

The RDHS-III collected information about the health of mothers and their children born in the five years preceding the survey. This chapter covers antenatal, postnatal, and delivery care, characteristics of neonates, childhood vaccination coverage, and the prevalence and treatment of common childhood illnesses, specifically, respiratory infections, fever, and diarrhea. The findings in this chapter help identify the most important problems in maternal and child health and reproductive health. Comparison of the results with those of previous surveys assists in the planning and evaluation of national health policies and programs.

## 8.1 ANTENATAL CARE

Monitoring of pregnant women through antenatal care visits helps reduce risks and complications during pregnancy and delivery. For this reason, the RDHS-III asked women who had had a live birth in the five years preceding the survey if they had received antenatal care (ANC). Table 8.1 shows the distribution of the women's most recent live births in the past five years according to type of medical personnel consulted by the mother during the pregnancy and the mother's background characteristics. During the RDHS-III, all categories of ANC providers consulted by the mother were recorded; however, if more than one provider was mentioned, only the provider with the highest qualifications was considered in the tabulations.

For the most recent live births in the five years preceding the survey, nearly all of the mothers (94 percent) received antenatal care from trained personnel. This proportion has remained relatively stable since 1992, when 94 percent of births benefited from antenatal care (Figure 8.1).

In the RDHS-III, ANC was mainly provided by nurses or midwives, auxiliary nurses/midwives, trained traditional birth attendants (88 percent) or, in very low percentages, doctors (7 percent). In the current Rwandan health system, ANC at public or certified health facilities is almost always provided by nurses (doctors only intervene if complications are noticed in the mother in the course of the ANC visit).

The data do not vary much by background characteristics: the proportion of mothers who received antenatal care is greater than 90 percent for all variables. However, the proportion of women who consulted with a doctor during these visits is higher in urban areas (15 percent) than in rural areas (5 percent), higher among women in the City of Kigali (19 percent) than among those in the other provinces (2 to 9 percent), and higher among women with a secondary education or higher (18 percent, compared with 4 percent for mothers with no education). The proportion of those who consulted with a doctor is also higher among women in the richest quintile (14 percent compared with 4 to 6 percent in the other quintiles). These results can be explained by the concentration of doctors in urban areas, particularly the City of Kigali.

To be effective, antenatal care must be sought early in the pregnancy and, more importantly, must continue regularly through to delivery. The World Health Organization (WHO) recommends at least four ANC visits at regular intervals throughout the pregnancy, as does the Rwandan health system.

Table 8.1 Antenatal care

Percent distribution of women who had a live birth in the five years preceding the survey by antenatal care (ANC) provider during pregnancy for the most recent birth, according to background characteristics, Rwanda 2005

Background characteristic	Doctor	Nurse/midwife/auxiliary nurse/midwife/trained attendant	Trained personnel	Untrained traditional birth attendant/other	No one	Total <sup>1</sup>	Number
<b>Mother's age at birth</b>							
<20	7.6	84.7	92.3	0.0	7.7	100.0	276
20-34	6.8	88.4	95.2	0.0	4.6	100.0	3,777
35-49	6.8	85.9	92.8	0.0	7.0	100.0	1,372
<b>Birth order</b>							
1	6.9	87.7	94.6	0.0	5.1	100.0	875
2-3	7.7	87.7	95.4	0.1	4.4	100.0	1,706
4-5	6.9	87.6	94.5	0.0	5.3	100.0	1,349
6+	5.8	87.3	93.1	0.0	6.7	100.0	1,495
<b>Residence</b>							
Urban	15.4	77.4	92.8	0.2	7.0	100.0	774
Rural	5.4	89.3	94.7	0.0	5.1	100.0	4,651
<b>Province</b>							
City of Kigali	18.8	73.7	92.5	0.2	7.3	100.0	427
South	6.7	88.3	95.0	0.0	5.0	100.0	1,357
West	9.2	83.6	92.9	0.0	6.7	100.0	1,395
North	1.9	94.7	96.6	0.0	2.9	100.0	1,052
East	4.3	90.0	94.3	0.0	5.7	100.0	1,194
<b>Education</b>							
No education	4.2	87.6	91.8	0.0	7.6	100.0	1,552
Primary	6.5	88.7	95.2	0.0	4.7	100.0	3,404
Secondary or higher	18.1	79.2	97.3	0.2	2.5	100.0	469
<b>Wealth quintile</b>							
Lowest	6.0	85.7	91.6	0.0	8.1	100.0	1,163
Second	4.3	90.1	94.4	0.0	5.4	100.0	1,124
Middle	5.8	90.1	95.9	0.0	3.8	100.0	1,097
Fourth	4.6	90.6	95.2	0.0	4.5	100.0	1,069
Highest	14.4	80.9	95.3	0.1	4.6	100.0	972
Total	6.8	87.6	94.4	0.0	5.3	100.0	5,425

