Rwanda

Interim Demographic and Health Survey

2007-08

REPUBLIQUE OF RWANDA

Rwanda
Interim Demographic and Health Survey 2007-08

Ministry of Health of Rwanda
Kigali, Rwanda

National Institute of Statistics of Rwanda
Kigali, Rwanda

ICF Macro
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This report presents the findings of the 2007-08Rwanda Interim Demographic and Health Survey (RIDHS), carried out from December 15, 2007 to April 29, 2008 by the National Institute of Statistics of Rwanda. Technical assistance was provided by ICF Macro as part of the Demographic and Health Surveys project (MEASURE DHS). Funding for the RIDHS was provided by the Government of Rwanda, USAID, the Global Fund to Fight AIDS, Tuberculosis and Malaria, UNDP, European Commission, and DFID through the Basket Fund of the NISR. The opinions expressed herein are those of the authors and do not necessarily reflect the views of USAID or other cooperating organizations.

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FOREWORD

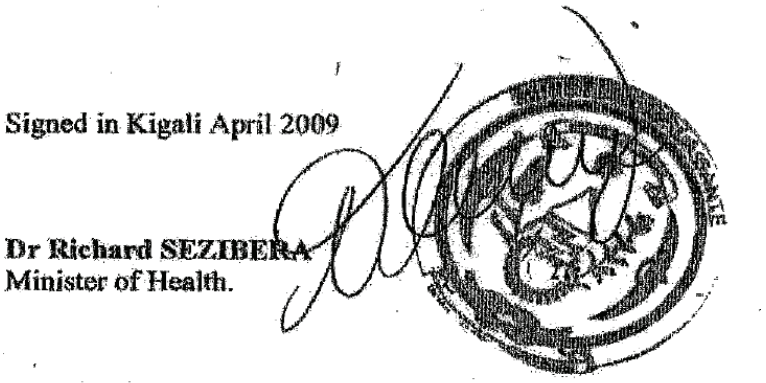
The Government of Rwanda has just completed the 2007-2008 Rwanda Interim Demographic and Health Survey (RIDHS) to obtain a database designed to provide reliable indicators to monitor and assess the implementation of the country's sector programs and policies, the Poverty Reduction Strategy, Vision 2020 and the commitments it has undertaken at the international level, in particular the Millennium Development Goals.

RIDHS follows the Demographic and Health Surveys (RDHS) that were successfully conducted in 1992, 2000, and 2005, and is part of a broad, worldwide program of socio-demographic and health surveys conducted in developing countries since the mid-1980s. RIDHS collected the indicators on fertility, family planning and maternal and child health which the survey normally provides. In addition, RIDHS integrated a malaria module and tests for the prevalence of malaria and anemia among women and children, thus determining the prevalence of malaria and anemia for women and children at the national level.

Using this report, the reader will be able to delineate better the improvements in socio-demographic status that the Government of Rwanda has achieved including a decrease in infant mortality rate compared to that of 2005, an increase in prenatal care visits and utilization of delivery and post natal services, an increase in utilization of modern contraceptives and immunization coverage for children 12-23 months. Although improvement has occurred, readers should also be alerted to the fact that the total fertility rate remains high, continuing to be a burden on social welfare and slowing down the progress of development. A majority of indicators have improved due to government investments as well as financial and technical support from partners.

The results of RIDHS 2007-2008 are thus of considerable importance because they allow assessment of progress made in meeting the challenges mentioned above. These results also make it possible to readjust intermediate objectives, identify areas requiring priority attention, and even make projections for future socio-demographic development. These same results also represent a daunting challenge to entities providing development funding and call for integrated financing approaches involving multiple sectors of socio-economic life.

Accordingly, the Government of Rwanda, in particular the Ministry of Health, is pleased to provide reliable results to policymakers, planners, and other users in both the public and private sectors, based on current conditions in the country. May this document be a source of valuable and useful information to all those individuals and organizations active in development who will use it to contribute to an improved quality of life for Rwanda's population.



Signed in Kigali April 2009

Dr Richard SEZIBERA
Minister of Health.

ACKNOWLEDGMENTS

This report would not have been completed without the participation of a large number of individuals and organizations. We would like to express our profound thanks to them.

First, we extend our thanks to the women and men who generously agreed to answer all the questions that were asked to them. The response rate was high for both men (95.4 percent) and women (97.5 percent).

We would like to express our sincere thanks to the various ministries for facilitating the implementation of the survey. We offer our profound gratitude to the Ministry of Health for its cooperation during the preparation and completion of the survey. We also offer our sincere appreciation to the Ministry of Local Administration (MINALOC) as well as to all provincial and district authorities for their assistance and contribution to the smooth implementation of the survey. Certainly, without the ongoing support of these various authorities, the 2007-08 Rwanda Interim Demographic and Health Survey (RIDHS) could not have been achieved.

We also express our gratitude to the International Organizations for their indispensable financial assistance. Financial contributions from the United States Agency for International Development (USAID/Rwanda), the Global Fund to Fight AIDS, Tuberculosis, and Malaria (GFTAM), the Department for International Development of The United Kingdom (DfID), the United Nations Development Program (UNDP), and the European Commission (EC) through the Basket Fund were of immense significance to the effective accomplishment of the survey.

We hereby express our profound gratitude to the team from Macro International, in particular Dr. Mohamed Ayad who formulated and coordinated the project, Dr. Rathavuth Hong who was responsible for technical coordination of the 2007-08 RIDHS, Mrs. Monique Barrère and Mrs. Carole Ayad, who analyzed and edited the report and the other Macro International officers who contributed to the success of the 2007-08 RIDHS for their much appreciated technical assistance. The high quality of the analyses presented in this report is evidence of their support.

We deeply appreciate the specific technical support of the *Programme National Intégré Contre le Paludisme* (PNILP) (National Malaria Control Program) for their active participation throughout the conduct of the survey that demonstrated the effectiveness of the close collaboration between the country's various institutions.

The 2007-08 RIDHS could not have been accomplished without the unfailing participation of the staff of the National Institute of Statistics of Rwanda (NISR) who were continuously involved, in particular Mr. Jean Philippe GATARAYIHA, Technical Director of the 2007-08 RIDHS, and Mr. Alphonse RUKUNDO, Deputy Technical Director, who, in cooperation with supervisors and administrative support personnel, supplied pertinent technical supervision and contributed to the analysis of the results.

We would like to express our sincere thanks to the staff of the Management Information System Unit of NISR for their work on data processing and editing, and the staff of the Ministry of Health, in particular Dr. Emilien NKUSI, and those of NISR, in particular Mr. Abdon Baudouin RUTERANA for their insightful review of the final version of the survey report.

We warmly congratulate the cartographers, team leaders, monitors, and the women and men who conducted the surveys, as well as the drivers who were able to overcome the challenges and fatigue inherent in this type of operation.

We wish to reiterate our sincere thanks to all those, far and wide, who contributed to the completion of this Survey.

Lastly, we offer our profound appreciation to the men and women who will use this document, as they have understood the ultimate aim of the production of this valuable report..

Mr Yusuf MURANGWA
Directeur Général a.i de l'Institut National de la Statistique du Rwanda

ABBREVIATIONS

AD	Age at death
AIDS	Acquired Immune Deficiency Syndrome
ANC	Antenatal Care
AQ	Amodiaquine
ARI	Acute Respiratory Infection
ASFR	Age-specific Fertility Rate
BCG	Bacillus of Calmette and Guérin (vaccine against tuberculosis)
CBR	Crude Birth Rate
CDC	Centers for Disease Control and Prevention
CNLS	Commission Nationale de Lutte contre le Sida
CSPro	Census and Survey Processing
DFID	Department for International Development
DHS	Demographic and Health Surveys
DPT	Diphtheria-Pertussis-Tetanus vaccine
EA	Enumeration area
ENF	Enquête Nationale sur la Fécondité (National Fertility Survey)
EPI	Expanded Program on Immunization
ESD	Enquête sociodémographique (Sociodemographic Survey)
FP	Family Planning
FRW	Rwandan Franc
GAR	Gross Attendance Ratio
GDP	Gross Domestic Product
GFR	General Fertility Rate
GPI	Gender Parity Index
GTZ	German Technical Cooperation
HIV	Human Immunodeficiency Virus
IEC	Information/Education/Communication
INSR	Institut National de la Statistique du Rwanda
IPT	Intermittent Preventive Treatment
ITN	Insecticide-Treated Net
IUD	Intra Uterine Device
LAM	Lactational Amenorrhea Method
LNR	National Reference Laboratory
LLIN	Long-Lasting Insecticidal Net
MDG	Millennium Development Goals

NAR	Net Attendance Ratio
NCHS	National Center for Health Statistics
ORS	Oral Rehydration Salts
ORT	Oral Rehydration Therapy
PNILP	Programme National Intégré de Lutte contre le Paludisme (National Malaria Control Program)
PRSP	Poverty Reduction Strategy Papers
PSU	Primary Sampling Units
RBM	Roll Back Malaria
RDHS-I	First Rwanda Demographic and Health Survey, 1992
RDHS-II	Second Rwanda Demographic and Health Survey, 2000
RDHS-III	Third Rwanda Demographic and Health Survey, 2005
RGPH	Recensement Général de la Population et de l'Habitat (General Population and Housing Census), 2002
RHF	Recommended Home Fluids
RIDHS	Rwanda Interim Demographic and Health Survey, 2007-08
SDM	Standard Days Method
SP	Sulfadoxine-Pyrimethamine
STI	Sexually Transmitted Infection
TFR	Total Fertility Rate
TRAC	Treatment and Research AIDS Center
TWFR	Total Wanted Fertility Rate
UNFPA	United Nations Population Fund
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
USD	United States Dollars
VIP	Ventilated Improved Pit Latrine
WHO	World Health Organization
YSD	Years since death

SUMMARY OF FINDINGS

The 2007-08 Rwanda Interim Demographic and Health Survey (RIDHS) carried out from December 15, 2007 to April 20, 2008 is a follow-up to the three previous Demographic and Health Surveys undertaken in 1992, 2000, and 2005. A total of 7,377 households were successfully interviewed for this interim survey. In the households surveyed, 7,528 women age 15-49 were eligible for the individual interview and 7,313 were successfully interviewed. Thus, the response rate for women was 97 percent. The male survey was conducted in all of the households surveyed. A total of 7,168 men age 15-59 were eligible for the individual interview. Of these men, 6,837 were successfully interviewed, for a response rate of 95 percent for men.

The population of Rwanda is young; 40 percent of women and 44 percent of men interviewed were age 15-24. Slightly more than one in three women and about one in two men have never been married. There continues to be a gap in education between women and men. The proportion with no formal education is higher among women (22 percent) than men (15 percent), and the proportion who have attained secondary or higher education is higher among men (16 percent) than women (12 percent). These differentials are also seen by urban-rural residence: 24 percent of women in rural areas have no education, compared with 17 percent of men. In urban areas, 13 percent of women have no education, compared with 9 percent of men. Nevertheless, comparing the results of the 2007-08 RIDHS with those of the RDHS surveys carried out since 1992 indicates a net improvement in the educational status of the Rwandan population.

Few Rwandan households have electricity (6 percent). In rural areas less than 2 percent of households have electricity, compared with 28 percent in urban areas. Thus, access to electricity remains largely unchanged from previous surveys. Results regarding drinking water show that only 41 percent of households have safe, potable drinking water. About three in five households (56 percent) have improved latrines; 3 percent have no toilet facilities.

FERTILITY

Analysis of the 2007-08 RIDHS data indicates that the fertility rate for Rwandan women remains high. The Total Fertility Rate (TFR) is 5.5 children per woman, 4.7 per woman in urban area and 5.7 per woman in rural area. However, when these results are compared with those from previous RDHS surveys in Rwanda, there is a trend toward a decline in fertility. The mean number of children per woman decreased from 6.2 in 1992 to 5.8 in 2000, and finally to 5.5 in 2007-08.

The survey results show that the mean number of children per woman drops as women's level of education increases and household wealth increases. Among the provinces, the East and West provinces show higher fertility rates than other provinces.

FAMILY PLANNING

Contraceptive Prevalence. At the time of the survey, 36 percent of currently married women were using a contraceptive method and 27 percent were using modern methods, mainly injectables and the pill. The proportion of married women using contraception has increased since 2000, with prevalence rising from 13 to 36 percent for all methods and from 4 to 27 percent for modern methods. Results from the survey show that modern contraceptive prevalence increases with women's level of education, varying from 19 percent among women with no education, to 29 percent among those with a primary education, and to 43 percent among women with secondary or higher education. In addition, contraceptive use increases as household wealth increases.

FERTILITY PREFERENCES

Regarding fertility preferences, 48 percent of women reported that they did not wish to have any more children, while 44 percent wanted more. Among the latter group, the majority want to space the next birth by two or more years while 7 percent

want to have the next child in the near future (within two years).

The average ideal family size for all women is 3.3 children, and for married women it is 3.6 children, both substantially less than the TFR of 5.5.

MATERNAL AND CHILD HEALTH

Antenatal Care. The vast majority of expectant mothers consulted a health professional during their most recent pregnancy (96 percent). However, only 24 percent had at least four antenatal care (ANC) visits, as recommended by the World Health Organization and the Rwandan government. For 33 percent of women, the first ANC visit did not occur until the sixth or seventh month of pregnancy, which is considered late. According to recommendations, the first antenatal care visit should take place when a woman is less than 4 months pregnant. The median time of the first ANC visit is 5.4 months into the pregnancy; the median is lower in rural areas than in urban areas (5.0 and 5.4 months, respectively).

The survey results indicate that during these ANC consultations women are rarely informed of the signs of complications that can occur during pregnancy (8 percent). Most often, women were weighed (98 percent) and their blood pressure was measured (87 percent).

Seven of ten women (71 percent) had blood samples taken during their ANC consultations (for routine testing). However, only 18 percent of pregnant women were given a urine test. Just over one in two women (54 percent) took antimalarial medicines, and 18 percent took medication for intestinal parasites. The percentage of women who received iron supplements was 41 percent.

Delivery Care. About one in two Rwandan women gave birth at home (49 percent), and 12 percent gave birth with no professional assistance during delivery. However, 40 percent of women gave birth with the assistance of a nurse or midwife. Among the most educated women and those in the highest (richest) wealth quintile, this proportion reached 59 and 52 percent, respectively.

Vaccination Coverage. The objective of Rwanda's Expanded Program on Immunization (EPI)—to vaccinate all children within the first 12 months of life—has not yet been met. About 80 percent of children age 12-23 months had received all the recommended vaccinations. Among these children, only 74 percent received all vaccinations before the age of one year. Vaccination coverage is lowest among children of women with no education (77 percent). However, the results show an improvement in vaccination coverage for all children, with the proportion increasing from 76 percent in the 2000 RDHS to 80 percent in the 2007-08 RIDHS.

Childhood Illness. During the two weeks preceding the survey, 15 percent of children under 5 years of age had an acute respiratory infection (ARI), 21 percent had a fever, and 14 percent had experienced diarrhea.

Medical treatment or advice was sought for 28 percent of children with a cough accompanied by short, rapid breathing (ARI). More than a third of children with a fever were brought to a health facility (35 percent). For those who had experienced diarrhea, one-third received medical treatment; 31 percent were treated with ORS or recommended home fluids (RHF); and nearly two in five children with diarrhea were treated with ORT or increased fluids (39 percent). However, 42 percent of children with diarrhea were given no treatment, and among children in the poorest households, the percentage was 54 percent.

NUTRITION

Breastfeeding Practices. In Rwanda breastfeeding is nearly universal, with 98 percent of all children born in the five years preceding the survey having been breastfed. However, among those who were ever breastfed, only 68 percent began breastfeeding within one hour of birth, and 21 percent were given supplementary food (prelacteal feed) before their first breastfeeding.

Micronutrient Supplements. Nearly three-quarters of children age 6 to 59 months had received vitamin A supplements in the six months preceding the survey. Almost seven in ten children received deworming medicines during the same

period. Only 8 percent of children received iron supplements in the past seven days.

Anemia. In Rwanda, slightly more than one in four women have anemia (27 percent): 15 percent have a mild form, 8 percent are moderately anemic, and 4 percent are severely anemic. The prevalence of anemia is highest in the City of Kigali (40 percent).

Nearly one in two children have anemia (48 percent); 21 percent have a mild form, 18 percent are moderately anemic, and 8 percent are severely anemic. As with women, the proportion of children who are anemic is highest in the City of Kigali (56 percent).

MALARIA

Possession of Mosquito Nets. In Rwanda, 59 percent of households own at least one mosquito net. Households in urban areas (69 percent), those in the City of Kigali (71 percent), and those in the highest (richest) wealth quintile (72 percent) have a higher proportion with at least one net than others households. Compared with the 2005 RDHS-III, the proportion of households with mosquito nets has increased substantially; in 2005 only 18 percent of households owned at least one mosquito net. The results of the 2007-08 RIDHS indicate that 57 percent of all households have at least one insecticide-treated mosquito net (ITN), and 56 percent of households own a long-lasting insecticidal net (LLIN).

Use of Mosquito Nets. Three in five children (60 percent) under the age of five slept under a mosquito net the night preceding the survey. The proportion who slept under an LLIN is 56 percent.

Results show that 49 percent of women age 15-49 slept under a mosquito net on the night preceding the survey; the proportion is higher for pregnant women (65 percent). In addition, 55 percent of women were protected against malaria during their pregnancy by taking antimalarial drugs. Fifty-six percent of women with at least a secondary education slept under a mosquito net, compared with 49 percent of women with no education. The results show that 51 percent of women had received Intermittent Preventive Treatment (IPT); 17 percent of women were given at least two doses of IPT during antenatal visits.

Fever and Early Treatment of Children. Among children under five who had a fever in the two weeks preceding the survey, only 6 percent were given antimalarial drugs and only a small proportion were treated the same day as the fever occurred (less than 1 percent).

Malaria Diagnostic Testing. Among children age 6-59 months who were tested for malaria, only 2.6 percent tested positive for at least one form of malaria parasite. The proportion is highest in the East province (5.3 percent). Women (1.4 percent) are less likely to have malaria than children; rural women are more frequently infected than women in urban areas (1.5 and 1.1 percent, respectively). As with children, women in the East province are more often infected with malaria (2.9 percent) than those in other provinces or in the City of Kigali.

INFANT AND CHILD MORTALITY

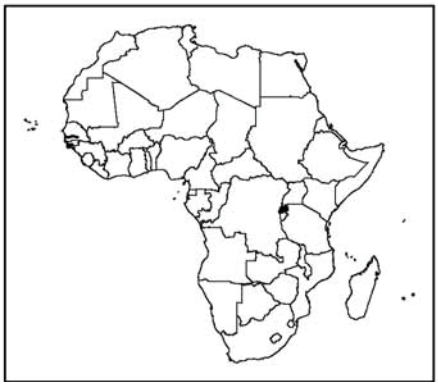
Childhood mortality remains high in the nation as a whole. For the most recent period (0-4 years before the survey), results show that for every one thousand live births, 62 children die before reaching their first birthday (28 per thousand between birth and 1 month and 34 per thousand between 1 month and 12 months), while for every one thousand children who survive to age one, 43 do not reach their fifth birthday. Overall, the risk of dying between birth and the fifth birthday is 103 per thousand live births. However, childhood mortality has dropped since the genocide, and the decline has accelerated in recent years.

CIRCUMCISION

Only 12 percent of men age 15-59 in Rwanda have been circumcised. However, the survey results show that the practice is occurring more frequently among younger age groups. The proportion of circumcised men has risen from 6 percent among men age 55-59 to 15 percent among those age 25-29. About seven in ten men (70 percent) said they were circumcised by a health professional. Nearly two-thirds of men (64 percent) reported that the procedure was carried out for reasons of health and hygiene.

RWANDA


Uganda
Democratic Republic of the Congo
North
East
West
City of Kigali
Lake Kivu
South
Tanzania
Burundi
0
25
50 Kilometers
N



COUNTRY PROFILE, OBJECTIVES, AND METHODOLOGY OF THE SURVEY 1

1.1 COUNTRY PROFILE

1.1.1 Geography

The country of Rwanda is situated in central Africa immediately south of the equator between 1°4' and 2°51' south latitude and 28°63' and 30°54' east longitude. Its total area of 26,338 square kilometers is bordered by Uganda to the north, Tanzania to the east, the Democratic Republic of the Congo to the west, and Burundi to the south. Landlocked, Rwanda lies 1,200 kilometers from the Indian Ocean and 2,000 kilometers from the Atlantic Ocean.

Rwanda forms part of the highlands of eastern and central Africa, with mountainous relief and an average elevation of 1,700 meters. However, there are three distinct geographical regions.

Western and north-central Rwanda is made up of the mountains and foothills of the Congo-Nile Divide, the Virunga volcano range, and the northern highlands. This region is characterized by rugged mountains intercut by steep valleys, with elevations generally exceeding 2,000 meters. The Divide itself rises to 3,000 meters at its highest point but is dwarfed by the volcano range, whose highest peak, Kalisimbi, reaches 4,507 meters. The Congo-Nile Divide slopes westward to Lake Kivu, which lies 1,460 meters above sea level in the Rift Valley trough.

In Rwanda's center, mountainous terrain gives way to the rolling hills that give the country its nickname, "Land of a Thousand Hills." Here the average elevation varies between 1,500 and 2,000 meters. This area is also referred to as the central plateau.

Further east lies a vast region known as the "eastern plateaus," where the hills level gradually into flat lowlands interspersed with a few hills and lake-filled valleys. The elevation of this region generally falls below 1,500 meters.

Because of its elevation, Rwanda enjoys a temperate, sub-equatorial climate with average yearly temperatures of around 18.5°C. The average annual rainfall is 1,250 millimeters and occurs in two rainy seasons of differing lengths, alternating with one long and one short dry season. The climate varies somewhat from region to region, depending on the altitude, the volcano range and northern highlands being generally cooler and wetter, with average temperatures of 16°C, and average rainfall of above 1,300 millimeters. The maximum rainfall is 1,600 millimeters, above the Divide and the volcanic range. The hilly central region receives an average of between 1,000 and 1,300 millimeters of rain per year, while rainfall on the eastern plateau, whose climate is relatively warmer and drier, generally falls below 1,000 millimeters and can be as low as 800 millimeters. Although Rwanda enjoys more or less constant temperatures, the climate is known to vary from year to year, with extreme variations in rainfall sometimes resulting in flooding or, more often, drought. These extremes have a profound impact on agricultural production, which sometimes falls into recession.

Rwanda has a dense network of rivers and streams, draining into the Congo River on the western slope of the Congo-Nile Divide, and into the Nile in the rest of the country via the Akagera River, which receives all the streams of this watershed. Water resources also include several lakes surrounded by wetlands.

Deforestation due primarily to land clearing for agricultural expansion has resulted in mostly anthropic vegetation with only a few small areas of natural forestland (representing 7 percent of the country) remaining on the Congo-Nile Divide and the slopes of the volcanic range.

There are now four geographically-based provinces (North, South, East, and West) and the City of Kigali, these being further subdivided into 30 districts, 415 sectors, cells and, finally, villages (Imidugudu). This report is based on the new administrative divisions (four provinces and the City of Kigali).

1.1.2 Economy

Although regular efforts have been made to develop the service sector and stimulate investment in the industrial sector, the Rwandan economy remains dominated by agriculture. According to the 2002 General Population and Housing Census (RGPH), more than 8 out of 10 people are employed in agriculture, including 81 percent of men and 93 percent of women (SNR, 2005). However, the agricultural sector is facing major problems: a production system dominated by small farming operations of less than one hectare, rudimentary techniques, and a low rate of investment. Agrarian reforms are being gradually introduced to address these problems, in particular through population resettlement and labor quality improvements focusing on specialized training mainly for women. Efforts are also underway to regionalize crops and fully expand the use of farm inputs (MAAR, 2004).

Over the past two years the service sector has accounted for the largest share of Rwanda's Gross Domestic Product (GDP), roughly 45 percent in 2007, followed by agriculture with 36 percent and industry with 14 percent at current prices.

Nevertheless, agricultural production rose slightly by 1 percent in 2007 in relation to 2006. This rise is due to the increase in production of food crops (+2 percent), including legumes (+12 percent), and bananas (+2 percent) but reduced by the drop in grains (-1 percent) and tubers (-4 percent) from that in 2006. Among the export crops, coffee production dropped by 45 percent compared with 2006.

In 2007, industry value added grew by 10 percent, while mining and quarries registered a significant increase of 38 percent over 2006. At the same time, services value added increased by 13 percent in 2007. Wholesale and retail trade, restaurants and hotels, transportation, storage and communications, finance and insurance, education, health and other personnel services were the main contributors to the increase in value added.

The per capita GDP at constant 2001 prices was FRW 201,000 in 2007 compared with FRW 173,000 in 2006. The value added of final consumption expenditure increased by 6 percent in relation to 2006. Private consumption expenditure, increased by 7 percent while government consumption expenditure declined 1 percent in 2007 in relation to 2006.

The Demographic and Health Survey showed that 86 percent of women were working in agriculture compared with 62 percent of men. In addition, 14 percent of men compared with 6 percent of women worked in unskilled labor.

Results from the 2007-08 RIDHS showed that in urban areas, 59 percent of households are in the highest wealth quintile compared with only 12 percent of households in rural areas. By comparison, in urban areas only 9 percent of households are in the lowest (poorest) wealth quintile, compared with 18 percent in rural areas.

Finally, because of the failure of most development strategies based on structural adjustment programs focused on growth measured in terms of per capita GDP, the overwhelming majority of development partners are recognizing the need to incorporate social factors into development strategies. Therefore, new initiatives are geared toward pro-poor economic growth and poverty reduction to revive the economies of developing nations (MFEP, 2007). Rwanda has adopted this new orientation.

1.1.3 Population

The population of Rwanda is estimated to be 9,309,619. Although Rwanda suffered a major loss of human life (more than one million people) in the 1994 genocide, the population remains essentially the same because more than one million former refugees who had been living for years in exile returned at the end of the war and genocide.

Population density is high across the country; in 2007 density was estimated at 368 inhabitants per square kilometer. The population is essentially young, with 67 percent of all Rwandans under the age of 20. In terms of gender, the 2002 RGPH shows females to be in the majority (52 percent) while males make up 48 percent of the population (SNR, 2005).

The illiteracy rate in Rwanda declined between 2000 and 2005. Between the two surveys the rate went from 34 percent to 29 percent among women and from 24 percent to 22 percent among men. By contrast 70 percent of women compared with 78 percent of men know how to read and write and are considered literate. The education level of Rwandans age 6 years and above is also low. According to the 2005 Demographic and Health Survey (2005 RDHS-III), 23 percent of women and 17 percent of men had no education while nearly 67 percent of women and 70 percent of men had at least a primary school education. About 11 percent of men and 9 percent of women had reached the secondary school level, while those with education beyond the secondary level made up about 1 percent of the population.

Results by religious affiliation show that 96 percent of women and 95 percent of men identify themselves as Christian compared with 1.8 and 2 percent, respectively, who identify as Muslim.

Nearly all Rwandans speak the same language, Kinyarwanda (spoken by over 99 percent of the population), which is the country's first official language, followed by French and English. Kiswahili, the third relatively common foreign language, is generally spoken in urban areas and in the provinces bordering on countries where this language is widely spoken (Democratic Republic of the Congo, Tanzania).

1.1.4 Population Policy

Out of concern for improving the country's quality of life, the Rwandan government has developed various strategies over the years to ensure an acceptable balance between demographic growth and available resources, particularly since the 1980s.

A family planning initiative developed in 1982 provided for training, improved access to family planning services and, in particular, the promotion of family planning through trained communicators known as Abakangurambaga ("Awakeners of the People"). A subsequent policy was adopted in 1990 aimed at curbing demographic growth and reducing fertility through family planning. To create an environment favorable to behavioral changes that result in lower fertility rates, other elements were included in the plan such as increased production, public health improvements, land use planning, training of communicators, the promotion of education and school attendance, and the employment and advancement of women (MOH, 2008).

Following the 1994 genocide, the government of Rwanda became aware of the links between population dynamics and socioeconomic development, specifically the necessity of taking into account demographic variables in plans and programs for social and economic development. Within this context the Government of Rwanda adopted a population policy in 2003 (SNR, 2005). The main goal of this policy is improvement in the quality of life of the population by emphasizing objectives such as slowing demographic growth, managing sustainability of natural resources, food safety, access to primary and secondary education for all children—with a focus on technical and vocational instruction and information technologies—good governance, equal opportunity, and participation in development by both men and women.

1.1.5 Public Health Policy

To improve the health of the population the Ministry of Health has developed a community health policy to create health care services at the community level. All socio-demographic aspects of the population have been taken into account to guarantee equal access to health services and delivery of quality health services for all. By instituting this policy, the government is recommending the active participation of the population in the planning, execution, follow-up, and evaluation of programs and projects; it strongly encourages the community to share its recommendations and make its points of view known.

In March 2005, the government of Rwanda adopted the health sector's Policy (Ministry of Health 2005a) and its 2005-2009 strategic Plan (Ministry of Health 2005b), thus achieving its overall vision for a project guaranteeing access to health and wellbeing to the entire population, and in addition, increasing production and reducing poverty. The health sector is dedicated to improving and ensuring optimal health conditions for the population by putting both quality preventive services and curative care services within an effective health care system.

In order to accomplish this mission, the Ministry of Health has targeted the following objectives/programs:

- Guarantee the availability of human resources for health;
- Guarantee the availability of medications, vaccines and other quality medical provisions;
- Guarantee the accessibility to healthcare services by the population;
- Provide care and services at a reasonable cost;
- Improve the quality and control of services for preventive illness as well as the demand for such services;
- Improve national hospitals and research institutes;
- Reinforce the institutional capabilities of national programs and institutions.

One of the major problems confronting the health care system in Rwanda is solving two financial challenges within a context of poverty: improving financial access and equal access to the health care system plus mobilization of internal resources to increase financial viability of the health care services. The Rwandan government has instituted a system of mutual health insurance to respond to three specific objectives: 1) improve financial access to health care, 2) improve the financial situation of health establishments, and 3) improve the overall health of the population. A system of mutual insurance should facilitate the use of health care services by the population.

The Government of Rwanda has specifically emphasized the priority components of reproductive health: lower risk maternity and child health, family planning, sexually transmitted infections (STIs),

HIV/AIDS, adolescent health and reproduction, prevention and control of sexual violence, and social changes for increasing the decisionmaking power of women.

Government budget allocations for health care have increased substantially—by 304 percent between 2002 and 2007. In 2007, the government allocated 8.8 percent of its budget to health care in the *Health Public Expenditure Review 2006-2007* (MOH, 2009).

1.2 OBJECTIVES AND METHODOLOGY OF THE SURVEY

The 2007-08 Rwanda Interim Demographic and Health Survey (RIDHS) is the first of its kind, following three surveys conducted in 1992, 2000 and 2005. The RIDHS is part of the international Demographic and Health Surveys program. Sponsored by the Ministry of Health with collaboration with the Ministry of Finance and Economic Planning, it was carried out by the National Institute of Statistics of Rwanda with the technical assistance of ICF Macro. Financial support for the survey was provided by the Government of Rwanda through the Ministry of Health and Global Fund to Fight AIDS, Tuberculosis, and Malaria, the United States Agency for International Development (USAID/Rwanda), and the Basket Funds of NISR (DFID, EC, and UNDP). The survey covered a representative sample of women between the ages of 15 and 49 and men between the ages of 15 and 59.

The main objectives of the RIDHS were:

- At the national level, gather data to determine demographic rates, particularly fertility and infant and child mortality rates, and analyze the direct and indirect factors that determine fertility and child mortality rates and trends.
- Evaluate the level of knowledge and use of contraceptives among women and men.
- Gather data concerning family health: vaccinations; prevalence and treatment of diarrhea, acute respiratory infections (ARI), and fever in children under the age of five; antenatal care visits; and assistance during childbirth.
- Gather data concerning the prevention and treatment of malaria, particularly the possession and use of mosquito nets, and the prevention of malaria in pregnant women.
- Gather data concerning child feeding practices, including breastfeeding.
- Gather data concerning circumcision among men between the ages of 15 and 59.
- Collect blood samples in all of the households surveyed for anemia testing of women age 15-49, pregnant women and children under age five.
- Collect blood samples in all of the households surveyed for hemoglobin and malaria diagnostic testing of women age 15 to 49, pregnant women and children under age five.

1.2.1 Sample Design

The sample for the RIDHS is a two-stage stratified area sample. Clusters are the primary sampling units and are constituted from enumeration areas (EA). The EA were defined in the 2002 General Population and Housing Census (RGPH) (SNR, 2005).

These enumeration areas provided the master frame for the drawing of 250 clusters (187 rural and 63 urban), selected with a representative probability proportional to their size. Only 249 of these clusters were surveyed, because one cluster located in a refugee camp had to be eliminated from the sample. A strictly proportional sample allocation would have resulted in a very low number of urban households in

certain provinces. It was therefore necessary to slightly over-sample urban areas in order to survey a sufficient number of households to produce reliable estimates for urban areas. The second stage involved selecting a sample of households in these enumeration areas. In order to adequately guarantee the accuracy of the indicators, the total number drawn was limited to 30 households per cluster. Because of the nonproportional distribution of the sample among the different strata and the fact that the number of households was set for each cluster, weighting was used to ensure the validity of the sample at both national and provincial levels.

All women age 15-49 years who were either usual residents of the selected household or visitors present in the household on the night before the survey were eligible to be interviewed (7,528 women). In addition, a sample of men age 15-59 who were either usual residents of the selected household or visitors present in the household on the night before the survey were eligible for the survey (7,168 men). Finally, all women age 15-49 and all children under the age of five were eligible for the anemia and malaria diagnostic tests.

The sample for the 2007-08 RIDHS covered the population residing in ordinary households across the country. A national sample of 7,469 households (1,863 in urban areas and 5,606 in rural areas) was selected. The sample was first stratified to provide adequate representation from urban and rural areas as well as all the four provinces and the city of Kigali, the nation's capital,

Table 1.1 Results of the household and individual interviews

Number of households, number of interviews, and response rates, according to residence (unweighted), Rwanda 2007-08

Result	Residence		Total
	Urban	Rural	
Household interviews			
Households selected	1,863	5,606	7,469
Households occupied	1,839	5,576	7,415
Households interviewed	1,821	5,556	7,377
Household response rate	99.0	99.6	99.5
Interviews with women age 15-49			
Number of eligible women	2,046	5,482	7,528
Number of eligible women interviewed	1,974	5,339	7,313
Eligible women response rate	96.5	97.4	97.1
Interviews with men age 15-59			
Number of eligible men	2,056	5,112	7,168
Number of eligible men interviewed	1,946	4,891	6,837
Eligible men response rate	94.6	95.7	95.4

1.2.2 Questionnaires

Three questionnaires were used in the 2007-08 RIDHS: the Household Questionnaire, the Women's Questionnaire, and the Men's Questionnaire. The content of these questionnaires was based on model questionnaires developed by the MEASURE DHS project.

Initial technical meetings that were held beginning in September 2007 allowed a wide range of government agencies as well as local and international organizations to contribute to the development of the questionnaires. Based on these discussions, the DHS model questionnaires were modified to reflect the needs of users and relevant issues in population, family planning, anemia, malaria and other health concerns in Rwanda. The questionnaires were then translated from French into Kinyarwanda. These questionnaires were finalized in December 2007 before the training of male and female interviewers.

The Household Questionnaire was used to list all of the usual members and visitors in the selected households. In addition, 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 and men who were eligible for the individual interview. The Household Questionnaire also collected information on characteristics of the household's dwelling unit such as the main source of drinking water, type of toilet facilities, materials used for the floor of the house, the main energy source used for cooking and ownership of various durable goods. Finally, the Household Questionnaire was also used to identify women and children eligible for the hemoglobin (anemia) and malaria diagnostic tests.

The Women's Questionnaire was used to collect information on women of reproductive age (15-49 years) and covered questions on the following topics:

- Background characteristics
- Marital status
- Birth history
- Knowledge and use of family planning methods
- Fertility preferences
- Antenatal and delivery care
- Breastfeeding practices
- Vaccinations and childhood illnesses

The Men's Questionnaire was administered to all men age 15-59 years living in the selected households. The Men's Questionnaire collected information similar to that of the Women's Questionnaire, with the only difference being that it did not include birth history or questions on maternal and child health or nutrition. In addition, the Men's Questionnaire also collected information on circumcision.

Data collection for the 2007-08 RIDHS, including the blood sample collection for the anemia and malaria diagnostic tests, took place from December 15, 2007 to April 20, 2008.

1.2.3 Hemoglobin and Malaria Diagnostic Testing

All eligible women age 15-49 years and children under the age of five were eligible for the anemia and malaria tests. The anemia and malaria test protocols were approved by the ICF Macro Institutional Review Board in Calverton, Maryland USA and the National Ethics Committee of Rwanda.

1.2.4 Hemoglobin Test

Checking hemoglobin levels is the primary way of diagnosing anemia. This test is performed with the HemoCue system. An informed consent form is read to the eligible person or parent/responsible adult of the child or teenager between the ages of 15 and 17. This consent form asks, first of all, for the authorization of the person before undertaking the test and then explains the objectives of the test, informs the individual taking the test or those responsible for children that the results will be communicated immediately after the test.

Before collecting the blood, the finger is cleaned with a swab dipped in alcohol and allowed to air dry. Then the tip of the finger (or heel, for children under 6 months, or those under one year who are small since the skin in this location is particularly thin) is pricked with a sterile, single-use retractable blood lancet. One drop of blood is collected in a microcuvette and then introduced into the HemoCue photometer, which indicates the level of hemoglobin. These results are then recorded on the Household Questionnaire and communicated to the person tested, or to the parent/responsible adult, with an explanation of their meaning. For each person whose test result indicates severe anemia (hemoglobin below 7 g/dl, or 9 g/dl for pregnant women), a referral is given for receiving care at local health centers.

1.2.5 Malaria Diagnostic Test

A malaria diagnostic test was included in the 2007-08 RIDHS. The test was given to the same group of women and children who were tested for anemia. The informed consent was presented separately for the malaria test and was obtained in the same way for the different age groups as for the anemia test. For each person interviewed, a slide with a thick blood smear was prepared, transmitted, and stored at the PNILP laboratory for microscopic examination of malaria parasites.

For the rapid diagnostic test for malaria, a drop of blood was obtained from the same prick used for the anemia test. Using a small tube pipette (provided in the test kit) 10 µL of blood were drawn and placed in the test well containing antibody. The blood and antibody were mixed with the paddle at the top of the pipette. The strip slide was then placed in the slots positioned on either side of the well, which holds it vertically and allows the end to dip into the solution in the well. After 10 minutes, the slide was transferred to the wash well for a further 10 minutes to make the strip clearly visible, following which the result could be assessed. A cap was provided to seal the used well, which was then snapped off the cassette and discarded. The exposed strip was slipped into the base of the cassette, rendering it both safe to handle and preserved as a permanent record.

The results of the malaria test were recorded in the Household Questionnaire, which allows them to be linked with the characteristics of the respondents.

The National Institute of Statistics of Rwanda, in collaboration with the National Malaria Control Program (PNILP) and other concerned services from the Ministry of Health, prepared an information brochure on malaria and provided treatment to respondents whose test results were positive. These brochures were distributed to participants, whether or not they agreed to undergo the malaria diagnostic test.

1.2.6 Training and Data Collection

Staff responsible for the survey at the National Institute of Statistics, in collaboration with the technical team, recruited 70 people to participate in data collection. Training included two phases, theoretical and practical. Three weeks of training were provided, from November 20 to December 11, 2007, including three days of field practicum in urban and rural areas not selected for the survey.

After the training, the field staff were divided into 13 teams, each with a team leader, a supervisor, and three interviewers. A laboratory technician from the National Malaria Control Program was included on each team for the anemia and malaria diagnostic tests. The laboratory technicians were medically qualified to take blood samples and conduct the anemia and malaria test under the supervision of the PNILP technical team with assistance from ICF Macro.

Data collection began on December 15, 2007 in the area of the city of Kigali. This location made it possible to closely monitor the teams before they were dispatched to more distant areas. After two weeks, all teams except one that was needed remaining to complete the work in Kigali were deployed to their respective work zones. Data collection was completed on April 20, 2008.

1.2.7 Data Processing

Data entry began on January 7, 2008, three weeks after the beginning of data collection activities in the field. Data were entered by a team of five data processing personnel recruited and trained by staff from ICF Macro. The data entry team was reinforced during this work with an additional staffer. Completed questionnaires were periodically brought in from the field to the National Institute of Statistics in Kigali, where assigned staff checked them and coded the open-ended questions. Next, the questionnaires were sent to the data entry staff. Data were entered using CSPro, a program developed jointly by the United States Census Bureau, the ICF Macro MEASURE DHS program, and Serpro S.A. All questionnaires were entered twice to eliminate as many data entry errors as possible from the files. In addition, a quality control program was used to detect data collection errors for each team. This information was shared with field teams during supervisory visits to improve data quality. The data entry and internal consistency verification phase of the survey was completed on May 14, 2008.

HOUSEHOLD CHARACTERISTICS 2

This chapter presents information on the social, economic, and demographic characteristics of the households sampled in the 2007-08 Rwanda Interim Demographic and Health Survey (RIDHS); it also covers household living conditions. All the usual residents of each household selected and visitors present in the household on the night before the survey were listed in the Household Questionnaire. Baseline information such as age, sex, marital status, and education were collected for each person. This method of data collection allows for analysis of the results of the survey either for the de jure population (usual residents) or the de facto population (persons present in the household at the time of the survey).

2.1 HOUSEHOLD POPULATION BY AGE AND SEX

Table 2.1 presents the distribution of the de facto household population by five-year age groups, according to sex and urban-rural residence. For the 7,377 households successfully surveyed (99.5 percent response rate), the total population was 31,501 (16,583 women and 14,918 men). Thus, there are more women than men in Rwanda: 53 percent, compared with 47 percent, or a sex ratio of 90 males per 100 females. This gap has narrowed somewhat since the 2005 survey when the ratio was 88 males per 100 females. The predominance of females is seen particularly in rural areas, where the sex ratio is 89 males per 100 females.

Between age 0 and 19 years there is an over-representation of males compared with females. Beginning with age group 20-24 the situation reverses, although the pattern is less clear. In urban areas, for age group 0-14, the proportion of males is higher than the proportion of females; this trend is reversed in age group 20-24. Between age 25 and 39, males are the largest group; then beginning with age 40, the proportion of women again becomes slightly greater than that of men. Overall, the results indicate that 86 percent of the Rwandan population resides in rural areas compared with 14 percent in urban areas.

The age pyramid (Figure 2.1) is wide at the base, narrowing rapidly as it reaches the upper age limits, an indication of a population with high fertility and even higher mortality; 65 percent of the population is under age 25 while 73 percent is under age 30.

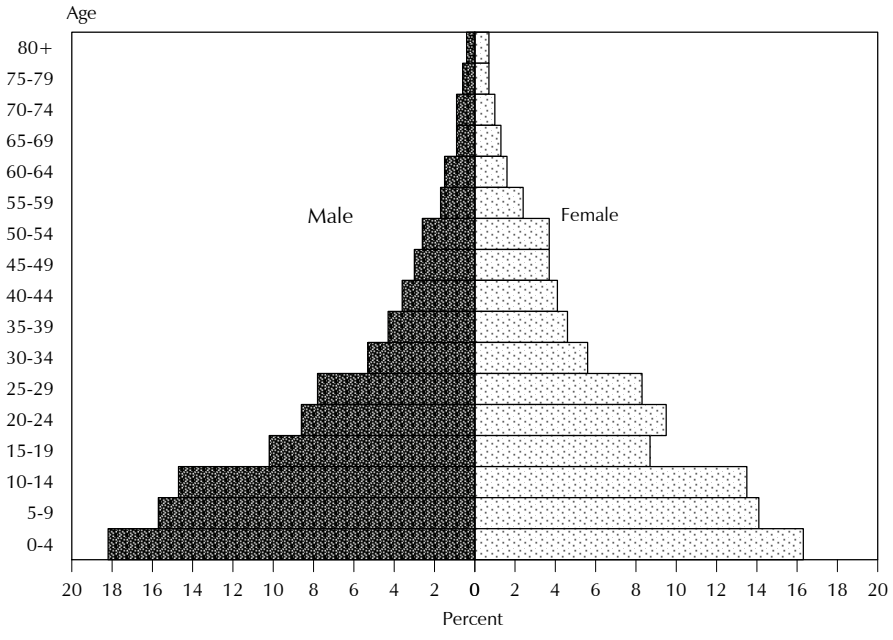
There are certain irregularities in the age structure for both males and females however these are more prominent among females than males. First, there is an underestimation of the number of women age 15-19. In part this is due to some women being moved into the 20-24 age group. In addition, there is an increase in the number of women in age group 50-54 who were not counted in the 45-49 age group. A more detailed analysis shows some aspects of the population structure specific to Rwanda: there is an abnormal shrinkage in the pyramid for age groups 30-34 and 45-49 for both sexes, but especially for men. The lower numbers for these groups are due to the high adult mortality resulting from the genocide.

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, Rwanda 2007-08

	Urban			Rural			Total		
Age	Male	Female	Total	Male	Female	Total	Male	Female	Total
<5	17.0	14.6	15.8	18.4	16.7	17.5	18.2	16.3	17.2
5-9	14.2	13.0	13.6	16.0	14.3	15.1	15.7	14.1	14.9
10-14	12.4	12.4	12.4	15.1	13.7	14.4	14.7	13.5	14.1
15-19	10.5	11.1	10.8	10.2	8.2	9.2	10.2	8.7	9.4
20-24	11.4	11.9	11.6	8.1	9.1	8.6	8.6	9.5	9.1
25-29	10.0	9.3	9.6	7.3	8.1	7.8	7.8	8.3	8.1
30-34	6.6	6.4	6.5	5.0	5.5	5.3	5.3	5.6	5.5
35-39	4.7	4.0	4.4	4.2	4.7	4.5	4.3	4.6	4.4
40-44	3.0	4.1	3.6	3.7	4.1	3.9	3.6	4.1	3.8
45-49	3.0	3.1	3.0	3.0	3.8	3.4	3.0	3.7	3.4
50-54	2.3	3.7	3.0	2.7	3.7	3.2	2.6	3.7	3.2
55-59	1.1	2.0	1.6	1.9	2.5	2.2	1.7	2.4	2.1
60-64	1.8	1.3	1.5	1.5	1.7	1.6	1.5	1.6	1.6
65-69	0.8	1.3	1.0	0.9	1.3	1.1	0.9	1.3	1.1
70-74	0.8	0.8	0.8	0.9	1.0	1.0	0.9	1.0	0.9
75-79	0.3	0.4	0.3	0.7	0.8	0.7	0.6	0.7	0.7
80 +	0.2	0.6	0.4	0.4	0.8	0.6	0.4	0.7	0.6
Don't know/missing	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	2,427	2,495	4,923	12,491	14,088	26,579	14,918	16,583	31,501

Figure 2.1 **Population Pyramid**



RIDHS 2007-08

2.2 HOUSEHOLD SIZE AND COMPOSITION

2.2.1 Sex of the Head of Household

Table 2.2 shows the distribution of households by sex of the head of household and mean household size. Results are presented by urban-rural residence. Overall, 69 percent of households are

headed by a man while women head 31 percent of household; there is little variation by residence. Since the 2005 survey the percentage of households headed by a man has increased from 66 to 69 percent. In rural areas, the proportion of households headed by a woman has dropped slightly from 34 to 32 percent.

2.2.2 Household Size

As shown in Table 2.2, a Rwandan household has, on average, 4.3 persons (4.3 persons in rural areas and 4.4 persons in urban areas). These proportions have dropped slightly compared with the result of the 2005 RDHS-III survey in which the mean household size was 4.6 persons (4.5 in rural areas and 4.8 in urban areas).

About half of households have between 3 and 5 persons (51 percent). One-person households make up only 10 percent of urban households and 8 percent of rural households. In 16 percent of cases, households are large and have between 7 and 9 members (16 percent of households in rural area and 18 percent of households in urban areas.

Table 2.2 Household composition

Percent distribution of households by sex of head of household and by household size (usual members); and mean size of household, according to residence, Rwanda 2007-08

Characteristic	Residence		Total
	Urban	Rural	
Sex of head of household			
Male	70.0	68.3	68.6
Female	30.0	31.7	31.4
Total	100.0	100.0	100.0
Number of usual members			
0	0.1	0.0	0.0
1	10.1	7.9	8.3
2	13.3	12.6	12.7
3	16.8	18.4	18.2
4	15.6	17.5	17.2
5	15.1	16.2	16.0
6	10.7	11.5	11.4
7	8.2	7.8	7.9
8	4.7	4.3	4.4
9+	5.4	3.7	4.0
Total	100.0	100.0	100.0
Mean size of households	4.4	4.3	4.3
Number of households	1,148	6,229	7,377

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

2.3 HOUSING CHARACTERISTICS

The household survey collected information on certain housing characteristics such as source of drinking water, access to electricity, type of toilet and flooring materials. The survey also collected information on the ownership of certain durable goods including a radio, television, refrigerator, bicycle, motorcycle, and car. These characteristics are used to evaluate the socio-economic conditions in the household.

Table 2.3 shows that at the national level only 6 percent of households have electricity and there are important disparities by urban-rural residence. Thirty-one percent of households have access to electricity in urban areas, compared with only 2 percent in rural areas.

With regard to the source of drinking water for home consumption, nationally 32 percent of households use water obtained from a public tap (43 percent in urban areas and 30 percent in rural areas); 26 percent use spring water (13 percent urban areas, compared with 28 percent rural areas). Only a small proportion of households (3 percent) have a faucet in their home or courtyard, and most of these are in urban areas (17 percent in urban areas, compared with less than 1 percent in rural areas). In addition, 18 percent of households draw water from open public wells, while 6 percent drink water from covered public wells. In 14 percent of homes, household drinking water comes from rivers and streams (9 percent) and from ponds/lakes (4 percent). These results show that in Rwanda nearly one-third of households consume unsafe water from unprotected sources and are therefore exposed to the risk of preventable illnesses such as diseases transmitted by worms, dysentery, and cholera, that are all associated with unhealthy hygiene.

Table 2.3 Household characteristics

Percent distribution of households by certain characteristics of the household, by urban-rural residence, Rwanda 2007-08

Characteristic	Residence		Total
	Urban	Rural	
Electricity			
Yes	28.1	2.0	6.0
No	71.8	97.8	93.7
Don't know	0.2	0.2	0.2
Total	100.0	100.0	100.0
Sources of drinking water			
Piped into dwelling/compound/plot	17.0	0.9	3.4
Public tap	42.6	30.3	32.2
Open well in compound/plot	0.2	0.1	0.1
Open public well	13.7	19.3	18.4
Covered well in compound/plot	0.0	0.2	0.1
Covered public well	4.2	6.0	5.7
Spring	13.4	27.9	25.6
River/stream	6.5	9.8	9.3
Pond, lake	1.6	4.8	4.3
Dam	0.1	0.5	0.4
Rain water	0.1	0.1	0.1
Tanker truck	0.0	0.0	0.0
Bottled water	0.0	0.0	0.0
Other/don't know	0.7	0.3	0.4
Total	100.0	100.0	100.0
Time to the water source			
Percentage <15 minutes	53.6	27.4	31.5
Median time to source (in minutes)	8.8	29.1	24.5
Sanitation facility			
Flush toilet	3.2	0.4	0.8
Traditional pit toilet/latrine	53.4	37.6	40.1
Ventilated improved pit latrine	40.9	58.2	55.5
No facility, bush, field	1.8	3.1	2.9
Other/don't know	0.7	0.7	0.7
Total	100.0	100.0	100.0
Flooring material			
Earth, mud, sand	51.1	90.5	84.4
Dung	0.7	0.9	0.9
Ceramic tiles/cement	47.4	8.3	14.2
Carpet	0.9	0.2	0.3
Other/don't know	0.1	0.3	0.2
Total	100.0	100.0	100.0
Number of households	1,148	6,229	7,377

In urban areas, 22 percent of households consume water that is either unsafe or questionable (open public wells, rivers, ponds, and lakes) while in rural areas the proportion is 34 percent. These results indicate that rural households run a greater risk of contracting preventable diseases linked to unsafe water than urban households.

Comparing these results with those from the 2005 RDHS-III survey indicates that there has been no substantial improvement in the proportion of households with safe drinking water; in 2005, 18 percent of urban households and 34 percent of rural households had unsafe or questionable drinking water.

Concerning the time necessary to obtain water, the survey results show that a wide difference exists between urban and rural areas. In urban areas, 54 percent of households are within 15 minutes of their water source, compared with only 27 percent in rural areas. The median time to a drinking water source is estimated to be 24.5 minutes for the country as a whole, 8.8 minutes in urban areas and 29.1 minutes in rural areas, illustrating again the precariousness of the situation for rural households.

Compared with the 2005 RDHS-III, the proportion of urban households within 15 minutes of their water source increased almost 6 percentage points from 48 percent, while in rural areas the situation has remained essentially the same (27 percent). Overall, the change between the two surveys has been negligible; the median time to the source of water was 24.4 minutes in 2005 and 24.5 in 2007-08.

Table 2.3 presents data on type of toilet facilities used by the household. This information evaluates the health situation associated with access to safe drinking water and shows the potential risks faced by households regarding diseases linked to lack of sanitary conditions. Nationally, more than one in two households (56 percent) has a ventilated improved pit (VIP) latrine. The proportion is higher in rural areas than in urban areas: 58 percent, compared with 41 percent. In addition, 40 percent of households use unimproved pit latrines/rudimentary pit toilets (53 percent in urban areas, compared with 38 percent in rural areas). Results from the survey show a definite improvement in the overall health situation because the proportion of households using improved latrines rose from 28 percent in 2005 to 56 percent in 2007-08. The increase was seen particularly in rural areas (from 24 to 58 percent). In contrast, very few households in Rwanda have access to a flush toilet (0.8 percent); the gap by urban-rural residence is large: 3.2 percent of households in urban areas have a flush toilet, compared with 0.4 percent in rural areas. The proportion of households with no toilet facilities at all is 3 percent nationally (2 percent in urban areas and 3 percent in rural areas). This proportion has dropped slightly from the 2005 RDHS-III survey (5 percent nationally) but still remains high.

The results on the type of flooring in the household dwellings show that, overall, 84 percent of household dwellings have floors made of earth or sand (51 percent in urban areas, compared with 91 percent in rural areas), and 14 percent of household dwellings have cement or tile floors (47 percent in urban areas and 8 percent in rural areas). Less than 1 percent of households live in a dwelling with a dung floor. When these results are compared with those from the 2005 survey, it is apparent that there has been no substantial improvement in the flooring used in household dwellings.

This information is important because flooring material used in dwellings is not only an indicator of household wealth status, but also an indicator of the quality of the health environment in which the household lives because certain rudimentary materials like earth, sand, and cow dung are propagation vectors for disease causing parasites and germs. These rudimentary materials are, in addition, a source of dust and are difficult to clean.

2.4 OWNERSHIP OF DURABLE GOODS

The 2007-08 Rwanda Interim Demographic and Health Survey collected information about household ownership of certain durable goods considered indicative of wealth.

Table 2.4 shows that the most commonly owned household durable item is a radio (58 percent), with a notable urban-rural disparity (72 percent in urban areas, compared with 56 percent in rural areas). Comparison with results from the 2005 RDHS-III survey shows substantial improvement, with the overall proportion increasing from 46 to 58 percent (from 65 to 72 percent in urban areas, and from 43 to 56 percent in rural areas). However, only 3 percent of households have a television, with urban households owning the largest proportion (16 percent, compared with only 1 percent in rural areas).

Overall, there has been almost no change since 2005. Nevertheless, it should be noted that in urban areas the proportion of households possessing a television has increased from 14 to 16 percent.

Importantly, there has been a large increase in the proportion of households owning a cellular phone since the 2005 RDHS-III: from 5 percent, the proportion has risen to 13 percent for the country as a whole. The increase has been greatest in urban areas, increasing from 24 to 42 percent, while in rural areas it increased from 1 percent in 2005 to 8 percent. Very few households have a fixed landline telephone or a refrigerator, and it is mainly urban households that have this equipment.

Bicycles are the means of transportation used by 12 percent of households (10 percent in urban areas and 13 percent in rural areas). Slightly less than 1 percent of households own a car/truck.

Table 2.4 Household durable goods

Percentage of households and de jure population possessing various household durable goods, means of transportation, by residence, Rwanda 2007-08

Durable goods/ means of transport	Residence		
	Urban	Rural	Total
Radio	72.1	55.6	58.1
Television	16.2	1.0	3.3
Mobile telephone	42.4	7.7	13.1
Non-mobile telephone	5.0	0.4	1.1
Refrigerator	5.0	0.2	0.9
Bicycle	10.2	12.5	12.2
Motorcycle/scooter	2.6	0.6	0.9
Car/truck	3.7	0.2	0.8
Number	1,148	6,229	7,377

2.5 WEALTH QUINTILES

Table 2.5.1 shows the percent distribution of households by wealth quintile (according to the wealth index). The wealth index (for households interviewed) was developed on the basis of household goods data and certain housing characteristics presented in the preceding tables. The index was developed as follows:

- Each durable goods item or housing characteristic is assigned a weight (score or coefficient) generated by principal components analysis.
- The resulting scores for durable goods are standardized according to a normal distribution assuming a mean of 0 and a standard deviation of 1 (Gwatkin et al., 2000).
- Each household is assigned a score for each durable goods item and these scores are added together to obtain a total for each household.
- The households are classified in increasing order of total score and divided into 5 equal categories, or quintiles. This yields a scale from 1 (lowest or poorest quintile) to 5 (highest or richest quintile).
- The score for each household is assigned to the individuals in that household. The individuals are thus distributed among the categories.

The results show that the wealthiest households are found in urban areas, where 59 percent of households fall into the highest wealth quintile; in rural areas, only 9 percent of households fall into this quintile. Three-quarters of the richest households are concentrated in the City of Kigali (75 percent), while only 3 percent of the poorest households are there. In rural areas, nearly one household in two falls into the two poorest quintiles (49 percent). There is little variation between the provinces outside the City of Kigali. The proportion of households in the richest quintile varies from 12 to 16 percent by province while households in the two poorest quintiles vary from 45 percent in the South province to 52 percent in the North province.

Table 2.5.1 Wealth quintiles: Households

Percent distribution of households by wealth quintiles, according to residence and region, Rwanda 2007-08

Residence/ province	Wealth quintile					Total	Number
	Lowest	Second	Middle	Fourth	Highest		
Residence							
Urban	8.5	11.1	11.7	9.7	59.0	100.0	1,148
Rural	17.9	30.8	20.5	19.2	11.6	100.0	6,229
Province							
Kigali	3.0	8.4	6.6	7.0	75.0	100.0	638
South	17.7	27.2	20.2	19.4	15.5	100.0	1,880
West	20.4	27.5	21.6	19.0	11.5	100.0	1,890
North	18.0	33.7	18.2	15.6	14.4	100.0	1,315
East	14.4	31.2	20.6	20.3	13.6	100.0	1,654
Total	16.5	27.7	19.1	17.8	19.0	100.0	7,377

Table 2.5.2 shows the percent distribution of the household population by wealth quintiles. The results are similar to those in Table 2.5.1, with the wealthiest proportion of the population (70 percent of the two richest quintiles) living in urban areas, particularly Kigali (82 percent of the two richest quintiles). In contrast, the poorest proportion of the population is in rural areas: 46 percent of the populations in the two poorest quintiles live in rural areas, compared with 19 percent that live in urban areas. The results are also shown by province. With the exception of Kigali, the results are similar to those observed for households.

Table 2.5.2 Wealth quintiles; Population

Percent distribution of the population by wealth quintiles, according to residence and region, Rwanda 2007-08

Residence/ province	Wealth quintile					Total	Number of population
	Lowest	Second	Middle	Fourth	Highest		
Residence							
Urban	7.4	11.3	11.8	9.7	59.8	100.0	5,023
Rural	15.9	30.5	21.0	20.3	12.3	100.0	27,015
Province							
Kigali	2.5	8.8	6.8	7.2	74.7	100.0	2,700
South	16.2	27.0	19.7	20.1	16.9	100.0	8,177
West	18.5	27.4	22.0	20.1	12.0	100.0	8,258
North	15.5	32.6	19.3	16.9	15.6	100.0	5,746
East	12.0	31.0	21.7	20.9	14.4	100.0	7,157
Total	14.6	27.5	19.6	18.6	19.7	100.0	32,038

Information on health insurance coverage of household members was collected during the Household Survey. The results are shown in Table 2.6 by type of health insurance, according to urban-rural residence and province.

Overall, 68 percent of Rwandan households have health insurance. There is almost no variation by residence (68 percent in both urban and rural areas). Results by province do show differences, with proportions varying from 58 percent in the South province to 76 percent in the West and North provinces. Concerning the type of health insurance used by households, nearly all households are affiliated with a mutual insurance organization (96 percent). Another 4 percent of households have health insurance through state agencies. The proportions of other types of insurance are very low (less than 1 percent).

