# Rwanda Demographic and Health Survey 2010

## Preliminary Report

**National Institute of Statistics of Rwanda**
**Ministry of Finance and Economic Planning**
**Kigali, Rwanda**

**Ministry of Health**
**Kigali, Rwanda**

**MEASURE DHS**
**ICF Macro**
**Calverton, Maryland, USA**

The 2010 Rwanda Demographic and Health Survey (2010 RDHS) was implemented by the National Institute of Statistics of Rwanda (NISR), and the field work was conducted from September 26, 2010 to March 10, 2011. The funding for the RDHS was provided by the United States Agency for International Development (USAID), the United Nations Children's Fund (UNICEF), the Centers for Disease Control and Prevention/Global AIDS Program (CDC/GAP), the Global Fund to fight AIDS, Tuberculosis and Malaria, the United Nations Fund for Population Activities (UNFPA), the World Vision, and the Government of Rwanda. ICF Macro provided technical assistance to the project through the MEASURE DHS project, a USAID-funded project providing support and technical assistance in the implementation of population and health surveys in countries worldwide.

Additional information about the 2010 RDHS may be obtained from the NISR, P.O. Box 6139, Kigali, Rwanda; Telephone: (250) 0783630392, E-mail: info@statistics.gov.rw; Internet: http://www.statistics.gov.rw.

Information about the MEASURE DHS project may be obtained from ICF Macro, 11785 Beltsville Drive, Suite 300, Calverton, MD 20705, USA; Telephone: 301-572-0200, Fax: 301-572-0999, E-mail: info@measuredhs.com, Internet: http://www.measuredhs.com.

**REPUBLIC OF RWANDA**

# Rwanda Demographic and Health Survey 2010

## Preliminary Report

National Institute of Statistics of Rwanda
Ministry of Finance and Economic Planning
Kigali, Rwanda

Ministry of Health
Kigali, Rwanda

MEASURE DHS
ICF Macro
Calverton, Maryland, USA

July 2011

# CONTENTS

TABLES AND FIGURES ..... v

PREFACE ..... vii

1. INTRODUCTION ..... viii

2. SURVEY IMPLEMENTATION ..... 3
   - 2.1 Sample Design ..... 3
   - 2.2 Questionnaires ..... 3
   - 2.3 Training of Field Staff ..... 4
   - 2.4 Hemoglobin, Malaria and HIV Testing ..... 4
   - 2.5 Fieldwork ..... 6
   - 2.6 Data Processing ..... 6

3. PRELIMINARY FINDINGS ..... 7
   - 3.1 Response Rates ..... 7
   - 3.2 Characteristics of Respondents ..... 7
   - 3.3 Fertility ..... 8
   - 3.4 Fertility Preferences ..... 10
   - 3.5 Current Use of Contraception ..... 11
   - 3.6 Childhood Mortality ..... 13
   - 3.7 Maternal Health ..... 14
   - 3.8 Vaccination of Children ..... 16
   - 3.9 Treatment of Childhood Illnesses ..... 17
   - 3.10 Infant and Young Child Feeding Practices ..... 19
   - 3.11 Nutritional Status of Children ..... 20
   - 3.12 Anemia ..... 22
   - 3.13 Malaria indicators ..... 23
   - 3.14 HIV/AIDS Knowledge and Behavior ..... 26

# TABLES AND FIGURES


Table 1 Results of the household and individual interviews ..... 7
Table 2 Background characteristics of respondents ..... 8
Table 3 Current fertility ..... 9
Table 4 Fertility preferences by number of living children ..... 10
Table 5 Current use of contraception by background characteristics ..... 12
Table 6 Early childhood mortality rates ..... 13
Table 7.1 Number of antenatal care visits ..... 14
Table 7.2 Maternal care indicators ..... 16
Table 8 Vaccinations by background characteristics ..... 17
Table 9 Treatment for acute respiratory infection, fever, and diarrhea ..... 18
Table 10 Breastfeeding status by age ..... 20
Table 11 Nutritional status of children ..... 21
Table 12 Anemia among children and women ..... 23
Table 13.1 Malaria indicators ..... 24
Table 13.2 Malaria among children and women ..... 25
Table 14 Knowledge of AIDS ..... 26
Table 15 Knowledge of HIV prevention methods ..... 27
Table 16.1 Multiple sexual partners in the past 12 months: Women ..... 28
Table 16.2 Multiple sexual partners in the past 12 months: Men ..... 29

Figure 1 Age-specific fertility rates, RDHS 2005, RIDHS 2007-08, and RDHS 2010 ..... 9
Figure 2 Total fertility rates, RDHS 2005, RIDHS 2007-08, and RDHS 2010 ..... 10
Figure 3 Contraceptive prevalence among currently married women age 15-49, RDHS 2005, RIDHS 2007-08, and RDHS 2010 ..... 11
Figure 4 Trend in childhood mortality rates, RDHS 2005, RIDHS 2007-08, and RDHS 2010 ..... 13
Figure 5 Antenatal care by skilled provider, protected against neonatal tetanus, delivery assisted by skilled provider, and delivery in a health facility, RDHS 2005, RIDHS 2007-08, and RDHS 2010 ..... 15
Figure 6 Prevalence of ARI, fever and diarrhea in the two weeks prior to the survey among children under age 5 ..... 18
Figure 7 Exclusive breastfeeding before the age of 6 months by child's age ..... 19
Figure 8 Undernourished children 0-59 months, RDHS 2005 and RDHS 2010 ..... 22

# PREFACE

This report presents preliminary findings from the 2010 Rwanda Demographic and Health Survey (2010 RDHS). Survey findings will be used by policy makers to evaluate the demographic and health status of the Rwandan population in order to formulate appropriate population and health policies and programs in Rwanda. The forthcoming final report and summary report of the RDHS will contain more detailed findings.

This survey was sponsored by the United States Agency for International Development (USAID), the United Nations Children's Fund (UNICEF), the Centers for Disease Control and Prevention/Global AIDS Program (CDC/GAP), the Global Fund to fight AIDS, Tuberculosis and Malaria, the United Nations Population Fund (UNFPA), the World Vision, and the Government of Rwanda. Technical assistance was provided by ICF Macro through the Demographic and Health Surveys program (MEASURE DHS). The National Institute of Statistics of Rwanda (NISR) and the Ministry of Health (MOH) were the implementing agencies of the survey. The fieldwork for data collection for the RDHS was conducted for about six months from September 26, 2010 to March 10, 2011; and the data entry took place from November 1, 2010 to April 21, 2011.

The main objective of the 2010 RDHS was to obtain current information on demography, family planning, maternal mortality, infant and child mortality, and health related information such as breastfeeding, antenatal care, delivery, children's immunization, and childhood diseases. In addition, the survey was designed to evaluate the nutritional status of mothers and children, to measure the prevalence of anemia among women and children, and to measure the prevalence of HIV infection among the male and female adult population.

We thank USAID, UNICEF, CDC/GAP, UNFPA, the World Vision, and the Government of Rwanda for financing the project. We gratefully acknowledge the support of the Executive Committee and Technical Committee who contributed to the successful implementation of the survey.

We wish to express great appreciation for the work carried out by all persons involved in the RDHS, especially the NISR, MOH and National Reference Laboratory staff who worked with dedication and enthusiasm to make the survey a success.

Finally, we would like to express our special thanks to all the local authorities involved and all study participants who gave their valuable time to make this survey possible.

## DIANE Karusisi

Acting Director General of the National
Institute of Statistics of Rwanda

# 1. INTRODUCTION

The 2010 Rwanda Demographic and Health Survey (2010 RDHS) was carried out by the National Institute of Statistics of Rwanda (NISR) and the Ministry of Health (MoH). ICF Macro provided technical assistance to the project through the MEASURE Demographic and Health Surveys program (MEASURE DHS). The survey was funded by the United States Agency for International Development (USAID), the United Nations Children's Fund (UNICEF), the Centers for Disease Control and Prevention/Global AIDS Program (CDC/GAP), the Global Fund to fight AIDS, Tuberculosis and Malaria, the United Nations Population Fund (UNFPA), the World Vision, and the Government of Rwanda.

The 2010 RDHS, the fourth of its kind, is a follow-up to the 1992, 2000, and 2005 RDHS surveys and the 2007-08 Interim DHS (RIDHS). Data collection was conducted from September 26, 2010 to March 10, 2011 on a nationally representative sample of 12,972 households. All women age 15-49 in these households and all men age 15-59 in a sub-sample of one-half of the households were eligible to be individually interviewed.

The 2010 RDHS provides data to monitor the population and health situation in Rwanda. Specifically, the 2010 RDHS collected information on a broad range of demographic, health, and social issues such as household characteristics, maternal and child health, breastfeeding practices, early childhood mortality, maternal mortality, nutritional status of women and young children, fertility levels, marriage, fertility preferences, awareness and use of family planning methods, sexual activity, and awareness and behavior regarding AIDS and other sexually transmitted infections. The survey also measures the nutritional status of mothers and children, the prevalence of anemia and malaria among women and children, and the prevalence of HIV infection among the male and female adult population.

This preliminary report presents only a sub-set of results of the 2010 RDHS. A comprehensive analysis of the data is forthcoming. While considered provisional, the results presented here are not expected to differ significantly from those to be presented in the final report.

# 2. SURVEY IMPLEMENTATION

## 2.1 Sample Design

The sample for the 2010 RDHS was designed to provide population and health indicator estimates for the country as a whole and for urban and rural areas. Survey estimates can also be reported for the provinces (South, West, North, and East provinces) and Kigali City. The results presented in this report show key indicators that correspond to these provinces and Kigali City.

A representative sample of 12,972 households was selected for the 2010 RDHS. The sample was selected in two stages. In the first stage, 492 villages (also known as clusters or enumeration areas) were selected with probability proportional to the village size. The village size is the number of households residing in the village. Then, a complete mapping and listing of all households existing in the selected villages was conducted. The resulting lists of households served as the sampling frame for the second stage of sample selection. Households were systematically selected from those lists for participation in the survey.

All women age 15-49 who were either permanent residents of the households or visitors present in the household on the night before the survey were eligible to be interviewed. In addition, in a sub-sample of one-half of all households selected for the survey, all men age 15-59 were eligible to be interviewed if they were either permanent residents or visitors present in the household on the night before the survey.

## 2.2 Questionnaires

Three questionnaires were used for the 2010 RDHS: the Household Questionnaire, the Women's Questionnaire, and the Men's Questionnaire. These questionnaires are based on questionnaires developed by the worldwide Demographic and Health Surveys (DHS) program and on the questionnaires used during the 2005 RDHS and 2007-08 RIDHS surveys. To reflect relevant issues in population and health in Rwanda, the questionnaires were adapted during a series of technical meetings with various stakeholders from government ministries and agencies, non-governmental organizations and international donors. The questionnaires were translated from English and French into Kinyarwanda.

The Household Questionnaire was used to list all the usual members and visitors in the selected households. Some basic information was collected on the characteristics of each person listed, including age, sex, education, and relationship to the head of the household. For children under 18, survival status of the parents was determined. The Household Questionnaire also collected information on the following topics:

- Dwelling characteristics
- Utilization of health services and health expenditures for recent illness and injury
- Possession of iodized salt
- Possession and utilization of mosquito nets
- Height and weight of women and children
- Hemoglobin measurement of women and children
- Blood collection from women and children for rapid test and laboratory testing of Malaria
- Blood collection from women and men for laboratory testing of HIV

The Household Questionnaire was also used to identify women and men eligible for the individual interview.

The Women's Questionnaire was used to collect information from all women age 15-49 and was organized into the following sections:

- Respondent background characteristics
- Reproduction, including a complete birth and death history of respondents' children, and information on abortion
- Contraception
- Pregnancy and postnatal care
- Child's immunization, health and nutrition
- Marriage and sexual activity
- Fertility preferences
- Husband's background and woman's work
- HIV/AIDS and other sexually transmitted infections
- Other health issues
- Adult mortality
- Relationship in the household

The Men's Questionnaire was administered to all men age 15-59 living in every other household in the CDHS sample. The Men's Questionnaire collected much of the same information found in the Women's Questionnaire but was shorter because it did not contain a detailed reproductive history or questions on maternal and child health or nutrition.

An instruction manual was also developed to support standardized data collection. All data collection instruments were pre-tested in June-July, 2010. The observations and experiences gathered from the pre-test were used to improve the instruments for the main survey data collection.

## 2.3 Training of Field Staff

Thirty-eight women and men were trained from June 14 to July 2, 2010 in the administration of the RDHS survey instruments, anthropometric measurement, hemoglobin testing, malaria testing, and blood draw for HIV testing. Seven days of fieldwork were followed by one day of interviewer debriefing and examination. Pre-test fieldwork was conducted in 230 households in two rural and two urban villages outside of Kigali. The majority of pretest participants attended the main training and served as field editors and team leaders for the main survey.

NISR recruited and trained 117 participants, and at the end of the training it retained 105 to work as the field personnel. The main training was conducted from August 16 to September 14, 2010. The training consisted of instruction regarding interviewing techniques and field procedures, a detailed review of items on the questionnaires followed by tests, instruction and practice in weighing and measuring children, and mock interviews and role plays between participants in the classroom. Fifteen data collection teams were each comprised of a team leader, a field editor, three female interviewers, a male interviewer, and one biomarker staff member.

## 2.4 Hemoglobin, Malaria and HIV Testing

In a subsample of one-half of all households selected for the Men's Questionnaire, blood specimens were collected from women age 15-49 and children age 6-59 months for measurement of hemoglobin in the field, testing for malaria in the field using the Rapid Diagnostic Test (RDT), and testing for malaria in the lab using the microscopic method. Additionally, in the same one-half of all households, blood specimens for HIV testing were collected from all women 15-49 and men 15-59 who consented to the test. The protocol for the blood specimen collection and testing for HIV was reviewed and approved by the Rwanda National Ethics Committee, the Institutional Review Board of ICF Macro, and the Centers for Disease Control and Prevention (CDC) in Atlanta.

*Hemoglobin testing*

The 2010 RDHS included anemia testing of children 6 to 59 months old and women age 15-49 in the same one-half of households that were selected for the male interview. A consent statement was read to the eligible respondent or to the parent or responsible adult for children and young women

age 15-17. This statement explained the purpose of the test, informed them that the results would be made available as soon as the test was completed, and requested permission for the test to be carried out.

Anemia levels were determined by measuring the level of hemoglobin in the blood, a decreased concentration characterizes anemia. The concentration of hemoglobin in the blood was measured in the field using the HemoCue system. The HemoCue instrument is a special purpose photometer designed specifically for the determination of hemoglobin levels. A capillary blood sample was taken from the palm side of the end of a finger, punctured with a sterile, non-reusable, self-retractable lancet. The blood drop was collected in a HemoCue microcuvette, which serves as a measuring tool, and placed in the HemoCue photometer to determine the level of hemoglobin in the blood. A pamphlet was given to each respondent, explaining symptoms of anemia, prevention methods, and the individual results of the hemoglobin measurement of the respondent and any children for whom she gave permission to be measured. Each person whose hemoglobin level was lower than the recommended cutoff point (testing severely anemic) was advised to visit a health facility for follow-up with a health professional.

