Rwanda

Demographic and Health Survey 2014-15

Key Indicators

Republic of Rwanda

Rwanda
Demographic and Health Survey
2014-15

Key Indicators

National Institute of Statistics of Rwanda
Kigali, Rwanda

Ministry of Finance and Economic Planning
Kigali, Rwanda

Ministry of Health
Kigali, Rwanda

The DHS Program
ICF International
Rockville, Maryland, USA

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The 2014-15 Rwanda Demographic and Health Survey (2014-15 RDHS) was implemented by the National Institute of Statistics of Rwanda from November 9, 2014, to April 8, 2015. The funding for the RDHS was provided by the government of Rwanda, the United States Agency for International Development (USAID), the One United Nations (One UN), the Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund), World Vison International, and the Partners in Health (PIH). ICF International provided technical assistance through The DHS Program, a USAID-funded project providing support and technical assistance in the implementation of population and health surveys in countries worldwide.

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Information about The DHS Program may be obtained from ICF International, 530 Gaither Road, Suite 500, Rockville, MD 20850, USA; Telephone: +1-301-407-6500; Fax: +1-301-407-6501; Email: info@DHSprogram.com; Website: www.DHSprogram.com.

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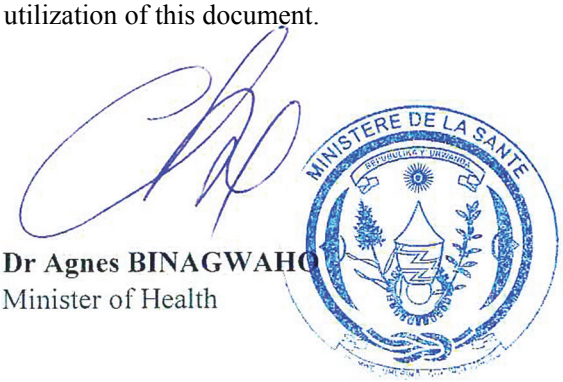
FOREWORD

The 2014-2015 Rwanda Demographic and Health Survey (RDHS) is the fifth DHS survey to be conducted in Rwanda and it was implemented by the National Institute of Statistics of Rwanda (NISR) and the Ministry of Health (MoH), in collaboration with the worldwide Demographic and Health Surveys Program.

The main objective of the 2014-15 RDHS was to obtain current information on demographic and health indicators such as family planning, maternal mortality, infant and child mortality, nutrition status of mothers and children, antenatal care, delivery care, children's immunization, and childhood diseases. In addition, the survey was designed to measure the prevalence of anemia and malaria among women and children, and to measure the prevalence of HIV infection in Rwanda. This brief report presents key indicators from the 2014-2015 Rwanda Demographic and Health Survey, when the complete version and summary reports scheduled for publication in early in 2016 will contain more detailed findings.

The 2014-2015 Rwanda Demographic and Health Survey was sponsored by the government of Rwanda, the United States Agency for International Development, One United Nations, the Global Fund to Fight AIDS, Tuberculosis and Malaria, the World Vision International, and Partners in Health. Technical assistance was provided by ICF International through The Demographic and Health Surveys Program (The DHS Program). The National Institute of Statistics of Rwanda and the Ministry of Health were the implementing agencies of the survey. The fieldwork for data collection for the RDHS was conducted for about five months from November 9, 2014, to April 8, 2015; and the data entry took place from December 3, 2014, to April 21, 2015. Data entry and data editing were completed on April 26, 2015. Data cleaning and finalization were completed on May 15, 2015.

The Ministry of Health and the National Institute of Statistics of Rwanda are pleased to provide policymakers and program managers with a first glimpse of the survey results, and we wish all users the good utilization of this document.



Dr Agnes BINAGWAHO
Minister of Health

ACKNOWLEDGMENTS

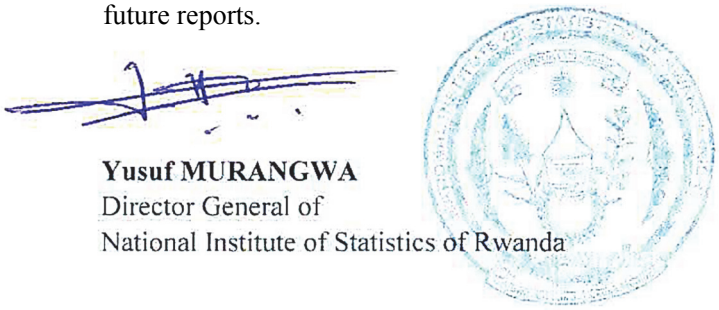
This report presents key indicators from the 2014-2015 Rwanda Demographic and Health Survey (2014-15 RDHS). Full detailed and summary reports of the RDHS-V will be available in early 2016.

The NISR and the MOH wish to acknowledge the efforts of a number of organizations and individuals who contributed substantially to the success of the survey.

First, we would like to acknowledge the financial assistance from the government of Rwanda, the United States Agency for International Development (USAID), One United Nations (ONE UN), the Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund), World Vision International (WVI), and Partners in Health (PIH).

We would like to thank ICF International for technical assistance throughout the survey. We gratefully acknowledge the support of the Steering Committee (SC), Technical Advisory Committee (TAC), and Technical Committee (TC), who contributed to the successful preparation and 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.

We would like to express our special thanks to all local authorities involved, the survey staff, and all study participants who gave their valuable time to make this survey possible. Finally, we are grateful to the survey respondents who generously gave their time to provide the information that forms the basis of this and future reports.



Yusuf MURANGWA
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1 INTRODUCTION

The 2014-15 Rwanda Demographic and Health Survey (RDHS) was implemented by the National Institute of Statistics of Rwanda (NISR) and the Ministry of Health (MOH). Data collection took place from November 9, 2014 to April 8, 2015. ICF International provided technical assistance through the DHS Program, which is funded by the United States Agency for International Development (USAID) and offers support and technical assistance for the implementation of population and health surveys in countries worldwide. Other agencies and organizations that facilitated the successful implementation of the survey through technical or financial support were the United States Agency for International Development (USAID), One United Nations (ONE UN), the Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund), the World Vision International (WVI), the Partners in Health (PIH), and the Rwanda Biomedical Center (RBC).

This key indicators report presents a first look at selected findings of the 2014-15 RDHS. A comprehensive analysis of the data will be presented in a final report to be published in early 2016.

1.1 SURVEY OBJECTIVES

The primary objective of the 2014-15 RDHS project is to provide up-to-date estimates of basic demographic and health indicators. Specifically, the RDHS collected information on fertility levels, marriage, sexual activity, fertility preferences, awareness and use of family planning methods, breastfeeding practices, nutrition, childhood and maternal mortality, maternal and child health, awareness and behavior regarding HIV/AIDS and other sexually transmitted infections (STIs), malaria, and other health issues such as smoking. In addition, the 2014-15 RDHS provides estimates of anemia prevalence among children age 6-59 months and adults and estimates of HIV prevalence among adults and children. This RDHS is a follow-up survey to the earlier RDHS surveys (1992, 2000, 2005, 2007-08, and 2010).

The information collected through the RDHS is intended to assist policymakers and program managers in evaluating and designing programs and strategies for improving the health of the country's population.

2 SURVEY IMPLEMENTATION

2.1 SAMPLE DESIGN

The sampling frame used for the 2014-15 RDHS is the Fourth Rwanda Population and Housing Census (4RPHC), which was conducted in Rwanda in 2012. The sampling frame is a complete list of Enumeration Areas (EAs) covering the whole country, provided by the National Institute of Statistics of Rwanda (NISR), the implementing agency for the RDHS. An EA is a natural village, or a part of a village, created for the 2012 RPHC, which served as the counting unit for the census.

The 2014-15 RDHS followed a two-stage sample design and was intended to allow estimates of key indicators at the national level as well as for urban and rural areas, five provinces, and each of Rwanda's 30 districts for some limited indicators. The first stage involved selecting sample points (clusters) consisting of EAs delineated for the 2012 RPHC. A total of 492 clusters were selected, 113 in urban areas and 379 in rural areas.

The second stage involved systematic sampling of households. A household listing operation was undertaken in all of the selected EAs from July 7, 2014 to September 7, 2014, and households to be included in the survey were randomly selected from these lists. Twenty-six households were selected from each sample point, for a total sample size of 12,793 households. Because of the approximately equal sample sizes in each district, the sample is not self-weighting at the national level, and weighting factors have been added to the data file so that the results will be proportional at the national level.

All women age 15-49 who were either permanent residents of the selected households or visitors who stayed in the household the night before the survey were eligible to be interviewed. In half of the households, all men age 15-59 who were either permanent residents of the selected households or visitors who stayed in the household the night before the survey were eligible to be interviewed. In the subsample of households not selected for the male survey, anemia and malaria testing were performed among eligible women who consented to being tested. With the parent's or guardian's consent, children age 6 months to 5 years were tested for anemia and malaria. In this subsample, height and weight measurement was collected from women age 15-49 and children 0-5 years. In the subsample selected for the male survey, blood samples were collected for laboratory testing of HIV from eligible women and men who consented; height and weight information was collected from eligible men. The domestic violence module for men was implemented in 50 percent of the households selected for the male survey (or 25 percent of the entire sample) and the domestic violence module for women was implemented in 50 percent of the households selected for the male survey (or 25 percent of the entire sample). In one-third of subsample households selected for the male survey (or 15 percent of the entire sample), blood samples were collected for laboratory testing of children age 0-14 for HIV.

2.2 QUESTIONNAIRES

Three questionnaires were used for the 2014-15 RDHS: the Household Questionnaire, the Woman's Questionnaire, and the Man's Questionnaire. These questionnaires were based on The DHS Program's standard Demographic and Health Survey questionnaires. They were adapted to reflect the population and health issues relevant to Rwanda. Input was solicited from various stakeholders representing government ministries and agencies, nongovernmental organizations, and international donors. After the preparation of the definitive questionnaires in English, the questionnaires were translated into Kinyarwanda.

The Household Questionnaire was used to list all of the members of and visitors to selected households. Basic demographic information was collected on the characteristics of each person listed, including his or her age, sex, marital status, education, and relationship to the head of the household. For children under age 18, parents' survival status was determined. The data on age and sex of household members obtained in the Household Questionnaire were used to identify women and men who were eligible for

individual interviews. The Household Questionnaire also collected information on characteristics of the household's dwelling unit, such as source of water, type of toilet facilities, materials used for the floor of the dwelling unit, and ownership of various durable goods.

The Woman's Questionnaire was used to collect information from all eligible women age 15-49. These women were asked questions on the following topics:

- Background characteristics (age, education, media exposure, etc.)
- Birth history and child mortality
- Knowledge and use of family planning methods
- Fertility preferences
- Antenatal, delivery, and postnatal care
- Breastfeeding and infant feeding practices
- Vaccinations and childhood illnesses
- Early childhood development
- Marriage and sexual activity
- Women's work and husbands' background characteristics
- Knowledge, awareness, and behavior regarding HIV/AIDS and other sexually transmitted infections (STIs)
- Other health issues
- Adult mortality, including maternal mortality
- Domestic violence

The Man's Questionnaire was administered to all men age 15-59 in the subsample of households selected for the male survey. The Man's Questionnaire collected much of the same information found in the Woman's Questionnaire but was shorter because it did not contain a detailed reproductive history or questions on maternal and child health.

2.3 ANTHROPOMETRY MEASUREMENT, ANEMIA TESTING, MALARIA TESTING, AND HIV TESTING

Anthropometry: Height and weight measurements were recorded for children age 0-5, women age 15-49, and men age 15-59.

Anemia testing: Blood specimens for hemoglobin measurement were collected from women age 15-49 and from all children age 6 months to 5 years for whom consent was obtained from their parents or the adult responsible for the children. Blood samples were drawn from a drop of blood taken from a finger prick (or a heel prick in the case of children age 6-11 months) and collected in a microcuvette. Hemoglobin analysis was carried out on-site using a battery-operated portable HemoCue analyzer. Results were provided verbally and in writing. Parents of children with a hemoglobin level under 7 g/dl were instructed to take the child to a health facility for follow-up care. Likewise, nonpregnant women and pregnant women were referred for follow-up care if their hemoglobin levels were below 7 g/dl and 9 g/dl, respectively.

Malaria testing: Malaria diagnostic tests, including a rapid diagnostic test (RDT) and a test using thick and thin blood smears, were given to eligible women and children in the 2014-15 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 as anemia testing. Results from the RDTs were used to diagnose malaria and guide treatment of parasitemic children during the survey. The parent or guardian of a child with a positive RDT was provided with written results, and the child was given artemisinin-based combination therapy (ACT) for treatment, according to the current malaria treatment guidelines. Women with a positive RDT were treated or referred to the nearest health center for treatment. Thin and thick blood smears were also collected from participants who agreed to malaria testing.

An informed consent form was read to the eligible person or parent or adult responsible for the child or unmarried young adult age 15-17. The malaria testing in the lab was not complete at the time this report was prepared.

HIV testing: Interviewers collected finger-prick dried blood pot (DBS) specimens for laboratory testing of HIV from women age 15-49 and men age 15-59 who consented to be tested. Also, DBS specimens were collected from children age 0-14 for whom consent was obtained from their parent or other responsible adult. The protocol for DBS collection and analysis was based on the anonymous linked protocol developed for The DHS Program. This protocol allows for merging of HIV test results with the background characteristics and other data collected with the individual questionnaires after removal of all information that could potentially identify an individual.

Interviewers explained the procedure, the confidentiality of the data, and the fact that the test results would not be made available to the respondent. If consent was given for HIV testing, five blood spots from the finger prick were collected on a filter paper card to which a barcode label unique to the respondent was affixed. A duplicate label was attached to the Biomarker Data Collection Form. A third copy of the same barcode was affixed to the DBS Transmittal Sheet to track the blood samples from the field to the laboratory.

Blood samples were dried overnight and packaged for storage the following morning. Samples were periodically collected from the field and transported to the National Reference Laboratory (NRL) in Kigali. Upon arrival at the NRL, each blood sample was logged into the CSPro HIV Test Tracking System database and stored at -20°C until tested.

The HIV testing protocol stipulated that blood could be tested only after questionnaire data collection had been completed, data had been verified and cleaned, and all unique identifiers other than the anonymous barcode number had been removed from the data file. As of this report, HIV testing had not been completed.

The testing algorithm calls for testing all samples on the first assay test, the Vironostika® HIV Ag/Ab (Biomérieux) enzyme-linked immunoassay (ELISA I). A random 10 percent of samples deemed negative to the ELISA I are subjected for a second ELISA (ELISA II): Murex HIV Ag/Ab combo (DiaSorin); the other 90 percent of negative samples are recorded as negative. All samples deemed positive to ELISA I are subjected to the ELISA II. Concordant positive and negative results on both ELISA I and ELISA II tests are recorded as positive and negative, respectively. If the first and second tests are discordant, a third confirmatory test, the HIV 2.2 western blot (DiaSorin), is administered. The final result is recorded as positive if the western blot confirms it to be positive and negative if the western blot confirms it to be negative. If the western blot results are indeterminate, the sample is tested by DNA/PCR to give the positive or negative as final results.

After HIV testing has been completed, the HIV test results for the 2014-15 RDHS will be entered into a spreadsheet with a barcode as the unique identifier. The barcode will be used to link the HIV test results with the data from the individual interviews. Data from the HIV results and linked demographic and health data will be published in the 2014-15 RDHS final report.

All households, whether they were part of the subsample for anthropometry, anemia, malaria, or HIV testing or not, were given a brochure explaining the causes and prevention of anemia, malaria, and HIV. Each respondent (whether providing consent or not) was given an informational brochure on HIV and a list of nearby sites providing HIV voluntary counseling and testing (VCT) services. Respondents who consented to the HIV testing were given a voucher for transportation and a meal if they wished to receive free VCT services.