Table 2.6 Health insurance

Percentage of households in which at least one member is covered by health insurance, and percentage of households with specific types of health insurance, according to residence and province, Rwanda 2007-08

Residence/ province	Percentage of households in which at least one member is covered by health insurance	Number of households	Type of health insurance					Number of households in which at least one member is covered by health insurance
			Mutual	RAMA[1]	MMA[2]	Private	Other	
Residence								
Urban	68.4	1 148	89.1	10.5	2.4	1.3	1.3	785
Rural	68.1	6 229	97.4	2.7	0.3	0.1	0.4	4,242
Province								
Kigali	67.5	638	89.4	10.3	2.4	1.1	1.9	431
South	57.8	1 880	97.5	3.0	0.1	0.2	0.1	1,086
West	75.6	1 890	96.3	3.3	0.4	0.3	0.8	1,428
North	76.1	1 315	96.6	4.3	0.4	0.0	0.0	1,001
East	65.3	1 654	96.6	2.7	1.0	0.2	0.7	1,081
Total	68.1	7 377	96.1	3.9	0.6	0.3	0.6	5,027

Note: The total may exceed 100 percent because in each household, members may be covered by different types of health insurance.
[1] State Agency Health Insurance
[2] Military Health Insurance

CHARACTERISTICS OF SURVEY RESPONDENTS 3

The purpose of this chapter is to provide a socio-demographic profile of the women and men who responded to this survey including age, residence, marital status, education, and well-being. The results concern women age 15-49 and men age 15-59. These characteristics are used as variables for interpreting findings in the rest of the report and are important for understanding the factors affecting behavior of the population with respect to reproduction and health.

3.1 BACKGROUND CHARACTERISTICS OF RESPONDENTS

Age is a fundamental variable in analyzing demographic phenomena, but it is one of the most difficult to obtain when written records of events (especially civil status data) are far from exact. Special efforts were made in the individual questionnaire to record respondents' correct age. Respondents were asked for both their date of birth and their age. The interviewer then checked the two pieces of information for consistency. In cases where the respondent did not know her birth date or her age, the interviewer sought to obtain the information by looking at an official document (identity card, etc.) or by calculating the date of birth. If no official documents were available, the interviewer confirmed the age information provided by the respondent by referring to major life events (age at marriage, age of first child, etc.) or well-known national or regional events.

Table 3.1 shows no major differentials in the distribution of women age 15-49 and men age 15-59 by five-year age groups. The proportions decline regularly with increasing age; for women, the decline is from 19 percent for women age 15-19 to 9 percent for those age 45-49 for men, the decline is from 24 percent for men age 15-19 to 7 percent for those age 55-59.

Table 3.1 Distribution by age of the respondents

Percent distribution of women and men age 15-49 by age group, Rwanda 2007-08

	Women			Men		
Age	Weighted percent	Weighted	Unweighted	Weighted percent	Weighted	Unweighted
15-19	19.0	1,387	1,434	23.6	1,461	1,446
20-24	21.2	1,548	1,557	20.1	1,245	1,266
25-29	18.8	1,374	1,373	18.7	1,156	1,157
30-34	12.8	937	931	12.4	769	796
35-39	10.5	769	760	9.9	616	624
40-44	9.3	678	667	8.4	522	514
45-49	8.5	620	591	6.9	428	422
Total 15-49	100.0	7,313	7,313	100.0	6,197	6,225
Total men 15-59	na	na	na	na	6,837	6,837

na = Not applicable

Table 3.2 shows the percent distribution of all women and men who were interviewed in the survey, according to certain socio-demographic variables. For the RIDHS, all women and men were considered "married" if they were in union with a partner, whether the union was formal (legally married) or informal ("living together"). By this definition, Table 3.2 shows that at the time of the survey,

35 percent of women had never been married while more than half (53 percent) were married (38 percent formally married and 16 percent living in a consensual union). This compares with about one in two men (49 percent) who had never been married, and about the same proportion who were either married (39 percent) or in union (11 percent). An additional 12 percent of women were no longer in union at the time of the survey (5 percent divorced or separated and 7 percent widowed); only 2 percent of men were no longer in union.

The distribution of respondents by residence indicates that the majority of Rwandans live in rural areas (83 percent of women and 81 percent of men); 17 percent of women and 19 percent of men live in urban areas. Similarly, the data by province show a relatively uniform distribution of the population, with no substantial differences between men and women, except for the City of Kigali and the North province, which have slightly smaller proportions of the population (both men and women).

Table 3.2 Background characteristics of respondents

Percent distribution of women and men age 15-49 by selected background characteristics, Rwanda 2007-08

Background characteristic	Women			Men		
	Weighted percent	Weighted	Unweighted	Weighted percent	Weighted	Unweighted
Marital status						
Never married	35.2	2,573	2,698	48.7	3,019	3,125
Married	37.6	2,747	2,677	38.9	2,408	2,352
Living together	15.6	1,140	1,082	10.6	657	633
Divorced/separated	5.1	377	386	1.3	79	81
Widowed	6.5	476	470	0.5	32	33
Missing	0.0	0	0	0.0	2	1
Residence						
Urban	17.0	1,240	1,974	18.8	1,167	1,820
Rural	83.0	6,073	5,339	81.2	5,030	4,405
Province						
Kigali	9.4	685	970	11.8	730	1,004
South	26.6	1,946	1,824	25.1	1,557	1,421
West	23.8	1,738	1,862	24.9	1,540	1,629
North	17.3	1,265	1,036	16.4	1,015	851
East	23.0	1,680	1,621	21.9	1,354	1,320
Education						
No education	22.2	1,624	1,510	15.4	957	888
Primary	66.2	4,842	4,803	68.8	4,261	4,187
Secondary or higher	11.6	847	1,000	15.8	979	1,150
Wealth quintile						
Lowest	15.1	1,108	1,067	12.2	757	716
Second	27.0	1,974	1,818	25.0	1,551	1,423
Middle	18.7	1,367	1,285	19.4	1,203	1,143
Fourth	17.9	1,306	1,240	19.0	1,178	1,101
Highest	21.3	1,558	1,903	24.4	1,509	1,842
Religion						
Catholic	44.7	3,266	3,159	50.6	3,138	3,112
Protestant	40.3	2,950	3,040	32.7	2,029	2,050
Adventist	13.0	952	936	11.2	696	697
Muslim	1.5	107	137	2.5	155	183
Traditional	0.0	2	2	0.0	3	3
Other	0.1	6	5	1.1	67	76
None	0.3	23	26	1.6	102	96
Missing	0.1	9	8	0.1	8	8
Total 15-49	100.0	7,313	7,313	100.0	6,197	6,225

Table 3.2 provides general information on the educational attainment of respondents. A higher proportion of women than men have no education (22 and 15 percent, respectively), but the educational gap between women and men is smaller for those with a primary or secondary education.

There are small differences in household wealth status between women and men; 24 percent of men are in the richest (highest) wealth quintile, compared with 21 percent of women. In the lowest (poorest) wealth quintile, the proportions are 15 percent for women and 12 percent for men.

The tabulation of respondents by religion indicates a majority of the Rwandan population is Catholic (45 percent of women and 51 percent of men) with Protestants second (40 percent of women and 33 percent of men). The Adventist faith is the next most common religion (13 percent of women and 11 percent of men), followed by the Muslim faith (2 percent of women and 3 percent of men).

3.2 EDUCATIONAL ATTAINMENT

Tables 3.3.1 and 3.3.2 show the distribution of respondents by highest level of education attained according to background characteristics; the results for women are presented in Table 3.3.1 and those for men are presented in Table 3.3.2. The proportion of women who have never gone to school is higher than that for men (22 percent and 15 percent, respectively). At the primary level, the differential is smaller, 68 percent of men, compared with 66 percent of women. At the secondary level, the proportions are 15 percent for men and 12 percent for women.

Table 3.3.1 Educational attainment: Women

Percent distribution of women age 15-49 by highest level of schooling attended or completed, and median number of hears of schooling completed, according to background characteristics, Rwanda 2007-08

Background characteristic	Highest level of schooling attended or completed				Total	Median years completed	Number of women
	No education	Primary	Secondary	More than secondary			
Age							
15-24	12.0	73.4	13.9	0.6	100.0	3.9	2,935
15-19	7.5	77.6	14.9	0.1	100.0	4.1	1,387
20-24	16.1	69.6	13.1	1.2	100.0	3.7	1,548
25-29	18.2	71.6	8.9	1.3	100.0	3.9	1,374
30-34	21.0	66.9	10.8	1.3	100.0	4.4	937
35-39	29.2	60.6	8.9	1.2	100.0	3.5	769
40-44	42.1	49.6	7.6	0.8	100.0	2.0	678
45-49	50.7	44.4	4.5	0.4	100.0	-	620
Residence							
Urban	13.0	58.7	24.3	4.0	100.0	4.9	1,240
Rural	24.1	67.8	7.9	0.3	100.0	3.4	6,073
Province							
Kigali	11.7	54.7	28.9	4.7	100.0	5.3	685
South	20.6	70.4	8.2	0.7	100.0	3.7	1,946
West	26.0	65.1	8.3	0.6	100.0	3.2	1,738
North	23.4	65.4	10.6	0.6	100.0	3.7	1,265
East	23.5	67.7	8.6	0.2	100.0	3.4	1,680
Wealth quintile							
Lowest	32.4	65.9	1.7	0.0	100.0	2.3	1,108
Second	25.9	70.4	3.8	0.0	100.0	3.1	1,974
Middle	23.3	69.6	7.0	0.1	100.0	3.5	1,367
Fourth	22.3	70.3	7.3	0.0	100.0	3.8	1,306
Highest	9.2	54.8	31.8	4.1	100.0	5.4	1,558
Total	22.2	66.2	10.7	0.9	100.0	3.6	7,313

Educational attainment for both sexes is partly associated with age, generally increasing from the oldest age groups to the youngest. For women with no education, the proportion has dropped from 51 percent in age group 45-49 to 8 percent in age group 15-19; on the other hand, the proportion with primary education has increased from 44 percent for age group 45-49, to 78 percent for age group 15-19. For men, similar differentials are seen between age groups, with the proportion having no education declining from 27 percent in age group 45-49, to 9 percent in age group 15-19. The proportion of men who attained primary education increased from 63 percent among men age 45-49, to 77 percent among men age 15-19.

Comparison of education data from the 2007-08 RIDHS with data from previous surveys shows the improvement in education among Rwandans. In the second DHS survey, the 2000 RDHS-III, in 2000, 13 percent of girls age 15-19 had never been to school; this proportion fell to 9 percent in the 2005 RDHS-III and finally to 8 percent in 2007-08. For men, the same comparison shows a drop since 2000 in the percentage of those with no education. In 2000, 11 percent of men age 15-19 had never been to school, while in 2005 it had dropped to 7 percent. However, this trend appears to have slowed between 2005 and 2007 because there was a slight increase in the proportion of men age 15-19 with no education from 7 percent in 2005 to 9 percent in 2007-08.

The educational attainment of respondents varies by residence. The proportion of men with education is higher in urban areas (91 percent) than in rural areas (83 percent). The proportion of women who have gone to school is 87 percent in urban areas and 76 percent in rural areas.

Table 3.3.2 Educational attainment: Men

Percent distribution of women age 15-49 by highest level of schooling attended or completed, and median number of years of schooling completed, according to background characteristics, Rwanda 2007-08

Background characteristic	Highest level of schooling attended or completed				Total	Median years completed	Number of men
	No education	Primary	Secondary	More than secondary			
Age							
15-24	10.6	73.2	15.6	0.6	100.0	4.1	2,705
15-19	9.2	77.1	13.7	0.0	100.0	4.0	1,461
20-24	12.2	68.7	17.9	1.2	100.0	4.2	1,245
25-29	16.1	68.9	12.1	2.9	100.0	4.4	1,156
30-34	15.8	66.5	14.2	3.5	100.0	5.1	769
35-39	20.3	60.7	16.3	2.8	100.0	5.0	616
40-44	23.9	62.7	11.8	1.6	100.0	4.2	522
45-49	26.5	63.2	8.5	1.8	100.0	3.4	428
Residence							
Urban	9.1	55.1	29.8	6.1	100.0	5.4	1,167
Rural	16.9	71.9	10.4	0.8	100.0	4.0	5,030
Province							
Kigali	6.7	53.3	33.6	6.4	100.0	5.6	730
South	19.5	68.6	10.7	1.1	100.0	3.7	1,557
West	13.6	72.6	12.2	1.5	100.0	4.4	1,540
North	15.2	70.2	13.2	1.4	100.0	4.4	1,015
East	17.7	71.8	10.0	0.5	100.0	3.8	1,354
Wealth quintile							
Lowest	23.9	72.4	3.7	0.0	100.0	3.2	757
Second	18.3	75.2	6.6	0.0	100.0	3.8	1,551
Middle	16.2	74.7	8.7	0.4	100.0	4.0	1,203
Fourth	15.8	73.7	10.1	0.4	100.0	4.2	1,178
Highest	7.5	51.7	34.2	6.6	100.0	5.6	1,509
Total	15.4	68.8	14.0	1.8	100.0	4.3	6,197
Total men 15-59	17.5	67.6	13.2	1.6	100.0	4.1	6,837

Education results by province show a wide gap between the City of Kigali and the other provinces. In the City of Kigali, 12 percent of women and 7 percent of men have no education compared with at least one in five women and one in seven men in the other provinces. The highest proportion of men with no education (20 percent) is in the South province, while the highest proportion of women with no education is in the West province (26 percent).

Tables 3.3.1 and 3.3.2 show a positive relationship between educational attainment and household wealth; the proportion of women and men with no education decreases as household wealth increases. The decrease for women is from 32 percent in the lowest (poorest) wealth quintile to 9 percent in the highest (richest) wealth quintile; for men, the decrease is from 24 to 8 percent.

3.3 MARITAL STATUS

In the RIDHS, the term "in union" applies to all persons, both women and men who were either married or living together with a partner at the time of the survey. Therefore, all persons considered "married" were counted whether the union was civil, religious or by traditional custom as well as consensual or de jure unions.

Table 3.4 shows the percent distribution of women and men age 15-49 by marital status at the time of the survey. The data show that more than one woman in two (53 percent), and about one man in two (50 percent) are in union. Single women and men account for 35 percent and 49 percent of the population, respectively. In addition, 12 percent of women are no longer in union, mainly because of widowhood (7 percent), while the proportion of men who are no longer in union (2 percent) is much lower.

Table 3.4 Current marital status

Percent distribution of women and men age 15-49 by current marital status, according to age, Rwanda 2007-08

Age group	Marital status							Total	Percentage of respondents currently in union	Number of respondents
	Never married	Married	Living together	Divorced	Separated	Widowed	Missing			
					WOMEN					
15-19	97.0	0.5	2.1	0.1	0.3	0.0	0.0	100.0	2.6	1,387
20-24	53.0	24.1	19.1	1.0	2.2	0.6	0.0	100.0	43.2	1,548
25-29	19.7	51.5	22.2	1.1	4.3	1.1	0.0	100.0	73.7	1,374
30-34	6.5	59.4	20.5	1.6	7.1	4.9	0.0	100.0	79.9	937
35-39	5.2	58.6	16.1	2.1	6.7	11.4	0.0	100.0	74.7	769
40-44	2.0	54.0	16.1	1.0	6.9	20.1	0.0	100.0	70.0	678
45-49	3.4	46.2	13.7	0.6	6.8	29.3	0.0	100.0	59.9	620
Total 15-49	35.2	37.6	15.6	1.0	4.1	6.5	0.0	100.0	53.2	7,313
					MEN					
15-19	99.3	0.1	0.4	0.0	0.0	0.0	0.1	100.0	0.5	1,461
20-24	76.3	13.0	9.7	0.1	0.9	0.1	0.0	100.0	22.7	1,245
25-29	36.9	46.6	15.2	0.6	0.7	0.0	0.0	100.0	61.8	1,156
30-34	15.3	67.0	15.6	0.8	1.0	0.4	0.0	100.0	82.5	769
35-39	8.2	73.5	15.2	0.4	1.6	1.1	0.0	100.0	88.6	616
40-44	2.0	77.8	15.3	1.1	2.7	1.2	0.0	100.0	93.0	522
45-49	2.9	77.3	14.5	0.7	1.0	3.6	0.0	100.0	91.8	428
Total 15-49	48.7	38.9	10.6	0.4	0.9	0.5	0.0	100.0	49.5	6,197
Total 15-59	44.3	42.7	10.8	0.4	0.9	0.9	0.1	100.0	53.5	6,837

The proportion of single women drops sharply with age from 97 percent among women age 15-19 to 53 percent among those age 20-24, and then to 20 percent for those age 25-29. Among men, 99 percent are single at age 15-19. The proportion drops to 37 percent for those age 25-29 and to 8 percent at age 35-39. Only 3 percent of women age 45-49 and 3 percent of men age 45-49 have never married.

3.4 POLYGYNY

Table 3.5 shows the distribution of currently married men by the number of wives they have. Polygyny, the practice of having more than one spouse, is not widely practiced in Rwanda; only 4 percent of men have more than one wife. The differentials by background characteristics are small, however, the proportion of men in polygynous unions is slightly higher in East province (6 percent) than in other provinces.

Table 3.5 Number of men's wives

Percent distribution of currently married men age 15-49 by number of wives, according to background characteristics, Rwanda 2007-08

Background characteristic	Number of wives				Total	Number of men
	1	2	3+	Missing		
Age						
15-19	100.0	0.0	0.0	0.0	100.0	8
20-24	98.9	0.9	0.2	0.0	100.0	282
25-29	98.3	1.1	0.0	0.6	100.0	714
30-34	96.6	3.3	0.1	0.0	100.0	635
35-39	95.1	4.2	0.2	0.5	100.0	546
40-44	95.8	2.9	0.2	1.2	100.0	486
45-49	93.0	5.9	0.4	0.7	100.0	393
Residence						
Urban	98.9	0.4	0.3	0.4	100.0	453
Rural	95.9	3.4	0.1	0.5	100.0	2,612
Province						
Kigali	98.1	1.2	0.0	0.7	100.0	267
South	96.7	2.7	0.3	0.3	100.0	745
West	97.0	2.6	0.1	0.2	100.0	768
North	96.6	3.0	0.0	0.4	100.0	578
East	94.4	4.3	0.2	1.1	100.0	707
Education						
No education	94.6	4.5	0.4	0.5	100.0	611
Primary	96.7	2.7	0.1	0.5	100.0	2,091
Secondary or higher	97.5	2.1	0.0	0.4	100.0	363
Wealth quintile						
Lowest	95.5	2.7	1.1	0.7	100.0	371
Second	95.8	3.5	0.0	0.7	100.0	836
Middle	96.9	2.6	0.0	0.5	100.0	631
Fourth	95.6	3.6	0.1	0.7	100.0	649
Highest	97.9	2.7	1.1	0.1	100.0	578
Total 15-49	96.4	3.0	0.2	0.5	100.0	3,065
Total 15-59	95.6	3.5	0.4	0.5	100.0	3,656

FERTILITY 4

Information was collected on the birth history of women interviewed in the 2007-08 RIDHS to estimate fertility levels, ascertain trends, and evaluate differentials according to background characteristics. Fertility data were obtained by asking a series of questions to all eligible women respondents. For each woman, interviewers recorded the number of children ever born, the gender of each child, the number of children currently living with the mother, the number of children living elsewhere, the number of children who had died, and the number still living. A complete birth history was compiled, from the earliest to the most recent birth. In addition, the following information was gathered for each birth: type of birth (single or multiple), sex of child, date of birth, and survival status. For living children, respondents were asked the current age of the child and whether the child was living with its mother or elsewhere. For children who had died, respondents were asked the age at the time of death. At the end of the interview, the interviewer verified that the number of children reported by the mother initially (for each category: living and dead) was consistent with the number of children reported in the birth history.

Because this is a retrospective survey, the data can be used to estimate not only current fertility levels, but also trends in fertility over the past 20 years. However, limits inherent in all retrospective surveys should be noted, including:

- **Underreporting of births**, in particular, the omission of very young children, those not living with their mother, and children who died very young (a few hours or days after birth), which can result in underestimation of fertility levels.
- **Misreporting of date of birth and/or age**, in particular, the tendency to round off ages or year of birth, which can result in under- or overestimation of fertility at certain ages and/or for certain periods.
- **Selective survival bias** or selectivity effect: the women surveyed are those who have survived. Assuming that the fertility of women who died prior to the survey differs from that of surviving women, the fertility levels obtained by the survey may be slightly biased.

Information can also be affected by inaccurate recording of birth dates for children born in the past five years (since 2002 in the case of Rwanda), particularly when birth dates are moved backward in time to an earlier year. These birth year shifts, common to most DHS-type surveys, are sometimes made by interviewers to avoid asking questions about the health of children born in the past five years (sections 4 and 5 of the questionnaire). Some shifting of birth dates[1] from 2002 to 2001 did occur in the RIDHS; however, the changes were not important enough to significantly affect current fertility levels.

4.1 FERTILITY LEVELS AND DIFFERENTIALS

Current fertility levels are measured in terms of age-specific fertility rates (ASFRs) and the total fertility rate (TFR). ASFRs are calculated by dividing the number of births in each age group into the total number of women for that age group. The TFR, a common measurement of current fertility, is the average of all of the ASFRs. It corresponds to the average number of children a woman would bear in her lifetime

[1] The percent distribution of births by calendar year of birth is show in Appendix C, Table C.4. The ratio of annual births (ratio of births for year *x* to the half sum of births from the preceding and following years, or *NJ[(Nx-i+Nx+J/2)]*, computes the shifting of birth years. The ratio indicates a shortage of births in 2001 (ratio = 84 < 100) and a surplus in 2000 (ratio = 133 > 100).

if fertility rates were to remain constant at the level prevailing during the period under consideration. In Rwanda, current fertility rates and the TFR were calculated for the three years preceding the survey. This three-year reference period was chosen to provide the most recent fertility indicators possible with sufficient cases to reduce sampling errors.

The total fertility rate for Rwandan women remains high: at the end of her reproductive years a woman has an average of 5.5 children. Adolescents age 15-19 contribute only 4 percent of the total fertility while women age 25-29 contribute 25 percent. For all age groups, fertility is higher among women in rural areas (5.7) than among women in urban areas (4.7) (Figure 4.1). The fertility curves for urban and rural areas follow the same trajectory: increasing rapidly, reaching a maximum at age 25-29 before declining steadily with age. The maximum rate is 277 births per thousand women in rural areas and 245 births per thousand women in urban areas.

Figure 4.1 Age-Specific Fertility Rates, by Residence

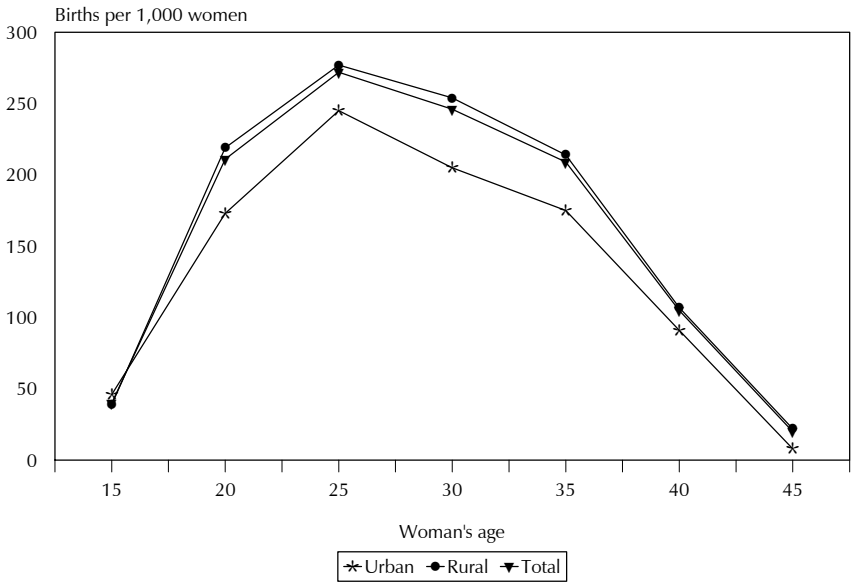


Table 4.1 shows the General Fertility Rate (GFR), that is, the average number of live births annually in the total population of women of reproductive age; the estimated GFR for Rwanda is 178 births per thousand women. Like the TFR, this indicator varies substantially by residence. Urban areas have a GFR of 150 per thousand, compared with 184 per thousand in rural areas.

Table 4.1 Current fertility

Age-specific and total rate, the general fertility rate, and the crude birth rate for the three years preceding the survey, by residence, Rwanda 2007-08

	Residence		
Age group	Urban	Rural	Total
15-19	46	39	40
20-24	173	219	211
25-29	245	277	272
30-34	205	254	246
35-39	175	214	209
40-44	91	107	105
45-49	8	22	20
TFR	4.7	5.7	5.5
GFR	150	184	178
CBR	36.8	39.6	39.2

Notes: Age-specific fertility rates are per 1,000 women. Rates for age group 45-49 may be slightly biased due to truncation. Rates are for the period 1-36 months prior to interview.
TFR: Total fertility rate for age 15-49 expressed per woman
GFR: General fertility rate expressed per 1,000 women
CBR: Crude birth rate, expressed per 1,000 population

Table 4.2 presents the TFR by background characteristics. With the exception of the City of Kigali (4.4 children per woman) the TFR varies little by province, ranging from a low of 5.4 children per woman in the North province and 5.5 in the South province to a high of 5.8 in the West and East provinces. In addition, the TFR is strongly correlated with level of educational attainment, varying from a low of 3.8 children per woman for those with secondary education or higher, to 5.7 for women with primary education, and 6.1 for those with no education.

By wealth quintile, the TFR varies little among the first four quintiles (5.7 to 6.0 children). Only women in the richest quintile have markedly lower fertility (4.4 children).

Table 4.2 shows the mean number of children ever born to women age 40-49. This figure is an indicator of completed or cumulative fertility. Unlike the TFR, which measures the current fertility of women age 15-49, cumulative fertility shows the past fertility of respondents at the end of their childbearing years. In a population whose fertility does not change, the cumulative fertility rate generally coincides with

Table 4.2 Fertility by background characteristics

Total fertility rate for the three years preceding the survey, percentage of women age 15-49 currently pregnant, and mean number of children ever born to women age 40-49 years, by background characteristics, Rwanda 2007-08

Background characteristic	Total fertility rate	Percentage of women age 15-49 currently pregnant	Mean number of children ever born to women age 40-49
Residence			
Urban	4.7	7.7	5.6
Rural	5.7	9.7	6.1
Province			
Kigali	4.4	10.3	5.3
South	5.5	9.0	5.6
West	5.8	9.3	6.3
North	5.4	9.2	6.4
East	5.8	9.7	6.2
Education			
No education	6.1	8.8	6.2
Primary	5.7	9.9	6.1
Secondary or higher	3.8	7.8	4.6
Wealth quintile			
Lowest	5.8	8.2	5.6
Second	5.7	10.2	6.4
Middle	6.0	10.2	6.0
Fourth	5.8	10.5	6.5
Highest	4.4	7.5	5.4
Total	5.5	9.4	6.0

the TFR. When the cumulative fertility rate is higher than the TFR, a downward trend in fertility is indicated.

In Rwanda, the cumulative fertility rate, estimated at 6.0 children, is higher than the TFR (5.5). This important difference of 0.5 children suggests a decline in fertility (Figure 4.2). The largest differences between the two measures are seen for urban women (0.9 children), women with secondary education or higher (0.8), women in the North province (1.0) and the City of Kigali (0.9), and women in the highest (richest) wealth quintile (1.0 children). Fertility among these women, therefore, would be the most likely to drop.

Figure 4.2 Total Fertility Rate and Mean Number of Children Ever Born to Women Age 40-49

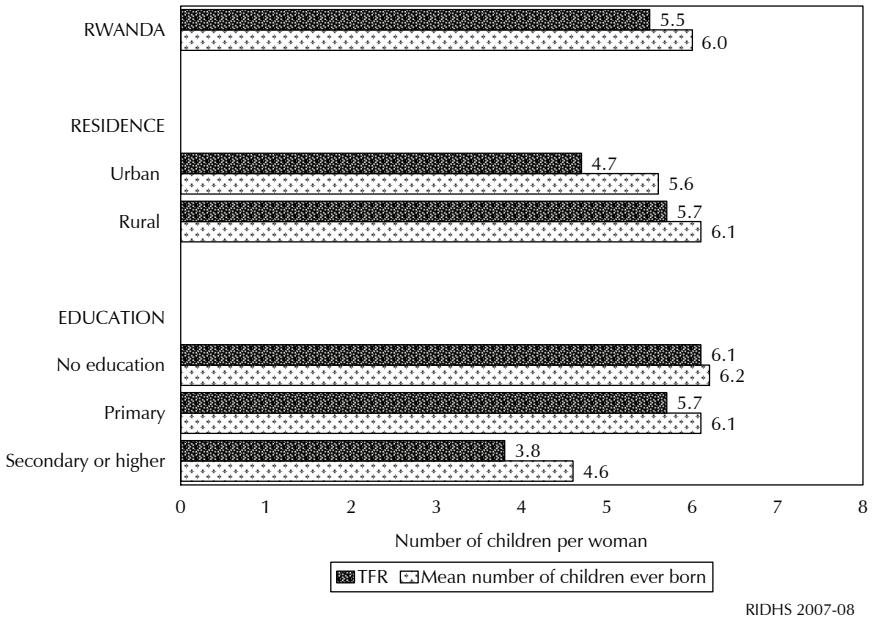


Table 4.2 shows the percentage of women who reported being pregnant at the time of the survey. Overall, more than 9 percent of women reported being pregnant. This is likely to be an underestimate because women in the early stages of pregnancy may be unaware or unsure of their pregnancy status. However, the differentials in pregnancy rates by background characteristics show patterns similar to those of the TFRs, with the exception of women living in the City of Kigali, women with primary education, and women in the poorest wealth quintile.

4.2 FERTILITY TRENDS

Rwanda has conducted three Demographic and Health Surveys and one Interim Demographic and Health Survey over the past 15 years, and estimating fertility levels has been one of the main objectives of these surveys. Fertility trends can be observed from these four data sources (Table 4.3 and Figure 4.3).

The four ASFR curves follow a similar pattern: they increase beginning at age 15-19 and reach their peak between age 25 and 29, then taper off steadily as they move toward age group 45-49. At all ages, except for age group 35-39, the curve for the RIDHS is clearly below the curves from preceding surveys, while that for the 2005 RDHS-III is above the curve of the 2000 RDHS-II for women age 25-39 and above the 1992 RDHS-I for women age 25-34.

Over the past 15 years, the TFR has gone from 6.2 children per woman in 1992 to 5.8 in 2000, 6.0 in 2005, and 5.5 in 2007-08 (Table 4.3 and Figure 4.3). It should be noted that the TFR dropped slightly following the 1994 genocide but rose again in the early years after 2000. However, results from this survey show a definite drop in fertility.

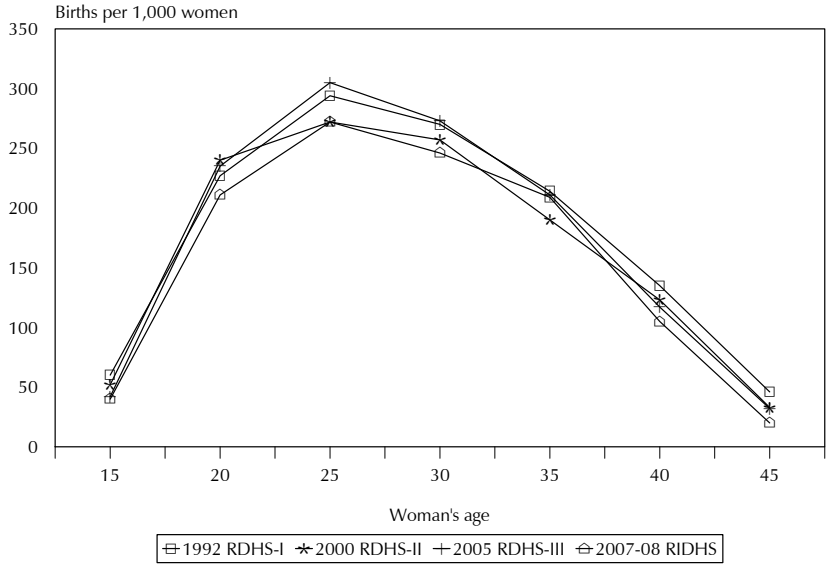
Table 4.3 Trends in age-specific fertility rates by four sources

Age-specific fertility rates (per 1,000 women) and total fertility rates, 1992 RDHS-I, 2000 RDHS-II, 2005 RDHS-III, and 2007-08 RIDHS

Age group	1992 RDHSI	2000 RDHS-II	2005 RDHS-III	2007-08 RIDHS
15-19	60	52	42	40
20-24	227	240	235	211
25-29	294	272	305	272
30-34	270	257	273	246
35-39	214	190	211	209
40-44	135	123	117	105
45-49	46	33	32	20
TFR 15-49 years	6.2	5.8	6.0	5.5

Note: Age-specific fertility rates per 1,000 women.

Figure 4.3 **Trends in Age-Specific Fertility Rates, Rwanda 1992, 2000, 2005, and 2007-08**



The data collected in the RIDHS were used to track fertility trends by women's age-specific fertility rates, by the five-year periods preceding the survey (Table 4.4 and Figure 4.4). In all age groups the fertility rates have dropped steadily from the earliest periods to the most recent. For example, in the 20-24 age group, the fertility rate estimated at 256 per thousand 10 to 14 years ago, had dropped to 235 per thousand by 5-9 years before the survey, and has now been 214 per thousand over the past five years. These results confirm the trend toward a drop in fertility.

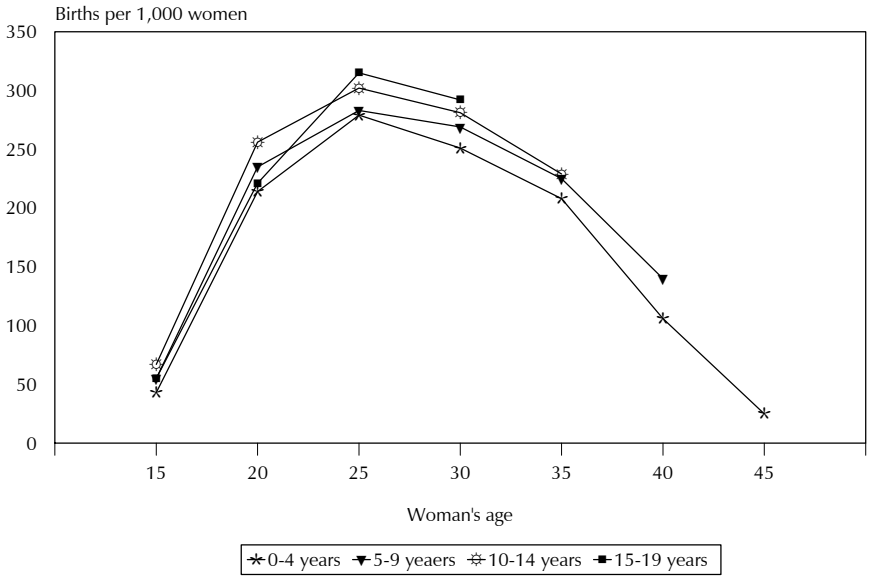
Table 4.4 Trends in age-specific fertility rates

Age-specific fertility rates for five-year periods preceding the survey, by mother's age at the time of the birth, Rwanda 2007-08

Mother's age at birth	Number of years preceding survey 0-4	5-9	10-14
15-19	43	55	67
20-24	214	235	256
25-29	279	283	302
30-34	251	269	281
35-39	208	225	[229]
40-44	106	[140]	-
45-49	[25]	-	-

Note: Age-specific fertility rates are per 1,000 women. Estimates in brackets are truncated. Rates exclude the month of interview.

Figure 4.4 **Age-Specific Fertility Rates for Five-Year Periods Preceding the Survey**



RIDHS 2007-08

4.3 PARITY AND PRIMARY INFERTILITY

Women's average parity by age group is calculated on the basis of the total number of children ever born in their lifetime. Table 4.5 presents these parities for all women and for currently married women. Overall, women have had an average of 2.6 children; among currently married women, parity is 3.8 children, or 1.2 children more than parity among all women.

For all women, parity increases steadily and rapidly with age: from an average of less than 0.1 children at age 15-19, parity increases to 0.7 children at age 20-24 and to 6.4 children at age 45-49, the end of the childbearing years. The distribution of women by number of children ever born does not show

early childbearing. Less than 5 percent of young women under the age of 20 have given birth to at least one child, but after age 20, fertility levels accelerate rapidly because 45 percent of women age 20-24 have given birth to at least one child. More than six women in ten (64 percent) age 25-29 have at least two children. Finally, at age 45-49, the end of the childbearing years, more than one woman in eight (12 percent) has given birth to 10 or more children.

Compared with all women, parity among currently married women is higher for every age group. This illustrates the fact that fertility in Rwanda takes place within union (marital or consensual). Among currently married women, parity increases steadily with age: at age 20-24, 80 percent of women have had at least one child, and at age 25-29, this proportion has reached 94 percent. Among all women, the proportion with at least one child in age group 25-29 is smaller, 81 percent.

Women who voluntarily remain childless are relatively rare in Rwanda, where the population is still strongly pronatal. For this reason, zero parity among married women age 35-49 would be an indicator of total or primary infertility. In Rwanda, only 1.3 percent of married women age 35-49 have never had a child and can be considered infertile. This number is consistent with the results from previous surveys: 1.3 percent in both the 2000 RDHS-II and 2005 RDHS-III. Among women age 45-49, the level of primary sterility is 0.4 percent,

Finally, Table 4.5 shows the mean number of children ever born and the mean number of living children. Overall, women have an average of 2.2 living children, but among married women the number is 3.3, or 85 percent of children ever born. In other words, 15 percent of children ever born have died, which gives a general idea about the level of mortality.

Table 4.5 Children ever born and living

Percent distribution of all women and currently married women by number of children ever born, mean number of children ever born and mean number of living children, according to age group, Rwanda 2007-08

Age	Number of children ever born											Total	Number of women	Mean number of children ever born	Mean number of living children
	0	1	2	3	4	5	6	7	8	9	10+				
ALL WOMEN															
15-19	95.5	3.8	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	1,387	0.05	0.05
20-24	55.1	25.7	13.5	4.8	0.9	0.1	0.0	0.0	0.0	0.0	0.0	100.0	1,548	0.71	0.65
25-29	18.5	17.5	23.9	20.7	13.6	4.0	1.6	0.0	0.1	0.0	0.0	100.0	1,374	2.13	1.88
30-34	4.4	8.7	15.7	19.3	20.5	17.7	8.7	2.8	1.4	0.7	0.1	100.0	937	3.59	3.08
35-39	4.2	3.7	6.8	12.5	15.2	20.1	16.7	10.8	5.7	3.2	1.1	100.0	769	4.77	3.99
40-44	2.0	2.3	5.2	8.6	12.8	13.2	17.2	15.9	9.4	7.8	5.7	100.0	678	5.75	4.72
45-49	1.5	2.3	3.1	7.9	10.5	11.2	13.5	15.3	14.2	8.9	11.6	100.0	620	6.36	4.99
Total	34.6	11.4	10.9	10.2	9.0	7.3	5.9	4.3	2.9	1.9	1.6	100.0	7,313	2.59	2.17
CURRENTLY MARRIED WOMEN															
15-19	(39.2)	(43.2)	(17.6)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	100.0	36	0.78	0.75
20-24	20.0	43.0	26.0	9.0	1.8	0.1	0.0	0.0	0.0	0.0	0.0	100.0	669	1.30	1.17
25-29	5.9	16.9	27.4	24.9	17.6	5.0	2.2	0.1	0.1	0.0	0.0	100.0	1,013	2.56	2.27
30-34	1.3	6.0	15.6	19.5	22.0	20.0	10.2	3.3	1.4	0.5	0.2	100.0	749	3.85	3.35
35-39	1.6	2.5	4.4	9.8	15.8	21.2	20.0	13.0	6.7	3.9	1.2	100.0	574	5.21	4.43
40-44	1.7	1.6	3.6	6.1	10.2	12.5	17.8	17.8	11.3	10.2	7.2	100.0	475	6.19	5.16
45-49	0.4	1.2	3.7	7.1	5.7	9.8	11.9	16.7	18.6	9.8	15.0	100.0	371	6.88	5.55
Total	6.1	14.0	16.2	14.7	13.3	10.8	8.8	6.3	4.4	2.9	2.5	100.0	3,888	3.82	3.26

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

4.4 BIRTH INTERVALS

Examination of birth intervals, defined as the length of time between two successive live births, is important not only for their impact on the health status of both mother and child, but for their role in fertility analysis. Currently, short birth intervals (less than 24 months) are considered harmful to the health and nutritional status of children, increasing the risk of death to both mother and child. Short birth intervals diminish a woman's physiological capacity, exposing her to a greater risk of complications during and after pregnancy (miscarriage, eclampsia). Table 4.6 shows the distribution of non-first births in the five years preceding the survey by number of months since the preceding birth, according to background characteristics.

Table 4.6 shows that a relatively low 9 percent of births occur less than 18 months after the preceding birth and that 13 percent of children are born 18 to 24 months after the birth of the preceding sibling, or a total of 22 percent of births with a birth interval of less than 24 months. However, a large proportion of births (38 percent) occur between 24 and 36 months after the preceding birth, and about 41 percent occur 36 or more months after the birth of the older sibling. The median duration of the birth intervals in Rwanda is nearly three years (32.5 months), which means that half of all births take place after an interval of nearly three years. The RIDHS median birth interval is close to the one estimated in the 2005 RDHS-III (31 months); likewise, the proportion of births that occurred after an interval of less than 24 months in the RIDHS (22 percent) is similar to that from the 2005 RDHS-III (23 percent).

Mother's age is related to the length of birth intervals. Birth intervals are shorter for younger women than for older women: the median duration is 29.4 months at age 20-29, 33.6 months at age 30-39 and 39.0 months among mothers age 40-49.

This correlation between mother's age and the length of the birth interval must be qualified by the fact that young women, who often have fewer children, are less inclined to delay the arrival of the next birth.[2] This is confirmed in the percent distribution of births by length of birth interval, according to birth order. The results show a slight increase in the length of birth intervals according to birth order, from 31.9 months for birth orders 2-3, to 32.9 months for birth orders 4-6, and 33.5 months for birth order 7 and higher.

Regarding differentials in the length of birth intervals, there are no significant differences by gender. However, when the preceding sibling has died, the birth interval is shorter—a median of 27.0 months, compared with 33.1 months when the preceding sibling is living. In addition, while only 6 percent of births occur within 18 months when the preceding sibling is living, more than 24 percent of births take place within 18 months when the preceding sibling has died.

The median length of the birth interval differs slightly by urban-rural residence; it is lower in rural areas (32.4 months) than urban areas (33.3 months). By province, there is little variation in the length of birth intervals, which range from 32.0 months in the City of Kigali to 32.9 months in the West province.

The survey results show that mother's level of education has little effect on the length of birth intervals: the median birth interval for mothers who have never gone to school and for mothers who have secondary or higher education is the same (33.5 months); the birth interval for mothers with primary education is 32.1 months.

[2] Only 0.7 percent of women age 15-19 and 19.3 percent of women age 20-24 have two or more children.

Finally, there is no clear association between household wealth status (wealth quintile) and length of birth interval: the lowest (poorest) quintile has a median birth interval of 34.8 months, compared with durations between 31.6 and 32.8 months for the other quintiles.

Table 4.6 Birth intervals

Percent distribution of non-first births in the five years preceding the survey by number of months since preceding birth, and median number of months since preceding birth, according to background characteristics, Rwanda 2007-08

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	48-59	60+			
Age									
15-19	*	*	*	*	*	*	*	11	23.9
20-29	11.5	16.2	43.3	17.9	6.6	4.4	100.0	1,669	29.4
30-39	6.8	12.6	36.7	23.4	9.8	10.8	100.0	2,034	33.6
40-49	6.8	7.8	27.2	26.6	12.0	19.6	100.0	720	39.0
Birth order									
2-3	9.6	14.4	36.7	19.4	9.2	10.7	100.0	1,938	31.9
4-6	7.2	12.3	39.8	23.1	8.4	9.3	100.0	1,771	32.9
7+	9.6	12.3	34.8	25.1	9.8	8.4	100.0	726	33.2
Sex of preceding birth									
Male	9.3	13.1	37.9	21.6	9.0	9.2	100.0	2,220	32.5
Female	8.0	13.3	37.4	22.0	8.9	10.4	100.0	2,214	32.6
Survival of preceding birth									
Living	6.2	12.7	39.1	23.2	9.1	9.8	100.0	3,833	33.1
Dead	23.8	16.5	28.2	13.1	8.4	9.9	100.0	601	27.0
Residence									
Urban	8.3	14.5	33.7	22.7	9.0	11.7	100.0	588	33.3
Rural	8.7	13.0	38.2	21.7	9.0	9.5	100.0	3,846	32.4
Province									
Kigali	10.8	15.9	32.0	19.5	9.2	12.6	100.0	307	32.0
South	6.7	14.9	35.5	21.3	10.1	11.4	100.0	1,123	32.8
West	8.7	14.1	36.3	22.6	8.9	9.4	100.0	1,106	32.9
North	8.3	12.4	40.2	23.8	7.0	8.3	100.0	807	32.4
East	10.2	10.3	40.8	20.7	9.2	8.8	100.0	1,091	32.3
Education									
No education	9.4	12.9	34.7	22.7	9.1	11.2	100.0	1,257	33.5
Primary	8.5	13.1	39.6	21.3	8.5	9.0	100.0	2,886	32.1
Secondary or higher	6.4	15.7	31.0	22.6	12.8	11.4	100.0	292	33.5
Wealth quintile									
Lowest	6.5	12.4	34.3	20.5	13.4	13.0	100.0	673	34.8
Second	8.2	10.3	41.9	22.6	7.9	9.1	100.0	1,317	32.8
Middle	10.6	12.5	39.3	20.6	9.1	7.9	100.0	873	31.7
Fourth	7.5	14.5	36.2	24.3	7.6	9.9	100.0	870	32.3
Highest	10.4	18.5	32.4	20.1	8.3	10.3	100.0	701	31.6
Total	8.6	13.2	37.6	21.8	9.0	9.8	100.0	4,434	32.5

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. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed

4.5 AGE AT FIRST BIRTH

The age at which childbearing begins has a direct impact on a woman's cumulative fertility and can have important effects on a woman's health as well as that of her children. Table 4.7 shows the percentage of women who first gave birth by exact ages, and the median age at first birth, according to current age. The results show that the median age at first birth has remained largely unchanged from one generation to the next (from a low of 22.0 years to a high of 22.5 years); no trends could be seen indicating a rise or fall in the median age at first birth.

Table 4.7 Age at first birth

Percentage of women age 15-49 who gave birth by exact ages, percentage who have never given birth, and median age at first birth, according to current age, Rwanda 2007-08

	Percentage who gave birth by exact age					Percentage who have never given birth	Number of women	Median age at first birth
Current age	15	18	20	22	25			
15-19	0.3	na	na	na	na	95.5	1,387	a
20-24	1.1	6.7	19.0	na	na	55.1	1,548	a
25-29	1.1	10.0	26.8	47.9	71.7	18.5	1,374	22.2
30-34	1.5	9.8	25.4	50.6	76.7	4.4	937	22.0
35-39	2.1	8.6	22.4	44.3	74.4	4.2	769	22.5
40-44	1.7	9.4	26.4	44.6	72.3	2.0	678	22.5
45-49	1.8	8.7	25.2	46.9	72.1	1.5	620	22.3
25-49	1.6	9.4	25.4	47.2	73.4	8.0	4,378	22.3

na = Not applicable
a = Omitted because less than 50 percent of women had a birth before reaching the beginning of the age group

Table 4.8 shows that the median age at first birth among women age 25-49 in Rwanda is 22.3 years; this is nearly the same as the median age at first birth observed for women age 25-49 in the 2005 RDHS-III (22.0 months). The table also provides differentials in age at first birth according to various socioeconomic characteristics. The first child arrives at a slightly younger age among women in rural areas (22.2 years) than among those in urban areas (22.5 years). The South province has the highest median age at first birth (23.0 years), followed by the City of Kigali (22.8 years). In the other provinces, median age at first birth varies from a low of 21.6 years in the East province to a high of 22.1 years in the West province. Women's level of education affects the median age at first birth: women with no education (21.6 years) and women with primary education (22.3 years) have a lower median age at first birth than women with secondary or higher education (24.7 years). The results by household wealth show that the first birth occurs later among women in the highest (richest) quintile (22.8 years) than among those in the lowest (poorest) quintile (21.9 years).

Table 4.8 Median age at first birth

Median age at first birth among women age 25-49 years, according to background characteristics, Rwanda 2007-08

Background characteristic	Age					Women age
	25-29	30-34	35-39	40-44	45-49	25-49
Residence						
Urban	22.6	22.2	23.1	22.5	22.3	22.5
Rural	22.2	21.9	22.4	22.4	22.3	22.2
Province						
Kigali	22.8	22.7	24.0	22.1	22.9	22.8
South	23.3	22.8	23.0	23.2	22.7	23.0
West	22.3	21.9	22.1	22.3	22.0	22.1
North	21.6	22.1	22.1	22.1	22.2	22.0
East	21.4	21.1	22.1	22.2	21.7	21.6
Education						
No education	21.0	21.4	21.4	21.9	22.1	21.6
Primary	22.3	21.8	22.7	22.5	22.2	22.3
Secondary or higher	na	23.9	24.7	24.5	25.0	24.7
Wealth quintile						
Lowest	21.7	21.5	21.8	22.0	22.4	21.9
Second	22.0	21.9	22.6	22.0	22.0	22.1
Middle	22.0	21.7	22.4	22.5	22.5	22.2
Fourth	22.1	22.3	22.7	22.9	21.9	22.4
Highest	23.0	22.4	22.9	23.0	22.9	22.8
Total	22.2	22.0	22.5	22.5	22.3	22.3

na = Not applicable

4.6 TEENAGE FERTILITY

Teenage fertility is an important demographic factor for many reasons. First, children born to very young mothers run a greater risk of illness and death. Second, teenage mothers are more likely to suffer complications during pregnancy and less likely to treat them, exposing them to a greater risk of complications during delivery and greater risk of dying for reasons related to childbearing. Third, early childbearing seriously affects a woman's ability to pursue an education, find employment, and become independent. In Rwanda, teenagers make up 19 percent of all women of childbearing age, but comprise less than 4 percent of the total fertility for all women.

Table 4.9 shows the percentage of young women age 15-19 who have had one or more children and the percentage who are currently in their first pregnancy. Together, these two groups constitute the proportion of teenagers who have begun childbearing (6 percent); of these, 5 percent have begun childbearing and 1 percent are pregnant for the first time. By age 16-17, 2.5 percent of young women have begun childbearing. The percentage increases rapidly with age: at age 18, 9 percent of women have had at least one child or are pregnant for the first time, and by age 19, this proportion reaches 14 percent, with 11 percent having already had at least one child.

Table 4.9 shows that teenagers in rural areas (6 percent) are slightly more likely to have begun childbearing than those in urban areas (5 percent), but the difference is small (0.5 percent). Similar differences are seen between provinces: the proportion of teenagers who have begun childbearing varies from 5 percent in the East province to 9 percent in the City of Kigali. Early childbearing occurs more frequently among teenagers with primary education (6 percent) and no education (5 percent) than among those with secondary or higher education (3 percent). The differentials by wealth quintile are small, ranging from 4 percent in the highest (richest) quintile to 7 percent in the second and middle quintiles. These narrow differentials mean that standard of living has little impact on the behavior of Rwandan teenagers regarding procreation. Finally, it should be noted that the proportion of teenagers who have begun childbearing has changed little since 2000, from 7 percent in 2000 to 4 percent in 2005 and to 6 percent in 2007-08.

Table 4.9 Teenage pregnancy and motherhood

Percentage of women age 15-19 who have had a live birth or who are pregnant with their first child and percentage who have begun childbearing, by background characteristics, Rwanda 2007-08

Background characteristic	Percentage who: Have had a live birth	Are pregnant with first child	Percentage who have begun childbearing	Number of women
Age				
15	0.0	0.0	0.0	265
16	1.9	0.7	2.6	274
17	1.2	1.2	2.4	267
18	7.3	1.3	8.6	293
19	11.3	2.8	14.1	288
Residence				
Urban	4.2	1.1	5.3	275
Rural	4.6	1.3	5.8	1,112
Province				
Kigali	6.4	2.7	9.1	155
South	4.5	1.1	5.6	371
West	3.4	1.7	5.2	320
North	5.0	1.1	6.0	234
East	4.2	0.2	4.5	308
Education				
No education	5.1	0.0	5.1	104
Primary	4.8	1.5	6.3	1,076
Secondary or higher	2.5	0.4	2.9	207
Wealth quintile				
Lowest	4.3	1.1	5.4	197
Second	5.6	1.5	7.1	356
Middle	4.3	2.6	6.9	244
Fourth	5.2	0.0	5.2	207
Highest	3.3	0.8	4.1	383
Total	4.5	1.2	5.7	1,387

FAMILY PLANNING 5

Family planning activities in Rwanda initially began in 1982. However, following the international conference on population and development that took place in Cairo in 1994, developing countries broadened their population and development policies and integrated family planning services within the overall scope of health and reproduction, Rwanda redefined its reproductive health policy to promote the inclusion of family planning services into all the country's health services.

By 1992 results from the RDHS-I had already shown that only 21 percent of currently married women were using any contraceptive method; 13 percent were using a modern method and 8 percent a traditional method (ONAPO and Macro International, 1994). Results from the 2000 RDHS-II revealed a drop in contraceptive prevalence among married women. The proportion using any method in 2000 was about 13 percent; 4 percent were using a modern method and 9 percent were using a traditional method. This drop was, to a large extent, a consequence of the social unrest in 1994 that derailed the health system and forced the population to rely more on traditional methods of family planning. In 2005, the proportion of currently married women using a modern contraceptive method had increased to 10 percent (2005 RDHS-III)—21 percent in urban areas and 9 percent in rural areas (INSR and ORC Macro, 2006). Nearly all women (95 percent) and all men (98 percent) know of at least one contraceptive method.

As the previous discussion makes clear, contraceptive methods are underused in Rwanda. Fertility levels have remained high because of the low level of contraceptive use. A woman has an average of 5.5 children, a figure that has not changed appreciably since 1992 (6.2 children per woman). In the 2005 RDHS-III, 43 percent of married women wanted no more children and 59 percent wanted to use a family planning method in the future. In addition, nearly two married women in five (38 percent) had an unmet need for family planning: they wanted either to space their births or to limit the number of children but were not currently using a contraceptive method. A majority of these women wanted to use some method of birth spacing (25 percent), but 13 percent wanted to limit the size of their families.

The 2005 RDHS-III showed a high frequency of lost opportunities for promoting family planning, such as encouraging advice and/or quality services. For example, nearly one in five women went to a health facility, but had not been asked by a health caregiver to discuss family planning.

Implementation of the family planning and reproductive health program is coordinated by a task force on Maternal and Child Health (MCH) in the Ministry of Health. The Directorate of the Health Sector of the Government of Rwanda has adopted a new reproductive health policy that decentralizes the delivery of family planning services at all levels of the country's health care system (FOSACOM, Health Center, District Hospital, Referral Hospital, private clinics, pharmaceutical outlets), and encourages the use of modern family planning methods. The new policy includes free health care services in state run facilities for women of childbearing age, sex education in the schools and improvement in access to basic reproductive health care.

During the 2007-08 RIDHS, women were asked questions about use of family planning. Responses to these questions have provided an estimate of contraceptive prevalence in Rwanda. In addition, women who were not using contraception were asked if they intended to use it in the future. When the answer was affirmative, they were also asked which method they would choose. These results evaluated current activity and reconsidered, if necessary, the strategies that had already been put in place.

5.1 KNOWLEDGE OF CONTRACEPTION

The use of contraception presupposes prior knowledge of a least one contraceptive method. The different methods covered by the questionnaire fell into two categories:

- **Modern methods.** These include voluntary surgical contraceptions (female sterilization, male sterilization), hormonal contraception methods (pill, injectables, implants), IUD (intrauterine device), barrier methods (male condom, female condom, diaphragm), vaginal methods (spermicides, foams and jellies), emergency contraception method (morning after pill), the lactational amenorrhea method (LAM), and the standard days method (SDM)/cycle beads.
- **Traditional methods.** These include the rhythm or periodic abstinence method, withdrawal, and so-called "folk" methods such as herbs, amulets, tea infusions, and other methods of this type.

Information concerning knowledge of contraceptive methods was gathered in two ways: first each respondent was asked to spontaneously name the contraceptive method(s) he or she knew about. Then, if a respondent failed to mention all the methods covered by the questionnaire, the interviewer briefly described the method and recorded whether or not the respondent had heard of it. A method was considered to be known by a respondent if she or he mentioned it spontaneously or recognized it after it was described.

The results in Table 5.1 show that knowledge of family planning is nearly universal in Rwanda: 97 percent of all women reported having knowledge of at least one method of contraception and 99 percent of currently married women. Women are more familiar with modern methods than traditional methods, whether they are married or not: all women (97 percent know of modern methods and 79 percent know of traditional method), and currently married women (99 percent know of modern methods and 87 percent know of traditional methods). The average number of methods known by all women is 8.5 while among married women it is slightly higher (9.7).

With respect to specific methods, results show that the most well known methods of family planning, whether for all women or for married women are the pill (88 percent and 95 percent respectively), injectables (90 percent and 96 percent, respectively), the male condom (93 percent and 95 percent, respectively), followed by female sterilization (65 percent and 72 percent, respectively), implants (60 percent and 74 percent, respectively) and the female condom (58 percent and 63 percent, respectively). The least familiar methods include the IUD (53 percent and 64 percent, respectively), the standard days method (52 percent and 64 percent, respectively), LAM (50 percent and 62 percent, respectively), and male sterilization (43 percent and 50 percent, respectively). With respect to traditional methods, 81 percent of married women reported knowing about the rhythm or periodic abstinence method, and 75 percent had heard of withdrawal.

Comparing the results of the 2007-08 RIDHS with those of the 2005 RDHS-III shows an improvement in knowledge of contraceptive methods. The proportion of women who know at least one contraceptive method went from 95 percent in 2005 to 97 percent in 2007-08. In particular, the percentage of women who reported knowing about the IUD and the female condom increased between the two surveys.

Men were also asked about knowledge of family planning methods. Table 5.1 shows that almost all men (98 percent) know at least one contraceptive method. Modern methods are known by 98 percent of men and a smaller proportion (79 percent) reported knowing at least one traditional method. Thus, knowledge of modern contraceptive methods is almost as high among women as it is among men (97 and 98 percent, respectively), and knowledge of a traditional contraceptive methods is the same (79 percent for both).

Table 5.1 Knowledge of contraceptive methods

Percentage of all respondents, currently married respondents, and sexually active unmarried respondents age 15-49 who know any contraceptive method, by specific method, Rwanda 2007-08

	Women		Men	
Method	All women	Currently married women	All men	Currently married men
Any method	97.4	99.0	97.7	99.5
Any modern method	97.1	98.8	97.6	99.4
Female sterilization	65.3	71.9	66.4	77.0
Male sterilization	42.8	50.1	45.8	56.0
Pill	88.4	94.9	79.2	89.1
IUD	52.5	63.6	41.5	54.4
Injectables	89.7	96.2	82.0	91.3
Implants	60.0	73.8	42.4	57.8
Male condom	92.5	94.8	96.4	98.4
Female condom	57.7	63.1	53.6	60.2
Lactational amenorrhea (LAM)	49.5	61.5	31.9	44.2
Standard Days Methods (SDM)	51.9	64.1	0.0	0.0
Any traditional method	78.7	87.4	78.7	91.1
Rhythm	73.2	80.5	86.7	81.8
Withdrawal	58.9	74.5	62.1	80.0
Folk method	0.5	0.6	36.5	49.1
Mean number of methods known by respondents 15-49	8.0	9.1	7.6	9.1
Number of respondents	7,313	3,888	6,197	3,065
Mean number of methods known by respondents 15-59	na	na	7.7	9.0
Number of respondents	na	na	6,837	3,656

na = Not applicable

5.2 KNOWLEDGE OF CONTRACEPTIVE METHODS BY BACKGROUND CHARACTERISTICS

Table 5.2 shows the percentage of currently married women and men who know at least one modern contraceptive method, by background characteristics. The results for women do not show any important differences, either by age or other background characteristics, whether for any method or for any modern method. Knowledge of contraceptive methods is high for all subgroups of women, although the level for women age 15-19 is slightly lower (93 percent).

Men's knowledge of contraceptive methods by background characteristics is high for all subgroups, except for men age 15-19, who have the lowest level of knowledge of contraceptive methods, both for any method and for any modern method (88 percent for both).