*Malaria testing*

Malaria diagnostic tests, including a rapid diagnostic test (RDT) and thick and thin blood smears, were given to eligible women and children in the 2010 RDHS. For the RDT for malaria, a drop of blood was obtained by a prick at the end of the finger usually at the same time of anemia testing. The test was done using First Response test kits and according to manufacturer recommendations. The results of the malaria RDT were recorded in the Household Questionnaire, which allows them to be linked with the characteristics of the respondents. Results from the RDTs were used to diagnose malaria and guide treatment of parasitemic children during the survey. The parent/guardian of children with a positive RDT was provided written results, and children were given Coartem® to treat malaria according to the Rwanda Malaria treatment guidelines.

Thin and thick blood smears were also collected from participants who accepted malaria testing. Blood slides were stained with Giemsa stain that was prepared by the laboratory in advance of the field work. Parasite densities were calculated by counting the number of asexual stage parasites/200 white blood cells (WBCs), assuming 6000 WBCs/dl of blood. Blood smears were considered negative if no parasites were found after counting 200 fields.

An informed consent form was read to the eligible person or parent/responsible adult of the child or teenager ages 15-18 years old. 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 would be communicated immediately after the test. For each eligible woman and child, a slide with a thick blood smear was prepared, transmitted, and stored at the NRL for microscopic examination of malaria parasites.

*HIV testing*

Men and women who were interviewed in the sub-sample of households selected for the men's survey of the 2010 RDHS were asked to voluntarily provide blood for HIV testing. The HIV test is anonymous, that is, the results of the test were not linked to survey data until individual respondent identifying information was destroyed by NISR, therefore, respondents' HIV test results can never be linked to identifying data. For women and men accepting to be tested, drops of blood were drawn and dried on filter paper. Only an identification number (barcode) drawn at random was assigned to each specimen. Since no information containing personal identification will accompany the samples, it will not be possible to inform the respondents of the result of their test. Analysis of the samples for HIV was carried out at the National Reference Laboratory.

Information and education brochures about HIV/AIDS prevention and the existing VCT and PMTCT sites were distributed to all households selected for the survey, whether these households

were selected for the test or not. These brochures were prepared by TRAC-Plus and the CNLS in close collaboration with NISR and were adapted to the population surveyed.

## 2.5 Fieldwork

Fieldwork was launched immediately upon the conclusion of field staff training. Each of the 15 teams was assigned to two of the 30 districts. Fieldwork supervision was conducted by NISR, NRL, and ICF Macro through regular visits to teams to review their work and monitor data quality. The UNICEF team also regularly visited the teams in the field. Additional contact between the central office and the teams was maintained through cell phones. Fieldwork was conducted from September 26, 2010 to March 10, 2011. Questionnaires and blood samples were regularly delivered to NISR headquarters.

## 2.6 Data Processing

Processing of the 2010 RDHS data began as soon as questionnaires were received from the field. Completed questionnaires were returned from the field to NISR headquarters, where they were entered and edited by data processing personnel who were specially trained for this task, and who had also attended the questionnaire training of field staff. Processing the data concurrently with data collection allowed for regular monitoring of team performance and data quality. Field check tables were regularly generated during data processing to check various data quality parameters. As a result, feedback was given on a regular basis, encouraging teams to continue their high quality work and to correct areas in need of improvement. Feedback was individually tailored to each team. Data entry, which included 100 percent double entry to minimize keying error and data editing, was completed on April 21, 2011. Data cleaning and finalization was completed on May 27, 2011.

# 3. PRELIMINARY FINDINGS

## 3.1 Response Rates

Table 1 shows household and individual response rates for the 2010 RDHS. A total of 12,792 households were selected for the sample, of which 12,570 were found to be occupied during data collection. Of the 12,570 occupied households, 12,540 were successfully interviewed, yielding a household response rate of 99.8 percent.

In these interviewed households, 13,790 women were identified as eligible for the individual interview. Interviews were successfully completed with 99.1 percent of these women. Of the 6,414 eligible men identified in half of the household sample, 98.7 percent were successfully interviewed. There is little variation in response rates by urban-rural residence.

Table 1 Results of the household and individual interviews

Number of households, number of interviews, and response rates, according to residence (unweighted), Rwanda 2010

| Result | Residence | | Total |
|---|---|---|---|
| | Urban | Rural | |
| **Household interviews** | | | |
| Households selected | 2,054 | 10,738 | 12,792 |
| Households occupied | 2,014 | 10,556 | 12,570 |
| Households interviewed | 2,009 | 10,531 | 12,540 |
| Household response rate[1] | 99.8 | 99.8 | 99.8 |
| **Interviews with women age 15-49** | | | |
| Number of eligible women | 2,386 | 11,404 | 13,790 |
| Number of eligible women interviewed | 2,367 | 11,304 | 13,671 |
| Eligible women response rate[2] | 99.2 | 99.1 | 99.1 |
| **Interviews with men age 15-59** | | | |
| Number of eligible men | 1,178 | 5,236 | 6,414 |
| Number of eligible men interviewed | 1,156 | 5,173 | 6,329 |
| Eligible men response rate[2] | 98.1 | 98.8 | 98.7 |

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

## 3.2 Characteristics of Respondents

The distribution of women and men age 15-49 by background characteristics is shown in Table 2. The distribution by age shows a decline in numbers of women and men with increasing age. About 41 percent of women and 46 percent of men are aged 15-24. The overwhelming majority of Rwandan women and men are Christians (Catholics, Protestants, or Adventists). Fifty percent of women are currently married or living with a man in a consensual union as are 48 percent of men. Because Rwandan men tend to marry later in life than women, 51 percent of men in the sample have never been married as opposed to 39 percent of women. A higher percentage of women (11 percent) are divorced, separated or widowed, as opposed to two percent of men.

Table 2 Background characteristics of respondents

Percent distribution of women and men age 15-49 by selected background characteristics, Rwanda 2010

| Background characteristic | Women | | | Men | | |
|---|---|---|---|---|---|---|
| | Weighted percent | Weighted number | Unweighted number | Weighted percent | Weighted number | Unweighted number |
| **Age** | | | | | | |
| 15-19 | 21.5 | 2,945 | 2,963 | 25.5 | 1,449 | 1,436 |
| 20-24 | 19.6 | 2,683 | 2,692 | 20.4 | 1,159 | 1,159 |
| 25-29 | 18.2 | 2,494 | 2,495 | 18.3 | 1,038 | 1,046 |
| 30-34 | 13.3 | 1,822 | 1,822 | 12.5 | 710 | 726 |
| 35-39 | 10.6 | 1,447 | 1,442 | 8.6 | 490 | 488 |
| 40-44 | 8.5 | 1,168 | 1,155 | 7.6 | 430 | 434 |
| 45-49 | 8.1 | 1,112 | 1,102 | 7.2 | 412 | 406 |
| **Religion** | | | | | | |
| Catholic | 42.7 | 5,842 | 5,854 | 47.7 | 2,710 | 2,727 |
| Protestant | 41.2 | 5,627 | 5,586 | 35.9 | 2,044 | 2,031 |
| Adventist | 13.0 | 1,781 | 1,792 | 11.9 | 680 | 682 |
| Muslim | 1.3 | 179 | 197 | 1.9 | 106 | 111 |
| Traditional | 0.0 | 0 | 0 | 0.0 | 1 | 1 |
| Other | 0.9 | 129 | 131 | 0.9 | 50 | 50 |
| No religion | 0.7 | 92 | 91 | 1.7 | 96 | 93 |
| Missing | 0.2 | 21 | 20 | 0.0 | 0 | 0 |
| **Marital status** | | | | | | |
| Never married | 38.7 | 5,285 | 5,362 | 50.5 | 2,873 | 2,900 |
| Married | 35.1 | 4,799 | 4,757 | 34.1 | 1,938 | 1,930 |
| Living together | 15.3 | 2,098 | 2,077 | 13.4 | 761 | 751 |
| Divorced/separated | 5.5 | 746 | 746 | 1.6 | 92 | 93 |
| Widowed | 5.4 | 743 | 729 | 0.4 | 22 | 21 |
| **Residence** | | | | | | |
| Urban | 15.0 | 2,057 | 2,367 | 16.5 | 939 | 1,082 |
| Rural | 85.0 | 11,614 | 11,304 | 83.5 | 4,748 | 4,613 |
| **Region** | | | | | | |
| Kigali City | 11.7 | 1,596 | 1,890 | 13.0 | 739 | 876 |
| South | 23.5 | 3,212 | 3,340 | 23.0 | 1,308 | 1,373 |
| West | 24.2 | 3,305 | 3,138 | 23.0 | 1,307 | 1,243 |
| North | 16.7 | 2,278 | 2,199 | 15.8 | 899 | 859 |
| East | 24.0 | 3,280 | 3,104 | 25.2 | 1,435 | 1,344 |
| **Education** | | | | | | |
| No education | 15.5 | 2,119 | 2,061 | 10.3 | 757 | 751 |
| Primary | 68.3 | 9,337 | 9,277 | 68.8 | 4,323 | 4,283 |
| Post-primary/vocational | 1.8 | 244 | 247 | 2.6 | 167 | 161 |
| Secondary | 12.9 | 1,765 | 1,843 | 16.1 | 949 | 979 |
| Tertiary | 1.5 | 207 | 243 | 2.2 | 133 | 155 |
| Total 15-49 | 100.0 | 13,671 | 13,671 | 100.0 | 5,687 | 5,695 |
| Men 50-59 | na | na | na | na | 642 | 634 |
| Total 15-59 | na | na | na | na | 6,329 | 6,329 |

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

Rwanda's population is predominantly rural, with more than four in five Rwandans living in rural areas. Fifteen percent of women and 17 percent of men live in urban areas. Overall, 68 percent of women and 69 percent of men have attended some primary school without having gone on to post-primary/vocational or secondary school. Only 21 percent of men have attended post-primary/vocational, secondary, or tertiary education and about 16 percent of women have done so. School experience in Rwanda is not universal; 16 percent of women and 10 percent of men have never attended school.

## 3.3 Fertility

Fertility data were collected by asking each woman interviewed for a complete history of her births. Information obtained about each woman's births included information on sex, the month and year of the birth, and survival status of each child; age at death for dead children was recorded. These data are used to calculate the measures of current fertility, the total fertility rate (TFR) and its component age-specific fertility rates. The TFR, which is the sum of the age-specific fertility rates, is interpreted as the mean number of children a woman would bear in her lifetime if she experienced the currently observed age-specific fertility rates throughout her reproductive years.

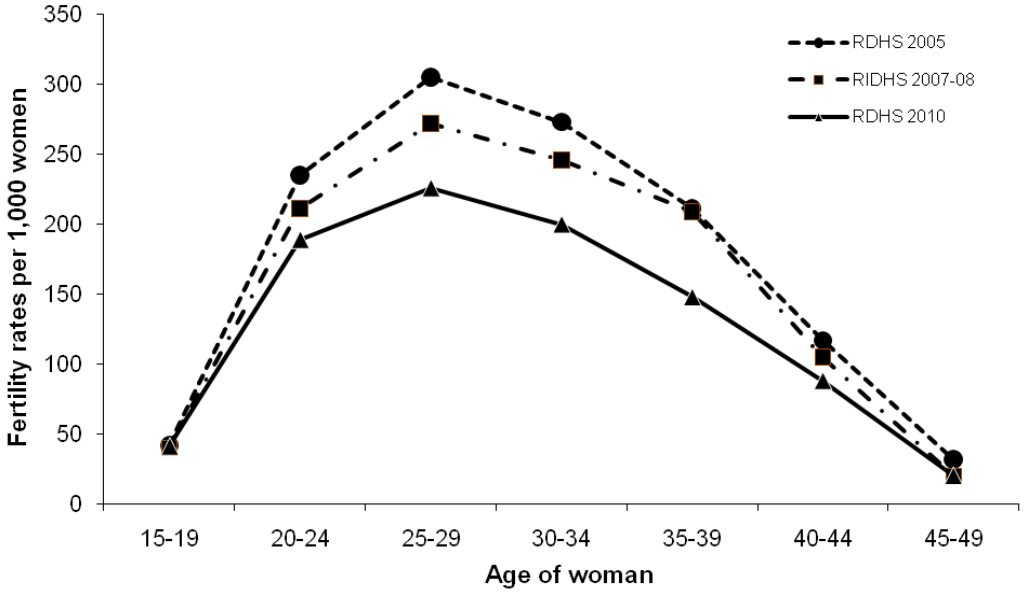
Table 3 Current fertility

Age-specific rates and total fertility rate, general fertility rate, and crude birth rate for the three years preceding the survey, by residence, Rwanda 2010

| Age group | Residence | | Total |
|---|---|---|---|
| | Urban | Rural | |
| 15-19 | 40 | 41 | 41 |
| 20-24 | 143 | 198 | 189 |
| 25-29 | 180 | 235 | 226 |
| 30-34 | 137 | 211 | 200 |
| 35-39 | 113 | 153 | 148 |
| 40-44 | 58 | 92 | 88 |
| 45-49 | 16 | 21 | 20 |
| TFR (15-49) | 3.4 | 4.8 | 4.6 |
| GFR | 115 | 157 | 151 |
| CBR | 30.6 | 35.0 | 34.4 |

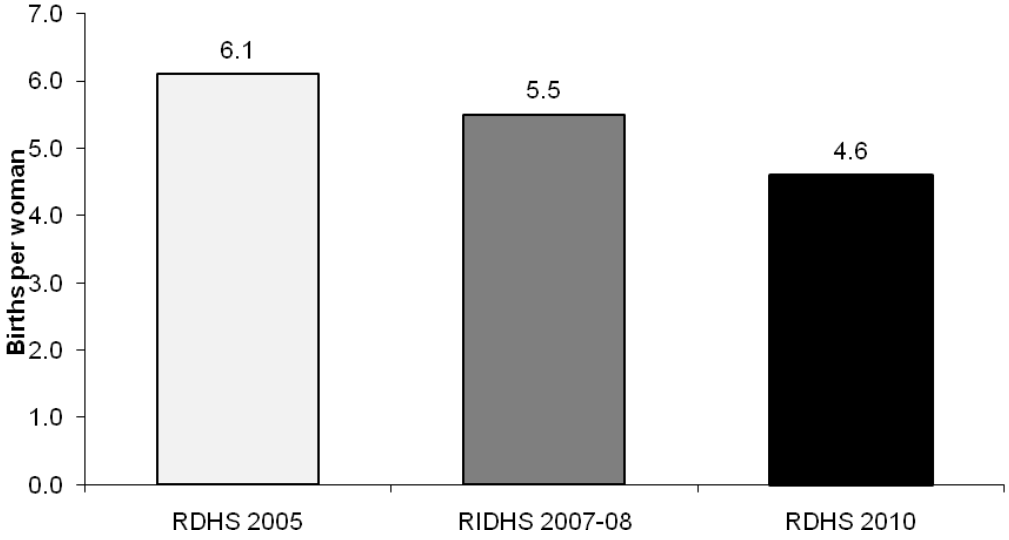
Notes: Age-specific fertility rates are per 1,000 women. Rates for age group 45-49 may be slightly biased due to truncation. Rates are for the period 1-36 months prior to interview.
TFR: Total fertility rate expressed per woman
GFR: General fertility rate expressed per 1,000 women age 15-44
CBR: Crude birth rate expressed per 1,000 population

**Figure 1. Age specific fertility rates, RDHS 2005, RIDHS 2007-08, and RDHS 2010**




The TFR in Rwanda is 4.6 children per woman (Table 3). On average, rural women give birth to approximately 4.8 children during their reproductive life, while urban women give birth to only 3.4 children during their reproductive life if they follow current levels of fertility throughout their reproductive life. Fertility has declined over the past five years: in 2005, the TFR was 6.1 children per woman (RDHS 2005), it dropped to 5.5 children per woman in 2007-08 (RIDHS 2007-08), and to 4.6 in 2010 (Figure 2).

