGO 95	MOS AGO [ ][ ] MORE THAN 3 YEARS AGO 95	MOS AGO [ ][ ] MORE THAN 3 YEARS AGO……… 95
19a	(IF BETWEEN 0 AND 6 MONTHS) Did you obtain this mosquito net during the "*Viva a vida com saúde*" campaign?	YES..............................1 NO...............................2 DON'T KNOW...............8	YES..............................1 NO...............................2 DON'T KNOW...............8	YES..............................1 NO...............................2 DON'T KNOW...............8
20	OBSERVE OR ASK THE BRAND OF MOSQUITO NET. IF BRAND IS UNKNOWN, AND YOU CANNOT OBSERVE THE NET, SHOW PICTURES OF TYPICAL NET TYPES/BRANDS TO RESPONDENT.	'PERMANENT' NET OLYSET ....11 PERMANET ....12 JOIA ....16 OTHER/DON'T KNOW BRAND 17 (SKIP TO 24) .... 'PRETREATED' NET BRAND C………...21 BRAND D………...22 OTHER ______________ 26 (SKIP TO 22) .... OTHER………………31 DON'T KNOW BRAND……………..98	'PERMANENT' NET OLYSET ....11 PERMANET ....12 JOIA ....16 OTHER/DON'T KNOW BRAND 17 (SKIP TO 24) .... 'PRETREATED' NET BRAND C………...21 BRAND D………...22 OTHER ______________ 26 (SKIP TO 22) .... OTHER………………31 DON'T KNOW BRAND……………..98	'PERMANENT' NET OLYSET ....11 PERMANET ....12 JOIA ....16 OTHER/DON'T KNOW BRAND 17 (SKIP TO 24) .... 'PRETREATED' NET BRAND C………...21 BRAND D………...22 OTHER ______________ 26 (SKIP TO 22) .... OTHER………………31 DON'T KNOW BRAND……………..98
21	When you got the net, was it already factory-treated with an insecticide to kill or repel mosquitos?	YES..............................1 NO...............................2 NOT SURE 8	YES..............................1 NO...............................2 NOT SURE 8	YES..............................1 NO...............................2 NOT SURE 8
22	Since you got the mosquito net, was it ever soaked or dipped in a liquid to repel mosquitoes or bugs?	YES..............................1 NO...............................2 (SKIP TO 24) NOT SURE 8	YES..............................1 NO...............................2 (SKIP TO 24) NOT SURE 8	YES..............................1 NO...............................2 (SKIP TO 24) NOT SURE 8
23	How long ago was the net last soaked or dipped? IF LESS THAN 1 MONTH AGO, RECORD '00' MONTHS. IF LESS THAN 2 YEARS AGO, RECORD MONTHS AGO. IF '12 MONTHS AGO' OR '1 YEAR AGO,' PROBE FOR EXACT NUMBER OF MONTHS.	MOS AGO [ ][ ] MORE THAN 2 YEARS AGO........... 95 NOT SURE 98	MOS AGO [ ][ ] MORE THAN 2 YEARS AGO .... 95 NOT SURE 98	MOS AGO [ ][ ] MORE THAN 2 YEARS AGO........... 95 NOT SURE 98
24	Did anyone sleep under this mosquito net last night?	YES..............................1 NO...............................2 (SKIP TO 26) NOT SURE 8	YES..............................1 NO...............................2 (SKIP TO 26) NOT SURE 8	YES..............................1 NO...............................2 (SKIP TO 26) NOT SURE 8

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

		NET # 1	NET #2	NET #3
25	Who slept under this mosquito net last night? RECORD THE RESPECTIVE LINE NUMBER FROM THE HOUSEHOLD SCHEDULE.	NAME ___________ LINE NO [ ][ ] NAME ___________ LINE NO [ ][ ] NAME ___________ LINE NO [ ][ ] NAME ___________ LINE NO [ ][ ] NAME ___________ LINE NO [ ][ ]	NAME ___________ LINE NO [ ][ ] NAME ___________ LINE NO [ ][ ] NAME ___________ LINE NO [ ][ ] NAME ___________ LINE NO [ ][ ] NAME ___________ LINE NO [ ][ ]	NAME ___________ LINE NO [ ][ ] NAME ___________ LINE NO [ ][ ] NAME ___________ LINE NO [ ][ ] NAME ___________ LINE NO [ ][ ] NAME ___________ LINE NO [ ][ ]
26		GO BACK TO 18 FOR NEXT NET; OR, IF NO MORE NETS, VERIFY IN HOUSEHOLD LISTING THE ELIGIBLE WOMEN, AND START A NEW INDIVIDUAL WOMAN'S QUESTIONNAIRE WITH EACH ELIGIBLE WOMAN.	GO BACK TO 18 FOR NEXT NET; OR, IF NO MORE NETS, VERIFY IN HOUSEHOLD LISTING THE ELIGIBLE WOMEN, AND START A NEW INDIVIDUAL WOMAN'S QUESTIONNAIRE WITH EACH ELIGIBLE WOMAN.	GO BACK TO 18 IN THE FIRST COLUMN OF NEW QUESTIONNAIRE; OR, IF NO MORE NETS, VERIFY IN HOUSEHOLD LISTING THE ELIGIBLE WOMEN, AND START A NEW INDIVIDUAL WOMAN'S QUESTIONNAIRE WITH EACH ELIGIBLE WOMAN.

HAEMOGLOBIN MEASUREMENT FOR CHILDREN UNDER 5 YEARS

CHECK COLUMN (7) OF HOUSEHOLD LISTING: RECORD THE LINE NUMBER, NAME AND AGE OF ALL CHILDREN UNDER 5 YEARS. THEN ASK THE DATE OF BIRTH.

CHILDREN UNDER AGE 6 YEARS					HAEMOGLOBIN MEASUREMENT OF CHILDREN BORN IN 2001 OR LATER			
LINE NUMBER FROM COL. (1)	NAME FROM COL. (2)	AGE FROM COL. (7)	What Is (NAME's) date of birth? FOR CHILDREN NOT INCLUDED IN ANY BIRTH HISTORY, ASK DAY, MONTH AND YEAR.	CHECK HERE IF CHILD IS ELIGIBLE FOR MEASURE-MENT (AGE 6-59 MONTHS)	LINE NUMBER OF PARENT/ADULT RESPONSIBLE FOR THE CHILD RECORD '00' IF NOT LISTED IN HOUSEHOLD SCHEDULE	READ CONSENT STATEMENT TO PARENT/ADULT RESPONSIBLE FOR THE CHILD CIRCLE CODE AND SIGN	RESULT 1 MEASURED 2 NOT PRESENT 3 REFUSED 4 OTHER ________ SPECIFY	HAEMOGLOBIN LEVEL (G/DL)
(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)
			DAY MONTH YEAR			GRANTED REFUSED 1 SIGN__________ 2	(IF 2-4-->NEXT)	.
						1 SIGN__________ 2	(IF 2-4-->NEXT)	.
						1 SIGN__________ 2	(IF 2-4-->NEXT)	.
						1 SIGN__________ 2	(IF 2-4-->NEXT)	.
						1 SIGN__________ 2	(IF 2-4-->NEXT)	.
						1 SIGN__________ 2	(IF 2-4-->NEXT)	.

TICK HERE IF CONTINUATION SHEET USED ☐

CONSENT STATEMENT: As part of this survey, we are studying anaemia among children under 5 years. Anaemia is a serious health problem that results from poor nutrition or diseases such as malaria. This survey will assist the government to develop programs to prevent and treat these important health problems.

We request that all children born in 2001 or later participate in the anaemia testing part of this survey and give a few drops of blood from a finger. The test uses disposable sterile instruments that are clean and completely safe. The blood will be analyzed with new equipment and the results of the test will be given to you right after the blood is taken. The results will be kept confidential.

May I now ask that (NAME OF CHILD[REN]) participate in the anaemia test. However, if you decide not to have him/her/them tested, it is your right and we will respect your decision. Now please tell me if you agree to have the test(s) done.

36	CHECK 34: NUMBER OF CHILDREN WITH HAEMOGLOBIN LEVEL BELOW 7 G/DL ONE OR MORE ☐ → GIVE EACH PARENT/ADULT RESPONSIBLE FOR THE CHILD THE RESULT OF THE HAEMOGLOBIN MEASUREMENT, AND CONTINUE WITH 36.[1] NONE ☐ → GIVE EACH PARENT/ADULT RESPONSIBLE FOR THE CHILD THE RESULT OF THE HAEMOGLOBIN MEASUREMENT AND END THE HOUSEHOLD INTERVIEW.
37	We detected a low level of haemoglobin in the blood of [NAME OF CHILD(REN)]. This indicates that (NAME OF CHILD(REN) has/have developed severe anaemia, which is a serious health problem. We suggest you go to _____ [THE NEAREST HEALTH FACILITY] to receive appropriate treatment for [NAME OF CHILD(REN)] condition. Do you agree to go to that facility to have [NAME OF CHILD(REN)'S] anemia treated?

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

[1] If more than one child is below 7 g/dl, read statement in Q.37 to each parent/adult responsible for a child who is below the cutoff point.