Table 5.2 Knowledge of contraceptive methods by background characteristics

Percentage of currently married women and currently married men age 15-49 who have heard of at least one contraceptive method and who have heard of at least one modern method by background characteristics, Rwanda 2007-08

	Women			Men		
Background characteristic	Heard of any method	Heard of any modern method	Number	Heard of any method	Heard of any modern method	Number
Age						
15-19	92.6	92.6	36	88.1	88.1	8
20-24	99.1	98.9	669	99.7	99.7	282
25-29	99.2	98.7	1,013	99.2	99.2	714
30-34	99.5	99.4	749	99.6	99.4	635
35-39	99.6	99.5	574	99.9	99.9	546
40-44	98.1	97.8	475	99.6	99.6	486
45-49	97.9	97.9	371	99.0	98.6	393
Residence						
Urban	98.8	98.8	566	99.6	99.6	453
Rural	99.0	98.7	3,322	99.4	99.3	2,612
Province						
Kigali city	98.1	98.1	309	99.0	99.0	267
South	98.6	98.2	985	99.4	99.0	745
West	99.3	99.3	943	99.9	99.9	768
North	99.3	99.0	727	99.4	99.4	578
East	99.0	98.8	923	99.3	99.3	707
Education						
No education	97.8	97.3	1,011	98.5	98.1	611
Primary	99.5	99.3	2,539	99.7	99.7	2,091
Secondary or higher	98.9	98.9	338	99.6	99.6	363
Wealth quintile						
Lowest	98.8	98.8	528	99.3	99.3	371
Second	98.9	98.8	1,072	99.6	99.4	836
Middle	99.3	99.2	776	99.5	99.5	631
Fourth	99.2	98.7	795	99.2	98.9	649
Highest	98.6	98.4	716	99.7	99.7	578
Total 15-49	99.0	98.8	3,888	99.5	99.4	3,065
Total 15-59	na	na	0	99.0	98.9	3,656

5.3 USE OF CONTRACEPTION

Data from the 2007-08 RIDHS are used to estimate levels of ever use of contraception as well as current use of contraception.

5.3.1 Ever Use of Contraception

Women and men who said that they had heard of any contraceptive method(s) were asked if they had ever used the method(s). This information is used to measure past use of contraceptive methods (ever use). Table 5.3.1 shows the results for ever use of contraception by all women: almost two in five women (39 percent) have used a method of contraception at some time. Traditional methods (19 percent) have been used less frequently than modern methods (29 percent). Above age 20, the percentage of all women who have ever used any method or any modern method is higher for the most commonly used modern methods: injectables (17 percent), the pill (10 percent), male condoms (5 percent), and LAM (4 percent). With respect to other modern methods, the proportions are very small; only 0.5 percent of women have been sterilized. This method of family planning has been used most frequently by women age 45-45 (about 1 percent). Among traditional methods, periodic abstinence (14 percent) and withdrawal (10 percent) were used the most commonly used methods.

Table 5.3.1 shows that ever use of contraception is much higher among married women than all women: about one in two (56 percent) married women has used a method of contraception at some time, compared with 39 percent of all women. Likewise, married women are more likely to have used a modern method (44 percent) than all women (29 percent), and more likely to have used a traditional method (25 percent) than all women (19 percent). As with all women, married women are most likely to have used injectables (26 percent) and the pill (15 percent) at some time in the past. Only 6 percent of married women have ever used the male condom. Periodic abstinence (17 percent) and withdrawal (16 percent) are the traditional methods most commonly used by married women at some time in the past.

Table 5.3.2 presents the same results for men. Among all men, almost two in five age 15-49 (38 percent) have used a contraceptive method at some time in their life. Traditional methods have been used more often than modern methods (28 percent, compared to 18 percent). Ever use of modern methods of contraception is highest among men age 25 to 39 (25 percent for men age 25-29 and 30-34, and 26 percent for men age 35-39). The male condom (18 percent) is the most commonly used modern method while periodic abstinence (23 percent) is the most commonly used traditional method.

Among married men age 15-49, more than half (54 percent) reported that they had used a method of contraception at some time in the past, which is higher than the percentage reported by all men (38 percent) (Table 5.3.2). The level of ever use of contraception among married men is similar to that for married women (54 and 56 percent, respectively). On the other hand, married men have used the male condom more often than married women (21 and 6 percent, respectively), and married men are more than twice as likely as married women to have used periodic abstinence (39 and 17 percent, respectively).

Table 5.3.1 Ever use of contraception: Women

Percentage of all women and currently married women age 15-49 who have ever used any contraceptive method by method, according to age, Rwanda 2007-08

Age	Any method	Any modern method	Modern method										Any traditional method	Traditional method			Number of women
			Female sterilization	Male sterilization	Pill	IUD	Injectables	Implants	Male condom	Female condom	LAM	SDM		Periodic abstinence/ rhythm	Withdrawal	Folk method	
ALL WOMEN																	
15-19	10.5	3.1	0.0	0.0	0.5	0.0	0.8	0.1	1.5	0.0	0.0	0.6	8.3	7.9	0.6	0.0	1,387
20-24	28.1	18.5	0.1	0.1	5.6	0.4	8.9	0.5	4.9	0.3	2.0	0.7	14.3	11.7	5.9	0.0	1,548
25-29	46.8	36.4	0.3	0.0	12.0	0.8	21.0	2.4	5.8	0.1	3.7	1.2	19.1	14.2	10.5	0.1	1,374
30-34	58.0	45.7	0.6	0.2	14.5	0.6	28.5	2.2	8.8	0.0	6.6	2.1	24.9	17.3	15.7	0.0	937
35-39	58.1	44.8	0.8	0.1	16.2	0.6	26.3	1.9	7.4	0.0	6.7	0.7	26.6	18.8	17.4	0.1	769
40-44	55.3	40.1	1.4	0.3	16.6	1.2	25.0	0.9	5.1	0.1	5.4	0.8	28.7	21.1	15.4	0.1	678
45-49	44.8	33.3	1.1	0.0	12.1	0.5	20.6	1.4	1.2	0.3	5.5	1.3	22.5	16.5	13.6	0.0	620
Total	39.2	28.5	0.5	0.1	9.7	0.5	16.5	1.2	4.9	0.1	3.6	1.0	18.7	14.2	9.7	0.0	7,313
CURRENTLY MARRIED WOMEN																	
15-19	36.4	29.2	0.0	0.0	13.1	0.0	12.4	0.0	6.6	0.0	0.0	0.0	16.6	9.2	9.3	0.0	36
20-24	42.4	32.7	0.1	0.2	11.9	0.8	16.7	0.9	5.8	0.4	3.7	0.9	17.4	12.3	10.5	0.0	669
25-29	54.1	43.2	0.4	0.0	14.2	1.0	25.8	3.0	5.2	0.1	4.6	1.5	21.3	14.9	13.2	0.1	1,013
30-34	64.0	50.6	0.4	0.2	15.6	0.7	32.3	2.6	8.5	0.0	7.3	2.5	27.5	18.8	17.9	0.1	749
35-39	64.6	49.7	0.8	0.2	18.2	0.7	29.6	2.2	8.0	0.0	7.8	0.9	30.3	21.7	20.1	0.1	574
40-44	61.1	45.5	1.7	0.5	19.1	1.1	28.1	1.2	4.6	0.2	6.7	1.1	31.6	21.7	19.5	0.1	475
45-49	51.4	39.3	1.5	0.0	14.0	0.3	25.2	2.1	0.9	0.5	7.1	1.6	26.2	18.6	17.7	0.0	371
Total	56.0	43.6	0.7	0.2	15.2	0.8	26.1	2.1	5.9	0.2	5.9	1.4	24.8	17.4	15.8	0.1	3,888

LAM = Lactational amenorrhea method
SDM = Standard Days Methods

Table 5.3.2 Ever use of contraception: Men

Percentage of all men and currently married men age 15-49 who have ever used any contraceptive method by method, according to age, Rwanda 2007-08

Age	Any method	Any modern method	Modern method		Any traditional method	Traditional method		Number of men
			Male sterilization	Male condom		Periodic abstinence/ rhythm	With-drawal	
				ALL MEN				
15-19	9.8	4.7	0.2	4.5	6.0	5.4	1.0	1,461
20-24	29.8	18.9	0.3	18.7	16.6	13.2	6.8	1,245
25-29	47.4	25.4	0.4	25.1	32.3	25.9	17.1	1,156
30-34	52.9	24.9	0.1	24.9	40.5	33.5	24.1	769
35-39	59.2	26.1	0.5	25.8	47.9	39.5	27.0	616
40-44	57.1	22.3	0.5	21.9	49.8	40.8	30.0	522
45-49	52.8	16.3	0.4	16.0	46.1	38.7	25.3	428
Total 15-49	38.0	18.3	0.3	18.1	28.0	22.9	14.7	6,197
Total men 15-59	38.7	17.5	0.4	17.2	29.3	24.0	15.7	6,837
				CURRENTLY MARRIED MEN				
15-19	17.1	0.0	0.0	0.0	17.1	17.1	0.0	8
20-24	47.3	20.2	0.0	20.2	40.1	30.3	21.0	282
25-29	52.6	21.3	0.4	20.9	43.4	36.0	23.6	714
30-34	52.2	20.2	0.1	20.2	43.8	38.3	25.6	635
35-39	60.5	24.3	0.5	23.9	51.7	43.0	29.3	546
40-44	58.3	21.6	0.5	21.2	52.3	42.8	31.5	486
45-49	53.4	15.4	0.5	15.0	47.8	39.9	26.5	393
Total 15-49	54.3	20.7	0.3	20.5	46.6	38.7	26.3	3,065
Total men 15-59	53.0	18.9	0.4	18.6	46.0	38.1	26.2	3,656

5.3.2 Current Use of Contraception

Contraceptive prevalence is a measure of current use of contraceptive methods by women of childbearing age. Table 5.4 shows that for all women, nearly one in four women (24 percent) is currently using a contraceptive method; 16 percent are using a modern method while 8 percent are using a traditional method. Women are mainly using two methods, just as they have in the past: injectables (9 percent) and the pill (4 percent). Other methods have low prevalence (less than 1 percent of all women), except for the male condom, which is used by 1.4 percent of women.

Contraceptive prevalence among married women at the time of the survey was 36 percent for any method and 27 percent for any modern method; 9 percent of married women reported using a traditional method at the time of the survey. The most frequently used modern methods were injectables (15 percent) and the pill (6 percent). Periodic abstinence (6 percent) and withdrawal (3 percent) were the most frequently used traditional methods.

The results for married women by age show that contraceptive prevalence, whether for any method or any modern method, increases up to age 30-34, and then drops off in the older age groups. Prevalence among married women rises from 24 percent among those age 15-19 to 45 percent among those age 30-34. Beyond this age group, prevalence tends to drop even though the proportion of users remains relatively high. Two in five married women age 35 to 44 are using a method of contraception, and at least one-quarter are using a modern method. Results by type of method show that modern methods are used more often than traditional methods (27 percent, compared with 9 percent). Among young married women age 20-24, in particular, 22 percent are using a modern method compared with only 5 percent who are using a traditional method

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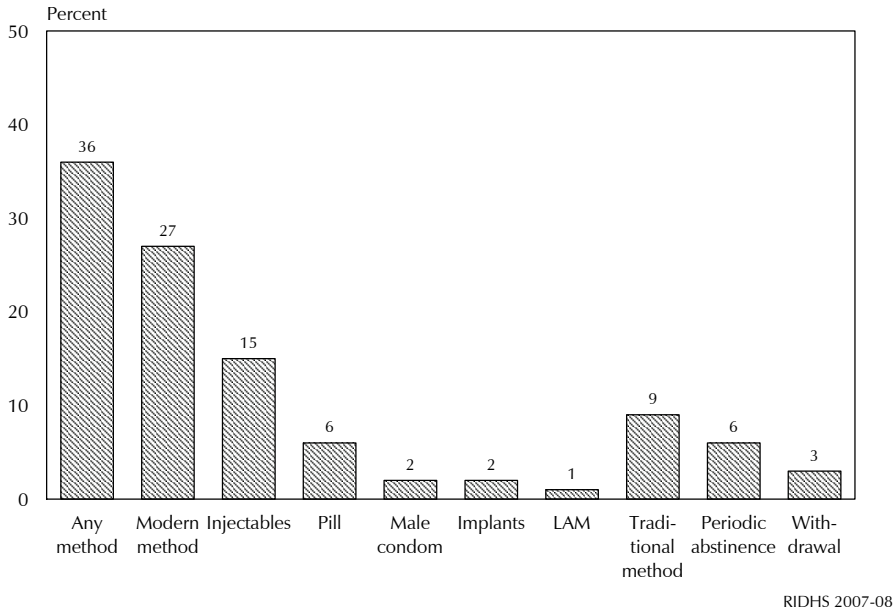
Table 5.4 Current use of contraception by age

Percent distribution of all women and currently married women age 15-49 by contraceptive method currently used, according to age, Rwanda 2007-08

			Modern method											Traditional method					
Age	Any method	Any modern method	Female sterili-zation	Male sterili-zation	Pill	IUD	Inject-ables	Implants	Male condom	Female condom	LAM	SDM	Any tradi-tional method	Periodic absti-nence/ rhythm	With-drawal	Folk method	Not currently using method	Total	Number of women
ALL WOMEN																			
15-19	7.3	1.5	0.0	0.0	0.3	0.0	0.7	0.1	0.3	0.0	0.0	0.1	5.8	5.7	0.1	0.0	92.7	100.0	1,387
20-24	16.7	11.0	0.1	0.0	2.4	0.0	6.2	0.5	1.5	0.0	0.3	0.1	5.7	4.9	0.8	0.0	83.3	100.0	1,548
25-29	30.5	24.5	0.3	0.0	5.7	0.1	13.6	2.0	1.4	0.1	1.0	0.3	6.0	5.1	0.9	0.0	69.5	100.0	1,374
30-34	39.5	29.5	0.6	0.2	5.7	0.1	16.8	1.5	2.9	0.0	1.4	0.3	10.0	6.2	3.8	0.0	60.5	100.0	937
35-39	35.2	25.2	0.8	0.1	5.9	0.2	13.3	1.4	2.3	0.0	0.9	0.4	10.0	7.3	2.8	0.0	64.8	100.0	769
40-44	32.7	19.1	1.4	0.1	4.1	0.1	10.9	0.6	1.2	0.0	0.7	0.2	13.6	10.0	3.6	0.1	67.3	100.0	678
45-49	17.5	10.0	1.1	0.0	2.6	0.1	5.1	0.4	0.3	0.0	0.2	0.2	7.5	5.4	2.1	0.0	82.5	100.0	620
Total	23.9	16.3	0.5	0.0	3.6	0.1	9.0	0.9	1.4	0.0	0.6	0.2	7.7	6.0	1.7	0.0	76.1	100.0	7,313
CURRENTLY MARRIED WOMEN																			
15-19	23.7	23.7	0.0	0.0	11.2	0.0	10.5	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	76.3	100.0	36
20-24	26.0	21.6	0.1	0.0	5.5	0.1	12.5	0.9	2.1	0.0	0.4	0.0	4.5	2.6	1.9	0.0	74.0	100.0	669
25-29	36.3	30.6	0.4	0.0	7.4	0.2	17.0	2.6	1.2	0.1	1.3	0.4	5.6	4.4	1.2	0.0	63.7	100.0	1,013
30-34	45.1	34.1	0.4	0.2	6.6	0.2	19.6	1.7	3.2	0.0	1.8	0.4	10.9	6.4	4.6	0.0	54.9	100.0	749
35-39	42.5	30.4	0.8	0.2	7.4	0.2	16.0	1.7	2.6	0.0	1.0	0.5	12.2	8.7	3.5	0.0	57.5	100.0	574
40-44	40.8	25.2	1.7	0.2	5.7	0.1	14.1	0.7	1.5	0.0	1.0	0.3	15.6	10.5	5.0	0.1	59.2	100.0	475
45-49	23.8	14.3	1.5	0.0	3.9	0.1	7.1	0.7	0.2	0.0	0.3	0.4	9.5	6.0	3.5	0.0	76.2	100.0	371
Total	36.4	27.4	0.7	0.1	6.4	0.2	15.2	1.6	1.9	0.0	1.0	0.3	8.9	6.0	3.0	0.0	63.6	100.0	3, 888

Note: If a woman is using more than one method, only the most effective method is included in this tabulation.
LAM = Lactational amenorrhea method
SDM = Standard Days Methods

Figure 5.1 Contraceptive Use among Currently Married Women Age 15-49



Comparing the 2007-08 RIDHS results with those of previous surveys shows that use of contraceptive methods by married women has varied substantially over time. The proportion of married women using any method rose from 17 percent in the 2005 RDHS-III to 36 percent in the 2007-08 RIDHS. At the same time, use of modern methods rose from 10 to 27 percent. If the 2007-08 RIDHS results are compared with those from the 2000 RDHS-II, the level of contraceptive prevalence rose from 13 to 36 percent, nearly tripling the number of users in less than ten years. The increase is even greater for use of modern methods: from 4 percent among married women in 2000 to 27 percent in 2007-08.

Figure 5.2 Trends in Use of Modern Methods among Currently Married Women

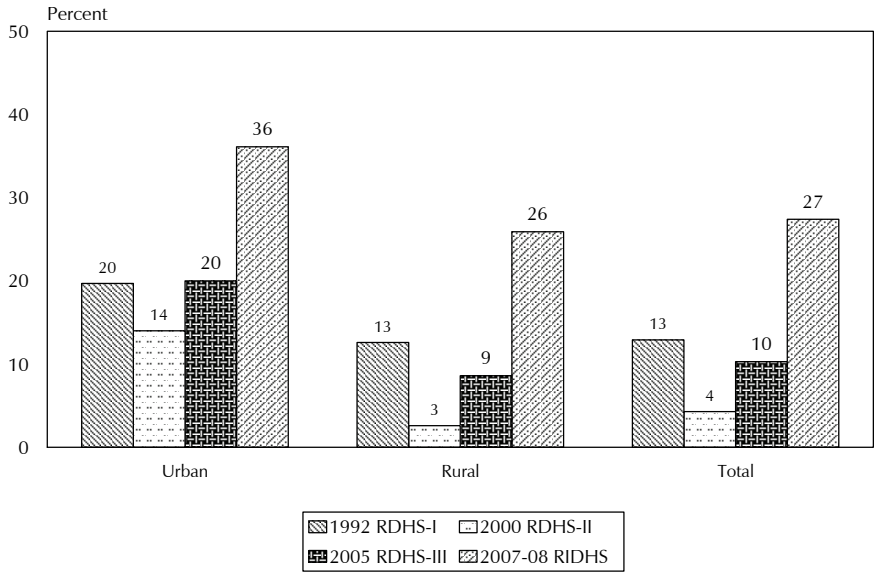


Table 5.5 shows the percent distribution of currently married women by use of contraceptive methods, according to background characteristics. Contraceptive prevalence among married women varies considerably by background characteristics, beginning with geographical differences. Use of modern methods is highest in urban areas (36 percent), in the City of Kigali (35 percent), and in the North province (33 percent). In rural areas, only 26 percent of married women are using a modern method and in the South province, only 23 percent use a modern contraception. Contraceptive prevalence increases with level of education, from 19 percent among those with no education to 29 percent among those who have gone to primary school, to 43 percent for the most educated women. Results by number of children ever born show that contraceptive prevalence increases with the number of children, from 1 percent among woman with no children to 33 percent among women with 3-4 children, and then to 30 percent among women who have 5 or more children. Contraceptive prevalence by specific methods does not show these patterns. Finally, contraceptive prevalence increases with household wealth status (wealth quintile), from 22 percent in the lowest (poorest) quintile, to 27 percent in the middle and fourth quintiles, to 39 percent in the highest (richest) quintile.

Table 5.5 Current use of contraception by background characteristics

Percent distribution of currently married women age 15-49 by contraceptive method currently used, according to background characteristics, Rwanda 2007-08

Background characteristic	Any method	Any modern method	Modern method										Any traditional method	Traditional method			Not currently using	Total	Number of women
			Female sterilization	Male sterilization	Pill	IUD	Injectables	Implants	Male condom	Female condom	LAM	SDM		Periodic abstinence/ rhythm	Withdrawal	Folk method			
Residence																			
Urban	44.6	36.1	1.8	0.0	8.8	1.0	17.6	1.9	3.6	0.0	1.0	0.4	8.5	6.1	2.4	0.1	55.4	100.0	566
Rural	35.0	25.9	0.5	0.1	6.0	0.0	14.8	1.5	1.6	0.0	1.0	0.3	9.0	5.9	3.1	0.0	65.0	100.0	3,322
Province																			
Kigali city	41.8	34.5	1.9	0.0	8.8	0.9	16.6	1.2	3.9	0.0	0.9	0.3	7.3	5.1	2.2	0.0	58.2	100.0	309
South	33.5	22.9	0.4	0.0	4.8	0.1	12.5	1.9	1.5	0.0	1.3	0.5	10.5	6.9	3.6	0.0	66.5	100.0	985
West	33.9	26.3	1.0	0.3	6.2	0.2	14.0	1.1	1.9	0.1	1.0	0.6	7.5	4.9	2.6	0.0	66.1	100.0	943
North	44.0	33.3	0.3	0.1	8.9	0.0	19.7	2.4	1.5	0.0	0.4	0.0	10.6	7.5	3.1	0.0	56.0	100.0	727
East	34.2	26.3	0.5	0.0	5.5	0.1	15.5	1.2	1.9	0.0	1.4	0.2	7.9	5.1	2.8	0.0	65.8	100.0	923
Education																			
No education	27.3	19.0	0.5	0.0	3.8	0.0	11.8	0.7	1.0	0.0	1.2	0.0	8.3	6.1	2.2	0.0	72.7	100.0	1,011
Primary	37.4	28.7	0.7	0.1	7.0	0.1	16.2	1.5	1.9	0.0	0.9	0.3	8.6	5.5	3.2	0.0	62.6	100.0	2,539
Secondary or higher	55.8	42.7	1.2	0.0	9.5	1.3	18.2	4.7	4.5	0.0	1.4	2.0	13.1	9.3	3.9	0.0	44.2	100.0	338
Number of living children																			
0	2.5	0.7	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.3	1.7	1.4	0.3	0.0	97.5	100.0	266
1-2	33.0	25.9	0.2	0.0	7.2	0.1	13.1	1.4	2.4	0.1	1.2	0.2	7.1	5.1	2.0	0.0	67.0	100.0	1,364
3-4	40.7	32.5	0.9	0.1	6.9	0.4	18.8	1.8	1.8	0.0	1.4	0.4	8.2	5.3	2.9	0.0	59.3	100.0	1,222
5+	44.4	30.2	1.2	0.2	6.5	0.0	17.6	1.9	1.8	0.0	0.7	0.4	14.2	9.1	5.1	0.0	55.6	100.0	1,037
Wealth quintile																			
Lowest	27.6	21.7	0.4	0.1	6.1	0.1	12.0	0.7	1.1	0.0	1.2	0.0	5.9	3.7	2.3	0.0	72.4	100.0	528
Second	30.3	23.2	0.4	0.3	5.2	0.0	14.1	0.9	1.3	0.0	1.0	0.1	7.0	4.3	2.7	0.0	69.7	100.0	1,072
Middle	36.1	26.8	0.3	0.0	6.2	0.0	16.1	1.0	1.8	0.0	1.0	0.4	9.3	7.2	2.1	0.0	63.9	100.0	776
Fourth	38.8	27.4	0.4	0.0	6.1	0.1	15.6	2.4	1.4	0.1	1.0	0.4	11.4	7.4	4.0	0.0	61.2	100.0	795
Highest	49.6	38.6	2.0	0.0	8.9	0.7	18.0	3.0	4.0	0.0	1.1	0.9	10.9	7.2	3.7	0.0	50.4	100.0	716
Total	36.4	27.4	0.7	0.1	6.4	0.2	15.2	1.6	1.9	0.0	1.0	0.3	8.9	6.0	3.0	0.0	63.6	100.0	3,888

Note: If a woman is using more than one method, only the most effective method is included in this tabulation.
LAM = Lactational amenorrhea method
SDM = Standard Days Methods

5.4 FUTURE USE OF CONTRACEPTION

Married women who were not using a contraceptive method at the time of the survey were asked whether they planned to use one in the future. Table 5.6 shows the percent distribution of these women by intention to use a method in the future, according to number of living children.

Table 5.6 Future use of contraception

Percent distribution of currently married women age 15-49 who are not using a contraceptive method by intention to use a method in the future, according to number of living children, Rwanda 2007-2008

	Number of living children[1]					
Intention	0	1	2	3	4+	Total
Intends to use	75.3	83.9	79.4	73.8	59.7	71.2
Unsure	5.0	2.2	2.1	1.7	1.3	1.9
Does not intend to use	18.1	13.0	18.0	23.6	38.2	26.2
Missing	1.7	0.9	0.4	0.8	0.8	0.8
Total[2]	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	110	462	498	409	995	2,474

[1] Includes current pregnancy
[2] Include missing or don't know

Nearly three in four women (71 percent) reported that they plan to use a contraceptive method in the future. By comparison, more than a quarter of women (26 percent) said that they did not intend to use contraception in the future while 2 percent were not sure. More than three women in four (75 percent) with no children intend to use a method of family planning in the future. This proportion is highest (84 percent) among women having one child.

5.5 REASONS FOR NOT USING CONTRACEPTION

Women who were not using contraception and do not plan to use it in the future were asked to give their reason. Table 5.7 shows that 69 percent of women gave reasons relating to fertility: in particular, menopause or hysterectomy (28 percent); 12 percent of women said they were opposed to the use of contraception: whether it was opposition of the husband/partner (2 percent), opposition of the woman herself (6 percent), or opposition motivated by religious prohibitions (4 percent); and 13 percent of women gave method-related reasons for not intending to use a contraceptive method. These reasons included health concerns (3 percent) and fear

Table 5.7 Reason for not intending to use contraception in the future

Percent distribution of currently married women age 15-49 who are not using contraception and who do not intend to use a method in the future by main reason for not intending to use a method, Rwanda 2007-08

	Age		
Reason	15-29	30-49	Total
Fertility-related reasons			
Infrequent sex/no sex	2.8	16.5	14.4
Menopausal/had hysterectomy	0.7	32.9	27.9
Subfecund/infecund	35.7	23.2	25.1
Wants as many children as possible	1.2	2.2	2.0
Opposition to use			
Respondent opposed	11.2	4.7	5.7
Husband/partner opposed	3.4	1.2	1.5
Others opposed	0.3	0.0	0.1
Religious prohibition	8.5	3.4	4.2
Lack of knowledge			
Knows no method	4.2	0.4	1.0
Knows no source	0.0	0.3	0.2
Method-related reasons			
Health concerns	2.6	3.3	3.2
Fear of side effects	21.8	6.0	8.5
Inconvenient to use	0.0	0.4	0.4
Interferes with body's normal process	0.8	0.8	0.8
Other	4.7	3.9	4.0
Don't know	1.1	0.5	0.6
Missing	1.1	0.5	0.6
Total	100.0	100.0	100.0
Number of women	100	547	647

of side effects from contraceptive methods (9 percent). Very few women gave reasons related to lack of knowledge about contraceptive methods or lack of knowledge of where to obtain family planning services (1 percent).

Results by broad age groups show that biological reasons were cited more frequently by older women (age 30-49) than by younger women (15-29). On the other hand, it was the younger women who most often reported opposition to contraception (11 percent, compared with 5 percent), and the younger women who most often cited lack of knowledge as their reason for not using contraception (4 percent, compared with 0.4 percent).

5.6 PREFERRED FUTURE CONTRACEPTIVE METHODS

To assess the potential demand for specific contraceptive methods, married women who reported intending to use contraception in the future were asked to state their preferred method.

Table 5.8 shows that most women prefer modern methods regardless of their age; in particular, injectables for both those age 15-29 (48 percent) and age 30-49 (45 percent), followed by the pill (25 and 19 percent, respectively), and implants (7 and 8 percent, respectively).

Other modern methods were rarely cited, except for female sterilization (3 percent for women age 15-29 and 7 percent for women age 30-49), the IUD (4 percent for women in both age groups), and periodic abstinence (4 and 6 percent, respectively).

Table 5.8 Preferred method of contraception for future use

Percent distribution of currently married women age 15-49 who are not using a contraceptive method but who intend to use a method in the future by preferred method, Rwanda 2007-08

	Age		
Method	15-29	30-49	Total
Female sterilization	2.6	6.6	4.2
Male sterilization	0.0	0.2	0.1
Pill	25.0	19.2	22.6
IUD	4.0	4.0	4.0
Injectables	48.1	45.2	46.9
Implants	6.5	8.2	7.2
Condom	2.8	2.3	2.6
Female condom	0.1	0.2	0.2
Lactation amenorrhea	0.4	0.5	0.5
Periodic abstinence	4.2	6.3	5.0
Withdrawal	0.9	1.5	1.2
Other	0.0	0.4	0.2
Unsure	2.9	3.0	2.9
Missing	0.0	0.2	0.1
Total	100.0	100.0	100.0
Number of women	1,036	726	1,762

FERTILITY PREFERENCES 6

Data on fertility preferences are used to evaluate the effectiveness of couples' efforts to control their own fertility and to assess future contraceptive needs not only for birth spacing, but to limit the total number of births. To obtain information about fertility preferences, the 2007-08 RIDHS asked women how many additional children they wanted to have in the future, how long they wanted to wait before having their next child, and the total number of children desired.

Data on attitudes and opinions about procreation have always been somewhat controversial. Some researchers think responses to questions about fertility preferences represent viewpoints that are subject to change rather than firm convictions, or that responses do not take into account the effects of social pressure and the attitudes of other family members, particularly the husband, who may have considerable influence over reproductive decisions. In addition, the data are obtained from a sample of women of different ages with different birth histories.

Responses relate to medium- or long-term goals that may change over time or may be of limited predictive value for young and/or recently married women. The responses of older women and/or women at the end of their childbearing years are inevitably influenced by their birth histories. This chapter discusses the following issues: desire to have more children, family planning needs, ideal number of children, and fertility planning.

6.1 DESIRE TO HAVE MORE CHILDREN

The desire to have more children in the future generally correlates with a woman's age and the number of living children she and/or her husband have. The 2007-08 RIDHS asked currently married women a series of questions designed to obtain information on their desire to delay the next birth or to stop having children.

The results presented in Table 6.1 and Figure 6.1 show that nearly one in two women (48 percent) reported wanting no more children, while 44 percent wanted to have another child. Among the women who wanted more children in the future, 7 percent wanted another child within two years. This proportion was 12 percent in the 2005 RDHS-III. Table 6.1 also shows that among the women who wanted more children in the future, a majority (36 percent) want to delay the next birth by two or more years. So, overall, 84 percent of women either want no more children (48 percent) or want to delay the next birth for two years or more (36 percent). This means that more than four of five married women can be considered potentially favorable toward family planning.

The percentage of women who want no more children has increased with each successive survey, from 33 percent in the 2000 RDHS-II, to 42 percent in the 2005 RDHS-III, and to 48 percent in the 2007-08 RIDHS. Additionally, the proportion of married women who want no more children increases with the number of living children the woman has, from 1 percent among women with no children, to 56 percent among women with three children, to 83 percent among women with six children or more. Likewise, nearly all nulliparous women (93 percent) want to have a child, and a majority (81 percent) wants to have a birth soon (within the next two years). Women with one child, like those with no children, want to have another birth (93 percent), but unlike the nulliparous women, a majority of these parity 1 women want to wait at least two years before the next birth (79 percent).

As parity increases, the proportion of women who want another child drops rapidly and the proportion of women who do not want another child increases. The percentage of women who want another child drops from 93 percent among those with no children, to 37 percent among those with three children, and to 5 percent among women with six children or more.

Table 6.1 Fertility preferences by number of living children

Percent distribution of currently married women age 15-49 by desire for children, according to number of living children, Rwanda 2007-08

	Number of living children[1]							Total
Desire for children	0	1	2	3	4	5	6+	15-49
Have another soon[2]	81.3	11.9	8.1	3.9	1.5	1.6	0.5	7.2
Have another later[3]	4.0	78.5	64.0	32.3	16.3	9.7	4.5	35.7
Have another, undecided when	7.7	2.5	1.3	0.5	1.2	1.1	0.3	1.3
Undecided	3.2	0.3	0.6	0.7	1.1	0.6	0.2	0.6
Want no more	1.2	5.3	22.6	55.5	71.3	77.2	82.5	48.4
Sterilized[4]	0.0	0.1	0.3	1.2	0.8	1.1	1.4	0.8
Declared infecund	1.7	1.4	3.1	5.8	7.6	8.7	10.5	5.8
Missing	0.9	0.0	0.1	0.1	0.2	0.0	0.0	0.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	116	651	759	686	573	445	656	3,888

[1] Includes current pregnancy
[2] Wants next birth within 2 years
[3] Wants to delay next birth for 2 or more years
[4] Includes both female and male sterilization

Figure 6.1 Proportion of Currently Married Women Who Want No More Children, by Number of Living Children

The results in Table 6.2 show that the percentage of women who do not want another child increases steadily with the number of surviving children, increasing from 5.4 percent among those with only one child to 84 percent among those with six children or more. This same trend is seen in urban and rural areas: the percentage of women in urban areas who do not want another child increases from 6 percent at parity one to 89 percent at parity six or more; in rural areas the increase is from 5 percent at parity one to 83 percent at parity six or more.

The proportion of women who want to limit births differs slightly by province, ranging from 44 percent in the West province to 56 percent in the North province. The results by level of education show that women who have never gone to school (57 percent) are more likely to want to limit births than women who have primary school education (46 percent) or women with secondary of higher education (51 percent). Regarding household wealth status (wealth index), only the second and highest (richest) quintiles stand out with a higher proportion of women wanting no more children (51 percent for both), compared with 47 percent and 48 percent in the other quintiles.

Table 6.2. Desire to limit childbearing

Percentage of currently married women age 15-49 who want no more children, by number of living children, according to background characteristics, Rwanda 2007-08

Background characteristic	Number of living children[1]							Total
	0	1	2	3	4	5	6+	
Residence								
Urban	*	5.8	29.2	62.1	78.5	80.7	88.9	50.4
Rural	(1.4)	5.3	21.7	55.7	71.1	77.9	83.3	49.0
Province								
Kigali City	*	5.1	30.4	62.8	77.1	75.2	89.4	47.7
South	(4.3)	4.9	25.9	61.8	74.8	84.6	80.1	50.2
West	*	3.8	13.8	45.0	60.5	74.9	79.3	43.6
North	*	7.1	26.3	64.2	75.8	78.5	92.7	56.0
East	*	6.5	24.8	53.9	73.8	75.4	84.1	49.0
Education								
No education	(5.2)	13.7	22.4	55.0	68.3	83.6	82.5	57.2
Primary	*	3.2	23.0	55.3	72.1	75.8	84.7	45.7
Secondary or higher	*	8.3	22.5	69.8	83.3	74.8	86.2	51.3
Wealth quintile								
Lowest	*	6.8	28.1	58.2	73.3	76.8	76.3	48.3
Second	(3.9)	6.0	22.1	56.2	66.2	81.0	88.7	51.3
Middle	*	5.4	18.3	54.1	70.5	76.7	85.7	47.4
Fourth	*	1.8	21.7	51.9	71.3	78.2	78.8	46.7
Highest	*	8.0	25.0	63.4	83.4	76.2	88.4	51.3
Total	(1.2)	5.4	22.9	56.7	72.1	78.3	84.0	49.2

Note: Women who have been sterilized are considered to want no more children. An asterisk indicates that the figure is based on fewer than 25 unweighted cases and has been suppressed. Figures in parentheses are based on 25-49 unweighted cases.

[1] Includes current pregnancy

6.2 IDEAL NUMBER OF CHILDREN

Women's reproductive behavior can be influenced by the ideal number of children they would like to have and the ideal number their husband/partner would like to have. To determine the ideal number of children, all women surveyed were asked one of the following two questions, according to their situation at the time of the survey:

- To women with no living children: *If you could choose the exact number of children you would like to have in your lifetime, how many would you have?*
- To women with living children: *If you could go back to the time to when you had no children and choose the exact number of children you would like to have in your lifetime, how many would you have chosen?*

These seemingly simple questions may be awkward, particularly for women with living children who may specify an ideal number that differs from the number of children they already have. It may also be difficult for respondents to specify an ideal number that is lower than their current family size.

The responses to these questions are presented in Table 6.3. Three percent of women were not able to give a numeric response, giving instead a general answer such as "However many God gives me," "I don't know," or "any number." Overall, the average ideal number of children reported by all Rwandan women is 3.3. Among married women this number has decreased from 4.5 in the 2005 RDHS-III to 3.6 in the 2007-08 RIDHS.

There is a positive correlation between current family size and ideal family size. The mean ideal family size ranges from 2.9 children for all women with no children, to 4.1 for those with 6 children or more. Among women who were married at the time of the survey, ideal family size is not very different from that for all women (3.6), varying from 3.1 children for women with one child to 4.2 children for women with 6 or more children.

Table 6.3 Ideal number of children

Percent distribution of women age 15-49 by ideal number of children, and mean ideal number of children for all women and for currently married women, according to number of living children, Rwanda 2007-08

	Number of living children[1]							
Ideal number of children	0	1	2	3	4	5	6+	Total
0	3.7	1.0	0.7	0.9	0.4	0.1	0.7	1.7
1	1.1	3.8	1.2	0.8	0.1	0.7	0.7	1.3
2	27.4	25.6	21.1	10.8	17.1	11.7	11.5	20.5
3	38.6	41.9	40.1	34.0	20.1	29.0	20.2	34.2
4	22.9	20.6	29.8	38.6	43.7	32.9	38.3	29.9
5	3.2	3.3	3.5	8.6	9.6	11.5	9.2	5.8
6+	1.1	1.9	1.7	3.3	6.9	11.4	13.4	4.2
Non-numeric responses	2.0	1.9	1.9	2.9	2.1	2.7	6.0	2.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	2,412	986	990	879	734	523	789	7,313
Mean ideal number children for:[2]								
All women	2.9	3.0	3.2	3.6	3.7	3.9	4.1	3.3
Currently married women	3.0	3.1	3.3	3.6	3.7	3.9	4.2	3.6

[1] Includes current pregnancy .
[2] Means are calculated excluding respondents who gave non-numeric responses.

Table 6.4 shows the mean ideal number of children for all women according to current age and background characteristics. The mean ideal number of children increases with women's age, from 2.9 children among women age 15-19 to 3.8 children among women age 40-49. These data suggest that if the wishes of younger women are realized, there would be a substantial drop in fertility.

The mean ideal number of children does not vary much by residence, province, level of education, or household wealth status. There is almost no difference between urban and rural areas: 3.2 children in urban areas, compared with 3.3 children in rural areas. With respect to province, there are slight differences in the mean ideal number of children ranging from 3.1 the City of Kigali and 3.2 in the South province, to 3.6 in the West province.

The mean ideal number of children shows the greatest variation according to the level of education. The higher the level of education, the lower the mean ideal number of children: 3.6 for women with no education, compared with 2.9 children for women with a secondary or higher education. There is almost no difference by wealth quintile; only women in the highest (richest) quintile want a slightly lower mean ideal number of children (3.1), compared with other women (3.4).

Table 6.4 Mean ideal number of children

Mean ideal number of children for all women age 15-49 by background characteristics, Rwanda 2007-08

Background characteristic	Mean ideal number of children	Number of women
Age		
15-19	2.9	1,368
20-24	3.1	1,530
25-29	3.3	1,343
30-34	3.6	910
35-39	3.6	741
40-44	3.7	642
45-49	3.8	591
Residence		
Urban	3.2	1,207
Rural	3.3	5,918
Province		
Kigali	3.1	663
South	3.2	1,897
West	3.6	1,684
North	3.2	1,236
East	3.3	1,646
Education		
No education	3.6	1,558
Primary	3.3	4,733
Secondary or higher	2.9	835
Wealth quintile		
Lowest	3.3	1,083
Second	3.4	1,908
Middle	3.4	1,338
Fourth	3.4	1,275
Highest	3.1	1,521
Total	3.3	7,125

6.3 FERTILITY PLANNING STATUS

During the 2007-08 RIDHS, questions were asked concerning each child born in the five years preceding the survey, and the current pregnancy (if the respondent was pregnant). The purpose of these questions was to determine if, at the time she became pregnant, the woman wanted to be pregnant at that moment, if she would have preferred to be pregnant later, or if she had not wanted to become pregnant at all. The responses to these questions are used to measure couples' effectiveness in controlling their fertility.

Such questions require a woman to concentrate in order to remember her desires accurately at one or more specific times in the past five years. The data can be subject to rationalization because an unwanted pregnancy may have resulted in the birth of a child to which the mother has become attached.

Table 6.5 shows that more than three in five births (64 percent) in the five years preceding the survey were wanted. Most of these births (52 percent) were planned and occurred at the desired time; 12 percent occurred earlier than the women would have liked; and 22 percent of births were associated with unwanted pregnancies.

The majority of births were wanted and arrived according to desired timing, regardless of birth order. However, the results suggest that earlier births are better planned. The proportion of births that arrived according to desired timing declines steadily with increasing birth order, from 69 percent for first births to 40 percent for births of parity 4 or higher.

Table 6.5 Fertility planning status

Percent distribution of births to women 15-49 in the five years preceding the survey (including current pregnancies), by planning status of the birth, according to birth order and mother's age at birth, Rwanda 2007-08

Birth order and mother's age at birth	Planning status of birth: Wanted then	Wanted later	Wanted no more	Missing	Total	Number of births
Birth order						
1	69.2	2.0	12.2	16.5	100.0	1,374
2	56.1	15.9	13.3	14.6	100.0	1,165
3	54.6	17.0	14.8	13.6	100.0	1,040
4+	39.9	14.5	32.9	12.6	100.0	2,764
Mother's age at birth						
<20	62.8	5.0	22.1	10.0	100.0	333
20-24	61.5	10.2	13.4	15.0	100.0	1,821
25-29	51.2	16.6	16.5	15.7	100.0	1,779
30-34	47.0	14.8	24.7	13.5	100.0	1,159
35-39	42.9	11.3	34.3	11.4	100.0	823
40-44	32.4	6.6	49.1	11.9	100.0	386
45-49	28.0	6.5	46.4	19.1	100.0	42
Total	51.6	12.5	21.9	14.0	100.0	6,343

With respect to age of the mother, the most planned births (wanted then) occurred among women age 20-24. This age group also had the lowest proportion (13 percent) of unplanned births (wanted no more). Conversely, births among older women age 40-44 appear to be less planned: while 32 percent of women age 40-44 wanted the birth at that time, 7 percent wanted the birth later (mistimed), and 49 percent reported that the birth was unplanned.

Table 6.6 compares the total wanted fertility rate (TWFR) with the total fertility rate (TFR). Calculation of the TWFR is the same as for the TFR, except that unwanted births are omitted from the numerator. Comparing the TFR (5.5) with the TWFR (3.7) shows the potential demographic impact of preventing unwanted births.

Theoretically, the TWFR should be a better indicator of wanted fertility than the responses to the question on the ideal number of children. The TWFR index is closer to reality because the answers given by women probably take into account the sex of the living children and survival considerations. Answers to the question on the total number of wanted children, on the other hand, refer to children who are still living and assume an ideal distribution of the two sexes. Another difference between the two measures is that the TWFR uses observed fertility as its departure point; consequently, it can never be higher than the TFR, unlike the ideal number of wanted children, which can be higher than the number of children who have already been born. If all unwanted births were eliminated, the total fertility rate for Rwandan women would be 3.7 children instead of 5.5 children, and fertility would be 33 percent lower than reported in the 2007-08 RIDHS.

Table 6.6 Wanted fertility rates

Total wanted fertility rates and total fertility rates for the three years preceding the survey, by background characteristics, Rwanda 2007-08

Background characteristic	Total wanted fertility rates	Total fertility rate
Residence		
Urban	3.3	4.7
Rural	3.8	5.7
Province		
Kigali	3.1	4.4
South	3.8	5.5
West	4.1	5.8
North	3.2	5.4
East	3.8	5.8
Education		
No education	4.1	6.1
Primary	3.8	5.7
Secondary or higher	2.7	3.8
Wealth quintile		
Lowest	4.0	5.8
Second	3.8	5.7
Middle	4.0	6.0
Fourth	3.8	5.8
Highest	3.0	4.4
Total	3.7	5.5

Note: Rates are calculated based on births to women age 15-49 in the period 1-36 months preceding the survey. The total fertility rates are the same as those presented in Table 4.2.

The greatest disparity between the TFR and the TWFR is seen among women in rural areas, those in the second wealth quintile, and among those who have never been to school.

MATERNAL AND CHILD HEALTH 7

The 2007-08 Rwanda Interim Demographic and Health Survey provides detailed information about the health of mothers and their children. Information presented in this chapter evaluates coverage of antenatal care and delivery care, as well as childhood vaccination coverage for children under age five and the prevalence of common childhood illnesses, specifically, respiratory infections, fever, and diarrhea. Comparison of the results with those of previous surveys shows not only that progress has been made but also identifies the problems that still remain in maternal and child health and reproductive health.

7.1 ANTENATAL CARE

Monitoring of pregnant women through antenatal care visits helps reduce risks and complications during pregnancy and delivery. For this reason, the RIDHS asked women who had had a live birth in the five years preceding the survey if they had received antenatal care (ANC).

Table 7.1 shows the distribution of the women's most recent live births in the past five years according to type of medical personnel consulted by the mother during the pregnancy and the mother's background characteristics. During the RIDHS, all categories of ANC providers consulted by the mother were recorded; however, if more than one provider was mentioned, only the provider with the highest qualifications was included in the tabulations.

Nearly all of these women, more than nine in ten (96 percent), received antenatal care from trained health personnel including doctors, nurses and trained midwives. ANC consultations were mainly provided by midwives or nurses (92 percent) but, in some cases, also by doctors (3 percent). Just over 3 percent of the women reported receiving no antenatal care.

The data do not vary much by background characteristics: the proportion of mothers who received antenatal care is greater than 90 percent for all variables. There is no difference by urban-rural residence (96 percent for both), and the data by province are similar with the proportion of women who received antenatal care ranging from 95 percent in the South and East provinces to 97 percent in the West and North provinces. The results according to the age of the mother at the child's birth do not show any major differences, however a smaller proportion of women under age 20 received antenatal care (94 percent). There are no substantial differences by birth order. The largest differentials in antenatal care are found by mother's level of education (although the proportions are high for all levels). Antenatal care coverage ranges from 94 percent among women who have never gone to school to 99 percent among those with the most education (Table 7.1). Finally, the proportion of women who received antenatal care is not affected by household wealth status (wealth index).

Differentials are seen in the health personnel consulted for antenatal care. The proportion of women who received antenatal care from a doctor is higher in urban areas than in rural areas (8 and 3 percent, respectively), higher in the City of Kigali, compared to the other provinces (10 percent, compared with 2 and 3 percent), and higher among women with secondary education or higher (14 percent, compared with 2 percent among women with no education and 3 percent among women with primary education). Likewise, women who live in households in the highest (richest) wealth quintile are more likely to visit a doctor for ANC consultations than women in households in the lower wealth quintiles (9 percent, compared with 2 percent for women in the lowest [poorest] quintile and 3 percent for women in the middle quintile).

Table 7.1 Antenatal care

Percent distribution of women age 15-49 who had a live birth in the five years preceding the survey by antenatal care (ANC) provider during 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, Rwanda 2007-08

Background characteristic	Doctor	Nurse/ midwife	Traditional birth attendant	Other	No one	Missing	Total	Percentage receiving antenatal care from a skilled provider[1]	Number of women
Mother's age at birth									
<20	3.1	90.5	0.9	0.0	4.8	0.8	100.0	93.6	174
20-34	3.5	92.7	0.4	0.1	2.3	1.1	100.0	96.2	2,625
35-49	2.9	92.1	0.2	0.0	3.6	1.2	100.0	95.0	859
Birth order									
1	4.3	93.0	0.5	0.0	1.3	1.0	100.0	97.2	690
2-3	3.2	92.7	0.4	0.0	3.2	0.5	100.0	95.9	1,240
4-5	4.0	91.9	0.3	0.2	2.0	1.6	100.0	95.9	878
6+	2.2	92.1	0.3	0.0	3.9	1.4	100.0	94.3	850
Residence									
Urban	7.7	88.2	0.5	0.0	3.5	0.1	100.0	95.9	544
Rural	2.6	93.2	0.4	0.0	2.6	1.3	100.0	95.8	3,114
Province									
Kigali city	10.1	85.7	0.0	0.0	4.2	0.0	100.0	95.8	287
South	2.7	92.6	0.6	0.0	3.0	1.1	100.0	95.3	930
West	2.0	94.6	0.1	0.1	2.3	0.9	100.0	96.6	913
North	3.4	93.1	0.0	0.0	2.0	1.4	100.0	96.6	641
East	3.2	91.8	0.8	0.0	2.9	1.4	100.0	95.0	888
Mother's education									
No education	2.2	91.6	0.4	0.0	4.5	1.3	100.0	93.8	923
Primary	2.5	93.7	0.4	0.1	2.2	1.1	100.0	96.2	2,452
Secondary or higher	14.3	84.6	0.0	0.0	1.1	0.0	100.0	98.8	282
Wealth quintile									
Lowest	2.1	92.0	0.4	0.0	4.5	1.0	100.0	94.1	572
Second	1.9	92.8	0.4	0.1	3.1	1.7	100.0	94.7	1,034
Middle	3.0	94.1	0.3	0.0	1.7	0.9	100.0	97.2	705
Fourth	2.0	94.0	0.6	0.0	2.0	1.3	100.0	96.0	708
Highest	8.8	88.6	0.1	0.0	2.4	0.1	100.0	97.3	639
Total	3.4	92.4	0.4	0.0	2.7	1.1	100.0	95.8	3,658

Note: If more than one source of ANC was mentioned, only the provider with the highest qualifications was used in this tabulation.
[1] Skilled provider includes doctor, nurse and midwife.

To be effective, antenatal care must be sought early in pregnancy and, more importantly, must continue regularly through delivery. The World Health Organization (WHO) recommends at least four ANC visits at regular intervals throughout the pregnancy. Table 7.2 shows the number of ANC visits and the timing of the first visit. Slightly less than one in four women (24 percent) had the four recommended visits. Two-thirds of the women had 2 or 3 ANC visits (66 percent), and 6 percent had a single visit.

Table 7.2 Number of antenatal care visits and timing of first visit

Percent distribution of women age 15-49 who had a live birth in the five years preceding the survey by number of antenatal care (ANC) visits for the most recent live birth, and by the timing of the first visit, and among women with ANC, median months pregnant at first visit, according to residence, Rwanda 2007-08

Number and timing of ANC visits	Residence		
	Urban	Rural	Total
Number of ANC visits			
None	3.5	2.6	2.7
1	6.0	5.8	5.9
2-3	63.2	66.5	66.0
4+	26.4	23.5	23.9
Don't know/missing	0.8	1.7	1.5
Total	100.0	100.0	100.0
Number of months pregnant at time of first ANC visit			
No antenatal care	3.5	2.6	2.7
<4	26.2	21.3	22.0
4-5	36.7	37.2	37.1
6-7	30.0	33.3	32.8
8+	2.7	3.6	3.4
Don't know/missing	0.8	2.1	1.9
Total	100.0	100.0	100.0
Number of women	544	3,114	3,658
Median months pregnant at first visit (for those with ANC)	5.0	5.4	5.4
Number of women with ANC	525	2,994	3,519

With regard to the stage of pregnancy when the first ANC visit took place; 22 percent of respondents had their first visit when they were less than four months pregnant. In 37 percent of cases, the first antenatal visit took place between 4 and 5 months of pregnancy and 33 percent of first visits occurred relatively late, between 6 and 7 months of pregnancy. Only 3 percent of women waited until the final stage of pregnancy to have their first ANC visit. The median number of months of pregnancy at the first ANC visit is 5.4 months; the median in urban areas is 5.0 months while in rural areas—where women tend to have their first antenatal care consultation later than women in urban areas—it is 5.4 months. The lateness of the first ANC visit can be explained by a Rwandan tradition whereby women do not speak of their pregnancy until it is visible. Current policy in Rwanda encourages women to go for an antenatal consultation, which allows them to benefit from the distribution of bednets and to receive a tetanus vaccination.

7.1.1 Components of ANC

The effectiveness of antenatal care depends not only on the type of examinations performed during the ANC visit, but also on the counseling and preventive measures provided to avoid miscarriage and other pregnancy complications. The 2007-08 RIDHS collected data on this important aspect of prenatal monitoring by asking women if, during their ANC visits for the most recent birth: they were told about the danger signs of pregnancy complications, they received specific medical examinations (weight, height, and blood pressure measurements), and they were given blood and urine tests. Women were also asked if they had received iron supplements, medications for intestinal parasites, and antimalarial drugs. The results are presented in Table 7.3 by background characteristics.

Only 8 percent of women were informed of the signs of pregnancy complications, with little variation by background characteristics. The proportion of women who received this information was slightly higher among women age 35-49 (11 percent), among those with birth order 6 or above (11 percent), and among those who have secondary education or more (10 percent).

During the ANC visit, other services (measurements and tests) were carried out by health care professionals (Table 7.3). The most commonly reported ANC services were: weight measurement (98 percent), blood pressure measurement (87 percent), and blood sample taken (71 percent). Eighteen percent of women seeking ANC services had a urine sample taken. Results by mother's background characteristics show that overall, women in rural areas, those who have never been to school, and women

in the poorest households are the least likely to receive these basic components as part of their ANC visits.

Four in ten women (41 percent) took iron supplements during pregnancy, whether in pill form or a syrup; 54 percent received antimalarial medication to protect against malaria during pregnancy, and about two in ten (18 percent) were given medication for intestinal parasites.

Table 7.3 Components of antenatal care

Among women age 15-49 with a live birth in the five years preceding the survey, the percentage who received iron tablets or syrup, drugs for intestinal parasites, and antimalarial drugs during the pregnancy for the most recent birth, and among women who received antenatal care (ANC) for the most recent live birth in the five years preceding the survey, the percentage receiving specific antenatal services, according to background characteristics, Rwanda 2007-08

Background characteristic	Among women with a live birth in the past five years, the percentage who during the pregnancy for their last birth received:			Number of women with a live birth in the past five years	Among women who received antenatal care for their most recent birth in the past five years, the percentage who received specific services					Number of women with ANC for their most recent birth
	Iron tablets or syrup	Intestinal parasite drugs	Anti-malarial drugs		Informed of signs of pregnancy complications	Weighed	Blood pressure measured	Urine sample taken	Blood sample taken	
Mother's age at birth										
<20	39.7	18.4	56.4	174	7.8	97.1	84.2	17.7	75.6	164
20-34	40.4	19.1	52.1	2,625	6.8	97.5	87.5	18.5	72.3	2,537
35-49	43.1	14.1	61.0	859	10.5	97.4	85.8	16.3	65.2	818
Birth order										
1	42.9	21.5	48.1	690	6.1	97.2	85.5	23.7	78.5	674
2-3	41.6	18.3	54.3	1,240	7.0	97.2	87.3	18.0	72.8	1,194
4-5	40.4	17.0	55.9	878	7.2	97.9	88.6	17.0	67.8	846
6+	39.3	15.2	58.0	850	10.7	97.9	85.7	14.1	64.6	805
Residence										
Urban	42.9	20.0	54.9	544	7.9	98.2	94.3	34.4	84.8	525
Rural	40.7	17.5	54.3	3,114	7.7	97.4	85.6	15.1	68.4	2,994
Province										
Kigali city	42.3	18.9	56.9	287	8.7	96.9	93.0	44.5	84.5	275
South	42.0	16.4	55.4	930	8.1	97.2	88.6	16.4	68.1	892
West	53.2	23.1	52.5	913	6.9	98.2	88.1	16.3	77.5	884
North	33.6	15.6	58.3	641	7.0	98.0	86.9	17.1	60.5	619
East	32.4	15.4	51.6	888	8.3	96.9	82.0	13.5	69.8	850
Mother's education										
No education	39.0	15.8	59.8	923	7.5	97.3	85.2	13.5	66.6	869
Primary	40.5	18.3	53.1	2,452	7.6	97.4	86.5	17.0	70.5	2,370
Secondary or higher	52.5	20.9	47.6	282	9.5	98.5	95.8	40.1	86.9	279
Wealth quintile										
Lowest	39.7	16.0	55.9	572	7.9	96.3	83.1	16.3	66.8	541
Second	37.0	14.7	56.8	1,034	7.9	98.0	84.6	14.0	66.3	984
Middle	43.2	17.1	55.6	705	7.8	98.0	88.5	17.1	73.5	687
Fourth	43.2	22.6	47.8	708	7.2	97.7	87.3	15.4	69.7	684
Highest	43.8	20.4	54.9	639	7.6	96.9	91.7	29.5	79.7	623
Total	41.0	17.9	54.4	3,658	7.7	97.5	86.9	18.0	70.8	3,519

Vitamin A deficiency among pregnant women must be addressed to prevent night blindness. Night blindness is often caused by a lack of vitamin A. The condition can occur as a result of a lack of variety in foods and insufficient consumption of foods rich in vitamin A. Vitamin A deficiency has a negative impact on women's health.

In the RIDHS, women were asked whether they had experienced night blindness during their pregnancy (i.e., difficulty seeing at nightfall or during the night). Table 7.4 indicates that nearly 6 percent of women who gave birth in past five years reported experiencing problems seeing at nightfall during their pregnancies. At the same time, some of these women reported that they also had difficulty seeing during the day. It is likely that these women have sight problems, but not necessarily night blindness. Thus, an "adjusted" prevalence for night blindness was calculated by removing women who reported having daytime sight problems from the "reported" night blindness total. The adjusted prevalence of night blindness is 3 percent.

There are small differential in the prevalence of night blindness by background characteristics. The condition is less common among younger women (2 percent among women age 15-19) than older women (4 percent among women age 45-49). Night blindness is more common in rural areas (3 percent) than in urban areas (1 percent). By province, the proportion of women with this condition is slightly higher in the South, North, and East provinces (3 percent each) than in the City of Kigali (1 percent) or the West province (2 percent). The proportion of women with night blindness is two times higher among those in the lowest (poorest) wealth quintile (4 percent) than among those in the highest (richest) wealth quintile (2 percent). With regard to education, women who have never gone to school have the highest proportion of night blindness (4 percent, compared with 2 percent for women with education).

Table 7.4 Micronutrient intake among mothers

Among women who had a birth in the five years preceding the survey, percentage who experienced night blindness during pregnancy (reported and adjusted), percentage who (for last birth) took iron tablets or syrup for specific numbers of days, and percentage who (for last birth) took deworming medication, by background characteristics, Rwanda 2007-08

Background characteristic	Percentage of women who experienced night blindness		Number of days women took iron tablets or syrup during pregnancy for last birth					Percentage of women who took deworming medication during pregnancy for last birth	Number of women
	Reported prevalence	Adjusted prevalence	None	<60	60-89	90+	Don't know/ missing		
Age									
15-19	3.0	1.9	54.9	42.3	0.0	0.0	2.9	23.9	62
20-29	3.9	1.9	57.8	34.9	0.2	0.0	7.0	19.7	1,743
30-39	6.8	3.1	56.1	36.0	0.5	0.1	7.4	18.0	1,314
40-49	10.7	4.3	56.3	35.5	0.0	0.2	8.0	10.9	540
Residence									
Urban	3.2	1.2	56.2	36.5	1.0	0.3	5.9	20.0	544
Rural	6.4	2.9	57.0	35.3	0.2	0.0	7.4	17.5	3,114
Province									
Kigali city	2.1	1.4	56.0	35.1	1.4	0.5	6.9	18.9	287
South	7.7	3.3	56.5	37.2	0.3	0.1	5.9	16.4	930
West	4.9	1.7	44.7	48.2	0.1	0.0	6.9	23.1	913
North	6.6	2.9	63.8	26.9	0.4	0.0	8.8	15.6	641
East	5.9	3.3	65.2	27.1	0.0	0.0	7.7	15.4	888
Education									
No education	7.9	4.1	58.6	34.3	0.3	0.0	6.8	15.8	923
Primary	5.5	2.2	57.4	35.2	0.3	0.0	7.1	18.3	2,452
Secondary or higher	3.3	2.3	46.9	42.4	0.4	0.7	9.6	20.9	282
Wealth quintile									
Lowest	8.9	4.3	58.6	34.1	0.3	0.0	7.0	16.0	572
Second	5.6	2.8	60.0	32.2	0.1	0.0	7.7	14.7	1,034
Middle	6.1	1.7	55.1	37.5	0.6	0.0	6.9	17.1	705
Fourth	5.9	3.3	54.6	38.1	0.2	0.0	7.1	22.6	708
Highest	3.6	1.5	55.0	37.1	0.5	0.4	7.1	20.4	639
Total	5.9	2.7	56.9	35.5	0.3	0.1	7.2	17.9	3,658

Table 7.4 shows the proportion of women who took iron pills or syrup during pregnancy. Overall, about six in ten women (57 percent) reported that they had not taken any iron supplements during their last pregnancy in the past five years; 36 percent of the women took the supplements for less than 60 days, and less than 1 percent of the women took the supplements for 60 or more days. Nearly two-thirds of women in the East and North provinces (64 percent and 65 percent, respectively) did not receive iron supplements, while in the West province, 48 percent of women took the supplements for at least 60 days.

Table 7.4 also shows that 18 percent of women said they had taken deworming medication during the last pregnancy. Use of deworming treatment is higher among younger women than older women: 24 percent among women age 15-19, compared with 11 percent among women age 40-49. The proportion of women who took deworming during pregnancy is highest among those in urban areas (20 percent), those in the City of Kigali (19 percent) and the West province (23 percent), among women who have at least a secondary education (21 percent), and among women in the two highest (richest) wealth quintiles (23 percent for the fourth quintile and 20 percent for the highest quintile).