**Figure 2. Total fertility rates, RDHS 2005, RIDHS 2007-08, and RDHS 2010**




## 3.4 Fertility Preferences

Several questions were asked to determine women's fertility preferences. These questions included: a) whether the respondent wanted another child and b) if so, when she would like to have the next child. The answers to these questions allow an estimation of the potential demand for family planning services either to limit or space births.

Table 4 indicates that over half (52 percent) of women currently in union age 15-49 do not want to bear any more children. Women who want no more children and who want to delay the birth of their next child are considered in need of family planning. Eighty-eight percent of married women say that they either want to delay the birth of their next child or want to have no more children at all. Fertility preferences are closely related to the number of living children a woman already has. In general, as the number of living children increases, the desire to stop childbearing increases substantially. For example, 27 percent of women currently in union with 2 living children say they do not want to have more children compared to three out of every four married women who have four children (76 percent). On the other hand 89 percent of women currently in union with no children say that they want to have a child soon.

Table 4 Fertility preferences by number of living children

Percent distribution of women currently in union age 15-49 by desire for children, according to number of living children, Rwanda 2010

| | Number of living children[1] | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Desire for children | 0 | 1 | 2 | 3 | 4 | 5 | 6+ | Total |
| Have another soon[2] | 88.5 | 15.0 | 8.1 | 4.6 | 2.5 | 1.1 | 0.5 | 8.3 |
| Have another later[3] | 5.1 | 79.5 | 61.7 | 35.0 | 15.9 | 8.3 | 3.0 | 35.6 |
| Have another, undecided when | 0.5 | 0.8 | 1.0 | 0.4 | 0.5 | 0.0 | 0.3 | 0.5 |
| Undecided | 0.0 | 0.8 | 1.6 | 2.6 | 2.3 | 1.4 | 1.5 | 1.6 |
| Want no more | 1.4 | 3.4 | 26.9 | 56.2 | 76.0 | 86.1 | 91.7 | 52.0 |
| Sterilized[4] | 0.0 | 0.1 | 0.1 | 1.0 | 1.6 | 2.3 | 0.9 | 0.9 |
| Declared infecund | 4.1 | 0.4 | 0.5 | 0.3 | 1.0 | 0.8 | 1.7 | 0.8 |
| Missing | 0.5 | 0.1 | 0.1 | 0.0 | 0.3 | 0.0 | 0.4 | 0.2 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Number of women | 220 | 1,159 | 1,366 | 1,183 | 1,045 | 811 | 1,112 | 6,897 |

[1] The number of living children 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

## 3.5 Current Use of Contraception

Family planning refers to a conscious effort by a couple to limit or space the number of children they want to have through the use of contraceptive methods. Information about use of contraceptive methods was collected from female respondents by asking if they (or their partner) were currently using a method. Contraceptive methods are classified as modern and traditional methods. Modern methods include female sterilization, male sterilization, pill, IUD, injectables, implants, male condom, diaphragm, lactational amenorrhea method (LAM), and standard days method. Traditional methods include rhythm (periodic abstinence), withdrawal, and other traditional methods.

Table 5 shows that one of every two women currently in union is using some method of contraception. The majority of users rely on a modern method (45 percent). Use of modern contraceptive methods has increased substantially over the past five years from 10 percent of women currently in union using a modern method in 2005, to 27 percent in 2007-08, and to 45 percent in 2010 (Figure 3). The most commonly used modern methods are injectables (26 percent), followed by pills (7 percent) and implants (6 percent). Six percent of women report using traditional methods.

The use of contraception increases with increasing education. Sixty percent of women with at least some secondary education use a contraceptive method, in contrast to 43 percent of women with no education. In general, women do not begin to use contraception until they have had at least one child. Fifty-two percent of women currently in union with three or four children are currently using a modern method of contraception.

The use of modern methods among women currently in union peaks between age 25-39 (50-52 percent). There is a small variation in the use of modern methods between urban and rural areas (47 versus 45 percent). Distribution by province shows that the percentage of women currently in union using modern contraceptive methods in the West province is the lowest (36 percent) compared to those in the other provinces (46-52 percent).

**Figure 3. Contraceptive prevalence among women currently in union age 15-49, RDHS 2005, RIDHS 2007-08, and RDHS 2010**

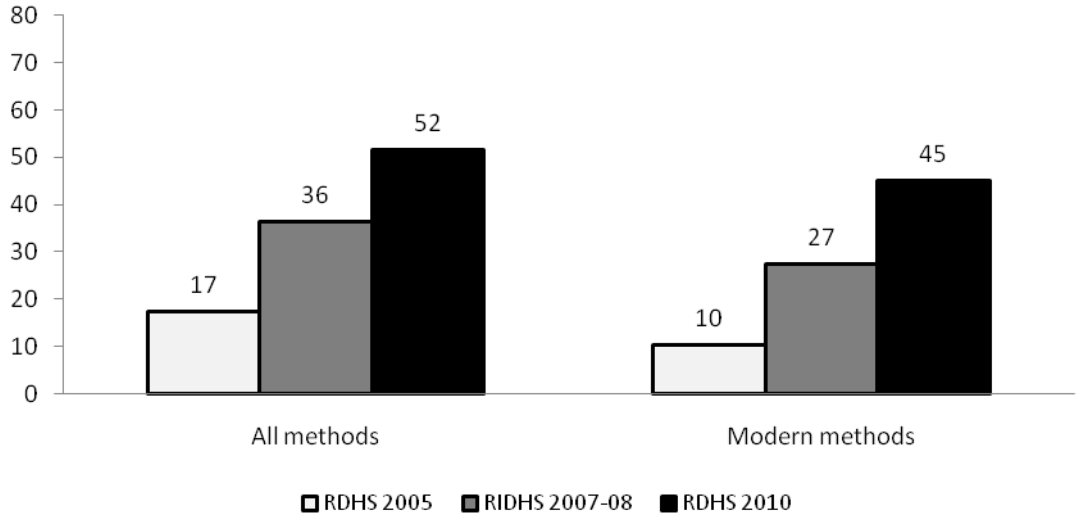


Table 5 Current use of contraception by background characteristics

Percent distribution of women currently in union age 15-49 by contraceptive method currently used, according to background characteristics, Rwanda 2010

| Background characteristic | Any method | Any modern method | Modern method | | | | | | | | | | Any tradi-tional method | Traditional method | | | Not currently using | Total | Number of women |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Female sterili-zation | Male sterili-zation | Pill | IUD | Inject-ables | Implants | Male condom | Dia-phragm | LAM | Standard days method | | Rhythm | With-drawal | Other | | | |
| **Age** | | | | | | | | | | | | | | | | | | | |
| 15-19 | 32.9 | 30.6 | 0.0 | 0.0 | 6.7 | 1.4 | 19.9 | 0.0 | 1.5 | 0.0 | 1.2 | 0.0 | 2.2 | 1.2 | 1.0 | 0.0 | 67.1 | 100.0 | 89 |
| 20-24 | 44.5 | 42.1 | 0.1 | 0.0 | 6.9 | 0.1 | 28.9 | 2.9 | 2.2 | 0.0 | 0.6 | 0.3 | 2.4 | 1.0 | 1.4 | 0.0 | 55.5 | 100.0 | 998 |
| 25-29 | 54.3 | 49.8 | 0.1 | 0.0 | 8.1 | 0.2 | 31.1 | 6.0 | 3.1 | 0.0 | 0.7 | 0.6 | 4.5 | 1.6 | 2.8 | 0.0 | 45.7 | 100.0 | 1,773 |
| 30-34 | 56.3 | 50.2 | 0.4 | 0.0 | 8.4 | 0.6 | 28.0 | 8.3 | 3.2 | 0.1 | 0.5 | 0.7 | 6.1 | 2.7 | 3.3 | 0.1 | 43.7 | 100.0 | 1,458 |
| 35-39 | 58.6 | 51.8 | 2.1 | 0.3 | 6.5 | 1.2 | 27.3 | 9.2 | 4.1 | 0.0 | 0.3 | 0.9 | 6.8 | 3.0 | 3.9 | 0.0 | 41.4 | 100.0 | 1,112 |
| 40-44 | 50.9 | 42.1 | 1.3 | 0.0 | 7.8 | 0.6 | 21.2 | 6.9 | 2.6 | 0.0 | 0.4 | 1.3 | 8.9 | 4.5 | 4.1 | 0.3 | 49.1 | 100.0 | 780 |
| 45-49 | 36.5 | 21.4 | 2.3 | 0.0 | 2.6 | 0.0 | 11.2 | 3.4 | 1.6 | 0.0 | 0.2 | 0.1 | 15.1 | 7.7 | 7.5 | 0.0 | 63.5 | 100.0 | 688 |
| **Residence** | | | | | | | | | | | | | | | | | | | |
| Urban | 53.1 | 47.0 | 2.0 | 0.0 | 7.9 | 2.4 | 22.3 | 6.1 | 4.3 | 0.0 | 0.2 | 1.9 | 6.0 | 2.5 | 3.3 | 0.2 | 46.9 | 100.0 | 926 |
| Rural | 51.4 | 44.9 | 0.7 | 0.0 | 7.0 | 0.2 | 26.9 | 6.4 | 2.7 | 0.0 | 0.5 | 0.4 | 6.5 | 3.0 | 3.5 | 0.0 | 48.6 | 100.0 | 5,971 |
| **Region** | | | | | | | | | | | | | | | | | | | |
| Kigali City | 53.6 | 47.5 | 2.2 | 0.0 | 8.2 | 2.6 | 20.9 | 5.9 | 5.0 | 0.0 | 0.1 | 2.6 | 6.1 | 2.8 | 3.0 | 0.3 | 46.4 | 100.0 | 726 |
| South | 55.3 | 48.3 | 0.6 | 0.0 | 7.5 | 0.4 | 27.7 | 8.3 | 2.5 | 0.0 | 0.6 | 0.7 | 6.9 | 2.4 | 4.4 | 0.1 | 44.7 | 100.0 | 1,614 |
| West | 42.7 | 35.5 | 1.2 | 0.1 | 5.0 | 0.2 | 19.3 | 5.5 | 2.6 | 0.0 | 1.2 | 0.5 | 7.3 | 3.7 | 3.5 | 0.1 | 57.3 | 100.0 | 1,675 |
| North | 56.9 | 52.0 | 0.3 | 0.2 | 8.0 | 0.2 | 36.0 | 4.5 | 2.6 | 0.0 | 0.0 | 0.3 | 4.9 | 3.0 | 1.9 | 0.0 | 43.1 | 100.0 | 1,151 |
| East | 52.3 | 45.9 | 0.5 | 0.0 | 7.8 | 0.1 | 27.5 | 6.6 | 2.9 | 0.1 | 0.2 | 0.2 | 6.4 | 2.6 | 3.7 | 0.0 | 47.7 | 100.0 | 1,731 |
| **Education** | | | | | | | | | | | | | | | | | | | |
| No education | 43.3 | 37.3 | 0.5 | 0.2 | 5.1 | 0.1 | 22.7 | 6.0 | 1.6 | 0.1 | 1.0 | 0.1 | 6.0 | 3.0 | 2.9 | 0.1 | 56.7 | 100.0 | 1,355 |
| Primary | 52.6 | 46.3 | 0.7 | 0.0 | 7.3 | 0.2 | 28.2 | 6.0 | 3.0 | 0.0 | 0.3 | 0.6 | 6.3 | 2.6 | 3.7 | 0.1 | 47.4 | 100.0 | 4,816 |
| Secondary or higher | 60.3 | 52.3 | 2.3 | 0.0 | 10.1 | 3.0 | 20.5 | 8.9 | 4.9 | 0.0 | 0.6 | 2.0 | 8.0 | 4.9 | 3.1 | 0.0 | 39.7 | 100.0 | 727 |
| **Number of living children** | | | | | | | | | | | | | | | | | | | |
| 0 | 1.5 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 0.5 | 0.3 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.2 | 0.0 | 98.5 | 100.0 | 429 |
| 1-2 | 53.1 | 48.3 | 0.1 | 0.0 | 8.2 | 0.5 | 30.5 | 4.7 | 3.1 | 0.0 | 0.5 | 0.7 | 4.8 | 2.2 | 2.6 | 0.0 | 46.9 | 100.0 | 2,478 |
| 3-4 | 58.2 | 52.0 | 1.3 | 0.1 | 8.3 | 0.6 | 28.8 | 8.3 | 3.5 | 0.0 | 0.7 | 0.5 | 6.2 | 2.8 | 3.4 | 0.0 | 41.8 | 100.0 | 2,133 |
| 5+ | 53.5 | 43.2 | 1.5 | 0.1 | 6.0 | 0.5 | 23.7 | 7.6 | 2.6 | 0.0 | 0.3 | 0.8 | 10.3 | 4.6 | 5.5 | 0.1 | 46.5 | 100.0 | 1,858 |
| Total | 51.6 | 45.1 | 0.8 | 0.0 | 7.1 | 0.5 | 26.3 | 6.3 | 2.9 | 0.0 | 0.5 | 0.6 | 6.4 | 2.9 | 3.5 | 0.1 | 48.4 | 100.0 | 6,897 |

Note: If more than one method is used, only the most effective method is considered in this tabulation.
LAM = Lactational amenorrhea method

## 3.6 Childhood Mortality

An important objective of the 2010 RDHS was to measure the level and trend of mortality among children. Estimates of childhood mortality are based on information from the birth history section of the questionnaire administered to individual women. This information is used to directly estimate the following five mortality rates, expressed per 1,000 live births:

- Neonatal mortality rate (NNR): the probability of dying within the first month of life;
- Post-neonatal mortality rate (PNNR): the difference between infant and neonatal mortality rates;
- Infant mortality rate ($_1q_0$): the probability of dying before the first birthday;
- Child mortality rate ($_4q_1$): the probability of dying between the first and fifth birthday;
- Under-five mortality rate ($_5q_0$): the probability of dying between birth and the fifth birthday.