Note: If more than one source of ANC was mentioned, only the provider with the highest qualifications is considered in this tabulation.  
<sup>1</sup> Includes those with missing information

**Figure 8.1 Trends in Antenatal Care and Delivery, Rwanda 1992, 2000, and 2005**

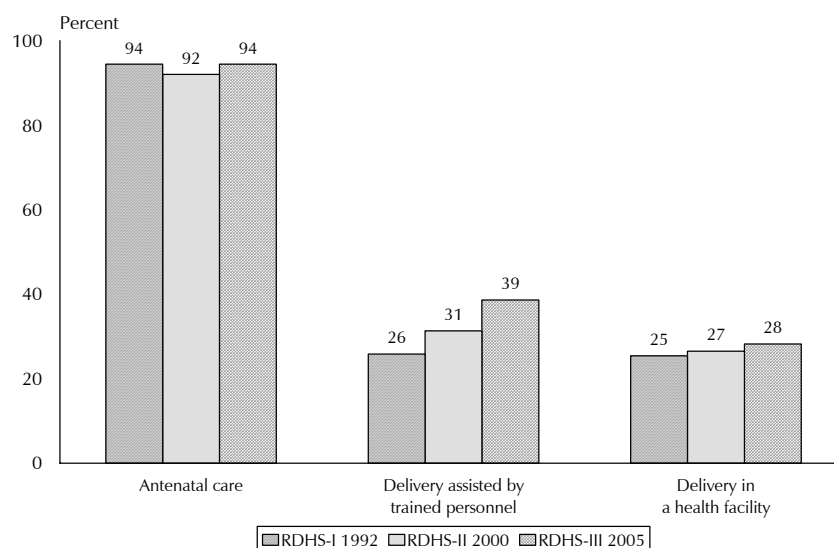


Table 8.2 shows the number of ANC visits and the timing of the first visit. Although the great majority of Rwandan mothers sought antenatal care, the number of visits was below the standard set by WHO and Rwandan health officials. Only 13 percent of women who had a live birth in the five years preceding the survey met the standard of at least four ANC visits. More than two-thirds of the women had 2 or 3 ANC visits (68 percent). This percentage has remained virtually unchanged since 2000, when it was 69 percent. It should also be noted that 13 percent of mothers had only one visit and 5 percent of mothers had no ANC visits at all. This situation has also remained unchanged since 2000.

Results by residence show that the proportion of women who made at least 4 ANC visits is slightly higher in urban areas (18 percent) than in rural areas (13 percent).

It should be noted that Rwandan women seek their first prenatal visit late in pregnancy. In fact, half of the women did not have an ANC visit until their sixth or seventh month of pregnancy; 27 percent had their first visit between the fourth and fifth month; and 9 percent did not receive antenatal care until the eighth month or later. Only 5 percent of women made their first visit before the fourth month of pregnancy, and this proportion is twice as high in urban areas (14 percent) as in rural areas (7 percent). The median number of months of pregnancy at the first ANC visit is 6.4

**Table 8.2** Number of antenatal care visits and timing of first visit

Percent distribution of women who had a live birth in the five years preceding the survey by number of antenatal care (ANC) visits for the most recent birth, and by the timing of the first visit, and among women with ANC, median months pregnant at first visit, according to residence, Rwanda 2005

Number and timing of ANC visits	Residence		Total
	Urban	Rural	
<b>Number of ANC visits</b>			
None	7.0	5.1	5.4
1	9.5	13.5	13.0
2-3	65.5	68.6	68.1
4+	17.6	12.6	13.3
Total <sup>1</sup>	100.0	100.0	100.0
<b>Number of months pregnant at time of first ANC visit</b>			
No antenatal care	7.0	5.1	5.4
<4	13.5	7.0	7.9
4-5	26.5	27.4	27.3
6-7	45.3	50.5	49.8
8+	6.9	9.7	9.3
Total <sup>1</sup>	100.0	100.0	100.0
Median months pregnant at first ANC visit	6.2	6.5	6.4
Number of women	774	4,651	5,425

<sup>1</sup> Includes those with missing information

for the country as a whole, 6.2 in urban areas, and 6.5 in rural areas. The lateness of the first ANC visit can be explained by a Rwandan tradition whereby women do not speak of their pregnancy until it is visible. Also, it may be that women wait until the sixth month of pregnancy to have their first prenatal visit in order to receive a tetanus vaccination.