2.4 PRETEST

A pretest was conducted from August 25, 2014 through September 20, 2014. Thirty-four participants (17 women and 17 men) participated in the four-week pretest training and fieldwork for the 2014-15 RDHS The majority of participants had worked in various RDHS activities previously. Training was conducted by trainers from NISR and MOH, with technical assistance from ICF International. UNICEF provided training on the Early Childhood Development module. Classroom instructions were provided during the first three weeks, and pretest field practice took place over five days in three rural villages and two urban villages. Following field practice, a debriefing session was held with the pretest field staff, and modifications to the questionnaires were made based on lessons drawn from the exercise.

2.5 TRAINING OF FIELD STAFF

The main training of the 2014-15 Rwanda DHS started on October 6, 2014 and ended on November 1, 2014. A total of 136 participants from all over the country were invited to participate in the training. They were selected based on merit. Seventy-five of the participants were female, and 61 were male. The training sessions were held in the main auditorium and were conducted by NISR trainers with support from ICF International. Training on biomarkers was provided by trainers from the NRL, with support from ICF International.

Participants were evaluated through in-class exercises, quizzes, and observations made during field practice. By the end of the main training, 17 teams were formed, consisting of 17 individuals selected to serve as team leaders, 17 as field editors, 17 as health technicians, 17 as male interviewers, and 51 as female interviewers. The team leaders received additional training on how to identify the selected households, different subsamples, data quality control procedures, and fieldwork coordination. The field editors received additional training on how to edit the questionnaires and on data quality control procedures.

2.6 FIELDWORK

Data collection was carried out by 17 field teams. Each team was provided a four-wheel drive truck with a driver. All questionnaires and blood specimen were transferred to the NISR office every 3-4 days by 10 supervisors from the NISR and NRL who also coordinated and supervised fieldwork activities. ICF International provided technical assistance during the entire 5-month data collection period, from November 9, 2014, through April 8, 2015.

2.7 DATA PROCESSING

The processing of the 2014-15 RDHS data began as soon as questionnaires were received from the field. Completed questionnaires were returned to NISR headquarters, where they were entered and edited by data processing personnel who were specially trained for this task and had also attended questionnaire training of field staff. ICF International provided technical assistance during the entire data processing period. Processing the data concurrent with data collection allowed for regular monitoring of team performance and data quality. Field check tables were generated regularly during data processing to check various data quality parameters. As a result, feedback was given on a regular basis, encouraging teams to continue in areas of high quality and to correct areas of needed improvement. Feedback was individually tailored to each team. Data entry, which included 100 percent double entry to minimize keying error, and data editing, were completed on April 26, 2015. Data cleaning and finalization were completed on May 15, 2015.

3 KEY FINDINGS

3.1 RESPONSE RATES

Table 1 shows response rates for the 2014-15 RDHS. A total of 12,793 households were selected for the survey, of which 12,717 were occupied. Of the occupied households, 12,699 were successfully interviewed, yielding a response rate of 99.9 percent.

In the interviewed households, 13,564 eligible women were identified for individual interviews; interviews were completed with 13,497 women, yielding a response rate of 99.5 percent. In the subsample of households selected for the male survey, 6,249 eligible men were identified and 6,217 were successfully interviewed, yielding a response rate of 99.5 percent. 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 2014-15

	Residence		
Result	Urban	Rural	Total
Household interviews			
Households selected	2,939	9,854	12,793
Households occupied	2,911	9,806	12,717
Households interviewed	2,895	9,804	12,699
Household response rate[1]	99.5	100.0	99.9
Interviews with women age 15-49			
Number of eligible women	3,446	10,118	13,564
Number of eligible women interviewed	3,427	10,070	13,497
Eligible women response rate[2]	99.4	99.5	99.5
Interviews with men age 15-59			
Number of eligible men	1,619	4,630	6,249
Number of eligible men interviewed	1,607	4,610	6,217
Eligible men response rate[2]	99.3	99.6	99.5

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

3.2 CHARACTERISTICS OF RESPONDENTS

Table 2 shows the weighted and unweighted numbers and the weighted percent distributions of women and men age 15-49 interviewed in the 2014-15 RDHS, by background characteristics. Fifty-six percent of women and 58 percent of men age 15-49 were under age 30, reflecting the young age structure of the population. The vast majority of respondents are Christians (about four in ten are Catholic). Thirty-eight percent of women and 48 percent of men have never been married. About half of respondents are married or living together with a partner (52 percent of women and 50 percent of men). However, women are more likely to report that they are divorced or separated (6 percent) than men (1 percent). Four percent of women report that they are widowed, as compared with less than 1 percent of men. A majority of respondents live in rural areas (81 percent of women and 79 percent of men).

With respect to educational status, 12 percent of women and 9 percent of men report that they have never attended school. Sixty-four percent of women and 65 percent of men received some primary education. Twenty-one percent of women and 22 percent of men attended secondary school. Three percent of women and 5 percent of men attended a level of education higher than secondary school.

Table 2 Background characteristics of respondents

Percent distribution of women and men age 15-49 by selected background characteristics, Rwanda 2014-15

Background characteristic	Women			Men		
	Weighted percent	Weighted number	Unweighted number	Weighted percent	Weighted number	Unweighted number
Age						
15-19	20.5	2,768	2,779	23.0	1,282	1,281
20-24	18.2	2,457	2,473	17.8	994	999
25-29	17.0	2,300	2,319	17.0	946	964
30-34	15.9	2,151	2,155	16.7	930	932
35-39	11.7	1,575	1,570	10.2	567	559
40-44	9.4	1,269	1,249	8.5	473	469
45-49	7.2	977	952	6.9	385	381
Religion						
Catholic	39.8	5,377	5,426	44.6	2,488	2,503
Protestant	45.1	6,084	5,971	38.3	2,135	2,107
Adventist	11.9	1,601	1,626	11.5	641	656
Muslim	2.0	267	303	3.0	168	180
Jehovah Witness	0.7	97	99	0.8	46	46
Other	0.1	9	8	0.0	1	1
No religion	0.3	46	49	1.7	94	88
Missing	0.1	16	15	0.1	5	4
Marital status						
Never married	37.8	5,100	5,205	48.2	2,691	2,736
Married	34.5	4,655	4,611	32.9	1,833	1,817
Living together	17.2	2,327	2,279	17.2	959	937
Divorced/separated	6.2	842	838	1.4	79	80
Widowed	4.2	572	564	0.3	16	15
Residence						
Urban	19.5	2,626	3,427	21.0	1,169	1,507
Rural	80.5	10,871	10,070	79.0	4,408	4,078
Region						
Kigali City	13.3	1,799	1,876	14.4	804	823
South	23.8	3,214	3,435	23.8	1,327	1,441
West	22.0	2,965	3,060	21.2	1,182	1,209
North	16.4	2,211	2,170	15.3	851	830
East	24.5	3,308	2,956	25.3	1,413	1,282
Education						
No education	12.3	1,665	1,600	8.9	496	487
Primary	64.3	8,678	8,509	65.2	3,636	3,565
Secondary	20.7	2,790	2,939	21.5	1,197	1,245
More than secondary	2.7	363	449	4.5	248	288
Wealth quintile						
Lowest	19.0	2,561	2,523	14.7	819	807
Second	19.5	2,631	2,516	17.8	991	956
Middle	19.2	2,597	2,461	19.7	1,097	1,034
Fourth	19.5	2,634	2,523	22.1	1,234	1,188
Highest	22.8	3,073	3,474	25.7	1,436	1,600
Total 15-49	100.0	13,497	13,497	100.0	5,577	5,585
Men 50-59	na	na	na	na	640	632
Total 15-59	na	na	na	na	6,217	6,217

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

3.3 FERTILITY

To generate data on fertility, all women who were interviewed were asked to report the total number of sons and daughters to whom they had ever given birth. To ensure that all information was reported, women were asked separately about children still living at home, those living elsewhere, and those who had died. A complete birth history was then obtained, including information on the sex, date of birth, and survival status of each child; age at death for children who had died was also recorded.

Table 3 shows age-specific fertility rates among women by five-year age groups for the three-year period preceding the survey. Age-specific and total fertility rates were calculated directly from the birth history data. The sum of age-specific fertility rates (known as the total fertility rate, or TFR) is a summary measure of the level of fertility. It can be interpreted as the number of children a woman would have by the end of her childbearing years if she were to pass through those years bearing children at the current observed age-specific rates. If fertility were to remain constant at current levels, a Rwandan woman would bear an average of 4.2 children in her lifetime. As shown in Figure 1, the TFR continued to decline after the 2005 RDHS; however, the increment of decline is smaller between 2010 and 2014-15 than in the previous periods. Fertility is higher among rural women than among urban women; on average, rural women will give birth to 0.7 more children during their reproductive years than urban women (4.3 and 3.6, respectively).

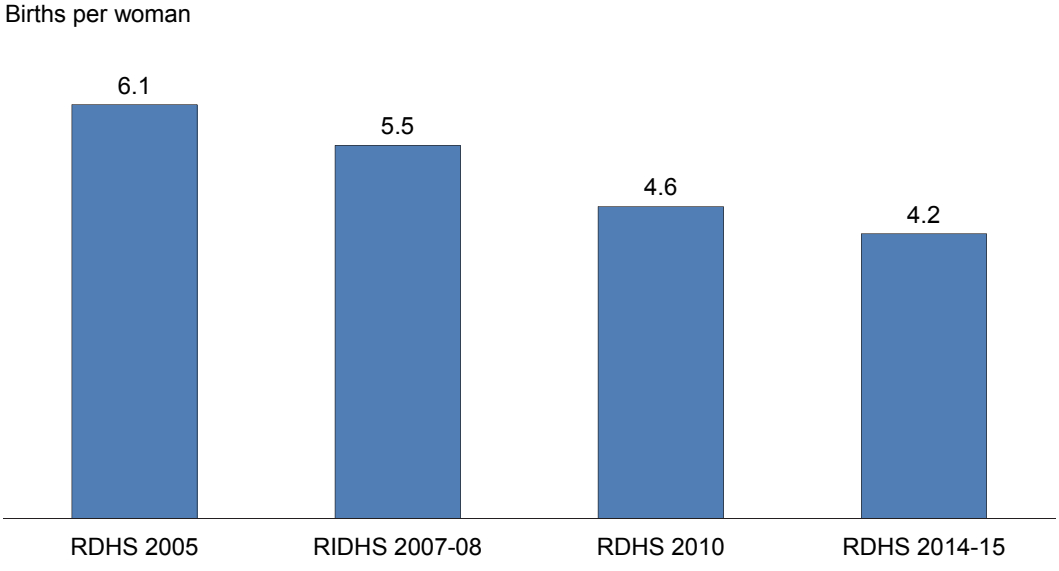
Table 3 Current Fertility

Age-specific and total fertility rates, the general fertility rate, and the crude birth rate for the three years preceding the survey, by residence, Rwanda 2014-15

	Residence		
Age group	Urban	Rural	Total
15-19	41	46	45
20-24	143	190	179
25-29	185	220	213
30-34	185	187	186
35-39	107	139	134
40-44	52	67	65
45-49	1	13	12
TFR (15-49)	3.6	4.3	4.2
GFR	124	146	142
CBR	34.3	32.3	32.6

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 **Trends in total fertility rate, 2005 to 2014-15**



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3.4 TEENAGE PREGNANCY AND MOTHERHOOD

The issue of adolescent fertility is important on both health and social grounds. Children born to very young mothers are at increased risk of sickness and death. Teenage mothers are more likely to experience adverse pregnancy outcomes and are more constrained in their ability to pursue educational opportunities than young women who delay childbearing.

Table 4 shows the percent distribution of women age 15-19 who have given birth or were pregnant with their first child at the time of the survey, according to background characteristics. Overall, 7 percent of women age 15-19 have begun childbearing: 6 percent have had a live birth, and 2 percent were pregnant at the time of the interview. The proportion of teenagers who have begun childbearing rises rapidly with age, from 1 percent at age 15 to 21 percent at age 19. Teenagers with no education and those in the lowest wealth quintile tend to start childbearing earlier than other teenagers. Teenagers in Kigali City and East province are about twice as likely to start childbearing earlier than their counterparts.

Table 4 Teenage pregnancy and motherhood

Percentage of women age 15-19 who have had a live birth or who are pregnant with their first child, and percentage who have begun childbearing, by background characteristics, Rwanda 2014-15

Background characteristic	Percentage of women age 15-19 who:		Percentage who have begun childbearing	Number of women
	Have had a live birth	Are pregnant with first child		
Age				
15	0.9	0.1	1.0	666
16	1.7	0.3	2.0	559
17	2.9	1.4	4.3	518
18	8.4	3.1	11.5	557
19	15.9	4.9	20.8	468
Residence				
Urban	5.6	2.3	7.9	564
Rural	5.4	1.7	7.1	2,204
Region				
Kigali City	6.5	3.7	10.2	357
South	4.1	1.5	5.6	665
West	4.8	0.9	5.8	592
North	4.0	0.9	4.9	525
East	8.1	2.6	10.7	628
Education				
No education	(12.7)	(0.0)	(12.7)	30
Primary	6.9	2.3	9.2	1,632
Secondary +	3.2	1.1	4.3	1,106
Wealth quintile				
Lowest	9.0	2.1	11.1	433
Second	6.1	2.0	8.2	509
Middle	5.4	1.9	7.3	501
Fourth	4.0	1.4	5.5	599
Highest	4.1	1.7	5.8	726
Total	5.5	1.8	7.3	2,768

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

3.5 FERTILITY PREFERENCES

Information on fertility preferences is used to assess the potential demand for family planning services for the purposes of spacing or limiting future childbearing. To elicit information on fertility preferences, several questions were asked of currently married women (pregnant or not) regarding whether they want to have another child and, if so, how soon.

Table 5 shows that 10 percent of women want to have another child soon (within the next two years) and 39 percent want to have another child later (in two or more years). Forty-seven percent of women want no more children.

Fertility preferences are closely related to number of living children. Nine of ten women with no living children (89 percent) want a child soon, as compared with only 1 percent of women with six or more children. In general, the more children a woman has, the higher the likelihood that she does not want another child.

Table 5 Fertility preferences by number of living children

Percent distribution of currently married women age 15-49 by desire for children, according to number of living children, Rwanda 2014-15

	Number of living children[1]							
Desire for children	0	1	2	3	4	5	6+	Total
Have another soon[2]	89.0	17.9	10.3	6.2	4.6	1.8	1.2	9.7
Have another later[3]	3.7	78.0	64.1	37.1	17.0	10.7	4.8	39.3
Have another, undecided when	0.0	0.4	0.3	0.1	0.1	0.0	0.1	0.2
Undecided	0.8	0.3	1.3	2.3	2.0	0.8	1.1	1.3
Want no more	0.7	2.7	22.9	52.4	73.3	82.5	88.7	47.2
Sterilized[4]	0.6	0.2	0.5	1.4	1.9	3.1	3.1	1.5
Declare infecund	5.2	0.4	0.6	0.5	0.9	0.4	0.9	0.7
Missing	0.0	0.1	0.1	0.1	0.2	0.6	0.2	0.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	158	1,224	1,564	1,257	1,126	746	907	6,982

Note: Total includes 14 missing cases.
[1] The number of living children includes current pregnancy.
[2] Wants next birth within two years
[3] Wants to delay next birth for two or more years
[4] Includes both female and male sterilization

3.6 FAMILY PLANNING

Family planning refers to a conscious effort by a couple to limit or space the number of children they have through the use of contraceptive methods. Contraceptive methods are classified as modern or traditional methods. Modern methods include female sterilization, male sterilization, the pill, the intrauterine device (IUD), injectables, implants, male condoms, female condoms, lactational amenorrhea method (LAM), and standard days method (SDM). Methods such as rhythm and withdrawal are defined as traditional.