HAEMOGLOBIN MEASUREMENT FOR WOMEN 15-49 YEARS

CHECK COLUMN (7) OF HOUSEHOLD LISTING: RECORD THE LINE NUMBER, NAME AND AGE OF ALL WOMEN 15-49 YEARS OLD. THEN ASK THE DATE OF BIRTH.

WOMEN 15-49 YEARS				HAEMOGLOBIN MEASUREMENT OF WOMEN AGED 15-49 YEARS			
LINE NUMBER FROM COL. (1)	NAME FROM COL. (2)	AGE FROM COL. (7)	WOMAN IS PREGNANT YES..........1 NO............2	LINE NUMBER OF PARENT/ADULT RESPONSIBLE FOR THE WOMAN (FOR UNDER 18) RECORD '00' IF NOT LISTED IN HOUSEHOLD SCHEDULE	READ CONSENT STATEMENT TO WOMAN OR PARENT/ADULT RESPONSIBLE FOR THE WOMAN UNDER 18 CIRCLE CODE AND SIGN	RESULT 1 MEASURED 2 NOT PRESENT 3 REFUSED 4 OTHER SPECIFY _________	HAEMOGLOBIN LEVEL (G/DL)
(38)	(39)	(40)	(41)	(42)	(43)	(44)	(45)
					GRANTED REFUSED 1 SIGN__________________ 2	(IF 2-4-->NEXT)	.
					1 SIGN__________________ 2	(IF 2-4-->NEXT)	.
					1 SIGN__________________ 2	(IF 2-4-->NEXT)	.
					1 SIGN__________________ 2	(IF 2-4-->NEXT)	.
					1 SIGN__________________ 2	(IF 2-4-->NEXT)	.
					1 SIGN__________________ 2	(IF 2-4-->NEXT)	.

TICK HERE IF CONTINUATION SHEET USED ☐

CONSENT STATEMENT: As part of this survey, we are studying anaemia among women between 15-49 years old. Anaemia is a serious health problem that results from poor nutrition or diseases such as malaria. This survey will assist the government to develop programs to prevent and treat these important health problems.

We request that all women aged 15-49 years participate in the anaemia testing part of this survey and give a few drops of blood from a finger. The test uses disposable sterile instruments that are clean and completely safe. The blood will be analyzed with new equipment and the results of the test will be given to you right after the blood is taken. The results will be kept confidential.

May I now ask that (NAME OF WOMEN) participate in the anaemia test. However, if you decide not to get tested [or have her/them tested], it is your right and we will respect your decision. Now please tell me if you agree to have the test(s) done.

46	CHECK 44 NUMBER OF WOMEN 15-49 YEARS WITH HAEMOGLOBIN LEVEL BELOW 7 G/DL ONE OR MORE ☐ → GIVE EACH WOMAN [OR PARENT/ADULT RESPONSIBLE FOR THE PERSON] THE RESULT OF THE HAEMOGLOBIN MEASUREMENT, AND CONTINUE WITH 46.[1] NONE ☐ → GIVE EACH WOMAN [PARENT/ADULT RESPONSIBLE FOR THE WOMAN] THE RESULT OF THE HB MEASUREMENT AND END THE HOUSEHOLD INTERVIEW.
47	We detected a low level of haemoglobin in the blood of [NAME OF WOMAN]. This indicates that (NAME OF WOMAN) has/have developed severe anaemia, which is a serious health problem. We suggest you go to _____ [THE NEAREST HEALTH FACILITY] to receive appropriate treatment for the condition. Do you agree to go to that facility to have [NAME OF WOMAN] anemia treated?

NAME OF WOMAN 15-49 YEARS WITH HAEMOGLOBIN BELOW 7 G/DL	NAME OF WOMAN OR PARENT/RESPONSIBLE ADULT	AGREES TO REFERRAL?
		YES.....1 NO.....2
		YES.....1 NO.....2
		YES.....1 NO.....2
		YES.....1 NO.....2
		YES.....1 NO.....2
		YES.....1 NO.....2
		YES.....1 NO.....2
		YES.....1 NO.....2
		YES.....1 NO.....2
		YES.....1 NO.....2

MALARIA TESTING—CHILDREN 6-59 MONTHS

CHECK COLUMN (7) OF HOUSEHOLD LISTING: RECORD THE LINE NUMBER, NAME AND AGE OF ALL CHILDREN 6-59 MONTHS THEN ASK THE DATE OF BIRTH.

CHILDREN 5-59 MONTHS			MALARIA TESTING OF CHILDREN AGE 6-59 MONTHS				
LINE NUMBER FROM COL. (9)	NAME FROM COL. (2)	LINE NUMBER OF PARENT/ ADULT RESPONSIBLE FOR THE CHILD RECORD '00' IF NOT LISTED IN HOUSEHOLD SCHEDULE	READ CONSENT STATEMENT TO PARENT/ADULT RESPONSIBLE FOR THE CHILD CIRCLE CODE AND SIGN	RESULT 1 TESTED 2 NOT PRESENT 3 REFUSED 4 OTHER	MALARIA RESULT 1 POSITIVE >> **READ PRESCRIPTION WARNINGS** 2 NEGATIVE 3 OTHER	BAR CODE LABEL PUT 1ST BAR CODE LABEL IN BOX BELOW. **PUT THE 2ND LABEL ON THE SLIDE AND THE 3RD ON THE TRANSMITTAL FORM**	TREATMENT OFFERED 1-ACCEPTED 2-DECLINED 3-CONTRA-INDICATED
(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)
☐☐		☐☐	GRANTED REFUSED 1 SIGN________________ 2	☐ (IF 2-4-->NEXT)	☐	PUT 1ST BAR CODE LABEL HERE	☐
☐☐		☐☐	1 SIGN________________ 2	☐ (IF 2-4-->NEXT)	☐	PUT 1ST BAR CODE LABEL HERE	☐
☐☐		☐☐	1 SIGN________________ 2	☐ (IF 2-4-->NEXT)	☐	PUT 1ST BAR CODE LABEL HERE	☐
☐☐		☐☐	1 SIGN________________ 2	☐ (IF 2-4-->NEXT)	☐	PUT 1ST BAR CODE LABEL HERE	☐
☐☐		☐☐	1 SIGN________________ 2	☐ (IF 2-4-->NEXT)	☐	PUT 1ST BAR CODE LABEL HERE	☐
☐☐		☐☐	1 SIGN________________ 2	☐ (IF 2-4-->NEXT)	☐	PUT 1ST BAR CODE LABEL HERE	☐

TICK HERE IF CONTINUATION SHEET USED ☐

CONSENT STATEMENT: As part of this survey, we are studying malaria among children and pregnant women. Malaria is a serious health problem caused by a parasite that is transmitted by a mosquito bite. This survey will assist the government to develop programs to prevent and treat malaria.

We request that all children born in 2001[1] or later participate in the malaria testing part of this survey and give a few drops of blood from a finger. The test uses disposable sterile instruments that are clean and completely safe. The blood will be analyzed with new equipment and the results of the test will be given to you right after the blood is taken. The results will be kept confidential.

May I now ask that (NAME OF CHILD[REN]) participate in the malaria test However, if you decide not to have him/her/them tested, it is your right and we will respect your decision. Now please tell me if you agree to have the test(s) done.

MALARIA TESTING—PREGNANT WOMEN

CHECK COLUMN (9) OF HOUSEHOLD LISTING: RECORD THE LINE NUMBER, NAME AND AGE OF ALL PREGNANT WOMEN.

PREGNANT WOMEN				MALARIA TESTING FOR PREGNANT WOMEN					
LINE NUMBER FROM COL. (8) AND PAGE 38 FOR ELIGIBLE PREGNANT WOMEN	NAME FROM PAGE 39	AGE FROM PAGE 40	How many months pregnant are you? [INDICATE GESTATIONAL AGE IN COMPLETE MONTHS AND WEEKS] RECORD GESTATIONAL AGE IN MONTHS AND WEEKS	LINE NUMBER OF WOMAN OR PARENT/ADULT RESPONSIBLE FOR THE PREGNANT WOMAN (IF UNDER 18) RECORD '00' IF NOT LISTED IN HOUSEHOLD SCHEDULE	READ CONSENT STATEMENT TO PREGNANT WOMAN OR PARENT/ADULT RESPONSIBLE FOR THE PREGNANT WOMAN CIRCLE CODE AND SIGN	RESULT 1 MEASURED 2 NOT PRESENT 3 REFUSED 4 OTHER	MALARIA RESULT 1 POSITIVE>> **READ PRESCRIPTION WARNINGS** 2 NEGATIVE 3 OTHER	IF POSITIVE AND PREGNANCY ≤ 3 MONTHS, CHECK BOX, AND **DO NOT** OFFER TREATMENT (MARK 3 IN (65))	TREATMENT OFFERED 1-ACCEPTED 2-DECLINED 3-CONTRA-INDICATED
(56)	(57)	(58)	(59)	(60)	(61)	(62)	(63)	(64)	(65)
☐☐		☐☐	MONTHS ☐☐ WEEKS ☐☐	☐☐	GRANTED REFUSED 1 SIGN.________________ 2	☐ (IF 2-4-->NEXT)	☐	☐	☐
☐☐		☐☐	MONTHS ☐☐ WEEKS ☐☐	☐☐	1 SIGN.________________ 2	☐ (IF 2-4-->NEXT)	☐	☐	☐
☐☐		☐☐	MONTHS ☐☐ WEEKS ☐☐	☐☐	1 SIGN.________________ 2	☐ (IF 2-4-->NEXT)	☐	☐	☐
☐☐		☐☐	MONTHS ☐☐ WEEKS ☐☐	☐☐	1 SIGN.________________ 2	☐ (IF 2-4-->NEXT)	☐	☐	☐
☐☐		☐☐	MONTHS ☐☐ WEEKS ☐☐	☐☐	1 SIGN.________________ 2	☐ (IF 2-4-->NEXT)	☐	☐	☐
☐☐		☐☐	MONTHS ☐☐ WEEKS ☐☐	☐☐	1 SIGN.________________ 2	☐ (IF 2-4-->NEXT)	☐	☐	☐

TICK HERE IF CONTINUATION SHEET USED ☐

CONSENT STATEMENT: As part of this survey, we are studying malaria among children and pregnant women. Malaria is a serious health problem caused by a parasite that is transmitted by a mosquito bite. This survey will assist the government to develop programs to prevent and treat malaria.