### Components of ANC

The effectiveness of antenatal care depends not only on the type of examinations performed at the visit, but also on the counseling and preventive measures given to avoid the risk of miscarriage and other pregnancy complications. The RDHS-III collected data on this important aspect of prenatal monitoring by asking women if, during their ANC visits for the most recent birth: they were told about the danger signs of pregnancy complications, they received specific medical examinations (weight, height, and blood pressure measurements), and they were given blood and urine tests. In addition, women were asked if they had received iron supplements and antimalarial drugs. The answers to these questions are presented in Table 8.3 by background characteristics.

Table 8.3 Components of antenatal care

Percentage of women with a live birth in the five years preceding the survey who received antenatal care for the most recent birth, by content of antenatal care, and percentage of women with a live birth in the five years preceding the survey who received iron tablets or syrup or antimalarial drugs for the most recent birth, according to background characteristics, Rwanda 2005

Background characteristic	Among women who received antenatal care						Number of women who received antenatal care	Received iron tablets or syrup	Received anti-malarial drugs	Number of women
	Informed of signs of pregnancy complications	Weight measured	Height measured	Blood pressure measured	Urine sample taken	Blood sample taken				
<b>Mother's age at birth</b>										
<20	5.7	95.4	52.0	70.1	10.9	32.4	254	25.1	4.4	276
20-34	5.5	93.4	56.6	71.4	7.8	25.7	3 597	27.9	6.2	3,777
35-49	8.1	94.4	53.0	71.1	6.2	19.6	1 273	29.4	4.9	1,372
<b>Birth order</b>										
1	6.8	93.0	55.8	71.5	11.6	32.4	828	27.2	7.6	875
2-3	6.5	93.8	55.8	71.2	8.6	25.9	1 629	27.2	6.0	1,706
4-5	4.1	94.5	57.6	73.0	6.1	23.3	1 275	29.6	5.7	1,349
6+	7.3	93.3	53.0	69.6	5.5	19.4	1 392	28.5	4.6	1,495
<b>Residence</b>										
Urban	7.8	96.1	58.4	88.1	21.8	63.6	720	33.8	9.8	774
Rural	5.9	93.3	55.0	68.5	5.3	18.2	4 404	27.2	5.1	4,651
<b>Province</b>										
City of Kigali	8.5	97.2	59.5	84.1	28.4	62.8	396	31.0	8.7	427
South	7.2	96.2	64.1	86.2	7.5	24.1	1 289	36.2	8.3	1,357
West	8.2	90.9	48.6	67.2	6.8	27.1	1 296	33.6	4.0	1,395
North	3.4	95.5	48.4	62.8	3.6	16.6	1 017	20.6	2.6	1,052
East	4.3	91.4	58.5	62.0	4.9	16.0	1 126	18.3	6.8	1,194
<b>Education</b>										
No education	6.9	92.5	50.2	65.6	5.6	19.4	1 425	27.4	4.5	1,552
Primary	5.6	93.9	57.8	71.9	6.3	24.4	3 241	27.1	5.8	3,404
Secondary or higher	7.8	96.1	55.7	84.0	23.0	41.8	458	38.3	9.8	469
<b>Wealth quintile</b>										
Lowest	5.0	92.4	53.8	67.5	4.6	17.2	1 065	24.0	3.2	1,163
Second	5.4	93.9	56.2	68.1	4.4	18.3	1 061	22.9	5.0	1,124
Middle	6.2	94.1	52.9	65.5	4.6	21.9	1 052	27.4	5.3	1,097
Fourth	6.2	93.9	56.4	72.6	6.9	23.0	1 018	31.1	7.0	1,069
Highest	8.3	94.4	58.4	84.3	18.9	45.0	927	36.8	9.0	972
Total	6.2	93.7	55.5	71.3	7.6	24.6	5 124	28.2	5.8	5,425

Very few women (6 percent) were informed of the signs of pregnancy complications, a situation that has remained unchanged since 2000, when the proportion of women who received this information was also 6 percent. There is little variation in this percentage by background characteristic.