Table 6 shows the percent distribution of currently married women and sexually active unmarried women by the contraceptive method they currently use. Overall, 53 percent of currently married women are using a method of family planning, and 48 percent use a modern method; only 6 percent of currently married women are using a traditional method. Among currently married women, the most popular methods are injectables (24 percent), the pill and implants (8 percent each), and the male condom (4 percent). The contraceptive prevalence rate (CPR) among married women increases with age, reaching a peak at age 35-39 (58 percent) before declining to 42 percent among women age 45-49. Contraceptive use increases with increasing education and, in general, increasing wealth. Women with living children are more likely than women without living children to use contraceptives.

Among sexually active unmarried women, 36 percent are currently using a contraceptive method; most of them (35 percent) are using a modern method. Similar to married women, the most commonly used method among sexually active unmarried women is injectables (16 percent).

A comparison of results from the previous RDHS surveys reveals that the CPR among married women in Rwanda has steadily increased.

Table 6 Current use of contraception by background characteristics

Percent distribution of currently married women and sexually active unmarried women age 15-49, by contraceptive method currently used, according to background characteristics, Rwanda 2014-15

Background characteristic	Any method	Any modern method	Modern method: Female sterilization	Male sterilization	Pill	IUD	Injectables	Implants	Male condom	Female condom	LAM	SDM	Any traditional method	Traditional method: Rhythm	Withdrawal	Not currently using	Total	Number of women
CURRENTLY MARRIED WOMEN																		
Age																		
15-19	35.3	32.8	0.0	0.0	4.9	0.0	18.7	6.0	3.2	0.0	0.0	0.0	2.5	1.2	1.2	64.7	100.0	85
20-24	47.4	44.3	0.0	0.0	8.2	0.4	27.7	4.9	2.7	0.0	0.3	0.1	3.1	0.7	2.3	52.6	100.0	883
25-29	54.7	50.9	0.1	0.1	10.1	0.8	28.0	7.6	3.2	0.0	0.2	0.9	3.8	1.7	2.1	45.3	100.0	1,577
30-34	54.9	51.1	0.3	0.2	9.1	1.2	26.7	8.9	3.9	0.0	0.2	0.6	3.8	1.6	2.1	45.1	100.0	1,693
35-39	57.7	51.0	2.4	0.3	9.0	1.8	22.6	8.4	4.8	0.0	0.2	1.4	6.7	3.0	3.7	42.3	100.0	1,240
40-44	56.9	46.6	3.9	0.6	7.6	1.2	19.0	8.4	4.5	0.0	0.2	1.2	10.3	5.7	4.6	43.1	100.0	896
45-49	41.6	29.5	2.5	0.2	2.5	1.2	11.9	6.4	4.0	0.0	0.0	0.8	12.1	5.9	6.2	58.4	100.0	607
Residence																		
Urban	56.5	51.1	2.0	0.1	9.7	3.5	18.0	10.6	5.2	0.1	0.3	1.7	5.4	2.9	2.5	43.5	100.0	1,194
Rural	52.6	46.7	1.1	0.3	8.1	0.6	25.3	7.1	3.5	0.0	0.2	0.7	5.8	2.6	3.2	47.4	100.0	5,788
Region																		
Kigali City	54.5	49.7	1.6	0.0	9.8	3.8	16.6	10.6	4.8	0.1	0.6	1.9	4.8	2.3	2.5	45.5	100.0	842
South	52.7	48.2	0.9	0.3	8.3	1.3	25.5	8.4	3.1	0.0	0.0	0.6	4.5	2.2	2.4	47.3	100.0	1,606
West	47.1	41.2	2.0	0.1	5.6	0.3	22.7	6.2	3.3	0.0	0.3	0.7	5.9	3.1	2.8	52.9	100.0	1,542
North	60.8	55.0	1.0	0.2	9.3	0.7	29.5	8.9	3.9	0.0	0.3	1.2	5.8	2.7	3.1	39.2	100.0	1,130
East	53.6	46.5	0.8	0.4	9.5	0.7	24.0	6.3	4.4	0.0	0.0	0.5	7.1	2.9	4.2	46.4	100.0	1,863
Education																		
No education	48.1	40.7	1.1	0.5	5.4	0.4	23.8	6.2	3.1	0.0	0.1	0.2	7.3	3.8	3.6	51.9	100.0	1,154
Primary	54.2	48.8	1.3	0.2	8.8	0.8	25.5	7.6	3.7	0.0	0.2	0.6	5.4	2.4	3.1	45.8	100.0	4,921
Secondary +	54.7	49.1	1.1	0.3	9.4	3.6	16.3	9.9	5.1	0.1	0.4	2.8	5.6	3.0	2.6	45.3	100.0	907
Wealth quintile																		
Lowest	48.4	44.9	0.6	0.2	6.0	0.1	29.0	6.3	2.3	0.0	0.2	0.2	3.5	1.5	2.0	51.6	100.0	1,313
Second	50.0	45.8	0.8	0.2	8.5	0.2	25.6	6.7	3.2	0.0	0.2	0.4	4.2	1.9	2.3	50.0	100.0	1,472
Middle	54.6	48.1	1.0	0.3	8.0	0.6	25.3	7.8	4.4	0.0	0.1	0.5	6.5	2.9	3.6	45.4	100.0	1,453
Fourth	56.4	48.7	0.9	0.4	9.2	0.8	24.5	7.4	3.8	0.0	0.2	1.4	7.7	3.6	4.1	43.6	100.0	1,380
Highest	56.8	50.0	2.8	0.0	10.0	3.8	15.7	10.2	5.4	0.1	0.2	1.8	6.9	3.5	3.4	43.2	100.0	1,365
Number of living children																		
0	1.8	1.8	0.3	0.0	0.2	0.3	0.2	0.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	98.2	100.0	358
1-2	54.3	50.4	0.3	0.1	10.2	0.8	27.2	7.5	3.2	0.0	0.2	0.9	4.0	1.6	2.4	45.7	100.0	2,757
3-4	58.1	52.8	1.6	0.1	9.4	1.5	26.0	8.6	4.5	0.0	0.2	0.9	5.3	2.6	2.7	41.9	100.0	2,302
5+	56.0	45.1	2.6	0.6	5.4	1.2	21.0	8.5	4.7	0.0	0.2	1.0	10.9	5.3	5.6	44.0	100.0	1,564
Total	53.2	47.5	1.2	0.2	8.4	1.1	24.0	7.7	3.8	0.0	0.2	0.8	5.8	2.7	3.1	46.8	100.0	6,982
SEXUALLY ACTIVE UNMARRIED WOMEN																		
Residence																		
Urban	38.2	37.3	0.9	na	4.0	1.8	14.6	10.5	5.3	0.0	0.0	0.2	0.9	0.9	0.0	61.8	100.0	87
Rural	34.5	34.0	0.0	na	4.1	0.4	16.5	7.4	5.6	0.0	0.0	0.0	0.5	0.0	0.5	65.5	100.0	227
Total	35.6	34.9	0.3	na	4.0	0.8	16.0	8.3	5.6	0.0	0.0	0.0	0.6	0.3	0.4	64.4	100.0	313

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

3.7 NEED AND DEMAND FOR FAMILY PLANNING

The proportion of women who want to stop childbearing or who want to space their next birth is a crude measure of the extent of the need for family planning, given that not all of these women are exposed to the risk of pregnancy and some may already be using contraception. This section discusses the extent of need and the potential demand for family planning services. Women who want to postpone their next birth for two or more years or who want to stop childbearing altogether but are not using a contraceptive method are said to have an unmet need for family planning. Pregnant women are considered to have an unmet need for spacing or limiting if their pregnancy was mistimed or unwanted. Similarly, amenorrheic women are categorized as having an unmet need if their last birth was mistimed or unwanted. Women who are currently using a family

planning method are said to have a met need for family planning. Total demand for family planning services comprises those who fall in the met need and unmet need categories.

Table 7 presents data on unmet need, met need, and total demand for family planning among currently married women and sexually active unmarried women. Figure 2 presents trends in unmet need, modern contraceptive use, and percentage of total demand satisfied with modern methods among currently married women. These indicators help evaluate the extent to which family planning programs in Rwanda meet the demand for services. The definition of unmet need for family planning has been revised so that data on levels of unmet need are comparable over time and across surveys. The unmet need estimates in Figure 2 for the 2000, 2005, and 2010 RDHS surveys have been recalculated using the revised definition of unmet need but differ only slightly from the numbers published in the previous final reports.

Table 7 shows that 19 percent of currently married women have an unmet need for family planning. Fifty-three percent of married women are currently using a contraceptive method. Therefore, about seven in ten currently married women (72 percent) have a demand for family planning. At present, 74 percent of the potential demand for family planning is being met. Thus, if all married women who said they want to space or limit their children were to use family planning methods, the CPR would increase from 53 percent to 72 percent.

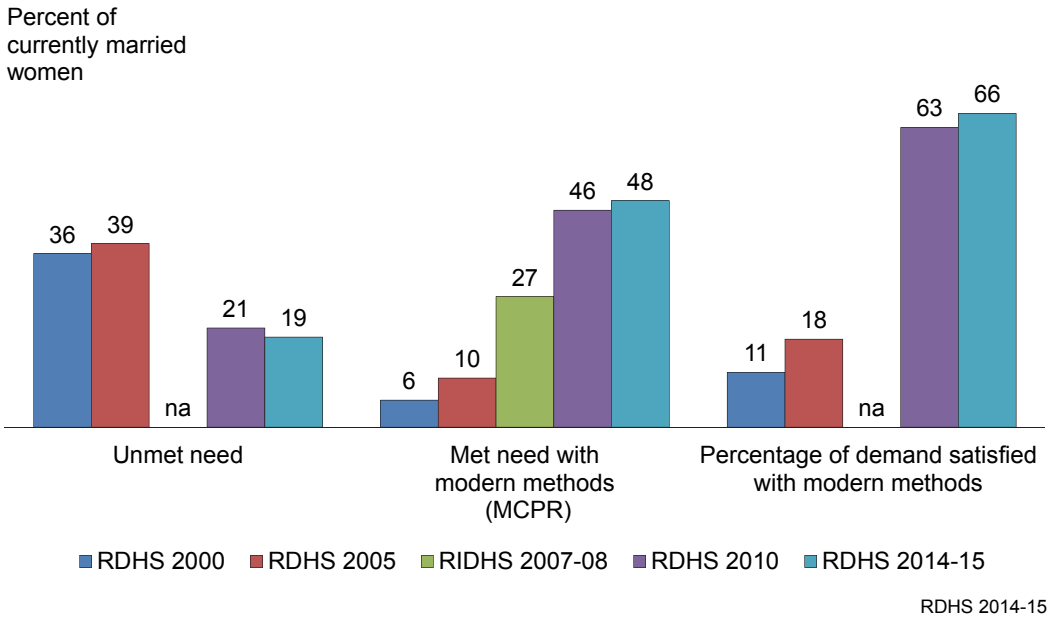
Table 7 Need and demand for family planning among currently married women

Percentage of currently married women age 15-49 with unmet need for family planning, percentage with met need for family planning, percentage with met need for family planning who are using modern methods, percentage with demand for family planning, percentage of the demand for family planning that is satisfied, and percentage of the demand for family planning that is satisfied with modern methods, by background characteristics, Rwanda 2014-15

Background characteristic	Unmet need	Met need for family planning (currently using)		Total demand for family planning[3]	Percentage of demand satisfied[1]		Number of women
		All methods	Modern methods[2]		All methods	Modern methods[2]	
Age							
15-19	3.6	35.3	32.8	38.9	90.7	84.3	85
20-24	14.8	47.4	44.3	62.2	76.1	71.2	883
25-29	18.1	54.7	50.9	72.8	75.1	69.9	1,577
30-34	21.9	54.9	51.1	76.8	71.5	66.6	1,693
35-39	22.0	57.7	51.0	79.6	72.4	64.0	1,240
40-44	19.7	56.9	46.6	76.7	74.3	60.8	896
45-49	13.8	41.6	29.5	55.3	75.1	53.2	607
Residence							
Urban	17.3	56.5	51.1	73.8	76.6	69.3	1,194
Rural	19.3	52.6	46.7	71.9	73.2	65.0	5,788
Region							
Kigali City	17.7	54.5	49.7	72.2	75.5	68.9	842
South	19.2	52.7	48.2	71.9	73.3	67.0	1,606
West	22.8	47.1	41.2	69.9	67.4	58.9	1,542
North	14.9	60.8	55.0	75.8	80.3	72.6	1,130
East	18.6	53.6	46.5	72.2	74.3	64.5	1,863
Education							
No education	22.7	48.1	40.7	70.8	67.9	57.5	1,154
Primary	19.0	54.2	48.8	73.2	74.1	66.7	4,921
Secondary +	14.0	54.7	49.1	68.6	79.6	71.5	907
Wealth quintile							
Lowest	22.2	48.4	44.9	70.6	68.6	63.6	1,313
Second	21.3	50.0	45.8	71.3	70.1	64.2	1,472
Middle	17.5	54.6	48.1	72.1	75.7	66.7	1,453
Fourth	17.6	56.4	48.7	74.0	76.2	65.8	1,380
Highest	16.1	56.8	50.0	73.0	77.9	68.5	1,365
Total	18.9	53.2	47.5	72.2	73.8	65.8	6,982

Note: Numbers in this table correspond to the revised definition of unmet need described in Bradley et al., 2012.
[1] Percentage of demand satisfied is met need divided by total demand.
[2] Modern methods include female sterilization, male sterilization, IUD, implants, injectables, pill, male condom, female condom, standard days method (SDM), and lactational amenorrhea method (LAM).
[3] Total demand is the sum of unmet need and met need (with all methods).

Figure 2 **Trends in unmet need, met need with modern methods, and percentage of demand satisfied with modern methods, 2000 to 2014-15**



RDHS 2014-15

3.8 EARLY CHILDHOOD MORTALITY

Infant and child mortality rates are basic indicators of a country's socioeconomic situation and quality of life (UNDP, 2007). Estimates of childhood mortality are based on information collected in the birth history section of the questionnaire administered to women, which includes questions about women's aggregate childbearing experience (i.e., the number of sons and daughters who live with their mother, the number who live elsewhere, and the number who have died). Table 8 presents estimates for three successive five-year periods prior to the 2014-15 RDHS. The rates are estimated directly from the information in the birth history on a child's birth date, survivorship status, and age at death for children who died; and are expressed per 1,000 live births. This information is used to directly estimate the following five mortality rates:

Neonatal mortality: the probability of dying within the first month of life

Postneonatal mortality: the difference between infant and neonatal mortality

Infant mortality: the probability of dying before the first birthday

Child mortality: the probability of dying between the first and the fifth birthday

Under 5 mortality: the probability of dying between birth and the fifth birthday

As shown in Table 8, during the five years immediately preceding the survey, the infant mortality rate was 32 deaths per 1,000 live births, while the under-5 mortality rate was 50 deaths per 1,000 live births. Sixty-four percent of all deaths among children under age 5 in Rwanda take place before a child's first birthday, with 40 percent occurring during the first month of life. The 2014-15 RDHS documents a pattern of decreasing under-5 mortality during the 15 years prior to the survey.