7.1.2 Tetanus Vaccinations

Neonatal tetanus is a major cause of death among newborns in most developing countries. Tetanus toxoid (TT) injections given to mothers during pregnancy protect both the mother and child against this disease. To be fully protected, a pregnant woman should receive two doses of the vaccine during her pregnancy; however, if she has already been vaccinated, for example during a previous pregnancy, one more dose is sufficient. It is important to note that the information presented here does not take into account the woman's "vaccination history"; some women may have received the vaccine prior to the period under consideration. If the TT vaccination was received within the past 10 years, the woman will retain some immunity.

Table 7.5 shows that while only 31 percent of women with a live birth in the five years preceding the survey received at least two doses of tetanus toxoid vaccine for their most recent pregnancy, 72 percent of mothers were fully protected against neonatal tetanus because of immunity accumulated from past tetanus toxoid immunizations. Some differentials by background characteristics are large. Mother's age is an important factor in tetanus coverage: the proportion of women completely protected against neonatal tetanus increases from 49 percent among women under age 20, to 69 percent among women age 35-49. Similarly, intermediate order births are better protected than first births or higher order births: 81 percent coverage for birth orders 2-3, and 78 percent coverage for birth orders 4-5, compared with 54 percent for first births and 70 percent for birth orders 6 and above.

Differences in TT coverage by rural-urban residence are not large: 71 percent of mothers in rural areas, compared with 73 percent in urban areas. Differences are more marked among provinces. The proportion of women who are completely vaccinated against neonatal tetanus is lowest in the City of Kigali (67 percent) and highest in the West province (78 percent). Other results presented in Table 7.5 show slight variations in TT coverage by level of education: 77 percent of women who have secondary education are completely protected against neonatal tetanus, compared with 72 percent of both those who have never been to school and those who have gone to primary school. The differences by wealth quintile show no major variations with respect to vaccination coverage. The lowest proportions of women who are completely protected against neonatal tetanus are in the lowest (poorest) wealth quintile and the highest (richest) wealth quintile (69 percent each). In the intermediate quintiles the TT coverage is between 73 and 75 percent.

Table 7.5 Tetanus toxoid injections

Among mothers age 15-49 with a live birth in the five years preceding the survey, the percentage receiving two or more tetanus toxoid injections (TTI) during the pregnancy for the last live birth and the percentage whose last live birth was protected against neonatal tetanus, according to background characteristics, Rwanda 2007-08

Background characteristic	Percentage who received two or more injections during last pregnancy	Percentage whose last birth was protected against neonatal tetanus[1]	Number of mothers
Mother's age at birth			
<20	36.4	48.7	174
20-34	35.6	75.0	2,625
35-49	14.8	69.4	859
Birth order			
1	52.4	53.9	690
2-3	36.9	80.6	1,240
4-5	23.3	78.1	878
6+	11.7	69.7	850
Residence			
Urban	31.5	70.5	544
Rural	30.6	72.8	3,114
Province			
Kigali city	32.2	67.3	287
South	33.1	70.0	930
West	25.6	77.6	913
North	33.1	71.4	641
East	31.3	72.2	888
Mother's education			
No education	27.3	71.9	923
Primary	31.3	72.1	2,452
Secondary or higher	36.9	77.2	282
Wealth quintile			
Lowest	29.6	68.6	572
Second	30.6	73.4	1,034
Middle	29.4	75.2	705
Fourth	32.0	74.3	708
Highest	31.8	69.2	639
Total	30.7	72.4	3,658

[1] Includes mothers with two injections during the pregnancy for her last birth, or two or more injections (the last within 3 years of the last live birth), or three or more injections (the last within 5 years of the last birth), or four or more injections (the last within ten years of the last live birth), or five or more injections prior to the last birth.

7.2 DELIVERY CARE

7.2.1 Place of Delivery

Table 7.6 shows that 49 percent of the births in the five years preceding the survey took place at home and 45 percent were delivered at a health facility, mainly one in the public sector. However, among some groups of women, the proportion giving birth at home is higher than the national average. In rural areas the proportion is 52 percent, compared with 33 percent in urban areas. Among women who have never attended school, 61 percent give birth at home. The incidence of home births is highest among women who received no antenatal care (88 percent) and among women in households in the three lowest (poorest) wealth quintiles (more than 52 percent). However, in the capital, more than three in ten women

give birth at home (35 percent). In urban areas, about seven in ten births take place in a health facility (65 percent).

Similar results are seen for births among women who have secondary education or higher (74 percent in a public facility and 5 percent are in a private facility), and births among women in the highest (richest) wealth quintile (62 percent in the public sector and 4 percent in the private sector). The place of delivery varies considerably by age of the mother. The incidence of home births increases with the mother's age: 35 percent among women under the age of 20, 48 percent among those age 20-34, and 59 percent among women age 35-49. Child's birth order is also related to the place of delivery. Sixty-six percent of first births take place in a public sector health facility, compared with 44 percent for birth orders 2-3, and 34 percent for orders 6 or more.

Table 7.6 Place of delivery

Percent distribution of live births in the five years preceding the survey by place of delivery, and percentage delivered in a health facility, according to background characteristics, Rwanda 2007-08

Background characteristic	Health facility		Home	Other	Missing	Total	Percentage delivered in a health facility	Number of births
	Public sector	Private sector						
Mother's age at birth								
<20	58.8	1.2	35.2	0.5	4.3	100.0	60.0	314
20-34	45.6	0.9	47.7	1.7	4.1	100.0	46.5	4,214
35-49	35.4	0.8	58.9	1.6	3.3	100.0	36.2	1,129
Birth order								
1	66.0	1.2	26.6	1.2	5.0	100.0	67.2	1,203
2-3	44.1	1.0	49.5	2.0	3.4	100.0	45.1	1,957
4-5	34.2	0.8	59.3	1.5	4.1	100.0	35.0	1,339
6+	33.9	0.5	60.6	1.6	3.4	100.0	34.4	1,157
Residence								
Urban	60.9	3.5	32.8	0.8	1.9	100.0	64.5	804
Rural	41.6	0.4	52.0	1.8	4.3	100.0	42.0	4,852
Province								
Kigali city	55.2	5.6	35.4	0.4	3.5	100.0	60.8	425
South	40.9	0.6	53.3	1.7	3.6	100.0	41.4	1,442
West	47.3	0.5	47.8	1.2	3.2	100.0	47.8	1,408
North	43.7	0.6	48.5	2.9	4.4	100.0	44.3	991
East	42.1	0.4	51.2	1.4	4.9	100.0	42.5	1,390
Mother's education								
No education	31.3	0.3	61.3	1.6	5.6	100.0	31.6	1,453
Primary	46.1	0.6	48.0	1.7	3.5	100.0	46.7	3,793
Secondary or higher	73.9	5.3	18.3	0.9	1.6	100.0	79.2	410
Antenatal care visits								
None	8.6	0.0	88.0	2.7	0.7	100.0	8.6	99
1-3	45.8	1.0	51.2	1.6	0.4	100.0	46.8	2,628
4+	63.8	0.9	32.5	2.3	0.5	100.0	64.7	875
Don't know/missing	17.2	0.0	19.0	0.0	63.8	100.0	17.2	56
Wealth quintile								
Lowest	36.3	0.1	57.8	2.3	3.5	100.0	36.4	851
Second	37.8	0.6	55.1	1.2	5.2	100.0	38.4	1,634
Middle	42.9	0.4	51.7	1.8	3.3	100.0	43.2	1,112
Fourth	46.5	0.2	47.3	1.9	4.1	100.0	46.7	1,106
Highest	61.8	3.5	30.9	1.2	2.6	100.0	65.3	954
Total[1]	44.3	0.9	49.2	1.6	3.9	100.0	45.2	5,656

[1] Includes only the most recent birth in the five years preceding the survey

7.2.2 Assistance during Delivery

Analysis of data in Table 7.7 shows that 52 percent of births in the five years preceding the survey were assisted by trained personnel (mainly midwives, nurses, and nurse's aides); doctors assisted in 6 percent of deliveries. Two percent of deliveries were assisted by traditional birth attendants; relatives provided childbirth assistance in 30 percent of deliveries; and in 12 percent of deliveries, women received no assistance.

Table 7.7 Assistance during delivery

Percent distribution of live births in the five years preceding the survey by person providing assistance during delivery, percentage of births assisted by a skilled provider, according to background characteristics, Rwanda 2007-08

	Person providing assistance during delivery									
Background characteristic	Doctor	Nurse/ midwife	Auxiliary nurse/ midwife	Traditional birth attendant	Relative/ other	No one	Don't know/ missing	Total	Percentage delivered by a skilled provider[1]	Number of births
Mother's age at birth										
<20	7.9	51.9	7.5	1.1	22.5	5.5	3.7	100.0	67.3	314
20-34	5.9	41.0	6.3	1.7	29.9	11.1	4.1	100.0	53.3	4,214
35-49	4.6	32.6	6.2	1.0	34.4	18.1	3.0	100.0	43.4	1,129
Birth order										
1	10.0	57.7	6.1	1.3	16.1	4.3	4.5	100.0	73.8	1,203
2-3	5.8	39.7	6.5	1.8	32.2	10.5	3.5	100.0	52.0	1,957
4-5	3.5	32.2	7.1	1.7	33.9	17.4	4.3	100.0	42.7	1,339
6+	3.9	30.9	5.7	1.1	38.2	17.0	3.2	100.0	40.5	1,157
Place of delivery										
Health facility	12.5	86.7	0.1	0.0	0.3	0.0	0.3	100.0	99.4	2,557
Elsewhere	0.1	0.9	12.4	3.0	59.3	23.9	0.4	100.0	13.4	2,877
Missing	1.1	6.4	0.0	0.0	2.7	0.0	89.8	100.0	7.5	222
Residence										
Urban	14.4	51.0	4.3	1.7	20.4	6.7	1.4	100.0	69.8	804
Rural	4.3	38.1	6.7	1.5	32.1	13.1	4.2	100.0	49.1	4,852
Province										
Kigali	16.1	46.2	3.2	2.3	22.3	6.9	3.0	100.0	65.5	425
South	5.1	36.8	8.8	1.7	32.1	12.0	3.5	100.0	50.7	1,442
West	4.1	44.1	3.7	0.5	33.4	11.2	3.0	100.0	51.9	1,408
North	5.2	39.4	3.1	1.0	29.1	17.5	4.7	100.0	47.7	991
East	5.4	37.5	9.9	2.5	29.0	11.2	4.7	100.0	52.7	1,390
Mother's education										
No education	2.5	29.4	7.1	2.0	36.4	17.2	5.4	100.0	39.0	1,453
Primary	5.5	41.9	6.5	1.4	30.2	11.0	3.5	100.0	53.9	3,793
Secondary or higher	20.0	59.4	2.6	1.1	11.0	4.5	1.5	100.0	82.0	410
Wealth quintile										
Lowest	2.9	33.9	5.9	1.4	38.0	14.4	3.6	100.0	42.7	851
Second	4.0	34.8	7.0	1.4	34.2	13.4	5.1	100.0	45.8	1,634
Middle	4.1	39.5	7.2	1.4	31.7	12.8	3.3	100.0	50.7	1,112
Fourth	4.9	42.5	6.5	2.5	25.5	14.6	3.6	100.0	53.9	1,106
Highest	14.3	51.7	4.6	0.8	21.3	4.5	2.8	100.0	70.6	954
Total	5.8	39.9	6.4	1.5	30.4	12.2	3.8	100.0	52.1	5,656

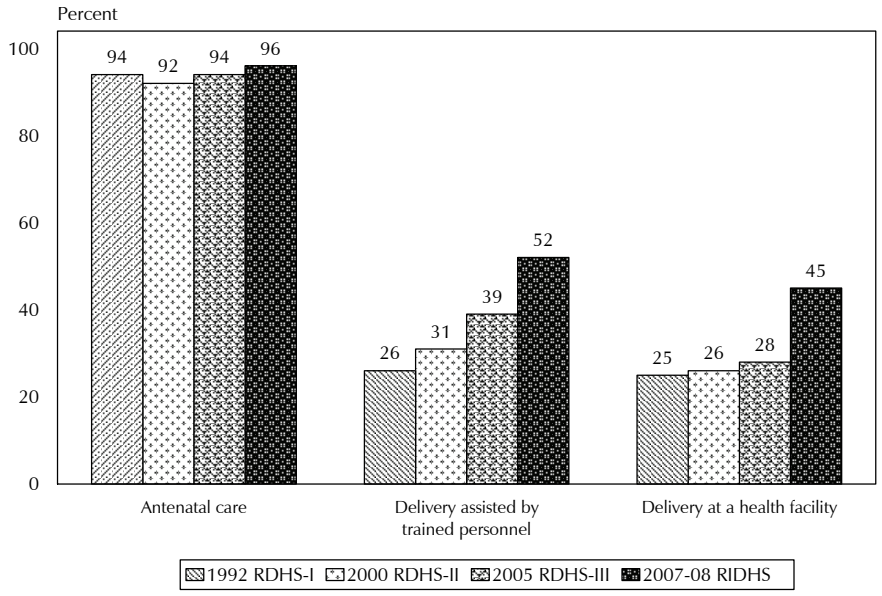
Note: If the respondent mentioned more than one person attending during delivery, only the most qualified person was included in this tabulation.
[1] Skilled provider includes doctor, nurse, midwife, and auxiliary nurse/midwife.

Births assisted by trained personnel show substantial differences by background characteristics. The proportion of women who received assistance at delivery from a skilled provider is highest among women under age 20 (67 percent) and lowest among women age 35-49 (43 percent); the proportion of women who received assistance from a skilled provider declines as birth order increases, from 74 percent among first births to 41 percent among birth orders six or more. The results by place of delivery show, as expected, that almost all births that take place in a health facility are assisted by trained personnel (99 percent). Births among urban women (70 percent) and those in the City of Kigali (66 percent) are more likely to be assisted by trained personnel than those in rural areas and the other provinces. Finally, a woman's level of education and her household wealth status are important variables regarding assistance at delivery: women with at least a secondary education are more than twice as likely to be assisted at delivery by a skilled provider as women with no education (82 and 39 percent, respectively); likewise, 71 percent of women in the highest (richest) wealth quintile received assistance from trained personnel—14 percent were assisted by a doctor—compared with 43 percent of those in the lowest (poorest) wealth quintile.

Trends

Figure 7.1 shows changes in antenatal care and delivery care in Rwanda based on the results of the four DHS surveys between 1992 and 2007-08. Since 1992, nearly all women have received antenatal care: 94 percent in 1992, 92 percent in 2000, 94 percent in 2005, and 96 percent in the 2007-08 RIDHS survey. Childbirth conditions have improved noticeably: the proportion of women assisted at delivery by trained health personnel has increased from 26 percent in 1992, to 31 percent in 2000, then to 39 percent in 2005, and reaching 52 percent in 2007-08. Regarding delivery in a health facility, there were small improvements between 1992 and 2005, when the proportion of women giving birth in a health facility rose from 25 to 28 percent, then between 2005 and 2007-2008 the proportion increased dramatically from 28 to 45 percent.

Figure 7.1 **Trends in Antenatal Care and Delivery, Rwanda 1992, 2000, 2005, and 2007-08**



7.3 VACCINATION OF CHILDREN

To assess Rwanda's Expanded Program on Immunization (EPI), the 2007-08 RIDHS gathered information on vaccination coverage for all children born in the five years preceding the survey. According to the World Health Organization's (WHO) guidelines, a child is completely vaccinated when he or she has received a BCG vaccination (against tuberculosis), a measles vaccination, and three doses each of polio vaccine and DPT (against diphtheria, pertussis, and tetanus). WHO recommends that all these vaccinations be given before age one year.

Information on childhood vaccinations was obtained from two sources: the child's vaccination card and the mother's reports when the card was not available or there was no card. Table 7.8 presents the results on vaccination coverage by source of information for children age 12 to 23 months, thereby including only children who had reached the age by which they should be fully immunized, according to the recommended schedule. The data from the two sources of information indicate that four in five children (80 percent) age 12 to 23 months are fully immunized.

Table 7.8 Vaccinations by source of information

Percentage of children age 12-23 months who received specific vaccines at any time before the survey, by source of information (vaccination card or mother's report), and percentage vaccinated by 12 months of age, Rwanda 2007-08

		DPT or Pentavalent			Polio					All basic vacci-	No vacci-	Number of
Source of information	BCG	1	2	3	0[1]	1	2	3	Measles	nations[2]	nation	children
Vaccinated at any time before survey												
Vaccination card	66.8	66.8	66.4	66.1	62.8	66.9	66.3	65.8	64.1	63.5	0.0	821
Mother's report	28.7	28.1	26.2	23.7	22.4	28.7	26.6	19.7	26.3	16.9	3.8	405
Either source	95.5	94.8	92.6	89.8	85.2	95.6	92.9	85.5	90.4	80.4	3.8	1,226
Vaccinated by 12 months of age	95.2	94.3	91.9	88.5	84.9	94.9	92.2	84.5	82.9	73.8	4.2	1,226

Note: For children whose information was based on the mother's report, the proportion of vaccinations given during the first year of life was assumed to be the same as for children with a written record of vaccination.
[1] Polio 0 is the polio vaccination given at birth.
[2] BCG, measles and three doses each of DPT and polio vaccine (excluding polio vaccine given at birth)

When information from both sources is considered, the percentage of children age 12-23 months who received BCG (normally given at birth) was 96 percent, with 95 percent having received the vaccine before the age of 12 months. For DPT, more than nine in ten children (95 percent) received the first dose, but coverage drops with successive doses, to 93 percent for the second dose, and to 90 percent for the third dose. For this vaccine, then, the dropout rate of loss between the first and second dose is 2 percent and the dropout rate between the first and third dose is 5 percent.

Similar declines in coverage by dose are seen for polio vaccine: 96 percent received the first dose of polio vaccine, but coverage drops to 93 percent for the second dose, and to 86 percent for the third dose. The dropout rate of loss between the first and third dose of polio vaccine is about 10 percent. An additional 85 percent of children were given polio 0 at birth.

Ninety percent of children age 12-23 months received the measles vaccination; however, only 83 percent received it before the age of 12 months. Of the children who were fully immunized, 74 percent received all their vaccinations before their first birthday (according to the recommended schedule). Only 4 percent of children age 12-23 months had not received any of the EPI vaccinations before the age of 12 months.

Trends

One way of evaluating the changes that have occurred in vaccination coverage is to compare results from the current survey with those from the two most recent surveys. Results from the 2005 survey did not show any substantial changes in vaccination coverage when compared with the 2000 survey. The proportion of children fully immunized against the EPI target diseases was 76 percent in 2000 and 75 percent in 2005. Vaccination coverage of Rwandan children has, nevertheless, generally improved since 2000, with the proportion fully immunized rising from 76 to 80 percent currently. However, comparison of results from the current 2007-08 survey results with those from the initial survey in 1992 does not show an improvement in vaccination coverage. In fact, in 1992, 87 percent of children were reported as fully immunized. Vaccination coverage, therefore, has still not risen to the level prevailing in 1992. The proportion of children who have never been immunized has essentially remained stable at around 4 percent since 1992.

7.3.1 Vaccination Coverage by Type of Vaccine (Children Age 12-23 Months)

Table 7.9 shows vaccination coverage among children age 12-23 months by background characteristics of the mother and child. There is almost no difference in coverage by sex (80 percent for boys and 81 percent for girls). By birth order, the results indicate that vaccination coverage for first births and for birth orders six and above is slightly higher than coverage for birth orders 2-3 and 4-5.

There is almost no difference in coverage by urban-rural residence (81 percent in urban areas and 80 percent in rural areas). There are some differentials in the proportion fully immunized by province, with the highest coverage in the West and North provinces (85 percent for both). By comparison, coverage is 77 percent in the South and East provinces and 78 percent in the City of Kigali.

Mother's level of education is closely related to vaccination coverage. The proportion of children who are fully immunized ranges from 77 percent among children whose mothers have never gone to school, to 81 percent among children whose mothers have primary education, to 84 percent among children whose mothers have secondary education or higher. No trends were identified by household wealth status: there is almost no variation in immunization coverage between children in households in the lowest (poorest) wealth quintile (82 percent) and children in households in the highest (richest) wealth quintile (83 percent), although the proportion of children fully vaccinated is lowest in the middle wealth quintile (78 percent). The proportion of children who have not received any vaccinations is highest in the two lowest (poorest) wealth quintiles (5 percent for each), while in the three highest (richest) wealth quintiles, only 3 percent of children have not received any vaccinations.

Table 7.9 Vaccinations by background characteristics

Percentage of children age 12-23 months who received specific vaccines at any time before the survey (according to a vaccination card or the mother's report), and percentage with a vaccination card, by background characteristics, Rwanda 2007-08

Background characteristic	BCG	DPT or Pentavalent			Polio				Measles	All basic vaccinations[2]	No vaccination	Percentage with a vaccination card seen	Number of children
		1	2	3	0	1	2	3					
Sex													
Male	95.9	95.3	93.1	90.1	84.6	95.6	93.7	86.2	90.1	80.2	3.9	65.4	613
Female	95.1	94.4	92.1	89.5	85.8	95.5	92.1	84.8	90.7	80.6	3.7	68.6	613
Birth order													
1	96.8	96.1	93.3	89.5	87.2	96.8	92.9	85.7	92.7	82.6	3.2	66.6	240
2-3	94.1	93.9	91.2	87.8	83.9	93.9	91.7	85.4	89.5	79.0	5.0	64.4	447
4-5	96.1	96.2	95.0	92.7	86.3	96.4	94.7	86.8	88.3	79.3	2.9	69.4	283
6+	96.0	93.7	91.8	90.3	84.4	96.5	92.9	84.1	92.2	82.0	3.3	69.1	256
Residence													
Urban	98.4	96.7	95.1	91.7	91.2	98.3	95.6	87.2	91.8	80.5	1.3	63.5	168
Rural	95.0	94.5	92.2	89.5	84.3	95.1	92.5	85.3	90.2	80.4	4.2	67.5	1,058
Province													
Kigali city	94.6	93.9	90.3	85.6	89.3	96.3	91.6	84.2	90.8	77.8	2.5	64.8	95
South	94.7	94.2	91.4	87.5	83.9	94.7	90.9	83.5	87.7	77.1	5.3	67.5	322
West	97.2	97.1	95.0	93.9	90.4	96.8	94.4	87.7	92.4	85.3	2.8	73.4	318
North	94.1	92.2	91.4	91.0	87.8	94.0	93.3	88.6	92.9	84.5	3.9	69.3	204
East	95.8	95.2	93.1	88.2	77.6	96.1	93.5	83.6	89.2	76.7	3.6	58.3	287
Mother's education													
No education	95.6	93.6	91.0	88.2	86.6	95.1	90.9	82.1	86.1	77.0	4.0	71.1	303
Primary	95.1	94.8	92.6	89.8	84.3	95.4	93.1	86.4	91.4	81.3	4.0	65.3	825
Secondary or higher	98.7	98.7	97.6	94.9	88.4	98.7	97.0	88.8	95.3	84.0	1.3	68.7	98
Wealth quintile													
Lowest	94.9	93.6	92.9	90.7	86.7	94.9	92.8	86.2	89.4	81.5	5.1	66.4	199
Second	94.1	94.4	92.1	88.7	84.8	94.7	90.7	83.5	88.2	79.0	5.1	67.6	323
Middle	97.3	95.4	93.9	90.9	87.2	96.9	93.2	84.2	90.2	78.2	2.7	70.2	254
Fourth	94.8	94.1	91.9	89.7	82.9	94.6	93.7	85.5	92.8	81.2	2.9	67.1	245
Highest	96.9	96.9	92.5	89.3	84.8	97.2	95.0	89.9	92.3	83.4	2.8	62.3	204
Total	95.5	94.8	92.6	89.8	85.2	95.6	92.9	85.5	90.4	80.4	3.8	67.0	1,226

[1] Polio 0 is the polio vaccination given at birth.
[2] BCG, measles and three doses each of DPT and polio vaccine (excluding polio vaccine given at birth)

Data on childhood vaccinations were collected for all children under age five. Trends in vaccination coverage can be evaluated retrospectively before the age of 12 months for the four years preceding the survey, beginning with data for children ages 12-23, 24-35, 36-47 and 48-59 months. Table 7.10 presents the vaccination coverage rates as seen on the vaccination card or as reported by the mothers for children in these age groups. The proportion of children in each age group who had a vaccination card that was seen by the interviewer is also shown.

Vaccination cards were seen by interviewers for 56 percent of all children age 1-4 years. The highest proportion of children with vaccination cards is in age group 12-23 months (67 percent). Thereafter, the proportion declines steadily with increasing age, to 46 percent in the oldest age group (48-59 months). The decline in vaccination cards seen is partly the result of the cards being lost as the child gets older.

Overall, 65 percent of children age 1-4 were fully immunized before the age of one year: 91 percent of the children had received BCG, 84 percent had received the third dose of DPT, 78 percent

had received the third dose of polio, and 76 percent had been vaccinated against measles. Nine percent of children age 1-4 had not received any EPI vaccinations before the age of one year.

Because these vaccinations were given before the age of 12 months, the differentials in vaccination rates by child's current age reflect differences in vaccination coverage during the four years preceding the survey, or the period 2004-05 to 2007-08. The proportion of children who received BCG and three doses each of DPT and polio vaccine appears to show improvement over this period, with coverage increasing from 85 to 95 percent for BCG, from 78 to 89 percent for DPT, and from 71 to 85 percent for polio. There has been a drop in loss rates between the first and third doses of polio, from 13 percent in 2004-05 to 10 percent in 2007-08. The improvement in measles vaccination coverage is also substantial, increasing from 70 to 83 percent over the past four years.

The measles vaccination is given late in the first 12 months, as is the third dose of DPT and polio. The proportion of children under age five who received all the recommended vaccines during the last four years has increased considerably: from 58 percent in 2004-05 to 74 percent in 2007-08.

Table 7.10 Vaccinations in first year of life

Percentage of children age 12-59 months at the time of the survey who received specific vaccines by 12 months of age, and percentage with a vaccination card, by current age of child, Rwanda 2007-08

		DPT or Pentavalent			Polio					All basic vacci-	No vacci-	Percentage with a vaccination	Number of
Age in months	BCG	1	2	3	0[1]	1	2	3	Measles	nations[2]	nations	card seen	children
12-23	95.2	94.3	91.9	88.5	84.9	94.9	92.2	84.5	82.9	73.8	4.2	67.0	1,226
24-35	92.3	90.8	87.5	84.8	80.4	91.8	88.6	79.2	75.4	64.1	7.3	59.0	959
36-47	88.7	87.8	84.8	81.4	75.2	88.3	85.7	76.0	72.8	61.2	10.2	51.3	1,066
48-59	84.5	83.0	80.7	78.0	71.6	84.0	81.1	70.7	69.5	57.5	14.4	45.7	963
Total	90.7	89.5	86.8	83.7	78.5	90.3	87.5	78.2	76.0	64.9	8.6	56.3	4,213

Note: Information was obtained from the vaccination card or if there was no written record, from the mother. For children whose information was based on the mother's report, the proportion of vaccinations given during the first year of life was assumed to be the same as for children with a written record of vaccinations.
[1] Polio 0 is the polio vaccination given at birth.
[2] BCG, measles and three doses each of DPT and polio vaccine (excluding polio vaccine given at birth)

7.4 CHILDHOOD ILLNESSES

7.4.1 Acute Respiratory Infections

Acute Respiratory Infections (ARI), particularly pneumonia, are one of the main causes of death among children under age five in developing countries. To assess the prevalence of these infections, mothers were asked if their children under five years had been ill with a cough during the two weeks preceding the survey. If the answer was yes, they were asked if the cough had been accompanied by short, rapid breathing. Although insufficient for establishing a true diagnosis, the presence of these two symptoms is, in many cases, an indicator of acute respiratory infection, and even pneumonia. For children reported by the mother as having symptoms of ARI, information was gathered on whether or not treatment had been sought.

Table 7.11 shows the prevalence and treatment of symptoms of acute respiratory infection among children under age five: 15 percent of the children had been ill with a cough accompanied by short, rapid breathing in the two weeks preceding the survey. Respiratory infections were reported most frequently for children age 6-11 months (22 percent). There is no notable difference in ARI prevalence between boys and girls (16 percent for boys and 15 percent for girls). The prevalence of ARI is 15 percent in both urban and rural areas, and differentials by wealth quintile are minor. Results according to mother's level of education vary only slightly, with ARI prevalence slightly lower among children of mothers with no education (16 percent) than among children of mothers with secondary or higher education (18 percent).

Table 7.11 Prevalence and treatment of symptoms of ARI

Among children under age five, the percentage who had symptoms of acute respiratory infection (ARI) in the two weeks preceding the survey, and among children with symptoms of ARI, the percentage for whom advice or treatment was sought from a health facility or provider, and percentage who received antibiotics as treatment, according to background characteristics, Rwanda 2007-08

	Children under five		Children under five with symptoms of ARI		
Background characteristic	Percentage with symptoms of ARI[1]	Number of children	Percentage for whom advice or treatment was sought from a health facility or provider[2]	Percentage who received antibiotics	Number of children
Age in months					
<6	16.7	500	25.4	15.3	84
6-11	21.6	528	32.5	10.7	114
12-23	16.7	1,226	29.3	14.1	205
24-35	14.4	959	26.2	10.8	139
36-47	13.9	1,066	30.8	16.5	148
48-59	11.1	963	21.5	8.0	107
Sex					
Male	15.9	2,623	31.1	13.0	417
Female	14.5	2,618	24.7	12.5	379
Residence					
Urban	15.4	764	38.1	14.1	117
Rural	15.2	4,478	26.3	12.6	679
Province					
Kigali city	13.8	400	42.4	11.8	55
South	16.0	1,340	21.0	9.1	215
West	17.1	1,312	30.1	12.2	225
North	11.5	925	32.3	26.7	107
East	15.4	1,263	27.1	10.2	195
Mother's education					
No education	15.8	1,321	18.7	7.8	209
Primary	14.6	3,523	28.6	14.1	514
Secondary or higher	18.4	397	50.7	18.2	73
Wealth quintile					
Lowest	15.5	778	15.8	7.9	120
Second	16.5	1,501	22.8	12.5	247
Middle	14.9	1,040	25.2	10.6	155
Fourth	14.2	1,016	37.1	19.9	145
Highest	14.2	907	42.9	12.6	129
Total	15.2	5,241	28.0	12.8	796

[1] Symptoms of ARI (cough accompanied by short, rapid breathing that is chest-related) are considered a proxy for pneumonia.
[2] Excludes pharmacy, shop, and traditional practitioner

Results by province show the highest prevalence of ARI in the West province (17 percent), followed by the South province (16 percent), and the East province (15 percent). The prevalence of ARI is lowest in the North province (12 percent).

Table 7.11 shows that treatment was sought from a health facility or provider for 28 percent of children under five with symptoms of ARI. Treatment was sought most often for children age 6-11 months (33 percent)—which is the age group with the highest prevalence of ARI—and least often for children age 48-59 months (22 percent).

The differentials in treatment-seeking indicate that children with ARI are more likely to be taken for treatment if they are boys (31 percent, compared with 25 percent for girls) and if they live in urban areas (38 percent, compared with 26 percent in rural areas). The greater likelihood of a child being taken for treatment in urban areas is related to the greater availability of health facilities and the greater accessibility of the health infrastructure in urban areas than in rural areas.

Among the provinces, children in the City of Kigali (42 percent) are the most likely to be taken to a health facility or provider for treatment of ARI; only 21 percent of sick children in the South province received care. The likelihood of a child being taken for treatment of ARI increases with mother's level of education: 19 percent among children whose mothers have no education, 29 percent among children whose mothers have primary education, and 51 percent among children whose mothers have secondary or higher education. Treatment for ARI was sought for 43 percent of children in households in the highest (richest) wealth quintile, compared to 25 percent of children in the middle wealth quintile, and 16 percent of children in the lowest (poorest) wealth quintile.

Table 7.11 shows the proportion of children with ARI symptoms who were treated with antibiotics. The results by child's age show that children under age six months (15 percent) and those age 36-47 months (17 percent) were most likely to be treated with antibiotics. No variation was seen by gender of the child. There is almost no difference by urban-rural residence in treatment of ARI with antibiotics: 14 percent in urban areas and 13 percent in rural areas. There are large differences by province, ranging from 9 percent in the South province to 27 percent in the North province.

A trend can be seen in the treatment of ARI with antibiotics by mother's level of education. The proportion of children treated with antibiotics increases as the mother's education increases, from 8 percent among children whose mothers have no education, to 14 percent among children whose mothers have primary education, and to 18 percent among children whose mothers have attained at least secondary education. No trend in the use of antibiotics was seen by wealth quintile; however, in the lowest (poorest) wealth quintile only 8 percent of children with ARI were treated with antibiotics, compared with 20 percent in the fourth quintile.

7.4.2 Fever

Fever is the primary symptom of many illnesses including malaria and measles, which cause numerous deaths in developing countries. For this reason, mothers were asked whether their children under age five years had experienced a fever in the two weeks preceding the survey. For the children who had experienced a fever, information was gathered on whether the child was taken to a health facility or provider for a consultation, and the treatment that was received.

Table 7.12 shows the results on the prevalence and treatment of fever among children under five in the two weeks preceding the survey. About one in five children (21 percent) were reported by their mothers as having a fever in the two weeks preceding the survey. Differentials are shown by child's age,

province, mother's level of education, and wealth quintile. Age is an important factor in the prevalence of fever because children age 6-23 months are the most likely to have a fever. The prevalence of fever among children age 6-11 months is 32 percent and among children age 12-23 months, 26 percent had a fever in the two weeks preceding the survey.

The prevalence of fever varies by province; it is highest in the West province (24 percent), followed by the East province (23 percent), the North province (19 percent), and the City of Kigali (18 percent). Mother's level of education is related to the prevalence of fever in children. Children whose mothers have no education are most likely to have fever (23 percent), followed by children of mothers with primary education (21 percent), with children of mothers with secondary or higher education being the least likely to have fever (19 percent).

Table 7.12 Prevalence and treatment of fever

Among children under age five, the percentage who had a fever in the two weeks preceding the survey; and among children with fever, the percentage for whom treatment was sought from a health facility or provider, the percentage who received antimalarial drugs, and the percentage who received antibiotic drugs, by background characteristics, Rwanda 2007-08

	Children under five		Children under five with fever			
Background characteristic	Percentage with fever	Number of children	Percentage for whom advice or treatment was sought from a health facility or provider[1]	Percentage who received antimalarial drugs	Percentage who received antibiotic drugs	Number of children
Age in months						
<6	14.6	500	35.8	3.3	23.8	73
6-11	31.7	528	39.3	6.4	17.1	167
12-23	25.5	1,226	36.4	7.2	19.1	313
24-35	23.1	959	36.9	6.3	14.8	222
36-47	18.8	1,066	33.3	2.2	15.1	201
48-59	15.4	963	25.6	6.4	10.3	149
Sex						
Male	21.7	2,623	36.4	5.8	16.4	568
Female	21.2	2,618	33.4	5.5	16.4	556
Residence						
Urban	19.0	764	34.7	5.3	17.9	145
Rural	21.9	4,478	35.0	5.7	16.2	978
Province						
Kigali city	17.7	400	41.2	3.6	18.6	71
South	20.6	1,340	27.3	3.9	9.6	276
West	23.5	1,312	35.8	5.0	14.7	309
North	18.7	925	38.4	4.6	24.9	173
East	23.4	1,263	37.5	9.0	19.0	296
Mother's education						
No education	22.7	1,321	27.1	7.0	12.8	300
Primary	21.2	3,523	35.2	4.8	16.2	748
Secondary or higher	19.2	397	63.2	9.1	33.0	76
Wealth quintile						
Lowest	24.7	778	28.2	7.0	10.0	192
Second	21.0	1,501	29.7	4.1	16.3	316
Middle	21.9	1,040	30.7	1.1	13.8	228
Fourth	22.5	1,016	40.2	8.9	21.0	229
Highest	17.6	907	51.8	9.0	21.3	160
Total	21.4	5,241	34.9	5.6	16.4	1,124

[1] Excludes pharmacy, shop, and traditional practitioner

Among children with fever, 35 percent were taken to a health facility or provider for treatment. As in the case of treatment of ARI, the differentials in treatment of children with fever indicate that they are more likely to be taken for treatment if they are age 6-11 months (39 percent), boys (36 percent, compared with 33 percent for girls), children whose mothers have secondary education or higher (63 percent), and children in the highest (richest) wealth quintile (52 percent).

Table 7.12 also shows the percentage of children with fever who received antimalarial drugs (6 percent) and the percentage who received antibiotics (16 percent). Use of these drugs is limited, but children under the age of 6 months (24 percent) are more likely to be treated with antibiotics than other children. Likewise, children are more likely to receive modern medicines if their mothers have secondary or more education (9 percent for antimalarial drugs and 33 percent for antibiotics) or if they live in households in the highest (richest) wealth quintile (9 percent for antimalarial drugs and 21 percent for antibiotics).

7.4.3 Diarrhea

Prevalence of diarrhea

Diarrheal diseases constitute one of the main causes of death among young children in developing countries because of associated dehydration and malnutrition. To combat the effects of dehydration, WHO promotes the use of oral rehydration therapy (ORT), which includes a prepared solution of oral rehydration salts (ORS) from packets, or a solution prepared at home using water, sugar, and salt (recommended home fluids, or RHF).

To assess the prevalence of diarrheal diseases in children under the age of five, mothers interviewed in the 2007-08 RIDHS were asked whether their children had diarrhea in the two weeks preceding the survey. Table 7.13 shows that more than one in six children under age five (14 percent) had one or more episodes of diarrhea in the two weeks preceding the survey. The prevalence of diarrhea is especially high among children age 6-11 months (23 percent) and age 12-23 months (22 percent). These high-prevalence ages are when children begin to be weaned and to consume foods other than breast milk. They also correspond to the ages at which children begin to explore their environment, resulting in greater exposure to pathogens.

While diarrhea prevalence varies little by gender and urban-rural residence, there are differences by province: children in the City of Kigali and the South province have the highest prevalence of diarrhea (15 percent) while those in the North province have the lowest prevalence (11 percent). Mother's level of education is closely related to the prevalence of diarrhea. Children whose mothers have no education are most likely to have diarrhea (16 percent), followed by children whose mothers have primary education (13 percent). Children whose mothers have secondary education are least likely to have diarrhea (12 percent). The results on diarrhea prevalence by wealth quintile are variable, but children in the lowest (poorest) wealth quintile have the highest prevalence of diarrhea (16 percent).

Table 7.13 Prevalence of diarrhea

Percentage of children under age five who had diarrhea in the two weeks preceding the survey, by background characteristics, Rwanda 2007-08

Background characteristic	Diarrhea in the two weeks preceding the survey: All diarrhea	Diarrhea with blood	Number of children
Age in months			
<6	5.6	0.5	500
6-11	23.1	3.3	528
12-23	22.0	2.3	1,226
24-35	15.4	2.7	959
36-47	9.5	1.3	1,066
48-59	5.3	1.0	963
Sex			
Male	14.1	2.1	2,623
Female	13.4	1.6	2,618
Source of drinking water			
Improved[1]	12.2	1.6	3,254
Not improved	14.5	2.2	739
Other/missing	17.1	2.4	1,248
Toilet facility			
Improved, not shared[2]	12.9	1.7	4,357
Non-improved or shared	18.6	3.1	805
Missing	9.8	0.5	80
Residence			
Urban	13.9	1.4	764
Rural	13.7	1.9	4,478
Province			
Kigali city	14.9	1.1	400
South	14.8	1.6	1,340
West	13.6	1.5	1,312
North	11.4	1.9	925
East	14.0	2.7	1,263
Mother's education			
No education	15.7	2.8	1,321
Primary	13.2	1.6	3,523
Secondary or higher	12.0	0.9	397
Wealth quintile			
Lowest	15.8	2.1	778
Second	11.9	1.4	1,501
Middle	14.7	3.1	1,040
Fourth	14.0	1.6	1,016
Highest	13.4	1.2	907
Total	13.7	1.9	5,241

[1] Improved sources of drinking water include piped into dwelling/ compound/plot, public tap, protected well in compound/plot, protected public well, and bottle water.
[2] Improved toilet facilities include flush toilet and ventilated improved pit (VIP) latrine, not share with other household.

Treatment of diarrhea

Table 7.14 shows that treatment was sought for one-third (33 percent) of children with diarrhea in the two weeks preceding the survey. Treatment was most often sought for children age 12-47 months (33 to 35 percent), those in urban areas (38 percent), those in the City of Kigali (49 percent), those in the highest (richest) wealth quintile (51 percent), and those whose mothers have secondary education or higher (59 percent). Treatment was also sought more frequently when blood was present in the feces than when it was not (41 and 32 percent, respectively).

Table 7.14 Diarrhea treatment

Among children under age five who had diarrhea in the two weeks preceding the survey, the percentage for whom advice or treatment was sought from a health facility or provider, the percentage given oral rehydration therapy (ORT), the percentage given increased fluids, the percentage given ORT or increased fluids, and the percentage who were given other treatments, by background characteristics, Rwanda 2007-08

Background characteristic	Percentage taken to a health provider[1]	Oral rehydration therapy (ORT)					Other treatments							
		ORS packets	RHF	Either ORS or RHF	Increased fluids	ORS, RHF or increased fluids	Anti-biotic	Anti-motility	Zinc supple-ments	Intra-venous solution	Home remedy /other	Missing	No treat-ment	Number of children
Age in months														
<6	25.5	15.5	1.4	15.5	6.7	15.5	5.1	0.0	0.0	0.0	3.3	9.0	67.2	28
6-11	28.6	19.4	9.4	28.8	9.4	32.0	15.6	3.4	0.0	0.0	25.7	0.0	47.0	122
12-23	34.8	21.8	10.4	30.8	15.1	40.3	11.1	2.2	0.4	0.3	25.2	2.0	40.4	270
24-35	32.9	22.5	10.1	30.9	19.3	42.8	11.1	1.0	0.0	0.0	27.2	0.9	37.1	148
36-47	35.3	26.0	10.3	35.5	17.4	44.9	10.3	3.0	0.0	0.0	21.3	1.9	37.7	101
48-59	28.2	12.9	21.3	34.2	14.7	40.1	6.8	0.0	0.0	0.0	27.4	0.0	41.9	51
Sex														
Male	30.7	20.9	9.5	30.0	15.3	37.4	11.6	3.0	0.3	0.0	23.1	1.1	42.9	369
Female	34.5	21.6	11.7	31.5	14.6	40.8	10.8	1.0	0.0	0.3	25.9	2.0	40.2	350
Type of diarrhea														
Non-bloody	31.6	21.5	11.0	31.1	15.9	39.8	10.1	2.2	0.2	0.2	23.7	1.4	42.4	552
Bloody	41.1	29.9	5.6	35.5	10.0	42.1	18.1	2.4	0.0	0.0	32.2	0.0	32.8	97
Missing	28.1	7.2	14.3	21.5	14.2	28.9	10.2	0.0	0.0	0.0	19.7	5.0	48.0	70
Residence														
Urban	37.9	30.3	13.2	42.3	15.4	46.6	16.7	3.2	0.0	0.8	14.4	0.8	41.8	106
Rural	31.7	19.7	10.1	28.8	14.9	37.7	10.3	1.8	0.2	0.0	26.2	1.7	41.6	613
Province														
Kigali city	49.0	43.9	12.3	56.2	20.1	59.5	21.9	3.1	0.0	1.5	14.7	1.9	25.1	60
South	21.1	8.4	13.5	21.0	15.7	32.3	7.0	2.9	0.0	0.0	26.6	3.1	44.3	198
West	38.8	30.9	10.7	40.4	13.7	45.3	15.2	2.4	0.0	0.0	27.6	1.1	34.6	179
North	39.9	25.9	7.6	33.5	12.3	42.5	9.8	0.0	1.1	0.0	17.8	0.9	42.3	105
East	29.4	15.6	8.3	21.8	15.3	31.5	9.2	1.6	0.0	0.0	26.1	0.6	50.7	177
Mother's education														
No education	27.5	19.1	8.3	26.9	10.0	34.0	6.8	1.2	0.0	0.0	28.5	0.8	48.6	208
Primary	32.2	20.5	11.1	30.5	16.1	39.7	11.8	2.1	0.2	0.0	24.0	1.9	39.6	463
Secondary or higher	58.8	38.5	14.8	50.6	25.2	54.7	24.9	5.3	0.0	1.8	11.2	1.6	30.6	48
Wealth quintile														
Lowest	29.9	18.1	5.9	24.0	14.0	31.6	5.0	2.3	0.9	0.0	20.6	1.4	53.9	123
Second	24.0	13.9	10.7	22.7	13.3	33.8	10.8	0.7	0.0	0.0	25.4	1.9	45.0	179
Middle	23.9	15.5	12.6	26.7	14.7	36.1	10.3	1.9	0.0	0.0	23.4	2.5	42.0	153
Fourth	39.1	30.8	10.3	39.6	15.8	46.6	10.9	1.5	0.0	0.0	27.1	1.6	34.7	143
Highest	51.2	31.4	12.8	44.2	17.8	49.3	19.6	4.7	0.0	0.7	25.2	0.0	31.9	122
Total	32.6	21.3	10.6	30.8	15.0	39.1	11.2	2.0	0.2	0.1	24.4	1.6	41.6	719

Note: ORT includes solution prepared from oral rehydration salts (ORS), pre-packaged ORS packets, and recommended home fluids (RHF)
[1] Excludes pharmacy, shop and traditional practitioner

More than one in five (21 percent) children under five with diarrhea were treated with ORS, 11 percent received recommended home fluids, and 15 percent were given increased fluids. Overall, nearly two in five children were treated with ORT (39 percent). Use of ORT to treat diarrhea in children under five increases with age, from 16 percent among children under six months, to 32 percent among children age 6-11 months, to more than 40 percent among children 12 months and older.

Treatment of diarrhea with ORT is higher among girls than boys (41 and 37 percent, respectively) and higher among children in urban areas than those in rural areas (47 and 38 percent, respectively). There are substantial differences in ORT treatment by province, with 60 percent of children in the City of Kigali receiving ORT, compared with 32 percent of those in the South and East provinces. Treatment with ORT is also related to mother's level of education and household wealth status: 55 percent of children whose mothers have secondary or higher education received ORT, compared with 34 percent for those whose mothers had never been to school; likewise, the proportion treated with ORT ranges from 32 percent in households in the lowest (poorest) wealth quintile to 49 percent in households in the highest (richest) wealth quintile.

Antimotility medications (2 percent), zinc supplements (0.2 percent), and intravenous solutions (0.1 percent) account for only a small portion of diarrhea treatment; however, a large proportion of children were given home remedies and other treatments (24 percent) and antibiotics (11 percent). About 42 percent of children did not receive any treatment for their diarrhea.

Feeding practices during diarrhea

Regarding feeding practices during diarrhea for children under five, Table 7.15 shows that 42 percent of children were given increased liquids, 15 percent were given the same amount of liquids as usual, and 25 percent of children were given a smaller amount of liquids.

Concerning food intake, 39 percent of children were given more food, 6 percent were given the same amount of food as usual, 46 percent were given less food, and 2 percent of children were given no food at all.

Table 7.15 Feeding practices during diarrhea

Percent distribution of children under five years who had diarrhea in the two weeks preceding the survey by amount of liquids and food offered compared with normal practice, Rwanda 2007-08

Liquid/food offered	Percentage
Amount of liquids offered	
More	41.6
Same as usual	15.0
Somewhat less	24.5
Much less	15.0
None	3.2
Don't know/missing	0.7
Total	100.0
Amount of food offered	
More	38.5
Same as usual	5.5
Somewhat less	30.1
Much less	16.2
None	1.9
Never gave food	7.2
Don't know/missing	0.6
Total	100.0
Number of children	719

7.5 INITIAL BREASTFEEDING

Knowledge of feeding practices is crucial to determining children's nutritional status, which in turn is linked directly to levels of morbidity and mortality. Breastfeeding plays a pivotal role in the first six months of a child's life. Breast milk has many beneficial properties—it is sterile, transmits antibodies from mother to child, and contains all of the nutrients children need during the first six months of life. Thus, breastfeeding prevents nutritional deficiencies and limits the presence of diarrhea and other diseases. In addition, prolonged and frequent breastfeeding extends the mother's period of postpartum amenorrhea, thereby lengthening the interval between births and influencing fertility.

Because of the importance of breastfeeding practices, mothers were asked whether they had breastfed those of their children who were born in the five years preceding the survey, how old their children were when they initiated breastfeeding, how long they had breastfed, how frequently, the children's age when they were introduced to supplementary foods, the type of supplementary foods they were given and, finally, how frequently the different types of foods were given to the child.

Nearly all children (98 percent) born in the five years preceding the survey were breastfed for at least some period of time, regardless of background characteristics. Among children who were breastfed, 68 percent began breastfeeding within one hour of birth and 92 percent began within one day of birth.

Although breastfeeding is widespread, about one in three children (32 percent) did not begin breastfeeding within one hour of birth and 8 percent of children did not receive breast milk within one day of birth. About one in five children (21 percent) is fed a supplement before the start of breastfeeding (prelacteal feed). This practice can have negative consequences for children, even affecting their chances of survival. This is because the breast milk that is produced in the first 24 hours following birth contains colostrum, which transmits the mother's antibodies to the child, providing crucial resistance to numerous diseases. In addition, newborns who are not breastfed within 24 hours of birth are usually given other liquids in place of breast milk, and these may carry pathogens. Overall, these results indicate that a major effort is needed to inform mothers of the benefits of breastfeeding in the first hours of a child's life.

Table 7.16 Initial breastfeeding

Percentage of children born in the five years preceding the survey who were ever breastfed, and for last-born children ever breastfed, the percentage who started breastfeeding within one hour and within one day of birth, and the percentage who received a pre-lacteal feed, by background characteristics, Rwanda 2007-08

Background characteristic	Children born in past five years		Last-born children ever breastfed			
	Percentage ever breastfed	Number of children	Percentage who started breastfeeding within 1 hour of birth	Percentage who started breastfeeding within 1 day of birth[1]	Percentage who received a pre-lacteal feed[2]	Number of children
Sex						
Male	97.7	2,860	67.2	90.3	22.1	1,818
Female	98.3	2,796	68.8	92.7	19.8	1,788
Residence						
Urban	97.2	804	73.3	94.3	18.4	534
Rural	98.1	4,852	67.1	91.0	21.5	3,071
Province						
Kigali city	96.8	425	71.2	91.6	22.8	281
South	97.7	1,442	67.3	92.0	20.6	919
West	98.7	1,408	70.8	90.5	18.3	900
North	98.6	991	62.8	90.9	24.1	636
East	97.4	1,390	68.5	92.3	21.3	869
Mother's education						
No education	98.1	1,453	65.1	90.3	24.1	907
Primary	98.1	3,793	68.5	91.7	19.8	2,421
Secondary or higher	96.3	410	72.8	92.9	21.7	278
Assistance at delivery						
Health professional[3]	97.4	2,945	72.3	94.0	15.8	2,010
Traditional birth attendant	96.3	86	80.2	100.0	29.0	48
Other	98.5	1,720	63.2	90.4	28.8	1,045
No one	98.7	688	64.0	89.7	26.9	461
Missing	100.0	217	9.7	9.7	0.0	42
Place of delivery						
Health facility	97.5	2,557	73.7	94.1	14.6	1,780
At home	98.2	2,785	63.9	90.6	28.1	1,710
Other	100.0	92	58.1	96.4	17.8	66
Missing	99.7	222	16.6	21.7	7.2	50
Wealth quintile						
Lowest	97.3	851	60.2	88.8	21.8	561
Second	98.4	1,634	66.4	90.4	22.2	1,022
Middle	98.4	1,112	70.6	92.8	18.4	695
Fourth	98.2	1,106	70.6	92.9	21.2	699
Highest	97.3	954	71.8	92.7	20.9	628
Total[4]	98.0	5,656	68.0	91.5	21.0	3,605

Note: Table is based on births in the last five years whether the children are living or dead at the time of interview.
[1] Includes children who started breastfeeding within one hour of birth
[2] Children given something other than breast milk during the first three days of life
[3] Include doctor, nurse, midwife and auxiliary nurse/midwife
[4] Total includes 42 cases where assistance at delivery and place of delivery is unknown

Although breastfeeding is widely practices across all subgroups of women, the timing of initial breastfeeding varies by background characteristics. The proportion of children breastfed within one hour of birth varies according to the type of assistance received by the mother during childbirth. Among children whose birth was assisted by a traditional birth assistant, 80 percent began breastfeeding in the first hour of life; the proportion is 72 percent if the birth was assisted by a health professional, and 64 percent if no one assisted the mother during delivery. By province, the lowest proportion of children breastfed within one hour of birth occurs in the North province (63 percent); the City of Kigali and the West province have the highest proportions (71 percent for both).

Mother's level of education shows a positive relationship with breastfeeding in the first hour after the birth. While only 65 percent of mothers with no education began breastfeeding in the first hour, 69 percent of mothers with primary education began breastfeeding then, and 72 percent of mothers with secondary or higher education began breastfeeding in the first hour.

7.6 MICRONUTRIENT INTAKE

Vitamin and mineral deficiencies are the cause of some illnesses. For example, vitamin A deficiency can cause night blindness, and insufficient iron causes anemia. These deficiencies also have less visible effects, in particular the weakening of the immune system.

Vitamin A is necessary for the development and maintenance of epithelial tissue as well as the digestive and respiratory systems, and is essential for good retinal health. It also maintains the body's immune defenses. Vitamin A is stored in the liver, but when quantities are too low or used up, the consequences of the deficiency become apparent. Vitamin A deficiency (VAD) affects a child's immune system and increases the chances of death from infectious diseases. VAD also affects the health of pregnant and breastfeeding women (including causing night blindness). Vitamin A deficiency can be avoided by taking vitamin A supplements or eating foods rich in vitamin A.

UNICEF and WHO recommend that a program monitoring vitamin A be instituted in all countries with an under-five mortality rate higher than 70 deaths per 1,000 live births, and where vitamin A deficiency is a public health problem.

Table 7.17 shows the percentage of last-born children age 6-59 months who received vitamin A supplements in the six months preceding the survey. Nearly three in four children age 6-59 months (72 percent) received a vitamin A supplement in the past six months. Children age 24-35 months (76 percent) were the most likely to receive the supplements, while those age 6-8 months (49 percent) were the least likely to receive vitamin A supplements.

The proportion of children age 6-59 months who received vitamin A supplements varies by background characteristics. Children in urban areas received vitamin A supplements more often (75 percent) than those in rural areas (72 percent). Among the provinces, vitamin A supplementation ranges from 68 percent in the South province to 74 percent in both the East and West provinces. Mother's level of education influences whether a child receives vitamin A supplements; among children whose mothers have no education, 69 percent received the supplements, compared with 76 percent of children whose mothers have secondary or higher education. A similar pattern is seen by household wealth status; 68 percent of children in the lowest (poorest) wealth quintile received vitamin A supplements, compared with 74 percent of children in the highest (richest) wealth quintile.

Table 7.17 shows the proportion of children who were given iron supplements in the seven days preceding the survey. Overall, nearly one in ten children (8 percent) received iron supplements in the past seven days. Children age 12-23 months were the most likely to receive iron supplements (9 percent). There is little difference in the prevalence of iron supplements by other background characteristics, however, it is should be noted that the proportion of children receiving iron supplementation is very low in the South and North provinces (4 percent each), compared with the West province (13 percent).

Table 7.17 Micronutrient intake among children

Percentage of children age 6-59 months who received vitamin A supplements in the past six months, percentage who received iron supplements in the past seven days, and percentage who received deworming medication in past six months, by background characteristics, Rwanda 2007-08

Background characteristic	Percentage who received vitamin A supplement in past 6 months	Percentage who received iron supplement in past 7 days	Percentage who received deworming medication in past 6 months	Number of children
Age in months				
6-8	48.6	4.5	19.8	269
9-11	63.5	6.2	29.7	259
12-17	72.4	9.4	64.6	608
18-23	73.1	8.7	75.1	618
24-35	76.2	7.8	77.6	959
36-47	74.7	6.9	77.8	1,066
48-59	72.8	7.8	76.3	963
Sex				
Male	72.2	6.8	70.4	2,369
Female	71.8	8.5	68.5	2,372
Breastfeeding status				
Breastfeeding	68.4	7.8	61.5	2,179
Not breastfeeding	77.1	8.0	78.2	2,017
Missing	67.9	5.8	69.1	545
Residence				
Urban	74.9	8.1	71.0	679
Rural	71.6	7.6	69.2	4,062
Province				
Kigali	72.3	8.4	69.2	360
South	67.6	3.6	69.6	1,226
West	73.7	13.1	68.4	1,183
North	73.0	3.5	74.7	846
East	74.3	9.2	66.7	1,126
Mother's education				
No education	68.9	9.0	66.3	1,209
Primary	72.8	7.3	70.7	3,175
Secondary or higher	75.6	5.9	69.1	357
Mother's age at birth				
15-19	67.3	4.5	63.4	55
20-29	72.4	7.6	67.2	2,226
30-39	71.9	7.8	72.3	1,830
40-49	71.5	7.7	70.1	632
Wealth quintile				
Lowest	68.0	7.1	65.5	696
Second	69.9	6.5	68.6	1,353
Middle	73.8	8.4	67.9	950
Fourth	74.9	8.4	71.9	916
Highest	73.9	8.3	73.3	827
Total	72.0	7.7	69.5	4,742

Table 7.17 also shows the percentage of children who were given deworming medicines in the six months preceding the survey. Overall, 70 percent of children under age five received deworming medicines in the past six months. Deworming treatment increases with children's age, from 20 percent among children age 6-8 months to 78 percent among those age 36-47 months.

There is no substantial difference in the prevalence of deworming treatment by urban-rural residence (71 and 69 percent, respectively). Differences by province are small (67 to 70 percent) except for the North province, which stands out with 75 percent of children receiving deworming treatment. As in the case of vitamin A supplementation, children whose mothers are educated and those who live in households in the higher wealth quintiles are the most likely to be treated with deworming medicines.

MALARIA AND ANEMIA 8

Malaria has been the main cause of morbidity and mortality in Rwanda for several years with periodic epidemics in high altitude areas. The Government of Rwanda established the National Malaria Control Program, as a national strategy to roll back malaria and reach the goals for 2010 set by the Abuja summit of African Heads of State. To achieve these objectives, the country has adopted a strategy based on the availability of services in communities, with the goal of increasing accessibility to health care. This plan would contribute to the achievement of the millennium development goals (MDG) as set forth in the Vision 2020 strategic plan for the national health sector.

With the commitment of the country's highest authorities, Rwanda has adopted prevention as its main strategy for controlling malaria, through use of long-lasting insecticidal [mosquito] nets (LLINs) as well as appropriate and timely treatment of malaria cases with antimalarial drugs.

While insecticide-treated [mosquito] nets (ITNs) have been known for years as an effective preventive measure in combating malaria—when they are used often and with extensive coverage in the community—Rwanda (like other African countries) was never able to achieve extensive coverage with ITNs. Since 2005, with funding from the Global Funds to Fight AIDS, Malaria and Tuberculosis, Rwanda has been able to distribute about 3 million LLINs to pregnant women and children under five; 1,364,897 of these LLINs were distributed to children under five during an integrated vaccination campaign against measles in September 2006.

8.1 MALARIA PREVENTION

Each household in the 2007-08 RIDHS was asked whether it had a mosquito net, the number of mosquito nets, the type of mosquito net, and how long the household had owned each net. For mosquito nets acquired in the six months preceding the survey, the household was asked where and how each net was obtained. The definitions of the various types of mosquito nets are given in the notes at the bottom of Table 8.1.

8.1.1 Household Possession of Mosquito Nets

Table 8.1 shows that about six in ten households (59 percent) own at least one mosquito net; in the 2005 RDHS-III, only 18 percent of households had a mosquito net. The percentage of households with at least one mosquito net varies by residence, province, and household wealth status: 69 percent of households in urban areas have a mosquito net compared with 57 percent of those in rural areas. Mosquito net ownership is highest in the City of Kigali (71 percent) and lowest in the West province (51 percent). Households in the highest (richest) wealth quintile (72 percent) are the most likely to own at least one mosquito net; only 41 percent of households in the lowest (poorest) wealth quintile own at least one mosquito net.

While a majority of households have at least one mosquito net, 27 percent of households have two or more nets. The highest proportion of households with more than one mosquito net is found in the City of Kigali (39 percent) and, to a lesser extent, in the East province (33 percent). Between the households with one mosquito net and the households with more than one net, the average number of mosquito nets per household in Rwanda is 1.0, compared with 0.3 in the 2005 RDHS-III.