Weight is by far the most common ANC measurement taken (94 percent), regardless of the mother's background characteristics. Only 71 percent of women reported having their blood pressure measured; 56 percent said their height was measured. Taking blood and urine samples for testing was least likely to occur during an ANC visit (25 percent and 8 percent, respectively).

Overall, women in rural areas, women with no education, and women living in the poorest households are the least likely to receive blood pressure measurements or blood and urine analyses as part of their ANC visits.

The proportion of women who receive iron supplements and antimalarial drugs is very low: 28 percent receive iron supplements and 6 percent receive antimalarial medication. However, it should be noted that nutritional iron supplements are not systematically prescribed for pregnant women in Rwanda except in the case of anemia. It should also be noted that the practice of giving antimalarial drugs preventively has been introduced only recently. The results by residence and wealth quintile reveal large disparities. In rural areas, 27 percent of the women reported receiving iron tablets or syrups and 5 percent said they received antimalarial drugs; the levels are higher in urban areas (34 percent for iron tablets and 10 percent for antimalarial drugs). Results by wealth quintile reveal similar differentials: in the poorest households, 24 percent of women received iron supplements, compared with 37 percent in the richest households; 3 percent received antimalarial medication, compared with 9 percent in the richest households. Results by province show that the East and North provinces have the lowest rates for iron supplementation: 21 percent for the East and 18 percent for the North, compared with a high of 36 percent for the South province. Women in the North (3 percent) and West (4 percent) provinces were the least likely to have received antimalarial drugs.

Results for some ANC components have changed little since 2000: weight measurement (93 percent); information on inherent pregnancy risks (6 percent); and preventive treatment by antimalarial drugs (8 percent, compared with 6 percent currently), although proportions have increased for the other types of examinations.

### ***Tetanus vaccinations***

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

Table 8.4 shows that antitetanus vaccination coverage for pregnant mothers remains low, and it has dropped since the last survey. Only 63 percent of women who had a live birth in the five years preceding the survey received one or two or more doses of antitetanus vaccine during their most recent pregnancy, compared with 70 percent in 2000. Those who are fully protected (along with their newborns) because they received two or more doses of antitetanus vaccine, represent only 22 percent of pregnant women; those who are partially protected (unless they were vaccinated previously) by receiving one dose

of the vaccine, represent 41 percent of the mothers surveyed. The age of the mother seems to be an important factor in tetanus coverage: the proportion of women who received one or two or more doses is higher among younger mothers (84 percent for the youngest age group; 33 percent for the oldest). Similarly, first births are better protected than higher order births: 85 percent for first births, compared with 26 percent for births order 6 and above. In addition, mothers in rural areas (62 percent, compared with 71 percent in urban areas), mothers in the South province (64 percent), and mothers with no education (54 percent, compared with 73 percent for women with a secondary education or higher) are less likely to receive the tetanus vaccine. The data by wealth quintile show no major variations with respect to vaccination coverage.

Background characteristic	None	One injection	Two or more injections	Don't know/missing	Total	Number
<b>Mother's age at birth</b>						
<20	15.1	45.2	39.1	0.6	100.0	276
20-34	25.9	47.7	25.4	1.0	100.0	3,777
35-49	66.4	22.2	10.3	1.1	100.0	1,372
<b>Birth order</b>						
1	13.5	37.9	47.2	1.4	100.0	875
2-3	16.0	55.9	27.1	1.0	100.0	1,706
4-5	33.4	50.4	15.3	1.0	100.0	1,349
6+	72.9	17.9	8.4	0.9	100.0	1,495
<b>Residence</b>						
Urban	26.4	43.9	27.4	2.3	100.0	774
Rural	37.1	40.7	21.4	0.8	100.0	4,651
<b>Province</b>						
City of Kigali	21.3	42.8	33.2	2.7	100.0	427
South	35.1	46.4	17.9	0.5	100.0	1,357
West	38.6	39.0	20.9	1.6	100.0	1,395
North	38.0	40.0	21.0	1.0	100.0	1,052
East	35.6	38.0	25.9	0.4	100.0	1,194
<b>Education</b>						
No education	45.1	34.0	19.6	1.3	100.0	1,552
Primary	32.8	44.2	22.3	0.6	100.0	3,404
Secondary or higher	24.4	42.1	30.5	2.9	100.0	469
<b>Wealth quintile</b>						
Lowest	37.6	41.3	20.5	0.6	100.0	1,163
Second	40.8	38.5	19.8	0.9	100.0	1,124
Middle	35.9	41.4	22.0	0.7	100.0	1,097
Fourth	33.5	43.1	22.4	0.9	100.0	1,069
Highest	29.0	41.4	27.4	2.2	100.0	972
Total	35.6	41.1	22.3	1.0	100.0	5,425