Table 6 Early childhood mortality rates

Neonatal, post-neonatal, infant, child, and under-five mortality rates for five-year periods preceding the survey, Rwanda 2010

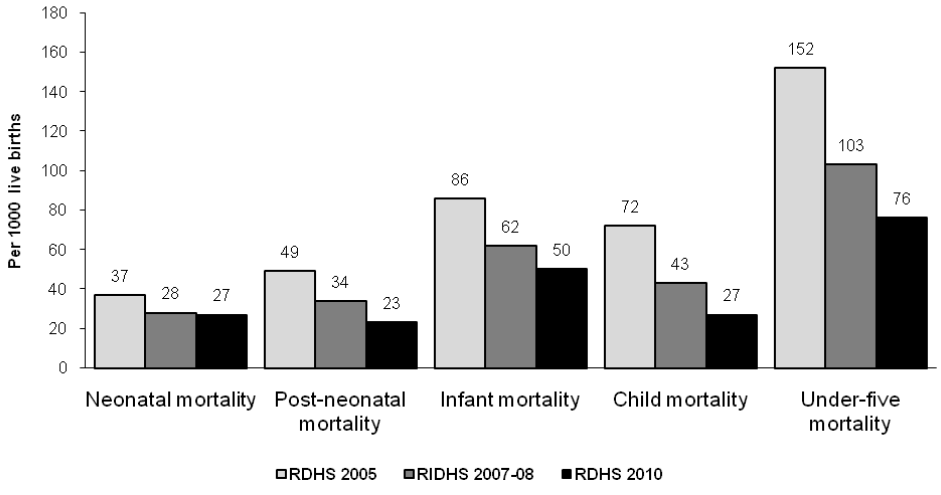
| Years preceding the survey | Neonatal mortality rate (NNR) | Post-neonatal mortality rate[1] (PNNR) | Infant mortality rate ($_1q_0$) | Child mortality rate ($_4q_1$) | Under-five mortality rate ($_5q_0$) |
|---|---|---|---|---|---|
| 0-4 | 27 | 23 | 50 | 27 | 76 |
| 5-9 | 32 | 41 | 73 | 64 | 133 |
| 10-14 | 48 | 61 | 109 | 99 | 197 |

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

Table 6 presents early childhood mortality rates for the 14 years preceding the survey. Under-five mortality rate for the period 0-4 years before the survey (which roughly corresponds to the years 2006-2010) is 76 per 1,000 live births. This means that about one in thirteen children born in Rwanda dies before reaching their fifth birthday. Most mortality occurs during the first year of life: infant mortality rate is 50 per 1,000 live births, while mortality rate (between the first and fifth birthday) is 27 per 1,000 live births. Neonatal mortality (or mortality during the first month) rate is 27 per 1,000 live births; while post-neonatal mortality rate (between the first month and the first birthday) is 23 per 1,000 live births.

Figure 4 compares the mortality rates of the 2010 RDHS to those of the 2005 RDHS and the 2007-08 RIDHS. All figures refer to the period 0-4 years before each survey.

**Figure 4. Trend in childhood mortality rates, RDHS 2005, RIDHS 2007-08, and RDHS 2010**



## 3.7 Maternal Health

Proper care during pregnancy and delivery are important for the health of both the mother and baby. Women who had given birth in the five years preceding the survey were asked a number of questions about maternal health care. For the last live birth in that period, mothers were asked whether they had obtained antenatal care during the pregnancy, whether they had received tetanus toxoid injections, and what type of assistance they received at the time of delivery and where the delivery took place. Tables 7.1 and 7.2 present the information on these key maternal care indicators.

*Antenatal care*

Antenatal care from a trained professional is important for monitoring the pregnancy to reduce potential risks for the mother and child during pregnancy and delivery. Practically all women (98 percent) who gave birth in the 5 years preceding the survey received antenatal care at least once from a health professional (doctor, nurse, or midwife). Because seeing a health professional for antenatal care is nearly universal, it varies very little by background characteristics.

To be effective, antenatal care must continue regularly through delivery. The World Health Organization (WHO) recommends at least four ANC visits at regular intervals throughout the pregnancy. Table 7.1 shows the number of ANC visits. The proportion of pregnant women who had four recommended visits in the 2010 RDHS is 35 percent; higher than the proportion found in the 2007-08 RIDHS (24 percent).

Table 7.1 Number of antenatal care visits

Percent distribution of women who had a live birth in the five years preceding the survey by number of antenatal care (ANC) visits for the most recent birth, according to residence, Rwanda 2010

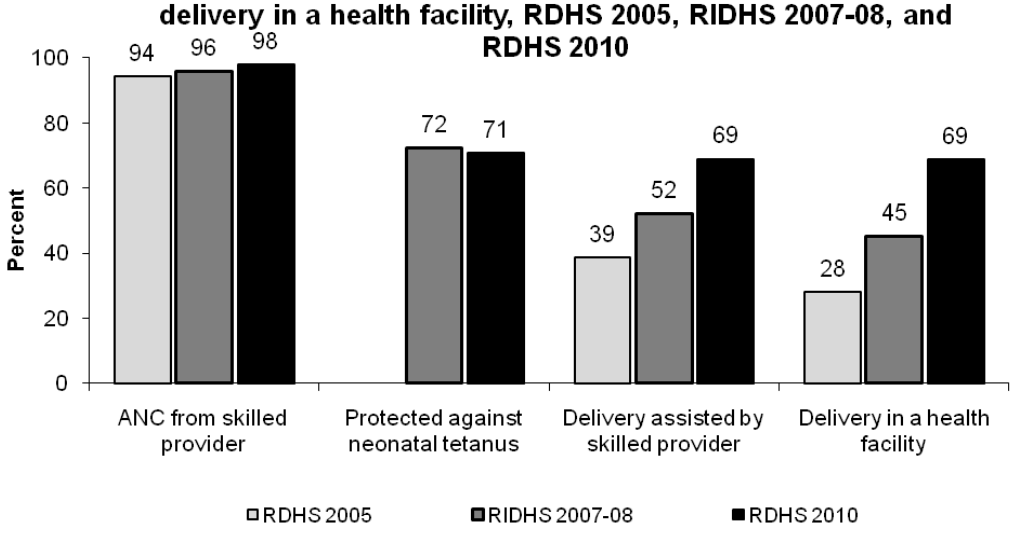
| Number of ANC visits | Residence | | |
|---|---|---|---|
| | Urban | Rural | Total |
| None | 1.5 | 1.9 | 1.8 |
| 1 | 5.4 | 4.2 | 4.3 |
| 2-3 | 52.5 | 59.1 | 58.3 |
| 4+ | 40.4 | 34.7 | 35.4 |
| Don't know/missing | 0.3 | 0.2 | 0.2 |
| Total | 100.0 | 100.0 | 100.0 |

*Tetanus toxoid*

Mothers are given tetanus toxoid injections during pregnancy to prevent neonatal tetanus, a potential cause of death among infants. Tetanus toxoid coverage comes from respondent verbal reports of receiving tetanus toxoid injection during pregnancy. To ensure protection for the newborn, the mother must have at least two tetanus toxoid injections during pregnancy or a single one if she has already received an injection during a preceding pregnancy. The figure includes mothers with two injections during the pregnancy of the last live 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 live 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 live birth.

Seventy-one percent of mothers received protection against tetanus for their newborns. Differentials in receiving protection against tetanus vary by province, and the proportion of mothers received protection against tetanus for their newborns is lowest in Kigali (63 percent). The percentage of women receiving protection against tetanus for their newborns in urban and rural areas is not significantly different (67 percent versus 71 percent). The percentage of women receiving protection against tetanus for their newborns has not changed since the RIDHS 2007-08.

**Figure 5. Antenatal care by skilled provider, protected against neonatal tetanus, delivery assisted by skilled provider, and delivery in a health facility, RDHS 2005, RIDHS 2007-08, and RDHS 2010**




*Delivery care*

Proper medical attention and hygienic conditions during delivery can reduce the risk of complications and infections that may lead to death or serious illness for the mother and/or the baby. The percent of babies in Rwanda delivered by a health professional has increased substantially in the recent past, from 52 percent in the 2007-08 RIDHS to 69 percent in the 2010 RDHS (Figure 5). The proportion of babies delivered at a health facility increased substantially during the same period, from 45 percent in 2007-08 to 69 percent in 2010. As expected there are significant regional variations in the percentage of births delivered in a health facility, the highest percentage of births delivered in a facility is in Kigali City (83 percent) and the lowest percentage is in the North province (63 percent). Eighty-two percent of births to urban women were delivered in a health facility compared to 67 percent of births to rural women. The percentage of births delivered in a health facility increases steadily with the increasing education of the mother. Fifty-seven percent of births to women with no education were delivered in a health facility, 70 percent of births born to women with at least some primary education were delivered in a health facility, and nearly nine in ten births (87 percent) born to women with at least some secondary schooling were delivered in a health facility. The variations in whether or not births are delivered by a skilled provider according to background characteristics are similar to those seen among women who delivered in a health facility.

Table 7.2 Maternal care indicators

Among women age 15-49 who had a live birth in the five years preceding the survey, percentage who received antenatal care from a skilled provider for the last live birth and percentage whose last live birth was protected against neonatal tetanus, and among all live births in the five years before the survey, percentage delivered by a skilled provider and percentage delivered in a health facility, by background characteristics, Rwanda 2010

| Background characteristic | Percentage with antenatal care from a skilled provider[1] | Percentage whose last live birth was protected against neonatal tetanus[2] | Number of women | Percentage delivered by a skilled provider[1] | Percentage delivered in a health facility | Number of births |
|---|---|---|---|---|---|---|
| **Mother's age at birth** | | | | | | |
| <20 | 97.1 | 61.5 | 373 | 83.1 | 82.7 | 556 |
| 20-34 | 98.4 | 69.0 | 4,679 | 70.6 | 70.6 | 6,938 |
| 35+ | 97.0 | 79.4 | 1,353 | 57.4 | 57.0 | 1,643 |
| **Residence** | | | | | | |
| Urban | 98.3 | 66.8 | 819 | 82.4 | 82.0 | 1,094 |
| Rural | 98.0 | 71.3 | 5,586 | 67.2 | 67.1 | 8,043 |
| **Region** | | | | | | |
| Kigali City | 99.0 | 63.4 | 635 | 83.1 | 83.0 | 872 |
| South | 97.6 | 72.5 | 1,532 | 66.4 | 66.6 | 2,169 |
| West | 97.9 | 67.7 | 1,545 | 71.0 | 70.6 | 2,284 |
| North | 98.3 | 72.1 | 1,035 | 63.8 | 63.4 | 1,437 |
| East | 98.0 | 73.8 | 1,658 | 67.5 | 67.5 | 2,376 |
| **Mother's education** | | | | | | |
| No education | 96.4 | 69.8 | 1,211 | 57.1 | 56.7 | 1,756 |
| Primary | 98.4 | 70.9 | 4,571 | 69.9 | 69.9 | 6,578 |
| Secondary or higher | 98.7 | 71.4 | 623 | 87.7 | 87.3 | 803 |
| Total | 98.0 | 70.7 | 6,405 | 69.0 | 68.9 | 9,137 |

[1] Skilled provider includes doctor, nurse, midwife, or auxiliary midwife
[2] Includes mothers with two injections during the pregnancy of her last live 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 live birth), or four or more injections (the last within ten years of the last live birth), or five or more injections at any time prior to the last live birth

## 3.8 Vaccination of Children

According to the WHO a child is considered fully vaccinated if he or she has received a BCG vaccination against tuberculosis, three doses of DPT vaccine to prevent diphtheria, tetanus, and pertussis, at least three doses of polio vaccine, and one dose of measles vaccine. These vaccinations should be received during the first year of life. Since 2006, the Rwanda National Immunization Program has replaced DPT vaccines with a tetravalent vaccine that includes DTC and Hemophilus Influenza type b vaccine (Hib) and a pentavalent vaccine that includes DPT, Hib, and Hepatitis type b vaccine (HepB). The 2010 RDHS collected information on the coverage for these vaccinations among all children under age five.

Table 8 Vaccinations by background characteristics

Percentage of children age 12-23 months who received specific vaccines at any time before the survey by source of information (vaccination card or the mother's report), and percentage with a vaccination card, by background characteristics, Rwanda 2010

| Background characteristic | BCG | Tetravalent/Pentavalent | | | Polio[1] | | | | Measles | All basic vaccinations[2] | No vaccinations | Percentage with a vaccination card | Number of children |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 0 | 1 | 2 | 3 | | | | | |
| **Sex** | | | | | | | | | | | | | |
| Male | 99.5 | 99.2 | 98.5 | 97.1 | 90.3 | 99.3 | 98.5 | 93.3 | 95.0 | 90.2 | 0.4 | 82.1 | 786 |
| Female | 98.8 | 98.5 | 98.1 | 96.5 | 88.9 | 99.1 | 98.4 | 93.3 | 95.0 | 90.0 | 0.7 | 82.3 | 831 |
| **Residence** | | | | | | | | | | | | | |
| Urban | 99.7 | 99.4 | 99.0 | 95.7 | 94.3 | 99.4 | 99.0 | 94.1 | 97.3 | 93.3 | 0.3 | 77.8 | 181 |
| Rural | 99.1 | 98.8 | 98.2 | 97.0 | 89.0 | 99.2 | 98.4 | 93.2 | 94.8 | 89.7 | 0.6 | 82.8 | 1,436 |
| **Region** | | | | | | | | | | | | | |
| Kigali City | 99.6 | 99.2 | 98.8 | 98.5 | 94.5 | 99.2 | 98.8 | 96.6 | 98.2 | 96.3 | 0.4 | 77.0 | 142 |
| South | 99.0 | 98.7 | 98.4 | 96.8 | 89.0 | 99.2 | 99.0 | 94.4 | 97.6 | 92.8 | 0.8 | 82.4 | 383 |
| West | 98.3 | 98.3 | 97.3 | 94.5 | 89.7 | 98.8 | 97.7 | 86.3 | 91.1 | 80.9 | 1.0 | 82.9 | 426 |
| North | 100.0 | 100.0 | 100.0 | 99.2 | 96.1 | 100.0 | 100.0 | 97.0 | 97.4 | 93.6 | 0.0 | 86.8 | 251 |
| East | 99.5 | 98.7 | 98.0 | 97.2 | 84.4 | 99.2 | 97.7 | 96.2 | 94.2 | 92.8 | 0.2 | 80.5 | 414 |
| **Education** | | | | | | | | | | | | | |
| No education | 98.5 | 98.0 | 97.7 | 95.0 | 87.6 | 99.2 | 98.1 | 92.3 | 90.8 | 87.0 | 0.8 | 85.1 | 271 |
| Primary | 99.2 | 98.9 | 98.3 | 97.0 | 89.8 | 99.2 | 98.4 | 93.1 | 95.6 | 90.1 | 0.5 | 82.1 | 1,217 |
| Secondary or higher | 99.5 | 99.5 | 99.5 | 98.3 | 91.4 | 99.5 | 99.5 | 97.5 | 98.5 | 96.8 | 0.5 | 77.1 | 128 |
| Total | 99.1 | 98.8 | 98.3 | 96.8 | 89.6 | 99.2 | 98.5 | 93.3 | 95.0 | 90.1 | 0.5 | 82.2 | 1,616 |

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

Information on vaccination coverage was obtained in two ways—from health cards and from verbal reports of mothers. All mothers were asked by interviewers to show the health cards on which vaccinations are recorded for all children born since January 2005. If the card was available, the interviewer copied into the questionnaire the dates on which each vaccination was received. If a vaccination was not recorded on the health card, the mother was asked to recall whether that particular vaccination had been given. If the mother was not able to present a health card for her child, she was asked to recall whether the child had received BCG, polio, tetravalent/pentavalent and measles. If she indicated that the child had received the polio or tetravalent/pentavalent vaccines, she was asked about the number of doses that the child received.