Table 8.1 Ownership of mosquito nets

Percentage of households with at least one and more than one mosquito net (treated or untreated), percentage with at least one and more than one ever-treated mosquito net, and percentage with at least one and more than one long-lasting insecticidal net (LLIN), and the average number of nets per household, by background characteristics, Rwanda 2007-08

Background characteristic	Any mosquito net			Ever-treated mosquito net[1]			Long-lasting insecticidal net[2] (LLIN)			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 ever-treated nets per household	Percentage with at least one net	Percentage with more than one net	Average number of LLINs per household	
Residence										
Urban	68.5	37.6	1.3	67.1	36.1	1.2	65.3	33.8	1.2	1,148
Rural	57.4	24.5	0.9	55.4	23.0	0.9	53.8	21.9	0.8	6,229
Province										
Kigali	70.6	38.5	1.3	67.6	36.8	1.3	66.8	33.6	1.2	638
South	61.1	27.3	1.0	59.2	25.6	0.9	57.1	24.4	0.9	1,880
West	50.5	20.2	0.8	49.2	19.5	0.8	48.5	19.2	0.7	1,890
North	52.7	20.7	0.8	50.6	19.1	0.8	49.0	18.3	0.7	1,315
East	67.3	33.1	1.1	65.3	31.1	1.1	62.9	28.6	1.0	1,654
Wealth quintile										
Lowest	41.9	12.6	0.6	40.4	11.5	0.5	39.2	11.1	0.5	1,215
Second	54.2	20.8	0.8	52.3	19.7	0.8	51.2	18.7	0.7	2,043
Middle	60.2	26.0	0.9	58.7	24.5	0.9	56.9	23.5	0.9	1,410
Fourth	68.0	30.1	1.1	66.0	29.2	1.0	64.7	28.1	1.0	1,310
Highest	71.8	44.3	1.4	69.2	41.4	1.4	66.3	38.1	1.3	1,400
Total	59.1	26.6	1.0	57.2	25.1	0.9	55.6	23.7	0.9	7,377

[1] An ever-treated net is a pretreated net or a non-pretreated that has subsequently been soaked with insecticide at any time.
[2] LLIN is a factory-made, long-lasting, insecticidal net. In Rwanda, LLIN brands include Tuzanet and MamaNet.

Possession of ever-treated mosquito nets is relatively high: 57 percent, compared with 18 percent in the 2005 RDHS-III. The proportion of households having at least one ever-treated mosquito net is higher in urban areas than in rural areas (67 percent, compared with 55 percent). By province, the proportion of households with at least one ever-treated mosquito net is highest in the City of Kigali (68 percent) and lowest in the West province (49 percent). By wealth quintile, the largest proportion of households with at least one ever-treated mosquito net is in the highest (richest) wealth quintile (69 percent) while the smallest proportion is in the lowest (poorest) wealth quintile (40 percent).

The percentage of households owning at least one LLIN is about the same as the percentage owning at least one ever-treated mosquito net (56 percent, compared with 57 percent). It appears therefore that almost all mosquito nets owned by Rwandan households are LLINs. Results from the RDHS-III indicate that only 15 percent of households had an LLIN in 2005.

The proportion of households possessing an LLIN reaches 65 percent in urban households, compared with 54 percent in rural households; likewise, 66 percent of households in the highest (richest) wealth quintile have a LLIN, compared with 39 percent in the lowest (poorest) wealth quintile. By province, the City of Kigali has the highest proportion of households with an LLIN (67 percent), followed by the East province (63 percent); the North and East provinces have the lowest proportion of households with an LLIN (49 percent for both). Figure 8.1 shows the proportion of households with an LLIN by province based on the results from the 2005 RDHS-III and the 2007-08 RIDHS.

Figure 8.1 Household Ownership of Long-Lasting Insecticidal Nets (LLINs) by Province, According to 2005 RDHS-III and 2007-08 RIDHS

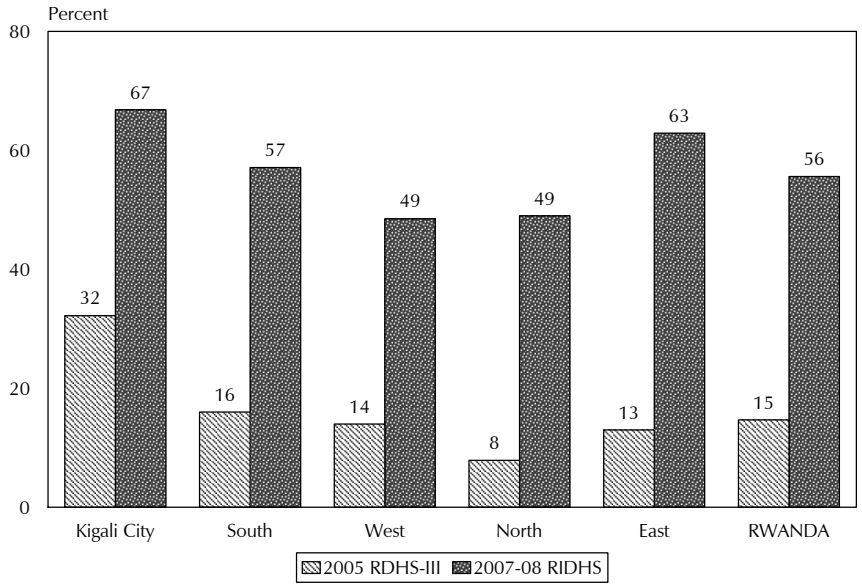


Table 8.2 presents the results on sources of mosquito nets. The results are categorized by type and brand of mosquito net. With regard to permanent mosquito nets, which are referred to as long-lasting insecticidal nets (LLINs), one-third are the Mamanet brand and were obtained during vaccination campaigns (36 percent); 28 percent were received during antenatal care visits. One-quarter of the Tuzanet brand mosquito nets were obtained during vaccination campaigns, while 17 percent came from a store. Regarding the Origine ever-treated mosquito nets, 24 percent came from a store and 17 percent were obtained during vaccination campaigns. These results show the important role of vaccination campaigns in the distribution of mosquito nets to the population in Rwanda.

Table 8.2 Sources of mosquito nets

Percent distribution of observed mosquito nets obtained in the past six months by sources of nets, according to type of net (permanent/LLIN or treated net) and brand of net, Rwanda 2007-08

	Long-lasting insecticidal net (LLIN)		Ever-treated net			
Source of net	Tuzanet	Mamanet	Origine	Other	Don't know/ not sure	Total
Vaccination campaign	25.5	31.6	16.7	*	19.8	27.6
Special vaccination campaign in 2006	2.1	4.0	0.0	*	0.0	2.8
ANC visit	10.6	27.7	6.8	*	8.0	17.9
Shop	17.3	6.4	23.6	*	10.1	12.5
Volunteer from malaria program	5.9	6.3	2.4	*	23.4	6.4
Other	28.6	15.0	16.7	*	12.6	21.5
Don't know/missing	9.9	9.1	33.7	*	26.2	11.3
Total	100.0	100.0	100.0	*	100.0	100.0
Number of mosquito nets	613	587	69	5	36	1,310

Note: An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.
LLIN = Long-lasting insecticidal net

8.1.2 Use of Mosquito Nets by Children

One of the major strategies used to combat malaria is individual protection through use of mosquito nets treated with insecticide. Households that reported owning at least one mosquito net were asked who had slept under the net the night before the survey. The two most vulnerable groups are children under five and pregnant women. Table 8.3 shows the proportion of children under age five who slept under a mosquito net the night before the survey. Overall, six in ten children under five (60 percent) slept under a net the night before the survey; the corresponding figure in the 2005 RDHS-III was only 16 percent.

Table 8.3 Use of mosquito nets by children

Percentage of children under five years of age who slept under a mosquito net (treated or untreated), an ever-treated mosquito net,[1] and a long-lasting insecticidal net[2] (LLIN) the night before the survey, by background characteristics, Rwanda 2007-08

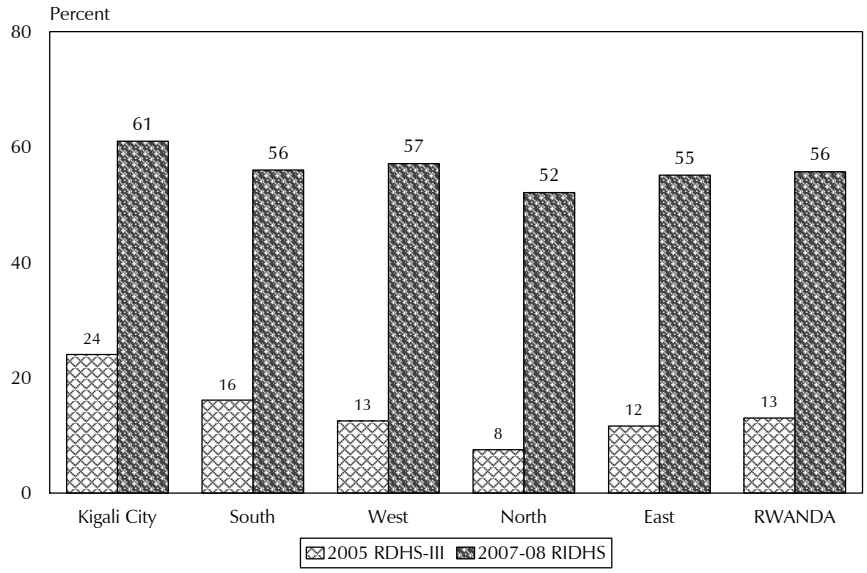
Background characteristic	Percentage who slept under any net the past night	Percentage who slept under an ever-treated net[1] the past night	Percentage who slept under an LLIN[2] the past night	Number of children
Age in months				
<12	64.7	63.1	62.1	1,033
12-23	67.6	65.1	61.9	1,232
24-35	60.8	57.8	55.2	981
36-47	56.8	54.2	51.6	1,130
48-59	50.0	48.8	47.0	1,037
Sex				
Male	61.1	59.0	56.8	2,706
Female	59.3	57.0	54.7	2,708
Residence				
Urban	65.6	64.1	61.6	774
Rural	59.3	57.0	54.7	4,640
Province				
Kigali	64.6	62.3	61.0	407
South	61.3	58.7	56.0	1,386
West	58.6	57.4	57.1	1,350
North	56.7	54.7	52.1	952
East	61.9	59.0	55.1	1,319
Wealth quintile				
Lowest	49.1	46.9	44.6	796
Second	56.8	54.7	53.0	1,566
Middle	61.1	59.1	57.0	1,068
Fourth	65.7	63.7	61.6	1,054
Highest	68.1	65.3	61.8	930
Total	60.2	58.0	55.7	5,414

[1] An ever-treated net is a pretreated net or a non-pretreated that has subsequently been soaked with insecticide at any time.
[2] LLIN is a factory-made, long-lasting, insecticidal net. In Rwanda LLINs include Tuzanet and MamaNet.

The results by age group show that younger children are more likely to have slept under a mosquito net the night preceding the survey than older children: 68 percent for children age 12-23 months, compared with 50 percent for children age 48-59 months. There is a very small difference by gender (61 percent for boys and 59 percent for girls), and children in urban areas are more likely to have slept under a net than those in rural areas (66 percent, compared with 59 percent). Differences by province are small: the City of Kigali (65 percent) and the East province (62 percent) have the highest proportions of children sleeping under mosquito nets; the North province (57 percent) has the lowest proportion. The results by household wealth status show that the proportion of children who slept under a mosquito net the past night is highest in the highest (richest) wealth quintile (68 percent), and lowest (poorest) in the lowest wealth quintile (49 percent).

The proportions of children under five who slept under an ever-treated mosquito net (58 percent) or a LLIN (56 percent) the night preceding the survey are slightly lower than the proportion of children who slept under any mosquito net (60 percent). Variations by background characteristics for these two types of mosquito nets are similar to those observed for all mosquito nets. For example, use of LLINs is highest in the City of Kigali (61 percent) and lowest in the North province (52 percent). Figure 8.2 shows the use of LLINs among children under five by province in the 2005 RDHS-III and the 2007-08 RIDHS.

Figure 8.2 **Use of LLINs by Children Under Age Five by Province, According to 2005 RDHS-III and 2007-08 RIDHS**



8.1.3 Use of Mosquito Nets by Women

Table 8.4 shows the percentage of all women and pregnant women age 15-49 that slept under a mosquito net the night before the survey by type of mosquito net and background characteristics. Overall, 50 percent of all women age 15-49 slept under a mosquito net the night before the survey. This proportion is slightly lower in rural areas (48 percent) than in urban areas (54 percent) and is highest among women with secondary or higher education (56 percent), those in the City of Kigali (56 percent), and women in the highest (richest) wealth quintile (57 percent). Forty-seven percent of all women slept under an ever-treated mosquito net, and 45 percent slept under an LLIN.

Table 8.4 Use of mosquito nets by women and pregnant women

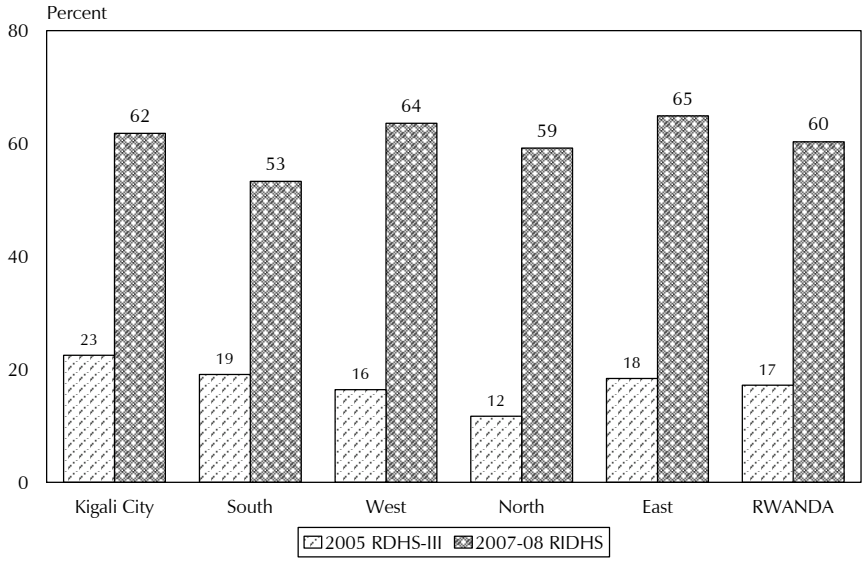
Percentage of all women age 15-49 and pregnant women age 15-49 who, the night before the survey, slept under a mosquito net (treated or untreated), slept under an ever-treated mosquito net,[1] and slept under a long-lasting insecticidal net[2] (LLIN), by background characteristics, Rwanda 2007-08

Background characteristic	Percentage of all women age 15-49 who, the night before the survey:				Percentage of pregnant women age 15-49 who, the night before the survey:			
	Slept under any mosquito net	Slept under an ever-treated mosquito net[1]	Slept under an LLIN[2]	Number of women	Slept under any mosquito net	Slept under an ever-treated mosquito net[1]	Slept under an LLIN[2]	Number of women
Residence								
Urban	54.2	52.4	49.5	1,245	68.3	67.6	63.1	93
Rural	48.1	46.1	44.3	6,124	64.1	61.5	59.9	580
Province								
Kigali	55.6	52.9	49.8	690	66.5	64.1	61.8	68
South	47.8	46.2	44.2	1,959	58.1	55.8	53.3	172
West	45.3	44.2	43.8	1,756	67.4	64.4	63.6	161
North	45.7	43.4	41.5	1,282	64.1	61.5	59.2	113
East	54.6	51.7	48.5	1,681	68.7	67.0	64.9	159
Education								
No education	48.7	47.5	46.5	1,518	59.2	55.9	54.9	165
Primary	48.4	46.4	44.4	5,149	66.2	63.9	61.7	451
Secondary or higher	55.7	52.0	48.2	702	68.7	67.7	64.8	57
Wealth quintile								
Lowest	37.1	35.8	34.4	1,107	50.1	47.4	47.4	90
Second	45.5	43.6	42.5	1,994	65.9	64.7	62.3	197
Middle	49.7	48.0	46.2	1,374	67.3	62.5	60.6	137
Fourth	55.0	53.2	51.4	1,330	66.3	65.3	63.1	135
Highest	56.9	53.6	50.0	1,565	68.9	66.2	63.5	114
Total	49.1	47.1	45.2	7,370	64.7	62.3	60.3	673

[1] An ever-treated net is a pretreated net or a non-pretreated net that has subsequently been soaked with insecticide at some time.
[2] LLIN is a factory-made, long-lasting insecticidal net. In Rwanda LLINs include Tuzanet and MamaNet.

The proportions of pregnant women age 15-49 years who slept under a mosquito net the night before the survey are much higher than those for all women. This shows the special interest given to pregnant women with respect to protecting them against malaria. The proportion of pregnant women who slept under an LLIN was 17 percent in the 2005 RDHS-III, compared with 60 percent in the 2007-08 RIDHS.

Figure 8.3 Use of LLINs by Pregnant Women by Province, According to 2005 RDHS and 2007-08 RIDHS



8.1.4 Intermittent Preventive Treatment during Pregnancy

At the end of 2005, Rwanda adopted Intermittent Preventive Treatment as one of the strategies for preventing malaria during pregnancy. However, based on evidence of resistance to Sulfadoxine-pyrimethamine (SP), a decrease in the transmission of malaria, and the high prevalence of gene mutations for resistance to SP (*Dhfr*, *Dhps*), at the beginning of 2008, Rwanda suspended supplying this medication during antenatal consultations.

Table 8.5 shows that 55 percent of pregnant women received antimalarial drugs preventively during their most recent pregnancy in the two years preceding the survey. The proportion is almost the same in urban and rural areas: 56 and 55 percent, respectively. There is slight variation by province, ranging from 52 percent in the City of Kigali to 57 percent in the East province. Women with secondary or higher education benefit most from these medications (63 percent), while women with no schooling benefit least (49 percent). The differentials by wealth quintile are small with no clear pattern, except that the proportions are highest in the fourth and fifth quintiles (63 and 58 percent, respectively).

The percentage of women who received SP/Fansidar is shown in Table 8.5. More than half of all women (53 percent) were given SP/Fansidar during their last pregnancy; about 51 percent received Intermittent Preventive Treatment (IPT) with SP/Fansidar during a routine antenatal care visit; only 17 percent of the women received two doses or more of the recommended IPT.

The results indicate that urban women, women in the South province, those with primary education, and those in the wealthiest households, are most likely to receive at least two doses of SP/Fansidar as IPT during antenatal care—the proportions range from 19 to 25 percent. The North province has the lowest rate (9 percent).

Table 8.5 Prophylactic use of SP/Fansidar and use of Intermittent Preventive Treatment (IPT) by women during pregnancy

Percentages of women who, during the pregnancy for their last live birth in the two years preceding the survey, received any antimalarial drugs for prevention, received SP/Fansidar, and received Intermittent Preventive Treatment (IPT), by background characteristics, Rwanda 2007-08

Background characteristic	Percentage who received any antimalarial drug	SP/Fansidar		Intermittent Preventive Treatment[1]		Number of women
		Percentage who received any SP/Fansidar	Percentage who received 2+ doses	Percentage who received any SP/Fansidar during an ANC visit	Percentage who received 2+ doses, at least one during an ANC visit	
Residence						
Urban	56.2	52.9	21.5	49.1	20.1	319
Rural	55.2	53.0	17.1	51.7	16.7	1,948
Province						
Kigali	52.3	47.9	19.9	42.4	18.4	173
South	54.4	50.9	21.9	48.9	21.0	580
West	55.8	55.0	18.4	53.5	17.9	581
North	55.4	53.6	9.3	52.2	9.3	374
East	56.6	54.3	17.7	53.8	17.3	559
Education						
No education	48.5	46.9	12.5	45.0	12.1	544
Primary	56.8	54.4	19.7	52.9	19.1	1,541
Secondary or higher	62.8	59.1	16.9	56.8	16.4	182
Wealth quintile						
Lowest	53.2	51.3	13.9	50.7	13.6	360
Second	51.5	49.8	12.9	48.2	12.2	625
Middle	52.1	49.4	15.6	47.6	15.0	458
Fourth	62.7	60.2	26.0	58.0	25.3	446
Highest	58.7	55.7	22.3	53.9	21.9	379
Total	55.3	53.0	17.7	51.3	17.2	2,267

[1] Intermittent Preventive Treatment (IPT) during pregnancy is preventive treatment with SP/Fansidar during an antenatal care (ANC) visit.

Compared with the results from the 2005 RDHS-III, there has been a substantial increase in the use of SP/Fansidar to treat pregnant women: from 31 percent in 2005 to 53 percent in 2007-08. This gain is particularly evident in rural areas and among educated women.

8.2 TREATMENT OF FEVER IN CHILDREN UNDER THE AGE OF FIVE

In addition to questions on the availability of mosquito nets and preventive antimalarial treatment in pregnant women, the RIDHS asked whether children under the age of five had had a fever in the two weeks preceding the survey. If the answer was affirmative, the respondent was asked questions about how the fever was treated, including whether the child received antimalarial drugs and when they were given for the first time. The results are shown in Table 8.6.

Table 8.6 shows that one in five children under the age of five (21 percent) had a fever in the two weeks preceding the survey. By age group, fever prevalence is highest among children age 12-23 months (26 percent) and lowest among those age 48-59 months (15 percent). However, analysis by residence shows little difference between urban and rural areas (19 and 22 percent, respectively). In the provinces, the highest prevalence of fever is in the West and East provinces (24 and 23 percent, respectively); while the lowest rates are in the City of Kigali and the North province (18 and 19 percent, respectively). By level of education and wealth quintile, the highest prevalence of fever in children under five is among children whose mothers have no education, and children in the lowest (poorest) wealth quintile (23 and 25 percent, respectively).

Table 8.6 Prevalence and prompt treatment of fever

Percentage of children under five with fever in the two weeks preceding the survey, and among children with fever, the percentage who received antimalarial drugs, the percentage who received Coartem, and the percentage who received the drugs the same day as the onset of the fever or the next day, by background characteristics, Rwanda 2007-08

	Children under five		Children under five with fever			
Background characteristic	Percentage with fever in the past two weeks	Number of children	Percentage who received antimalarial drugs	Percentage who received Coartem	Percentage who received antimalarial drugs the same or next day	Number of children
Age (in months)						
<12	23.4	1,028	5.5	4.6	0.0	240
12-23	25.5	1,226	7.2	6.4	0.4	313
24-35	23.1	959	6.3	5.0	0.4	222
36-47	18.8	1,066	2.2	2.2	0.0	201
48-59	15.4	963	6.4	5.3	0.3	149
Residence						
Urban	19.0	764	5.3	4.0	0.4	145
Rural	21.9	4,478	5.7	5.0	0.2	978
Province						
Kigali	17.7	400	3.6	1.6	0.7	71
South	20.6	1,340	3.9	3.3	0.5	276
West	23.5	1,312	5.0	4.6	0.3	309
North	18.7	925	4.6	3.9	0.0	173
East	23.4	1,263	9.0	7.9	0.0	296
Mother's education						
No education	22.7	1,321	7.0	6.2	0.0	300
Primary	21.2	3,523	4.8	4.1	0.3	748
Secondary or higher	19.2	397	9.1	7.3	0.7	76
Wealth quintile						
Lowest	24.7	778	7.0	5.7	0.7	192
Second	21.0	1,501	4.1	3.8	0.0	316
Middle	21.9	1,040	1.1	0.9	0.0	228
Fourth	22.5	1,016	8.9	8.3	0.0	229
Highest	17.6	907	9.0	6.7	0.9	160
Total	21.4	5,241	5.6	4.9	0.2	1,124

Regarding treatment of fever in children, the results show that less than 6 percent received antimalarial drugs, and 5 percent received Coartem. In addition, only 0.2 percent of the children with fever who were treated with antimalarials received the medication early, i.e., the same day as the onset of the fever or the next day. This means that, in Rwanda, only a very small proportion of children with fever received effective treatment.

8.3 MALARIA DIAGNOSTIC TESTING

Malaria diagnostic testing was included in the 2007-08 RIDHS. The testing was carried out by laboratory technicians recruited by the National Malaria Control Program (PNILP). The same group of women and children who took part in the anemia testing were tested for malaria. For each person interviewed, in addition to the rapid diagnostic test, a slide with a thick blood smear was prepared, transmitted and stored at the PNILP laboratory for microscopic examination of malarial parasites.

For diagnosing malaria in the field, the individual rapid *OptiMAL-IT*™ diagnostic test was used. The testing method is described below:

1) First the cap on the vial of buffer solution (provided in the test kit) was unsealed, and **a drop** of buffer solution was placed in the first test well (reactive well, designated by a red line) and **four drops** in the second test well (wash well), followed by a one minute wait.

2) Then **a drop** of blood was obtained from the same blood sample as the one used for the anemia testing. The blood was collected by using a single use micropipette provided in the test kit. The total volume of blood drawn with the small tube pipette was placed in the first reactive test well while stirring gently. A one minute rest period ensued, and then the pipette was put into a special waste bin.

3) The strip slide or dipstick (with the sticker) was placed into the first reactive test well. At the end of a ten minutes wait, the entire blood and reactive well mixture had moved along the reactive part of the strip slide.

4) The strip slide was next placed in the wash well for another ten minutes.

5) The strip slide was then taken out of the wash well and put back into the plastic support slots. The two wells were sealed with the plastic cover. The supports were broken off and discarded in the waste bin. The reaction was read and the result recorded. The tested strip slide must be kept in case of need.

In this survey, the results of the malaria diagnostic testing, like those in the anemia testing, were recorded in the household questionnaire so they could be linked to the respondent's background characteristics.

The results of the microscopic assessment are presented in the remainder of this chapter. Results from the malaria rapid diagnostic testing were used to treat the respondents (children under five years of age and pregnant women) who tested positive.

Table 8.7 shows the results of the malaria rapid diagnostic test for women and children. Nationally, 2.6 percent of children age 6-59 months are infected with at least one form of malarial parasites. Overall, the proportion of children with malaria is higher in rural areas than urban areas (2.7 percent compared with 1.9 percent). In addition, the results show that children in the East province (5.3 percent) are more likely to be infected with malaria than those from the other provinces and the City of Kigali.

Table 8.7 Malaria prevalence among women and children

Among children age 6-59 months and women age 15-49, percentage for whom the results of the laboratory test for malaria were positives, by background characteristics, Rwanda 2007-08

Background characteristic	Results of the laboratory text		Total	Number
	Positive	Negative		
CHILDREN				
Residence				
Urban	1.9	98.1	100.0	640
Rural	2.7	97.3	100.0	4,021
Province				
Kigali	1.9	98.1	100.0	323
South	3.0	97.0	100.0	1,225
West	0.6	99.4	100.0	1,181
North	1.2	98.8	100.0	813
East	5.3	94.7	100.0	1,121
Total	2.6	97.4	100.0	4,662
WOMEN				
Residence				
Urban	1.1	98.9	100.0	1,134
Rural	1.5	98.5	100.0	5,634
Province				
Kigali	1.2	98.8	100.0	570
South	1.0	99.0	100.0	1,763
West	0.5	99.5	100.0	1,687
North	1.3	98.7	100.0	1,165
East	2.9	97.1	100.0	1,583
Pregnant				
Pregnant	0.9	99.1	100.0	642
Not pregnant/not sure	1.4	98.6	100.0	6,126
Total	1.4	98.6	100.0	6,768

Women are less likely to be infected with malaria than children. In the country as a whole, only 1.4 percent of women have malaria. There is almost no difference by urban-rural residence (1.1 and 1.5 percent, respectively). By province, women in the East province are more affected by malaria (2.9 percent) than those in the other provinces and in the City of Kigali. In addition, women who are not pregnant are more likely to be infected than those who are pregnant (1.4 percent, compared with 0.9 percent).

8.4 PREVALENCE OF ANEMIA

Anemia is the most widespread micronutrient deficiency in the world, affecting more than 3.5 billion people in developing countries (ACC/SCN, 2000). Anemia is characterized by a reduced number of red blood cells and lower concentrations of hemoglobin in the blood. It is generally the result of a deficiency in iron, which is an essential element in the making of red blood cells. Iron deficiency is the root cause of many problems, especially among children and women. Iron deficiency in children increases the risk of impaired coordination and motor development, learning disabilities, and reduced physical activity. Anemia in women can cause lowered resistance to infection, fatigue, and, particularly for pregnant women, increased risk of maternal and fetal morbidity and mortality, and low-birth-weight babies.

During the survey, women and children in all the households surveyed were asked to give blood samples to assess hemoglobin content. Samples were collected in the following manner: a) capillary blood was taken by pricking the finger with a retractable blade (Tenderlette); b) a drop of blood was dropped into a microcuvette, which was then introduced into a portable hemoglobin reader (HemoCue), that produced a hemoglobin value in grams per deciliter of blood (g/dl) in less than one minute; c) the value given was then recorded on the questionnaire.

There is a three-level classification system for anemia based on blood hemoglobin content that was developed by researchers at the World Health Organization (DeMaeyer, 1989). For children over the age of five and non-pregnant women, anemia is considered severe if the hemoglobin content per deciliter of blood is less than 7.0 g/dl; it is considered moderate if the value is between 7.0 and 9.9 g/dl; and it is considered mild if the value is between 10.0 and 10.9 g/dl.

The amount of hemoglobin in the blood increases with altitude. This is because the partial pressure of oxygen decreases at high altitudes, as does the blood oxygen saturation. There is also a compensation factor that causes increased production of red blood cells to ensure adequate oxygen carrying capacity in the blood (CDC, 1998). In other words, the higher the altitude, the more hemoglobin needed by the blood. Because a part of Rwanda's population lives at high altitudes, the hemoglobin values were adjusted for altitude.

8.4.1 Prevalence of Anemia in Children

Table 8.8 shows that more than half (48 percent) of Rwandan children age 6 to 59 months have anemia: 21 percent are mildly anemic, 18 percent are moderately anemic, and 8 percent are severely anemic. In 2005, the prevalence rate for anemia in children under the age of five was 56 percent: 20 percent were mildly anemic, 27 percent were moderately anemic, and 9 percent were severely anemic.

More than three-quarters (78 percent) of children age 6-8 months are anemic. The prevalence drops with the child's age and is only 34 percent at 48-59 months. The results show little variation by gender or urban-rural residence, although the proportion of children who are moderately or severely anemic is slightly higher in urban areas (19 and 9 percent, respectively) than in rural areas (18 and 8 percent, respectively). There are variations by province, with the City of Kigali having the highest proportion of anemic children (56 percent) and the South province having the lowest proportion (41 percent). These data confirm similar results from the 2005 RDHS-III. In addition, 20 percent of children in the City of Kigali are severely anemic, and the level is almost as high for children in the North province (19 percent). In 2005 the prevalence of severe anemia was 25 percent in Kigali and 14 percent in the North province.

The prevalence of anemia varies somewhat by mother's level of education; it is slightly lower among children whose mothers have a secondary or higher education (46 percent) than among children whose mothers have primary education (48 percent) or no education (50 percent). However, children whose mothers have secondary or more education have the highest prevalence of severe anemia (9 percent).

The majority of children who are anemic are mildly so, and they share almost the same background characteristics as all anemic children. Paradoxically, children living in the City of Kigali (20 percent) and in the North province (19 percent), those in urban areas (9 percent), those whose mothers have secondary or higher education (9 percent), and those living in households in the two highest (richest) wealth quintiles are more affected by severe anemia than other children.

Table 8.8 Prevalence of anemia in children

Percentage of children age 6-59 months classified as having anemia, by anemia status (level of hemoglobin) and background characteristics, Rwanda 2007-08

Background characteristic	Any anemia (<11.0 g/dl)	Anemia status by hemoglobin level			Number of children
		Mild (10.0-10.9 g/dl)	Moderate (7.0-9.9 g/dl)	Severe (<7.0 g/dl)	
Age in months					
6-8	77.7	28.7	38.4	10.6	260
9-11	70.6	25.9	36.0	8.7	254
12-17	61.2	28.1	24.1	9.0	591
18-23	52.3	24.3	18.9	9.1	608
24-35	44.1	20.1	16.3	7.6	953
36-47	40.0	19.5	11.4	9.1	1 084
48-59	34.3	16.0	11.6	6.7	1 001
Sex					
Male	47.8	21.1	18.6	8.1	2 373
Female	47.2	21.7	16.9	8.6	2 379
Residence					
Urban	47.9	20.0	18.6	9.3	666
Rural	47.4	21.6	17.6	8.2	4 086
Province					
Kigali	56.0	15.7	20.6	19.7	340
South	40.7	23.0	17.1	0.6	1 243
West	46.4	24.8	16.8	4.8	1 191
North	51.1	19.2	13.3	18.6	835
East	50.9	19.5	21.8	9.6	1 143
Mother's education[1]					
No education	49.5	20.3	21.0	8.2	1 124
Primary	48.0	22.7	16.9	8.4	2 913
Secondary or higher	46.1	17.3	19.4	9.4	324
Don't know/missing	39.7	18.6	13.3	7.8	391
Wealth quintile					
Lowest	47.0	20.7	21.0	5.3	693
Second	46.8	22.2	16.4	8.2	1 373
Middle	49.0	23.4	18.2	7.4	949
Fourth	48.5	20.8	17.1	10.6	928
Highest	46.2	19.1	17.5	9.6	809
Total	47.5	21.4	17.7	8.3	4 752

Note: Table is based on children who slept in the household the night before the interview. Prevalence of anemia is based on hemoglobin levels and is adjusted for altitude using CDC formulas (CDC, 1998). Hemoglobin is measured in grams per deciliter (g/dl). Children with <7.0 g/dl of hemoglobin have severe anemia, children with 7.0-9.9 g/dl have moderate anemia, and children with 10.0-10.9 g/dl have mild anemia.

[1] For women who are not interviewed, information is taken from the Household Questionnaire. Excludes children whose mothers are not listed in the Household Questionnaire.

8.4.2 Prevalence of Anemia in Women

Table 8.9 shows the results of anemia tests among women. More than one-quarter (27 percent) of women have anemia: 15 percent are mildly anemic, 8 percent are moderately anemic, and less than 4 percent are severely anemic. The prevalence of anemia in the 2005 RDHS-III was 33 percent. There are few differences in the prevalence of anemia by woman's age and the number of children ever born. Also, neither breastfeeding nor pregnancy is significantly associated with an increased risk of anemia.

By residence, women in urban areas are proportionally more likely to have anemia than those in rural areas (30 percent, compared with 26 percent). The prevalence of anemia varies substantially by province. The highest prevalence is in the City of Kigali (40 percent), just as it is for children. High prevalence is also observed in the East (32 percent) and North (30 percent) provinces, while prevalence in the South province (19 percent) is lower than elsewhere. Anemia prevalence varies slightly by level of education, from 26 percent among women with primary education to 29 percent among women with no education. The data show no major differentials by household wealth status: the proportion of women with anemia varies from 26 percent in the lowest (poorest) wealth quintile to 29 percent in the fourth quintile.

Table 8.9 Prevalence of anemia in women

Percentage of women age 15-49 with anemia, by anemia status and background characteristics, Rwanda 2007-08

Background characteristic	Any anemia	Anemia status			Number of women
		Mild	Moderate	Severe	
Age					
15-19	25.0	14.5	7.8	2.8	1 325
20-29	27.5	15.0	8.7	3.9	2 851
30-39	27.9	16.4	7.5	4.0	1 678
40-49	27.4	16.1	7.4	3.9	1 284
Number of children ever born					
0	26.8	14.3	8.6	3.8	2 427
1	26.6	15.5	8.1	3.0	817
2-3	27.0	16.3	7.8	2.9	1 515
4-5	29.4	15.3	8.9	5.2	1 182
6+	26.2	16.7	6.1	3.4	1 196
Maternity status					
Pregnant	28.8	13.1	10.0	5.7	682
Breastfeeding	26.5	16.0	7.3	3.1	2 530
Neither	27.3	15.4	8.1	3.7	3 925
Residence					
Urban	30.2	15.1	12.1	3.0	1 201
Rural	26.5	15.5	7.2	3.8	5 936
Province					
Kigali	40.3	14.1	18.9	7.3	642
South	18.8	15.5	3.1	0.1	1 901
West	24.8	16.9	5.5	2.5	1 727
North	30.1	12.1	8.9	9.1	1 228
East	31.8	16.8	11.4	3.7	1 638
Education					
No education	29.3	17.0	8.5	3.8	1 599
Primary	26.3	15.5	7.4	3.4	4 730
Secondary or higher	27.8	12.0	10.5	5.4	808
Wealth quintile					
Lowest	25.9	17.3	6.9	1.7	1 085
Second	27.7	15.8	7.5	4.4	1 931
Middle	25.1	14.6	7.6	2.9	1 340
Fourth	28.6	16.0	7.6	5.0	1 288
Highest	27.9	13.8	10.3	3.8	1 492
Total	27.1	15.4	8.0	3.7	7 137

Note: Table is based on women who stayed in the household the night before the interview. Prevalence is adjusted for altitude using CDC formulas (CDC, 1998). Women with <7.0 g/dl of hemoglobin have severe anemia, women with 7.0-9.9 g/dl have moderate anemia, and pregnant women with 10.0-10.9 g/dl and nonpregnant women with 10.0-11.9 g/dl have mild anemia.

INFANT AND CHILD MORTALITY 9

This chapter presents information on levels, trends, and differentials in neonatal, postneonatal, infant, child and under-five mortality The information provides mortality statistics to policymakers, program managers and researchers for use in assessing the impact of health policies and programs, and to identify sectors of the population that are at high risk. Estimates of infant and child mortality also serve as necessary parameters for population projections, particularly if the level of adult mortality can be inferred with reasonable confidence. Finally, indices of childhood mortality are widely accepted as indicators of the overall living conditions of a population.

9.1 DEFINITION, METHODOLOGY AND DATA QUALITY

The mortality indicators presented in this chapter are calculated from birth history information collected for all women age 15-49 who were interviewed during the 2007-08 RIDHS. The interviewer records on the Woman's Questionnaire all the live births ever experienced by the respondent, noting the gender, age, survival status, and, for children who died, age at death: number of days (for children who died at less than one month of age), the number of months (for children who died at less than two years of age), and in years (for children who died at age two or over).

There are several methods that can be used for the direct calculation of infant and child mortality rates, e.g., the period approach, the true cohort approach, and the synthetic cohort approach. It is beyond the scope of this report to describe the differences between the main approaches, but a technical explanation can be found in the *Guide to DHS Statistics* (Rutstein and Rojas, 2003). The Demographic and Health Surveys uses the synthetic cohort approach, which calculates mortality probabilities for small age segments, and then combines these component probabilities for the full age segment of interest. The advantage to this method is that mortality rates can be calculated for periods close to the survey date while still respecting the principle of correspondence. The data needed for the calculations are in the birth history section of the Woman's Questionnaire and include the month and year of birth for all of a woman's children, the children's gender and survival status, and the current age at the time of the interview if the child is living, or age at death if the child is dead.

The following age-specific mortality measures are calculated from information collected in the birth history data:

Neonatal mortality (NN):	the probability of dying within the first month of life;
Postneonatal mortality (PNN):	the probability of dying after the first month of life but before exact age one year;
Infant mortality ($_1q_0$):	the probability of dying between birth and exact age one year;
Child mortality ($_4q_1$):	the probability of dying between exact age one and exact age five;
Under-five mortality ($_5q_0$):	the probability of dying between birth and exact age five.

All measures are expressed per 1,000 live births, except for child mortality, which is expressed per 1,000 children surviving to 12 months of age.

The quality of mortality estimates calculated from retrospective birth histories depends on the completeness with which births and deaths are reported and recorded. Potentially, the most serious data quality problem is the selective omission from the birth history of children who did not survive, which can lead to underestimation of mortality rates. Other potential problems include displacement of birth dates, which may cause a distortion of mortality trends, and misreporting of age at death, which may distort the age pattern of mortality. When selective omission of childhood deaths occurs, the impact is usually most severe for deaths in early infancy. If early neonatal deaths are selectively underreported, the result is an unusually low ratio of deaths occurring in the first seven days to all neonatal deaths, and an unusually low ratio of neonatal to infant deaths. The ratio between the first seven days to all neonatal deaths should be about 70 percent (Sullivan et al., 1990). Underreporting of early infant deaths is most commonly seen for births that occurred long before the survey; hence it is useful to examine the ratios over time.

An examination of the ratios (see Appendix Tables C.5 and C.6) shows that a very low number of early infant deaths were omitted in the 2007-08 RIDHS. The proportion of neonatal deaths occurring in the first week of life (70 percent) is close to the proportions reported in the 2005 RDHS-III (71 percent) and the 2000 RDHS-II (72 percent). Moreover, the proportions are roughly constant over the 20 years preceding the survey (varying from 65 to 72 percent). The proportion of infant deaths that occurred during the first month of life (49 percent) is entirely plausible; it is almost the same as the proportion reported in the 2005 RDHS-III (47 percent) and the 2000 RDHS-II (43 percent). The proportions are also stable over the 20 years preceding the survey (varying from 39 to 46 percent). This examination of the mortality data shows no evidence of selective underreporting or misreporting of age at death that would significantly compromise the quality of the RIDHS rates for childhood mortality.

9.2 LEVELS AND TRENDS

Table 9.1 shows the variations in neonatal, postneonatal, infant, child, and under-five mortality rates for three successive five-year periods preceding the survey. For the most recent five-year period, infant mortality was 62 deaths per 1,000 live births, and under-five mortality was 103 deaths per 1,000 live births. This means that about one in sixteen children born in Rwanda dies before the first birthday, and one in ten children dies before attaining the fifth birthday. Neonatal mortality was 28 deaths per 1,000 live births in the most recent five-year period, while postneonatal mortality was 34 deaths per 1,000. This pattern shows that about 45 percent of deaths among children under one year occur in the neonatal period, and neonatal deaths are responsible for about one-quarter of deaths among children under five years.

Table 9.1 Early childhood mortality rates

Neonatal, postneonatal, infant, child, and under-five mortality rates for five-year periods preceding the survey, Rwanda 2007-08

Years preceding the survey	Neonatal mortality (NN)	Postneonatal mortality (PNN)[1]	Infant mortality ($_1q_0$)	Child mortality ($_4q_1$)	Under-five mortality ($_5q_0$)
0-4	28	34	62	43	103
5-9	36	59	95	86	173
10-14	39	56	95	92	178

[1] Computed as the difference between the infant and neonatal mortality rates

Figure 9.1 compares infant mortality and under-five child mortality for the four five-year periods preceding the 1992 RDHS-I, the 2000 RDHS-II, the 2005 RDHS-III, and the 2007-08 RIDHS. Results from the RIDHS show that the trend toward declining mortality that began before the 1990s and was interrupted by the genocide in 1994 has since continued. The rate of infant mortality, which was estimated at 85 per 1,000 for the period 1987-1991, increased to 107 per 1,000 for the period 1995-1999. This uninterrupted increase during the genocide was followed by a renewed drop in mortality, with infant mortality returning to the level prior to the genocide by around 2002 (86 per 1,000) and reaching 62 per 1,000 by 2005. Under-five mortality shows a similar pattern. These trends suggest that, after the tragic events of 1994, which had negative repercussions on childhood mortality in the mid- and late 1990s, the situation for young children in Rwanda has improved substantially.

Figure 9.1 Trends in Infant and Under-five Mortality, Rwanda 1992, 2000, 2005, and 2007-08

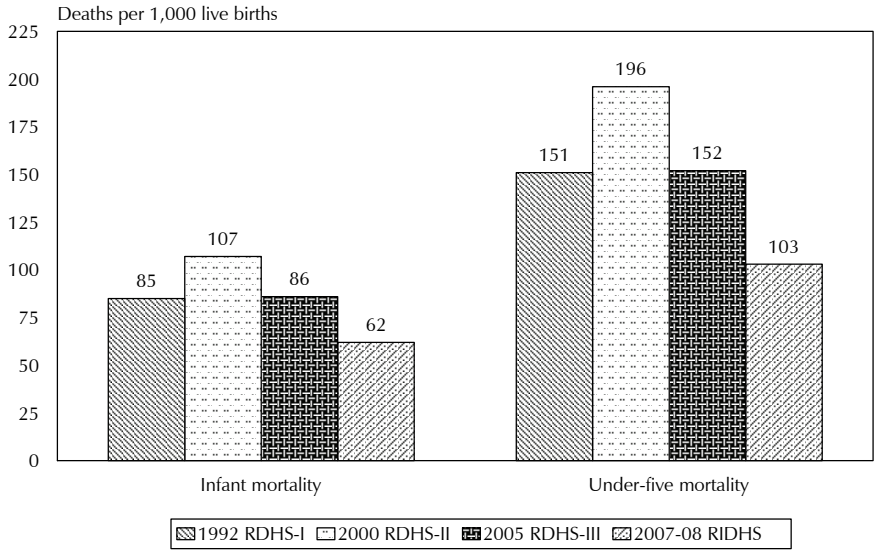
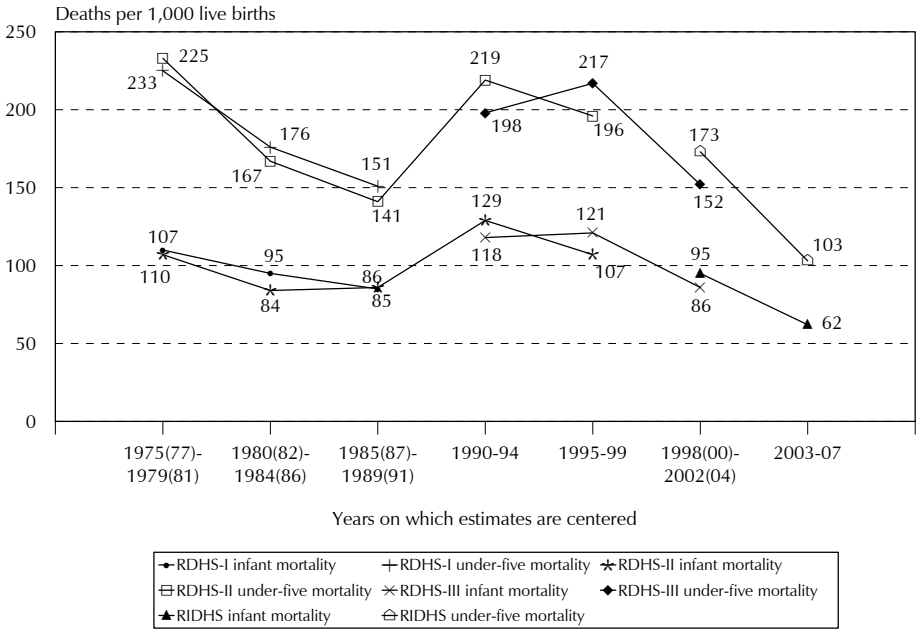


Figure 9.2 shows in more detail the trends in infant and under-five mortality over several five-year periods preceding the 1992 RDHS-I, the 2000 RDHS-II, the 2005 RDHS-III, and the 2007-08 RIDHS. Under-five mortality rates, and to a lesser extent infant mortality rates, decreased from the mid- to late 1970s into the mid- to late 1980s. In the 1990s, there was a pronounced increase in deaths among young children, with mortality levels at or above levels in the 1970s. This increase in mortality corresponds to periods of civil unrest in the early 1990s, especially the culmination of this unrest in the 1994 genocide. The genocide resulted in widespread disintegration of the social and health infrastructure, with an increase in deaths of young children. Since the genocide, infant and child mortality have dropped considerably, and the decline has been accelerating in recent years.

Figure 9.2 Trends in Infant and Under-five Mortality from 1992 RDHS-I, 2000 RDHS-II, 2005 RDHS-III, and 2007-08 RIDHS



9,3 DIFFERENTIALS IN INFANT AND CHILD MORTALITY

Mortality differentials by residence, province, mother's education, and wealth quintile are presented in Table 9.2 and Figure 9.3. To have sufficient numbers of births to analyze mortality differentials across population subgroups, period-specific rates are presented for the ten-year period preceding the survey (mid-1998 to mid-2008).

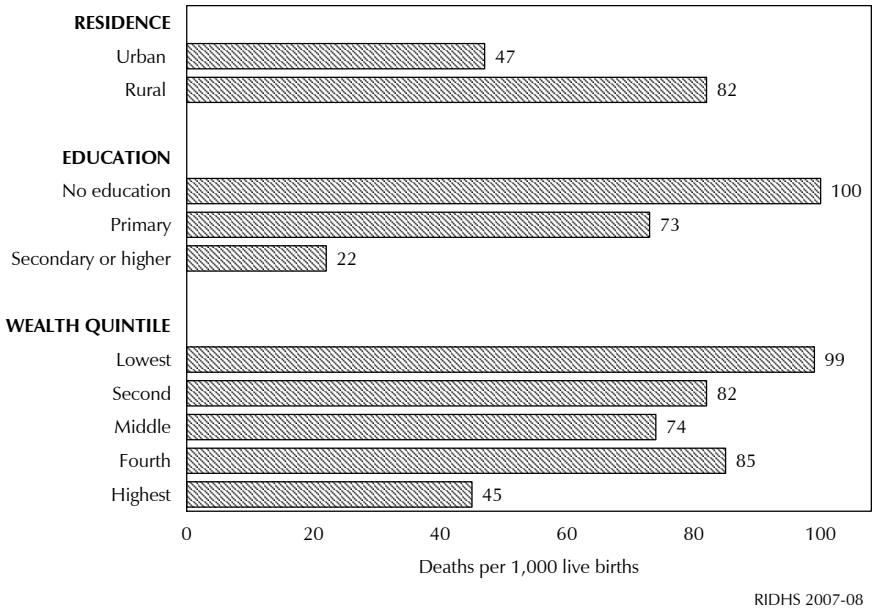
Table 9.2 Early childhood mortality rates by socioeconomic characteristics

Neonatal, postneonatal, infant, child, and under-five mortality rates for the 10-year period preceding the survey, by background characteristic, Rwanda 2007-08

Background characteristic	Neonatal mortality (NN)	Postneonatal mortality (PNN)[1]	Infant mortality ($_1q_0$)	Child mortality ($_4q_1$)	Under-five mortality ($_5q_0$)
Residence					
Urban	19	28	47	43	87
Rural	34	48	82	65	142
Province					
Kigali city	28	33	60	44	102
South	32	46	79	53	127
West	31	47	79	55	129
North	35	36	71	47	115
East	30	54	84	98	174
Mother's education					
No education	42	58	100	83	174
Primary	29	45	73	57	127
Secondary or higher	16	6	23	21	43
Wealth quintile					
Lowest	40	59	99	69	161
Second	32	49	82	73	149
Middle	34	40	74	62	132
Fourth	32	54	85	60	141
Highest	20	24	45	41	84

[1] Computed as the difference between the infant and neonatal mortality rates

Figure 9.3 Infant Mortality by Mother's Background Characteristics



Childhood mortality is higher in rural areas than in urban areas: the under-five mortality rate in rural areas (142 per 1,000) is 63 percent higher than the rate in urban areas (87 per 1,000). There are large differentials by province. The highest levels of mortality are found in the East province, which has an infant mortality rate of 84 per 1,000 and an under-five mortality rate of 174 per 1,000. The lowest levels are found in the City of Kigali (60 per 1,000 for infant mortality and 102 per 1,000 for under-five mortality). Variations in mortality by province should be interpreted with caution because of the relatively large sampling errors when the sample is stratified by province or other background characteristics (see Appendix B).

Mother's level of education is inversely related to a child's risk of dying. There are substantial differences between the mortality rates for children of women who have secondary or higher education and the rates for children whose mothers have primary education or no education. In Figure 9.3, the under-five mortality rates for children of mothers with no education are the highest (174 deaths per 1,000 live births), followed by children of mothers with primary education (127 per 1,000 live births), and finally, children of mothers with secondary or higher education (43 deaths per 1,000 live births). The same trend is seen for infant mortality rates.

Under-five mortality rates by wealth quintile generally show the expected direction, with children in poorer households having a higher probability of dying than children in the richest households. Children in the three middle quintile households, however, have an irregular pattern with differing rates of dying. This result merits deeper analysis.

Childhood mortality rates by sex of child, age of mother at birth, birth order, previous birth interval, and size at birth are presented in Table 9.3. Differences in mortality at birth between males and females are observed in nearly all populations. The results for Rwanda indicate that female mortality is lower than male mortality at all ages up to five years.

Table 9.3 Early childhood mortality rates by demographic characteristics

Neonatal, postneonatal, infant, child, and under-five mortality rates for the 10-year period preceding the survey, by demographic characteristics, Rwanda 2007-08

Demographic characteristic	Neonatal mortality (NN)	Postneonatal mortality (PNN)[1]	Infant mortality ($_1q_0$)	Child mortality ($_4q_1$)	Under-five mortality ($_5q_0$)
Child's sex					
Male	34	49	83	69	146
Female	29	42	71	55	123
Mother's age at birth					
<20	38	59	96	88	176
20-29	29	43	71	64	131
30-39	36	47	83	57	135
40-49	26	47	73	21	93
Birth order					
1	32	44	77	73	144
2-3	28	40	68	62	125
4-6	31	46	78	57	130
7+	41	61	102	59	155
Previous birth interval [2]					
<2 years	56	76	132	90	210
2 years	24	37	61	56	114
3 years	15	31	46	46	90
4+ years	28	35	62	34	95

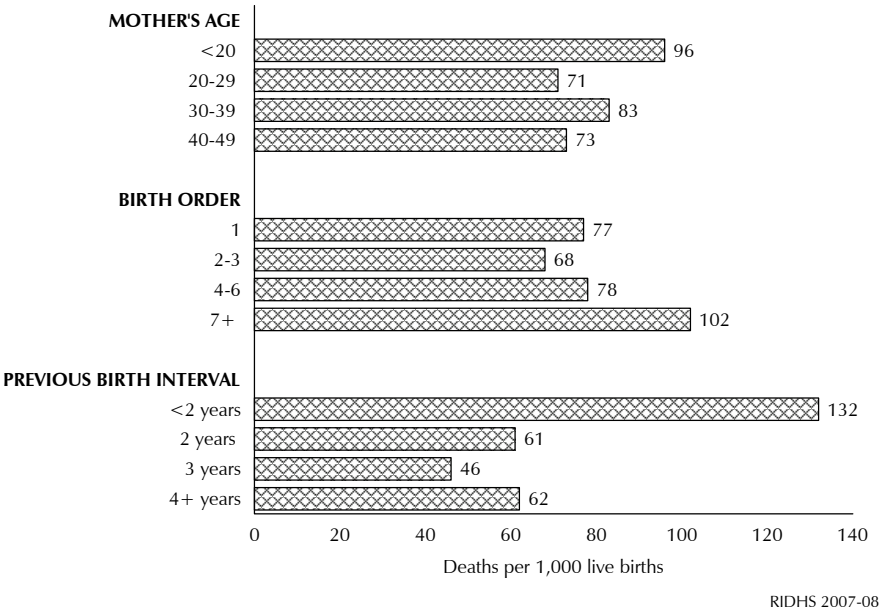
[1] Computed as the difference between the infant and neonatal mortality rates
[2] Excludes first-order births

The relationship between mother's age at birth and infant mortality shows that children born to the youngest women (under age 20) have the greatest risk of dying in the first year (96 per 1,000), followed by children of women age 30-39 (83 per 1,000) (Figure 9.4). The risk of dying in the first year is lowest for children of women age 20-29 (71 per 1,000) and women age 40-49 (73 per 1,000). Neonatal mortality shows similar trends.

Under-five mortality rates show a less defined pattern by mother's age at birth; however, children of mothers under age 20 still have the greatest risk of dying (176 per 1,000), followed by children of mothers age 30-39 (135 per 1,000), and children of mothers age 20-29 (131 per 1,000). However, the lowest under-five mortality rates by mother's age at birth are for women age 40-49 (93 per 1,000). It appears that these children have a better chance of survival than the children of younger mothers.

The length of the birth interval has a significant impact on a child's chances of survival, with short birth intervals increasing the risk of dying (Figure 9.4). As the birth interval gets longer, mortality risk is reduced considerably. Children born less than two years after a prior sibling have substantially greater risk of dying than children born after an interval of two or more years. For example, the infant mortality rate is 132 deaths per 1,000 live births for children born after an interval of less than two years, compared with 46 deaths per 1,000 for children born after an interval of three years.

Figure 9.4 Infant Mortality by Mother's Reproductive Behavior



RIDHS 2007-08

9.4 HIGH-RISK FERTILITY BEHAVIOR

Research has shown that there is a strong relationship between children's chances of dying and certain fertility behaviors of the mother. Typically, the probability of dying in early childhood is much greater if children are born to mothers who are too young or too old, if they are born after a short birth interval, and if they are born to mothers with high parity. Very young mothers may experience difficult pregnancies and deliveries because of their physical immaturity. Older women may also experience age-related problems during pregnancy and delivery. In this analysis, a mother is classified as "too young" if she is less than 18 years of age and "too old" if she is over 34 years of age at the time of delivery; a "short birth interval" is defined as a birth occurring within 24 months of a previous birth; and a "high order" birth is one occurring after three or more previous births (i.e., birth order four or higher). First order births may be at increased risk of dying, relative to births of other orders; however, this distinction is not included in the risk categories in Table 9.4 because it is not considered avoidable fertility behavior. Also, for the short birth interval category, only children with a preceding interval of less than 24 months are included.

Table 9.4 presents the distribution of children born in the five years preceding the survey by corresponding categories of increased risk of dying:

- First order births that present a high risk of dying but are unavoidable, except for births to mothers under age 18. First order births and those to mothers over age 18 years were therefore separated.
- Births to mothers in a single high-risk category: early fertility (under age 18) or late fertility (age 35 or more), short birth interval (less than 24 months), and high birth order (greater than 3).
- Births combining multiple high-risk factors according to mother's age at birth, birth interval, and birth order.
- Finally, births not in any high-risk category defined above.

Table 9.4 shows that 25 percent of births in the five years preceding the survey do not come under any of the high-risk categories identified; 20 percent are at high risk because they are first births and unavoidable; 31 percent fall into a single high-risk category, and 24 percent fall into multiple high-risk categories. To assess the increased risk of dying for children whose mothers show certain fertility behaviors, "risk ratios" were calculated by taking as a reference point births that do not belong in any high-risk category. The risk ratio is therefore the ratio of the proportion dead among children in each high-risk category to the proportion dead among children not in any high-risk category.

Births with unavoidable risks include first-order births that do not occur too early or too late (i.e., before age 18 or after age 34); they appear here as births at risk. In Rwanda, these births present a risk of dying 1.32 times higher than the reference category made up of children who have none of the risks considered.

Table 9.4 High-risk fertility behavior

Percent distribution of children born in the five years preceding the survey by category of elevated risk of mortality and the risk ratio, and percent distribution of currently married women by category of risk if they were to conceive a child at the time of the survey, Rwanda 2007-08

Risk category	Births in the 5 years preceding the survey		Percentage of currently married women[1]
	Percentage of births	Risk ratio	
Not in any high-risk category	24.8	1.00	17.3[a]
Unavoidable risk category			
First-order births between ages 18 and 34	19.9	1.32	5.5
Single high-risk category			
Mother's age <18	1.4	1.93	0.1
Mother's age >34	1.6	0.70	2.6
Birth interval <24 months	8.0	1.46	11.0
Birth order >3	19.9	1.04	16.6
Subtotal	30.9	1.17	30.4
Multiple high-risk category			
Age <18 and birth interval <24 months[2]	0.1	*	0.0
Age >34 and birth interval <24 months	0.1	*	0.4
Age >34 and birth order >3	15.4	0.92	28.5
Age >34 and birth interval <24 months and birth order >3	3.0	2.74	6.8
Birth interval <24 months and birth order >3	5.9	1.77	11.0
Subtotal	24.4	1.37	46.8
In any avoidable high-risk category	55.3	1.26	77.2
Total	100.0	na	100.0
Number of births/women	5,656	na	3,888

Note: Risk ratio is the ratio of the proportion dead among births in a specific high-risk category to the proportion dead among births not in any high-risk category.An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.
na = Not applicable
[1] Women were assigned to risk categories according to the status they would have at the birth of a child if they were to conceive at the time of the survey: current age less than 17 years and 3 months or older than 34 years and 2 months, latest birth less than 15 months ago, or latest birth being of order 3 or higher.
[2] Includes the category age <18 and birth order >3
[a] Includes sterilized women

A child belonging to any single high-risk category (not including children who are first-order births and whose mothers are age 18-34) run a risk of dying 1.17 times higher than a child who is not in any high-risk category. A short birth interval is a high-risk factor because a child born less than 24 months after the previous birth runs a risk of dying 1.46 times greater than the reference category. This is also the case for early fertility, because children born to teenage mothers run a risk of dying 1.93 times greater than children in the reference group. Children in multiple high-risk categories are at greatest risk because their risk of dying is 1.37 times that for children who are not in any high-risk category. Children whose mothers are older than 34 years, who were born after an interval of less than 24 months, and whose birth order is greater than 3, are particularly exposed, with a risk of dying 2.74 times higher than the reference group.

An analysis of high-risk fertility behavior was made to determine the percentage of currently married women who have the potential for a high-risk birth. This was obtained by simulating the distribution of currently married women according to the risk category in which a birth would fall if a woman were to conceive at the time of the survey. The high-risk potential was calculated from a woman's current age, from the interval since her most recent birth, and from the birth order of her last birth. It appears that only 17 percent of births would be children who are not in any high-risk category. Overall, 77 percent of currently married women have the potential for having a high-risk birth, with 30 percent falling into a single high-risk category and 47 percent falling into a multiple high-risk category.