## 8.2 DELIVERY CARE

### *Place of delivery*

Because every pregnancy may be subject to complications, women are advised to deliver their babies in a health facility so they will have access to emergency services if needed during labor and delivery. For this reason, the RDHS-III asked women where they had given birth and who had assisted the delivery. Table 8.5 shows that less than one-third of the women delivered their babies at a health facility. In fact, 70 percent of the births in the five years preceding the survey took place at home. The

incidence of home births increases with the age of the mother: 59 percent among mothers under the age of 20; 78 percent among mothers age 35 to 49. The proportion of home births also increases with the child's birth order: 49 percent of first births took place at home, compared with 80 percent of births order 6 and above. In addition, home births were more frequent in rural areas (75 percent, compared with 44 percent in urban areas), and among women with no education (81 percent) or only a primary education (71 percent) than among women with a secondary education or higher (32 percent). By province, with the exception of the City of Kigali, where only 42 percent of births take place at home, the proportion of home births ranges from a low of 69 percent in the North to 78 percent in the East province. Moreover, mothers who have not received ANC were more likely to give birth at home (89 percent, compared with 49 percent for women who made four or more ANC visits). Finally, the proportion of women who delivered at home decreases as household wealth increases, from 82 percent for women in the poorest households, to 40 percent for those in the richest households.

Table 8.5 Place of delivery					
Percent distribution of live births in the five years preceding the survey by place of delivery, according to background characteristics, Rwanda 2005					
Background characteristic	Health facility		Home	Total <sup>1</sup>	Number of births
	Public sector	Private sector			
<b>Mother's age at birth</b>					
<20	37.5	2.7	58.8	100.0	533
20-34	28.1	1.4	69.3	100.0	6,366
35-49	19.7	0.6	77.9	100.0	1,815
<b>Birth order</b>					
1	47.9	2.3	48.5	100.0	1,616
2-3	26.0	1.5	71.3	100.0	2,905
4-5	21.5	1.2	76.1	100.0	2,05
6+	17.6	0.4	80.4	100.0	2,138
<b>Residence</b>					
Urban	49.7	5.2	44.1	100.0	1,228
Rural	23.2	0.6	74.8	100.0	7,487
<b>Province</b>					
City of Kigali	50.1	7.4	41.7	100.0	655
South	27.5	0.7	70.7	100.0	2,122
West	24.1	0.5	73.4	100.0	2,290
North	28.3	1.5	69.3	100.0	1,716
East	20.6	0.6	77.5	100.0	1,932
<b>Mother's education</b>					
No education	17.1	0.7	80.6	100.0	2,470
Primary	26.8	0.9	71.0	100.0	5,513
Secondary or higher	61.2	5.9	31.7	100.0	732
<b>Antenatal care visits<sup>2</sup></b>					
None	8.8	1.1	88.9	100.0	291
1-3	26.0	1.3	71.4	100.0	4,400
4 or more	46.4	2.6	48.9	100.0	724
<b>Wealth quintile</b>					
Lowest	16.0	0.6	82.0	100.0	1,845
Second	19.0	0.3	79.6	100.0	1,794
Middle	22.4	0.9	75.3	100.0	1,785
Fourth	27.2	0.7	70.6	100.0	1,742
Highest	54.1	4.4	40.3	100.0	1,548
Total	26.9	1.3	70.4	100.0	8,715

<sup>1</sup> Includes those with missing information  
<sup>2</sup> Includes only the most recent birth in the five years preceding the survey

Conversely, in urban areas, more than 55 percent of births took place at a health facility; in the City of Kigali, this proportion is 58 percent. Similarly, 67 percent of women with a secondary education or higher delivered their babies at a health facility. Finally, it should be noted that these results show no change from the two previous DHS surveys with respect to place of delivery for women in Rwanda (Figure 8.1).