We request that all pregnant women participate in the malaria testing part of this survey and give a few drops of blood from a finger. The test uses disposable sterile instruments that are clean and completely safe. The blood will be analyzed with new equipment and the results of the test will be given to you right after the blood is taken. The results will be kept confidential.

May I now ask that (NAME OF PREGNANT WOMAN) participate in the malaria test However, if you decide not to test or have her/them tested, it is your right and we will respect your decision. Now please tell me if you agree to have the test(s) done.

MALARIA TESTING AND PRESCRIPTION

PRESCRIPTION WARNINGS FOR MALARIA POSITIVE CASES AMONG PREGNANT WOMEN:

READ THE STATEMENT FOR **PREGNANT** WOMEN
WHO RESULT POSITIVE WITH THE RAPID DIAGNOSTIC TEST

The test has given back a positive result. This means you seem to have active malaria. We can provide you with a full treatment free of charge with a medicine called quinine®. Quinine is an effective medication, and should help you to feel better in a few days. As with every medicine, this medicine may have undesired effects on you. The most common are headache, flushing and sweating, nausea, ringing in the ears, dizziness, blurred vision, and changes in seeing colors. There can be more severe symptoms, including disturbances in the heart rhythm, swelling and lack of blood coagulation. If any of these or other severe symptoms develop, they usually go if you stop taking the medication. If you are breastfeeding a baby, there should not be any problems with taking the medication.

Although you should feel better after the treatment, you have the right to decline receiving the treatment, with no repercussions to you. Please tell us whether you accept treatment or not.

MARK IN THE MALARIA TESTING SHEET WHETHER THE RESPONDENT AGREES TREATMENT FOR HER.

PRESCRIPTION OF QUININE

Give 650 mg of Quinine Sulfate (2 capsules of 324 mg each) every 8 hours (three times daily), preferably with food, for a total of 3 days (7 days?).

PRESCRIPTION WARNINGS FOR MALARIA POSITIVE CASES IN CHILDREN UNDER 5 YEARS:

READ THE STATEMENT FOR CHILDREN UNDER 5
WHO RESULT POSITIVE WITH THE RAPID DIAGNOSTIC TEST

The test has given back a positive result. This means your child[ren] seem[s] to have active malaria. We can provide him/her/them with a full treatment free of charge with a medicine called Coartem®. Coartem is very effective, and should in a few days rid him/her/them from fever and other symptoms. Coartem® is also very safe. However, as with every medicine, this medicine may have undesired effects. The most common are dizziness, fatigue, lack of appetite, palpitations. Coartem should not be taken by persons with severe heart problems or severe malaria (e.g. cerebral), or problems regulating their body salts [ASK IF THE CHILD[REN] HAS/HAVE ANY OF THESE PROBLEMS, THAT THEY ARE AWARE OF; IF SO, DO NOT OFFER COARTEM, EXPLAIN THE RISKS OF MALARIA, AND REFER HIM/HER/THEM TO NEAREST HEALTH FACILITY].

Although [NAME OF CHILD/REN] should feel better after the treatment, you have the right to decline GIVING THE CHILD/REN the treatment, with no repercussions to you [OR TO THE CHILD/REN]. Please tell us whether you accept treatment or not.

MARK IN THE MALARIA TESTING SHEET WHETHER THE RESPONDENT AGREES OR DECLINES TREATMENT FOR [EACH OF] HER CHILD[REN]

PRESCRIPTION OF COARTEM™

Weight (in Kg) – Approximate Age	Dosage *
5 to less than 15 – under 3 years of age	1 tablet twice daily for 3 days
15 to less than 25 – 3 to 8 years of age	2 tablets twice daily for 3 days
25 to less than 35 – 9 to 14 years of age	3 tablets twice daily for 3 days
35 or more (adults) – 15 + years of age	4 tables twice daily for 3 days

First day starts by taking first dose followed by the second one 8 hours later; on subsequent days the recommendation is simply “morning” and “evening” (usually around 12 hours apart).

ANGOLA MALARIA INDICATOR SURVEY
WOMEN'S QUESTIONNAIRE

ANGOLA
COSEP-CONSULTORIA, LDA/CONSAÚDE

IDENTIFICATION

PLACE NAME _____

NAME OF HOUSEHOLD HEAD _____

CLUSTER NUMBER .....

HOUSEHOLD NUMBER .....

REGION .....

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

MALARIA ENDEMIC REGION .....
1 = Hyperendemic (Cabinda, Uige, K. Norte, Malange, L. Norte, L. Sul
2 = Mesoendemic Stable (Zaire, Luanda, Bengo, Benguela, K. Sul, Huambo, Bié)
3 = Mesoendemic Unstable (Moxico, K. Kubango, Kunene, Huila, Namibe)

NAME AND LINE NUMBER OF WOMAN _____

INTERVIEWER VISITS

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

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

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

SUPERVISOR	OFFICE EDITOR	KEYED BY
NAME _____		
DATE _____		

SECTION 1. RESPONDENT'S BACKGROUND

INTRODUCTION AND CONSENT

INFORMED CONSENT

Hello. My name is _____ and I am working with (NAME OF ORGANIZATION). We are conducting a national survey about malaria. We would very much appreciate your participation in this survey. The information you provide will help the government to plan health services. The survey usually takes between 10 and 20 minutes to complete. Whatever information you provide will be kept strictly confidential and will not be shown to other persons.

Participation in this survey is voluntary and you can choose not to answer any individual question or all of the questions. However, we hope that you will participate in this survey since your views are important.

At this time, do you want to ask me anything about the survey?
May I begin the interview now?

Signature of interviewer: _____ Date: _____

RESPONDENT AGREES TO BE INTERVIEWED..... 1 ↓ RESPONDENT DOES NOT AGREE TO BE INTERVIEWED.... 2 —▸END

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
101	RECORD THE TIME.	HOUR ..... ☐☐ MINUTES ..... ☐☐	
102	In what month and year were you born?	MONTH ..... ☐☐ DON'T KNOW MONTH ..... 98 YEAR ..... ☐☐☐☐ DON'T KNOW YEAR 9998	
103	How old were you at your last birthday? COMPARE AND CORRECT 102 AND/OR 103 IF INCONSISTENT.	AGE IN COMPLETED YEARS ☐☐	
104	Have you ever attended school?	YES ..... 1 NO 2	—▸108
105	What is the highest level of school you attended: primary, secondary, or higher?[1]	PRIMARY ..... 1 SECONDARY ..... 2 HIGHER 3	
106	What is the highest (grade/form/year) you completed at that level?[1]	GRADE ..... ☐☐	
107	CHECK 105: PRIMARY ☐ ↓ SECONDARY OR HIGHER ☐		—▸201
108	Now I would like you to read this sentence to me. SHOW CARD TO RESPONDENT. IF RESPONDENT CANNOT READ WHOLE SENTENCE, PROBE: Can you read any part of the sentence to me?	CANNOT READ AT ALL ..... 1 ABLE TO READ ONLY PARTS OF SENTENCE ..... 2 ABLE TO READ WHOLE SENTENCE ..... 3 NO CARD WITH REQUIRED LANGUAGE _____ 4 (SPECIFY LANGUAGE) BLIND/VISUALLY IMPAIRED..... 5	

Section 2. REPRODUCTION

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
201	Now I would like to ask about all the births you have had during your life. Have you ever given birth?	YES .....1 NO 2	→206
202	Do you have any sons or daughters to whom you have given birth who are now living with you?	YES .....1 NO 2	→204
203	How many sons live with you? And how many daughters live with you? IF NONE, RECORD '00'.	SONS AT HOME..... ☐☐ DAUGHTERS AT HOME..... ☐☐	
204	Do you have any sons or daughters to whom you have given birth who are alive but do not live with you?	YES .....1 NO 2	→206
205	How many sons are alive but do not live with you? And how many daughters are alive but do not live with you? IF NONE, RECORD '00'.	SONS ELSEWHERE..... ☐☐ DAUGHTERS ELSEWHERE... ☐☐	
206	Have you ever given birth to a boy or girl who was born alive but later died? IF NO, PROBE: Any baby who cried or showed signs of life but did not survive?	YES .....1 NO 2	→208
207	How many boys have died? And how many girls have died? IF NONE, RECORD '00'.	BOYS DEAD ..... ☐☐ GIRLS DEAD ..... ☐☐	
208	SUM ANSWERS TO 203, 205, AND 207, AND ENTER TOTAL.	NONE.....00 TOTAL..... ☐☐	→345
209	CHECK 208: Just to make sure that I have this right: you have had in TOTAL _____ births during your life. Is that correct? YES ☐ ↓ NO ☐→ PROBE AND CORRECT 201-208 AS NECESSARY.		
210	CHECK 208: ONE BIRTH ☐ ↓ Was this child born in the last six years? IF NO, CIRCLE '00.' TWO OR MORE BIRTHS ☐ How many of these children were born in the last six years?	NONE.....00 TOTAL IN LAST SIX YEARS..... ☐☐	→345

211 Now I would like to record the names of all your births in the last six years (since 2001), whether still alive or not, starting with the first one you had.
RECORD NAMES OF ALL THE BIRTHS IN THE LAST SIX YEARS IN 212. RECORD TWINS AND TRIPLETS ON SEPARATE LINES.