Table 8 Early childhood mortality rates

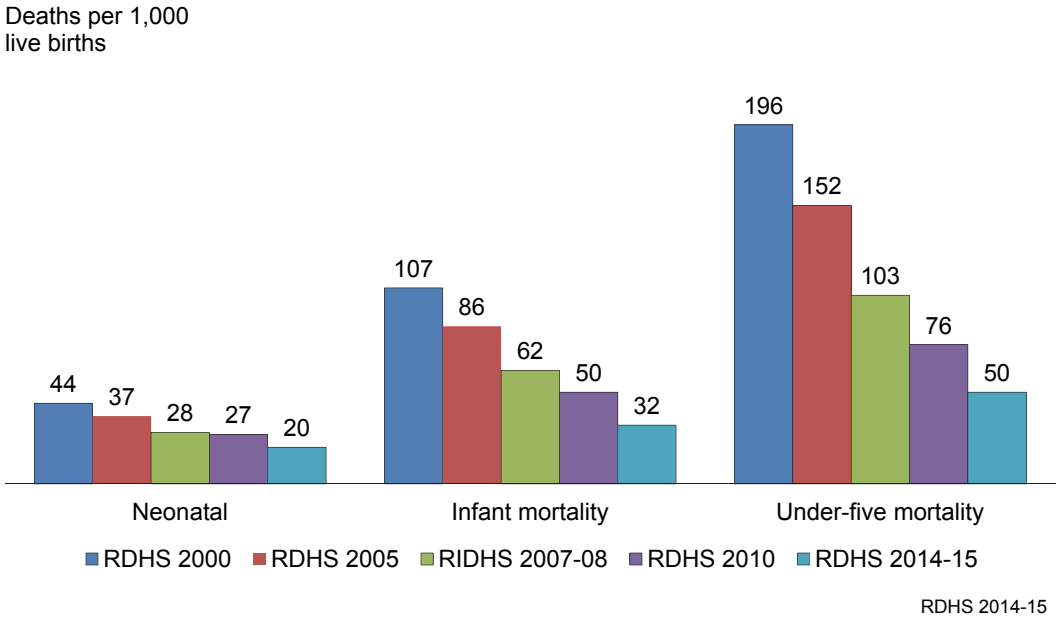
Neonatal, postneonatal, infant, child and under-5 mortality rates for five year periods preceding the survey, Rwanda 2014-15

	Neonatal mortality (NN)	Postneonatal mortality (PNN)[1]	Infant mortality ($_1q_0$)	Child mortality ($_4q_1$)	Under-5 mortality ($_5q_0$)
Period preceding survey					
0-4	20	13	32	19	50
5-9	25	26	51	35	84
10-14	37	46	83	73	150

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

Figure 3 presents trends in childhood mortality, from 2000 to 2014-15, according to RDHS surveys. There has been consistent and dramatic decline in mortality rates since 2000.

Figure 3 **Trends in childhood mortality, 2000 to 2014-15**



RDHS 2014-15

3.9 MATERNAL CARE

Proper care during pregnancy and delivery is important for the health of both the mother and the baby and is the fifth Millennium Development Goal (MDG). In the 2014-15 RDHS, women who had given birth in the five years preceding the survey were asked a number of questions about maternal care. Mothers were asked whether they had obtained antenatal care during the pregnancy for their most recent live birth in the five years preceding the survey and whether they had received tetanus toxoid injections while pregnant. For each live birth during the same period, mothers were asked what type of assistance they received at the time of delivery. Finally, women who had a live birth in the two years before the survey were asked if they received a postnatal checkup within two days of delivery. Table 9 summarizes information on the coverage of these maternal health services.

3.9.1 Antenatal Care

Antenatal care (ANC) from a skilled provider is important to monitor pregnancy and reduce morbidity and mortality risks for the mother and child during pregnancy, at delivery, and during the postnatal period (within 42 days after delivery). The 2014-15 RDHS results show that practically all women (99 percent) who gave birth in the five years preceding the survey received antenatal care from a skilled provider at least once for their last birth. Forty-four percent of women had four or more ANC visits. Women living in the South province and those completing secondary education or higher were more likely than other women to have had four or more ANC visits. The variations of having had four or more ANC visits are quite small between urban and rural, and across wealth index, quintiles. As shown in Figure 4, the percentage of women receiving antenatal care from a skilled provider has increased slightly between 2000 (92 percent) and 2014-15 (99 percent).

Table 9 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, percentage with four or more ANC visits for the last live birth, and percentage whose last live birth was protected against neonatal tetanus; among all live births in the five years before the survey, percentage delivered by a skilled provider and percentage delivered in a health facility; and among women age 15-49 who had a live birth in the two years preceding the survey, percentage who received a postnatal checkup in the first two days after the last live birth, by background characteristics, Rwanda 2014-15

	Women who had a live birth in the five years preceding the survey				Live births in the five years preceding the survey			Women who had a live birth in the two years preceding the survey	
Background characteristic	Percentage with antenatal care from a skilled provider[1]	Percentage with 4+ ANC visits	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	Percentage of women who had a postnatal checkup in the first two days after birth	Number of women
Mother's age at birth									
<20	99.8	39.6	63.5	429	94.5	94.5	564	42.3	235
20-34	99.0	44.9	82.9	4,523	91.4	91.4	6,130	41.8	2,518
35-49	98.6	41.7	87.5	1,109	85.7	85.6	1,310	40.5	594
Residence									
Urban	98.9	44.3	82.5	1,025	96.9	96.8	1,347	46.2	581
Rural	99.0	43.9	82.4	5,035	89.4	89.4	6,657	40.6	2,767
Region									
Kigali City	98.5	39.6	83.9	723	94.5	94.2	944	44.5	414
South	99.1	50.7	85.1	1,406	90.1	89.9	1,837	47.4	756
West	99.0	44.8	80.3	1,365	90.5	90.7	1,920	38.2	789
North	99.3	47.1	81.4	885	92.2	92.4	1,108	41.6	464
East	98.9	37.8	81.7	1,682	88.9	88.8	2,196	38.4	924
Mother's education									
No education	98.2	37.3	84.0	881	82.5	82.1	1,196	32.1	452
Primary	99.1	44.1	82.8	4,360	91.2	91.3	5,800	41.6	2,402
Secondary +	99.2	50.1	78.8	819	97.2	97.0	1,007	50.3	494
Wealth quintile									
Lowest	98.6	41.3	81.7	1,432	84.2	84.1	1,936	38.7	812
Second	98.9	43.4	81.1	1,306	90.8	90.8	1,737	37.7	704
Middle	99.1	45.9	81.8	1,195	91.0	90.9	1,579	41.7	641
Fourth	99.6	45.6	83.7	1,072	92.8	92.9	1,384	43.2	590
Highest	98.8	44.4	84.4	1,055	97.2	97.1	1,367	48.3	601
Total	99.0	43.9	82.4	6,060	90.7	90.7	8,004	41.6	3,348

[1] Skilled provider includes doctor, nurse/medical assistant, 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 10 years of the last live birth), or five or more injections at any time prior to the last live birth

3.9.2 Tetanus Toxoid

Tetanus toxoid injections are given during pregnancy to prevent neonatal tetanus, a major cause of early infant death in many developing countries, often due to failure to observe hygienic procedures during delivery. Table 9 shows that 82 percent of women received sufficient doses of tetanus toxoid to protect their last birth against neonatal tetanus. The percentage of women whose last birth was protected from tetanus increases with age and wealth. The proportion of women whose last live birth was protected against tetanus increased from that reported in the 2010 RDHS (79 percent).

3.9.3 Delivery Care

Access to 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 baby (Van Lerberghe and De Brouwere, 2001; WHO, 2006). Ninety-one percent of women reported that their last live birth in the five years preceding the survey was delivered by a skilled provider (Table 9). The same proportion of births was delivered in a health facility. The proportion of live births delivered by a skilled provider and the proportion delivered in a health facility are much greater than the proportions reported in the 2010 RDHS (Figure 4).

Ninety-seven percent of births to urban mothers were assisted by a skilled provider and the same percentage was delivered in a health facility, as compared with 89 percent each, respectively, of births to rural women.

Mothers' educational status is highly correlated with whether their delivery is assisted by a skilled provider and whether the birth is delivered in a health facility. For example, 83 percent of births to mothers with no education were assisted by a skilled provider, as compared with 91 percent of births to those with primary education and 97 percent of births to those with secondary education or higher. A similar association between delivery in a health facility and the level of mother's education is observed. Mothers' wealth status is also positively associated with a birth being delivered by a skilled provider and in a health facility.

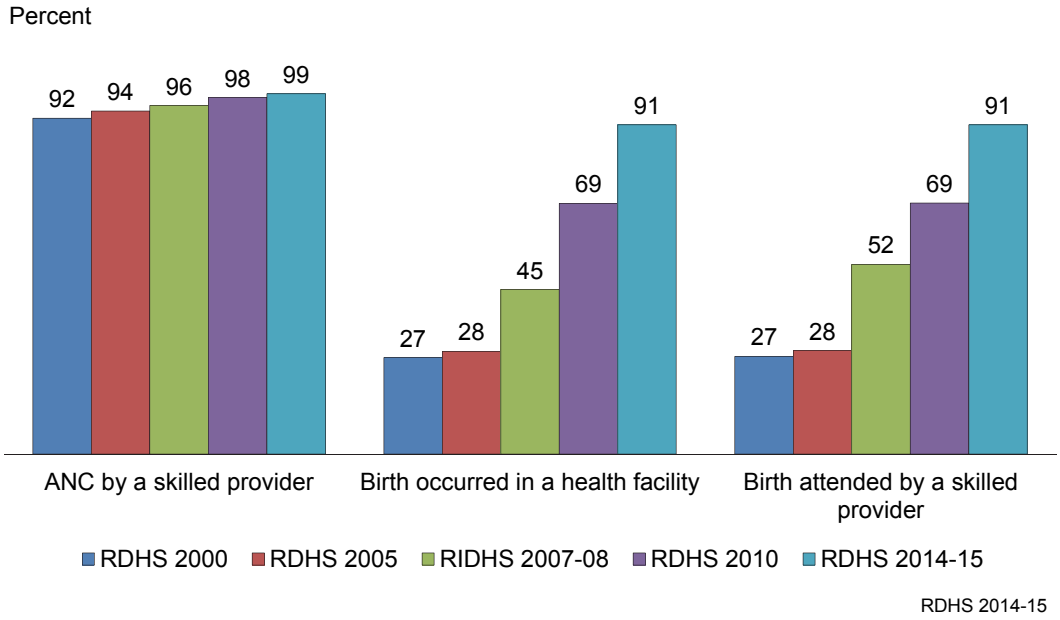
3.9.4 Postnatal Care for the Mother

A large proportion of maternal and neonatal deaths occur during the first 48 hours after delivery. Thus, prompt postnatal care (PNC) for both the mother and the child is important to treat any complications arising from the delivery, as well as to provide the mother with important information on how to care for herself and her child. Safe motherhood programs recommend that all women receive a check of their health within two days after delivery.

To assess the extent of postnatal care utilization, respondents were asked, for their last birth in the two years preceding the survey, whether they had received a checkup after delivery and the timing of the first checkup. As shown in Table 9, 42 percent of women reported having received a PNC checkup in the first two days after birth.

The proportion of women receiving a postnatal checkup within two days of delivery is higher in urban areas than in rural areas and increases with increasing education and wealth.

Figure 4 **Trends in maternal health care, 2000 to 2014-15**



3.10 CHILD HEALTH AND NUTRITION

The 2014-15 RDHS collected data on a number of key child health indicators, including vaccinations of young children, nutritional status as assessed by anthropometry, infant feeding practices, and treatment practices when a child is ill.

3.10.1 Vaccination of Children

Historically, in DHS surveys, a child is considered to have received all basic vaccinations if he or she has received a BCG vaccination against tuberculosis; three doses of DPT vaccine to prevent diphtheria, pertussis, and tetanus; at least three doses of polio vaccine; and one dose of measles vaccine. These vaccinations should be received during the first year of life. The 2014-15 RDHS collected information on the coverage of these vaccinations among all children born in the five years preceding the survey. Vaccines against Haemophilus influenza type B and hepatitis B were introduced in Rwanda in February 2002 in combination with DPT and called pentavalent. As such, the 2014-15 RDHS reports on pentavalent vaccine coverage as opposed to DPT coverage.

Rwanda has established a schedule for the administration of all basic childhood vaccines. BCG should be given shortly after birth. Polio vaccine should be given at birth and at approximately age 6, 10, and 14 weeks. Pentavalent vaccine should also be given at approximately age 6, 10, and 14 weeks. Measles vaccine should be given at or soon after the child reaches age 9 months. Each child who is vaccinated receives an immunization card on which all of the vaccines received are recorded. It is also recommended that the immunization card be given to the parents or guardians.

The information on vaccinations was gathered from two sources: (1) where immunization cards were available, the interviewer copied the information directly onto the questionnaire; and (2) where cards were not available because the mother never had one, or the card was unavailable at the time of the survey, or the mother had lost the card, mothers were asked to recall whether or not the child had received each of the

vaccines covered by the survey. The results presented here are based on both immunization information and, for those children without a booklet or card, information provided by the mother.

Table 10 pertains to children age 12-23 months, the age by which children should have received all basic vaccinations. Ninety-four percent of these children have an immunization card that was seen by the interviewer. Overall, 93 percent of children have received all basic vaccinations. Basic vaccination coverage has increased modestly since the 2010 RDHS estimate (90 percent). Ninety-nine percent of children have received BCG, 99 percent have received the first dose of pentavalent vaccine, and 99 percent have received polio 1. Ninety-eight percent and 97 percent of children have received the third dose of the required three doses of the pentavalent and polio vaccines, respectively. Coverage of vaccination against measles is 95 percent. Less than 1 percent of children in Rwanda have not received any vaccinations; this is comparable to the 2010 RDHS, in which a similar proportion of children were reported to have not received any vaccinations.

Table 10 Vaccinations by background characteristics

Percentage of children age 12-23 months who received specific vaccines at any time before the survey (according to a vaccination card or the mother's report), and percentage with a vaccination card seen, by background characteristics, Rwanda 2014-15

Background characteristic	BCG	Pentavalent[1] 1	Pentavalent[1] 2	Pentavalent[1] 3	Polio 0[2]	Polio 1	Polio 2	Polio 3	Measles	All basic vaccinations[3]	No vaccinations	Percentage with a vaccination card seen	Number of children
Sex													
Male	99.1	99.5	99.0	98.5	90.9	99.5	98.9	97.2	95.7	93.0	0.3	93.9	814
Female	98.6	98.6	98.6	97.8	91.6	98.7	98.4	96.0	94.7	92.3	1.1	94.1	766
Residence													
Urban	99.2	98.7	98.7	98.7	97.5	99.3	98.5	96.7	96.4	93.4	0.3	93.5	278
Rural	98.8	99.2	98.8	98.0	89.9	99.1	98.7	96.6	94.9	92.5	0.8	94.0	1,303
Region													
Kigali City	99.6	99.1	99.1	99.1	97.7	99.6	99.6	98.7	97.4	96.1	0.4	93.7	204
South	98.8	98.6	98.6	98.6	87.5	98.5	98.5	98.2	94.9	94.5	1.2	95.4	331
West	98.8	99.1	98.5	96.3	88.5	99.1	98.6	95.6	93.1	89.8	0.3	94.9	372
North	100.0	100.0	100.0	100.0	98.2	100.0	99.2	97.5	97.4	94.8	0.0	94.9	220
East	98.0	98.9	98.5	98.0	90.0	98.9	98.1	95.0	95.1	91.0	1.1	91.8	453
Education													
No education	97.1	98.0	97.6	95.4	89.3	98.0	97.1	93.4	89.7	85.9	2.0	91.0	233
Primary	99.0	99.3	99.0	98.5	91.1	99.2	98.7	96.8	95.7	93.0	0.5	94.4	1,124
Secondary +	100.0	99.1	99.1	99.1	94.3	100.0	100.0	99.0	98.7	97.9	0.0	95.0	223
Wealth quintile													
Lowest	97.2	98.1	97.0	95.7	86.0	98.1	96.7	93.5	91.3	86.7	1.5	92.6	384
Second	99.6	99.6	99.6	98.2	88.8	99.6	99.3	97.4	94.9	93.4	0.4	94.4	316
Middle	98.8	99.1	99.1	98.7	94.2	98.7	98.7	97.3	95.1	93.0	0.9	94.4	323
Fourth	100.0	100.0	100.0	100.0	92.1	99.8	99.5	97.7	99.3	97.0	0.0	95.6	273
Highest	99.3	98.9	98.9	98.9	97.0	99.7	99.5	98.2	97.0	95.2	0.3	93.2	285
Total	98.9	99.1	98.8	98.1	91.3	99.1	98.6	96.6	95.2	92.6	0.7	94.0	1,581

[1] Pentavalent is DPT-HepB-Hib.
[2] Polio 0 is the polio vaccination given at birth.
[3] BCG, measles and three doses each of pentavalent and polio vaccine.