Taking into consideration the vaccination schedule, Table 8 presents information on vaccination coverage for children age 12-23 months. The percentage of data coming directly from health cards is 82 percent (the 2005 RDHS and the 2007-08 RIDHS fieldwork recorded dates directly from health cards for 76 percent and 67 percent of children age 12-23, respectively). Coverage levels include data from both health cards and verbal reports of mothers. Ninety percent of children aged 12-23 months are fully vaccinated. This is an increase in coverage over the recent past, as the 2005 RDHS and the 2007-08 RIDHS found 75 percent and 80 percent of children age 12-23 to be fully vaccinated respectively. Ninety-eight percent or more of children have received BCG, two doses of tetravalent or pentavalent, and two doses of polio vaccines. The proportions of children receiving the third dose of tetravalent or pentavalent and polio were 97 percent and 93 percent, respectively. Ninety-five percent of the children received a measles vaccination.

Full vaccination coverage varies by mother's education, increasing from 87 percent among children of mothers with no education, to 90 percent among children of mothers with primary education, and to 97 percent among mothers with secondary or higher education. Full coverage is slightly higher in urban areas (93 percent) than in rural areas (90 percent). Children in Kigali City have the highest full vaccination coverage (96 percent), while children in the West province have the lowest full vaccination coverage (81 percent).

## 3.9 Treatment of Childhood Illnesses

Acute respiratory illness, fever, and dehydration from severe diarrhea are major causes of childhood morbidity and mortality. Prompt medical attention for children experiencing the symptoms of these illnesses is, therefore, crucial in increasing child well-being and reducing child deaths. To

obtain information on how childhood illnesses are treated, mothers were asked (for each child under the age of five years) whether in the two weeks before the survey the child had experienced cough with short, rapid breathing or difficulty breathing due to chest congestion (symptoms of acute respiratory infection ARI), fever, and diarrhea. The percentage of children having experienced each of these illnesses within the two weeks before the survey is shown in Figure 6.

**Figure 6. Prevalence of ARI, fever and diarrhea in the two weeks prior to the survey among children under age 5**

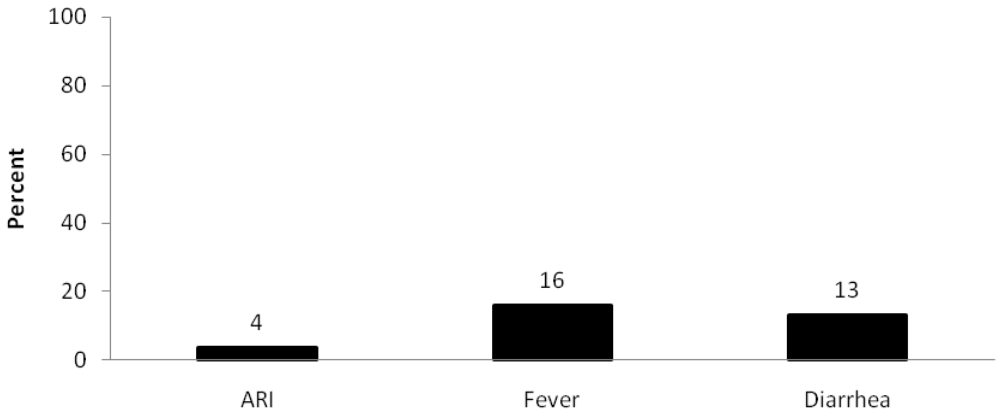



Table 9 Treatment for acute respiratory infection, fever, and diarrhea

Among children under five years who had symptoms of acute respiratory infection (ARI) or were sick with fever in the two weeks preceding the survey, percentage for whom treatment was sought from a health facility or provider, and among children under five years who were sick with diarrhea during the two weeks preceding the survey, percentage for whom treatment was sought from a health facility or provider, percentage given a solution made from oral rehydration salt (ORS) packets or given prepackaged ORS liquids, and percentage given any oral rehydration therapy (ORT) by background characteristics, Rwanda 2010

| | Children with symptoms of ARI[1] | | Children with fever | | Children with diarrhea | | | |
|---|---|---|---|---|---|---|---|---|
| Background characteristic | Percentage for whom treatment was sought from a health facility/ provider[2] | Number with ARI | Percentage for whom treatment was sought from a health facility/ provider[2] | Number with fever | Percentage for whom treatment was sought from a health facility/ provider[2] | Percentage given solution from ORS packet[3] | Percentage given any ORT[4] | Number with diarrhea |
| **Age in months** | | | | | | | | |
| <6 | (39.0) | 29 | 27.4 | 92 | 15.8 | 9.0 | 11.0 | 48 |
| 6-11 | 62.7 | 53 | 46.5 | 208 | 42.9 | 29.4 | 33.8 | 184 |
| 12-23 | 57.8 | 82 | 47.7 | 353 | 46.5 | 38.4 | 44.4 | 404 |
| 24-35 | 50.7 | 56 | 45.5 | 282 | 35.5 | 25.1 | 30.9 | 242 |
| 36-47 | 35.1 | 60 | 36.5 | 237 | 22.3 | 22.3 | 26.3 | 152 |
| 48-59 | (48.4) | 41 | 40.3 | 184 | 27.0 | 21.1 | 28.9 | 103 |
| **Sex** | | | | | | | | |
| Male | 50.1 | 179 | 43.2 | 722 | 40.0 | 31.3 | 36.5 | 610 |
| Female | 50.5 | 143 | 42.2 | 634 | 33.9 | 26.6 | 32.2 | 522 |
| **Residence** | | | | | | | | |
| Urban | 75.8 | 54 | 55.9 | 172 | 33.0 | 26.3 | 32.1 | 140 |
| Rural | 45.1 | 269 | 40.8 | 1,183 | 37.8 | 29.5 | 34.9 | 992 |
| **Region** | | | | | | | | |
| Kigali City | (74.2) | 38 | 51.9 | 144 | 33.1 | 32.5 | 40.9 | 95 |
| South | 46.7 | 71 | 46.8 | 367 | 33.0 | 27.1 | 34.2 | 319 |
| West | 45.3 | 131 | 42.3 | 378 | 45.5 | 29.4 | 34.8 | 290 |
| North | (47.1) | 39 | 30.8 | 229 | 31.5 | 25.5 | 27.3 | 183 |
| East | (52.4) | 43 | 43.2 | 237 | 38.9 | 32.8 | 37.5 | 245 |
| **Mother's education** | | | | | | | | |
| No education | 40.6 | 66 | 34.0 | 228 | 28.4 | 21.3 | 28.1 | 182 |
| Primary | 49.2 | 219 | 42.8 | 1,008 | 38.1 | 30.1 | 35.0 | 862 |
| Secondary or higher | (73.3) | 37 | 59.1 | 119 | 47.1 | 35.4 | 43.3 | 88 |
| Total | 50.2 | 322 | 42.7 | 1,355 | 37.2 | 29.1 | 34.5 | 1,132 |

Note:
[1] Symptoms of ARI (cough accompanied by short, rapid breathing which was chest-related and/or by difficult breathing which was chest-related) is considered a proxy for pneumonia
[2] Excludes pharmacy, shop, and traditional practitioner
[3] Includes ORS from packets and prepackaged ORS liquids
[4] Includes ORS from packets, prepackaged ORS liquids, and recommended home fluids

Table 9 shows treatment sought for children with these illnesses. Treatment may have been sought from either the public or the private medical sector. Treatment was sought from a health facility or a health provider for 50 percent of children with ARI symptoms. A treatment was sought from a health facility or health provider for 43 percent of children with fever and for 37 percent of children with diarrhea. When left untreated, the dehydrating effect of diarrhea can and often does lead to death in young children. The administration of oral rehydration therapy (ORT) is a simple means of counteracting the effects of dehydration. Effective therapy can be achieved by administering either a solution prepared by mixing a commercially prepared packet of oral rehydration salts (ORS) with water or a homemade fluid of porridge water or cooked rice with salt and sugar, or simply by increasing the amount of fluids given to children. Mothers with children who had experienced diarrhea in the two weeks before the survey were asked if they gave the children some form of ORT to treat the diarrhea. Thirty-five percent of children who had diarrhea were given some form of ORT, and 29 percent of children with diarrhea were given fluids made from a special ORS packet. While the percent of children who received ORT is not very different between urban and rural areas, it varies substantially across provinces. The percent of children who had diarrhea and received ORT is highest in Kigali City (41 percent), and lowest in the North province (27 percent).

## 3.10 Infant and Young Child Feeding Practices

Breast milk is the optimal source of nutrients for infants. Children who are exclusively breastfed receive only breast milk. Exclusive breastfeeding is recommended during the first 6 months of a child's life because it limits exposure to disease agents as well as providing all of the nutrients that a baby requires. Table 10 shows the breastfeeding practices of mothers with children under the age of two years.

Exclusive breastfeeding is a common practice in Rwanda, with 85 percent of children under 6 months of age being exclusively breastfed (Figure 7). This represents a small decrease from 2005, when 88 percent of children less than 6 months old were exclusively breastfed. The remainders of breastfed infants under 6 months of age consume water, water-based liquids or juice, other milk, or complementary foods; less than one percent only of infants under age 6 months are not being breastfed. Nearly all children are breastfed through the first year of life, but by age 6 to 9 months, most breastfed children (70 percent) are also receiving complementary foods in addition to breast milk. Two percent of children age less than 6 months and 6 percent of children 6-9 months are bottle fed in Rwanda. These figures have slightly decreased since 2005 where 3 percent and 7 percent of children 0-5 months and 6-9 months were bottle fed respectively.

**Figure 7. Exclusive breastfeeding before the age of 6 months by child's age**

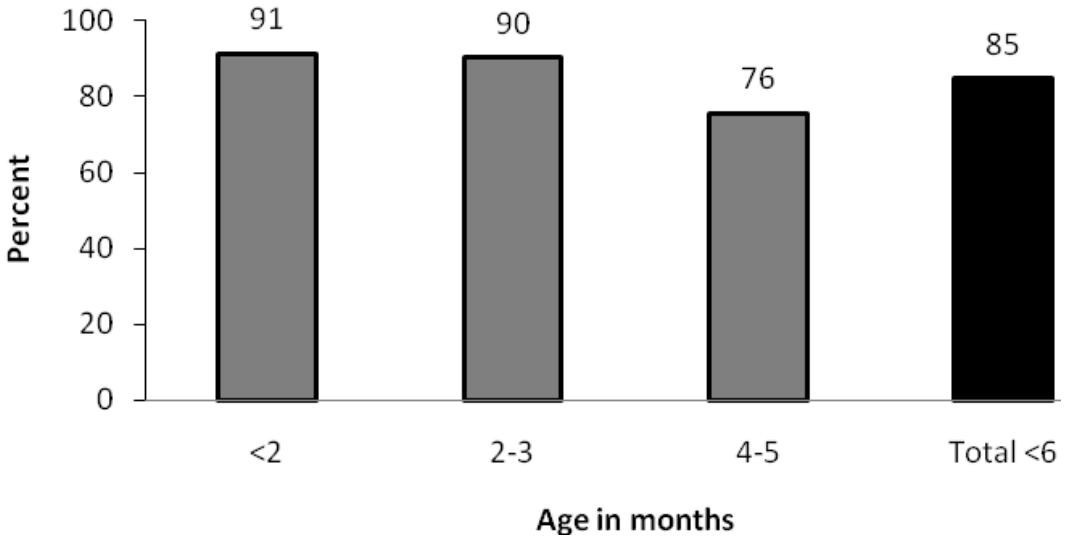


Table 10 Breastfeeding status by age

Percent distribution of youngest children under two years who are living with their mother, by breastfeeding status, the percentage currently breastfeeding;, and the percentage of all children under two years using a bottle with a nipple, according to age in months, Rwanda 2010

| | Percent distribution of youngest children under two living with their mother by breastfeeding status | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Age in months | Not breast-feeding | Exclusively breastfed | Breast-feeding and consuming plain water only | Breast-feeding and consuming non-milk liquids/ juice | Breast-feeding and consuming other milk | Breast-feeding and comple-mentary foods | Total | Percent-age currently breast-feeding | Number of youngest children under two years | Percentage using a bottle with a nipple | Number of all children under two years |
| 0-1 | 0.6 | 91.4 | 1.8 | 5.0 | 0.7 | 0.5 | 100.0 | 99.4 | 192 | 0.5 | 196 |
| 2-3 | 0.4 | 90.4 | 1.2 | 5.3 | 1.4 | 1.3 | 100.0 | 99.6 | 245 | 1.9 | 251 |
| 4-5 | 0.7 | 75.7 | 1.7 | 8.4 | 6.0 | 7.5 | 100.0 | 99.3 | 281 | 4.2 | 284 |
| 6-8 | 1.5 | 19.5 | 2.0 | 8.0 | 6.7 | 62.3 | 100.0 | 98.5 | 417 | 5.7 | 420 |
| 9-11 | 3.0 | 2.9 | 0.1 | 1.8 | 1.0 | 91.2 | 100.0 | 97.0 | 416 | 6.6 | 421 |
| 12-17 | 5.6 | 0.3 | 0.0 | 0.8 | 0.0 | 93.3 | 100.0 | 94.4 | 756 | 2.7 | 772 |
| 18-23 | 14.1 | 0.6 | 0.1 | 0.0 | 0.0 | 85.1 | 100.0 | 85.9 | 783 | 1.3 | 844 |
| 0-3 | 0.5 | 90.9 | 1.4 | 5.1 | 1.1 | 0.9 | 100.0 | 99.5 | 437 | 1.3 | 447 |
| 0-5 | 0.6 | 84.9 | 1.5 | 6.4 | 3.0 | 3.5 | 100.0 | 99.4 | 718 | 2.4 | 732 |
| 6-9 | 1.5 | 15.5 | 1.6 | 6.2 | 5.6 | 69.7 | 100.0 | 98.5 | 553 | 6.2 | 558 |
| 12-15 | 5.0 | 0.2 | 0.0 | 1.0 | 0.0 | 93.8 | 100.0 | 95.0 | 515 | 3.0 | 527 |
| 12-23 | 9.9 | 0.4 | 0.1 | 0.4 | 0.0 | 89.1 | 100.0 | 90.1 | 1,539 | 2.0 | 1,616 |
| 20-23 | 16.5 | 0.5 | 0.0 | 0.0 | 0.0 | 82.9 | 100.0 | 83.5 | 519 | 1.1 | 566 |

Note: Breastfeeding status refers to a "24-hour" period (yesterday and last night). Children who are classified as breastfeeding and consuming plain water only, consumed no liquid or solid supplements. The categories of not breastfeeding, exclusively breastfed, breastfeeding and consuming plain water, non-milk liquids/juice, other milk, and complementary foods (solids and semi-solids) are hierarchical and mutually exclusive, and their percentages add to 100 percent. Thus children who receive breast milk and non-milk liquids and who do not receive other milk and who do not receive complementary foods are classified in the non-milk liquid category even though they may also get plain water. Any children who get complementary food are classified in that category as long as they are breastfeeding as well.