212 What name was given to your (first/ next) baby? (NAME)	213 Were any of these births twins?	214 Is (NAME) a boy or a girl?	215 In what month and year was (NAME) born? PROBE: What is his/her birthday?	216 Is (NAME) still alive?	217 IF ALIVE: How old was (NAME) at his/her last birthday? RECORD AGE IN COMPLETED YEARS	218 IF ALIVE Is (NAME) living with you?	219 IF ALIVE: RECORD HOUSEHOLD LINE NUMBER OF CHILD (RECORD '00' IF CHILD NOT LISTED IN HOUSEHOLD)	220 IF DEAD: How old was (NAME) when he/she died? IF '1 YR', PROBE: How many months old was (NAME)? RECORD DAYS IF LESS THAN 1 MONTH; MONTHS IF LESS THAN TWO YEARS; OR YEARS.	221 Were there any other live births between (NAME OF PREVIOUS BIRTH) and (NAME)?
01	SING.....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	SING.....1 MULT.....2	BOY .... 1 GIRL.... 2	MONTH .... YEAR	YES..... 1 NO..... 2 → 220	AGE IN YEARS	YES.....1 NO.....2	LINE NUMBER → (220)	DAYS ..... 1 MONTHS ..... 2 YEARS..... 3	YES.....1 NO.....2
03	SING.....1 MULT.....2	BOY .... 1 GIRL.... 2	MONTH .... YEAR	YES..... 1 NO..... 2 → 220	AGE IN YEARS	YES.....1 NO.....2	LINE NUMBER → (220)	DAYS ..... 1 MONTHS ..... 2 YEARS..... 3	YES.....1 NO.....2
04	SING.....1 MULT.....2	BOY .... 1 GIRL.... 2	MONTH .... YEAR	YES..... 1 NO..... 2 → 220	AGE IN YEARS	YES.....1 NO.....2	LINE NUMBER → (220)	DAYS ..... 1 MONTHS ..... 2 YEARS..... 3	YES.....1 NO.....2
05	SING.....1 MULT.....2	BOY .... 1 GIRL.... 2	MONTH .... YEAR	YES..... 1 NO..... 2 → 220	AGE IN YEARS	YES.....1 NO.....2	LINE NUMBER → (220)	DAYS ..... 1 MONTHS ..... 2 YEARS..... 3	YES.....1 NO.....2
06	SING.....1 MULT.....2	BOY .... 1 GIRL.... 2	MONTH .... YEAR	YES..... 1 NO..... 2 → 220	AGE IN YEARS	YES.....1 NO.....2	LINE NUMBER → (220)	DAYS ..... 1 MONTHS ..... 2 YEARS..... 3	YES.....1 NO.....2
07	SING.....1 MULT.....2	BOY .... 1 GIRL.... 2	MONTH .... YEAR	YES..... 1 NO..... 2 → 220	AGE IN YEARS	YES.....1 NO.....2	LINE NUMBER → (220)	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 YES, RECORD BIRTH(S) IN BIRTH TABLE.	YES.....1 NO.....2	
223	COMPARE 210 WITH NUMBER OF BIRTHS IN HISTORY ABOVE AND MARK: NUMBERS ARE SAME NUMBERS ARE DIFFERENT → (PROBE AND RECONCILE) CHECK: FOR EACH BIRTH: YEAR OF BIRTH IS RECORDED. FOR EACH LIVING CHILD: CURRENT AGE IS RECORDED.		
224	CHECK 215 AND ENTER THE NUMBER OF BIRTHS IN 2001 OR LATER. IF NONE, RECORD '0'.		
225	Are you pregnant now?	YES ..... 1 NO ..... 2 UNCERTAIN 8	→ 227
226	IF YES, RECORD NUMBER OF COMPLETED MONTHS AND WEEKS OF PREGNANCY.	☐☐ MONTHS ☐☐ WEEKS	
227	VERIFY 224: ONE OR MORE BIRTHS IN 2001 OR LATER NO BIRTHS IN 2001 OR LATER →		301
227A	VERIFY 215 AND 216: ONE OR MORE CHILDREN DEAD NONE →		301
227B	VERIFY Q.220 AND ENTER NUMBER OF CHILDREN WHO DIED BEFORE THE AGE OF 29 DAYS. IF NONE, ENTER '0.'		
227C	VERIFY Q.220 AND ENTER NUMBER OF CHILDREN WHO DIED BETWEEN THE AGE OF 29 DAYS AND FIVE YEARS. IF NONE, ENTER '0.'		

Section 3 - VERBAL AUTOPSY - DEATH OF A CHILD UNDER 29 DAYS

228 I would like to ask you some questions concerning symptoms that the deceased child(dren) who died before s/he (they) was (were) 29 days old had or showed when s/he was ill. Some of these questions may be painful and you can choose not to answer them; also they may not appear to be directly related to his/her death. Please bear with me and answer all the questions as best as you can. They will help us to get a clearer picture of all possible symptoms that the deceased had.

228A	WRITE THE NAME AND LINE NUMBER OF THE CHILD FROM Q. 212	LINE NUMBER ☐☐ NAME_____	LINE NUMBER ☐☐ NAME_____
228B	How is your health now?	FINE....1 SICK....2 OTHER....6	FINE....1 SICK....2 OTHER....6
228C	Was (NAME's) birth a difficult birth?	YES....1 NO....2	YES....1 NO....2
228D	Did you have fits before giving birth to (NAME)?	YES....1 NO....2	YES....1 NO....2
228E	Did/does you have high blood pressure?	YES....1 NO....2 DON'T KNOW....8	YES....1 NO....2 DON'T KNOW....8
228F	Did you have a febrile illness at the time of delivery of (NAME)?	YES....1 NO....2 DON'T KNOW....8	YES....1 NO....2 DON'T KNOW....8
228G	Did you suffer from any of the conditions during your pregnancy with (NAME)?	DIABETES: YES ☐ NO ☐ DK ☐ HEART DISEASE: YES ☐ NO ☐ DK ☐ TB: YES ☐ NO ☐ DK ☐ EPILEPSY: YES ☐ NO ☐ DK ☐	DIABETES: YES ☐ NO ☐ DK ☐ HEART DISEASE: YES ☐ NO ☐ DK ☐ TB: YES ☐ NO ☐ DK ☐ EPILEPSY: YES ☐ NO ☐ DK ☐
229	Did you have any antenatal care during your pregnancy with (NAME)?	YES....1 NO....2	YES....1 NO....2
229A	Where did you give birth to (NAME)?	HOME....1 HEALTH FACILITY....2 IN TRANSIT....3 OTHER PLACE....4	HOME....1 HEALTH FACILITY....2 IN TRANSIT....3 OTHER PLACE....4
229B	Who assisted the birth?	NO ONE....1 UNTRAINED TBA....2 HEALTH PROFESSIONAL....3 DON'T KNOW....9	NO ONE....1 UNTRAINED TBA....2 HEALTH PROFESSIONAL....3 DON'T KNOW....9
229C	Had you received TT vaccination when you were pregnant with (NAME)?	YES....1 NO....2 DON'T KNOW....8	YES....1 NO....2 DON'T KNOW....8
229D Filter	If yes, how many TT injections did you receive?	NUMBER OF VACCINES ☐☐	LINE NUMBER ☐☐
229E	Was (NAME) a singleton or a twin?	SINGLETON....1 TWIN....2	SINGLETON....1 TWIN....2
229F	Was it a forceps or vacuum delivery?	YES....1 NO....2 DON'T KNOW....8	YES....1 NO....2 DON'T KNOW....8