CIRCUMCISION 10

Circumcision is a practice involving removal of the foreskin and is primarily based on religion. It is mentioned in the Bible and practiced by Jews, Muslims, as well as some Christian groups. About one in every six men in the world is circumcised (Williams and Kapila, 1993). In addition to the religious and cultural reasons, circumcision is also practiced based on hygienic and medical reasons. According to current medical opinion, circumcision may provide protection against HIV infection. At the beginning of 2008, the Rwandan Health Ministry (MINISANTÉ) announced that it planned to include circumcision in its national programs for combating HIV/AIDS, and indicated that a voluntary circumcision program in Rwanda would start in August 2008.

The 2007-08 RIDHS collected data on the prevalence of circumcision among male respondents, including age at circumcision and type of practitioner who performed the procedure. Circumcised men were also asked the main reason for their circumcision.

10.1 PRACTICE OF MALE CIRCUMCISION

In Rwanda, only 12 percent of men age 15-59 have been circumcised (Table 10.1). The rate varies according to their background characteristics. Results by age group show that the prevalence of circumcision is higher in the younger age groups, going from 6 percent among men age 55-59 to 15 percent among men age 25-29 and 30-34 (Figure 10.1). There are also large geographic differentials, with the practice occurring more frequently in urban areas (31 percent) than in rural areas (8 percent). By province, the proportion of men who are circumcised is highest in the City of Kigali (35 percent) and the West province (18 percent), while it does not exceed 7 percent in the other provinces. There are also socioeconomic differences in the prevalence of circumcision, with the highest proportions among men who have secondary or higher education (38 percent) and those in the highest (richest) wealth quintile (31 percent). Finally, differentials by religion show that a large proportion of Muslim men are circumcised (82 percent).

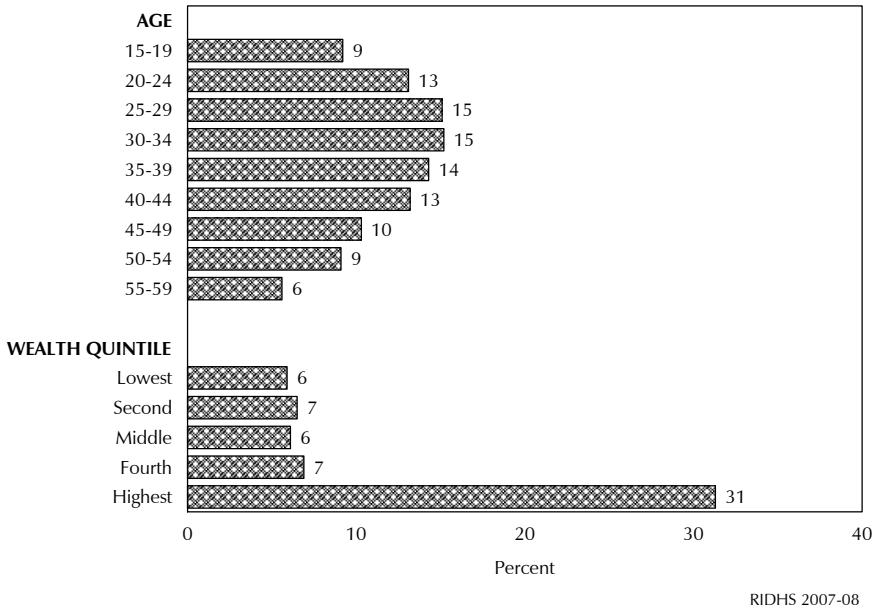
Men who were circumcised were asked who had performed the procedure. About seven in ten men (70 percent) said they were circumcised by a health professional. This proportion remains high irrespective of background characteristics (Figure 10.2). In urban areas (78 percent), in the City of Kigali (74 percent), in the South province (75 percent), among the most educated men (82 percent), and among men in the highest (richest) wealth quintile (77 percent), at least three-quarters of circumcisions were performed by a health professional. The lowest rate is seen among Muslims (47 percent), who were almost as likely to be circumcised by a traditional practitioner (46 percent).

Table 10.1 Practice of circumcision

Percentage of men age 15-59 who are circumcised, and percent distribution of circumcised men by type of practitioner who performed the circumcision, according to background characteristics, Rwanda 2007-08

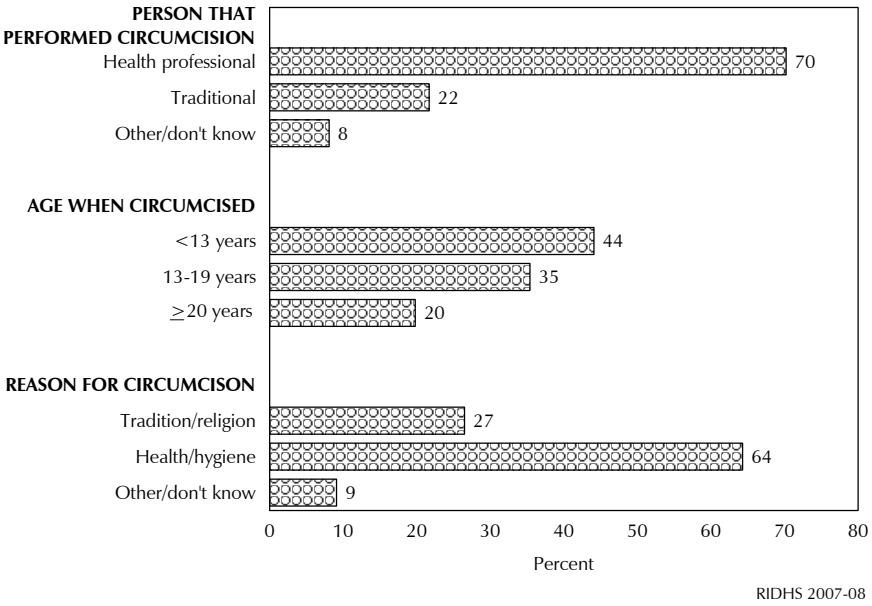
Background characteristic	Percentage of circumcised men	Number of men	Person who performed circumcision			Total	Number of circumcised men
			Health professional	Traditional practitioner	Don't know		
Age							
15-19	9.2	1,461	64.8	22.9	12.3	100.0	135
20-24	13.1	1,245	74.6	17.3	8.1	100.0	163
25-29	15.1	1,156	76.0	18.8	5.1	100.0	174
30-34	15.2	769	69.0	24.2	6.8	100.0	117
35-39	14.3	616	64.7	23.7	11.6	100.0	88
40-44	13.2	522	62.3	26.2	11.5	100.0	69
45-49	10.3	428	75.8	17.5	6.7	100.0	44
50-54	9.1	383	70.8	28.2	1.0	100.0	35
55-59	5.6	257	63.4	36.6	0.0	100.0	15
Residence							
Urban	31.3	1,248	77.5	16.0	6.6	100.0	391
Rural	8.0	5,589	63.9	26.7	9.5	100.0	448
Province							
Kigali city	35.3	763	73.7	18.2	8.1	100.0	270
South	6.9	1,743	74.8	18.8	6.5	100.0	120
West	17.7	1,688	67.7	25.7	6.5	100.0	299
North	4.6	1,149	65.2	17.1	17.6	100.0	53
East	6.5	1,494	65.2	25.0	9.8	100.0	97
Education							
No education	6.0	1,194	58.5	30.9	10.6	100.0	72
Primary	8.2	4,625	60.1	31.2	8.8	100.0	381
Secondary or higher	37.9	1,018	82.4	10.6	7.0	100.0	386
Religion							
Catholic	9.7	3,517	76.2	16.1	7.7	100.0	341
Protestant	11.4	2,205	71.0	18.7	10.4	100.0	253
Adventist	12.0	754	81.1	13.4	5.5	100.0	91
Muslim	82.4	164	47.3	45.8	6.9	100.0	135
Other	12.4	76	68.3	30.7	1.0	100.0	10
No religion/missing	8.4	121	56.7	29.7	13.6	100.0	10
Wealth quintile							
Lowest	5.9	833	57.2	32.2	10.6	100.0	49
Second	6.5	1,737	60.8	29.8	9.5	100.0	113
Middle	6.1	1,342	61.6	29.4	9.0	100.0	82
Fourth	6.9	1,313	59.9	31.3	8.8	100.0	91
Highest	31.3	1,612	76.9	15.8	7.3	100.0	504
Total	12.3	6,837	70.2	21.7	8.1	100.0	839

Figure 10.1 Proportion of Circumcised Men by Age and by Wealth Quintile



RIDHS 2007-08

Figure 10.2 Practice of Circumcision



Men who said they had been circumcised were asked how old they were at the time of circumcision. The results are presented in Table 10.2. Slightly more than two in five circumcisions (44 percent) took place before the age of 13, and over one-third of cases (35 percent) were performed between the ages of 13 and 19. However, one out of five men (20 percent) was circumcised relatively late, at the age 20 or later. Only 1 percent of the men were not certain when they were circumcised, perhaps because they were circumcised at a very young age and do not remember the event. No specific trends in age at circumcision can be seen with respect to the different age groups. However, in subgroups with high prevalence of circumcision, such as Muslims, men living in urban areas, men who have secondary or higher education, and men in the wealthiest households, circumcision was performed before the age of 13 in half of the case (50 to 53 percent). Among Muslims this rate is slightly higher, reaching 59 percent.

Table 10.2 Age at circumcision

Percent distribution of circumcised men age 15-59 by age at circumcision, according to background characteristics, Rwanda 2007-08

Background characteristic	Age at circumcision				Total	Number of circumcised men
	<13 years	13-19 years	≥20 years	Don't know/ missing		
Age						
15-19	69.5	27.0	1.4	2.1	100.0	135
20-24	42.4	45.4	12.2	0.0	100.0	163
25-29	35.1	37.8	26.8	0.3	100.0	174
30-34	37.3	39.3	22.7	0.7	100.0	117
35-39	45.6	25.8	28.5	0.0	100.0	88
40-44	34.0	33.5	30.1	2.4	100.0	69
45-49	47.4	19.9	30.5	2.1	100.0	44
50-54	29.5	46.2	24.3	0.0	100.0	35
55-59	50.2	27.9	22.0	0.0	100.0	15
Residence						
Urban	52.5	30.7	16.4	0.5	100.0	391
Rural	36.7	39.5	22.7	1.1	100.0	448
Province						
Ville de Kigali	48.9	34.1	16.5	0.5	100.0	270
South	27.6	34.9	36.1	1.4	100.0	120
West	51.1	38.2	10.7	0.0	100.0	299
North	35.3	29.8	31.3	3.6	100.0	53
East	33.8	33.9	30.4	1.9	100.0	97
Education						
No education	39.7	33.7	24.3	2.3	100.0	72
Primary	37.3	42.3	19.0	1.3	100.0	381
Secondary or higher	51.5	28.8	19.6	0.0	100.0	386
Religion						
Catholic	37.4	40.2	21.5	1.0	100.0	341
Protestant	44.3	36.9	18.1	0.7	100.0	253
Adventist	42.6	32.6	23.8	1.0	100.0	91
Muslim	59.3	23.4	16.7	0.6	100.0	135
Other	48.9	22.7	28.5	0.0	100.0	10
No religion/missing	66.5	33.5	0.0	0.0	100.0	10
Wealth quintile						
Lowest	40.7	46.5	12.8	0.0	100.0	49
Second	38.5	35.9	22.4	3.1	100.0	113
Middle	33.0	38.3	28.7	0.0	100.0	82
Fourth	28.6	48.1	20.4	3.0	100.0	91
Highest	50.2	31.4	18.3	0.1	100.0	504
Total	44.1	35.4	19.8	0.8	100.0	839

10.2 REASONS FOR MALE CIRCUMCISION

Men who reported being circumcised were asked the main reason they had undergone the procedure. The results are shown in Table 10.3. Nearly two-thirds of men (64 percent) said they had been circumcised for health or hygienic reasons. A little over one-quarter (27 percent) of the men mentioned tradition or religion as the main reason they were circumcised. Nine percent of men did not provide an answer to the question. Over three-quarters of Muslims (76 percent) were circumcised for religious or traditional reasons. Among men who have secondary education or higher (71 percent), and those in the highest (richest) wealth quintile, circumcision is more frequently carried out for reasons related to health or hygiene (71 and 68 percent, respectively) than to conform to traditional or religious practices (23 and 27 percent, respectively).

Table 10.3 Reason for circumcision

Percent distribution of circumcised men age 15-59 by reason for circumcision, according to background characteristics, Rwanda 2007-08

Background characteristic	Reason for circumcision: Tradition/ religion	Health/ hygiene	Other/ don't know/ missing	Total	Number of circumcised men
Age					
15-19	27.3	58.0	14.6	100.0	135
20-24	17.6	73.7	8.7	100.0	163
25-29	26.5	65.0	8.5	100.0	174
30-34	30.3	64.2	5.5	100.0	117
35-39	29.2	61.5	9.2	100.0	88
40-44	26.8	63.1	10.0	100.0	69
45-49	31.1	55.8	13.0	100.0	44
50-54	22.6	75.3	2.1	100.0	35
55-59	67.2	32.8	0.0	100.0	15
Residence					
Urban	31.4	63.8	4.8	100.0	391
Rural	22.3	64.8	12.9	100.0	448
Province					
Kigali City	30.7	61.6	7.7	100.0	270
South	24.8	66.4	8.8	100.0	120
West	21.4	67.8	10.9	100.0	299
North	24.7	67.5	7.8	100.0	53
East	34.2	56.9	8.9	100.0	97
Education					
No education	32.5	63.3	4.3	100.0	72
Primary	29.1	58.3	12.6	100.0	381
Secondary or higher	22.9	70.5	6.6	100.0	386
Religion					
Catholic	16.7	73.0	10.3	100.0	341
Protestant	15.8	71.3	13.0	100.0	253
Adventist	19.6	75.1	5.3	100.0	91
Muslim	75.8	23.3	0.9	100.0	135
Other/missing	41.3	54.0	4.7	100.0	20
Wealth quintile					
Lowest	30.0	56.8	13.2	100.0	49
Second	28.8	52.0	19.1	100.0	113
Middle	27.1	66.5	6.4	100.0	82
Fourth	20.6	61.7	17.6	100.0	91
Highest	26.6	67.9	5.4	100.0	504
Total	26.5	64.3	9.1	100.0	839

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SAMPLING DESIGN

APPENDIX A

A.1 INTRODUCTION

The 2007-08 Rwanda Interim Demographic and Health Survey (2007-08 RIDHS) followed the third standard DHS (2005 RDHS-III), which was conducted in 2005. It is composed of a nationally representative sample of approximately 7,500 households selected from 250 clusters. All women age 15-49 and all men age 15-59 who were usual residents of the households or who were present in the sampled households on the night before the survey were eligible to be interviewed. The primary goal of the survey was to collect data on demographic and health indicators of women, men, and children. The data were representative at the national level, for urban and rural areas separately, and for each of the five provinces. To obtain results that would be compared with the results from the 2005 RDHS-III, the 2007-08 RIDHS selected a subsample of 250 clusters from the 462 clusters of the 2005 RDHS-III, where the households in each cluster were independently selected. The survey methodology of the 2007-08 RIDHS is the same as that of the 2005 RDHS-III, which is presented in section A.3. The survey interviewed 30 households per cluster; the distribution of the sample is presented in the Table A.1.

Table A.1 Distribution of clusters and households by urban-rural residence and province, Rwanda 2007-08

	Number of clusters selected			Number of households selected		
Province	Urban	Rural	Subtotal	Urban	Rural	Subtotal
Kigali City	25	0	25	750	0	750
Kigali Ngali	3	18	21	90	540	630
Gitarama	5	16	21	150	480	630
Butare	6	15	21	180	450	630
Gikongoro	3	17	20	90	510	600
Cyangugu	3	17	20	90	510	600
Kibuye	3	17	20	90	510	600
Gisenyi	3	18	21	90	540	630
Ruhengeri	3	18	21	90	540	630
Byumba	3	17	20	90	510	600
Umutara	2	18	20	60	540	600
Kibungo	4	16	20	120	480	600
Total	63	187	250	1,890	5,610	7,500

A.2 SURVEY RESULT

Tables A.2 and A.3 present the detailed results from the interviewed households, women, and men by urban-rural residence and province.

Table A.2 Sample implementation: Women

Percent distribution of households and eligible women by the result of the household and individual interviews, and household, eligible women, and overall response rates by urban-rural residence and province, Rwanda 2007-08

	Residence		Province					
Result of the interviews	Urban	Rural	Kigali City	South	West	North	East	Total
Households selected								
Completed (a)	97.7	99.1	96.3	98.8	99.0	99.3	99.4	98.8
Household present but no respondent at home (b)	0.8	0.3	1.4	0.5	0.2	0.3	0.1	0.4
Postponed (c)	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Refused (d)	0.1	0.0	0.2	0.0	0.1	0.0	0.0	0.1
Dwelling not found (e)	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Household absence (f)	0.8	0.5	1.1	0.5	0.5	0.4	0.4	0.5
Dwelling vacant/address not a dwelling (g)	0.2	0.1	0.4	0.0	0.1	0.0	0.1	0.1
Dwelling destroyed (h)	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0
Other (i)	0.2	0.0	0.4	0.1	0.0	0.0	0.0	0.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of household selected	1,632	5,837	929	1,830	1,950	1,140	1,620	7,469
Household response rate (HRR)	99.1	99.6	98.4	99.4	99.6	99.7	99.9	99.5
Eligible women								
Completed (1)	96.2	97.4	95.4	96.4	99.0	95.8	97.9	97.1
Not at home (2)	2.7	1.7	3.5	2.5	0.6	2.7	1.4	2.0
Postponed (3)	0.1	0.1	0.0	0.2	0.0	0.0	0.0	0.1
Refuse (4)	0.3	0.2	0.4	0.3	0.2	0.6	0.0	0.3
Partially competed (5)	0.1	0.1	0.3	0.1	0.0	0.1	0.0	0.1
Incapacitated (6)	0.6	0.4	0.2	0.6	0.2	0.6	0.5	0.4
Other (7)	0.1	0.1	0.2	0.1	0.0	0.2	0.2	0.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	1,809	5,719	1,017	1,893	1,881	1,081	1,656	7,528
Eligible women response rate (EWRR)	96.2	97.4	95.4	96.4	99.0	95.8	97.9	97.1
Overall response rate (ORR)	95.3	97.1	93.8	95.8	98.6	95.6	97.8	96.6

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

$$\frac{100 * (a)}{(a) + (b) + (c) + (d) + (e)}$$

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

$$\frac{100 * (1)}{(1) + (2) + (4) + (5) + (6) + (7)}$$

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

Table A.3 Sample implementation: Men

Percent distribution of households and eligible men by the result of the household and individual interviews, and household, eligible men, and overall response rates by residence and province, Rwanda 2007-08

	Residence		Province					
Result of the interviews	Urban	Rural	Kigali City	South	West	North	East	Total
Households selected								
Completed (a)	97.7	99.1	96.3	98.8	99.0	99.3	99.4	98.8
Household present but no respondent at home (b)	0.8	0.3	1.4	0.5	0.2	0.3	0.1	0.4
Postponed (c)	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Refused (d)	0.1	0.0	0.2	0.0	0.1	0.0	0.0	0.1
Dwelling not found (e)	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Household absence (f)	0.8	0.5	1.1	0.5	0.5	0.4	0.4	0.5
Dwelling vacant/address not a dwelling (g)	0.2	0.1	0.4	0.0	0.1	0.0	0.1	0.1
Dwelling destroyed (h)	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0
Other (i)	0.2	0.0	0.4	0.1	0.0	0.0	0.0	0.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of household selected	1,632	5,837	929	1,830	1,950	1,140	1,620	7,469
Household response rate (HRR)	99.1	99.6	98.4	99.4	99.6	99.7	99.9	99.5
Eligible men								
Completed (1)	94.9	95.6	93.3	92.9	98.2	95.8	96.0	95.4
Not at home (2)	4.3	3.5	5.6	6.2	1.1	3.6	2.5	3.7
Postponed (3)	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.1
Refuse (4)	0.0	0.2	0.2	0.1	0.2	0.2	0.1	0.2
Partially competed (5)	0.3	0.2	0.2	0.4	0.2	0.1	0.4	0.3
Incapacitated (6)	0.4	0.4	0.5	0.3	0.3	0.1	0.7	0.4
Other (7)								
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of men	1,829	5,339	1,120	1,716	1,819	1,004	1,509	7,168
Eligible men response rate (EMRR)	94.9	95.6	93.3	92.9	98.2	95.8	96.0	95.4
Overall response rate (ORR)	94.0	95.2	91.8	92.3	97.9	95.6	95.9	94.9

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

$$\frac{100 * (a)}{(a) + (b) + (c) + (d) + (e)}$$

[2] Using the number of eligible men falling into specific response categories, the eligible man response rate (EMRR) is calculated as:

$$\frac{100 * (1)}{(1) + (2) + (4) + (5) + (6) + (7)}$$

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

A.3 SAMPLE DESIGN OF THE 2005 RWANDA DEMOGRAPHIC AND HEALTH SURVEY

A.3.1 Introduction

The third Demographic and Health Survey in Rwanda (2005 RDHS-III) followed those conducted in 1992 and 2000. It is composed of a nationally representative sample of approximately 10,500 households. All women age 15-49 who were usual residents of the household or who were present in the sampled households on the night before the survey, were eligible to be interviewed. In addition, a subsample of 50 percent of all households selected for the women's questionnaire was selected for the men's questionnaire. In this subsample of households, all men age 15-59 were eligible to be interviewed and, in addition, all eligible men and women were asked to consent to an HIV test. As with the prior two surveys, the primary goal of the survey was to collect data on fertility, knowledge and use of contraception, maternal and childhood mortality, and sexually transmitted infections and HIV/AIDS. The data were representative at the national level, for urban and rural areas separately, and for each of the five provinces. The sample was designed to be representative for each of the 12 old provinces, and is therefore representative at the level of the five new provinces, because these represent a regrouping of the 12 old provinces.

A.3.2 Sampling Frame

The Service National de Recensement (SNR) [National Census Service] has a computer file of 7,727 enumeration areas (EAs) created for the 2002 General Population and Housing Census (SNR, 2005). In that file, each EA is listed with all of its identifiers (province, district, and identification code), its population size, number of households, and urban-rural classification. The boundaries for each EA are clearly identifiable on the cartographic maps created for the 2002 GPHC. The distribution of EAs and of households among the 12 old provinces and according to urban-rural residence is shown in Table A.4.

Table A.4 Distribution of households and enumeration areas (EAs) by old province and according to residence (RGPH, 2002)

	Number of households			Number of EAs		
Old province	Urban	Rural	Total	Urban	Rural	Total
Kigali City	124,964	0	124,964	565	0	565
Kigali Ngali	11,513	160,967	172,480	41	694	735
Gitarama	27,205	157,108	184,313	116	698	814
Butare	27,117	137,526	164,643	113	568	681
Gikongoro	6,258	100,833	107,091	28	465	493
Cyangugu	9,284	111,267	120,551	42	559	601
Kibuye	9,654	92,747	102,401	40	432	472
Gisenyi	12,360	174,853	187,213	51	761	812
Ruhengeri	14,474	178 ,86	193,160	61	779	840
Byumba	12,294	139,645	151,939	50	615	665
Umutara	1,843	89,817	91,660	7	393	400
Kibungo	16,015	140,996	157,011	64	585	649
Total	272,981	1,484,445	1,757,426	1,178	6,549	7,727

A.3.3 Sample Selection

The sample for the 2005 RDHS-III used a stratified, two-stage cluster selection. The primary sampling unit is the EA as defined in the 2002 census. Each province is separated into urban and rural areas to create the sampling strata and the sample was drawn independently in each stratum. There were therefore 23 strata in total, because the City of Kigali had no rural areas. In the first stage, 462 EAs were selected with probability proportional to size, the size being the number of households in the EA. An updating operation listed all the households in each selected EA and this list was used to select the households for the second stage. Before this updating of the households, the larger EAs were divided into segments, of which only one was selected for the survey. In the second stage, in each EA selected in the first stage, a fixed number of households (20 households in each urban cluster, 24 households in each rural cluster) were selected using a systematic selection based on the new list of households created during the household listing. In all, 10,644 households were selected for the women's interview.

All members of each selected household were listed in the Household Questionnaire. Every woman age 15-49 in the household was interviewed using the Women's Questionnaire. Half of the households selected for the women's interview were also selected for the men's interview. In this subsample of households all men age 15-59 were interviewed. All men age 15-59 and all women age 15-49 in this subsample of households were also asked to consent to an HIV test.

Table A.5 shows the sample allocation by old province and according to urban-rural residence. In all, 462 EAs were selected (111 in urban areas and 351 in rural areas), and 10,644 households were selected (2,220 in urban areas and 8,424 in rural areas).

Table A.5 Sample allocation by old province and according to residence

	Number of households			Number of EAs			Expected number of interviewed women
Old province	Urban	Rural	Total	Urban	Rural	Total	
Kigali City	880	0	880	44	0	44	899
Kigali Ngali	100	792	892	5	33	38	911
Gitarama	180	696	876	9	29	38	894
Butare	200	672	872	10	28	38	890
Gikongoro	100	792	892	5	33	38	911
Cyangugu	120	768	888	6	32	38	907
Kibuye	120	768	888	6	32	38	907
Gisenyi	100	792	892	5	33	38	911
Ruhengeri	120	768	888	6	32	38	907
Byumba	120	768	888	6	32	38	907
Umutara	40	864	904	2	36	38	923
Kibungo	140	744	884	7	31	38	903
Total	2,220	8,424	10,644	111	351	462	10,868

A.3.4 Sampling Probability

The sampling probabilities were calculated separately for each sampling stage and for each stratum. For each stratum *h*, the following notations are used:

P_{1hi} : first-stage's sampling probability of EA *i*.
P_{2hi} : second-stage's sampling probability of households in stratum *h*, EA *i*.

Let a_h be the number of clusters selected in stratum h, M_{hi} the number of households of the i_{th} EA in stratum h, and M_h the total number of households in stratum h.

In the first stage, the probability of inclusion of the i_{th} EA in the sample is calculated as follows:

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

In the second stage, a number of b_{hi} households is selected from the number L_{hi} households found during the household listing in the i_{th} EA. We then have:

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

Because of the nonproportional distribution of the sample between strata, sampling weights are used to insure that the sample is representative at the national level. Sampling weights for individuals of cluster i in strata h are calculated as follows:

$$W_{hi} = \frac{1}{P_{1hi} P_{2hi}}$$

with a correction for non-response and normalization.

ESTIMATES OF SAMPLING ERRORS

APPENDIX B

The estimates from a sample survey are affected by two types of errors: (1) nonsampling errors, and (2) sampling errors. Nonsampling errors are the results of mistakes made in implementing data collection and data processing, such as failure to locate and interview the correct household, misunderstanding of the questions on the part of either the interviewer or the respondent, and data entry errors. Although numerous efforts were made during the implementation of the 2007-08 RIDHS to minimize this type of error, nonsampling errors are impossible to avoid and difficult to evaluate statistically.

Sampling errors, on the other hand, can be evaluated statistically. The sample of respondents selected in the 2007-08 RIDHS is only one of many samples that could have been selected from the same population, using the same design and expected size. Each of these samples would yield results that differ somewhat from the results of the actual sample selected. Sampling errors are a measure of the variability between all possible samples. Although the degree of variability is not known exactly, it can be estimated from the survey results.

A sampling error is usually measured in terms of the *standard error* for a particular statistic (mean, percentage, etc.), which is the square root of the variance. The standard error can be used to calculate confidence intervals within which the true value for the population can reasonably be assumed to fall. For example, for any given statistic calculated from a sample survey, the value of that statistic will fall within a range of plus or minus two times the standard error of that statistic in 95 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 2007-08 RIDHS sample is the result of a multistage stratified design, and, consequently, it was necessary to use more complex formula. The computer software used to calculate sampling errors for the 2007-08 RIDHS is a macro SAS procedure. This procedure used 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

$$z_{hi} = y_{hi} - rx_{hi} \text{ , et } \quad z_h = y_h - rx_h$$

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.

The Jackknife repeated replication method derives estimates of complex rates from each of several replications of the parent sample, and calculates standard errors for these estimates using simple formulae. Each replication considers *all but one* cluster in the calculation of the estimates. Pseudoindependent replications are thus created. In the 2007-08 RIDHS, there were 250 non-empty clusters. Hence, 250 subsamples were created. The variance of a rate r is calculated as follows:

$$SE^2(r) = var(r) = \frac{1}{k(k-1)} \sum_{i=1}^{k} (r_i - r)^2$$

in which

$$r_i = kr - (k-1)r_{(i)}$$

where r is the estimate computed from the full sample of 250 clusters,
$r_{(i)}$ is the estimate computed from the reduced sample of 251 clusters (i_{th} cluster excluded),
k is the total number of clusters.

In addition to the standard error, the procedure computes the design effect (DEFT) or cluster effect 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 the increase in the sampling error due to the use of a more complex and less statistically efficient design. The procedure also computes the relative error and confidence limits for the estimates.

Sampling errors for the 2007-08 RIDHS are calculated for selected variables considered to be of primary interest for woman's survey and for man's surveys, respectively. The results are presented in this appendix for the country as a whole, for urban and rural areas, and for each of the five provinces. For each variable, the type of statistic (mean, proportion, or rate) and the base population are given in Table B.1. Tables B.2 to B.9 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 because there is no known unweighted value for woman-years of exposure to childbearing.

The confidence interval (e.g., as calculated for *children surviving*) can be interpreted as follows: the 2007-08 RIDHS provides the overall average from the national sample is 2.593 and its standard error is 0.046. Therefore, the 95 percent confidence limits, the true average number of children surviving per women age 15-49, is obtained by adding and subtracting twice the standard error to the sample estimate, i.e., 2.593-2×0.046 and 2.593+2×0.046, that is, between 2.500 and 2.686.

For the total sample of women, the value of the design effect (DEFT), averaged over all variables, is 1.42, which means that because of multistage clustering of the sample, the average standard error is increased by a factor of 1.42 over that in an equivalent simple random sample. However in the practical situation of the survey, it would not be possible to select a simple random sample of women age 15-49 because it requires a list of all women age 15-49 in the whole country, which is not available.

Table B.1 List of selected variables for sampling errors, Rwanda 2007-08

Variable	Estimation	Base population
	WOMEN	
Urban residence	Proportion	All women 15-49
No education	Proportion	All women 15-49
Secondary education or higher	Proportion	All women 15-49
Never married/in union	Proportion	All women 15-49
Currently married/in union	Proportion	All women 15-49
Currently pregnant	Proportion	All women 15-49
Children ever born	Mean	All women 15-49
Children surviving	Mean	All women 15-49
Children ever born to women 40-49	Mean	Women 40-49
Know any contraceptive method	Proportion	Currently married women 15-49
Ever used any contraceptive method	Proportion	Currently married women 15-49
Currently use any contraceptive method	Proportion	Currently married women 15-49
Currently use pill	Proportion	Currently married women 15-49
Currently use condom	Proportion	Currently married women 15-49
Currently use female sterilization	Proportion	Currently married women 15-49
Currently use periodic abstinence	Proportion	Currently married women 15-49
Want no more children	Proportion	Currently married women 15-49
Want to delay births at least 2 years	Proportion	Currently married women 15-49
Ideal number of children	Mean	All women 15-49
Mother received tetanus injection for last birth	Proportion	Most recent births in the last 5 years
Mother received medical assistance at delivery	Proportion	Birth in the last 5 years
Children with diarrhea 2 weeks preceding survey	Proportion	Children under 5
Treated with oral rehydration salt (ORS)	Proportion	Children with diarrhea in 2 weeks before interview
Taken to the health provider	Proportion	Children with diarrhea in 2 weeks before interview
Vaccination card seen	Proportion	Children age 12-23 months
Received BCG	Proportion	Children age 12-23 months
Received DPT (3 doses)	Proportion	Children age 12-23 months
Received polio (3 doses)	Proportion	Children age 12-23 months
Received measles	Proportion	Children age 12-23 months
Fully immunized	Proportion	Children age 12-23 months
Total fertility rate (0-3 years)	Rate	All women
Neonatal mortality[1]	Rate	Number of births in past 5(10) years
Postneonatal mortality[1]	Rate	Number of births in past 5(10) years
Infant mortality[1]	Rate	Number of births in past 5(10) years
Child mortality[1]	Rate	Number of births in past 5(10) years
Under-five mortality[1]	Rate	Number of births in past 5(10) years
	MEN	
Urban residence	Proportion	All men 15-49
No education	Proportion	All men 15-49
Secondary education or higher	Proportion	All men 15-49
Never married/in union	Proportion	All men 15-49
Currently married/in union	Proportion	All men 15-49

[1] Past 5 years for national-level rate, and past 10 years for urban-rural and provincial rates

Table B.2 Sampling errors for national sample, Rwanda 2007-08

Variable	Value (R)	Standard error (SE)	Number of cases: Un-weighted (N)	Number of cases: Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence limits: R-2SE	Confidence limits: R+2SE
			WOMEN					
Urban residence	0.170	0.010	7,313	7,313	2.209	0.057	0.150	0.189
No education	0.222	0.009	7,313	7,313	1.823	0.040	0.204	0.240
Secondary education or higher	0.116	0.008	7,313	7,313	2.252	0.073	0.099	0.133
Never married/in union	0.352	0.009	7,313	7,313	1.597	0.025	0.334	0.370
Currently married/in union	0.532	0.009	7,313	7,313	1.546	0.017	0.514	0.550
Currently pregnant	0.094	0.004	7,313	7,313	1.262	0.046	0.085	0.102
Children ever born	2.593	0.046	7,313	7,313	1.453	0.018	2.500	2.686
Children surviving	2.174	0.038	7,313	7,313	1.442	0.018	2.097	2.251
Children ever born to women 40-49	6.041	0.089	1,258	1,297	1.242	0.015	5.863	6.219
Know any contraceptive method	0.990	0.002	3,759	3,888	1.469	0.002	0.985	0.995
Ever used any contraceptive method	0.560	0.013	3,759	3,888	1.554	0.022	0.534	0.585
Currently use any contraceptive method	0.364	0.012	3,759	3,888	1.514	0.033	0.340	0.387
Currently use pill	0.064	0.005	3,759	3,888	1.279	0.080	0.054	0.074
Currently use condom	0.019	0.002	3,759	3,888	1.113	0.131	0.014	0.024
Currently use female sterilization	0.007	0.001	3,759	3,888	1.001	0.198	0.004	0.009
Currently use periodic abstinence	0.060	0.005	3,759	3,888	1.374	0.089	0.049	0.070
Want no more children	0.492	0.011	3,759	3,888	1.321	0.022	0.470	0.513
Want to delay births at least 2 years	0.357	0.010	3,759	3,888	1.295	0.028	0.337	0.378
Ideal number of children	3.317	0.028	7,123	7,125	1.798	0.009	3.260	3.373
Mother received tetanus injection for last birth	0.724	0.011	3,568	3,658	1.455	0.015	0.703	0.746
Mother received medical assistance at delivery	0.521	0.014	5,489	5,656	1.719	0.026	0.493	0.548
Children with diarrhea 2 weeks preceding survey	0.137	0.006	5,094	5,241	1.207	0.046	0.125	0.150
Treated with oral rehydration salt (ORS)	0.213	0.021	689	719	1.248	0.100	0.170	0.255
Taken to the health provider	0.326	0.023	689	719	1.179	0.069	0.281	0.371
Vaccination card seen	0.670	0.020	1,174	1,226	1.476	0.030	0.629	0.710
Received BCG	0.955	0.007	1,174	1,226	1.233	0.008	0.940	0.970
Received DPT (3 doses)	0.898	0.011	1,174	1,226	1.273	0.013	0.875	0.921
Received polio (3 doses)	0.855	0.014	1,174	1,226	1.344	0.016	0.827	0.883
Received measles	0.904	0.011	1,174	1,226	1.225	0.012	0.883	0.925
Fully immunized	0.804	0.016	1,174	1,226	1.358	0.020	0.772	0.836
Total fertility rate (0-3 years)	5.514	0.113	na	20,691	1.428	0.021	5.288	5.741
Neonatal mortality (5 years)	28.011	2.761	5,528	5,691	1.157	0.099	22.488	33.533
Postneonatal mortality (5 years)	34.283	3.065	5,514	5,673	1.195	0.089	28.152	40.413
Infant mortality (5 years)	62.293	4.409	5,541	5,705	1.263	0.071	53.475	71.111
Child mortality (5 years)	43.023	4.416	5,473	5,626	1.434	0.103	34.191	51.856
Under-five mortality (5 years)	102.636	6.564	5,631	5,801	1.416	0.064	89.508	115.765
			MEN					
Urban residence	0.188	0.011	6,225	6,197	2.238	0.059	0.166	0.211
No education	0.154	0.007	6,225	6,197	1.519	0.045	0.140	0.168
Secondary education or higher	0.158	0.010	6,225	6,197	2.206	0.065	0.138	0.178
Never married/in union	0.487	0.009	6,225	6,197	1.499	0.019	0.468	0.506
Currently married/in union	0.495	0.009	6,225	6,197	1.486	0.019	0.476	0.513

na = Not applicable

Table B.3 Sampling errors for urban sample, Rwanda 2007-08

Variable	Value (R)	Standard error (SE)	Number of cases: Un-weighted (N)	Number of cases: Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence limits: R-2SE	Confidence limits: R+2SE
WOMEN								
Urban residence	1.000	0.000	1,974	1,240	na	na	1.000	1.000
No education	0.130	0.011	1,974	1,240	1.397	0.081	0.108	0.151
Secondary education or higher	0.284	0.026	1,974	1,240	2.571	0.092	0.231	0.336
Never married/in union	0.428	0.018	1,974	1,240	1.575	0.041	0.393	0.463
Currently married/in union	0.456	0.017	1,974	1,240	1.532	0.038	0.422	0.491
Currently pregnant	0.077	0.008	1,974	1,240	1.279	0.100	0.061	0.092
Children ever born	2.065	0.082	1,974	1,240	1.505	0.040	1.900	2.229
Children surviving	1.822	0.067	1,974	1,240	1.407	0.037	1.688	1.956
Children ever born to women 40-49	5.595	0.170	282	181	1.162	0.030	5.255	5.936
Know any contraceptive method	0.988	0.006	872	566	1.682	0.006	0.976	1.001
Ever used any contraceptive method	0.641	0.024	872	566	1.466	0.037	0.594	0.689
Currently use any contraceptive method	0.446	0.024	872	566	1.444	0.055	0.397	0.494
Currently use pill	0.088	0.012	872	566	1.244	0.136	0.064	0.112
Currently use condom	0.036	0.008	872	566	1.285	0.226	0.020	0.052
Currently use female sterilization	0.018	0.006	872	566	1.270	0.320	0.006	0.029
Currently use periodic abstinence	0.061	0.010	872	566	1.288	0.172	0.040	0.081
Want no more children	0.504	0.023	872	566	1.376	0.046	0.457	0.550
Want to delay births at least 2 years	0.337	0.017	872	566	1.050	0.050	0.304	0.371
Ideal number of children	3.162	0.050	1,929	1,207	1.698	0.016	3.063	3.261
Mother received tetanus injection for last birth	0.705	0.023	851	544	1.443	0.032	0.660	0.750
Mother received medical assistance at delivery	0.698	0.024	1,268	804	1.553	0.034	0.650	0.745
Children with diarrhea 2 weeks preceding survey	0.139	0.013	1,200	764	1.203	0.096	0.112	0.166
Treated with oral rehydration salt (ORS)	0.303	0.047	156	106	1.167	0.155	0.209	0.396
Taken to the health provider	0.379	0.047	156	106	1.123	0.123	0.286	0.472
Vaccination card seen	0.635	0.042	258	168	1.423	0.067	0.550	0.720
Received BCG	0.984	0.008	258	168	1.055	0.008	0.967	1.000
Received DPT (3 doses)	0.917	0.026	258	168	1.514	0.028	0.866	0.969
Received polio (3 doses)	0.872	0.029	258	168	1.382	0.033	0.815	0.929
Received measles	0.918	0.020	258	168	1.199	0.022	0.878	0.959
Fully immunized	0.805	0.037	258	168	1.494	0.045	0.732	0.878
Total fertility rate (0-3 years)	4.714	0.204	na	3,476	1.273	0.043	4.307	5.121
Neonatal mortality (10 years)	18.722	2.809	2,317	1,465	0.923	0.150	13.104	24.340
Postneonatal mortality (10 years)	27.802	4.332	2,315	1,463	1.234	0.156	19.138	36.467
Infant mortality (10 years)	46.524	5.462	2,319	1,467	1.177	0.117	35.600	57.449
Child mortality (10 years)	42.504	5.081	2,252	1,425	1.065	0.120	32.342	52.666
Under-five mortality (10 years)	87.051	8.186	2,340	1,480	1.260	0.094	70.678	103.424
MEN								
Urban residence	1.000	0.000	1,820	1,167	na	na	1.000	1.000
No education	0.091	0.010	1,820	1,167	1.415	0.105	0.072	0.110
Secondary education or higher	0.358	0.027	1,820	1,167	2.382	0.075	0.305	0.412
Never married/in union	0.596	0.017	1,820	1,167	1.509	0.029	0.561	0.631
Currently married/in union	0.388	0.017	1,820	1,167	1.526	0.045	0.353	0.423

na = Not applicable

Table B.4 Sampling errors for rural sample, Rwanda 2007-08

Variable	Value (R)	Standard error (SE)	Number of cases: Un-weighted (N)	Number of cases: Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence limits: R-2SE	Confidence limits: R+2SE
			WOMEN					
Urban residence	0.000	0.000	5,339	6,073	na	na	0.000	0.000
No education	0.241	0.010	5,339	6,073	1.772	0.043	0.220	0.262
Secondary education or higher	0.081	0.008	5,339	6,073	2.195	0.101	0.065	0.098
Never married/in union	0.336	0.010	5,339	6,073	1.571	0.030	0.316	0.357
Currently married/in union	0.547	0.010	5,339	6,073	1.518	0.019	0.526	0.568
Currently pregnant	0.097	0.005	5,339	6,073	1.226	0.051	0.087	0.107
Children ever born	2.701	0.053	5,339	6,073	1.405	0.020	2.594	2.808
Children surviving	2.245	0.044	5,339	6,073	1.406	0.020	2.157	2.334
Children ever born to women 40-49	6.113	0.100	976	1,116	1.229	0.016	5.913	6.314
Know any contraceptive method	0.990	0.003	2,887	3,322	1.416	0.003	0.985	0.995
Ever used any contraceptive method	0.546	0.014	2,887	3,322	1.524	0.026	0.517	0.574
Currently use any contraceptive method	0.350	0.013	2,887	3,322	1.498	0.038	0.323	0.376
Currently use pill	0.060	0.006	2,887	3,322	1.272	0.094	0.049	0.071
Currently use condom	0.016	0.002	2,887	3,322	1.068	0.156	0.011	0.021
Currently use female sterilization	0.005	0.001	2,887	3,322	0.940	0.250	0.002	0.007
Currently use periodic abstinence	0.059	0.006	2,887	3,322	1.353	0.100	0.048	0.071
Want no more children	0.490	0.012	2,887	3,322	1.287	0.024	0.466	0.514
Want to delay births at least 2 years	0.361	0.012	2,887	3,322	1.287	0.032	0.338	0.384
Ideal number of children	3.349	0.033	5,194	5,918	1.759	0.010	3.283	3.414
Mother received tetanus injection for last birth	0.728	0.012	2,717	3,114	1.420	0.017	0.704	0.752
Mother received medical assistance at delivery	0.491	0.015	4,221	4,852	1.677	0.031	0.461	0.522
Children with diarrhea 2 weeks preceding survey	0.137	0.007	3,894	4,478	1.178	0.051	0.123	0.151
Treated with oral rehydration salt (ORS)	0.197	0.023	533	613	1.240	0.119	0.150	0.244
Taken to the health provider	0.317	0.025	533	613	1.156	0.080	0.266	0.367
Vaccination card seen	0.675	0.022	916	1,058	1.436	0.033	0.630	0.720
Received BCG	0.950	0.009	916	1,058	1.176	0.009	0.933	0.967
Received DPT (3 doses)	0.895	0.012	916	1,058	1.208	0.014	0.870	0.920
Received polio (3 doses)	0.853	0.015	916	1,058	1.297	0.018	0.822	0.883
Received measles	0.902	0.012	916	1,058	1.187	0.013	0.878	0.925
Fully immunized	0.804	0.017	916	1,058	1.305	0.022	0.769	0.839
Total fertility rate (0-3 years)	5.663	0.126	na	17,215	1.393	0.022	5.410	5.916
Neonatal mortality (10 years)	33.713	2.667	7,941	9,071	1.175	0.079	28.378	39.047
Postneonatal mortality (10 years)	48.445	3.251	7,940	9,072	1.226	0.067	41.942	54.948
Infant mortality (10 years)	82.158	4.421	7,961	9,096	1.271	0.054	73.316	91.000
Child mortality (10 years)	65.478	4.898	7,834	8,931	1.399	0.075	55.682	75.274
Under-five mortality (10 years)	142.257	7.161	8,069	9,221	1.472	0.050	127.935	156.578
			MEN					
Urban residence	0.000	0.000	4,405	5,030	na	na	0.000	0.000
No education	0.169	0.008	4,405	5,030	1.456	0.049	0.153	0.186
Secondary education or higher	0.111	0.010	4,405	5,030	2.166	0.092	0.091	0.132
Never married/in union	0.462	0.011	4,405	5,030	1.450	0.024	0.440	0.484
Currently married/in union	0.519	0.011	4,405	5,030	1.433	0.021	0.498	0.541

na = Not applicable

Table B.5 Sampling errors for Kigali City sample, Rwanda 2007-08

Variable	Value (R)	Standard error (SE)	Number of cases: Un-weighted (N)	Number of cases: Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence limits: R-2SE	Confidence limits: R+2SE
			WOMEN					
Urban residence	0.874	0.014	970	685	1.333	0.016	0.846	0.903
No education	0.117	0.014	970	685	1.319	0.116	0.090	0.145
Secondary education or higher	0.336	0.027	970	685	1.807	0.082	0.281	0.390
Never married/in union	0.451	0.026	970	685	1.656	0.059	0.398	0.504
Currently married/in union	0.451	0.026	970	685	1.615	0.057	0.400	0.503
Currently pregnant	0.103	0.012	970	685	1.189	0.113	0.080	0.127
Children ever born	1.818	0.108	970	685	1.485	0.059	1.603	2.033
Children surviving	1.597	0.087	970	685	1.432	0.055	1.422	1.771
Children ever born to women 40-49	5.316	0.224	113	83	0.929	0.042	4.869	5.763
Know any contraceptive method	0.981	0.011	416	309	1.597	0.011	0.960	1.003
Ever used any contraceptive method	0.644	0.026	416	309	1.101	0.040	0.592	0.695
Currently use any contraceptive method	0.418	0.026	416	309	1.073	0.062	0.366	0.470
Currently use pill	0.088	0.017	416	309	1.254	0.198	0.053	0.123
Currently use condom	0.039	0.012	416	309	1.299	0.316	0.014	0.064
Currently use female sterilization	0.019	0.009	416	309	1.387	0.489	0.000	0.038
Currently use periodic abstinence	0.051	0.013	416	309	1.186	0.252	0.025	0.076
Want no more children	0.477	0.030	416	309	1.236	0.064	0.416	0.537
Want to delay births at least 2 years	0.361	0.022	416	309	0.935	0.061	0.317	0.406
Ideal number of children	3.061	0.064	943	663	1.570	0.021	2.932	3.190
Mother received tetanus injection for last birth	0.673	0.040	386	287	1.666	0.059	0.594	0.752
Mother received medical assistance at delivery	0.655	0.040	567	425	1.657	0.061	0.575	0.734
Children with diarrhea 2 weeks preceding survey	0.149	0.022	533	400	1.223	0.145	0.106	0.192
Treated with oral rehydration salt (ORS)	0.439	0.056	71	60	0.861	0.127	0.328	0.551
Taken to the health provider	0.490	0.060	71	60	0.940	0.122	0.371	0.610
Vaccination card seen	0.648	0.059	124	95	1.399	0.091	0.530	0.766
Received BCG	0.946	0.013	124	95	0.658	0.014	0.919	0.972
Received DPT (3 doses)	0.856	0.031	124	95	1.021	0.037	0.794	0.919
Received polio (3 doses)	0.842	0.034	124	95	1.065	0.040	0.774	0.911
Received measles	0.908	0.032	124	95	1.254	0.035	0.845	0.972
Fully immunized	0.778	0.052	124	95	1.427	0.067	0.674	0.883
Total fertility rate (0-3 years)	4.369	0.388	na	1,936	1.285	0.089	3.592	5.145
Neonatal mortality (10 years)	27.520	7.499	1,015	746	1.253	0.272	12.523	42.518
Postneonatal mortality (10 years)	32.931	4.748	1,021	748	0.619	0.144	23.434	42.428
Infant mortality (10 years)	60.452	10.027	1,016	746	0.969	0.166	40.398	80.505
Child mortality (10 years)	43.804	11.641	981	720	1.406	0.266	20.523	67.085
Under-five mortality (10 years)	101.607	19.423	1,021	751	1.437	0.191	62.762	140.453
			MEN					
Urban residence	0.873	0.029	1,004	730	2.729	0.033	0.816	0.931
No education	0.067	0.011	1,004	730	1.343	0.158	0.046	0.088
Secondary education or higher	0.400	0.030	1,004	730	1.945	0.075	0.339	0.460
Never married/in union	0.620	0.024	1,004	730	1.542	0.038	0.572	0.667
Currently married/in union	0.366	0.024	1,004	730	1.602	0.067	0.317	0.414

na = Not applicable

Table B.6 Sampling errors for South Province sample, Rwanda 2007-08

Variable	Value (R)	Standard error (SE)	Number of cases: Un-weighted (N)	Number of cases: Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence limits: R-2SE	Confidence limits: R+2SE
WOMEN								
Urban residence	0.140	0.013	1,824	1,946	1.615	0.094	0.113	0.166
No education	0.206	0.017	1,824	1,946	1.770	0.081	0.173	0.240
Secondary education or higher	0.089	0.014	1,824	1,946	2.140	0.160	0.061	0.118
Never married/in union	0.378	0.016	1,824	1,946	1.384	0.042	0.346	0.409
Currently married/in union	0.506	0.014	1,824	1,946	1.200	0.028	0.478	0.535
Currently pregnant	0.090	0.008	1,824	1,946	1.127	0.084	0.075	0.105
Children ever born	2.404	0.085	1,824	1,946	1.402	0.036	2.234	2.575
Children surviving	2.029	0.071	1,824	1,946	1.374	0.035	1.887	2.171
Children ever born to women 40-49	5.608	0.154	343	365	1.124	0.027	5.300	5.916
Know any contraceptive method	0.986	0.006	915	985	1.491	0.006	0.974	0.998
Ever used any contraceptive method	0.546	0.025	915	985	1.517	0.046	0.496	0.596
Currently use any contraceptive method	0.335	0.020	915	985	1.307	0.061	0.294	0.376
Currently use pill	0.048	0.008	915	985	1.085	0.160	0.033	0.063
Currently use condom	0.015	0.004	915	985	1.110	0.295	0.006	0.024
Currently use female sterilization	0.004	0.002	915	985	0.904	0.454	0.000	0.008
Currently use periodic abstinence	0.069	0.012	915	985	1.415	0.172	0.045	0.093
Want no more children	0.502	0.020	915	985	1.184	0.039	0.463	0.541
Want to delay births at least 2 years	0.332	0.021	915	985	1.354	0.064	0.290	0.374
Ideal number of children	3.245	0.043	1,777	1,897	1.459	0.013	3.159	3.331
Mother received tetanus injection for last birth	0.700	0.023	863	930	1.465	0.032	0.654	0.745
Mother received medical assistance at delivery	0.507	0.026	1,331	1,442	1.641	0.052	0.454	0.560
Children with diarrhea 2 weeks preceding survey	0.148	0.013	1,240	1,340	1.231	0.090	0.121	0.174
Treated with oral rehydration salt (ORS)	0.084	0.021	177	198	1.026	0.251	0.042	0.126
Taken to the health provider	0.211	0.041	177	198	1.276	0.193	0.129	0.292
Vaccination card seen	0.675	0.037	299	322	1.329	0.054	0.602	0.748
Received BCG	0.947	0.014	299	322	1.028	0.015	0.919	0.974
Received DPT (3 doses)	0.875	0.023	299	322	1.206	0.027	0.829	0.922
Received polio (3 doses)	0.835	0.030	299	322	1.359	0.036	0.775	0.895
Received measles	0.877	0.019	299	322	0.967	0.021	0.840	0.914
Fully immunized	0.771	0.034	299	322	1.363	0.044	0.704	0.839
Total fertility rate (0-3 years)	5.507	0.198	na	5,522	1.265	0.036	5.111	5.903
Neonatal mortality (10 years)	32.215	4.404	2,416	2,584	1.084	0.137	23.407	41.024
Postneonatal mortality (10 years)	46.388	6.116	2,404	2,573	1.263	0.132	34.155	58.620
Infant mortality (10 years)	78.603	8.620	2,419	2,588	1.329	0.110	61.363	95.843
Child mortality (10 years)	52.614	8.215	2,374	2,526	1.509	0.156	36.183	69.045
Under-five mortality (10 years)	127.081	12.182	2,446	2,618	1.404	0.096	102.718	151.445
MEN								
Urban residence	0.134	0.012	1,421	1,557	1.352	0.091	0.110	0.159
No education	0.195	0.017	1,421	1,557	1.608	0.087	0.161	0.229
Secondary education or higher	0.118	0.015	1,421	1,557	1.702	0.123	0.089	0.148
Never married/in union	0.501	0.020	1,421	1,557	1.475	0.039	0.462	0.540
Currently married/in union	0.479	0.019	1421	1557	1.407	0.039	0.441	0.516

na = Not applicable

Table B.7 Sampling errors for West Province sample, Rwanda 2007-08

Variable	Value (R)	Standard error (SE)	Number of cases: Un-weighted (N)	Number of cases: Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence limits: R-2SE	Confidence limits: R+2SE
			WOMEN					
Urban residence	0.091	0.011	1,862	1,738	1.669	0.122	0.069	0.114
No education	0.260	0.021	1,862	1,738	2.091	0.082	0.218	0.303
Secondary education or higher	0.089	0.013	1,862	1,738	1.962	0.146	0.063	0.114
Never married/in union	0.330	0.018	1,862	1,738	1.623	0.054	0.295	0.366
Currently married/in union	0.543	0.018	1,862	1,738	1.591	0.034	0.506	0.580
Currently pregnant	0.093	0.008	1,862	1,738	1.193	0.086	0.077	0.109
Children ever born	2.782	0.093	1,862	1,738	1.407	0.033	2.597	2.967
Children surviving	2.373	0.078	1,862	1,738	1.403	0.033	2.217	2.529
Children ever born to women 40-49	6.295	0.141	349	334	1.044	0.022	6.013	6.577
Know any contraceptive method	0.993	0.003	958	943	1.135	0.003	0.987	0.999
Ever used any contraceptive method	0.539	0.025	958	943	1.532	0.046	0.490	0.588
Currently use any contraceptive method	0.339	0.024	958	943	1.543	0.070	0.291	0.386
Currently use pill	0.062	0.010	958	943	1.342	0.168	0.041	0.083
Currently use condom	0.019	0.004	958	943	1.008	0.237	0.010	0.027
Currently use female sterilization	0.010	0.003	958	943	0.942	0.304	0.004	0.016
Currently use periodic abstinence	0.049	0.010	958	943	1.385	0.198	0.029	0.068
Want no more children	0.436	0.021	958	943	1.329	0.049	0.393	0.478
Want to delay births at least 2 years	0.427	0.021	958	943	1.322	0.050	0.385	0.469
Ideal number of children	3.583	0.067	1,811	1,684	1.970	0.019	3.449	3.717
Mother received tetanus injection for last birth	0.776	0.019	941	913	1.420	0.025	0.737	0.814
Mother received medical assistance at delivery	0.519	0.031	1,439	1,408	2.014	0.060	0.457	0.581
Children with diarrhea 2 weeks preceding survey	0.136	0.012	1,345	1,312	1.186	0.087	0.112	0.160
Treated with oral rehydration salt (ORS)	0.309	0.055	180	179	1.464	0.178	0.199	0.419
Taken to the health provider	0.388	0.051	180	179	1.307	0.131	0.286	0.489
Vaccination card seen	0.734	0.035	316	318	1.406	0.047	0.664	0.803
Received BCG	0.972	0.012	316	318	1.278	0.012	0.949	0.995
Received DPT (3 doses)	0.939	0.017	316	318	1.176	0.018	0.906	0.972
Received polio (3 doses)	0.877	0.022	316	318	1.202	0.026	0.832	0.922
Received measles	0.924	0.017	316	318	1.077	0.018	0.891	0.957
Fully immunized	0.853	0.024	316	318	1.203	0.028	0.805	0.901
Total fertility rate (0-3 years)	5.751	0.229	na	4,895	1.533	0.040	5.293	6.208
Neonatal mortality (10 years)	31.251	4.830	2,731	2,663	1.268	0.155	21.591	40.910
Postneonatal mortality (10 years)	47.331	5.255	2,730	2,663	1.174	0.111	36.820	57.841
Infant mortality (10 years)	78.581	7.510	2,738	2,672	1.272	0.096	63.562	93.600
Child mortality (10 years)	54.981	6.046	2,701	2,641	1.096	0.110	42.889	67.074
Under-five mortality (10 years)	129.242	11.089	2,773	2,706	1.467	0.086	107.064	151.420
			MEN					
Urban residence	0.096	0.016	1,629	1,540	2.167	0.165	0.064	0.128
No education	0.136	0.012	1,629	1,540	1.356	0.085	0.113	0.159
Secondary education or higher	0.137	0.020	1,629	1,540	2.352	0.146	0.097	0.178
Never married/in union	0.485	0.015	1,629	1,540	1.188	0.030	0.456	0.515
Currently married/in union	0.498	0.014	1,629	1,540	1.139	0.028	0.470	0.527

na = Not applicable

Table B.8 Sampling errors for North Province sample, Rwanda 2007-08

Variable	Value (R)	Standard error (SE)	Number of cases: Un-weighted (N)	Number of cases: Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence limits: R-2SE	Confidence limits: R+2SE
			WOMEN					
Urban residence	0.081	0.018	1,036	1,265	2.173	0.228	0.044	0.118
No education	0.234	0.020	1,036	1,265	1.526	0.086	0.194	0.275
Secondary education or higher	0.111	0.029	1,036	1,265	2.924	0.258	0.054	0.169
Never married/in union	0.313	0.028	1,036	1,265	1.922	0.089	0.257	0.368
Currently married/in union	0.575	0.027	1,036	1,265	1.778	0.048	0.520	0.629
Currently pregnant	0.092	0.012	1,036	1,265	1.327	0.130	0.068	0.115
Children ever born	2.840	0.140	1,036	1,265	1.565	0.049	2.561	3.119
Children surviving	2.407	0.118	1,036	1,265	1.553	0.049	2.172	2.642
Children ever born to women 40-49	6.382	0.237	186	224	1.288	0.037	5.907	6.856
Know any contraceptive method	0.993	0.003	594	727	0.927	0.003	0.987	0.999
Ever used any contraceptive method	0.581	0.036	594	727	1.786	0.062	0.509	0.654
Currently use any contraceptive method	0.440	0.036	594	727	1.739	0.081	0.369	0.511
Currently use pill	0.089	0.015	594	727	1.272	0.167	0.059	0.119
Currently use condom	0.015	0.005	594	727	0.937	0.316	0.005	0.024
Currently use female sterilization	0.003	0.002	594	727	0.933	0.706	0.000	0.007
Currently use periodic abstinence	0.075	0.014	594	727	1.279	0.184	0.048	0.103
Want no more children	0.560	0.031	594	727	1.513	0.055	0.499	0.622
Want to delay births at least 2 years	0.296	0.027	594	727	1.434	0.091	0.242	0.350
Ideal number of children	3.203	0.068	1,012	1,236	1.865	0.021	3.067	3.339
Mother received tetanus injection for last birth	0.714	0.028	530	641	1.421	0.039	0.658	0.770
Mother received medical assistance at delivery	0.477	0.027	815	991	1.324	0.058	0.422	0.532
Children with diarrhea 2 weeks preceding survey	0.114	0.017	759	925	1.356	0.148	0.080	0.147
Treated with oral rehydration salt (ORS)	0.259	0.048	83	105	0.905	0.185	0.164	0.355
Taken to the health provider	0.399	0.044	83	105	0.747	0.109	0.312	0.486
Vaccination card seen	0.693	0.056	166	204	1.559	0.080	0.582	0.805
Received BCG	0.941	0.025	166	204	1.389	0.027	0.891	0.992
Received DPT (3 doses)	0.910	0.027	166	204	1.223	0.030	0.856	0.964
Received polio (3 doses)	0.886	0.027	166	204	1.089	0.030	0.832	0.939
Received measles	0.929	0.031	166	204	1.587	0.034	0.866	0.992
Fully immunized	0.845	0.031	166	204	1.122	0.037	0.782	0.908
Total fertility rate (0-3 years)	5.352	0.371	na	3,601	1.708	0.069	4.610	6.094
Neonatal mortality (10 years)	35.456	6.648	1,631	1,979	1.241	0.188	22.160	48.753
Postneonatal mortality (10 years)	35.941	7.168	1,638	1,987	1.514	0.199	21.606	50.276
Infant mortality (10 years)	71.397	10.837	1,636	1,986	1.538	0.152	49.723	93.072
Child mortality (10 years)	46.724	7.389	1,633	1,988	1.086	0.158	31.947	61.502
Under-five mortality (10 years)	114.786	15.562	1,655	2,010	1.584	0.136	83.661	145.910
			MEN					
Urban residence	0.075	0.014	851	1,015	1.589	0.192	0.046	0.104
No education	0.152	0.017	851	1,015	1.370	0.111	0.118	0.186
Secondary education or higher	0.146	0.038	851	1,015	3.134	0.261	0.070	0.222
Never married/in union	0.423	0.027	851	1,015	1.564	0.063	0.370	0.476
Currently married/in union	0.569	0.026	851	1,015	1.535	0.046	0.517	0.621

na = Not applicable

Table B.9 Sampling errors for East Province sample, Rwanda 2007-08

Variable	Value (R)	Standard error (SE)	Number of cases: Un-weighted (N)	Number of cases: Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence limits: R-2SE	Confidence limits: R+2SE
			WOMEN					
Urban residence	0.065	0.017	1,621	1,680	2.750	0.260	0.031	0.098
No education	0.235	0.018	1,621	1,680	1.716	0.077	0.198	0.271
Secondary education or higher	0.088	0.013	1,621	1,680	1.900	0.152	0.061	0.115
Never married/in union	0.333	0.017	1,621	1,680	1.452	0.051	0.299	0.367
Currently married/in union	0.550	0.019	1,621	1,680	1.569	0.035	0.511	0.588
Currently pregnant	0.097	0.010	1,621	1,680	1.366	0.104	0.077	0.117
Children ever born	2.747	0.091	1,621	1,680	1.321	0.033	2.565	2.929
Children surviving	2.194	0.072	1,621	1,680	1.305	0.033	2.051	2.338
Children ever born to women 40-49	6.236	0.239	267	291	1.550	0.038	5.759	6.714
Know any contraceptive method	0.990	0.006	876	923	1.823	0.006	0.978	1.002
Ever used any contraceptive method	0.549	0.024	876	923	1.439	0.044	0.501	0.598
Currently use any contraceptive method	0.342	0.024	876	923	1.472	0.069	0.295	0.390
Currently use pill	0.055	0.010	876	923	1.351	0.189	0.034	0.076
Currently use condom	0.019	0.006	876	923	1.182	0.285	0.008	0.030
Currently use female sterilization	0.005	0.002	876	923	0.982	0.469	0.000	0.010
Currently use periodic abstinence	0.051	0.010	876	923	1.298	0.189	0.032	0.070
Want no more children	0.490	0.020	876	923	1.173	0.040	0.450	0.530
Want to delay births at least 2 years	0.360	0.015	876	923	0.907	0.041	0.331	0.390
Ideal number of children	3.316	0.059	1,580	1,646	1.699	0.018	3.197	3.435
Mother received tetanus injection for last birth	0.722	0.021	848	888	1.376	0.029	0.679	0.764
Mother received medical assistance at delivery	0.527	0.028	1,337	1,390	1.751	0.054	0.470	0.584
Children with diarrhea 2 weeks preceding survey	0.140	0.012	1,217	1,263	1.111	0.085	0.117	0.164
Treated with oral rehydration salt (ORS)	0.156	0.037	178	177	1.273	0.240	0.081	0.230
Taken to the health provider	0.294	0.044	178	177	1.197	0.148	0.207	0.381
Vaccination card seen	0.583	0.046	269	287	1.527	0.079	0.491	0.675
Received BCG	0.958	0.016	269	287	1.318	0.017	0.926	0.990
Received DPT (3 doses)	0.882	0.029	269	287	1.460	0.033	0.824	0.940
Received polio (3 doses)	0.836	0.035	269	287	1.554	0.042	0.766	0.906
Received measles	0.892	0.025	269	287	1.316	0.028	0.843	0.941
Fully immunized	0.767	0.038	269	287	1.479	0.050	0.690	0.843
Total fertility rate (0-3 years)	5.836	0.196	na	4,737	1.149	0.034	5.443	6.228
Neonatal mortality (10 years)	29.666	4.375	2,465	2,565	1.187	0.147	20.916	38.415
Postneonatal mortality (10 years)	54.236	6.188	2,462	2,562	1.200	0.114	41.860	66.612
Infant mortality (10 years)	83.901	7.281	2,471	2,570	1.170	0.087	69.339	98.464
Child mortality (10 years)	98.312	11.346	2,397	2,481	1.617	0.115	75.620	121.004
Under-five mortality (10 years)	173.965	14.058	2,514	2,616	1.563	0.081	145.849	202.082
			MEN					
Urban residence	0.071	0.022	1,320	1,354	3.120	0.311	0.027	0.116
No education	0.177	0.016	1,320	1,354	1.502	0.089	0.146	0.209
Secondary education or higher	0.105	0.013	1,320	1,354	1.496	0.120	0.080	0.131
Never married/in union	0.450	0.022	1,320	1,354	1.597	0.049	0.406	0.493
Currently married/in union	0.522	0.023	1,320	1,354	1.652	0.044	0.477	0.568

na = Not applicable

DATA QUALITY TABLES

APPENDIX C

Table C.1 Age distribution of household population

Single-year age distribution of the de facto household population by sex (weighted), Rwanda 2007-08

	Women		Men			Women		Men	
Age	Number	Percent	Number	Percent	Age	Number	Percent	Number	Percent
0	549	3.3	500	3.4	36	137	0.8	94	0.6
1	616	3.7	623	4.2	37	148	0.9	130	0.9
2	489	3.0	493	3.3	38	147	0.9	130	0.9
3	554	3.3	564	3.8	39	139	0.8	106	0.7
4	502	3.0	535	3.6	40	169	1.0	123	0.8
5	432	2.6	488	3.3	41	116	0.7	85	0.6
6	465	2.8	431	2.9	42	142	0.9	118	0.8
7	555	3.3	569	3.8	43	121	0.7	109	0.7
8	519	3.1	504	3.4	44	125	0.8	96	0.6
9	368	2.2	356	2.4	45	161	1.0	127	0.9
10	478	2.9	470	3.2	46	126	0.8	78	0.5
11	400	2.4	413	2.8	47	112	0.7	77	0.5
12	518	3.1	506	3.4	48	121	0.7	90	0.6
13	521	3.1	449	3.0	49	94	0.6	76	0.5
14	328	2.0	354	2.4	50	128	0.8	114	0.8
15	272	1.6	322	2.2	51	145	0.9	76	0.5
16	289	1.7	328	2.2	52	136	0.8	69	0.5
17	283	1.7	330	2.2	53	97	0.6	74	0.5
18	311	1.9	289	1.9	54	111	0.7	56	0.4
19	284	1.7	258	1.7	55	104	0.6	87	0.6
20	337	2.0	294	2.0	56	96	0.6	54	0.4
21	320	1.9	231	1.6	57	74	0.4	46	0.3
22	297	1.8	254	1.7	58	70	0.4	48	0.3
23	306	1.8	283	1.9	59	53	0.3	24	0.2
24	313	1.9	225	1.5	60	97	0.6	79	0.5
25	375	2.3	277	1.9	61	40	0.2	43	0.3
26	253	1.5	231	1.5	62	51	0.3	45	0.3
27	289	1.7	250	1.7	63	47	0.3	36	0.2
28	229	1.4	224	1.5	64	35	0.2	26	0.2
29	232	1.4	175	1.2	65	61	0.4	44	0.3
30	234	1.4	216	1.5	66	33	0.2	29	0.2
31	177	1.1	128	0.9	67	51	0.3	27	0.2
32	184	1.1	165	1.1	68	49	0.3	17	0.1
33	172	1.0	151	1.0	69	25	0.2	13	0.1
34	162	1.0	130	0.9	70+	407	2.5	278	1.9
35	193	1.2	176	1.2	Don't know/ missing	7	0.0	3	0.0
					Total	16,583	100.0	14,918	100.0

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.