## 3.11 Nutritional Status of Children

Under-nutrition places children at increased risk of morbidity and mortality and has also been shown to be related to impaired mental development. Anthropometry provides one of the most important indicators of children's nutritional status. Height and weight measurements were obtained for all children born in the five years preceding the survey in one-half of the households selected for the 2010 RDHS. The height and weight data are used to compute three summary indices of nutritional status: height-for-age; weight-for-height; and weight-for-age. These three indices are expressed as standard deviation units from the median for the international reference population recommended by the World Health Organization (WHO). The Child Growth Standards applied here are new international growth standards adopted by the WHO on April 27, 2006 and are not comparable to those based on the NCHS/CDC/WHO Reference that were in use prior to 2006, and published in the 2000 and 2005 RDHS reports.

Children whose indices of nutritional status are more than two standard deviations below (-2 SD) the reference median are regarded as undernourished, while those whose indices of nutritional status are more than three standard deviations (-3 SD) below the reference median are considered severely undernourished. Table 11 shows nutritional status for children under five years, according to the three anthropometric indices, by background characteristics.

Children whose height-for-age is more than two standard deviations below the median of the reference population are considered stunted or short for their age. Stunting is the outcome of a failure to receive adequate nutrition over an extended period and is also affected by recurrent or chronic illness. Forty-four percent of children under five are short for their age; of those children, approximately two in five (17 percent) are severely stunted.

Children whose weight-for-height is more than two standard deviations below the median of the reference population are considered wasted or thin. Wasting represents the failure to receive adequate nutrition in the period immediately before the survey, and typically is the result of recent illness episodes, especially diarrhea, or of a rapid deterioration in food supplies. In 2010, three percent

of Rwandan children were found to be wasted at the time of the survey, including about one percent who were severely wasted.

Children whose weight-for-age is more than two standard deviations below the median of the reference population are considered underweight. The measure reflects the effects of both acute and chronic undernutrition. About one in ten children (11 percent) are underweight, including two percent who are severely underweight.

Table 11 Nutritional status of children

Percentage of children under five years classified as malnourished according to three anthropometric indices of nutritional status: height-for-age, weight-for-height, and weight-for-age, by background characteristics, Rwanda 2010

| | Height-for-age[1] | | | Weight-for-height | | | | Weight-for-age | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Background characteristic | Percentage below -3 SD | Percentage below -2 SD[2] | Mean Z-score (SD) | Percentage below -3 SD | Percentage below -2 SD[2] | Percentage above +2 SD | Mean Z-score (SD) | Percentage below -3 SD | Percentage below -2 SD[2] | Percentage above +2 SD | Mean Z-Score (SD) | Number of children |
| **Age in months** | | | | | | | | | | | | |
| <6 | 4.4 | 16.7 | -0.6 | 2.8 | 5.4 | 16.2 | 0.5 | 1.9 | 6.4 | 1.4 | -0.2 | 354 |
| 6-8 | 6.2 | 18.9 | -0.8 | 2.9 | 6.4 | 10.3 | 0.1 | 1.9 | 9.7 | 1.8 | -0.5 | 201 |
| 9-11 | 9.9 | 25.6 | -1.2 | 3.4 | 8.2 | 3.8 | -0.1 | 4.8 | 12.2 | 1.2 | -0.7 | 216 |
| 12-17 | 15.6 | 42.5 | -1.7 | 0.8 | 3.8 | 5.0 | 0.1 | 3.3 | 11.2 | 0.8 | -0.7 | 383 |
| 18-23 | 24.6 | 55.1 | -2.1 | 0.4 | 3.3 | 6.4 | 0.3 | 2.7 | 14.7 | 1.1 | -0.8 | 418 |
| 24-35 | 22.6 | 51.8 | -2.0 | 0.3 | 1.6 | 6.5 | 0.5 | 1.9 | 11.9 | 0.7 | -0.8 | 935 |
| 36-47 | 17.6 | 50.9 | -2.0 | 0.3 | 1.0 | 6.7 | 0.5 | 1.1 | 9.4 | 0.3 | -0.8 | 926 |
| 48-59 | 16.9 | 46.1 | -1.9 | 0.4 | 2.2 | 4.1 | 0.3 | 3.0 | 13.8 | 0.2 | -1.0 | 923 |
| **Sex** | | | | | | | | | | | | |
| Male | 19.5 | 47.4 | -1.9 | 1.0 | 3.3 | 6.6 | 0.3 | 2.6 | 12.7 | 0.7 | -0.8 | 2,187 |
| Female | 14.5 | 41.1 | -1.7 | 0.6 | 2.4 | 6.8 | 0.4 | 2.0 | 10.2 | 0.7 | -0.7 | 2,169 |
| **Residence** | | | | | | | | | | | | |
| Urban | 7.7 | 27.3 | -1.1 | 1.7 | 3.5 | 7.0 | 0.3 | 0.8 | 6.3 | 1.1 | -0.4 | 517 |
| Rural | 18.3 | 46.5 | -1.8 | 0.7 | 2.7 | 6.7 | 0.4 | 2.5 | 12.1 | 0.6 | -0.8 | 3,839 |
| **Region** | | | | | | | | | | | | |
| Kigali City | 7.8 | 23.5 | -1.1 | 1.4 | 4.4 | 7.5 | 0.3 | 1.1 | 7.4 | 1.5 | -0.4 | 397 |
| South | 14.6 | 42.3 | -1.7 | 1.1 | 3.8 | 5.7 | 0.2 | 2.8 | 12.4 | 0.7 | -0.8 | 1,050 |
| West | 20.4 | 49.9 | -1.9 | 0.4 | 2.0 | 6.5 | 0.4 | 2.1 | 12.6 | 0.3 | -0.8 | 1,086 |
| North | 19.3 | 50.7 | -2.0 | 0.4 | 1.2 | 6.8 | 0.6 | 1.8 | 10.4 | 0.6 | -0.8 | 710 |
| East | 18.0 | 43.9 | -1.7 | 1.1 | 3.2 | 7.6 | 0.4 | 2.7 | 11.5 | 0.8 | -0.8 | 1,112 |
| **Mother's education[3]** | | | | | | | | | | | | |
| No education | 22.2 | 52.0 | -2.0 | 0.5 | 2.3 | 6.3 | 0.4 | 3.0 | 14.7 | 0.4 | -0.9 | 806 |
| Primary | 16.7 | 44.5 | -1.8 | 0.9 | 2.9 | 7.0 | 0.3 | 2.1 | 11.6 | 0.6 | -0.8 | 2,947 |
| Secondary or higher | 7.3 | 22.9 | -0.9 | 1.7 | 3.8 | 7.5 | 0.3 | 1.4 | 2.8 | 1.8 | -0.3 | 351 |
| **Mother's interview status** | | | | | | | | | | | | |
| Mother interviewed | 16.9 | 44.1 | -1.8 | 0.9 | 2.9 | 6.9 | 0.3 | 2.2 | 11.4 | 0.7 | -0.8 | 4,070 |
| Mother not interviewed, but in household | (23.7) | (51.0) | (-1.9) | (0.0) | (0.0) | (4.0) | (0.2) | (3.2) | (15.3) | (0.0) | (-1.0) | 34 |
| Mother not interviewed, not in household[4] | 18.3 | 46.3 | -1.8 | 0.4 | 2.1 | 4.3 | 0.4 | 3.6 | 10.9 | 1.1 | -0.8 | 249 |
| Total | 17.0 | 44.2 | -1.8 | 0.8 | 2.8 | 6.7 | 0.4 | 2.3 | 11.4 | 0.7 | -0.8 | 4,356 |

Note: Table is based on children who slept in the household the night before the interview. Each of the indices is expressed in standard deviation units (SD) from the median of the WHO Child Growth Standards adopted in 2006. The indices in this table are NOT comparable to those based on the previously used 1977 NCHS/CDC/WHO Reference. Table is based on children with valid dates of birth (month and year) and valid measurement of both height and weight. Figures in parentheses are based on 25-49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.

[1] Recumbent length is measured for children under age 2 and less than 85 cm; standing height is measured for all other children

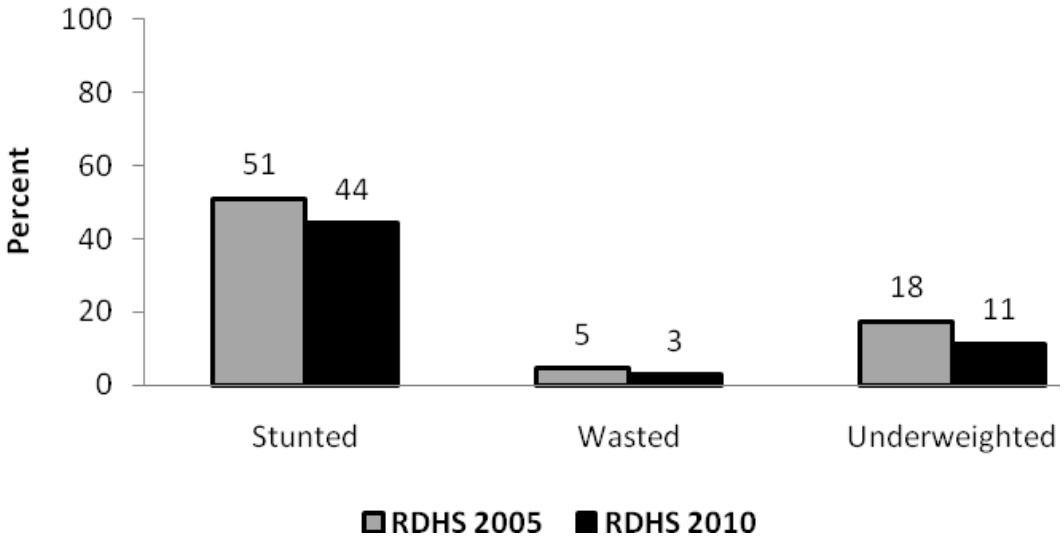
[2] Includes children who are below –3 standard deviations (SD) from the WHO Growth Standards population median

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

[4] Includes children whose mothers are deceased

As mentioned above, the Child Growth Standards applied here are new international growth standards adopted by the WHO in 2006. Therefore, the nutritional statuses reported in the 2000 RDHS and 2005 RDHS reports assessed nutritional status by comparing the RDHS results against the NCHS/CDC/WHO Reference populations that were in existence prior to 2006, thus, the nutritional status results published in the 2000 and 2005 RDHS reports are not comparable to those published here. The 2005 data were re-calculated applying the new growth standard adopted by the WHO in 2006 in order to compare them with the 2010 RDHS findings. The results are presented in Figure 8.

Figure 8. Undernourished children 0-59 months, RDHS 2005 and RDHS 2010




## 3.12 Anemia

Anemia is characterized by a low level of hemoglobin in the blood. Hemoglobin is necessary for transporting oxygen from the lungs to other tissues and organs in the body. Anemia can result from a nutritional deficiency of iron, folate, vitamin B12, or some other nutrients. This type of anemia is commonly referred to as iron-deficiency anemia and is the most widespread form of malnutrition in the world. Anemia can also be the result of hemorrhage, chronic disease, malaria, parasitic infection or genetic disorders such as Hemoglobin E trait, beta-Thalassemia and alpha-Thalassemia.

Table 12 presents anemia levels for children under five years of age (6-59 months) and for women age 15-49 years. Levels of anemia were classified as severe, moderate, or mild according to criteria developed by the World Health Organization. Children with <7.0 g/dl of hemoglobin are classified as having severe anemia, with 7.0-9.9 g/dl as having moderate anemia, and with 10.0-10.9 g/dl as having mild anemia. Women with <7.0 g/dl are classified as having severe anemia, with 7.0-9.9 g/dl as having moderate anemia, non-pregnant women with 10.0-11.9 g/dl and pregnant women with 10.0-10.9 g/dl as having mild anemia.

Anemia is common among children in Rwanda; nearly two in five (38 percent) children are anemic. Practically all children who suffer from anemia are mildly anemic (24 percent of all children) or moderately anemic (14 percent of all children). Less than one percent of children are severely anemic. Anemia is less common among women; 17 percent show any evidence of anemia, and the majority of these women are mildly anemic (14 percent of all women). The prevalence of anemia varies by residence and by region among both children and women.