Basic vaccination coverage does not differ significantly by the sex of the child or by urban or rural residence. However, larger differences are observed at the provincial level; the percentage of children with full vaccination coverage ranges from a high of 96 percent in Kigali to a low of 90 percent in the West province. Mothers' educational level and wealth status is positively correlated with basic vaccination coverage of their children. For example, 86 percent of children whose mothers had no education received full basic coverage, as compared with 93 percent of those children whose mothers had primary education and 98 percent of those whose mothers had secondary education or higher.

3.10.2 Childhood Acute Respiratory Infection, Fever, and Diarrhea

Acute respiratory infection (ARI), fever, and dehydration from diarrhea are important contributing causes of childhood morbidity and mortality in developing countries (WHO, 2003). Prompt medical attention when a child has the symptoms of these illnesses is, therefore, crucial in reducing child deaths. In the 2014-15 RDHS, for each child under age 5, mothers were asked if the child had experienced an episode of diarrhea; a cough accompanied by short, rapid breathing or difficulty breathing as a result of a chest-related problem (symptoms of ARI); or a fever in the two weeks preceding the survey. Respondents were also asked if treatment was sought when the child was ill. Overall, 6 percent of children under age 5 showed symptoms of ARI, 19 percent had a fever, and 12 percent experienced diarrhea in the two weeks preceding the survey (data not shown). It should be noted that the prevalence of these morbidities is seasonal and subject to a mother's reporting of illnesses.

Table 11 shows that treatment from a health facility or provider was sought for 54 percent of children with ARI symptoms and 49 percent of those with a fever. Treatment was sought from a health facility or health provider for 44 percent of children with diarrhea. Twenty-eight percent of children with diarrhea received a rehydration solution from an oral rehydration salt (ORS) packet or prepackaged ORS fluid.

Table 11 Treatment for acute respiratory infection, fever, and diarrhea

Among children under age five who had symptoms of acute respiratory infection (ARI) or had fever in the two weeks preceding the survey, percentage for whom advice or treatment was sought from a health facility or provider, and among children under age five who had diarrhea during the two weeks preceding the survey, percentage for whom advice or treatment was sought from a health facility or provider, percentage given a fluid made from oral rehydration salt (ORS) packets or given pre-packaged ORS fluid, percentage given zinc, and percentage given ORS and zinc, by background characteristics, Rwanda 2014-15

	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 of children	Percentage for whom treatment was sought from a health facility/ provider[2]	Number of children	Percentage for whom treatment was sought from a health facility/ provider[2]	Percentage given fluid from ORS packet or pre-packaged ORS fluid	Number of children
Age in months							
<6	(46.9)	31	48.9	62	(28.1)	(21.9)	37
6-11	50.4	72	51.3	225	44.3	22.6	164
12-23	54.2	120	48.6	380	49.3	30.9	343
24-35	61.7	85	51.6	313	40.9	31.5	190
36-47	52.6	71	48.0	277	40.7	21.6	137
48-59	51.4	50	46.0	186	32.9	24.8	59
Sex							
Male	58.6	216	52.1	698	41.6	26.3	484
Female	49.3	213	46.6	744	45.7	28.7	447
Residence							
Urban	60.0	65	57.1	218	46.6	33.4	127
Rural	52.9	364	47.8	1,223	43.1	26.5	804
Region							
Kigali City	(61.4)	40	59.8	151	44.7	30.7	75
South	48.4	131	41.7	372	43.4	25.7	216
West	52.4	98	45.1	314	41.9	28.9	273
North	50.5	62	49.1	152	44.4	29.3	117
East	62.0	98	54.8	453	44.7	25.5	251
Mother's education							
No education	(53.8)	48	44.0	190	39.8	26.1	156
Primary	51.5	337	47.7	1,095	42.7	27.1	689
Secondary +	72.3	44	66.4	157	56.9	32.9	86
Wealth quintile							
Lowest	44.8	118	38.8	366	35.4	21.7	270
Second	55.1	111	48.4	318	42.8	28.9	239
Middle	57.5	90	48.2	306	50.7	26.3	176
Fourth	54.9	58	55.9	237	44.5	30.4	138
Highest	64.7	53	62.4	214	53.0	36.7	107
Total	53.9	429	49.2	1,442	43.6	27.5	931

[1] Symptoms of ARI (cough accompanied by short, rapid breathing that was chest-related and/or by difficult breathing that was chest-related)
[2] Excludes pharmacy, shop, traditional practitioner, and friend/relative

3.10.3 Nutritional Status of Children

Anthropometric indicators for young children were collected in the 2014-15 RDHS to provide outcome measures of nutritional status. As recommended by WHO, evaluation of nutritional status in this report is based on a comparison of three indices for the children in this survey with indices reported for a reference population of well-nourished children (WHO Multicentre Growth Reference Study Group, 2006). The three indices (height-for-age, weight-for-height, and weight-for-age) are expressed as standard deviation units from the median for the reference group. Children who fall below minus two standard deviations (-2 SD) from the median of the reference population are regarded as moderately malnourished, while those who fall below minus three standard deviations (-3 SD) from the reference population median are considered severely malnourished. Marked differences, especially with regard to height-for-age and weight-for-age, are often seen between different subgroups of children within a country.

Height and weight measurements were obtained for 3,884 children under age 5 who were present in 50 percent of the households that were not selected for the male survey. Table 12 and Figure 5 focus on the 3,813 children (97 percent) for whom complete and correct anthropometric and age data were collected.

Table 12 shows nutritional status for children under age 5 according to the three anthropometric indices, by background characteristics. Height-for-age is a measure of linear growth. A child who is below -2 SD from the reference median for height-for-age is considered short for his or her age, or stunted, a condition reflecting the cumulative effect of chronic malnutrition. Thirty-eight percent of children are stunted (below -2 SD), and 14 percent are severely stunted (below -3 SD). Stunting increases with age, peaking at 49 percent among children age 18-23 months. A higher proportion of male (43 percent) than female (33 percent) children are stunted. Stunting affects children in the rural areas (41 percent) more than those in the urban areas (24 percent). Stunting is inversely correlated with the mother's education level and household wealth quintile. For example, 49 percent of children in the lowest wealth quintile are stunted, as compared with 21 percent of children in the highest quintile.

Weight-for-height describes current nutritional status. A child who is below minus two standard deviations from the reference median for weight-for-height is considered too thin for his or her height, or wasted, a condition reflecting acute or recent nutritional deficits. Overall, 2 percent of children are wasted. Although the differences are much smaller than those observed for stunting, prevalence of wasting is higher in rural areas than urban areas.

Weight-for-age is a composite index of weight-for-height and height-for-age and thus does not distinguish between acute malnutrition (wasting) and chronic malnutrition (stunting). Children can be underweight for their age because they are stunted, wasted, or both. Weight-for-age is an overall indicator of a population's nutritional health. The results show that 9 percent of all children are underweight, and 2 percent are severely underweight. There is no variation of underweight by sex of the child. The proportion of children who are underweight is greater in rural areas (10 percent) than urban areas (6 percent) and correlates inversely with the mother's education level and increasing wealth.

Z-score means are calculated as summary statistics representing the nutritional status of children in a population. These mean scores describe the nutritional status of the entire population without the use of a cutoff. A mean Z-score of less than 0 (i.e., a negative value for stunting, wasting, or underweight) suggests that the distribution of an index has shifted downward and, on average, children in the population are less well-nourished than children in the WHO Multicentre Growth Reference Study. As shown in Table 12, the mean stunting, wasting, and underweight Z-scores for children under age 54 are -1.6, 0.4, and -0.6, respectively.

Table 12 Nutritional status of children

Percentage of children under age 5 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 2014-15

Background characteristic	Height-for-age			Weight-for-height				Weight-for-age				Number of children
	Percentage below -3 SD	Percentage below -2 SD	Mean Z-score (SD)	Percentage below -3 SD	Percentage below -2 SD	Percentage above +2 SD	Mean Z-score (SD)	Percentage below -3 SD	Percentage below -2 SD	Percentage above +2 SD	Mean Z-score (SD)	
Age in months												
<6	3.7	10.5	-0.5	1.7	5.4	18.3	0.7	1.4	4.3	4.2	0.1	331
6-8	8.8	18.2	-0.7	1.1	4.5	11.0	0.3	2.6	9.0	2.4	-0.3	214
9-11	7.6	21.3	-1.0	1.5	3.8	10.6	0.4	1.6	9.1	0.9	-0.3	214
12-17	16.1	41.6	-1.6	0.8	3.8	9.2	0.4	2.9	11.4	0.6	-0.5	402
18-23	15.2	49.4	-1.8	0.4	2.6	7.2	0.3	2.0	9.2	1.1	-0.7	365
24-35	18.5	47.1	-1.9	0.5	1.3	7.1	0.5	2.4	11.3	0.8	-0.7	797
36-47	13.8	42.7	-1.8	0.0	0.7	5.7	0.5	1.2	7.9	0.5	-0.7	831
48-59	12.7	37.4	-1.7	0.4	1.2	2.9	0.3	3.3	10.3	0.5	-0.8	657
Sex												
Male	15.6	42.7	-1.7	0.9	2.4	8.1	0.5	2.8	9.3	1.1	-0.6	1,924
Female	11.3	32.9	-1.4	0.3	2.0	7.3	0.4	1.6	9.3	1.0	-0.5	1,889
Mother's interview status												
Interviewed	13.1	37.8	-1.6	0.6	2.3	7.9	0.4	2.1	9.1	1.1	-0.6	3,550
Not interviewed, but in household	(10.7)	29.3	-1.6	0.0	0.0	6.1	0.4	3.6	6.7	0.0	-0.6	30
Not interviewed, not in household[3]	20.0	40.5	-1.7	0.0	1.6	4.0	0.4	4.1	13.0	1.0	-0.7	232
Residence												
Urban	7.0	23.7	-1.0	0.6	1.8	10.9	0.5	1.6	5.9	2.9	-0.2	612
Rural	14.7	40.6	-1.7	0.6	2.3	7.1	0.4	2.3	10.0	0.7	-0.7	3,200
Region												
Kigali City	5.2	22.7	-0.9	0.7	2.3	9.9	0.5	1.9	5.3	2.8	-0.2	419
South	13.9	40.5	-1.6	0.3	2.4	6.8	0.4	2.3	10.5	0.9	-0.6	910
West	18.6	44.9	-1.8	0.7	2.3	7.6	0.4	2.7	10.1	0.9	-0.7	894
North	13.3	39.2	-1.6	0.1	1.8	9.7	0.6	1.7	9.3	0.7	-0.5	541
East	12.1	34.8	-1.5	0.9	2.2	6.7	0.4	2.1	9.2	0.8	-0.6	1,049
Mother's education												
No education	17.9	47.0	-1.9	0.9	3.0	7.3	0.5	3.4	11.7	0.8	-0.8	530
Primary	13.2	39.1	-1.6	0.5	2.1	7.7	0.4	2.0	9.2	0.7	-0.6	2,589
Secondary +	6.4	19.3	-0.8	1.0	2.3	10.1	0.5	1.1	5.6	3.2	-0.1	462
Wealth quintile												
Lowest	19.2	48.6	-1.9	0.5	2.3	6.9	0.4	3.1	13.2	0.7	-0.8	959
Second	16.3	44.7	-1.8	0.7	2.2	7.2	0.4	2.6	12.1	0.5	-0.8	829
Middle	13.6	37.5	-1.6	0.6	2.9	6.1	0.4	2.5	8.3	0.1	-0.6	740
Fourth	8.8	30.2	-1.4	0.3	1.8	8.7	0.5	1.6	6.8	1.3	-0.4	650
Highest	5.7	20.9	-0.9	0.7	1.8	10.3	0.5	0.8	3.4	3.2	-0.1	633
Total	13.5	37.9	-1.6	0.6	2.2	7.7	0.4	2.2	9.3	1.1	-0.6	3,813

Note: Table is based on children who stayed 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.

[1] Recumbent length is measured for children under age 2 or in the few cases when the age of the child is unknown and the child is less than 85 cm; standing height is measured for all other children.

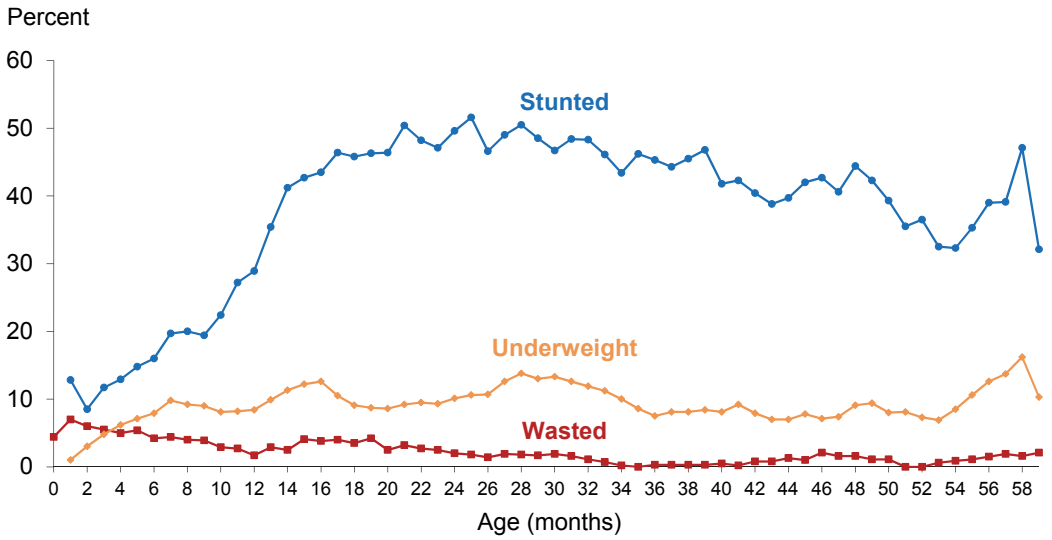
[2] Includes children who are below -3 standard deviations (SD) from the WHO Growth Standards population median.

[3] Includes children whose mothers are deceased

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

Figure 5 shows that the percentage of children underweight increases steadily from 4 percent among children under age 6 months to 9 percent among children 6-11 months and 11 percent among children age 12-17 months. This may be due to inappropriate and/or inadequate feeding practices.