229G	Was it a caesarean delivery?	YES.....1 NO.....2	YES.....1 NO.....2
229H	How many hours was the labour?	HOURS…… ☐☐ DON'T KNOW.....8	HOURS…… ☐☐ DON'T KNOW.....8
229I	Did waters break 1 day or more before delivery of (NAME)?	YES.....1 NO.....2 DON'T KNOW.....8	YES.....1 NO.....2 DON'T KNOW.....8
229J	Was (NAME) born premature?	YES.....1 NO.....2 DON'T KNOW.....8	YES.....1 NO.....2 DON'T KNOW.....8
229K Filter	If yes, at how many months or weeks of pregnancy?	MONTHS…… ☐☐ WEEKS…… ☐☐	MONTHS…… ☐☐ WEEKS…… ☐☐
229L	Did (NAME) play or move in the womb before labour?	YES.....1 NO.....2 DON'T KNOW.....8	YES.....1 NO.....2 DON'T KNOW.....8
229M Filter	If no, did (NAME) breathe at all after delivery?	YES.....1 NO.....2 DON'T KNOW.....8	YES.....1 NO.....2 DON'T KNOW.....8
229N	Was (NAME) dead at birth?	YES.....1 NO.....2 DON'T KNOW.....8	YES.....1 NO.....2 DON'T KNOW.....8
229O	Did the umbilical cord come before (NAME) was born?	YES.....1 NO.....2 DON'T KNOW.....8	YES.....1 NO.....2 DON'T KNOW.....8
	ASK THESE QUESTIONS IF THE CHILD WAS BORN ALIVE		
230	Did (NAME) cry immediately after birth?	YES.....1 NO.....2 DON'T KNOW.....8	YES.....1 NO.....2 DON'T KNOW.....8
230A	Was(NAME) able to breastfeed soon after birth?	YES.....1 NO.....2 DON'T KNOW.....8	YES.....1 NO.....2 DON'T KNOW.....8
230B Filter	If no, was the problem with (NAME) or with you?	WITH THE MOTHER.....1 WITH THE CHILD.....2 OTHER_____ 8	WITH THE MOTHER.....1 WITH THE CHILD.....2 OTHER _____8
230C	Was (NAME) weighed after being born?	YES.....1 NO.....2 DON'T KNOW.....8	YES.....1 NO.....2 DON'T KNOW.....8
230D Filter	If yes, how much did (NAME) weigh?	WEIGHT IN GRAMS ☐☐☐	WEIGHT IN GRAMS ☐☐☐
230E	Were there any bruises or signs of injury on (NAME)'s body after birth?	YES.....1 NO.....2 DON'T KNOW.....8	YES.....1 NO.....2 DON'T KNOW.....8
230F	What was the colour of (NAME)'s skin after being born?	NORMAL.....1 PURPLE.....2 PALE.....3 DON'T KNOW.....9	NORMAL.....1 PURPLE.....2 PALE.....3 DON'T KNOW.....9
230G	Did (NAME)'s arms/legs have strength?	YES.....1 NO.....2 DON'T KNOW.....8	YES.....1 NO.....2 DON'T KNOW.....8
213H	Did (NAME) have any malformation at birth?	YES.....1 NO.....2 DON'T KNOW.....8	YES.....1 NO.....2 DON'T KNOW.....8

230I	Did the eye color change to yellow (jaundice)?	YES.....1 NO.....2 DON'T KNOW.....8	YES.....1 NO.....2 DON'T KNOW.....8
230J Filter	If yes, how many days after being born?	DAYS AFTER ☐☐	DAYS AFTER ☐☐
230K	Did (NAME) have any problem with the umbilical cord?	YES.....1 NO.....2 DON'T KNOW.....8	YES.....1 NO.....2 DON'T KNOW.....8
230L	Did (NAME) have a fever?	YES.....1 NO.....2 DON'T KNOW.....8	YES.....1 NO.....2 DON'T KNOW.....8
230L2 Filter	If yes, for how many days?	DAYS OF FEVER ☐☐	DAYS OF FEVER ☐☐
230M	Did (NAME) have convulsions?	YES.....1 NO.....2 DON'T KNOW.....8	YES.....1 NO.....2 DON'T KNOW.....8
230N	During the period of illness did (NAME) have areas of skin that were red, peeling or skin rash with blisters containing pus?	YES.....1 NO.....2 DON'T KNOW.....8	YES.....1 NO.....2 DON'T KNOW.....8
230O	Was (NAME) coughing?	YES.....1 NO.....2 DON'T KNOW.....8	YES.....1 NO.....2 DON'T KNOW.....8
230P	Did (NAME) have difficulty breathing?	YES.....1 NO.....2 DON'T KNOW.....8	YES.....1 NO.....2 DON'T KNOW.....8
230Q Filter	If yes, did s/he have fast breathing?	YES.....1 NO.....2 DON'T KNOW.....8	YES.....1 NO.....2 DON'T KNOW.....8
230R Filter	Did s/he have in-drawing of the chest while breathing?	YES.....1 NO.....2 DON'T KNOW.....8	YES.....1 NO.....2 DON'T KNOW.....8
230S	Was (NAME) vomiting?	YES.....1 NO.....2 DON'T KNOW.....8	YES.....1 NO.....2 DON'T KNOW.....8
230T	Did s/he have diarrhea?	YES.....1 NO.....2 DON'T KNOW.....8	YES.....1 NO.....2 DON'T KNOW.....8
230U	Was (NAME) unable to breastfeed when s/he was ill?	YES.....1 NO.....2 DON'T KNOW.....8	YES.....1 NO.....2 DON'T KNOW.....8
230V	Was there a bulge in (NAME)'s fontanel?	YES.....1 NO.....2 DON'T KNOW.....8	YES.....1 NO.....2 DON'T KNOW.....8
230W	Did (NAME) have an….	INJURY.....1 ACCIDENT.....2 NEITHER 1 OR 2.....3 DON'T KNOW.....8	INJURY.....1 ACCIDENT.....2 NEITHER 1 OR 2.....3 DON'T KNOW.....8
230X Filter	If the answer to question …is 1 or 2, what kind of injury or accident?	_____	_____
230Y	During the illness that led to death, did (NAME) become unconscious?	YES.....1 NO.....2 DON'T KNOW.....8	YES.....1 NO.....2 DON'T KNOW.....8

230Z	PLACE OF DEATH	HOME .....1 HEALTH FACILITY _____ 2 OTHER PLACE.....8	HOME .....1 HEALTH FACILITY _____2 OTHER PLACE.....8
230Z1	DATE OF DEATH	DAY ☐☐ MONTH ☐☐ YEAR ☐☐☐☐	DAY ☐☐ MONTH ☐☐ YEAR ☐☐☐☐
230Y1	VERIFY 215, 216 AND 220:	ONE OR MORE CHILDREN WHO DIED BETWEEN 29 DAYS AND 5 YEARS → CONTINUE	NONE → 301
230Y2		VERIFY Q.220 AND WRITE THE NUMBER OF CHILDREN WHO DIED BETWEEN AGE 29 DAYS AND FIVE YEARS AND CONTINUE TO Q.231. IF NONE, WRITE '0' AND CONTINUE TO Q. 301	•••• • • ••••

Section 4 - VERBAL AUTOPSY - DEATH OF A CHILD AGED 29 DAYS TO UNDER 5 YEARS			
231	I would like to ask you some questions concerning symptoms that the deceased child(dren) (who died between 29 days old but before turning 5 years) had or showed when s/he was ill. Some of these questions may be painful and you can choose not to answer them; also they may not appear to be directly related to his/her death. Please bear with me and answer all the questions as best as you can. They will help us to get a clearer picture of all possible symptoms that the deceased had.		
232	WRITE THE NAME AND LINE NUMBER OF THE CHILD FROM Q. 212	LINE NUMBER ☐☐ NAME_____	LINE NUMBER ☐☐ NAME_____
		SYMPTOMS	
233	Was (NAME) small at birth?	YES.....1 NO .....2 DON'T KNOW.....8	YES .....1 NO .....2 DON'T KNOW 8
234	Was (NAME) born premature?	YES.....1 NO .....2 DON'T KNOW.....8	YES .....1 NO .....2 DON'T KNOW 8
235 Filter	If yes, how many months or weeks of pregnancy?	MONTHS ☐☐ WEEKS ☐☐ DON'T KNOW..... 98	MONTHS ☐☐ WEEKS ☐☐ DON'T KNOW 98
236	Was (NAME) breastfeeding?	YES.....1 NO .....2 DON'T KNOW.....8	YES .....1 NO .....2 DON'T KNOW 8
237 Filter	If yes, did (NAME) stop feeding just before death?	YES.....1 NO .....2 DON'T KNOW.....8	YES .....1 NO .....2 DON'T KNOW 8
238	Did s/he have fever?	YES.....1 NO .....2 DON'T KNOW.....8	YES .....1 NO .....2 DON'T KNOW 8
239 Filter	If yes, was the fever continuous or off and on?	CONTINUOUS..... 1 ON AND OFF.....2 DON'T KNOW.....8	CONTINUOUS ..... 1 ON AND OFF .....2 DON'T KNOW 8
240	Did s/he have convulsions?	YES.....1 NO .....2 DON'T KNOW.....8	YES .....1 NO .....2 DON'T KNOW 8
241	Did s/he have a cough?	YES.....1 NO .....2 DON'T KNOW.....8	YES .....1 NO .....2 DON'T KNOW 8
242	If yes, was the cough dry, productive or with blood?	DRY .....1 PRODUCTIVE .....2 WITH BLOOD.....3 DON'T KNOW.....8	DRY .....1 PRODUCTIVE .....2 WITH BLOOD.....3 DON'T KNOW 8
243	Did s/he have breathing difficulties?	YES.....1 NO .....2 DON'T KNOW.....8	YES .....1 NO .....2 DON'T KNOW 8
244 Filter	If yes, did s/he have fast breathing?	YES.....1 NO .....2 DON'T KNOW.....8	YES .....1 NO .....2 DON'T KNOW 8