### *Assistance during delivery*

To avoid the risk of maternal death, women should be assisted during delivery by personnel who have received training in normal childbirth and who are able, if needed, to diagnose, treat, and refer complications. Table 8.6 shows the distribution of births in the five years preceding the survey by person providing assistance during the delivery. These results show that still too few women are assisted by trained personnel during childbirth. This is a crucial problem that threatens the health of both mother and child. Six in ten women (61 percent) were not assisted by trained personnel during delivery (43 percent were assisted by untrained traditional birth attendants, and 17 percent received no assistance at all).

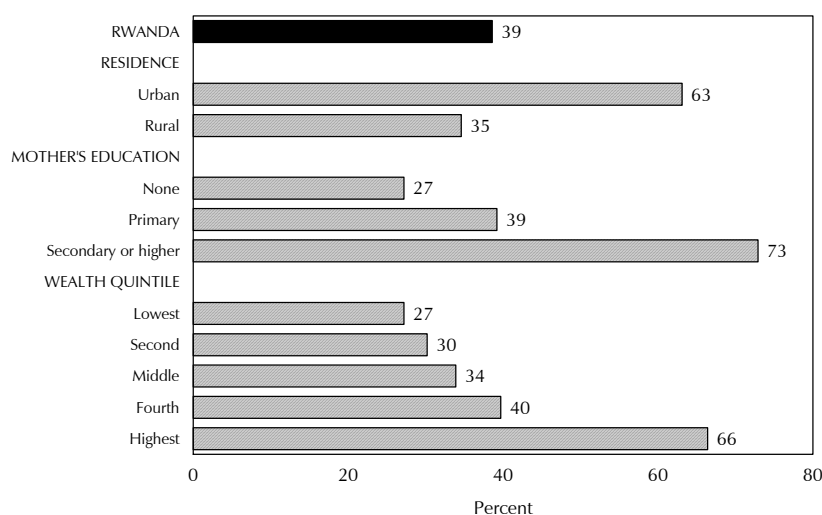
Background characteristic	Doctor	Nurse/midwife/auxiliary midwife/trained traditional birth attendant	Trained personnel	Untrained traditional birth attendant	Relative/other	No one	Total <sup>1</sup>	Number of births
<b>Mother's age at birth</b>								
<20	6.0	44.0	50.0	42.1	0.2	7.7	100.0	533
20-34	5.3	34.7	40.0	44.0	0.4	15.2	100.0	6,366
35-49	3.7	26.9	30.6	41.0	0.6	27.6	100.0	1,815
<b>Birth order</b>								
1	9.3	51.8	61.1	34.0	0.1	4.6	100.0	1,616
2-3	5.1	33.0	38.1	47.5	0.3	13.9	100.0	2,905
4-5	3.2	29.9	33.1	45.4	0.6	20.5	100.0	2,056
6+	3.4	24.4	27.8	42.6	0.7	28.7	100.0	2,138
<b>Residence</b>								
Urban	13.6	49.5	63.1	26.6	0.8	9.2	100.0	1,228
Rural	3.6	31.0	34.6	46.0	0.4	18.7	100.0	7,487
<b>Province</b>								
City of Kigali	15.0	46.7	61.8	26.9	1.2	9.8	100.0	655
South	6.4	33.5	39.9	43.0	0.2	16.9	100.0	2,122
West	5.2	29.2	34.4	45.1	0.7	19.4	100.0	2,290
North	2.2	31.9	34.1	50.3	0.5	14.9	100.0	1,716
East	2.4	36.1	38.5	40.9	0.1	20.2	100.0	1,932
<b>Mother's education</b>								
No education	2.7	24.5	27.2	46.4	0.4	25.9	100.0	2,470
Primary	4.6	34.7	39.2	44.8	0.5	15.1	100.0	5,513
Secondary or higher	16.3	56.6	72.9	21.6	0.0	5.4	100.0	732
<b>Wealth quintile</b>								
Lowest	2.1	25.1	27.2	51.1	0.6	20.9	100.0	1,845
Second	2.9	27.3	30.2	49.0	0.7	19.9	100.0	1,794
Middle	3.1	30.8	33.9	46.6	0.3	18.5	100.0	1,785
Fourth	3.8	35.9	39.7	44.1	0.2	15.9	100.0	1,742
Highest	14.5	51.9	66.4	22.7	0.4	10.4	100.0	1,548
Total	5.0	33.6	38.6	43.3	0.4	17.3	100.0	8,715