Figure 5 **Nutritional status of children by age**



Note: *Stunting* reflects chronic malnutrition; *wasting* reflects acute malnutrition; *underweight* reflects chronic or acute malnutrition or a combination of both. Plotted values are smoothed by a five-month moving average.

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3.10.4 Infant and Young Child Feeding Practices

Breastfeeding is sufficient and beneficial for infant nutrition in the first six months of life. Breastfeeding immediately after birth also helps the uterus contract, hence reducing the mother's postpartum blood loss. Supplementing breast milk before the child is age 6 months is discouraged because it may inhibit breastfeeding and expose the infant to illness. At a later stage of the baby's development, breast milk should be supplemented by other liquids and eventually by solid or mushy food to provide adequate nourishment (Pan American Health Organization, 2002).

The 2014-15 RDHS collected data on infant and young child feeding (IYCF) practices for all children born in the two years preceding the survey. Table 13 shows breastfeeding practices by child's age. Eighty-seven percent of infants under age 6 months are exclusively breastfed, which is similar to the figures reported in the 2010 RDHS (85 percent) and to the figure reported in 2005 (88 percent). Only a small percentage of children under age 6 months were given something other than exclusively breastfed. For example, 6 percent consume nonmilk liquids, 3 percent consume other milk, 2 percent consume complementary foods in addition to breast milk, and less than 1 percent of infants consume plain water. Feeding using a bottle with a nipple, a practice that is discouraged because of the risk of illness to the child, was found in only 3 percent of infants under age 6 months.

Fifty-six percent and 91 percent of children 6-8 months and 9-11 months, respectively, receive timely complementary foods, and only 12 percent of children age 18-23 months have been weaned.

Table 13 Breastfeeding status by age

Percent distribution of youngest children under two years who are living with their mother, by breastfeeding status and 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 2014-15

	Breastfeeding status										
Age in months	Not breast-feeding	Exclusively breast-feeding	Breast-feeding and consuming plain water only	Breast-feeding and consuming nonmilk liquids[1]	Breast-feeding and consuming other milk	Breast-feeding and consuming complementary foods	Total	Percentage currently breast-feeding	Number of youngest children under age 2 living with the mother	Percentage using a bottle with a nipple	Number of all children under age 2
0-1	0.7	93.5	0.0	5.5	0.0	0.4	100.0	99.3	202	1.1	206
2-3	0.7	89.5	0.7	6.7	2.5	0.0	100.0	99.3	238	3.4	242
4-5	0.4	80.8	1.1	5.9	6.6	5.3	100.0	99.6	274	4.9	278
6-8	1.5	23.2	0.5	10.6	8.4	55.8	100.0	98.5	474	11.3	482
9-11	1.3	2.6	0.0	3.3	1.5	91.4	100.0	98.7	425	8.8	434
12-17	5.8	0.7	0.4	0.6	0.3	92.2	100.0	94.2	793	4.2	811
18-23	12.4	0.4	0.1	0.2	0.0	87.0	100.0	87.6	716	3.0	769
0-3	0.7	91.3	0.4	6.1	1.3	0.2	100.0	99.3	440	2.3	448
0-5	0.5	87.3	0.7	6.0	3.3	2.2	100.0	99.5	714	3.3	725
6-9	1.5	18.1	0.4	9.0	6.6	64.4	100.0	98.5	651	11.4	663
12-15	4.4	1.0	0.2	0.6	0.4	93.4	100.0	95.6	519	5.5	526
12-23	8.9	0.5	0.3	0.4	0.1	89.7	100.0	91.1	1,509	3.6	1,581
20-23	12.8	0.0	0.2	0.0	0.0	86.9	100.0	87.2	456	2.6	496

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 breastfeeding, breastfeeding and consuming plain water, nonmilk liquids, 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 nonmilk liquids and who do not receive other milk and who do not receive complementary foods are classified in the nonmilk 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.

[1] Nonmilk liquids include juice, juice drinks, clear broth, or other liquids

The minimum acceptable diet indicator is used to assess the proportion of children age 6-23 months who meet minimum standards with respect to IYCF practices. Specifically, children age 6-23 months who have a minimum acceptable diet meet all three IYCF criteria below:

1. Breastfeeding, or not breastfeeding and receiving two or more feedings of commercial infant formula; fresh, tinned, or powdered animal milk; or yogurt.

2. Fed with foods from four or more of the following groups: a. infant formula, milk other than breast milk, and cheese or yogurt or other milk products; b. foods made from grains, roots, and tubers, including porridge and fortified baby food from grains; c. vitamin A-rich fruits and vegetables (and red palm oil); d. other fruits and vegetables; e. eggs; f. meat, poultry, fish, and shellfish (and organ meats); and g. legumes and nuts.

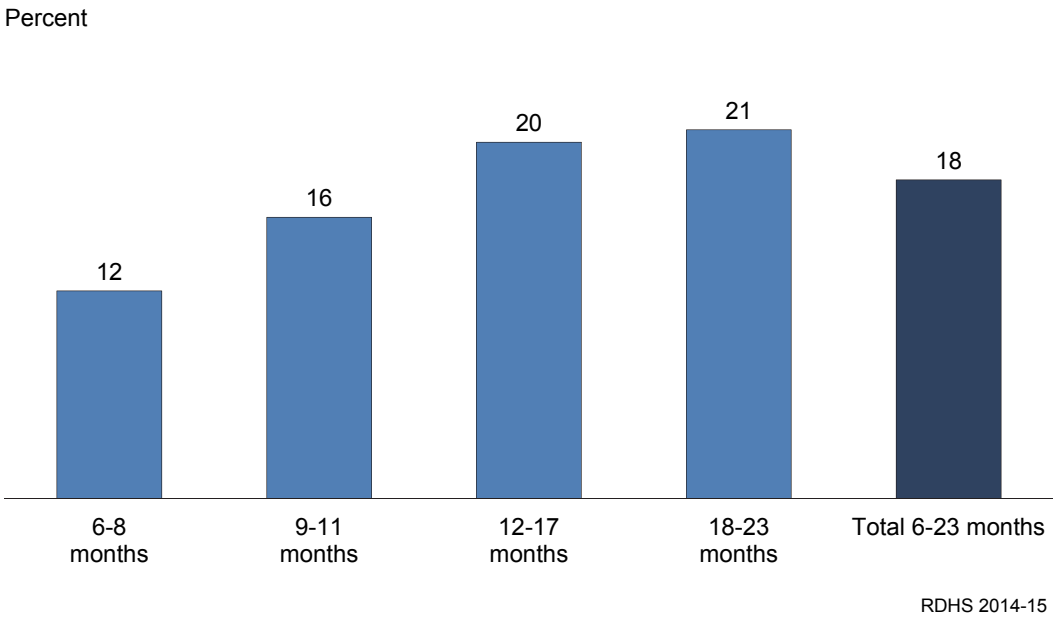
3. Fed the minimum recommended number of times per day according to their age and breastfeeding status:

    a. For breastfed children, minimum meal frequency is receiving solid or semisolid food at least twice a day for infants age 6-8 months and at least three times a day for children age 9-23 months.

    b. For nonbreastfed children age 6-23 months, minimum meal frequency is receiving solid or semisolid food or milk feeds at least four times a day.

Figure 6 shows the percentage of children being fed the minimum acceptable diet, by age. In total, about 1 in 5 children age 6-23 months (18 percent) have met the criteria for a minimum acceptable diet.

Figure 6 **Minimum acceptable diet by age, in months**



3.11 ANEMIA PREVALENCE IN CHILDREN AND WOMEN

Anemia is a condition that is marked by low levels of hemoglobin in the blood. Iron is a key component of hemoglobin, and iron deficiency is estimated to be responsible for half of the worldwide occurrence of anemia. Other causes of anemia include hookworm and other helminths, other nutritional deficiencies, chronic infections, and genetic conditions. Anemia is a serious concern for children because it can impair cognitive development, stunt growth, and increase morbidity from infectious diseases.

The 2014-15 RDHS included direct measurement of hemoglobin levels using the HemoCue system. This system consists of a battery-operated photometer and a disposable microcuvette coated with a dried reagent that serves as the blood collection device. For the test, a drop of capillary blood taken from a child's fingertip or heel is drawn into the microcuvette. The blood in the microcuvette is analyzed using the photometer, which displays the hemoglobin concentration. Hemoglobin levels among women and men were measured using procedures similar to those used for children, except that capillary blood was collected exclusively from a finger prick. Hemoglobin levels were successfully measured for 96 percent of the children eligible for testing, 98 percent of the women eligible for testing, and 96 percent of the men eligible for testing (data not shown).

Table 14 presents anemia prevalence for children age 6-59 months and women age 15-49, by background characteristics. Hemoglobin levels for children and women were adjusted for altitude and, for women only, smoking status. Children and pregnant women with hemoglobin levels below 11.0 g/dl and nonpregnant women with hemoglobin levels below 12.0 g/dl, were defined as anemic.

Overall, 37 percent of children suffered from some degree of anemia: 21 percent were classified as mildly anemic, 15 percent were moderately anemic, and less than 1 percent was severely anemic. The prevalence of anemia decreases with age, ranging from a high of 66 percent among children age 6-11 months to a low of 21 percent among children age 48-59 months. The variation between boys and girls is very small (37 percent and 36 percent, respectively). Anemia prevalence varies by province, from a low of 31 percent in Kigali City to a high of 40 percent in East province.

Table 14 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 2014-15

Background characteristic	Any anemia	Percentage with anemia			Number
		Mild anemia	Moderate anemia	Severe anemia	
CHILDREN					
Sex					
Male	37.3	20.7	15.7	0.9	1,779
Female	35.8	20.9	14.3	0.6	1,745
Age in months					
6-11	66.4	29.1	35.2	2.1	416
12-23	45.0	26.0	18.2	0.8	786
24-35	35.2	21.6	12.9	0.7	809
36-47	27.2	16.8	9.9	0.4	840
48-59	21.4	13.4	7.7	0.4	673
Residence					
Urban	30.2	20.6	9.3	0.3	552
Rural	37.7	20.8	16.1	0.8	2,972
Region					
Kigali City	30.6	21.0	9.3	0.4	381
South	39.3	20.3	18.0	1.0	842
West	34.5	22.0	11.5	1.0	829
North	33.6	20.9	12.4	0.2	502
East	39.7	19.9	19.0	0.8	970
Wealth quintile					
Lowest	40.8	20.9	18.5	1.3	885
Second	39.1	21.5	16.5	1.1	783
Middle	37.2	20.0	16.8	0.4	696
Fourth	32.9	20.5	12.0	0.4	596
Highest	29.4	20.8	8.5	0.1	565
Total	36.5	20.8	15.0	0.7	3,524
WOMEN					
Residence					
Urban	16.3	13.2	3.0	0.2	1,325
Rural	19.9	16.3	3.5	0.2	5,355
Region					
Kigali City	14.8	11.9	2.7	0.2	900
South	22.9	17.7	5.0	0.2	1,605
West	17.9	15.7	1.9	0.3	1,442
North	15.4	13.5	1.9	0.0	1,088
East	21.8	17.2	4.3	0.2	1,646
Wealth quintile					
Lowest	24.8	18.9	5.7	0.2	1,306
Second	20.1	16.4	3.3	0.4	1,316
Middle	18.8	16.1	2.7	0.1	1,249
Fourth	16.1	14.0	2.1	0.0	1,253
Highest	16.6	13.4	3.0	0.2	1,556
Total	19.2	15.7	3.4	0.2	6,680

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, and 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.

One in five women age 15-49 (19 percent) are anemic. The majority of these women are mildly anemic (16 percent of all women); 3 percent are moderately anemic, and less than 1 percent are severely anemic. The proportion of women with any anemia is higher in rural areas than urban areas (20 percent and 16 percent, respectively). Anemia levels also vary by province; for example, the prevalence of anemia is lowest among women residing in Kigali City and North province (15 percent each) and is highest among women residing in South province (23 percent). The prevalence of anemia in women is somewhat negatively associated with increasing wealth, ranging from a high of 25 percent among women in the lowest quintile to a low of 16 percent and 17 percent among women in the fourth and fifth wealth quintiles, respectively.

3.12 MALARIA

This section presents data that are useful for assessing the implementation of malaria control strategies including the availability, source, and use of mosquito nets by household members. Data presented show the percentage of households owning mosquito nets, the percent distribution of mosquito nets by source of net and the percentages of household members, of pregnant women, and of children under age 5 who slept under a net the night before the survey. Additionally, among children under age 5, information is provided on the percentage of children who experienced an episode of fever in the two weeks preceding the survey, whether advice or treatment was sought, the percentage who had blood taken for testing, whether they were treated with antimalarial drugs, and the timeliness with which they received drug treatment (the same day or next day following onset of fever).

3.12.1 Ownership and Use of Mosquito Nets

Table 15 presents information on the percentage of households that have at least one insecticide-treated net (ITN) and the average number of ITNs per household, by background characteristics. Eighty-one percent of households own at least one ITN and, on average, households own 1.6 ITNs. This is similar to the results from the 2013 Rwanda Malaria Indicators Survey (2013 RMIS) when 83 percent of households owned at least one ITN, and the average number of nets owned was 0.8.

Table 15 Household possession of insecticide-treated nets

Percentage of households with at least one insecticide-treated net (ITN); average number of ITNs per household; and percentage of households with at least one ITN per two persons who stayed in the household last night, by background characteristics, Rwanda 2014-15

Background characteristic	Percentage of households with at least one insecticide-treated net (ITN)[1]	Average number of insecticide-treated nets (ITN)[1] per household	Number of households	Percentage of households with at least one insecticide-treated net (ITN)[1] for every two persons who stayed in the household last night (Universal Coverage)[2]	Number of households with at least one person who stayed in the household last night
Residence					
Urban	81.9	1.9	2,188	53.4	2,184
Rural	80.3	1.6	10,511	40.3	10,494
Region					
Kigali City	86.0	1.9	1,496	55.0	1,495
South	85.2	1.7	3,103	45.1	3,097
West	68.8	1.3	2,789	32.8	2,787
North	78.9	1.6	2,090	43.2	2,081
East	85.1	1.6	3,221	42.4	3,219
Wealth quintile					
Lowest	65.5	1.0	2,920	30.7	2,911
Second	78.2	1.4	2,636	37.1	2,635
Middle	85.2	1.7	2,441	42.9	2,440
Fourth	89.2	1.9	2,290	45.3	2,287
Highest	88.8	2.2	2,412	60.1	2,405
Total	80.6	1.6	12,699	42.6	12,678

[1] An insecticide-treated net (ITN) is (1) a factory-treated net that does not require any further treatment or (2) a net that has been soaked with insecticide within the past 12 months.
[2] De facto household members

Ownership of at least one ITN is slightly higher in urban areas (82 percent) than rural areas (80 percent). Ownership of at least one ITN increases from 66 percent in the lowest wealth quintile to 89 percent in the fourth and highest wealth quintile. The average number of ITNs per household has a similar relationship with residence and wealth quintile.

The data in Table 15 also indicates that 43 percent of households in Rwanda own at least one ITN for every two persons who stayed in the household the night preceding the survey (considered universal coverage).

Table 16 shows the use of nets by children and pregnant women, by background characteristics. Sixty-eight percent of children under age 5 in all households slept under an ITN the night before the survey, while 80 percent of those in the households with at least one ITN slept under an ITN the night before the survey. Seventy-three percent of pregnant women age 15-49 in all households slept under an ITN the night before the survey. In households with at least one ITN, 88 percent of pregnant women slept under an ITN the night before the survey.