Table C.2.1 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, Rwanda 2007-08

Age group	Household population of women age 10-54	Interviewed women age 15-49		Percentage of eligible women interviewed
		Number	Percent	
10-14	2,245	na	na	na
15-19	1,438	1,356	18.9	94.3
20-24	1,573	1,515	21.2	96.3
25-29	1,379	1,350	18.9	97.9
30-34	929	912	12.7	98.1
35-39	764	753	10.5	98.5
40-44	674	665	9.3	98.6
45-49	614	606	8.5	98.8
50-54	618	na	na	na
15-49	7,371	7,157	100.0	97.1

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.2.2 Age distribution of eligible and interviewed men

De facto household population of men age 10-64, interviewed men age 15-59, and percentage of eligible men who were interviewed (weighted), by five-year age groups, Rwanda 2007-08

Age group	Household population of men age 10-64	Interviewed men age 15-59		Percentage of eligible men interviewed
		Number	Percent	
10-14	2,192	na	na	na
15-19	1,526	1,433	21.4	93.9
20-24	1,287	1,224	18.3	95.1
25-29	1,157	1,122	16.7	96.9
30-34	789	760	11.3	96.3
35-39	636	601	9.0	94.5
40-44	531	508	7.6	95.8
45-49	447	425	6.3	95.0
50-54	390	375	5.6	96.2
55-59	260	251	3.8	96.8
60-64	229	na	na	na
15-59	7,022	6,699	100.0	95.4

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 men and interviewed men are household weights. Age is based on the household schedule.
na = Not applicable

Table C.3 Completeness of reporting

Percentage of observations with information missing for selected demographic and health questions (weighted), Rwanda 2007-08

Subject	Reference group	Percentage with information missing	Number of cases
Birth date	Births in the past 15 years		
Month only		1.29	14,339
Month and year		0.04	14,339
Age at death	Deceased children born in past 15 years	0.00	1,948
Respondent's education	All women age 15-49	0.05	7,313
Diarrhea in past 2 weeks	Living children age 0-59 months	1.62	5,241
Blood collection for anemia and malaria testing [1]			
Children	Living children age 6-59 months (from the household questionnaire)	3.13	4,906
Women	All women age 15-49 (from the household questionnaire)	4.81	7,371

[1] Not tested

Table C.4 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 (L), dead (D), and total (T) children (weighted), Rwanda 2007-08

	Number of births			Percentage with complete birth date[1]			Sex ratio at birth[2]			Calendar year ratio[3]		
Year	L	D	T	L	D	T	L	D	T	L	D	T
2007	1,075	54	1,129	99.6	100.0	99.7	91.1	105.7	91.8	na	na	na
2006	1,212	55	1,267	99.6	97.7	99.5	98.3	178.6	100.9	na	na	na
2005	977	91	1,068	99.6	100.0	99.6	106.9	121.5	108.1	86.5	113.1	88.3
2004	1,047	106	1,153	99.2	97.2	99.0	105.1	116.4	106.0	108.9	97.8	107.8
2003	946	126	1,072	99.7	95.4	99.2	99.5	147.6	104.2	94.7	107.1	96.0
2002	950	129	1,079	99.3	97.2	99.1	100.5	142.8	104.8	109.2	93.0	107.0
2001	794	151	945	98.8	98.5	98.8	105.9	109.1	106.4	81.4	96.5	83.5
2000	1,001	185	1,186	98.7	97.9	98.6	93.7	120.7	97.5	133.0	131.7	132.8
1999	711	129	841	98.3	95.9	98.0	103.3	111.3	104.5	87.5	68.4	83.9
1998	624	193	817	98.8	96.6	98.3	90.2	124.7	97.4	91.7	142.6	100.2
2003-2007	5,256	433	5,689	99.6	97.7	99.4	99.9	131.1	101.9	na	na	na
1998-2002	4,080	787	4,868	98.8	97.3	98.6	98.6	121.0	101.9	na	na	na
1993-1997	2,971	753	3,724	98.2	95.1	97.5	101.3	103.1	101.7	na	na	na
1988-1992	1,917	564	2,481	97.8	95.6	97.3	102.6	108.9	104.0	na	na	na
<1988	1,503	523	2,026	97.4	94.4	96.6	98.6	114.0	102.3	na	na	na
Ensemble	15,727	3,061	18,788	98.7	96.0	98.2	100.0	114.2	102.2	na	na	na

na = Not applicable

[1] Both year and month of birth given

[2] (Bm/Bf)x100, where Bm and Bf are the numbers of male and female births, respectively

[3] [2Bx/(Bx-1+Bx+1)]x100, where Bx is the number of births in calendar year x

Table C.5 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), Rwanda 2007-08

Age at death in days	Number of years preceding the survey				Total
	0-4	5-9	10-14	15-19	0-19
<1	46	36	42	24	148
1	38	34	34	18	124
2	10	21	6	10	47
3	13	11	10	7	41
4	2	6	1	2	10
5	2	4	6	1	14
6	0	0	2	3	5
7	17	30	17	12	76
8	0	6	3	1	9
9	1	0	1	0	2
10	0	1	0	0	1
12	3	2	2	3	10
14	9	12	10	4	34
15	3	0	1	1	5
17	1	1	0	0	2
18	0	0	1	0	1
20	1	1	2	0	4
21	7	3	4	1	14
22	1	0	0	0	1
24	0	1	0	0	1
25	1	0	1	0	2
27	2	0	0	0	2
28	0	1	1	1	3
30	3	4	4	3	14
ND	0	0	0	0	0
Total 0-30	160	172	148	91	571
Percent early neonatal[1]	69.5	64.8	68.5	71.7	68.2

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

Table C.6 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, Rwanda 2007-08

Age at death in months	Number of years preceding the survey				Total
	0-4	5-9	10-14	15-19	0-19
<1[a]	160	172	148	91	571
1	22	22	22	11	77
2	27	40	31	23	121
3	20	23	19	14	75
4	13	29	20	7	68
5	3	28	10	7	49
6	13	41	26	17	97
7	19	21	24	6	71
8	11	17	23	7	58
9	25	37	33	13	109
10	6	8	5	0	18
11	6	2	5	2	15
12	38	90	52	17	197
13	0	6	3	1	9
14	3	6	6	5	19
15	6	7	3	2	18
16	0	3	2	3	8
17	0	2	4	0	5
18	5	20	18	6	50
19	3	5	0	2	10
20	3	0	3	1	7
21	0	1	1	0	1
22	0	1	1	0	2
23	2	1	2	0	5
Total 0-11	324	440	365	198	1,327
Percent neonatal[1]	49.3	39.2	40.5	46.0	43.0

[a] Includes under one month reported in days

[1] Under one month/under one year

SURVEY PERSONNEL

APPENDIX D

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QUESTIONNAIRES

APPENDIX E

RWANDA INTERIM DEMOGRAPHIC AND HEALTH SURVEY
HOUSEHOLD QUESTIONNAIRE

National Institute of Statistics of Rwanda — Republic of Rwanda

IDENTIFICATION

LOCALITY NAME _____

NAME OF HOUSEHOLD HEAD _____

PROVINCE .....

DISTRICT .....

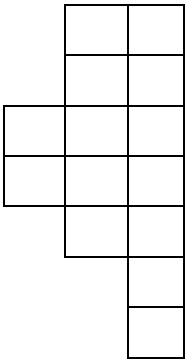
CLUSTER NUMBER .....

STRUCTURE NUMBER .....

HOUSEHOLD NUMBER .....

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

CITY/LARGE TOWN/SMALL TOWN/VILLAGE .....
(CITY OF KIGALI=1, OTHER CITY=2, RURAL=3)



INTERVIEWER VISITS

	1	2	3	FINAL VISIT
DATE				DAY / MONTH / YEAR 2 0 0
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
TOTAL ELIGIBLE MEN
LINE NO. OF RESP. TO HOUSEHOLD QUEST.

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

INFORMED CONSENT

Hello. My name is _____ and I am working with the National Institute of Statistics. We are conducting a national survey about various health issues. We would very much appreciate your participation in this survey. The survey usually takes between 10 and 15 minutes to complete.

In this survey, I would like to first ask you some questions about your household.
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 SCHEDULE

LINE NO.	USUAL RESIDENTS AND VISITORS	RELATIONSHIP TO HEAD OF HOUSEHOLD	SEX	RESIDENCE		AGE	IF 15 + YEARS MARITAL STATUS	ELIGIBILITY		
	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?	What is the current marital status of (NAME)	What is the current marital status of (NAME)	CIRCLE LINE NUMBER OF ALL WOMEN AGE 15-49	CIRCLE LINE NUMBER OF ALL MEN AGE 15-59	CIRCLE LINE NUMBER OF ALL CHILDREN AGE 0-5
(1)	(2)	(3)	(4)	(5)	(6)	(8)		(8)	(9)	(11)
01			M F 1 2	YES NO 1 2	YES NO 1 2	IN YEAR		01	01	01
02			1 2	1 2	1 2			02	02	02
03			1 2	1 2	1 2			03	03	03
04			1 2	1 2	1 2			04	04	04
05			1 2	1 2	1 2			05	05	05
06			1 2	1 2	1 2			06	06	06
07			1 2	1 2	1 2			07	07	07
08			1 2	1 2	1 2			08	08	08
09			1 2	1 2	1 2			09	09	09
10			1 2	1 2	1 2			10	10	10

*** CODES FOR Q.3: RELATIONSHIP TO HEAD OF HOUSEHOLD**

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

LINE NO.	USUAL RESIDENTS AND VISITORS	RELATIONSHIP TO HEAD OF HOUSEHOLD	SEX	RESIDENCE		AGE	IF 15 + YEARS MARITAL STATUS	ELIGIBILITY		
	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)?	What is the current marital status of (NAME)	CIRCLE LINE NUMBER OF ALL WOMEN AGE 15-49	CIRCLE LINE NUMBER OF ALL MEN AGE 15-59	CIRCLE LINE NUMBER OF ALL CHILDREN AGE 0-5
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
11		☐☐	M F 1 2	YES NO 1 2	YES NO 1 2	IN YEARS ☐☐	☐	11	11	11
12		☐☐	1 2	1 2	1 2	☐☐	☐	12	12	12
13		☐☐	1 2	1 2	1 2	☐☐	☐	13	13	13
14		☐☐	1 2	1 2	1 2	☐☐	☐	14	14	14
15		☐☐	1 2	1 2	1 2	☐☐	☐	15	15	15
16		☐☐	1 2	1 2	1 2	☐☐	☐	16	16	16
17		☐☐	1 2	1 2	1 2	☐☐	☐	17	17	17
18		☐☐	1 2	1 2	1 2	☐☐	☐	18	18	18
19		☐☐	1 2	1 2	1 2	☐☐	☐	19	19	19
20		☐☐	1 2	1 2	1 2	☐☐	☐	20	20	20

*** CODES FOR Q.3: RELATIONSHIP TO HEAD OF HOUSEHOLD**

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

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 slept here last night, who have not been listed? YES ☐ ENTER EACH IN TABLE NO ☐

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
101	What is the main source of drinking water for members of your household?	PIPED WATER PIPED INTO DWELLING .....11 PIPED INTO YARD/PLOT.....12 PUBLIC TAP.....13 WATER FROM OPEN WELL OPEN WELL IN DWELLING .....21 OPEN WELL IN YARD/PLOT.....22 OPEN PUBLIC WELL.....23 WATER FROM COVERED WELL OR BOREHOLE PROTECTED WELL IN DWELLING.....31 PROTECTED WELL IN YARD/PLOT .....32 PROTECTED PUBLIC WELL.....33 SURFACE WATER SPRING.....41 RIVER/STREAM.....42 POND/LAKE .....43 DAM.....44 RAINWATER .....51 TANKER TRUCK.....61 BOTTLED WATER .....71 OTHER _____ 96 (SPECIFY)	 ▲ 203 ▲ 103 ▲ 103 ▲ 103 ▲ 22A ▲ 22A ▲ 103 ▲ 103 ▲ 103 ▲ 103
102	How long does it take you to go there, get water, and come back?	MINUTES ..... ☐☐☐ ON PREMISES.....996	
103	What kind of toilet facilities does your household have?	FLUSH TOILET .....11 PIT TOILET/LATRINE TRADITIONAL PIT TOILET.....21 VENTILATED IMPROVED PIT (VIP) LATRINE .....22 NO FACILITY/BUSH/FIELD/BEACH.....31 OTHER _____ 96 (SPECIFY)	 ▲ 105
104	Do you share these facilities with other households?	YES .....1 NO 2	
105	Does your household have: Electricity? A radio? A television? A land line telephone? A refrigerator?	YES NO ELECTRICITY .....1 2 RADIO .....1 2 TELEVISION .....1 2 TELEPHONE.....1 2 REFRIGERATOR 1 2	
106	What type of fuel does your household mainly use for cooking?	ELECTRICITY .....01 LPG/NATURAL GAS .....02 BIOGAS.....03 KEROSENE.....04 COAL, LIGNITE.....05 CHARCOAL.....06 FIREWOOD, STRAW.....07 DUNG .....08 OTHER _____ 96 (SPECIFY)	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
107	MAIN MATERIAL OF THE FLOOR. RECORD OBSERVATION.	NATURAL FLOOR EARTH/SAND/MUD .....11 MUD MIXED WITH DUNG .....12 RUDIMENTARY FLOOR WOOD PLANKS.....21 PALM/BAMBOO .....22 FINISHED FLOOR PARQUET OR POLISHED WOOD .....31 LINOLEUM .....32 CERAMIC TILES .....33 CEMENT .....34 CARPET .....35 OTHER _____ 96 (SPECIFY)	
108	Does any member of your household own: A bicycle? A motorcycle or motor scooter? A car or truck? A mobile phone	YES NO BICYCLE .....1 2 MOTORCYCLE/SCOOTER .....1 2 CAR/TRUCK.....1 2 MOBILE PHONE 1 2	
108A	Are your household members covered by health insurance?	YES .....1 NO 2	▲ 108D
108B	What type of health insurance do you have?	MUTUELLE DE SANTÉ ..... A RAMA ..... B MMI..... C PRIVATE INSSURANCE..... D OTHER ..... X (SPECIFY)	▶ 108D
108C	How many of your household members are covered by MUTUELLE DE SANTÉ?	TOTAL HH MEMBERS ☐☐ NO OF CHILDREN<5 ☐☐	
108D	CHECK IF PROVINCE IS 'KIGALI' ☐ ↓	NO ☐	→109
108E	Between August and October 2007, did someone come to spray the walls of your home against mosquitoes?	YES .....1 NO .....2 DON'T KNOW 8	
109	Does your household have any mosquito bed nets that can be used while sleeping?	YES .....1 NO 2	→SKIP TO TABLE FOR MALARIA
109A	How many mosquito bed nets does your household have? IF THERE IS 7 OR MORE RECORD '7'	NUMBER..... ☐	

		NET # 1	NET # 2	NET #3
110	ASK RESPONDENT TO SHOW YOU THE NET(S) IN THE HOUSEHOLD.	PERMANET .... 1 OLYSET .... 2 DK .... 3 NOT OBSERVED 4	PERMANET .... 1 OLYSET .... 2 DK .... 3 NOT OBSERVED 4	PERMANET .... 1 OLYSET .... 2 DK .... 3 NOT OBSERVED 4
111	How long ago did your household obtain the mosquito bed net?	MONTHS AGO [ ][ ] MORE THAN 3 YEARS AGO .... 96 DK 98	MONTHS AGO [ ][ ] MORE THAN 3 YEARS AGO .... 96 DK 98	MONTHS AGO [ ][ ] MORE THAN 3 YEARS AGO .... 96 DK 98
111A	VERIFY Q. 111 IF MORE THAN 6 MONRHS AGO	YES .... 1 NO .... 2 SKIP TO 112	YES .... 1 NO .... 2 SKIP TO 112	YES .... 1 NO .... 2 SKIP TO 112
111B	Where did you obtain the net?	SECTOR PUBLIC HEALTH CENTER......12 COMMUNITY HW........13 OTHER ________ 16 (SPECIFY) SECTOR PRIVÉ HOSPITAL..........21 PHARMACY..........22 PRIVATE DOC..........23 DISPENSARY..........25 OTHER ________ 26 (SPECIFY) OTHER SOURCE MARKET..........31 CHURCH..........32 PARENT/FRIEND........33 OTHER ________ 96 (SPECIFY)	SECTOR PUBLIC HEALTH CENTER......12 COMMUNITY HW........13 OTHER ________ 16 (SPECIFY) SECTOR PRIVÉ HOSPITAL..........21 PHARMACY..........22 PRIVATE DOC..........23 DISPENSARY..........25 OTHER ________ 26 (SPECIFY) OTHER SOURCE MARKET..........31 CHURCH..........32 PARENT/FRIEND........33 OTHER ________ 96 (SPECIFY)	SECTOR PUBLIC HEALTH CENTER......12 COMMUNITY HW........13 OTHER ________ 16 (SPECIFY) SECTOR PRIVÉ HOSPITAL..........21 PHARMACY..........22 PRIVATE DOC..........23 DISPENSARY..........25 OTHER ________ 26 (SPECIFY) OTHER SOURCE MARKET..........31 CHURCH..........32 PARENT/FRIEND........33 OTHER ________ 96 (SPECIFY)
111BB	How did you obtain the net?	DURING IMMUNIZATION CAMPAIGN .... 1 DURING SCPECIAL IMMUNIZATION CAMPAIGN IN 2006 .... 2 DURING ANC VISITS .... 3 MARKET/STORE .... 4 VOLUNTEER OF THE MALARIA PROGRAM .... 5 OTHER ________ 6 (SPECIFY)	DURING IMMUNIZATION CAMPAIGN .... 1 DURING SCPECIAL IMMUNIZATION CAMPAIGN IN 2006 .... 2 DURING ANC VISITS .... 3 MARKET/STORE .... 4 VOLUNTEER OF THE MALARIA PROGRAM .... 5 OTHER ________ 6 (SPECIFY)	DURING IMMUNIZATION CAMPAIGN .... 1 DURING SCPECIAL IMMUNIZATION CAMPAIGN IN 2006 .... 2 DURING ANC VISITS .... 3 MARKET/STORE .... 4 VOLUNTEER OF THE MALARIA PROGRAM .... 5 OTHER ________ 6 (SPECIFY)
111C	How much did you pay for the net	COST [ ][ ][ ][ ] FREE..........9996 DON'T KNOW..........9998	COST [ ][ ][ ][ ] FREE..........9996 DON'T KNOW..........9998	COST [ ][ ][ ][ ] FREE..........9996 DON'T KNOW..........9998
112	OBSERVE OR ASK FOR THE BRAND OF MOSQUITO NET	**PERMANENT** TUZANET .... 1 MAMANET .... 2 **TREATED** ORGINAL .... 3 OTHER .... 4 DK/NOT SURE 5	**PERMANENT** TUZANET .... 1 MAMANET .... 2 **TREATED** ORGINAL .... 3 OTHER .... 4 DK/NOT SURE 5	**PERMANENT** TUZANET .... 1 MAMANET .... 2 **TREATED** ORGINAL .... 3 OTHER .... 4 DK/NOT SURE 5
112D	Did anyone sleep under this mosquito bed net last night?	YES .... 1 NO .... 2 (SKIP TO 112F) DON'T KNOW 8	YES .... 1 NO .... 2 (SKIP TO 112F) DON'T KNOW 8	YES .... 1 NO .... 2 (SKIP TO 112F) DON'T KNOW 8
112DD	Did anyone sleep under this mosquito bed net the night before last night?	YES .... 1 NO .... 2 (SKIP TO 112F) DON'T KNOW 8	YES .... 1 NO .... 2 (SKIP TO 112F) DON'T KNOW 8	YES .... 1 NO .... 2 (SKIP TO 112F) DON'T KNOW 8

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES			SKIP
112E	Who slept under this mosquito bed 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........ ☐☐	
112F		GO BACK TO 111 IN THE FIRST COLUMN OF NEW QUESTIONNAIRE; OR, IF NO MORE NETS, GO TO MALARIA TABLE	GO BACK TO 111 IN THE FIRST COLUMN OF NEW QUESTIONNAIRE; OR, IF NO MORE NETS, GO TO MALARIA TABLE	GO BACK TO 111 IN THE FIRST COLUMN OF NEW QUESTIONNAIRE; OR, IF NO MORE NETS, GO TO MALARIA TABLE	

TABLE FOR MALARIA DIAGNOSIS FOR CHILDREN

INFORMAED CONSENT STATEMENT FORM ANEMIA FOR CHILDREN

In the survey we measure the level of anemia in women and children aged less than 5 years. We ask the women and the children to participate in the malaria and anemia testing part of this survey by giving a few drops of blood from a finger. The tests use disposable sterile instruments that are clean and completely safe. The blood will be taken with new equipment and the results of the test will be given to you immediately after. These results will be kept confidential.

Now I would like to ask that you and (NAME OF CHILDREN]) agree to participate in the anemia test. However, if you decide not to have the test done, it is your right and we will respect your decision. Now please tell me if you agree to have the test done.

Do you have any question?

Now please tell me if you agree to have the test done.

SKIP TO COLUMN 113 AND CIRCLE APPROPRIATE CODES

LINE NO. FROM COL.(9)	NAME FROM COL.(2)	AGE FROM COL.(7)	What is (NAME)'s date of birth?*	LINE NO. OF PARENT/ RESPONSIBLE ADULT. RECORD '00' IF NOT LISTED IN HOUSEHOLD SCHEDULE	READ CONSENT STATEMENT TO PARENT/RESPONSIBLE ADULT* CIRCLE CODE (AND SIGN)	RESULT OF THE RAPID TEST	RESULT 1 RAPID TEST 2 THICK SMEAR 3 ABSENCE 4 REFUSED 5 TEACH/PROB 6 OTHER (SPECIFY)	PLACE BAR CODES PUT 1ST BAR CODE HERE PUT 2ND BAR CODE ON RAPID TEST FOR MALARIA PUT 3RD BAR CODE ON THE SLIDE
113	114	115	116	117	118	119	120	121
⎕⎕		⎕⎕	⎕⎕ ⎕⎕ ⎕⎕⎕⎕	⎕⎕	GRANTED 1 ↓ SIGN ______ REFUSED OR NOT READ 2 → SKIP TO 120	POSITIVE…………1 NEGATIVE………..2 INDETERMIN…….3	⎕⎕ ______	PUT 1ST BAR CODE HERE
⎕⎕		⎕⎕	⎕⎕ ⎕⎕ ⎕⎕⎕⎕	⎕⎕	1 ↓ SIGN ______ 2 → SKIP TO 120	POSITIVE…………1 NEGATIVE………..2 INDETERMIN…….3	⎕⎕ ______	PUT 1ST BAR CODE HERE
⎕⎕		⎕⎕	⎕⎕ ⎕⎕ ⎕⎕⎕⎕	⎕⎕	1 ↓ SIGN ______ 2 → SKIP TO 120	POSITIVE…………1 NEGATIVE………..2 INDETERMIN…….3	⎕⎕ ______	PUT 1ST BAR CODE HERE
⎕⎕		⎕⎕	⎕⎕ ⎕⎕ ⎕⎕⎕⎕	⎕⎕	1 ↓ SIGN ______ 2 → SKIP TO 120	POSITIVE…………1 NEGATIVE………..2 INDETERMIN…….3	⎕⎕ ______	PUT 1ST BAR CODE HERE
⎕⎕		⎕⎕	⎕⎕ ⎕⎕ ⎕⎕⎕⎕	⎕⎕	1 ↓ SIGN ______ 2 → SKIP TO 120	POSITIVE…………1 NEGATIVE………..2 INDETERMIN…….3	⎕⎕ ______	PUT 1ST BAR CODE HERE
⎕⎕		⎕⎕	⎕⎕ ⎕⎕ ⎕⎕⎕⎕	⎕⎕	1 ↓ SIGN ______ 2 → SKIP TO 120	POSITIVE…………1 NEGATIVE………..2 INDETERMIN…….3	⎕⎕ ______	PUT 1ST BAR CODE HERE

TABLE FOR MALARIA DIAGNOSIS FOR WOMEN

INFORMAED CONSENT STATEMENT FORM ANEMIA FOR WOMEN

We request that you and all children aged less than 5 years participate in the anemia testing part of this survey by giving a few drops of blood from a finger. The test uses disposable sterile instruments that are clean and completely safe. The blood will be taken with new equipment and the results of the test will be given to you immediately after. These results will be kept confidential.

Do you have any question?

Now please tell me if you agree to have the test done.
IF WOMEN AGED 15-17, ASK THE CONSENT STATEMENT FROM THE RESPONSIBLE PARENT/GUARDIEN

Now please tell me if you agree to have the test done for (NAME OF THE WOMAN 15-17).
SKIP TO COLUMN 122 AND CIRCLE APPROPRIATE CODES

LINE NO. FROM COL.(9)	NAME FROM COL.(2)	AGE FROM COL.(7)	VERIFY AGE IN COLUMN 123	READ CONSENT STATEMENT TO PARENT/RESPONSIBLE ADULT* CIRCLE CODE (AND SIGN)	READ CONSENT STATEMENT TO THE WOMEN CIRCLE CODE (AND SIGN)	RESULT OF THE RAPID TEST	PREGNANT WOMEN	RESULT 1 RAPID TEST 2 THICK SMEAR 3 ABSENCE 4 REFUSED 5 TEACH/PROB 6 OTHER (SPECIFY)	PLACE BAR CODES PUT 1^{ST} BAR CODE HERE PUT 2^{ND} BAR CODE ON RAPID TEST FOR MALARIA PUT 3^{RD} BAR CODE ON THE SLIDE
122	123	124	125	126	127	128	129	130	131
			AGE 15-17 AGE 18+ 1 2 ↓ SKIP TO 127	AGREE……………..1 REFUSE……………2 DID NOT READ……3 SIGN____________	AGREE……………..1 REFUSE……………2 DID NOT READ……3 SIGN____________	IF 127 NOT EQUAL 1 → 130 POSITIVE…………………1 NEGATIVE…………………2 INDETERMIN………………8	YES………….. ……….1 NO………….. ………..2 DON'T KNOW…………3		PUT 1^{ST} BAR CODE HERE
			1 2 ↓ SKIP TO 127	AGREE……………..1 REFUSE……………2 DID NOT READ……3 SIGN____________	AGREE……………..1 REFUSE……………2 DID NOT READ……3 SIGN____________	IF 127 NOT EQUAL 1 → 130 POSITIVE…………………1 NEGATIVE…………………2 INDETERMIN………………8	YES………….. ……….1 NO………….. ………..2 DON'T KNOW…………3		PUT 1^{ST} BAR CODE HERE
			1 2 ↓ SKIP TO 127	AGREE……………..1 REFUSE……………2 DID NOT READ……3 SIGN____________	AGREE……………..1 REFUSE……………2 DID NOT READ……3 SIGN____________	IF 127 NOT EQUAL 1 → 130 POSITIVE…………………1 NEGATIVE…………………2 INDETERMIN………………8	YES………….. ……….1 NO………….. ………..2 DON'T KNOW…………3		PUT 1^{ST} BAR CODE HERE
			1 2 ↓ SKIP TO 127	AGREE……………..1 REFUSE……………2 DID NOT READ……3 SIGN____________	AGREE……………..1 REFUSE……………2 DID NOT READ……3 SIGN____________	IF 127 NOT EQUAL 1 → 130 POSITIVE…………………1 NEGATIVE…………………2 INDETERMIN………………8	YES………….. ……….1 NO………….. ………..2 DON'T KNOW…………3		PUT 1^{ST} BAR CODE HERE
			1 2 ↓ SKIP TO 127	AGREE……………..1 REFUSE……………2 DID NOT READ……3 SIGN____________	AGREE……………..1 REFUSE……………2 DID NOT READ……3 SIGN____________	IF 127 NOT EQUAL 1 → 130 POSITIVE…………………1 NEGATIVE…………………2 INDETERMIN………………8	YES………….. ……….1 NO………….. ………..2 DON'T KNOW…………3		PUT 1^{ST} BAR CODE HERE
			1 2 ↓ SKIP TO 127	AGREE……………..1 REFUSE……………2 DID NOT READ……3 SIGN____________	AGREE……………..1 REFUSE……………2 DID NOT READ……3 SIGN____________	IF 127 NOT EQUAL 1 → 130 POSITIVE…………………1 NEGATIVE…………………2 INDETERMIN………………8	YES………….. ……….1 NO………….. ………..2 DON'T KNOW…………3		PUT 1^{ST} BAR CODE HERE

TABLE FOR HEMOGLOBIN FOR CHILDREN

GO TO COLUMN 132 AND CIRCLE APPROPRIATE CODES

LINE NO. FROM COL.(11)	NAME FROM COL.(2)	AGE FROM COL.(7)	What is (NAME)'s date of birth?*	LINE NO. OF PARENT/ RESPONSIBLE ADULT. RECORD '00' IF NOT LISTED IN HOUSEHOLD SCHEDULE**	READ CONSENT STATEMENT TO PARENT/RESPONSIBLE ADULT CIRCLE CODE (AND SIGN)	HEMOGLOBIN LEVEL (G/DL)	RESULT 1 RAPID TEST 2 ABSENCE 3 REFUSED 4 TEACH/PROB 6 OTHER (SPECIFY)
132	133	134	135	136	137	138	139
			DAY MONTH YEAR		GRANTED 1 ↓ SIGN _____ REFUSED 2 SKIP TO 139	.	
					GRANTED 1 ↓ SIGN _____ REFUSED 2 SKIP TO 139	.	
					GRANTED 1 ↓ SIGN _____ REFUSED 2 SKIP TO 139	.	
					GRANTED 1 ↓ SIGN _____ REFUSED 2 SKIP TO 139	.	
					GRANTED 1 ↓ SIGN _____ REFUSED 2 SKIP TO 139	.	
					GRANTED 1 ↓ SIGN _____ REFUSED 2 SKIP TO 139	.	

* FOR CHILDREN NOT INCLUDED IN ANY BIRTH HISTORY (SECTION 2), SUCH AS ORPHAN, ADOPTED CHILDREN ETC, ASK DAY, MONTH,A ND YEAR OF BIRTH. FOR ALL OTHER CHILDREN COPY MONTH AND YEAR FROM Q. 215 IN MOTHER'S BIRTH HISTORY (SECTION 2) AND ASK DAY OF BIRTH.

** RECORD '00' IF NOT LISTED IN THE HOUSEHOLD QUESTIONAIRE

TABLE FOR HEMOGLOBIN FOR WOMEN

SKIP TO COLUMN 121 AND CIRCLE APPROPRIATE CODES

LINE NO. FROM COL.(9)	NAME FROM COL.(2)	AGE FROM COL.(7)	VERIFY AGE IN COLUMN 142	READ CONSENT STATEMENT TO PARENT/RESPONSIBLE ADULT* CIRCLE CODE (AND SIGN)	READ CONSENT STATEMENT TO THE WOMEN CIRCLE CODE (AND SIGN)	LEVEL OF HEMOGLOBINE (G/DL)	PREGNANT WOMEN	RESULT 1 RAPID TEST 2 ABSENCE 3 REFUSED 4 TEACH/PROB 6 OTHER (SPECIFY)
140	141	142	143	144	145	146	147	148
⎕⎕		⎕⎕	AGE 15-17: 1 AGE 18+: 2 ↓ SKIP TO 145	AGREE……………..1 REFUSE……………2 DID NOT READ……3 SIGN____________	AGREE……………..1 REFUSE……………2 DID NOT READ……3 SIGN____________	IF 145 NOT EQUAL 1 SKIP TO 148 ⎕⎕.⎕	YES………………..1 NO…………………2 DON'T KNOW……..8	⎕ ________
⎕⎕		⎕⎕	1 2 ↓ SKIP TO 145	AGREE……………..1 REFUSE……………2 DID NOT READ……3 SIGN____________	AGREE……………..1 REFUSE……………2 DID NOT READ……3 SIGN____________	IF 145 NOT EQUAL 1 SKIP TO 148 ⎕⎕.⎕	YES………………..1 NO…………………2 DON'T KNOW……..8	⎕ ________
⎕⎕		⎕⎕	1 2 ↓ SKIP TO 145	AGREE……………..1 REFUSE……………2 DID NOT READ……3 SIGN____________	AGREE……………..1 REFUSE……………2 DID NOT READ……3 SIGN____________	IF 145 NOT EQUAL 1 SKIP TO 148 ⎕⎕.⎕	YES………………..1 NO…………………2 DON'T KNOW……..8	⎕ ________
⎕⎕		⎕⎕	1 2 ↓ SKIP TO 145	AGREE……………..1 REFUSE……………2 DID NOT READ……3 SIGN____________	AGREE……………..1 REFUSE……………2 DID NOT READ……3 SIGN____________	IF 145 NOT EQUAL 1 SKIP TO 148 ⎕⎕.⎕	YES………………..1 NO…………………2 DON'T KNOW……..8	⎕ ________
⎕⎕		⎕⎕	1 2 ↓ SKIP TO 145	AGREE……………..1 REFUSE……………2 DID NOT READ……3 SIGN____________	AGREE……………..1 REFUSE……………2 DID NOT READ……3 SIGN____________	IF 126 NOT EQUAL 1 SKIP TO 148 ⎕⎕.⎕	YES………………..1 NO…………………2 DON'T KNOW……..8	⎕ ________
⎕⎕		⎕⎕	1 2 ↓ SKIP TO 145	AGREE……………..1 REFUSE……………2 DID NOT READ……3 SIGN____________	AGREE……………..1 REFUSE……………2 DID NOT READ……3 SIGN____________	IF 145 NOT EQUAL 1 SKIP TO 148 ⎕⎕.⎕	YES………………..1 NO…………………2 DON'T KNOW……..8	⎕ ________

149	CHECK QUESTIONS 46 (FOR CHILDREN) AND 56/57 (FOR ADULTS) : NUMBER OF HOUSEHOLD MEMBERS FOR WHICH THE LEVEL OF HEMOGLOBIN IS BELOW THE CUT-OFF POINTS : LESS THAN **7G/DL** FOR CHILDREN, FOR MEN, AND FOR WOMEN WHO ARE NOT PREGNANT (OR WHO DO NOT KNOW IF THEY ARE PREGNANT); LESS THAN **9G/DL** FOR PREGNANT WOMEN. ONE OR MORE ☐ → GIVE EACH WOMAN, MAN OR RESPONSIBLE ADULT THE RESULTS OF THE HEMOGLOBIN TEST. READ THE DECLARATION BELOW (Q.150) TO THESE PERSONS WITH HEMOGLOBIN LEVELS BELOW CUT-OFF POINTS. NONE ☐ → GIVE EACH WOMAN, MAN OR RESPONSIBLE ADULT THE RESULTS OF THE HEMOGLOBIN TEST.
150	The results of the test show that (your blood/the blood of NAME OF CHILD/CHILDREN) has a very low level of hemoglobin. This indicates that (you/NAME OF CHILD/CHILDREN) are severely anemic, which is a serious health problem. We recommend that you visit a health facility as soon as possible to be examined and obtain the proper treatment. GIVE THE ADULT THE REFERENCE FORM FOR ANEMIA .

RWANDA INTERIM DEMOGRAPHIC AND HEALTH SURVEYS
WOMAN'S QUESTIONNAIRE

National Institute of Statistics of Rwanda — REPUBLIC OF RWANDA

IDENTIFICATION

VILLAGE NAME _____

NAME OF HOUSEHOLD HEAD _____

PROVINCE . . . . . .

DISTRICT . . . . . .

CLUSTER NUMBER . . . . . .

STRUCTURE NUMBER . . . . . .

HOUSEHOLD NUMBER . . . . . .

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

CITY OF KIGALI/OTHER CITY/RURAL) . . . . . .
(CITY OF KIGALI=1, OTHER CITY=2, RURAL=3)

NAME AND LINE NUMBER OF WOMAN _____

INTERVIEWER VISITES

	1	2	3	FINAL VISIT
DATE				DAY . . . . .
				MONTH . . . . .
				YEAR 2 0 0
NAME OF THE INTERVIEWER				CODE
RESULT*				RESULT
NEXT VISITE DATE				TOTAL NUMBER OF VISITS
HOURS				

*RESULT CODES

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

LANGUAGE OF INTERVIEW

KINYARWANDA 1
OTHER LANGUAGE _____ (SPECIFY) 2

WAS A TRANSLATOR USED? YES 1
NO 2

SUPERVISOR	FIELD EDITOR	OFFICE EDITOR	KEYED BY
MANE _____	NAME _____		
DATE _____	DATE _____		

INTRODUCTION AND CONSENT

INFORMED CONSENT

Hello. My name is _____ and I am working with the National Institute of Statistics of Rwanda. We are conducting a national survey that asks women and men about various health issues. We would very much appreciate your participation in this survey. This information will help the government to plan health services. The survey usually takes between 10 and 15 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 if we should come to any question you don't want to answer, just let me know and I will go on to the next question; or you can stop the interview at any time. However, we hope that you will participate in this survey since your views are important. I should add that in the coming few months someone from our office will probably come back to ask aditional questions on the health of children.

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

100	RECORD THE TIME.	HOUR . . . . . MINUTES..	
101	In what month and year were you born?	MONTH . . . . . DON'T KNOW MONTH . . . . . 98 YEAR . . . . . DON'T KNOW YEAR 9998	
102	How old were you at your last birthday? COMPARE AND CORRECT 101 AND/OR 102 IF INCONSISTENT.	AGE IN COMPLETED YEARS	
103	Have you ever attended school?	YES . . . . . 1 NO 2	→ 106
104	What is the highest level of school you attended: primary, secondary, or higher?	PRIMARY . . . . . 1 SECONDARY . . . . . 2 HIGHER 3	
105	What is the highest grade/year you completed at that level?	GRADE/YEAR	
106	What is your religion?	CATHOLIC . . . . . 1 PROTESTANT . . . . . 2 ADVENTIST . . . . . 3 MOSLEM . . . . . 4 TRADITIONAL RELIGION . . . . . 5 OTHER _____ 6 (SPECIFY) NONE 7	
107	Are you currently married or living together with a man as if married?	YES, CURRENTLY MARRIED . . . . . 1 YES, LIVING WITH A MAN . . . . . 2 NO, NOT IN UNION 3	→ 110
108	Have you ever been married or lived together with a man as if married?	YES, FORMERLY MARRIED . . . . . 1 YES, LIVED WITH A MAN . . . . . 2 NO 3	→ 201
109	What is your marital status now: are you widowed, divorced, or separated?	WIDOWED . . . . . 1 DIVORCED . . . . . 2 SEPARATED 3	→ 201
110	Is your husband/partner living with you now or is he staying elsewhere?	LIVING WITH HER . . . . . 1 STAYING ELSEWHERE 2	

SECTION 2. REPRODUCTION

N°.	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. IF NONE, RECORD '00'.	TOTAL . . . . . [ ][ ]	
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 OR MORE BIRTHS ↓ NO BIRTHS →		→ 225

211 Now I would like to record the names of all your births, whether still alive or not, starting with the first one you had.
RECORD NAMES OF ALL THE BIRTHS IN 212. RECORD TWINS AND TRIPLETS ON SEPARATE LINES.
(IF THERE ARE MORE THAN 12 BIRTHS, USE AN ADDITIONAL QUESTIONNAIRE, STARTING WITH THE SECOND ROW).

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 COM-PLETED YEARS.	218 IF ALIVE: Is (NAME) living with you?	219 IF ALIVE: RECORD HOUSE-HOLD LINE NUMBER OF CHILD (RECORD '00' IF CHILD NOT LISTED IN HOUSE-HOLD).	220 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), including any children who died after birth?
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 (GO TO 221)	DAYS . . . 1 MONTHS 2 YEARS . . 3	YES . . . . 1 ADD BIRTH NO . . . . . NEXT BIRTH
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 (GO TO 221)	DAYS . . . 1 MONTHS 2 YEARS . . 3	YES . . . . 1 ADD BIRTH NO . . . . . 2 NEXT BIRTH
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 (GO TO 221)	DAYS . . . 1 MONTHS 2 YEARS . . 3	YES . . . . 1 ADD BIRTH NO . . . . . 2 NEXT BIRTH
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 (GO TO 221)	DAYS . . . 1 MONTHS 2 YEARS . . 3	YES . . . . 1 ADD BIRTH NO . . . . . 2 NEXT BIRTH
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 (GO TO 221)	DAYS . . . 1 MONTHS 2 YEARS . . 3	YES . . . . 1 ADD BIRTH NO . . . . . 2 NEXT BIRTH
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 (GO TO 221)	DAYS . . . 1 MONTHS 2 YEARS . . 3	YES . . . . 1 ADD BIRTH NO . . . . . 2 NEXT BIRTH

212 What name was given to your 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 COM-PLETED YEARS.	218 IF ALIVE: Is (NAME) living with you?	219 IF ALIVE: RECORD HOUSE-HOLD LINE NUMBER OF CHILD (RECORD '00' IF CHILD NOT LISTED IN HOUSE-HOLD).	220 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), including any children who died after birth?
08	SING 1 MULT 2	BOY 1 GIRL 2	MONTH ☐☐ YEAR ☐☐☐☐	YES . . 1 NO . . . 2 → 220	AGE IN YEARS ☐☐	YES . . . 1 NO 2	LINE NUMBER ☐☐ → (GO TO 221)	DAYS . . . 1 MONTHS 2 YEARS . . 3 ☐☐	YES . . . . 1 ADD BIRTH NO . . . . . 2 NEXT BIRTH
09	SING 1 MULT 2	BOY 1 GIRL 2	MONTH ☐☐ YEAR ☐☐☐☐	YES . . 1 NO . . . 2 → 220	AGE IN YEARS ☐☐	YES . . . 1 NO 2	LINE NUMBER ☐☐ → (GO TO 221)	DAYS . . . 1 MONTHS 2 YEARS . . 3 ☐☐	YES . . . . 1 ADD BIRTH NO . . . . . 2 NEXT BIRTH
10	SING 1 MULT 2	BOY 1 GIRL 2	MONTH ☐☐ YEAR ☐☐☐☐	YES . . 1 NO . . . 2 → 220	AGE IN YEARS ☐☐	YES . . . 1 NO 2	LINE NUMBER ☐☐ → (GO TO 221)	DAYS . . . 1 MONTHS 2 YEARS . . 3 ☐☐	YES . . . . 1 ADD BIRTH NO . . . . . 2 NEXT BIRTH
11	SING 1 MULT 2	BOY 1 GIRL 2	MONTH ☐☐ YEAR ☐☐☐☐	YES . . 1 NO . . . 2 → 220	AGE IN YEARS ☐☐	YES . . . 1 NO 2	LINE NUMBER ☐☐ → (GO TO 221)	DAYS . . . 1 MONTHS 2 YEARS . . 3 ☐☐	YES . . . . 1 ADD BIRTH NO . . . . . 2 NEXT BIRTH
12	SING 1 MULT 2	BOY 1 GIRL 2	MONTH ☐☐ YEAR ☐☐☐☐	YES . . 1 NO . . . 2 → 220	AGE IN YEARS ☐☐	YES . . . 1 NO 2	LINE NUMBER ☐☐ → (GO TO 221)	DAYS . . . 1 MONTHS 2 YEARS . . 3 ☐☐	YES . . . . 1 ADD BIRTH NO . . . . . 2 NEXT BIRTH

222	Have you had any live births since the birth of (NAME OF LAST BIRTH)? IF YES, RECORD BIRTH(S) IN TABLE.	YES . . . . . 1 NO 2

223 COMPARE 208 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 BIRTH SINCE JANUARY 2002: MONTH AND YEAR OF BIRTH ARE RECORDED. ☐

FOR EACH LIVING CHILD: CURRENT AGE IS RECORDED. ☐

FOR EACH DEAD CHILD: AGE AT DEATH IS RECORDED. ☐

224 CHECK 215 AND ENTER THE NUMBER OF BIRTHS IN 2002 OR LATER.
IF NONE, RECORD '0' AND SKIP TO 226. ☐

N^{O}.	QUESTIONS AND FILTERS	CATEGORIES	SKP
225	Are you pregnant now?	YES . . . . . 1 NO . . . . . 2 UNSURE 8	→ 301
226	How many months pregnant are you?	MONTHS . . . . . ☐☐	

SECTION 3. CONTRACEPTION

301	Now I would like to talk about family planning - the various ways or methods that a couple can use to delay or avoid a pregnancy Which ways or methods have you heard about? **(1)** FOR METHODS NOT MENTIONED SPONTANEOUSLY, ASK: Have you ever heard of (METHOD)? CIRCLE CODE 1 IN 301 FOR EACH METHOD MENTIONED SPONTANEOUSLY. THEN PROCEED DOWN COLUMN 301, READING THE NAME AND DESCRIPTION OF EACH METHOD NOT MENTIONED SPONTANEOUSLY. CIRCLE CODE 1 IF METHOD IS RECOGNIZED, AND CODE 2 IF NOT RECOGNIZED. THEN, FOR EACH METHOD WITH CODE 1 CIRCLED IN 301, ASK 302.		302 Have you ever used (METHOD)?
01	FEMALE STERILIZATION Women can have an operation to avoid having any more children.	YES . . . . . 1 NO 2	Have you ever had an operation to avoid having any more children? YES . . . . . 1 NO 2
02	MALE STERILIZATION Men can have an operation to avoid having any more children.	YES . . . . . 1 NO 2	Have you ever had a partner who had an operation to avoid having any more children? YES . . . . . 1 NO 2
03	PILL Women can take a pill every day to avoid becoming pregnant.	YES . . . . . 1 NO 2	YES . . . . . 1 NO 2
04	IUD Women can have a loop or coil placed inside them by a doctor or a nurse.	YES . . . . . 1 NO 2	YES . . . . . 1 NO 2
05	INJECTABLES Women can have an injection by a health provider that stops them from becoming pregnant for one or more months.	YES . . . . . 1 NO 2	YES . . . . . 1 NO 2
06	IMPLANTS Women can have several small rods placed in their upper arm by a doctor or nurse which can prevent pregnancy for one or more years.	YES . . . . . 1 NO 2	YES . . . . . 1 NO 2
07	CONDOM Men can put a rubber sheath on their penis before sexual intercourse.	YES . . . . . 1 NO 2	YES . . . . . 1 NO 2
08	FEMALE CONDOM Women can place a sheath in their vagina before sexual intercourse.	YES . . . . . 1 NO 2	YES . . . . . 1 NON 2
09	LACTATIONAL AMENORRHEA METHOD (LAM)	YES . . . . . 1 NO 2	YES . . . . . 1 NO . . . . . 2 NON 2
10	RHYTHM METHOD Every month that a woman is sexually active she can avoid pregnancy by not having sexual intercourse on the days of the month she is most likely to get pregnant	YES . . . . . 1 NO 2	YES . . . . . 1 NO 2
11	WITHDRAWAL Men can be careful and pull out before climax.	YES . . . . . 1 NO 2	YES . . . . . 1 NO 2
12	EMERGENCY CONTRACEPTION As an emergency measure after unprotected sexual intercourse, women can take special pills at any time within five days to prevent pregnancy.	YES . . . . . 1 NO 2	YES . . . . . 1 NO 2
13	STANDARD DAYS METHODS USING CYCLE BEADS: Woman can know better the days of the months that she would have a greater chance of being pregnant by using cycle beads or calendar.	OUI . . . . . 1 NON 2	OUI . . . . . 1 NON 2
16	Have you heard of any other ways or methods that women or men can use to avoid pregnancy?	YES . . . . . 1 _____ (SPECIFY) _____ (SPECIFY) NO 2	YES . . . . . 1 NO . . . . . 2 YES . . . . . 1 NO 2
303	CHECK 302: NOT A SINGLE "YES" (NEVER USED) →	AT LEAST ONE "YES" (EVER USED) → 306	

NO	QUESTIONS AND FILTERS	CODES	SKIP
304	Have you ever used anything or tried in any way to delay or avoid getting pregnant?	YES . . . . . 1 NO 2	→ 306
305	What have you used or done? CORRECT 302 AND 303 (AND 301 IF NECESSARY).		
306	CHECK 302 (01): WOMAN NOT STERILIZED ☐ ↓ WOMAN STERILIZED ☐ → 309A		
307	CHECK 225: NOT PREGNANT OR UNSURE ☐ ↓ PREGNANT ☐ → 314		
308	Are you currently doing something or using any method to delay or avoid getting pregnant?	YES . . . . . 1 NO 2	→ 314
309 309A	Which method are you using? CIRCLE ALL MENTIONED. IF MORE THAN ONE METHOD MENTIONED, FOLLOW SKIP INSTRUCTION FOR HIGHEST METHOD IN LIST. CIRCLE 'A' FOR FEMALE STERILIZATION.	FEMALE STERILIZATION . . . . . A MALE STERILIZATION . . . . . B PILL . . . . . C IUD . . . . . D INJECTABLES . . . . . E IMPLANTS . . . . . F CONDOM . . . . . G FEMALE CONDOM . . . . . H LACTATIONAL AMEN. METHOD . . . . . I RHYTHM . . . . . J WITHDRAWAL . . . . . K EMRGENCY PILL . . . . . L SDM CYCLESBEADS . . . . . M FOAM/JELLY . . . . . N DIAPHRAGM . . . . . O OTHER _____ X (SPECIFY)	→ 311
310	In what facility did the sterilization take place? PROBE TO IDENTIFY THE TYPE OF SOURCE AND CIRCLE THE APPROPRIATE CODE. IF UNABLE TO DETERMINE IF HOSPITAL, HEALTH CENTER OR CLINIC IS PUBLIC OR PRIVATE MEDICAL, WRITE THE NAME OF THE PLACE. _____ (NAME OF PLACE)	SECTEUR PUBLIC REFERRAL HOSPITAL . . . . . 11 DISTRICT HOSIPTAL . . . . . 12 HEALTH CENTER . . . . . 13 OTHER PUBLIC _____ 16 (SPECIFY) PRIVATE MEDICAL SECTOR PRIVATE CLINIC/HOSPITAL . . . 21 PRIVATE DOCTOR . . . . . 23 OTHER PRIVATE MEDICAL _____ 26 (SPECIFY) OTHER _____ 96 (SPECIFY) DON'T KNOW 98	

N^{O}	QUESTIONS AND FILTERS	CODES	SKIP
311	CHECK 309/309A : CIRCLE METHOD CODE: IF MORE THAN ONE METHOD CODE CIRCLED IN 309/309A, CIRCLE CODE FOR HIGHEST METHOD IN LIST.	NO CODE CIRCLED . . . . . 00 FEMALE STERILIZATION . . . . . 01 MALE STERILIZATION . . . . . 02 PILL . . . . . 03 IUD . . . . . 04 INJECTABLES . . . . . 05 IMPLANTS . . . . . 06 CONDOM . . . . . 07 FEMALE CONDOM . . . . . 08 LACTATIONAL AMEN. METHOD . . . . . 09 RHYTHM . . . . . 10 WITHDRAWAL . . . . . 11 EMRGENCY PILL . . . . . 12 SDM CYCLESBEADS . . . . . 13 FOAM/JELLY . . . . . 14 DIAPHRAGM . . . . . 15 OTHER METHOD 16	→ 313 → 313 → 313 → 312A → 312A → 313 → 313
312 312A	Where did you obtain (CURRENT METHOD) when you started using it? Where did you learn how to use the rhythm/lactational amenorhea method? IF UNABLE TO DETERMINE IF HOSPITAL, HEALTH CENTER, OR CLINIC IS PUBLIC OR PRIVATE MEDICAL, WRITE THE NAME OF THE PLACE. _____ (NAME OF PLACE)	PUBLIC SECTOR REFERENCE HOSPITAL . . . . . 11 DISTRICT HOSIPTAL . . . . . 12 HEALTH CENTER . . . . . 13 HEALTH WORKER . . . . . 14 OTHER PUBLIC _____ 16 (PRÉCISER) PRIVATE MEDICAL SECTOR PRIVATE CLINIC/HOSPITAL . . . 21 PHARMACY . . . . . 22 PRIVATE DOCTOR . . . . . 23 ARBEF CLINIC . . . . . 24 NURSE . . . . . 25 OTHER PRIVATE MEDICAL _____ 26 (PRÉCISER) OTHER SOURCE SHOP . . . . . 31 CHURCH . . . . . 32 FRIEND/RELATIVE . . . . . 33 OTHER _____ 96 (SPECIFY)	
313	CHECK 309/309A : NEITHER STERILIZED ☐ ↓ HE OR SHE STERILIZED ☐ →		→ 325
314	CHECK 225 NOT PREGNANT OR UNSURE ↓ Now I have some questions about the future. Would you like to have (a/another) child, or would you prefer not to have any (more) children? PREGNANT ↓ Now I have some questions about the future. After the child you are expecting now, would you like to have another child, or would you prefer not to have any more children?	HAVE (A/ANOTHER) CHILD . . . . . 1 NO MORE/NONE . . . . . 2 SAYS SHE CAN'T GET PREGNANT . 3 UNDECIDED/DON'T KNOW AND PREGNANT . . . . . 4 UNDECIDED/DON'T KNOW AND NOT PREGNANT OR UNSURE 5	 → 316 → 325 → 321 → 320