245 Filter	Did s/he have in-drawing of chest while breathing?	YES.....1 NO .....2 DON'T KNOW.....8	YES .....1 NO .....2 DON'T KNOW 8
246	Did s/he vomit?	YES.....1 NO .....2 DON'T KNOW.....8	YES .....1 NO .....2 DON'T KNOW 8
247 Filter	If yes, did s/he vomit blood?	YES.....1 NO .....2 DON'T KNOW.....8	YES .....1 NO .....2 DON'T KNOW 8
248	Did s/he have a mass in the abdomen?	YES.....1 NO .....2 DON'T KNOW.....8	YES .....1 NO .....2 DON'T KNOW 8
249	Did s/he have abdominal distension?	YES.....1 NO .....2 DON'T KNOW.....8	YES .....1 NO .....2 DON'T KNOW 8
250 Filter	If yes, did the distension start suddenly or gradually as the days went on?	SUDDENLY .....1 GRADUALLY.....2 DON'T KNOW.....8	SUDDENLY .....1 GRADUALLY.....2 DON'T KNOW 8
251	Did s/he have diarrhea?	YES.....1 NO .....2 DON'T KNOW.....8	YES .....1 NO .....2 DON'T KNOW 8
252 Filter	If yes, did s/he have bloody diarrhea?	YES.....1 NO .....2 DON'T KNOW.....8	YES .....1 NO .....2 DON'T KNOW 8
253	Did s/he have abdominal pain?	YES.....1 NO .....2 DON'T KNOW.....8	YES .....1 NO .....2 DON'T KNOW 8
254	Did s/he have weight loss?	YES.....1 NO .....2 DON'T KNOW.....8	YES .....1 NO .....2 DON'T KNOW 8
255	Did s/he have mouth sores?	YES.....1 NO .....2 DON'T KNOW.....8	YES .....1 NO .....2 DON'T KNOW 8
256	Did s/he look pale? (on fingers or feet soles)	YES.....1 NO .....2 DON'T KNOW.....8	YES .....1 NO .....2 DON'T KNOW 8
257	Did the child's lips grow darker in color?	YES.....1 NO .....2 DON'T KNOW.....8	YES .....1 NO .....2 DON'T KNOW 8
258	Did s/he have puffiness of the face?	YES.....1 NO .....2 DON'T KNOW.....8	YES .....1 NO .....2 DON'T KNOW 8
259	Did s/he have swelling of the whole body	YES.....1 NO .....2 DON'T KNOW.....8	YES .....1 NO .....2 DON'T KNOW 8
260	Did the eye color change to yellow (jaundice)?	YES.....1 NO .....2 DON'T KNOW.....8	YES .....1 NO .....2 DON'T KNOW 8
261	Did s/he have ankle swelling? (show that part of the body)	YES.....1 NO .....2 DON'T KNOW.....8	YES .....1 NO .....2 DON'T KNOW 8
262	Did s/he have swelling of joints?	YES.....1 NO .....2 DON'T KNOW.....8	YES .....1 NO .....2 DON'T KNOW 8

263	Did s/he have measles?	YES.....1 NO .....2 DON'T KNOW.....8	YES .....1 NO .....2 DON'T KNOW 8
264	Did s/he have any other skin disease?	YES.....1 NO .....2 DON'T KNOW.....8	YES .....1 NO .....2 DON'T KNOW 8
265	Was s/he unusually sleepy?	YES.....1 NO .....2 DON'T KNOW.....8	YES .....1 NO .....2 DON'T KNOW 8
266	Did s/he have neck pain?	YES.....1 NO .....2 DON'T KNOW.....8	YES .....1 NO .....2 DON'T KNOW 8
267	Did s/he have a headache?	YES.....1 NO .....2 DON'T KNOW.....8	YES .....1 NO .....2 DON'T KNOW 8
268	Did s/he develop stiffness of the whole body (before death)?	YES.....1 NO .....2 DON'T KNOW.....8	YES .....1 NO .....2 DON'T KNOW 8
269	Did s/he have loss of consciousness?	YES.....1 NO .....2 DON'T KNOW.....8	YES .....1 NO .....2 DON'T KNOW 8
270	Did s/he have fainting fits?	YES.....1 NO .....2 DON'T KNOW.....8	YES .....1 NO .....2 DON'T KNOW 8
271	Did s/he have paralysis of both legs?	YES.....1 NO .....2 DON'T KNOW.....8	YES .....1 NO .....2 DON'T KNOW 8
272	Was s/he unable to pass urine?	YES.....1 NO .....2 DON'T KNOW.....8	YES .....1 NO .....2 DON'T KNOW 8
273	Did s/he pass blood in urine?	YES.....1 NO .....2 DON'T KNOW.....8	YES .....1 NO .....2 DON'T KNOW 8
274	Did a dog bite him/her?	YES.....1 NO .....2 DON'T KNOW.....8	YES .....1 NO .....2 DON'T KNOW 8
275	Was s/he bitten by another animal or insect?	YES.....1 NO .....2 DON'T KNOW.....8	YES .....1 NO .....2 DON'T KNOW 8
276	If yes, what type of animal/insect? (Write the name)	_____	_____
277	Was s/he injured in a road accident?	YES.....1 NO .....2 DON'T KNOW.....8	YES .....1 NO .....2 DON'T KNOW 8
278	Did s/he suffer any other accidental injuries before death?	YES.....1 NO .....2 DON'T KNOW.....8	YES .....1 NO .....2 DON'T KNOW 8
279	Was s/he injured intentionally by someone?	YES.....1 NO .....2 DON'T KNOW.....8	YES .....1 NO .....2 DON'T KNOW 8

Section 5. PREGNANCY AND INTERMITTENT PREVENTIVE TREATMENT

301	ENTER IN 302 THE NAME AND SURVIVAL STATUS OF THE MOST RECENT BIRTH. Now I would like to ask you some questions about your last pregnancy that ended in a live birth, in the last 6 years.		
302	FROM QUESTIONS 212 AND 213 (LINE 01)	LAST BIRTH NAME _____ LIVING ☐ DEAD ☐	
303	When you were pregnant with (NAME), did you see anyone for antenatal care?[1] IF YES: Whom did you see? Anyone else? PROBE FOR THE TYPE OF PERSON AND RECORD ALL PERSONS SEEN.	HEALTH PROFESSIONAL DOCTOR....A NURSE/MIDWIFE....B AUXILIARY MIDWIFE....C OTHER PERSON TRADITIONAL BIRTH ATTENDANT....D OTHER _____ X (SPECIFY) NO ONE....Y	
304	During this pregnancy, did you take any drugs in order to prevent you from getting malaria?	YES....1 NO....2 DON'T KNOW....8	☐→309A
305	Which drugs did you take to prevent malaria?[2] RECORD ALL MENTIONED. IF TYPE OF DRUG IS NOT DETERMINED, SHOW TYPICAL ANTIMALARIAL DRUGS TO RESPONDENT.	SP/FANSIDAR....A CHLOROQUINE....B OTHER _____ X (SPECIFY) DON'T KNOW....Z	
306	CHECK 305: DRUGS TAKEN FOR MALARIA PREVENTION	CODE "A" CIRCLED ☐ CODE "A" NOT CIRCLED ☐	→309A
307	How many times did you take SP/Fansidar during this pregnancy?	TIMES.... ☐☐	

308	CHECK 303: ANTENATAL CARE FROM A HEALTH PROFESSIONAL RECEIVED DURING THIS PREGNANCY?	CODE 'A', 'B', OR 'C' CIRCLED ☐ OTHER ☐_____	→309A
309	Did you get the SP/Fansidar during an antenatal visit, during another visit to a health facility, or from some other source?	ANTENATAL VISIT .....1 ANOTHER FACILITY VISIT .....2 OTHER SOURCE _____ 6 (SPECIFY)	
309A	Who assisted with the delivery of (NAME)? Anyone else? PROBE FOR THE TYPE(S) OF PERSON(S) AND RECORD ALL MENTIONED. IF RESPONDENT SAYS NO ONE ASSISTED, PROBE TO DETERMINE WHETHER ANY ADULTS WERE PRESENT AT THE DELIVERY	HEALTH PERSONNEL DOCTOR .....A NURSE/MIDWIFE .....B AUXILIARY MIDWIFE .....C OTHER PERSON TRADITIONAL BIRTH ATTENDANT .....D RELATIVE/FRIEND .....E OTHER SPECIFY _____X NO ONE .....Y	
309B	Where did you give birth to (NAME)? PROBE TO IDENTIFY THE TYPE OF PLACE AND CIRCLE THE APPROPRIATE CODE. IF UNABLE TO DETERMINE IF A HOSPITAL, HEALTH CENTER, OR CLINIC IS PUBLIC OR PRIVATE MEDICATL, WRITE THE NAME OF THE PLACE _____ (NAME OF THE PLACE)	HOME YOUR HOME .....11 OTHER HOME .....12 PUBLIC SECTOR GOVT. HOSPITAL .....21 GOVT. HEALTH CENTER .....22 GOVT. HEALTH POST .....23 OTHER PUBLIC _____ 26 (SPECIFY) PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC .....31 OTHER PVT. MED. _____ 36 (SPECIFY) OTHER _____96 (SPECIFY)	
Now I would like to ask you some questions about "Paludismo"			
309C	Is there a difference between Paludismo and Malaria?	YES..... 1 NO..... 2 DON'T KNOW..... 8	
309D	What is Paludismo? (DESCRIBE)	PALUDISMO IS ..... DON'T KNOW..... 8	
309D1	What is Malaria? (DESCRIBE)	MALARIA IS..... DON'T KNOW..... 8	
309E	Have you attended meetings in your community about the prevention of paludismo?	YES..... 1 NO..... 2 DON'T KNOW..... 8	
310	VERIFY IF RESPONDENT HAS A CHILD UNDER AGE 5 YEARS. IF YES, CONTINUE TO SECTION 6: FEVER IN CHILDREN.		