Among households with at least one ITN, children under age 5 residing in urban areas are more likely than their rural counterparts to have slept under an ITN the last night (87 percent and 79 percent, respectively). Net use among children under age 5 and household wealth are positively associated. Seventy-six percent of children in households in the lowest wealth quintile slept under an ITN the night before survey; this percentage increases gradually as wealth increases and reaches 87 percent of children in the highest wealth quintile. The relationships between ITN use and residence or wealth for pregnant women are similar to those for children under age 5.

Table 16 Use of insecticide-treated nets by children and pregnant women

Percentage of children under age five who, the night before the survey, slept under an insecticide-treated net (ITN), and slept under an ITN or in a dwelling in which the interior walls have been sprayed against mosquitoes (IRS) in the past 12 months; and among children under five years of age in households with at least one ITN, percentage who slept under an ITN the night before the survey; percentage of pregnant women age 15-49 who, the night before the survey, slept under an ITN, and slept under an ITN or in a dwelling in which the interior walls have been sprayed with IRS in the past 12 months; and among pregnant women age 15-49 in households with at least one ITN, percentage who slept under an ITN the night before the survey, by background characteristics, Rwanda 2014-15

	Children under age 5 in all households			Children under age 5 in households with at least one ITN[1]		Pregnant women age 15-49 in all households			Pregnant women age 15-49 in households with at least one ITN[1]	
Background characteristic	Percentage who slept under an ITN[1] last night	Percentage who slept under an ITN[1] last night or in a dwelling sprayed with IRS[2] in the past 12 months	Number of children	Percentage who slept under an ITN[1] last night	Number of children	Percentage who slept under an ITN[1] last night	Percentage who slept under an ITN[1] last night or in a dwelling sprayed with IRS[2] in the past 12 months	Number of pregnant women	Percentage who slept under an ITN[1] last night	Number of pregnant women
Residence										
Urban	77.9	77.9	1,283	87.3	1,145	77.5	77.5	172	91.7	145
Rural	65.8	65.8	6,648	78.8	5,547	71.9	71.9	806	86.8	667
Region										
Kigali City	81.4	81.4	906	86.7	851	82.9	82.9	123	91.8	112
South	71.8	71.8	1,821	82.2	1,590	74.4	74.4	222	86.6	190
West	57.2	57.2	1,903	77.6	1,403	67.2	67.2	219	86.8	169
North	61.8	61.8	1,123	74.9	926	64.6	64.6	138	83.2	107
East	71.0	71.0	2,177	80.4	1,921	75.8	75.8	276	89.5	234
Wealth quintile										
Lowest	53.4	53.4	1,907	75.9	1,341	52.2	52.2	197	77.5	133
Second	62.5	62.5	1,733	77.2	1,403	62.0	62.0	202	81.2	154
Middle	70.5	70.5	1,578	80.0	1,392	80.6	80.6	206	92.0	181
Fourth	76.2	76.2	1,389	81.8	1,294	87.0	87.0	185	92.6	174
Highest	83.0	83.0	1,325	87.2	1,262	83.9	83.9	188	92.0	171
Total	67.7	67.7	7,932	80.3	6,692	72.9	72.9	977	87.7	812

Note: Table is based on children who stayed in the household the night before the interview.
[1] An insecticide-treated net (ITN) is (1) a factory-treated net that does not require any further treatment, or (2) a net that has been soaked with insecticide within the past 12 months.
[2] Indoor residual spraying (IRS) is limited to spraying conducted by a government, private, or non-governmental organization.

3.12.2 Treatment of Children with Fever

Prompt and effective treatment for malaria is crucial to prevent the disease from becoming severe and complicated. Artemisinin combination therapy (ACT) is the recommended first line antimalarial treatment for uncomplicated malaria in Rwanda. The 2014-15 RDHS asked mothers whether their children under age 5 had a fever in the two weeks preceding the survey and, if so, what treatment was given. Table 17 shows treatment behaviors for children with fever in the two weeks preceding the survey by background characteristics.

In the two weeks preceding the survey, 19 percent of children under age 5 had a fever. Treatment or advice was sought for 57 percent of children with fever, while 36 percent had blood taken from a finger or heel for testing (considered a proxy for malaria testing). Eleven percent of children who had fever were given ACT. Seven percent of children with a fever took ACTs the same day or next day after fever onset, as recommended by the treatment guidelines. Among children under age 5 with fever who took any antimalarial drug, 99 percent took ACT. Children with a fever in rural areas were more likely to be treated for malaria (e.g., take ACT, take ACT the same or next day as fever onset) compared with those in urban areas. Children under age 5 who had a fever in the two weeks preceding the survey in the malaria-prone provinces of East and South were more likely to be given ACT than children in other provinces.

Table 17 Prevalence, diagnosis, and prompt treatment of children with fever

Percentage of children under age 5 with fever in the two weeks preceding the survey; among children under age 5 with fever, percentage for whom advice or treatment was sought, percentage who had blood taken from a finger or heel, percentage who took any artemisinin-based combination therapy (ACT), and percentage who took any ACT the same or next day following the onset of fever; and among children under age 5 with fever who took any antimalarial drug, percentage who took any ACT, by background characteristics, Rwanda 2014-15

	Children under age 5		Children under age 5 with fever					Children under age 5 with fever who took any antimalarial drug	
Background characteristic	Percentage with fever in the two weeks preceding the survey	Number of children	Percentage for whom advice or treatment was sought[1]	Percentage who had blood taken from a finger or heel for testing	Percentage who took any ACT	Percentage who took any ACT same or next day	Number of children	Percentage who took any ACT	Number of children
Residence									
Urban	16.8	1,303	66.3	43.2	6.2	5.4	218	*	14
Rural	19.1	6,391	55.0	34.8	12.1	7.8	1,223	98.6	150
Region									
Kigali City	16.4	921	70.3	48.7	6.6	5.6	151	*	10
South	21.2	1,756	49.3	34.7	12.0	6.9	372	(95.4)	47
West	17.0	1,842	47.8	28.6	6.0	3.3	314	*	19
North	14.2	1,071	57.8	22.5	0.9	0.9	152	*	1
East	21.5	2,103	64.1	42.7	19.2	13.4	453	100.0	87
Wealth quintile									
Lowest	20.0	1,834	45.6	27.8	11.0	5.2	366	(100.0)	40
Second	19.1	1,670	54.4	34.3	13.2	8.9	318	(100.0)	42
Middle	20.1	1,524	58.1	38.1	14.4	10.6	306	(95.4)	46
Fourth	17.8	1,331	63.1	38.9	9.2	7.6	237	*	22
Highest	16.0	1,335	70.2	46.7	6.1	4.1	214	*	13
Total	18.7	7,694	56.7	36.1	11.2	7.4	1,442	98.7	164

Note: Figures in the 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] Excludes advice or treatment from a traditional practitioner

3.13 HIV/AIDS Awareness, Knowledge, and Behavior

The 2014-15 RDHS included a series of questions that addressed respondents' knowledge of HIV prevention, their awareness of modes of HIV transmission, and behaviors that can prevent the spread of HIV.

Table 18 shows that 91 percent of women and 95 percent of men age 15-49 know that consistent use of condoms is a means of preventing the spread of HIV. Eighty-nine percent of women and 92 percent of men know that limiting sexual intercourse to one faithful and uninfected partner can reduce the chances of contracting HIV. The proportions of women and men who know that both using condoms and limiting sexual intercourse to one uninfected partner are means of preventing HIV are 83 percent and 88 percent, respectively.

Table 18 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 HIV by using condoms every time they have sexual intercourse and by having one sex partner who is not infected and has no other partners, by background characteristics, Rwanda 2014-15

	Percentage of women who say HIV can be prevented by:				Percentage of men who say HIV can be prevented by:			
Background characteristic	Using condoms[1]	Limiting sexual intercourse to one uninfected partner[2]	Using condoms and limiting sexual intercourse to one uninfected partner[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[2]	Number of men
Age								
15-24	90.9	87.7	81.6	5,225	94.7	89.4	85.7	2,276
15-19	89.3	86.5	79.6	2,768	93.5	87.4	82.8	1,282
20-24	92.7	89.1	83.9	2,457	96.1	92.1	89.4	994
25-29	90.9	90.1	83.4	2,300	95.0	92.6	88.8	946
30-39	92.0	90.4	84.4	3,726	95.7	93.6	90.0	1,497
40-49	91.9	88.8	82.9	2,246	96.5	93.7	90.8	858
Marital status								
Never married	90.9	86.9	81.0	5,100	94.6	89.2	85.4	2,691
Ever had sex	92.1	89.5	83.4	1,562	96.3	92.3	89.1	1,111
Never had sex	90.3	85.8	80.0	3,539	93.4	87.0	82.8	1,580
Married/living together	91.6	90.7	84.2	6,982	96.0	94.2	90.8	2,792
Divorced/separated/ widowed	92.0	88.6	83.3	1,415	92.6	94.9	89.2	94
Residence								
Urban	94.7	89.7	85.8	2,626	96.7	93.3	90.7	1,169
Rural	90.6	88.9	82.2	10,871	94.9	91.3	87.5	4,408
Region								
Kigali City	95.3	93.8	89.9	1,799	98.3	95.0	93.6	804
South	91.7	92.5	86.5	3,214	96.2	92.0	89.2	1,327
West	85.8	80.8	71.9	2,965	93.4	91.6	87.1	1,182
North	94.9	89.3	85.7	2,211	89.6	88.1	79.0	851
East	91.6	90.3	83.7	3,308	97.6	92.0	90.4	1,413
Education								
No education	89.7	88.2	81.1	1,665	94.4	91.3	86.1	496
Primary	90.7	89.5	82.7	8,678	94.8	92.1	88.2	3,636
Secondary +	94.2	88.2	84.4	3,154	96.8	91.0	88.6	1,445
Wealth quintile								
Lowest	87.9	88.3	80.0	2,561	93.9	91.6	86.9	819
Second	90.7	88.1	81.4	2,631	94.5	91.5	87.5	991
Middle	91.5	90.2	84.1	2,597	95.7	92.2	88.8	1,097
Fourth	91.9	88.9	83.1	2,634	95.1	90.1	86.8	1,234
Highest	94.3	89.7	85.5	3,073	96.4	93.1	89.9	1,436
Total 15-49	91.4	89.0	82.9	13,497	95.3	91.8	88.1	5,577
Men 50-59	na	na	na	na	93.8	92.2	86.7	640
Total 15-59	na	na	na	na	95.1	91.8	88.0	6,217

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

Women and men in urban areas are more likely that those in rural areas to know that using condoms and limiting sexual intercourse to one uninfected partner reduce the risk of HIV transmission. Better-educated respondents are generally more knowledgeable of HIV prevention methods than other respondents.

Knowledge of HIV prevention methods has increased over the last nine years. According to the 2014-15 RDHS, 83 percent of women know that HIV can be prevented by using a condom and by limiting sexual

partners; this compares with 79 percent in 2010 and 73 percent in 2005. Among men, the percentage with knowledge of HIV prevention methods dropped from 80 percent in 2005 to 74 percent in 2010, then increased to 88 percent in 2014-15.

Table 19 shows knowledge of HIV prevention among young people age 15-24. Knowledge of HIV prevention is defined as knowing that both condom use and limiting sexual intercourse to one uninfected partner are HIV prevention methods, knowing that a healthy-looking person can have HIV, and rejecting the two most common local misconceptions about HIV transmission: that HIV can be transmitted by mosquito bites and by sharing food with a person who has HIV. Knowledge of how HIV is transmitted is crucial to enabling people to avoid HIV infection, and this is especially true for young people, who are often at greater risk because they may have shorter relationships with more partners or engage in other risky behaviors.

Table 19 Knowledge about HIV prevention among young people

Percentage of young women and young men age 15-24 with knowledge about HIV prevention, by background characteristics, Rwanda 2014-15

	Women age 15-24		Men age 15-24	
Background characteristic	Percentage with knowledge about HIV prevention[1]	Number of women	Percentage with knowledge about HIV prevention[1]	Number of men
Age				
15-19	61.6	2,768	59.5	1,282
15-17	59.7	1,743	55.7	808
18-19	64.7	1,025	65.9	474
20-24	68.1	2,457	70.6	994
20-22	68.5	1,545	68.4	624
23-24	67.4	913	74.3	370
Marital status				
Never married	63.2	4,107	64.2	2,095
Ever had sex	65.0	1,023	65.5	694
Never had sex	62.6	3,084	63.6	1,400
Ever married	69.8	1,118	65.2	181
Residence				
Urban	73.6	1,115	74.7	451
Rural	62.2	4,110	61.8	1,825
Region				
Kigali City	81.0	741	84.6	299
South	70.8	1,186	69.2	556
West	48.3	1,186	55.1	515
North	67.5	885	49.1	344
East	62.6	1,226	66.5	561
Education				
No education	45.9	138	36.2	55
Primary	61.6	3,033	58.9	1,356
Secondary +	70.3	2,054	74.7	864
Wealth quintile				
Lowest	57.4	867	55.9	292
Second	61.3	958	61.6	371
Middle	64.0	968	62.6	447
Fourth	65.8	1,081	62.1	565
Highest	71.2	1,351	73.5	599
Total 15-24	64.6	5,225	64.3	2,276

[1] Knowledge about HIV prevention means knowing that consistent use of condoms during sexual intercourse and having just one uninfected faithful partner can reduce the chance of getting HIV, knowing that a healthy-looking person can have HIV, and rejecting the two most common local misconceptions about transmission or prevention of HIV (that HIV can be transmitted by mosquito bites and by sharing food with a person who has HIV).

Table 19 shows that 65 percent of young women and 64 percent of young men have knowledge of HIV prevention. Among both sexes, the proportion with comprehensive knowledge generally increases with age, educational attainment, and wealth. Urban young people are more likely than rural young people to have knowledge of HIV prevention.

Information on sexual behavior is important in designing and monitoring intervention programs to control the spread of HIV. The 2014-15 RDHS included questions on respondents' sexual partners during the 12 months preceding the survey and during their lifetime. Information was also collected on use of condoms at respondents' last sexual intercourse. These questions are sensitive, and it is recognized that some respondents may have been reluctant to provide information on recent sexual behavior. Results are shown in Table 20.1 for women and Table 20.2 for men.