N^{O}	QUESTIONS AND FILTERS	CODES	SKIP
315	CHECK 225: NOT PREGNANT OR UNSURE ⚑ — How long would you like to wait from now before the birth of (a/another) child? PREGNANT ⚑ — After the birth of the child you are expecting now, how long would you like to wait before the birth of another child?	MONTHS . . . . . 1 YEARS . . . . . 2 SOON/NOW . . . . . 993 SAYS SHE CAN'T GET PREGNANT 994 AFTER MARRIAGE . . . . . 995 OTHER _____ 996 (SPECIFY) DON'T KNOW 998	→ 320 → 325 → 320
316	CHECK 225: NOT PREGNANT OR UNSURE ⚑ PREGNANT →		321
317	CHECK 308: USING A CONTRACEPTIVE METHOD? NOT ASKED ⚑ NOT CURRENTLY USING ⚑ CURRENTLY USING →		325
318	CHECK 315: NOT ASKED ⚑ 24 OR MORE MONTHS OR 02 OR MORE YEARS ⚑ 00-23 MONTHS OR 00-01 YEAR →		321
319	CHECK 314: WANTS TO HAVE A/ANOTHER CHILD ⚑ — You have said that you do not want (a/another) child soon, but you are not using any method to avoid pregnancy. WANTS NO MORE/ NONE ⚑ — You have said that you do not want any (more) children, but you are not using any method to avoid pregnancy. Can you tell me why you are not using a method? Any other reason? RECORD ALL REASONS MENTIONED.	NOT MARRIED . . . . . A FERTILITY-RELATED REASONS NOT HAVING SEX . . . . . B INFREQUENT SEX . . . . . C MENOPAUSAL/HYSTERECTOMY . D SUBFECUND/INFECUND . . . . . E POSTPARTUM AMENORRHEIC . . . F BREASTFEEDING . . . . . G FATALISTIC . . . . . H OPPOSITION TO USE RESPONDENT OPPOSED . . . . . I HUSBAND/PARTNER OPPOSED . J OTHERS OPPOSED . . . . . K RELIGIOUS PROHIBITION . . . . . L LACK OF KNOWLEDGE KNOWS NO METHOD . . . . . M KNOWS NO SOURCE . . . . . N METHOD-RELATED REASONS HEALTH CONCERNS . . . . . O FEAR OF SIDE EFFECTS . . . . . P LACK OF ACCESS/TOO FAR . . . . . Q COSTS TOO MUCH . . . . . R INCONVENIENT TO USE . . . . . S INTERFERES WITH BODY'S NORMAL PROCESSES . . . . . T OTHER _____ X (SPECIFY) DON'T KNOW . . . . . Z	

N^{O}	QUESTIONS AND FILTERS	CODES	SKIP
320	CHECK 309: USING A CONTRACEPTIVE METHOD? NOT ASKED ☐ → NO, NOT CURRENTLY USING ☐ → YES, CURRENTLY USING ☐ → 325		
321	Do you think you will use a contraceptive method to delay or avoid pregnancy at any time in the future?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW 8	→ 323 → 323
322	Quelle méthode préféreriez-vous utiliser ?	FEMALE STERILIZATION . . . . . 01 MALE STERILIZATION . . . . . 02 PILL . . . . . 03 IUD . . . . . 04 INJECTABLES . . . . . 05 IMPLANTS . . . . . 06 CONDOM . . . . . 07 FEMALE CONDOM . . . . . 08 LACTATIONAL AMEN. METHOD . . . . . 09 RHYTHM . . . . . 10 WITHDRAWAL . . . . . 11 EMRGENCY PILL . . . . . 12 SDM CYCLESBEADS . . . . . 13 FOAM/JELLY . . . . . 14 DIAPHRAGM . . . . . 15 OTHER _____ 96 (SPECIFY) DON'T KNOW 98	→ 325
323	What is the main reason that you think you will not use a contraceptive method at any time in the future?	NOT MARRIED . . . . . 11 FERTILITY-RELATED REASONS INFREQUENT SEX/NO SEX . . . 22 MENOPAUSAL/HYSTERECTOMY 23 SUBFECUND/INFECUND . . . . . 24 WANTS AS MANY CHILDREN AS POSSIBLE . . . . . 26 OPPOSITION TO USE RESPONDENT OPPOSED . . . . . 31 HUSBAND/PARTNER OPPOSED 32 OTHERS OPPOSED . . . . . 33 RELIGIOUS PROHIBITION . . . . . 34 LACK OF KNOWLEDGE KNOWS NO METHOD . . . . . 41 KNOWS NO SOURCE . . . . . 42 METHOD-RELATED REASONS HEALTH CONCERNS . . . . . 51 FEAR OF SIDE EFFECTS . . . . . 52 LACK OF ACCESS/TOO FAR . . . 53 COSTS TOO MUCH . . . . . 54 INCONVENIENT TO USE . . . . . 55 INTERFERES WITH BODY'S NORMAL PROCESSES . . . . . 56 OTHER _____ 96 (SPECIFY) DON'T KNOW 98	→ 325
324	Would you ever use a contraceptive method if you were married?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW 8	

N^{O}	QUESTIONS AND FILTERS	CODES	SKIP
325	CHECK 216: HAS LIVING CHILDREN ⚑ If you could go back to the time you did not have any children and could choose exactly the number of children to have in your whole life, how many would that be? NO LIVING CHILDREN ⚑ If you could choose exactly the number of children to have in your whole life, how many would that be? PROBE FOR A NUMERIC RESPONSE.	NONE . . . . . 00 NUMBER . . . . . ☐☐ OTHER _____ 96 (SPECIFY)	→ 401 → 401
326	How many of these children would you like to be boys, how many would you like to be girls and for how many would the sex not matter?	BOYS GIRLS EITHER NUMBER ☐☐ ☐☐ ☐☐ OTHER _____ 96 (SPECIFY)	

SECTION 4. PREGNANCY AND POSTNATAL CARE

401	CHECK 224: ONE OR MORE BIRTHS IN 2002 OR LATER ☐ ↓ NO BIRTHS IN 2002 OR LATER ☐ → GO TO 574			
402	CHECK 215: ENTER IN THE TABLE THE LINE NUMBER, NAME, AND SURVIVAL STATUS OF EACH BIRTH IN 2002 OR LATER. ASK THE QUESTIONS ABOUT ALL OF THESE BIRTHS. BEGIN WITH THE LAST BIRTH. (IF THERE ARE MORE THAN 3 BIRTHS, USE LAST 2 COLUMNS OF ADDITIONAL QUESTIONNAIRES). Now I would like to ask you some questions about the health of all your children born in the last five years. (We will talk about each separately.)			
403	LINE NUMBER FROM 212	LAST BIRTH LINE NO. ☐☐	NEXT-TO-LAST BIRTH LINE NO. ☐☐	SECOND-FROM-LAST BIRTH LINE NO. ☐☐
404	FROM 212 AND 216	NAME _____ LIVING ☐ DEAD ☐	NAME _____ LIVING ☐ DEAD ☐	NAME _____ LIVING ☐ DEAD ☐
405	At the time you became pregnant with (NAME), did you want to become pregnant then, did you want to wait until later, or did you not want to have any (more) children at all?	THEN . . . . . 1 (SKIP TO 407) LATER . . . . . 2 NOT AT ALL . . . . . 3 (SKIP TO 407)	THEN . . . . . 1 (SKIP TO 435) LATER . . . . . 2 NOT AT ALL . . . . . 3 (SKIP TO 435)	THEN . . . . . 1 (SKIP TO 435) LATER . . . . . 2 NOT AT ALL . . . . . 3 (SKIP TO 435)
406	How much longer would you have liked to wait?	MONTHS . .1 ☐☐ YEARS . .2 ☐☐ DON'T KNOW . . . 998	MONTHS . .1 ☐☐ YEARS . .2 ☐☐ DON'T KNOW . . . 998	MONTHS . .1 ☐☐ YEARS . .2 ☐☐ DON'T KNOW . . . 998
407	Did you see anyone for antenatal care for this pregnancy? IF YES: Whom did you see? Anyone else? PROBE TO IDENTIFY EACH TYPE OF PERSON AND RECORD ALL MENTIONED.	PROF. DE LA SANTÉ DOCTOR . . . . . A NURSE/MIDWIFE AUXILIARY MIDWIFE . . . . . B OTHER PERSON TRAINED TRAD.BIRTH ATTENDANT . C NON TRAINED TRAD. BIRTH ATTENDANT . . . D OTHER_____ X (SPECIFY) NO ONE . . . . . Y (SKIP TO 414)		

N^{O}	QUESTIONS AND FILTERS	LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____
408	Where did you receive antenatal care for this pregnancy? Anywhere else? PROBE TO IDENTIFY TYPE(S) OF SOURCE(S) AND CIRCLE THE APPROPRIATE CODE(S). IF UNABLE TO DETERMINE IF A HOSPITAL, HEALTH CENTER, OR CLINIC IS PUBLIC OR PRIVATE MEDICAL, WRITE THE THE NAME OF THE PLACE. _____ (NAME OF PLACE(S))	HOME YOUR HOME . . . A OTHER HOME . . . B PUBLIC SECTOR GOV. HOSPITAL. C HEALTH CENTER . . D OTHER PUBLIC _____ E (SPECIFY) PRIV. MEDICAL SECTOR PRIVATE HOSP./ CLINIC . . . . . F PRIV. DOCTOR . G ARBEF CLINIC . H NURSE . . . . . I OTHER MEDICAL PRIVATE_____ J (SPECIFY) OTHER_____ (SPECIFY) X		
409	How many months pregnant were you when you first received antenatal care for this pregnancy?	MONTHS . . . ☐☐ DON'T KNOW 98		
410	How many times did you receive antenatal care during this pregnancy?	NUMBER OF TIMES . ☐☐ DON'T KNOW 98		
411	As part of your antenatal care during this pregnancy, were any of the following done at least once? Were you weighed? Was your blood pressure measured? Did you give a urine sample? Did you give a blood sample?	YES NO WEIGHT . . . 1 2 BP . . . . . 1 2 URINE . . . . . 1 2 BLOOD . . . 1 2		
412	During (any of) your antenatal care visit(s), were you told about the signs of pregnancy complications?	YES . . . . . 1 NO . . . . . 2 (SKIP TO 414) ← DON'T KNOW 8		
413	Were you told where to go if you had any of these complications?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW 8		
414	During this pregnancy, were you given an injection in the arm to prevent the baby from getting tetanus, that is, convulsions after birth?	YES . . . . . 1 NO . . . . . 2 (SKIP TO 417) ← DON'T KNOW 8		
415	During this pregnancy, how many times did you get this tetanus injection?	TIMES . . . . . ☐ DON'T KNOW . . . 8		
416	CHECK 415:	2 OR MORE TIMES ☐ → (SKIP TO 421) OTHER ☐ →		

N°	QUESTIONS AND FILTERS	LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____
417	At any time before this pregnancy, did you receive any tetanus injections, either to protect yourself or another baby?	YES . . . . . 1 NO . . . . . 2 (SKIP TO 421) DON'T KNOW 8		
418	Before this pregnancy, how many other times did you receive a tetanus injection? IF 7 OR MORE TIMES, RECORD '7'. RECORD '7'.	TIMES . . . . . [ ] DON'T KNOW . . . 8		
421	During this pregnancy, were you given or did you buy any iron tablets or iron syrup? SHOW TABLETS/SYRUP. MONTRER COMPRIMÉS/SIROP	YES . . . . . 1 NO . . . . . 2 (SKIP TO 423) DON'T KNOW 8		
422	During the whole pregnancy, for how many days did you take the tablets or syrup? IF ANSWER IS NOT NUMERIC, PROBE FOR APPROXIMATE NUMBER OF DAYS.	DAYS . [ ][ ][ ] DON'T KNOW . . . 998		
423	During this pregnancy, did you take any drug for intestinal worms?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW 8		
424	During this pregnancy, did you have difficulty with your vision during daylight?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW 8		
425	During this pregnancy, did you suffer from night blindness [USE LOCAL TERM]?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW 8		
425A	During this pregnancy, did you have the fever?	YES . . . . . 1 NO . . . . . 2 (SKIP TO 426) DON'T KNOW 8		
425B	In which trimester did you have the fever?	FIRST TRIMES. . . . . 1 SECOND TRIMES. . . 2 THIRD TRIMES. . . . . 3 DON'T KNOW 8		
426	During this pregnancy, did you take any drugs to keep you from getting malaria?	YES . . . . . 1 NO . . . . . 2 (SKIP TO 435) DON'T KNOW 8		
427	What drugs did you take? RECORD ALL MENTIONED. IF TYPE OF DRUG IS NOT DETERMINED, SHOW TYPICAL ANTIMALARIAL DRUGS TO RESPONDENT.	SP/FANSIDAR . . . . . A QUARTEM . . . . . B QUININE . . . . . C OTHER _____ X (SPECIFY) DON'T KNOW . . . . . Z		
428	CHECK 427: DRUGS TAKEN FOR MALARIA PREVENTION.	CODE 'A' CIRCLED [ ] CODE A' NOT CIRCLED [ ] (SKIP TO 435)		

N°	QUESTIONS AND FILTERS	LAST BIRTH NAME ________	NEXT-TO-LAST BIRTH NAME ________	SECOND-FROM-LAST BIRTH NAME ________
429	How many times did you take (SP/Fansidar) during this pregnancy?	TIMES . . . . . ☐☐		
430	CHECK 407: ANTENATAL CARE FROM HEALTH PERSONNEL DURING THIS PREGNANCY	CODE 'A', B' OR 'C' CIRCLED ☐ OTHER ☐ (SKIP TO 435)		
431	Did you get the (SP/Fansidar) during any antenatal care visit, during another visit to a health facility or from another source?	ANTENATAL VISIT . . 1 ANOTHER FACILITY VISIT . . . . 2 OTHER SOURCE 6		
435	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 ________ X (SPECIFY) NO ONE . . . . Y	HEALTH PERSONNEL DOCTOR . . . . . A NURSE/MIDWIFE . B AUXILIARY MIDWIFE . . . . . . C OTHER PERSON TRADITIONAL BIRTH ATTENDANT . . D RELATIVE/FRIEND . E OTHER ________ X (SPECIFY) NO ONE . . . . Y	HEALTH PERSONNEL DOCTOR . . . . . A NURSE/MIDWIFE . B AUXILIARY MIDWIFE . . . . . . C OTHER PERSON TRADITIONAL BIRTH ATTENDANT . . D RELATIVE/FRIEND E OTHER ________ X (SPECIFY) NO ONE . . . . Y
436	Where did you give birth to (NAME)? **(2)** PROBE TO IDENTIFY THE TYPE OF SOURCE AND CIRCLE THE APPROPRIATE CODE. IF UNABLE TO DETERMINE IF A HOSPITAL, HEALTH CENTER, OR CLINIC IS PUBLIC OR PRIVATE MEDICAL, WRITE THE THE NAME OF THE PLACE. ________ (NAME OF PLACE)	HOME YOUR HOME . . . 11 (SKIP TO 460) OTHER HOME . . . 12 PUBLIC SECTOR REFER. HOSPITAL 21 DISTRICT HOSPITAL 22 HEALTH CENTER 23 OTHER PUBLIC ________ 26 (SPECIFY) PRIV. MEDICAL SECTOR PRIVATE HOSP./ CLINIC . . . . 31 OTHER MEDICAL PRIVATE ________ 36 (SPECIFY) OTHER ________ 96 (SPECIFY) (SKIP TO 460)	HOME YOUR HOME . . . 11 (SKIP TO 460) OTHER HOME . . . 12 PUBLIC SECTOR REFER. HOSPITAL 21 DISTRICT HOSPITAL 22 HEALTH CENTER 23 OTHER PUBLIC ________ 26 (SPECIFY) PRIV. MEDICAL SECTOR PRIVATE HOSP./ CLINIC . . . . 31 OTHER MEDICAL PRIVATE ________ 36 (SPECIFY) OTHER ________ 96 (SPECIFY) (SKIP TO 460)	HOME YOUR HOME . . . 11 (SKIP TO 460) OTHER HOME . . . 12 PUBLIC SECTOR REFER. HOSPITAL 21 DISTRICT HOSPITAL 22 HEALTH CENTER 23 OTHER PUBLIC ________ 26 (SPECIFY) PRIV. MEDICAL SECTOR PRIVATE HOSP./ CLINIC . . . . 31 OTHER MEDICAL PRIVATE ________ 36 (SPECIFY) OTHER ________ 96 (SPECIFY) (SKIP TO 460)
437	Did the mutuelle pay for the delivery of (NAME) ?	YES . . . . 1 NO 2	YES . . . . 1 NO 2	YES . . . . 1 NO 2
460	Did you ever breastfeed (NAME)?	YES . . . . 1 NO . . . . 2 (SKIP TO 501)	YES . . . . 1 NO . . . . 2 (SKIP TO 501)	YES . . . . 1 NO . . . . 2 (SKIP TO 501)

NO	QUESTIONS AND FILTERS	LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____
461	How long after birth did you first put (NAME) to the breast? IF LESS THAN 1 HOUR, RECORD '00' HOURS. IF LESS THAN 24 HOURS, RECORD HOURS. OTHERWISE, RECORD DAYS.	IMMEDIATELY . . . 000 HOURS 1 ☐☐ DAYS 2 ☐☐		
462	In the first three days after delivery, was (NAME) given anything to drink other than breast milk?	YES . . . . . 1 NO . . . . . 2 (SKIP TO 464)		
463	What was (NAME) given to drink? Anything else? RECORD ALL LIQUIDS MENTIONED.	MILK (OTHER THAN BREAST MILK) . A PLAIN WATER . . . B SUGAR OR GLU-COSE WATER . . . C GRIPE WATER . . . D SUGAR-SALT-WATER SOLUTION . . . . . E FRUIT JUICE . . . . . F INFANT FORMULA . G TEA/INFUSIONS . . . H HONEY . . . . . I OTHER _____ X (SPECIFY)		
464	CHECK 404: IS CHILD LIVING?	LIVING ☐ DEAD ☐ (SKIP TO 466)		
465	Are you still breastfeeding (NAME)?	YES . . . . . 1 (SKIP TO 501) NO 2		
466	For how many months did you breastfeed (NAME)?	MONTHS . . . ☐☐ STILL BF . . . . . 95 DON'T KNOW . . . 98	MONTHS . . . ☐☐ STILL BF . . . . . 95 DON'T KNOW . . . 98	MONTHS . . . ☐☐ STILL BF . . . . . 95 DON'T KNOW . . . 98

SECTION 5. VACCINATION OF CHILDREN AND HEALTH AND NUTRITION OF WOMEN AND CHILDREN

501 ENTER IN THE TABLE THE LINE NUMBER, NAME, AND SURVIVAL STATUS OF EACH BIRTH IN 2002 OR LATER.
ASK THE QUESTIONS ABOUT ALL OF THESE BIRTHS. BEGIN WITH THE LAST BIRTH.
(IF THERE ARE MORE THAN 3 BIRTHS, USE LAST 2 COLUMNS OF ADDITIONAL QUESTIONNAIRES).

		LAST BIRTH	NEXT-TO-LAST BIRTH	SECOND-FROM-LAST BIRTH
502	LINE NUMBER FROM 212	LINE NUMBER	LINE NUMBER	LINE NUMBER . . . . .
503	FROM 212 AND 216	NAME _____ LIVING DEAD (GO TO 503 IN NEXT COLUMN OR, IF NO MORE BIRTHS, GO TO 573)	NAME _____ LIVING DEAD (GO TO 503 IN NEXT COLUMN OR, IF NO MORE BIRTHS, GO TO 573)	NAME _____ LIVING DEAD (GO TO 503 IN NEXT-TO-LAST COLUMN OF NEW QUESTIONNAIRE, OR IF NO MORE BIRTHS, GO TO 573)
504	Do you have a card where (NAME'S) vaccinations are written down? **(2)** IF YES: May I see it please?	YES, SEEN . . . . . 1 (SKIP TO 506) YES, NOT SEEN . . . . . 2 (SKIP TO 508) NO CARD 3	YES, SEEN . . . . . 1 (SKIP TO 506) YES, NOT SEEN . . . . . 2 (SKIP TO 508) NO CARD 3	YES, SEEN . . . . . 1 (SKIP TO 506) YES, NOT SEEN . . . . . 2 (SKIP TO 508) NO CARD 3
505	Did you ever have a vaccination card for (NAME)?	YES . . . . . 1 (SKIP TO 508) NO 2	YES . . . . . 1 (SKIP TO 508) NO 2	YES . . . . . 1 (SKIP TO 508) NO 2

506 (1) COPY VACCINATION DATE FOR EACH VACCINE FROM THE CARD.
(2) WRITE '44' IN 'DAY' COLUMN IF CARD SHOWS THAT A VACCINATION WAS GIVEN, BUT NO DATE IS RECORDED.
(3) IF MORE THAN TWO VITAMIN 'A' DOSES, RECORD DATES FOR MOST RECENT AND SECOND MOST RECENT DOSES.

	LAST BIRTH DAY MONTH YEAR		NEXT-TO-LAST BIRTH DAY MONTH YEAR		SECOND-FROM-LAST BIRTH DAY MONTH YEAR	
BCG		BCG		BCG		
POLIO 0 (POLIO GIVEN AT BIRTH)		P0		P0		
POLIO 1		P1		P1		
POLIO 2		P2		P2		
POLIO 3		P3		P3		
DTP/Pentavalent 1		D1		D1		
DTP/Pentavalent 2		D2		D2		
DTP/Pentavalent 3		D3		D3		
MEASLES/MMR		MEA		MEA		
VITAMIN A (MOST RECENT)		VIT A		VIT A		
VITAMIN A (2nd MOST RECENT)		VIT A		VIT A		

NO.	QUESTIONS AND FILTERS	LAST BIRTH NAME ________	NEXT-TO-LAST BIRTH NAME ________	SECOND-FROM-LAST BIRTH NAME ________
507	Has (NAME) received any vaccinations that are not recorded on this card, including vaccinations received in a national immunization day campaign? RECORD 'YES' ONLY IF RESPONDENT MENTIONS BCG, POLIO 0-3, DPT 1-3, AND/OR MEASLES VACCINES.	YES . . . . 1 (PROBE FOR VACCINATIONS AND WRITE '66' IN THE CORRESPONDING DAY COLUMN IN 506) NO . . . . 2 (SKIP TO 512) DON'T KNOW 8	YES . . . . 1 (PROBE FOR VACCINATIONS AND WRITE '66' IN THE CORRESPONDING DAY COLUMN IN 506) NO . . . . 2 (SKIP TO 512) DON'T KNOW 8	YES . . . . 1 (PROBE FOR VACCINATIONS AND WRITE '66' IN THE CORRESPONDING DAY COLUMN IN 506) NO . . . . 2 (SKIP TO 512) DON'T KNOW 8
508	Did (NAME) ever receive any vaccinations to prevent him/her from getting diseases, including vaccinations received in a national immunization campaign?	YES . . . . 1 NO . . . . 2 (SKIP TO 512) DON'T KNOW 8	YES . . . . 1 NO . . . . 2 (SKIP TO 512) DON'T KNOW 8	YES . . . . 1 NO . . . . 2 (SKIP TO 512) DON'T KNOW 8
509	Please tell me if (NAME) received any of the following vaccinations:			
509A	A BCG vaccination against tuberculosis, that is, an injection in the arm or shoulder that usually causes a scar?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	YES . . . . 1 NO . . . . 2 DON'T KNOW 8
509B	Polio vaccine, that is, drops in the mouth?	YES . . . . 1 NO . . . . 2 (SKIP TO 509E) DON'T KNOW 8	YES . . . . 1 NO . . . . 2 (SKIP TO 509E) DON'T KNOW 8	YES . . . . 1 NO . . . . 2 (SKIP TO 509E) DON'T KNOW 8
509C	Was the first polio vaccine received in the first two weeks after birth or later?	FIRST 2 WEEKS . . . 1 LATER 2	FIRST 2 WEEKS . . . 1 LATER 2	FIRST 2 WEEKS . . . 1 LATER 2
509D	How many times was the polio vaccine received?	NUMBER OF TIMES . . . . . ☐	NUMBER OF TIMES . . . . . ☐	NUMBER OF TIMES . . . . . ☐
509E	A DPT vaccination, that is, an injection given in the thigh or buttocks, sometimes at the same time as polio drops?	YES . . . . 1 NO . . . . 2 (SKIP TO 509G) DON'T KNOW 8	YES . . . . 1 NO . . . . 2 (SKIP TO 509G) DON'T KNOW 8	YES . . . . 1 NO . . . . 2 (SKIP TO 509G) DON'T KNOW 8
509F	How many times was a DPT vaccination received?	NUMBER OF TIMES . . . . . ☐	NUMBER OF TIMES . . . . . ☐	NUMBER OF TIMES . . . . . ☐
509G	A measles injection or an MMR injection - that is, a shot in the arm at the age of 9 months or older - to prevent him/her from getting measles?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	YES . . . . 1 NO . . . . 2 DON'T KNOW 8
512	CHECK 506: DATE SHOWN FOR VITAMIN A DOSE	DATE FOR MOST RECENT VITAMIN A DOSE ☐ OTHER ☐ (SKIP TO 514)	DATE FOR MOST RECENT VITAMIN A DOSE ☐ OTHER ☐ (SKIP TO 514)	DATE FOR MOST RECENT VITAMIN A DOSE ☐ OTHER ☐ (SKIP TO 514)

NO.	QUESTIONS AND FILTERS	LAST BIRTH NAME ________	NEXT-TO-LAST BIRTH NAME ________	SECOND-FROM-LAST BIRTH NAME ________
513	According to (NAME)'s health card, he/she received a vitamin A dose (like this/any of these) in (MONTH AND YEAR OF MOST RECENT DOSE FROM CARD). Has (NAME) received another vitamin A dose since then? SHOW COMMON TYPES OF AMPULES/CAPSULES/SYRUPS.	YES . . . . 1 (SKIP TO 515) NO . . . . 2 (SKIP TO 516) DON'T KNOW 8	YES . . . . 1 (SKIP TO 515) NO . . . . 2 (SKIP TO 516) DON'T KNOW 8	YES . . . . 1 (SKIP TO 515) NO . . . . 2 (SKIP TO 516) DON'T KNOW 8
514	HAS (NAME) ever received a vitamin A dose (like this/ any of these)? SHOW COMMON TYPES OF AMPULES/CAPSULES/SYRUPS.	YES . . . . 1 NO . . . . 2 (SKIP TO 516) DON'T KNOW 8	YES . . . . 1 NO . . . . 2 (SKIP TO 516) DON'T KNOW 8	YES . . . . 1 NO . . . . 2 (SKIP TO 516) DON'T KNOW 8
515	Did (NAME) receive a vitamin A dose within the last six months?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	YES . . . . 1 NO . . . . 2 DON'T KNOW 8
516	In the last seven days, did (NAME) take iron pills, sprinkles with iron, or iron syrup (like this/any of these)? SHOW COMMON TYPES OF PILLS/SPRINKLES/ SYRUPS.	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	YES . . . . 1 NO . . . . 2 DON'T KNOW 8
517	Has (NAME) taken any drug for intestinal worms in the last six months?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	YES . . . . 1 NO . . . . 2 DON'T KNOW 8
518	Has (NAME) had diarrhea in the last 2 weeks? **(6)**	YES . . . . 1 NO . . . . 2 (SKIP TO 533) DON'T KNOW 8	YES . . . . 1 NO . . . . 2 (SKIP TO 533) DON'T KNOW 8	YES . . . . 1 NO . . . . 2 (SKIP TO 533) DON'T KNOW 8
519	Was there any blood in the stools?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	YES . . . . 1 NO . . . . 2 DON'T KNOW 8
520	Now I would like to know how much (NAME) was given to drink during the diarrhea (including breastmilk). Was he/she given less than usual to drink, about the same amount, or more than usual to drink? IF LESS, PROBE: Was he/she given much less than usual to drink or somewhat less?	MUCH LESS . . . . . 1 SOMEWHAT LESS . 2 ABOUT THE SAME . 3 MORE . . . . 4 NOTHING TO DRINK 5 DON'T KNOW 8	MUCH LESS . . . . . 1 SOMEWHAT LESS . 2 ABOUT THE SAME . 3 MORE . . . . 4 NOTHING TO DRINK 5 DON'T KNOW 8	MUCH LESS . . . . . 1 SOMEWHAT LESS . 2 ABOUT THE SAME . 3 MORE . . . . 4 NOTHING TO DRINK 5 DON'T KNOW 8
521	When (NAME) had diarrhea, was he/she given less than usual to eat, about the same amount, more than usual, or nothing to eat? IF LESS, PROBE: Was he/she given much less than usual to eat or somewhat less?	MUCH LESS . . . . . 1 SOMEWHAT LESS . 2 ABOUT THE SAME . 3 MORE . . . . 4 STOPPED FOOD . 5 NEVER GAVE FOOD 6 DON'T KNOW 8	MUCH LESS . . . . . 1 SOMEWHAT LESS . 2 ABOUT THE SAME . 3 MORE . . . . 4 STOPPED FOOD . 5 NEVER GAVE FOOD 6 DON'T KNOW 8	MUCH LESS . . . . . 1 SOMEWHAT LESS . 2 ABOUT THE SAME . 3 MORE . . . . 4 STOPPED FOOD . 5 NEVER GAVE FOOD 6 DON'T KNOW 8
522	Did you seek advice or treatment for the diarrhea from any source?	YES . . . . 1 NO . . . . 2 (SKIP TO 527)	YES . . . . 1 NO . . . . 2 (SKIP TO 527)	YES . . . . 1 NO . . . . 2 (SKIP TO 527)

NO.	QUESTIONS AND FILTERS	LAST BIRTH NAME ________	NEXT-TO-LAST BIRTH NAME ________	SECOND-FROM-LAST BIRTH NAME ________
523	Where did you seek advice or treatment? Anywhere else? PROBE TO IDENTIFY EACH TYPE OF SOURCE AND CIRCLE THE APPROPRIATE CODE(S). IF UNABLE TO DETERMINE IF A HOSPITAL, HEALTH CENTER, OR CLINIC IS PUBLIC OR PRIVATE MEDICAL, WRITE THE THE NAME OF THE PLACE. ________ (NAME OF PLACE(S))	PUBLIC SECTOR REF. HOSPITAL A DISTRICT HOSP. B HEALTH CENT . . . . C HEALTH . WORKER . . . .. . D OTHER PUBLIC ________ E (SPECIFY) OTHER PRIVATE MEDICAL PRIVATE CLINIC/ HOSPI . . . . F PHARMACY . . . G PRIV. DOCTOR . H ARBEF CLINIC I NURSE J OTHER PRIVATEE MEDICAL ________ K (SPECIFY) OTHER SOURCE SHOP/KIOSQUE.. L TRAD. HEALER M OTHER ________ X (SPECIFY)	PUBLIC SECTOR REF. HOSPITAL A DISTRICT HOSP. B HEALTH CENT . . . . C HEALTH . WORKER . . . .. . D OTHER PUBLIC ________ E (SPECIFY) OTHER PRIVATE MEDICAL PRIVATE CLINIC/ HOSPI . . . . F PHARMACY . . . G PRIV. DOCTOR . H ARBEF CLINIC I NURSE J OTHER PRIVATEE MEDICAL ________ K (SPECIFY) OTHER SOURCE SHOP/KIOSQUE.. L TRAD. HEALER M OTHER ________ X (SPECIFY)	PUBLIC SECTOR REF. HOSPITAL A DISTRICT HOSP. B HEALTH CENT . . . . C HEALTH . WORKER . . . .. . D OTHER PUBLIC ________ E (SPECIFY) OTHER PRIVATE MEDICAL PRIVATE CLINIC/ HOSPI . . . . F PHARMACY . . . G PRIV. DOCTOR . H ARBEF CLINIC I NURSE J OTHER PRIVATEE MEDICAL ________ K (SPECIFY) OTHER SOURCE SHOP/KIOSQUE.. L TRAD. HEALER M OTHER ________ X (SPECIFY)
524	CHECK 523:	TWO OR MORE CODES CIRCLED ☐ ONLY ONE CODE CIRCLED ☐ (SKIP TO 526)	TWO OR MORE CODES CIRCLED ☐ ONLY ONE CODE CIRCLED ☐ (SKIP TO 526)	TWO OR MORE CODES CIRCLED ☐ ONLY ONE CODE CIRCLED ☐ (SKIP TO 526)
525	Where did you first seek advice or treatment? USE LETTER CODE FROM 523.	FIRST PLACE . . . ☐	FIRST PLACE . . . ☐	FIRST PLACE . . . ☐
526	How many days after the diarrhea began did you first seek advice or treatment for (NAME)? IF THE SAME DAY, RECORD '00'.	DAYS . . . . . ☐☐	DAYS . . . . . ☐☐	DAYS . . . . . ☐☐
527	Does (NAME) still have diarrhea?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	YES . . . . 1 NO . . . . 2 DON'T KNOW 8
528	Was he/she given any of the following to drink at any time since he/she started having the diarrhea:	YES NO DK	YES NO DK	YES NO DK
	a) A fluid made from a special packet called [LOCAL NAME FOR ORS PACKET]?	FLUID FROM ORS PKT . . 1 2 8	FLUID FROM ORS PKT . . 1 2 8	FLUID FROM ORS PKT . . 1 2 8
	b) A pre-packaged ORS liquid?	ORS LQD . . 1 2 8	ORS LQD . . 1 2 8	ORS LQD . . 1 2 8
	c) A government-recommended homemade fluid?	HOMEMADE FLUID . . . 1 2 8	HOMEMADE FLUID . . . 1 2 8	HOMEMADE FLUID . . . 1 2 8

NO.	QUESTIONS AND FILTERS	LAST BIRTH NAME ________	NEXT-TO-LAST BIRTH NAME ________	SECOND-FROM-LAST BIRTH NAME ________
529	Was anything (else) given to treat the diarrhea?	YES . . . 1 NO . . . 2 (SKIP TO 533) DON'T KNOW . . . 8	YES . . . 1 NO . . . 2 (SKIP TO 533) DON'T KNOW . . . 8	YES . . . 1 NO . . . 2 (SKIP TO 533) DON'T KNOW . . . 8
530	What (else) was given to treat the diarrhea? Anything else? RECORD ALL TREATMENTS GIVEN.	PILL OR SYRUP ANTIBIOTIC . . . A ANTIMOTILITY . B ZINC . . . C OTHER (NOT ANTI-BIOTIC, ANTI-MOTILITY, OR ZINC) . . . D UNKNOWN PILL OR SYRUP . . . E INJECTION ANTIBIOTIC . . . F NON-ANTIBIOTIC . G UNKNOWN INJECTION . . . H (IV) INTRAVENOUS . I HOME REMEDY/ HERBAL MED-ICINE . . . J OTHER ________ X (SPECIFY)	PILL OR SYRUP ANTIBIOTIC . . . A ANTIMOTILITY . B ZINC . . . C OTHER (NOT ANTI-BIOTIC, ANTI-MOTILITY, OR ZINC) . . . D UNKNOWN PILL OR SYRUP . . . E INJECTION ANTIBIOTIC . . . F NON-ANTIBIOTIC . G UNKNOWN INJECTION . . . H (IV) INTRAVENOUS . I HOME REMEDY/ HERBAL MED-ICINE . . . J OTHER ________ X (SPECIFY)	PILL OR SYRUP ANTIBIOTIC . . . A ANTIMOTILITY . B ZINC . . . C OTHER (NOT ANTI-BIOTIC, ANTI-MOTILITY, OR ZINC) . . . D UNKNOWN PILL OR SYRUP . . . E INJECTION ANTIBIOTIC . . . F NON-ANTIBIOTIC . G UNKNOWN INJECTION . . . H (IV) INTRAVENOUS . I HOME REMEDY/ HERBAL MED-ICINE . . . J OTHER ________ X (SPECIFY)
531	CHECK 530: GIVEN ZINC?	CODE "C" CIRCLED ☐ CODE "C" NOT CIRCLED ☐ (SKIP TO 533)	CODE "C" CIRCLED ☐ CODE "C" NOT CIRCLED ☐ (SKIP TO 533)	CODE "C" CIRCLED ☐ CODE "C" NOT CIRCLED ☐ (SKIP TO 533)
532	How many times was (NAME) given zinc?	TIMES . . . ☐☐ DON'T KNOW . . . 98	TIMES . . . ☐☐ DON'T KNOW . . . 98	TIMES . . . ☐☐ DON'T KNOW . . . 98
533	Has (NAME) been ill with a fever at any time in the last 2 weeks?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8
534	Has (NAME) had an illness with a cough at any time in the last 2 weeks?	YES . . . 1 NO . . . 2 (SKIP TO 537) DON'T KNOW . . . 8	YES . . . 1 NO . . . 2 (SKIP TO 537) DON'T KNOW . . . 8	YES . . . 1 NO . . . 2 (SKIP TO 537) DON'T KNOW . . . 8
535	When (NAME) had an illness with a cough, did he/she breathe faster than usual with short, rapid breaths or have difficulty breathing?	YES . . . 1 NO . . . 2 (SKIP TO 538) DON'T KNOW . . . 8	YES . . . 1 NO . . . 2 (SKIP TO 538) DON'T KNOW . . . 8	YES . . . 1 NO . . . 2 (SKIP TO 538) DON'T KNOW . . . 8
536	Was the fast or difficult breathing due to a problem in the chest or to a blocked or runny nose?	CHEST ONLY . . . 1 NOSE ONLY . . . 2 BOTH . . . 3 OTHER ________ 6 (SPECIFY) DON'T KNOW . . . 8 (SKIP TO 538)	CHEST ONLY . . . 1 NOSE ONLY . . . 2 BOTH . . . 3 OTHER ________ 6 (SPECIFY) DON'T KNOW . . . 8 (SKIP TO 538)	CHEST ONLY . . . 1 NOSE ONLY . . . 2 BOTH . . . 3 OTHER ________ 6 (SPECIFY) DON'T KNOW . . . 8 (SKIP TO 538)

NO.	QUESTIONS AND FILTERS	LAST BIRTH NAME ________	NEXT-TO-LAST BIRTH NAME ________	SECOND-FROM-LAST BIRTH NAME ________
537	CHECK 533: HAD FEVER OR COUGH?	YES ☐ ↓ NO OR DK ☐ → (GO TO 572)	YES ☐ ↓ NO OR DK ☐ → (GO TO 572)	YES ☐ ↓ NO OR DK ☐ → (GO TO 572)
538	Now I would like to know how much (NAME) was given to drink (including breastmilk) during the illness with a (fever/cough). Was he/she given less than usual to drink, about the same amount, or more than usual to drink? IF LESS, PROBE: Was he/she given much less than usual to drink or somewhat less?	MUCH LESS . . . . . 1 SOMEWHAT LESS . 2 ABOUT THE SAME . 3 MORE . . . . 4 NOTHING TO DRINK 5 DON'T KNOW 8	MUCH LESS . . . . . 1 SOMEWHAT LESS . 2 ABOUT THE SAME . 3 MORE . . . . 4 NOTHING TO DRINK 5 DON'T KNOW 8	MUCH LESS . . . . . 1 SOMEWHAT LESS . 2 ABOUT THE SAME . 3 MORE . . . . 4 NOTHING TO DRINK 5 DON'T KNOW 8
539	When (NAME) had a (fever/cough), was he/she given less than usual to eat, about the same amount, more than usual, or nothing to eat? IF LESS, PROBE: Was he/she given much less than usual to eat or somewhat less?	MUCH LESS . . . . . 1 SOMEWHAT LESS . 2 ABOUT THE SAME . 3 MORE . . . . 4 STOPPED FOOD . 5 NEVER GAVE FOOD 6 DON'T KNOW 8	MUCH LESS . . . . . 1 SOMEWHAT LESS . 2 ABOUT THE SAME . 3 MORE . . . . 4 STOPPED FOOD . 5 NEVER GAVE FOOD 6 DON'T KNOW 8	MUCH LESS . . . . . 1 SOMEWHAT LESS . 2 ABOUT THE SAME . 3 MORE . . . . 4 STOPPED FOOD . 5 NEVER GAVE FOOD 6 DON'T KNOW 8
540	Did you seek advice or treatment for the illness from any source?	YES . . . . 1 NO . . . . 2 (SKIP TO 545)←	YES . . . . 1 NO . . . . 2 (SKIP TO 545)←	YES . . . . 1 NO . . . . 2 (SKIP TO 545)←
541	Where did you seek advice or treatment? Anywhere else? PROBE TO IDENTIFY EACH TYPE OF SOURCE AND CIRCLE THE APPROPRIATE CODE(S). IF UNABLE TO DETERMINE IF A HOSPITAL, HEALTH CENTER, OR CLINIC IS PUBLIC OR PRIVATE MEDICAL, WRITE THE THE NAME OF THE PLACE. ________ (NAME OF PLACE(S))	PUBLIC SECTOR REF. HOSPITAL A DISTRICT HOSP. B HEALTH CENT . . . . C HEALTH . WORKER . . . .. . D OTHER PUBLIC ________ E (SPECIFY) OTHER PRIVATE MEDICAL PRIVATE CLINIC/ HOSPITAL . . . F PHARMACY . . . G PRIV. DOCTOR . H NURSE I OTHER PRIVATEE MEDICAL________ J (SPECIFY) OTHER SOURCE SHOP/KIOSQUE.. K TRAD. HEALER L OTHER ________ X (SPECIFY)	PUBLIC SECTOR REF. HOSPITAL A DISTRICT HOSP. B HEALTH CENT . . . . C HEALTH . WORKER . . . .. . D OTHER PUBLIC ________ E (SPECIFY) OTHER PRIVATE MEDICAL PRIVATE CLINIC/ HOSPI˙ . . . . F PHARMACY . . . G PRIV. DOCTOR . H NURSE I OTHER PRIVATEE MEDICAL________ J (SPECIFY) OTHER SOURCE SHOP/KIOSQUE.. K TRAD. HEALER L OTHER ________ X (SPECIFY)	PUBLIC SECTOR REF. HOSPITAL A DISTRICT HOSP. B HEALTH CENT . . . . C HEALTH . WORKER . . . .. . D OTHER PUBLIC ________ E (SPECIFY) OTHER PRIVATE MEDICAL PRIVATE CLINIC/ HOSPI˙ . . . . F PHARMACY . . . G PRIV. DOCTOR . H NURSE I OTHER PRIVATEE MEDICAL________ J (SPECIFY) OTHER SOURCE SHOP/KIOSQUE.. K TRAD. HEALER L OTHER ________ X (SPECIFY)
542	CHECK 541:	TWO OR MORE CODES CIRCLED ☐ ↓ ONLY ONE CODE CIRCLED ☐ → (SKIP TO 544)	TWO OR MORE CODES CIRCLED ☐ ↓ ONLY ONE CODE CIRCLED ☐ → (SKIP TO 544)	TWO OR MORE CODES CIRCLED ☐ ↓ ONLY ONE CODE CIRCLED ☐ → (SKIP TO 544)

NO.	QUESTIONS AND FILTERS	LAST BIRTH NAME ________	NEXT-TO-LAST BIRTH NAME ________	SECOND-FROM-LAST BIRTH NAME ________
543	Where did you first seek advice or treatment? USE LETTER CODE FROM 541.	FIRST PLACE . . . ☐	FIRST PLACE . . . ☐	FIRST PLACE . . . ☐
544	How many days after the illness began did you first seek advice or treatment for (NAME)? IF THE SAME DAY, RECORD '00'.	DAYS . . . . . ☐☐	DAYS . . . . . ☐☐	DAYS . . . . . ☐☐
545	Is (NAME) still sick with a (fever/ cough)?	FEVER ONLY . . . . . 1 COUGH ONLY . . . 2 BOTH FEVER AND COUGH . . . . 3 NO, NEITHER . . . . . 4 DON'T KNOW . . . 8	FEVER ONLY . . . . . 1 COUGH ONLY . . . 2 BOTH FEVER AND COUGH . . . . 3 NO, NEITHER . . . . . 4 DON'T KNOW . . . 8	FEVER ONLY . . . . . 1 COUGH ONLY . . . 2 BOTH FEVER AND COUGH . . . . 3 NO, NEITHER . . . . . 4 DON'T KNOW . . . 8
546	At any time during the illness, did (NAME) take any drugs for the illness?	YES . . . . 1 NO . . . . 2 (GO TO 572) ← DON'T KNOW 8	YES . . . . 1 NO . . . . 2 (GO TO 572) ← DON'T KNOW 8	YES . . . . 1 NO . . . . 2 (GO TO 572) ← DON'T KNOW 8
547	What drugs did (NAME) take? Any other drugs? RECORD ALL MENTIONED.	ANTIMALARIAL DRUGS SP/FANSIDAR . . . A QUININE . . . . B QUARTEM . . . . . C PRIMO . . . . D OTHER ANTI-MALARIAL ________ . . . E ANTIBIOTIC DRUGS PILL/SYRUP . . . F INJECTION . . . G ASPIRIN . . . . H ACETA-MINOPHEN . . . . . I IBUPROFEN . . . . . J OTHER ________ X (SPECIFY) DON'T KNOW . . . . . Z	ANTIMALARIAL DRUGS SP/FANSIDAR . . . A QUININE . . . . B QUARTEM . . . . . C PRIMO . . . . D OTHER ANTI-MALARIAL ________ . . . E ANTIBIOTIC DRUGS PILL/SYRUP . . . F INJECTION . . . G ASPIRIN . . . . H ACETA-MINOPHEN . . . . . I IBUPROFEN . . . . . J OTHER ________ X (SPECIFY) DON'T KNOW . . . . . Z	ANTIMALARIAL DRUGS SP/FANSIDAR . . . A QUININE . . . . B QUARTEM . . . . . C PRIMO . . . . D OTHER ANTI-MALARIAL ________ . . . E ANTIBIOTIC DRUGS PILL/SYRUP . . . F INJECTION . . . G ASPIRIN . . . . H ACETA-MINOPHEN . . . . . I IBUPROFEN . . . . . J OTHER ________ X (SPECIFY) DON'T KNOW . . . . . Z
548	CHECK 547: ANY CODE **A-E** CIRCLED?	YES ☐ NO ☐ (GO TO 572)	YES ☐ NO ☐ (GO TO 572)	YES ☐ NO ☐ (GO TO 572)
549	Did you already have (NAME OF DRUG FROM 547) at home when the child became ill? **(10)** ASK SEPARATELY FOR EACH OF THE DRUGS **'A'** THROUGH **'E'** THAT THE CHILD IS RECORDED AS HAVING TAKEN IN 547. IF YES FOR ANY DRUG, CIRCLE CODE FOR THAT DRUG. IF NO FOR ALL DRUGS, CIRCLE 'Y'.	ANTIMALARIAL DRUGS SP/FANSIDAR . . . A QUININE . . . . B QUARTEM . . . . . C PRIMO . . . . D OTHER ANTI-MALARIAL ________ . . . E (SPECIFY) ANTIBIOTIC DRUGS PILL/SYRUP . . . F NO DRUG AT HOME . Y	ANTIMALARIAL DRUGS SP/FANSIDAR . . . A QUININE . . . . B QUARTEM . . . . . C PRIMO . . . . D OTHER ANTI-MALARIAL ________ . . . E (SPECIFY) ANTIBIOTIC DRUGS PILL/SYRUP . . . F NO DRUG AT HOME . Y	ANTIMALARIAL DRUGS SP/FANSIDAR . . . A QUININE . . . . B QUARTEM . . . . . C PRIMO . . . . OTHER ANTI-MALARIAL ________ . . . E (SPECIFY) ANTIBIOTIC DRUGS PILL/SYRUP . . . F NO DRUG AT HOME . Y

NO.	QUESTIONS AND FILTERS	LAST BIRTH NAME ________	NEXT-TO-LAST BIRTH NAME ________	SECOND-FROM-LAST BIRTH NAME ________
569	CHECK 547: OTHER ANTIMALARIAL ('D') GIVEN	CODE 'D' CIRCLED ↓ CODE 'D' NOT CIRCLED (GO TO 572)	CODE 'D' CIRCLED ↓ CODE 'D' NOT CIRCLED (GO TO 572)	CODE 'D' CIRCLED ↓ CODE 'D' NOT CIRCLED (GO TO 572)
570	How long after the fever started did (NAME) first take (OTHER ANTIMALARIAL)?	SAME DAY . . . . . . 0 NEXT DAY . . . . . . 1 TWO DAYS AFTER FEVER . . . . . . 2 THREE DAYS AFTER FEVER . . . . . . 3 FOUR OR MORE DAYS AFTER FEVER . . 4 DON'T KNOW . . . 8	SAME DAY . . . . . . 0 NEXT DAY . . . . . . 1 TWO DAYS AFTER FEVER . . . . . . 2 THREE DAYS AFTER FEVER . . . . . . 3 FOUR OR MORE DAYS AFTER FEVER . . 4 DON'T KNOW . . . 8	SAME DAY . . . . . . 0 NEXT DAY . . . . . . 1 TWO DAYS AFTER FEVER . . . . . . 2 THREE DAYS AFTER FEVER . . . . . . 3 FOUR OR MORE DAYS AFTER FEVER . . 4 DON'T KNOW . . . 8
571	For how many days did (NAME) take the (OTHER ANTIMALARIAL)? IF 7 DAYS OR MORE, RECORD 7.	DAYS . . . . [ ] DON'T KNOW . . . 8	DAYS . . . . [ ] DON'T KNOW . . . 8	DAYS . . . . [ ] DON'T KNOW . . . 8
572	Is (NAME) covered by the *mutuelle when he is sick* and you have to take him to a health facility for for traitement?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	YES . . . . 1 NO . . . . 2 DON'T KNOW 8
573		GO BACK TO 503 IN NEXT COLUMN; OR, IF NO MORE BIRTHS, END OF INTERVIEW AND GO TO 574	GO BACK TO 503 IN NEXT COLUMN; OR, IF NO MORE BIRTHS, END OF INTERVIEW AND GO TO 574	GO TO 503 IN NEXT-TO-LAST COLUMN OF NEW QUESTIONNAIRE; OR, IF NO MORE BIRTHS, END OF INTERVIEW AND GO TO 574
574	RECORD THE TIME.		HOUR . . . . [ ][ ] MINUTES . . . . [ ][ ]	

INTERVIEWER'S OBSERVATIONS
TO BE FILLED IN AFTER COMPLETING INTERVIEW

COMMENTS ABOUT RESPONDENT:

COMMENTS ON SPECIFIC QUESTIONS:

ANY OTHER COMMENTS:

SUPERVISOR'S OBSERVATIONS

NAME OF SUPERVISOR: _____ DATE: _____

EDITOR'S OBSERVATIONS

NAME OF EDITOR: _____ DATE: _____

RWANDA INTERIM DEMOGRAPHIC AND HEALTH SURVEYS
MAN'S QUESTIONNAIRE

National Institute of Statistics of Rwanda — Republic of Rwanda

IDENTIFICATION

LOCALITY NAME _____

NAME OF HOUSEHOLD HEAD _____

PROVINCE .....

DISTRICT .....

CLUSTER NUMBER .....

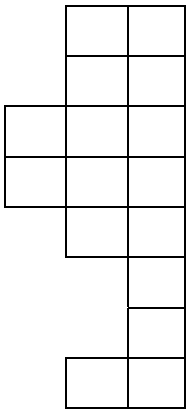
STRUCTURE NUMBER .....

HOUSEHOLD NUMBER .....

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

CITY/LARGE TOWN/SMALL TOWN/VILLAGE .....
(CITY OF KIGALY=1, OTHER CITY=2, RURAL=3)

NAME AND LINE NUMBER OF MAN _____



	1	2	3	FINAL VISIT
DATE				DAY / MONTH / YEAR 2 0 0 / NAME / RESULT
INTERVIEWER'S NAME				
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)

LANGUAGE OF INTERVIEW

KINYA-RWANDA 1

OTHER LANGUAGE 2
(SPECIFY)

WAS A TRANSLATOR USED? YES 1

NO 2

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

SECTION 1. RESPONDENT'S BACKGROUND

INFORMED CONSENT

Hello. My name is _____ and I am working with the National Institute of Statistics. We are conducting a national survey about the health of women, men and children. We would very much appreciate your participation in this survey. I would like to ask you some questions about yourself and your family. This information will help the government to plan health services. The survey usually takes between 10 and 15 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
100	RECORD THE TIME.	HOUR…….. ☐☐ MINUTES……. ☐☐	
101	In what month and year were you born?	MONTH..... ☐☐ DOES NOT KNOW MONTH.....98 YEAR…….. ☐☐☐☐ . DON'T KNOW YEAR.....9998	
102	How old were you at your last birthday? COMPARE AND CORRECT 101 AND/OR 102 IF INCONSISTENT.	AGE IN COMPLETED YEARS ☐☐	
103	Have you ever attended school?	YES.....1 NO 2	—▲106
104	What is the highest level of school you attended: primary, middle/JSS, secondary/SSS, or higher?	PRIMARY .....1 SECONDARY.....2 HIGHER.....3	
105	What is the highest grade you completed at that level?	GRADE…….. ☐☐	
106	What is your religion?	CATHOLIC.....1 PROTETANT .....2 ADVENTIST.....3 MOSLEM .....4 TRADITINAL.....5 OTHER _____ 6 (SPECIFY) NO RELIGION 7	
107	Are you currently married or living with a woman?	YES, CURRENTLY MARRIED..... 1 YES, LIVING WITH A WOMAN..... 2 NO, NOT IN UNION 3	—▲110 —▲110
108	Have you ever been married or lived with a woman?	YES, USED TO BE MARRIED..... 1 YES, LIVED WITH A WOMAN ..... 2 NO 3	—▲201
109	What is your marital status now: are you widowed, divorced, or separated?	WIDOWED ..... 1 DIVORCED ..... 2 SEPARATED..... 3	▲201

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
110	Is your wife/partner living with you or elsewhere?	WITH HIM ..... 1 ELSEWHERE 2	
111	Are there any other women with whom you live as if married?	YES ..... 1 NO 2	→201
112	In total, how many women are you living with as if you were married?	NUMBER OF LIVE-IN PARTNERS	

SECTION 2. REPRODUCTION

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
201	Now I would like to ask about any children you have had. I am interested only in the children that are biologically yours. Have you ever fathered any children with any woman?	YES.....1 NO .....2 DON'T KNOW.....8	▲206
202	Do you have any sons or daughters that you have fathered who are now livings with you?	YES.....1 NO 2	▲204
203	How many sons live with you? And how many daughters live with you? IF NONE, WRITE '00'.	SONS AT HOME…….. DAUGHTERS AT HOME……	
204	Do you have any sons or daughters you have fathered 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, WRITE '00'.	SONS ELSEWHERE..... DAUGHTERS ELSEWHERE.....	
206	Have you ever fathered 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 DON'T KNOW.....8	▲208
207	How many boys have died? And how many girls have died? IF NONE, WRITE '00'.	BOYS DEAD..... GIRLS DEAD.....	
208	SUM ANSWERS TO 203, 205, AND 207, AND ENTER TOTAL. IF NONE, WRITE '00'.	TOTAL	
209	CHECK 208: HAS HAD ONLY ONE CHILD HAS HAD MORE THAN ONE CHILD HAS NOT HAD ANY CHILDREN		▲301 ▲301
210	Do the children that you have fathered all have the same biological mother?	YES .....1 NO 2	▲301
211	In all how many women have you fathered children with?	NUMBER OF WOMEN.....	

SECTION 3. CONTRACEPTION

Now I would like to talk about family planning - the various ways or methods that a couple can use to delay or avoid a pregnancy.

CIRCLE CODE 1 IN 301 FOR EACH METHOD MENTIONED SPONTANEOUSLY. THEN PROCEED DOWN COLUMN 301, READING THE NAME AND DESCRIPTION OF EACH METHOD NOT MENTIONED SPONTANEOUSLY. CIRCLE CODE 1 IF METHOD IS RECOGNISED, AND CODE 2 IF NOT RECOGNISED. THEN, FOR EACH METHOD WITH CODE 1 CIRCLED IN 301, ASK 302.

301	Which ways or methods have you heard about? FOR METHODS NOT MENTIONED SPONTANEOUSLY, ASK: Have you ever heard of (METHOD)?		302 Have you ever used (METHOD)?
01	FEMALE STERILIZATION Women can have an operation to avoid having any more children.	YES.....1 NO ..... 2 →	
02	MALE STERILIZATION Men can have an operation to avoid having any more children.	YES.....1 NO ..... 2 →	Have you ever had an operation to avoid having any more children? YES .....1 NO 2
03	PILL Women can take a pill every day to stop them from becoming pregnant.	YES.....1 NO ..... 2 →	
04	IUD Women can have a loop or coil placed inside them by a doctor or a nurse.	YES.....1 NO ..... 2 →	
05	INJECTABLES Women can have an injection by a health provider which stops them from becoming pregnant for one or more months.	YES.....1 NO ..... 2 →	
06	IMPLANTS Women can have several small rods placed in their upper arm by a doctor or nurse which can prevent pregnancy for one or more years.	YES.....1 NO ..... 2 →	
07	CONDOM Men can put a rubber sheath on their penis before sexual intercourse.	YES.....1 NO ..... 2 →	YES .....1 NO 2
08	FEMALE CONDOM Women can place a sheath in their vagina before sexual intercourse.	YES.....1 NO ..... 2 →	
09	LACTATIONAL AMENORRHEA METHOD (LAM) Up to 6 months after childbirth, a woman can use a method that requires that she breastfeeds frequently, day and night, and that her menstrual period has not returned.	YES.....1 NO ..... 2 →	
10	RHYTHM OR PERIODIC ABSTINENCE Every month that a woman is sexually active she can avoid pregnancy by not having sexual intercourse on the days of the month she is most likely to get pregnant.	YES.....1 NO ..... 2 →	YES .....1 NO 2
11	WITHDRAWAL Men can be careful and pull out before climax.	YES.....1 NO ..... 2 →	YES .....1 NO 2
12	EMERGENCY CONTRACEPTION Women can take pills up to five days after sexual intercourse to avoid becoming pregnant.	YES.....1 NO ..... 2 →	
12A	STANDARD DAYS METHODS USING CYCLE BEADS: Woman can know better the days of the months that she would have a greater chance of being pregnant by using cycle beads or calendar.	YES.....1 NO ..... 2 →	
13	Have you heard of any other ways or methods that women or men can use to avoid pregnancy?	YES.....1 _____ (SPECIFY) _____ (SPECIFY) NO ..... 2 →	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
303	CHECK 301(07), KNOWLEDGE OF MALE CONDOM YES ☐ ↓	NO ☐	▲401
304	Do you know of a place where a person can get male condoms?	YES ..... 1 NO 2	▲401
305	Where is that? IF SOURCE IS HOSPITAL, HEALTH CENTER, OR CLINIC, WRITE THE NAME OF THE PLACE. PROBE TO IDENTIFY THE TYPE OF SOURCE AND CIRCLE THE APPROPRIATE CODE. _____ (NAME OF PLACE) Any other place? RECORD ALL SOURCES MENTIONED.	PUBLIC SECTOR REFERRAL HOSPITAL ..... A DISTRICT HOSPITAL ..... B HEALTH CENTER ..... C FIELDWORKER ..... D OTHER PUBLIC _____ E (SPECIFY) PRIVATE MEDICAL SECTOR PRIVATE HOSPITAL/CLINIC ..... F PHARMACY ..... G PRIVATE DOCTOR ..... H ARBEF CLINIC ..... I NURSE ..... J OTHER PRIVATE MEDICAL _____ K (SPECIFY) OTHER SOURCE SHOP ..... L CHURCH ..... M FRIENDS/RELATIVES ..... N OTHER _____ X (SPECIFY)	

SECTION 4. CIRCUMCISION

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
401	Some men are circumcised. Are you circumcised?	YES....1 NO....2	▲405
402	How old were you when you were circumcised?	LESS THAN 13 YEARS OLD....1 13-19 YEARS OLD....2 20 YEARS OR OLDER....3	
403	Who performed your circumcision?	TRADITIONAL....1 HEALTH PROFESSIONAL....2 DON'T KNOW....3	
404	What is the main reason for your circumcision?	TRADITION/RELOGION....1 HEALTH/HYGIENE....2 SEXUAL SATISFACTION....3 EASIER TO PUT ON CONDOM....4 OTHER _____ X (SPECIFY) DON'T KNOW....8	▲408
405	Would you like to be circumcised?	YES....1 NO....2 DON'T KNOW....8	▲407 ▲408
406	What is the main reason that you would like to be circumcised?	TRADITION/RELOGION....1 HEALTH/HYGIENE....2 SEXUAL SATISFACTION....3 EASIER TO PUT ON CONDOM....4 OTHER _____ X (SPECIFY) DON'T KNOW....8	▲408
407	What is the main reason that you would not like to be circumcised?	TRADITION/RELOGION....01 HEALTH/HYGIENE....02 SEXUAL SATISFACTION....03 COST....04 PAIN....05 OTHER _____ 96 (SPECIFY) DON'T KNOW....98	
408	RECORD THE TIME	HOURS.... ☐☐ MINUTES.... ☐☐	

INTERVIEWER'S OBSERVATIONS

TO BE FILLED IN AFTER COMPLETING INTERVIEW

COMMENTS ABOUT RESPONDENT:

COMMENTS ON SPECIFIC QUESTIONS:

ANY OTHER COMMENTS:

SUPERVISOR'S OBSERVATIONS

NAME OF THE SUPERVISOR:_____ DATE: _____

EDITOR'S OBSERVATIONS

NAME OF EDITOR:_____ DATE: _____