Table 12 Anemia among children and women

Percentage of children age 6-59 months and women age 15-49 years classified as having anemia, by background characteristics, Rwanda 2010

| Background characteristic | Percentage with anemia | | | | Number |
|---|---|---|---|---|---|
| | Any anemia | Mild anemia | Moderate anemia | Severe anemia | |
| **CHILDREN** | | | | | |
| **Residence** | | | | | |
| Urban | 35.7 | 22.3 | 12.3 | 1.2 | 475 |
| Rural | 38.4 | 24.5 | 13.6 | 0.4 | 3,562 |
| **Region** | | | | | |
| Kigali City | 38.1 | 23.2 | 13.3 | 1.6 | 365 |
| South | 37.5 | 24.1 | 13.0 | 0.4 | 986 |
| West | 38.4 | 24.5 | 13.9 | 0.1 | 1,003 |
| North | 30.6 | 21.6 | 8.7 | 0.3 | 656 |
| East | 43.2 | 26.1 | 16.6 | 0.6 | 1,027 |
| Total | 38.1 | 24.2 | 13.5 | 0.5 | 4,037 |
| **WOMEN** | | | | | |
| **Residence** | | | | | |
| Urban | 16.2 | 13.1 | 2.9 | 0.2 | 1,050 |
| Rural | 17.4 | 14.4 | 2.9 | 0.2 | 5,895 |
| **Region** | | | | | |
| Kigali City | 18.0 | 13.8 | 4.0 | 0.2 | 807 |
| South | 17.4 | 14.4 | 2.8 | 0.1 | 1,593 |
| West | 15.3 | 13.7 | 1.5 | 0.1 | 1,698 |
| North | 11.6 | 10.2 | 1.3 | 0.1 | 1,178 |
| East | 22.8 | 17.3 | 4.8 | 0.6 | 1,668 |
| Total | 17.3 | 14.2 | 2.9 | 0.2 | 6,945 |

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

## 3.13 Malaria Indicators

Malaria is one of the leading causes of death in developing countries. The 2010 RDHS collected data on measures to prevent malaria, including the use of mosquito nets among women and children and the prophylactic use of antimalarial drugs.

Table 13.1 shows that 83 percent of households nationwide own at least one mosquito net of any type, and 82 percent own at least one insecticide-treated net (ITN). More urban (85 percent) than rural (82 percent) households own at least one net. Ownership of ITNs also differs by urban-rural residence (85 percent for urban households and 82 percent for rural households).

The 2010 RDHS shows that Rwanda has made great progress in net ownership between 2007-08 and 2010. In the 2007-08 RIDHS, only 59 percent of households owned at least one mosquito net, and 56 percent owned at least one ITN.

Table 13.1 shows that a total of 71 percent of children under age 5 slept under a mosquito net the night before the survey. Seventy percent of children under age 5 in rural areas slept under a mosquito net the night before the survey compared with 76 percent in urban areas. The proportion of children under age 5 sleeping under an ITN the night before the survey is 70 percent, 69 percent in rural areas and 76 percent in urban areas. Among households with an ITN, three in four children under age 5 were reported to have slept under an ITN the night before the survey, 75 percent in rural areas, and 80 percent in urban areas. Overall, 73 percent of pregnant women age 15-49 slept under a mosquito net the night before the survey, 71 percent in rural areas versus 81 percent in urban areas. The proportion of pregnant women who slept under an ITN the night before the survey is similar to the proportion of women who slept under any mosquito net. Among households with an ITN, 80

percent of pregnant women in rural areas and 87 percent of women in urban areas slept under an ITN the night before the survey.

The 2010 RDHS also asked women whether they took any antimalarial drugs during antenatal care visits for their last pregnancy two years prior to the interview. The results show that 15 percent of women in urban areas took antimalarial drugs for malaria prevention during their last pregnancy in the two years preceding the survey compared with 13 percent of women in rural areas.

Sixteen percent of children under age 5 were reported to have had a fever in the two weeks preceding the survey. Among children under age 5 with fever in the two weeks preceding the survey, 11 percent took antimalarial drugs. More children in rural areas than urban areas took antimalarial drugs during fever (11 percent and 8 percent, respectively). Among children with fever, 7 percent in urban areas and 8 percent in rural areas took antimalarial drugs the same or next day after developing a fever.

Table 13.1 Malaria indicators

Possession and use of mosquito nets, preventive malaria treatment during pregnancy, and treatment of children with fever using antimalarial drugs, by urban-rural residence, Rwanda 2010

| | Residence | | | | | |
|---|---|---|---|---|---|---|
| | Urban | | Rural | | | |
| Malaria indicator | Percentage | Number | Percentage | Number | Percentage | Number |
| **Mosquito net** | | | | | | |
| Percentage of households with at least one mosquito net (treated or untreated) | 85.4 | 1,759 | 82.2 | 10,781 | 82.7 | 12,540 |
| Percentage of households with at least one insecticide-treated net (ITN)[1] | 84.5 | 1,759 | 81.6 | 10,781 | 82.0 | 12,540 |
| Percentage of children under five years who slept under a mosquito net (treated or untreated) last night | 76.2 | 1,060 | 69.7 | 7,882 | 70.5 | 8,942 |
| Percentage of children under five years who slept under an insecticide-treated net (ITN) last night[1] | 75.6 | 1,060 | 69.0 | 7,882 | 69.8 | 8,942 |
| Percentage of children under five years who slept under an insecticide-treated net (ITN) last night in households with an ITN[1] | 79.6 | 1,007 | 74.7 | 7,281 | 75.3 | 8,288 |
| Percentage of pregnant women age 15-49 who slept under a mosquito net (treated or untreated) last night | 80.9 | 149 | 71.1 | 803 | 72.7 | 952 |
| Percentage of pregnant women age 15-49 who slept under an insecticide-treated net (ITN) last night[1] | 80.2 | 149 | 70.9 | 803 | 72.3 | 952 |
| Percentage of pregnant women age 15-49 who slept under an insecticide-treated net (ITN) last night in households with an ITN[1] | 86.7 | 138 | 80.0 | 712 | 81.1 | 849 |
| **Preventive malaria treatment during pregnancy** | | | | | | |
| Percentage of last births in the two years preceding the survey for which the mother took antimalarial drugs for prevention during the pregnancy | 15.0 | 383 | 13.1 | 2,823 | 13.3 | 3,208 |
| **Children with fever** | | | | | | |
| Percentage of children under five years who were sick with fever the two weeks preceding the survey | 16.6 | 1,036 | 15.6 | 7,566 | 15.8 | 8,605 |
| **Among children under five years with fever in the two weeks preceding the survey, percentage who took:** | | | | | | |
| Any antimalarial drug | 7.9 | 172 | 11.3 | 1,183 | 10.8 | 1,355 |
| Artemether/lumefantrine | 4.2 | 172 | 4.0 | 1,183 | 4.0 | 1,355 |
| Primo | 3.1 | 172 | 7.0 | 1,183 | 6.5 | 1,355 |
| Quinine | 0.0 | 172 | 0.4 | 1,183 | 0.4 | 1,355 |
| Other antimalarial | 0.6 | 172 | 0.1 | 1,183 | 0.1 | 1,355 |
| **Among children under five years with fever in the two weeks preceding the survey, percentage who took on the same day/next day after developing fever:** | | | | | | |
| Any antimalarial drug | 7.1 | 172 | 7.8 | 1,183 | 7.7 | 1,355 |
| Artemether/lumefantrine | 3.4 | 172 | 2.5 | 1,183 | 2.6 | 1,355 |
| Primo | 3.1 | 172 | 5.1 | 1,183 | 4.9 | 1,355 |
| Quinine | 0.0 | 172 | 0.2 | 1,183 | 0.1 | 1,355 |
| Other antimalarial | 0.6 | 172 | 0.0 | 1,183 | 0.1 | 1,355 |

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

Table 13.2 shows the results of the malaria microscopic diagnostic (blood smear) for women and children. Nationally, 1.4 percent of children age 6 to 59 months are infected with at least one form of malarial parasites. Children 6-11 months are less likely to be infected with malaria than children 12 months old or older. Prevalence in boys and girls is not substantially different. Overall, the proportion of children with malaria is higher in rural areas than urban areas (1.4 percent compared with 0.8 percent). In addition, the results show that children in the East province (3.5 percent) and the South province (1.4 percent) are more likely to be infected with malaria than those in other provinces.

Children whose mothers never attended school are more likely to be infected than children whose mothers attended some school.

Women are less likely to be infected with malaria than children. In the country as a whole, only 0.7 percent of women have malaria. There is no clear relationship between malaria infection and the age of a woman. Similar to children, rural women are more likely to be infected than urban women, and malaria prevalence among women is higher in the East province (1.6 percent) and the South province (1.0 percent) than other provinces. Malaria prevalence is negatively associated with the level of a woman's education.

Table 13.2 Malaria among children and women

Percentage of children age 6-59 months and women age 15-49 classified as having malaria, by background characteristics, Rwanda 2010

| Background characteristic | Results of the laboratory test | | Number |
|---|---|---|---|
| | Positive | Negative | |
| CHILDREN | | | |
| **Age in months** | | | |
| 6-8 | 0.6 | 99.4 | 188 |
| 9-11 | 0.5 | 99.5 | 219 |
| 12-17 | 1.0 | 99.0 | 391 |
| 18-23 | 1.3 | 98.7 | 423 |
| 24-35 | 1.4 | 98.6 | 943 |
| 36-47 | 1.8 | 98.2 | 943 |
| 48-59 | 1.5 | 98.5 | 929 |
| **Sex** | | | |
| Male | 1.5 | 98.5 | 2,037 |
| Female | 1.2 | 98.8 | 1,998 |
| **Residence** | | | |
| Urban | 0.8 | 99.2 | 475 |
| Rural | 1.4 | 98.6 | 3,561 |
| **Region** | | | |
| Kigali City | 0.2 | 99.8 | 365 |
| South | 1.4 | 98.6 | 985 |
| West | 0.5 | 99.5 | 1,003 |
| North | 0.0 | 100.0 | 656 |
| East | 3.5 | 96.5 | 1,027 |
| **Mother's education** | | | |
| No education | 1.6 | 98.4 | 740 |
| Primary | 1.0 | 99.0 | 2,706 |
| Secondary or higher | 1.1 | 98.9 | 316 |
| Total | 1.4 | 98.6 | 4,036 |
| WOMEN | | | |
| **Age** | | | |
| 15-19 | 1.0 | 99.0 | 1,535 |
| 20-24 | 0.9 | 99.1 | 1,368 |
| 25-29 | 0.6 | 99.4 | 1,269 |
| 30-34 | 0.6 | 99.4 | 879 |
| 35-39 | 0.9 | 99.1 | 719 |
| 40-44 | 0.5 | 99.5 | 611 |
| 45-49 | 0.0 | 100.0 | 532 |
| **Residence** | | | |
| Urban | 0.2 | 99.8 | 1,045 |
| Rural | 0.8 | 99.2 | 5,868 |
| **Region** | | | |
| Kigali City | 0.1 | 99.9 | 800 |
| South | 1.0 | 99.0 | 1,596 |
| West | 0.2 | 99.8 | 1,680 |
| North | 0.1 | 99.9 | 1,174 |
| East | 1.6 | 98.4 | 1,664 |
| **Education** | | | |
| No education | 1.0 | 99.0 | 1,063 |
| Primary | 0.7 | 99.3 | 4,741 |
| Secondary or higher | 0.5 | 99.5 | 1,109 |
| Total | 0.7 | 99.3 | 6,913 |

## 3.14 HIV/AIDS Knowledge and Behavior

The HIV/AIDS epidemic is a serious threat to social and economic development around the world. The 2010 RDHS included a series of questions that addressed respondents' knowledge about AIDS and their knowledge of modes of transmission of the human immunodeficiency virus that causes AIDS, and of behaviors that can prevent the spread of HIV. Table 14 shows that virtually all women and men in Rwanda say that they have heard of AIDS. Knowledge does not vary by background characteristics.

Table 14 Knowledge of AIDS

Percentage of women and men who have heard of AIDS, by background characteristics, Rwanda 2010

| Background characteristic | Women | | Men | |
|---|---|---|---|---|
| | Have heard of AIDS | Number of women | Have heard of AIDS | Number of men |
| **Age** | | | | |
| 15-24 | 99.9 | 5,628 | 99.9 | 2,607 |
| 15-19 | 99.9 | 2,945 | 99.9 | 1,449 |
| 20-24 | 100.0 | 2,683 | 100.0 | 1,159 |
| 25-29 | 100.0 | 2,494 | 100.0 | 1,038 |
| 30-39 | 100.0 | 3,269 | 100.0 | 1,201 |
| 40-49 | 100.0 | 2,280 | 100.0 | 842 |
| **Marital status** | | | | |
| Never married | 99.9 | 5,285 | 99.9 | 2,873 |
| Ever had sex | 100.0 | 1,188 | 100.0 | 1,140 |
| Never had sex | 99.9 | 4,097 | 99.9 | 1,733 |
| Married or living together | 100.0 | 6,897 | 100.0 | 2,700 |
| Divorced/separated/widowed | 100.0 | 1,489 | 100.0 | 115 |
| **Residence** | | | | |
| Urban | 100.0 | 2,057 | 100.0 | 939 |
| Rural | 100.0 | 11,614 | 100.0 | 4,748 |
| **Region** | | | | |
| Kigali City | 100.0 | 1,596 | 100.0 | 739 |
| South | 100.0 | 3,212 | 99.9 | 1,308 |
| West | 100.0 | 3,305 | 100.0 | 1,307 |
| North | 100.0 | 2,278 | 99.9 | 899 |
| East | 100.0 | 3,280 | 100.0 | 1,435 |
| **Education** | | | | |
| No education | 100.0 | 2,119 | 100.0 | 583 |
| Primary | 100.0 | 9,337 | 100.0 | 3,916 |
| Secondary or higher | 100.0 | 2,216 | 99.9 | 1,189 |
| Total 15-49 | 100.0 | 13,671 | 100.0 | 5,688 |
| Men 50-59 | na | na | 100.0 | 642 |
| Total 15-59 | na | na | 100.0 | 6,329 |

na = Not applicable

HIV prevention initiatives focus their messages and efforts on two important aspects of sexual behavior, namely faithfulness (having only one sexual partner) and use of condoms. The 2010 RDHS asked a series of questions to women and men related to these behaviors in order to monitor certain HIV/AIDS indicators.