SECTION 6. FEVER IN CHILDREN

311	FROM Qs. 212 AND 213, ENTER IN THE TABLE THE LINE NUMBER AND NAME OF EACH LIVING CHILD BORN IN 2001[1] OR LATER. (IF THERE ARE MORE THAN 2 LIVING CHILDREN BORN IN 2001[1] OR LATER, USE ADDITIONAL QUESTIONNAIRES). Now I would like to ask you some questions about the health of all your children less than 5 years old. (We will talk about each one separately.)		
312	NAME AND LINE NUMBER FROM 212 AND 213	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 (GO TO 313 FOR NEXT CHILD OR, IF NO MORE CHILDREN, SKIP TO 345) DON'T KNOW 8	YES ..... 1 NO ..... 2 (GO BACK TO 313 FOR NEXT CHILD OR, IF NO MORE CHILDREN, SKIP TO 345) DON'T KNOW 8
314	How many days ago did the fever start? IF LESS THAN ONE DAY, RECORD '00'.	DAYS AGO ..... ☐☐ DON'T KNOW..... 98	DAYS AGO ..... ☐☐ DON'T KNOW..... 98
315	Did you seek advice or treatment for the fever from any source?	YES ..... 1 NO ..... 2 (SKIP TO 317)	YES ..... 1 NO ..... 2 (SKIP TO 317)
316	Where did you seek advice or treatment? Anywhere else? RECORD ALL SOURCES MENTIONED.	PUBLIC SECTOR GOVT. HOSPITAL ..... A GOVT. HEALTH CENTER ..... B GOVT. HEALTH POST ..... C MOBILE CLINIC ..... D CAMPAIGN WORKER ..... E PUBLIC COMPANY ..... F OTHER PUBLIC _____ G (SPECIFY) PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC. ..... G PHARMACY ..... H PRIVATE DOCTOR ..... I MOBILE CLINIC ..... J CAMPAIGN WORKER ..... K OTHER PVT. MEDICAL _____ L (SPECIFY) OTHER SOURCE SHOP. ..... M TRAD. PRACTITIONER ..... N OTHER _____ X (SPECIFY)	PUBLIC SECTOR GOVT. HOSPITAL ..... A GOVT. HEALTH CENTER ..... B GOVT. HEALTH POST ..... C MOBILE CLINIC ..... D CAMPAIGN WORKER ..... E PUBLIC COMPANY ..... F OTHER PUBLIC _____ G (SPECIFY) PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC. ..... G PHARMACY ..... H PRIVATE DOCTOR ..... I MOBILE CLINIC ..... J CAMPAIGN WORKER ..... K OTHER PVT. MEDICAL _____ L (SPECIFY) OTHER SOURCE SHOP. ..... M TRAD. PRACTITIONER ..... N OTHER _____ X (SPECIFY)

316 A	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 a fever?	YES.....1 NO.....2 DON'T KNOW.....8	YES.....1 NO.....2 DON'T KNOW.....8
318	At any time during the illness, did (NAME) take any drugs for the fever?	YES.....1 NO.....2 (SKIP 344) ←┘ DON'T KNOW.....8	YES.....1 NO.....2 (SKIP 344) ←┘ DON'T KNOW.....8
319	What drugs did (NAME) take?[1] Any other drugs? RECORD ALL MENTIONED. ASK TO SEE DRUG(S) IF TYPE OF DRUG IS NOT KNOWN. IF TYPE OF DRUG IS STILL NOT DETERMINED, SHOW TYPICAL ANTIMALARIAL DRUGS TO RESPONDENT.	ANTIMALARIAL SP/FANSIDAR .....A CHLOROQUINE.....B AMODIAQUINE.....C QUININE .....D COARTEM .....E OTHER ANTIMALARIAL_____ F (SPECIFY) OTHER DRUGS ASPIRIN .....G ACETAMINOPHEN/ PARACETAMOL .....H IBUPROFEN ..... I OTHER _____ X (SPECIFY) DON'T KNOW..... Z	ANTIMALARIAL SP/FANSIDAR .....A CHLOROQUINE.....B AMODIAQUINE.....C QUININE .....D COARTEM .....E OTHER ANTIMALARIAL_____ F (SPECIFY) OTHER DRUGS ASPIRIN ..... G ACETAMINOPHEN/ PARACETAMOL.....H IBUPROFEN ..... I OTHER _____ X (SPECIFY) DON'T KNOW..... Z
320	CHECK 319: ANY CODE A-F CIRCLED?	YES ☐ NO ☐ (GO BACK TO 317 IN NEXT COLUMN; OR IF NO MORE BIRTHS, SKIP TO 344)	YES ☐ NO ☐ (GO BACK TO 317 IN NEXT COLUMN; OR IF NO MORE BIRTHS, SKIP TO 344)
320A	CHECK 319: SP/FANSIDAR ('A') GIVEN?	CODE 'A' CIRCLED ☐ CODE 'A' NOT CIRCLED ☐ (SKIP TO 324)	CODE 'A' CIRCLED ☐ CODE 'A' NOT CIRCLED ☐ (SKIP TO 324)
321	How long after the fever started did (NAME) first take SP/Fansidar?	SAME DAY..... 0 NEXT DAY ..... 1 TWO DAYS AFTER THE FEVER..... 2 THREE DAYS AFTER THE FEVER..3 FOUR OR MORE DAYS AFTER THE FEVER ..... 4 DON'T KNOW..... 8	SAME DAY..... 0 NEXT DAY ..... 1 TWO DAYS AFTER THE FEVER..... 2 THREE DAYS AFTER THE FEVER..3 FOUR OR MORE DAYS AFTER THE FEVER ..... 4 DON'T KNOW..... 8
		YOUNGEST CHILD NAME _____	NEXT-TO-YOUNGEST CHILD NAME _____

322	For how many days did (NAME) take the SP/Fansidar? IF 7 OR MORE DAYS, RECORD '7'.	DAYS ..... ☐☐ DON'T KNOW 8	DAYS..... ☐☐ DON'T KNOW 8
323	Did you have the SP/Fansidar at home or did you get it from somewhere else? IF SOMEWHERE ELSE, PROBE FOR SOURCE. IF MORE THAN ONE SOURCE MENTIONED, ASK: Where did you get the SP/Fansidar first?	AT HOME ..... 1 GOVERNMENT HEALTH FACILITY/WORKER ..... 2 PRIVATE HEALTH FACILITY/WORKER ..... 3 SHOP ..... 4 OTHER_____ 6 (SPECIFY) DON'T KNOW 8	AT HOME ..... 1 GOVERNMENT HEALTH FACILITY/WORKER ..... 2 PRIVATE HEALTH FACILITY/WORKER ..... 3 SHOP ..... 4 OTHER_____ 6 (SPECIFY) DON'T KNOW 8
324	CHECK 319: WHICH MEDICINES?	CODE 'B' CIRCLED ☐ / CODE 'B' NOT CIRCLED ☐ (SKIP TO 328)	CODE 'B' CIRCLED ☐ / CODE 'B' NOT CIRCLED ☐ (SKIP TO 328)
325	How long after the fever started did (NAME) 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 DON'T KNOW 8	SAME DAY ..... 0 NEXT DAY ..... 1 TWO DAYS AFTER THE FEVER ..... 2 THREE DAYS AFTER THE FEVER..3 FOUR OR MORE DAYS AFTER THE FEVER ..... 4 DON'T KNOW 8
326	For how many days did (NAME) take chloroquine? IF 7 OR MORE DAYS, RECORD '7'.	DAYS ..... ☐☐ DON'T KNOW 8	DAYS..... ☐☐ DON'T KNOW 8
327	Did you have the chloroquine at home or did you get it from somewhere else? IF SOMEWHERE ELSE, PROBE FOR SOURCE. IF MORE THAN ONE SOURCE MENTIONED, ASK: Where did you get the chloroquine first?	AT HOME ..... 1 GOVERNMENT HEALTH FACILITY/WORKER ..... 2 PRIVATE HEALTH FACILITY/WORKER ..... 3 SHOP ..... 4 OTHER_____ 6 (SPECIFY) DON'T KNOW 8	AT HOME ..... 1 GOVERNMENT HEALTH FACILITY/WORKER ..... 2 PRIVATE HEALTH FACILITY/WORKER ..... 3 SHOP ..... 4 OTHER_____ 6 (SPECIFY) DON'T KNOW 8
328	CHECK 319: WHICH MEDICINES?	CODE 'C' CIRCLED ☐ / CODE 'C' NOT CIRCLED ☐ (SKIP TO 332)	CODE 'C' CIRCLED ☐ / CODE 'C' NOT CIRCLED ☐ (SKIP TO 332)
329	How long after the fever started did (NAME) first take Amodiaquine?	SAME DAY ..... 0 NEXT DAY ..... 1 TWO DAYS AFTER THE FEVER ..... 2 THREE DAYS AFTER THE FEVER..3 FOUR OR MORE DAYS AFTER THE FEVER ..... 4 DON'T KNOW 8	SAME DAY ..... 0 NEXT DAY ..... 1 TWO DAYS AFTER THE FEVER ..... 2 THREE DAYS AFTER THE FEVER..3 FOUR OR MORE DAYS AFTER THE FEVER ..... 4 DON'T KNOW 8
		YOUNGEST CHILD NAME _____	NEXT-TO-YOUNGEST CHILD NAME _____