Table 20.1 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 2014-15

	All women		Women who had 2+ partners in the past 12 months		Women who ever had sexual intercourse[1]	
Background characteristic	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	0.7	5,225	(61.2)	38	1.5	2,140
15-19	0.5	2,768	*	15	1.5	556
20-24	0.9	2,457	*	23	1.5	1,584
25-29	0.9	2,300	*	20	1.4	2,026
30-39	0.7	3,726	(38.5)	27	1.5	3,583
40-49	0.5	2,246	*	10	1.6	2,202
Marital status						
Never married	0.8	5,100	(74.3)	40	1.9	1,560
Married/living together	0.3	6,982	(7.1)	23	1.3	6,977
Divorced/separated/ widowed	2.3	1,415	(46.1)	33	2.0	1,415
Residence						
Urban	1.4	2,626	(64.4)	37	1.8	1,930
Rural	0.5	10,871	38.1	58	1.4	8,022
Region						
Kigali City	1.7	1,799	(69.9)	31	1.9	1,344
South	0.7	3,214	(35.6)	22	1.5	2,334
West	0.5	2,965	*	15	1.4	2,137
North	0.4	2,211	*	9	1.3	1,541
East	0.6	3,308	*	19	1.5	2,596
Education						
No education	0.6	1,665	*	10	1.5	1,591
Primary	0.8	8,678	49.3	68	1.5	6,802
Secondary +	0.5	3,154	*	17	1.6	1,558
Wealth quintile						
Lowest	1.0	2,561	(37.7)	25	1.5	2,095
Second	0.5	2,631	*	12	1.4	1,994
Middle	0.5	2,597	*	14	1.4	1,931
Fourth	0.6	2,634	*	15	1.4	1,811
Highest	1.0	3,073	(64.1)	29	1.7	2,120
Total	0.7	13,497	48.4	95	1.5	9,951

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

Table 20.2 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 2014-15

	All men		Men who had 2+ partners in the past 12 months		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	1.9	2,276	(75.0)	43	2.1	875
15-19	0.7	1,282	*	9	1.8	301
20-24	3.5	994	(71.5)	34	2.2	574
25-29	6.2	946	33.2	59	2.4	822
30-39	6.4	1,497	19.0	97	2.6	1,447
40-49	6.5	858	14.9	56	3.3	846
Marital status						
Never married	2.7	2,691	80.9	72	2.6	1,110
Married/living together	6.2	2,792	9.3	172	2.6	2,787
Divorced/separated/ widowed	10.6	94	*	10	4.6	93
Residence						
Urban	7.1	1,169	57.7	83	3.4	877
Rural	3.9	4,408	17.9	171	2.4	3,113
Region						
Kigali City	6.8	804	59.5	55	3.7	596
South	2.9	1,327	(36.7)	39	2.3	921
West	5.8	1,182	18.3	69	2.5	827
North	3.0	851	(19.1)	25	2.2	615
East	4.7	1,413	21.4	67	2.6	1,030
Education						
No education	5.0	496	*	25	2.0	446
Primary	4.9	3,636	22.2	177	2.5	2,714
Secondary +	3.7	1,445	69.2	53	3.2	829
Wealth quintile						
Lowest	5.0	819	(13.9)	41	2.2	618
Second	4.8	991	(10.7)	47	2.3	726
Middle	3.1	1,097	(21.1)	34	2.1	807
Fourth	2.8	1,234	(18.2)	34	2.5	809
Highest	6.8	1,436	55.5	98	3.5	1,031
Total 15-49	4.6	5,577	30.9	254	2.6	3,990
Men 50-59	6.5	640	(10.8)	42	3.5	633
Total 15-59	4.8	6,217	28.0	296	2.7	4,623

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

Overall, less than 1 percent of women reported that they had two or more partners in the past 12 months. Among women who had two or more partners in the past 12 months, 48 percent reported using a condom during their last sexual intercourse. The mean number of lifetime partners among all women who have ever had sexual intercourse is 1.5.

Five percent of men age 15-49 reported that they had two or more partners in the past 12 months, and 28 percent of these men reported using a condom during their last sexual intercourse. The mean number of lifetime partners among all men who have ever had sexual intercourse is 2.7.

3.14 COVERAGE OF HIV TESTING SERVICES

Knowledge of HIV status helps HIV-negative individuals make specific decisions to reduce risk and increase safer sex practices so that they can remain disease free. Among those who are HIV infected, knowledge of their status allows them to take action to protect their sexual partners, to access treatment, and to plan for the future.

To assess awareness and coverage of HIV testing services, RDHS respondents were asked whether they had ever been tested for HIV. If they said that they had, they were asked whether they had received the results of their last test and where they had been tested. If they had never been tested, they were asked whether they knew a place where they could go to be tested.

Tables 21.1 and 21.2 show that practically all respondents age 15-49 (99 percent of women and men) knew of a place where they could get an HIV test.

Among respondents age 15-49, a larger proportion of men (21 percent) than women (16 percent) had never been tested. The large majority of those who had been tested said that they had received the results of the last test they took. Overall, 82 percent of women and 78 percent of men had ever been tested and had received the results of their last test. The likelihood of having ever had an HIV test and receiving the results was highest among women and men age 30-39; 94 percent each. Urban residents (for both women and men) were much more likely than rural residents to have been tested and to have received the results (87 percent versus 81 percent for women and 83 percent versus 76 percent for men, respectively). There is no clear linear association between HIV testing and education or wealth.

Thirty-eight percent of women and 36 percent of men age 15-49 had been tested in the 12-month period preceding the survey and had been told the results of the last test they took.

Comparing the two preceding RDHS surveys, the proportion of respondents age 15-49 who have ever been tested for HIV and received results has increased steadily, from 21 percent in 2005 and 76 percent in 2010 to 82 percent in 2014-15 among women, and from 20 percent in 2005 and 69 percent in 2010 to 78 percent in 2014-15 among men. The proportions of women and men age 15-49 who were tested for HIV in the 12-month period preceding the survey and received their last test results is about the same proportion reported in 2010.

Table 21.1 Coverage of prior HIV testing: Women

Percentage of women age 15-49 who know where to get an HIV test, percent distribution of women age 15-49 by testing status and by whether they received the results of the last test, percentage ever tested, and percentage who were tested in the past 12 months and received the results of the last test, according to background characteristics, Rwanda 2014-15

Background characteristic	Percentage who know where to get an HIV test	Percent distribution of women/men by testing status and by whether they received the results of the last test			Total	Percentage ever tested	Percentage who have been tested for HIV in the past 12 months and received the results of the last test	Number of women
		Ever tested and received results	Ever tested, did not receive results	Never tested[1]				
Age								
15-24	98.6	68.0	3.1	28.8	100.0	72.0	36.8	5,225
15-19	97.9	52.5	4.3	43.2	100.0	57.8	27.4	2,768
20-24	99.3	85.5	1.8	12.7	100.0	88.1	47.4	2,457
25-29	99.3	92.5	1.2	6.3	100.0	95.0	46.0	2,300
30-39	99.7	94.0	1.0	5.1	100.0	96.3	41.4	3,726
40-49	99.4	86.3	1.3	12.5	100.0	89.4	29.3	2,246
Marital status								
Never married	98.4	64.0	3.5	32.5	100.0	68.4	32.2	5,100
Ever had sex	99.6	83.7	2.3	14.0	100.0	86.6	46.5	1,562
Never had sex	97.9	55.3	4.1	40.7	100.0	60.3	25.9	3,539
Married/living together	99.7	94.8	0.8	4.4	100.0	97.1	43.2	6,982
Divorced/separated/ widowed	99.5	87.4	1.6	11.0	100.0	90.6	36.6	1,415
Residence								
Urban	99.5	86.5	1.1	12.5	100.0	88.7	42.8	2,626
Rural	99.1	81.4	2.1	16.5	100.0	84.8	37.3	10,871
Region								
Kigali City	99.8	86.8	0.8	12.4	100.0	88.5	42.2	1,799
South	99.4	80.4	2.5	17.1	100.0	83.8	37.0	3,214
West	98.4	82.0	2.1	15.8	100.0	85.3	38.4	2,965
North	98.8	80.3	2.1	17.6	100.0	84.4	39.0	2,211
East	99.5	83.6	1.6	14.8	100.0	86.6	37.2	3,308
Education								
No education	99.4	86.5	1.3	12.2	100.0	89.8	33.5	1,665
Primary	98.9	81.7	1.6	16.7	100.0	84.4	37.4	8,678
Secondary +	99.7	82.1	3.1	14.8	100.0	86.5	43.5	3,154
Wealth quintile								
Lowest	98.5	81.8	2.0	16.2	100.0	85.1	37.7	2,561
Second	99.1	80.8	2.2	17.0	100.0	84.2	37.4	2,631
Middle	99.1	82.9	1.8	15.3	100.0	85.9	38.0	2,597
Fourth	99.3	81.7	2.0	16.3	100.0	84.8	37.5	2,634
Highest	99.6	84.4	1.5	14.1	100.0	87.3	40.8	3,073
Total	99.2	82.4	1.9	15.7	100.0	85.5	38.4	13,497

[1] Includes 'don't know/missing'

Table 21.2 Coverage of prior HIV testing: Men

Percentage of men age 15-49 who know where to get an HIV test, percent distribution of men age 15-49 by testing status and by whether they received the results of the last test, percentage ever tested, and percentage who were tested in the past 12 months and received the results of the last test, according to background characteristics, Rwanda 2014-15

Background characteristic	Percentage who know where to get an HIV test	Percent distribution of women/men by testing status and by whether they received the results of the last test			Total	Percentage ever tested	Percentage who have been tested for HIV in the past 12 months and received the results of the last test	Number of men
		Ever tested and received results	Ever tested, did not receive results	Never tested[1]				
Age								
15-24	96.9	55.9	4.0	40.1	100.0	61.0	30.3	2,276
15-19	95.1	41.5	5.3	53.2	100.0	48.0	21.9	1,282
20-24	99.3	74.6	2.2	23.2	100.0	77.8	41.1	994
25-29	100.0	90.0	0.2	9.7	100.0	91.6	46.9	946
30-39	99.9	93.9	0.8	5.3	100.0	96.0	41.9	1,497
40-49	99.8	92.3	0.5	7.2	100.0	94.1	33.6	858
Marital status								
Never married	97.3	58.3	3.4	38.3	100.0	62.6	30.2	2,691
Ever had sex	98.6	69.5	2.7	27.8	100.0	73.0	36.7	1,111
Never had sex	96.5	50.4	3.9	45.7	100.0	55.3	25.7	1,580
Married/living together	100.0	95.6	0.6	3.8	100.0	97.7	42.8	2,792
Divorced/separated/ widowed	100.0	89.6	1.1	9.3	100.0	93.0	43.4	94
Residence								
Urban	99.1	82.6	0.6	16.8	100.0	84.0	40.9	1,169
Rural	98.6	76.2	2.3	21.5	100.0	79.8	35.6	4,408
Region								
Kigali City	99.2	81.5	1.2	17.4	100.0	83.1	38.5	804
South	99.0	73.9	1.9	24.2	100.0	77.7	33.8	1,327
West	97.8	78.4	2.1	19.5	100.0	81.4	41.1	1,182
North	98.6	78.2	1.9	19.9	100.0	81.6	35.9	851
East	98.9	77.5	2.4	20.1	100.0	80.9	35.2	1,413
Education								
No education	99.0	85.8	0.8	13.4	100.0	87.7	35.7	496
Primary	98.3	75.9	1.9	22.3	100.0	79.0	35.4	3,636
Secondary +	99.5	78.8	2.6	18.6	100.0	82.6	40.4	1,445
Wealth quintile								
Lowest	97.9	78.3	1.5	20.2	100.0	80.8	39.2	819
Second	98.8	78.1	2.2	19.7	100.0	81.7	37.3	991
Middle	98.9	77.3	2.5	20.2	100.0	81.6	35.1	1,097
Fourth	98.3	74.3	2.6	23.1	100.0	78.3	35.0	1,234
Highest	99.3	79.5	1.1	19.4	100.0	81.2	37.7	1,436
Total 15-49	98.7	77.5	2.0	20.5	100.0	80.7	36.7	5,577
Men 50-59	98.8	78.8	1.8	19.5	100.0	81.9	24.6	640
Total 15-59	98.7	77.6	1.9	20.4	100.0	80.8	35.5	6,217

[1] Includes 'don't know/missing'

3.15 MATERNAL MORTALITY

Estimates of maternal mortality for the period 0-4 years before the survey are shown in Table 22. Age-specific mortality rates are calculated by dividing the number of maternal deaths by years of exposure. Maternal deaths are defined as any death that occurred during pregnancy, childbirth, or within 2 months after the birth or termination of a pregnancy. Maternal deaths are a relatively rare occurrence, and as such should be interpreted with caution.

There were 34 maternal deaths in the reference period. The maternal mortality rate, which is the annual number of maternal deaths per 1,000 women age 15-49, for the period 2009-10 to 2014-15 is 0.27. Maternal deaths accounted for 15 percent of all deaths to women age 15-49; in other words, about one in seven Rwandan women who died in the 0-4 years preceding the survey died from pregnancy or pregnancy-related causes.

The maternal mortality ratio (MMR), obtained by dividing the age-standardized maternal mortality rate by the age-standardized general fertility rate, is often considered a more useful measure of maternal mortality since it measures the obstetric risk associated with each live birth. Table 22 shows that the maternal mortality ratio for Rwanda for the period 2009-10 to 2014-15 is 210 deaths per 100,000 live births (or alternatively, 2.10 deaths per 1,000 live births). The maternal mortality ratio can be converted to an estimate of the lifetime risk of dying from maternal causes: 0.009 or, in other words, a risk of dying of 1 in 111. Figure 7 shows the trend in MMR for the period of 0-4 years preceding the survey, according to RDHS surveys in 2000, 2005, 2010, and 2014-15.

Table 22 Maternal mortality

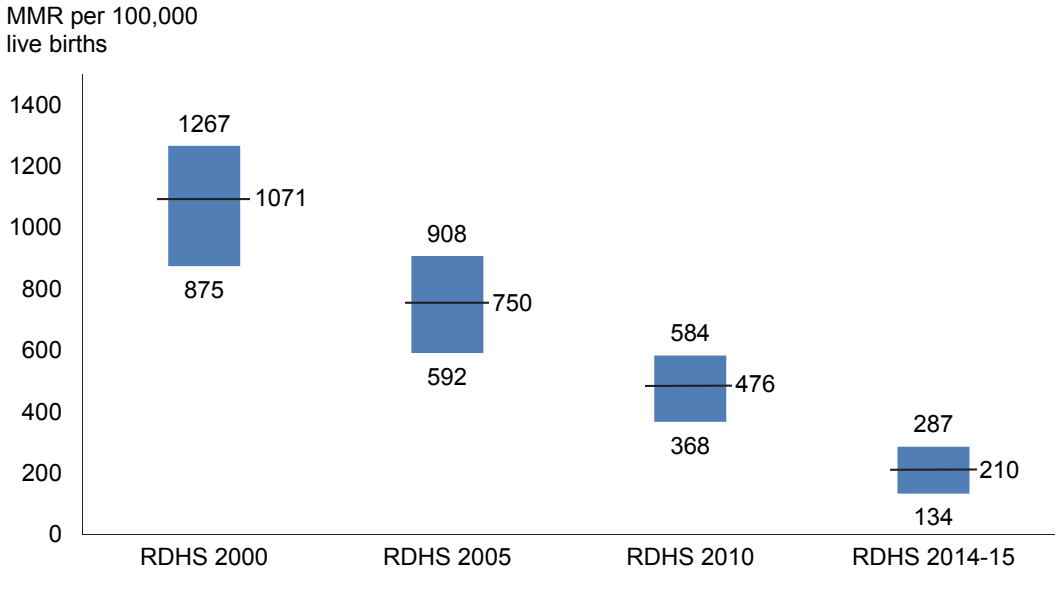
Direct estimates of maternal mortality rates for the 0 to 4 years preceding the survey, by five-year age groups, Rwanda 2014-15

Age	Percentage of female deaths that are maternal	Maternal deaths	Exposure years	Maternal mortality rate[1]
15-19	0.0	0	18,347	0.00
20-24	16.1	6	23,625	0.27
25-29	28.0	8	24,795	0.31
30-34	9.7	4	21,009	0.19
35-39	24.5	10	14,680	0.71
40-44	15.9	6	9,758	0.59
45-49	0.0	0	6,068	0.00
15-49	14.6	34	118,281	0.27

General fertility rate (GFR)[2]	128
Maternal mortality ratio (MMR)[3]	210
Lifetime risk of maternal death[4]	0.009

[1] Expressed per 1,000 woman-years of exposure
[2] Expressed per 1,000 woman age 15-49
[3] Expressed per 100,000 live births; calculated as the age-adjusted maternal mortality rate times 100 divided by the age-adjusted general fertility rate
[4] Calculated as 1-(1-MMR)^{TFR} where TFR represents the total fertility rate for the seven years preceding the survey
[a] Age-adjusted rate

Figure 7 **Maternal mortality ratios for the period of 0-4 years prior to the survey, RDHSs 2000, 2005, 2010, and 2014-15**



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