Table 15 Knowledge of HIV prevention methods

Percentage of women and men age 15-49 who, in response to prompted questions, say that people can reduce the risk of getting the AIDS virus by using condoms every time they have sexual intercourse and by having one partner who is not infected and has no other partners, by background characteristics, Rwanda 2010

| Background characteristic | Percentage of women who say HIV can be prevented by: | | | | Percentage of men who say HIV can be prevented by: | | | |
|---|---|---|---|---|---|---|---|---|
| | Using condoms[1] | Limiting sexual intercourse to one uninfected partner[2] | Using condoms and limiting sexual intercourse to one uninfected partner[1,2] | Number of women | Using condoms[1] | Limiting sexual intercourse to one uninfected partner[2] | Using condoms and limiting sexual intercourse to one uninfected partner[1,2] | Number of men |
| **Age** | | | | | | | | |
| 15-24 | 89.7 | 82.9 | 76.3 | 5,628 | 90.3 | 76.9 | 71.2 | 2,607 |
| 15-19 | 87.8 | 81.1 | 73.4 | 2,945 | 88.2 | 74.1 | 67.7 | 1,449 |
| 20-24 | 91.7 | 84.9 | 79.4 | 2,683 | 92.8 | 80.4 | 75.6 | 1,159 |
| 25-29 | 92.4 | 88.6 | 82.8 | 2,494 | 93.9 | 81.0 | 77.1 | 1,038 |
| 30-39 | 92.0 | 86.5 | 80.8 | 3,269 | 94.1 | 79.7 | 75.9 | 1,201 |
| 40-49 | 89.6 | 84.8 | 77.5 | 2,280 | 93.8 | 81.9 | 77.3 | 842 |
| **Marital status** | | | | | | | | |
| Never married | 89.4 | 82.1 | 75.3 | 5,285 | 90.4 | 76.0 | 70.4 | 2,873 |
| Ever had sex | 92.6 | 85.2 | 79.7 | 1,188 | 93.2 | 81.0 | 76.5 | 1,140 |
| Never had sex | 88.5 | 81.1 | 74.1 | 4,097 | 88.5 | 72.7 | 66.4 | 1,733 |
| Married or living together | 91.8 | 87.5 | 81.3 | 6,897 | 94.3 | 82.4 | 78.4 | 2,699 |
| Divorced/separated/widowed | 90.3 | 85.1 | 79.0 | 1,489 | 91.8 | 71.7 | 68.5 | 115 |
| **Residence** | | | | | | | | |
| Urban | 93.7 | 89.9 | 84.9 | 2,057 | 95.4 | 78.1 | 75.6 | 939 |
| Rural | 90.2 | 84.3 | 77.6 | 11,614 | 91.6 | 79.1 | 73.9 | 4,748 |
| **Region** | | | | | | | | |
| Kigali City | 94.7 | 92.8 | 88.8 | 1,596 | 95.5 | 79.4 | 76.6 | 739 |
| South | 89.9 | 90.1 | 82.5 | 3,212 | 93.3 | 74.6 | 70.5 | 1,308 |
| West | 87.7 | 76.2 | 67.6 | 3,305 | 89.2 | 83.0 | 76.0 | 1,307 |
| North | 92.8 | 87.5 | 82.2 | 2,278 | 90.3 | 81.5 | 75.5 | 899 |
| East | 91.1 | 83.9 | 78.9 | 3,280 | 93.6 | 77.4 | 73.7 | 1,435 |
| **Education** | | | | | | | | |
| No education | 87.6 | 81.4 | 73.3 | 2,119 | 90.7 | 76.4 | 70.1 | 583 |
| Primary | 90.5 | 85.9 | 79.2 | 9,337 | 91.4 | 79.1 | 73.9 | 3,916 |
| Secondary or higher | 94.5 | 85.6 | 81.8 | 2,216 | 95.7 | 79.8 | 77.2 | 1,189 |
| Total 15-49 | 90.7 | 85.1 | 78.7 | 13,671 | 92.3 | 79.0 | 74.2 | 5,687 |
| Men 50-59 | na | na | na | 0 | 91.2 | 80.0 | 73.5 | 642 |
| Total 15-59 | na | na | na | 0 | 92.1 | 79.1 | 74.1 | 6,329 |

na = Not applicable
[1] Using condoms every time they have sexual intercourse
[2] Partner who has no other partners

Table 15 shows that 91 percent of women and 92 percent of men age 15-49 reported that people can reduce the risk of getting the AIDS virus by using condoms every time they have sexual intercourse. The proportion of women and men who say that limiting sexual intercourse to one uninfected partner can reduce the risk of infection of HIV is 85 percent and 79 percent respectively. Overall, 79 percent of women and 74 percent of men know both of the HIV prevention methods.

Knowledge of both the HIV prevention methods is lowest among women and men age 15-19 years old, those who have no education, and those who have never had sex. The proportion of women who know both HIV prevention methods is higher in urban areas than in rural areas (85 percent versus 78 percent, respectively). Among men the difference in knowledge of both HIV prevention methods among urban and rural areas is small (76 percent versus 74 percent, respectively).

Tables 16.1 and 16.2 present information on multiple sexual partners among women and men in the last 12 months, condom use during their last sexual encounter with a partner in the last 12 months, and the mean number of sexual partners in their lifetime.

Table 16.1 Multiple sexual partners in the past 12 months: Women

Among all women age 15-49, the percentage who had sexual intercourse with more than one sexual partner in the past 12 months; among those having more than one partner in the past 12 months, the percentage reporting that a condom was used at last intercourse; and the mean number of sexual partners during her lifetime for women who ever had sexual intercourse, by background characteristics, Rwanda 2010

| Background characteristic | All women | | Among women who had 2+ partners in the past 12 months: | | Among women who ever had sexual intercourse[1]: | |
|---|---|---|---|---|---|---|
| | Percentage who had 2+ partners in the past 12 months | Number of women | Percentage who reported using a condom during last sexual intercourse | Number of women | Mean number of sexual partners in lifetime | Number of women |
| **Age** | | | | | | |
| 15-24 | 0.6 | 5,628 | (29.1) | 33 | 1.4 | 1,981 |
| 15-19 | 0.3 | 2,945 | * | 9 | 1.3 | 432 |
| 20-24 | 0.9 | 2,683 | * | 24 | 1.4 | 1,549 |
| 25-29 | 0.7 | 2,494 | * | 17 | 1.3 | 2,178 |
| 30-39 | 0.5 | 3,269 | * | 16 | 1.5 | 3,153 |
| 40-49 | 0.7 | 2,280 | * | 16 | 1.6 | 2,248 |
| **Marital status** | | | | | | |
| Never married | 0.5 | 5,285 | (38.7) | 26 | 1.7 | 1,184 |
| Married/living together | 0.4 | 6,897 | * | 25 | 1.3 | 6,892 |
| Divorced/separated/widowed | 2.0 | 1,489 | (38.1) | 30 | 1.9 | 1,483 |
| **Residence** | | | | | | |
| Urban | 1.1 | 2,057 | * | 20 | 1.8 | 1,411 |
| Rural | 0.5 | 11,614 | 21.9 | 62 | 1.4 | 8,148 |
| **Region** | | | | | | |
| Kigali City | 1.2 | 1,596 | * | 17 | 1.8 | 1,099 |
| South | 0.4 | 3,212 | * | 11 | 1.4 | 2,262 |
| West | 0.6 | 3,305 | * | 19 | 1.3 | 2,237 |
| North | 0.4 | 2,278 | * | 10 | 1.4 | 1,553 |
| East | 0.8 | 3,280 | * | 25 | 1.4 | 2,408 |
| **Education** | | | | | | |
| No education | 0.9 | 2,119 | * | 19 | 1.5 | 1,951 |
| Primary | 0.6 | 9,337 | 30.4 | 60 | 1.4 | 6,499 |
| Secondary or higher | 0.2 | 2,216 | * | 3 | 1.5 | 1,109 |
| Total | 0.6 | 13,671 | 28.9 | 82 | 1.4 | 9,559 |

Note: Figures in parentheses are based on 25-49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.
[1] Means are calculated excluding respondents who gave non-numeric responses.

Less than one percent of women (0.6 percent) and only 4 percent of men age 15-49 say that they had 2 or more sexual partners in the past 12 months prior to the interview. The proportion of women with 2 or more sexual partners in the past 12 months is higher among women who have no education (0.9 percent), live in urban areas (1.1 percent) and Kigali City (1.2 percent), and are divorced, separated or widowed (2.0 percent). Similarly, the proportion of men with 2 or more sexual partners in the past 12 months is higher among men who live in urban areas (5.6 percent) and in Kigali City (5.8 percent) and the West province (5.2 percent), and are divorced, separated or widowed (10.6 percent). The proportion of men with 2 or more sexual partners in the past 12 months varies little by level of education. More men age 25 or older have 2 or more sexual partners than those age 15-24. Even though an overwhelming majority of women and men say that the risk of getting the AIDS virus can be reduced by using condoms every time they have sexual intercourse, only 29 percent of women and 28 percent of men reported using a condom during their last sexual intercourse.

Table 16.2 Multiple sexual partners in the past 12 months: Men

Among all men age 15-49, the percentage who had sexual intercourse with more than one sexual partner; among those having more than one partner in the past 12 months, the percentage reporting that a condom was used at last intercourse; and the mean number of sexual partners during his lifetime for men who ever had sexual intercourse, by background characteristics, Rwanda 2010

| | All men | | Among men who had 2+ partners in the past 12 months: | | Among men who ever had sexual intercourse[1]: | |
|---|---|---|---|---|---|---|
| Background characteristic | Percentage who had 2+ partners in the past 12 months | Number of men | Percentage who reported using a condom during last sexual intercourse | Number of men | Mean number of sexual partners in lifetime | Number of men |
| **Age** | | | | | | |
| 15-24 | 1.7 | 2,607 | (58.0) | 43 | 2.1 | 1,008 |
| 15-19 | 0.4 | 1,449 | * | 7 | 1.7 | 311 |
| 20-24 | 3.2 | 1,159 | (53.0) | 37 | 2.2 | 697 |
| 25-29 | 5.7 | 1,038 | 32.5 | 58 | 2.5 | 914 |
| 30-39 | 6.3 | 1,201 | 17.2 | 75 | 2.8 | 1,182 |
| 40-49 | 5.5 | 842 | (9.5) | 46 | 3.4 | 829 |
| **Marital status** | | | | | | |
| Never married | 2.0 | 2,873 | 77.8 | 58 | 2.7 | 1,128 |
| Married/living together | 5.7 | 2,699 | 7.4 | 153 | 2.6 | 2,691 |
| Divorced/separated/widowed | 10.6 | 115 | * | 12 | 3.5 | 115 |
| **Residence** | | | | | | |
| Urban | 5.6 | 939 | 51.5 | 52 | 3.9 | 677 |
| Rural | 3.6 | 4,748 | 20.1 | 171 | 2.4 | 3,257 |
| **Region** | | | | | | |
| Kigali City | 5.8 | 739 | 50.1 | 43 | 4.1 | 545 |
| South | 2.4 | 1,308 | (21.6) | 32 | 2.1 | 855 |
| West | 5.2 | 1,307 | 20.6 | 68 | 2.6 | 866 |
| North | 2.9 | 899 | * | 25 | 2.1 | 634 |
| East | 3.9 | 1,435 | 21.8 | 56 | 2.8 | 1,033 |
| **Education** | | | | | | |
| No education | 3.8 | 583 | * | 22 | 2.5 | 509 |
| Primary | 4.0 | 3,916 | 27.1 | 156 | 2.5 | 2,711 |
| Secondary or higher | 3.7 | 1,189 | 35.2 | 44 | 3.6 | 713 |
| Total 15-49 | 3.9 | 5,687 | 27.5 | 223 | 2.7 | 3,933 |
| Men 50-59 | 6.0 | 642 | (14.3) | 39 | 4.0 | 636 |
| Total 15-59 | 4.2 | 6,329 | 25.5 | 262 | 2.9 | 4,569 |

Note: Figures in parentheses are based on 25-49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.
[1] Means are calculated excluding respondents who gave non-numeric responses.

# MEASURE DHS PRELIMINARY REPORTS

| | | | |
|---|---|---|---|
| Chad 2004 | February | 2006 | French |
| Kenya (SPA) 2004 | March | 2006 | English |
| Peru Continuous 2004-05 | April | 2006 | Spanish |
| Tanzania 2004-05 | May | 2006 | English |
| Uganda (AIS) 2004-05 | June | 2006 | English |
| Malawi 2004 | August | 2006 | English |
| Senegal 2006 | August | 2006 | French |
| Guinea 2006 | August | 2006 | French |
| Lesotho 2004 | September | 2006 | English |
| Egypt 2006 | September | 2006 | English |
| Rwanda 2006 | November | 2006 | French |
| Ethiopia 2006 | November | 2006 | English |
| Moldova 2006 | November | 2006 | English/Romanian |
| Vietnam (AIS) 2006 | February | 2006 | English/Vietnamese |
| Armenia 2005 | March | 2006 | English |
| Congo (Brazzaville) 2005 | March | 2006 | French |
| Côte d'Ivoire (AIS) 2005 | June | 2006 | French |
| Cambodia 2005 | July | 2006 | English |
| Haiti 2005-06 | July | 2006 | French |
| Zimbabwe 2005-06 | August | 2006 | English |
| Niger 2006 | August | 2006 | French |
| Niger (Intervention zones) 2006 | October | 2006 | French |
| Nepal 2006 | October | 2006 | English |
| Uganda 2006 | November | 2006 | English |
| Tanzania (SPA) 2006 | January | 2007 | English |
| Benin 2006 | March | 2007 | French |
| Azerbaijan 2006 | April | 2007 | English |
| Mali 2006 | April | 2007 | French |
| Pakistan 2006-07 | June | 2007 | English |
| Swaziland 2006-07 | June | 2007 | English |
| Liberia 2007 | July | 2007 | English |
| Democratic Rep. Congo 2007 | December | 2007 | French |
| Bangladesh 2007 | December | 2007 | English |
| Rwanda (SPA) 2007 | December | 2007 | English/French |
| Jordan 2007 | January | 2008 | English/Arabic |
| Uganda (SPA) 2007 | March | 2008 | English |
| Ukraine 2007 | June | 2008 | English/Ukrainian |
| Indonesia 2007 | July | 2008 | English |
| Indonesia (young adult) 2007 | July | 2008 | English |
| Rwanda (interim) 2007-08 | July | 2008 | English/French |
| Zambia 2007 | July | 2008 | English |
| Tanzania (HIV/AIDS and Malaria) 2007-08 | July | 2008 | English |
| Bolivia 2008 | August | 2008 | Spanish |
| Egypt 2008 | September | 2008 | English |
| Sierra Leone 2008 | December | 2008 | English |
| Philippines 2008 | March | 2009 | English |
| Ghana 2008 | April | 2009 | English |
| Senegal (MIS) 2008-09 | April | 2009 | French |
| Nigeria 2008 | May | 2009 | English |
| Kenya 2008-09 | September | 2009 | English |
| Congo (Brazzaville) (AIS) 2009 | September | 2009 | French |
| São Tomé e Príncipe 2009 | September | 2009 | French |
| Guyana 2009 | September | 2009 | English |
| Albania 2008-09 | October | 2009 | English |
| Madagascar 2008-09 | October | 2009 | French |
| Jordan 2009 | February | 2010 | English/Arabic |
| Timor-Leste 2009-10 | April | 2010 | English |
| Lesotho 2009-10 | May | 2010 | English |
| Tanzania 2010 | August | 2010 | English |
| Malawi 2010 | February | 2011 | English |
| Cambodia 2010 | March | 2011 | English |
| Burundi 2010 | April | 2011 | French |
| Armenia 2010 | May | 2011 | English |
| Nigeria 2010 (MIS) | April | 2011 | English |

MEASURE DHS Preliminary Reports are distributed to a limited number of recipients needing early access to survey findings and are not available for general distribution. The national implementing agency is responsible for in-country distribution; MEASURE DHS is responsible for external distribution. Publication of MEASURE DHS final survey reports—meant for general distribution—is expected 9 to 12 months after publication of the preliminary report.