330	For how many days did (NAME) take Amodiaquine? IF 7 OR MORE DAYS, RECORD '7'.	DAYS ..... ☐☐ DON'T KNOW 8	DAYS..... ☐☐ DON'T KNOW 8
331	Did you have the Amodiaquine at home or did you get it from somewhere else? IF SOMEWHERE ELSE, PROBE FOR SOURCE. IF MORE THAN ONE SOURCE MENTIONED, ASK: Where did you get the Amodiaquine first?	AT HOME ..... 1 GOVERNMENT HEALTH FACILITY/WORKER ..... 2 PRIVATE HEALTH FACILITY/WORKER ..... 3 SHOP ..... 4 OTHER_____ 6 (SPECIFY) DON'T KNOW 8	AT HOME ..... 1 GOVERNMENT HEALTH FACILITY/WORKER ..... 2 PRIVATE HEALTH FACILITY/WORKER ..... 3 SHOP ..... 4 OTHER_____ 6 (SPECIFY) DON'T KNOW 8
332	CHECK 319: WHICH MEDICINES?	CODE 'D' CIRCLED ☐ CODE 'D' NOT CIRCLED ☐ (SKIP TO 336)	CODE 'D' CIRCLED ☐ CODE 'D' NOT CIRCLED ☐ (SKIP TO 336)
333	How long after the fever started did (NAME) first take Quinine?	SAME DAY ..... 0 NEXT DAY ..... 1 TWO DAYS AFTER THE FEVER ..... 2 THREE DAYS AFTER THE FEVER..3 FOUR OR MORE DAYS AFTER THE FEVER ..... 4 DON'T KNOW 8	SAME DAY ..... 0 NEXT DAY ..... 1 TWO DAYS AFTER THE FEVER ..... 2 THREE DAYS AFTER THE FEVER..3 FOUR OR MORE DAYS AFTER THE FEVER ..... 4 DON'T KNOW 8
334	For how many days did (NAME) take Quinine? IF 7 OR MORE DAYS, RECORD '7'.	DAYS ..... ☐☐ DON'T KNOW 8	DAYS..... ☐☐ DON'T KNOW 8
335	Did you have the Quinine at home or did you get it from somewhere else? IF SOMEWHERE ELSE, PROBE FOR SOURCE. IF MORE THAN ONE SOURCE MENTIONED, ASK: Where did you get the Quinine first?	AT HOME ..... 1 GOVERNMENT HEALTH FACILITY/WORKER ..... 2 PRIVATE HEALTH FACILITY/WORKER ..... 3 SHOP ..... 4 OTHER_____ 6 (SPECIFY) DON'T KNOW 8	AT HOME ..... 1 GOVERNMENT HEALTH FACILITY/WORKER ..... 2 PRIVATE HEALTH FACILITY/WORKER ..... 3 SHOP ..... 4 OTHER_____ 6 (SPECIFY) DON'T KNOW 8
336	CHECK 319: WHICH MEDICINES?	CODE 'E' CIRCLED ☐ CODE 'E' NOT CIRCLED ☐ (SKIP TO 340)	CODE 'E' CIRCLED ☐ CODE 'E NOT CIRCLED ☐ (SKIP TO 340)
337	How long after the fever started did (NAME) first take 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 DON'T KNOW 8	SAME DAY ..... 0 NEXT DAY ..... 1 TWO DAYS AFTER THE FEVER ..... 2 THREE DAYS AFTER THE FEVER..3 FOUR OR MORE DAYS AFTER THE FEVER ..... 4 DON'T KNOW 8
		YOUNGEST CHILD NAME _____	NEXT-TO-YOUNGEST CHILD NAME _____

338	For how many days did (NAME) take Coartem? IF 7 OR MORE DAYS, RECORD '7'.	DAYS ..... ☐☐ DON'T KNOW 8	DAYS..... ☐☐ DON'T KNOW 8
339	Did you have the Coartem at home or did you get it from somewhere else? IF SOMEWHERE ELSE, PROBE FOR SOURCE. IF MORE THAN ONE SOURCE MENTIONED, ASK: Where did you get the ACT first?	AT HOME ..... 1 GOVERNMENT HEALTH FACILITY/WORKER ..... 2 PRIVATE HEALTH FACILITY/WORKER ..... 3 SHOP ..... 4 OTHER_____ 6 (SPECIFY) DON'T KNOW 8	AT HOME ..... 1 GOVERNMENT HEALTH FACILITY/WORKER ..... 2 PRIVATE HEALTH FACILITY/WORKER ..... 3 SHOP ..... 4 OTHER_____ 6 (SPECIFY) DON'T KNOW 8
340	CHECK 319: WHICH MEDICINES?	CODE 'F' CIRCLED ☐ CODE 'F' NOT CIRCLED ☐ (SKIP TO 344)	CODE 'F' CIRCLED ☐ CODE 'F' NOT CIRCLED ☐ (SKIP TO 344)
341	How long after the fever started did (NAME) first take (NAME OF OTHER ANTIMALARIAL)?	SAME DAY ..... 0 NEXT DAY ..... 1 TWO DAYS AFTER THE FEVER ..... 2 THREE DAYS AFTER THE FEVER..3 FOUR OR MORE DAYS AFTER THE FEVER ..... 4 DON'T KNOW 8	SAME DAY ..... 0 NEXT DAY ..... 1 TWO DAYS AFTER THE FEVER ..... 2 THREE DAYS AFTER THE FEVER..3 FOUR OR MORE DAYS AFTER THE FEVER ..... 4 DON'T KNOW 8
342	For how many days did (NAME) take (NAME OF OTHER ANTIMALARIAL)? IF 7 OR MORE DAYS, RECORD '7'.	DAYS ..... ☐☐ DON'T KNOW 8	DAYS..... ☐☐ DON'T KNOW 8
343	Did you have the (NAME OF OTHER ANTIMALARIAL) at home or did you get it from somewhere else? IF SOMEWHERE ELSE, PROBE FOR SOURCE. IF MORE THAN ONE SOURCE MENTIONED, ASK: Where did you get the (NAME OF OTHER ANTIMALARIAL) first?	AT HOME ..... 1 GOVERNMENT HEALTH FACILITY/WORKER ..... 2 PRIVATE HEALTH FACILITY/WORKER ..... 3 SHOP ..... 4 OTHER_____ 6 (SPECIFY) DON'T KNOW 8	AT HOME ..... 1 GOVERNMENT HEALTH FACILITY/WORKER ..... 2 PRIVATE HEALTH FACILITY/WORKER ..... 3 SHOP ..... 4 OTHER_____ 6 (SPECIFY) DON'T KNOW 8
344		GO BACK TO 313 IN NEXT COLUMN, OR, IF NO MORE CHILDREN, GO TO 345.	GO BACK TO 313 IN FIRST COLUMN OF NEW QUESTIONNAIRE, OR, IF NO MORE CHILDREN, GO TO 345.
345	RECORD THE TIME.	HOUR ..... ☐☐ MINUTES ..... ☐☐	

GO BACK TO THE HOUSEHOLD QUESTIONNAIRE TO PROCEED WITH THE ANEMIA AND MALARIA TESTING, IF THERE ARE ELIGIBLE INDIVIDUALS. AFTER COMPLETING ALL TESTING, RETURN TO THE HOUSEHOLD QUESTIONNAIRE TO RECORD THE RESULTS OF YOUR VISIT.

INTERVIEWER'S OBSERVATIONS

TO BE FILLED IN AFTER COMPLETING INTERVIEW

COMMENTS ABOUT RESPONDENT:

COMMENTS ON SPECIFIC QUESTIONS:

ANY OTHER COMMENTS:

SUPERVISOR'S OBSERVATIONS

NAME OF THE SUPERVISOR:_____ DATE: _____