Note: If the respondent mentioned more than one person attending during delivery, only the most qualified person is considered in this tabulation.  
<sup>1</sup> Includes those with missing information



Although only 39 percent of births were delivered with the assistance of qualified personnel, this proportion has increased since 1992 (Figure 8.1). The proportion of women who received no assistance increases with age of the mother (8 percent for women under age 20, 28 percent for women age 35-49) and with birth order (5 percent for first births, compared with 29 percent for birth order 6 or above). Unassisted deliveries are more frequent in rural areas (19 percent) than in urban areas (9 percent). Similarly, in the provinces, the proportion of unassisted deliveries ranges from a high of 20 percent in the East province to a low of 10 percent in the City of Kigali. A woman's level of education is related to the delivery conditions: 26 percent of women with no education delivered without assistance, compared with 15 percent of women with a primary education and 5 percent of women with higher educations. In addition, results by household wealth quintile show that deliveries assisted by trained personnel are more than twice as frequent in the richest quintile as in the poorest (66 percent, compared with 27 percent) (see Figure 8.2).

**Figure 8.2 Children Whose Delivery Was Assisted by Trained Personnel**



RDHS 2005

### ***Delivery characteristics***

For live births in the five years preceding the survey, mothers were asked if the delivery took place by caesarean section (C-section); they were also asked the child's birth weight and size. It should be noted that Rwandan health officials hold that C-sections should not exceed 10 percent of deliveries in a health facility.

Table 8.7 shows that only 3 percent of live births were delivered by C-section, a figure well below the Rwandan health stipulation. As expected, the frequency of this intervention, although very low, is higher among younger women, first births, births in urban areas, births among educated women, and births among women in the richest wealth quintile.

Table 8.7 Delivery characteristics

Percentage of live births in the five years preceding the survey delivered by caesarean section, and percent distribution by birth weight and by mother's estimate of baby's size at birth, according to background characteristics, Rwanda 2005

Background characteristic	Delivery by C-section	Birth weight			Total <sup>1</sup>	Size of child at birth			Total <sup>1</sup>	Number of births
		Not weighed	Less than 2.5 kg	2.5 kg or more		Very small	Smaller than average	Average or larger		
<b>Mother's age at birth</b>										
<20	3.5	61.1	2.7	32.9	100.0	3.2	11.9	84.5	100.0	533
20-34	3.3	67.2	1.7	29.5	100.0	3.2	9.4	86.9	100.0	6,366
35-49	1.5	73.4	1.2	23.9	100.0	3.7	9.6	86.4	100.0	1,815
<b>Birth order</b>										
1	5.6	50.9	3.7	42.6	100.0	5.1	13.1	81.2	100.0	1,616
2-3	3.3	69.2	1.5	27.9	100.0	2.6	8.6	88.4	100.0	2,905
4-5	1.8	71.8	1.2	25.5	100.0	3.1	8.5	87.6	100.0	2,056
6+	1.6	76.1	0.8	21.5	100.0	3.2	9.1	87.4	100.0	2,138
<b>Residence</b>										
Urban	7.5	37.3	2.5	58.1	100.0	3.8	8.8	86.7	100.0	1,228
Rural	2.2	73.1	1.6	23.7	100.0	3.3	9.7	86.7	100.0	7,487
<b>Province</b>										
City of Kigali	9.2	32.9	2.9	62.2	100.0	4.1	8.0	87.3	100.0	655
South	3.4	70.8	2.0	26.0	100.0	4.7	9.3	86.0	100.0	2,122
West	2.7	74.4	1.0	22.4	100.0	2.7	10.5	86.3	100.0	2,290
North	1.7	68.2	1.4	28.7	100.0	2.8	8.0	88.7	100.0	1,716
East	1.7	69.5	2.1	27.0	100.0	2.9	10.6	85.8	100.0	1,932
<b>Mother's education</b>										
No education	2.1	78.2	1.0	18.8	100.0	3.4	10.6	85.5	100.0	2,470
Primary	2.6	68.7	1.8	27.9	100.0	3.2	9.4	86.9	100.0	5,513
Secondary or higher	8.7	29.5	3.3	66.0	100.0	3.6	7.2	89.0	100.0	732
<b>Wealth quintile</b>										
Lowest	1.3	81.0	1.4	16.1	100.0	3.4	10.2	85.9	100.0	1,845
Second	2.2	76.0	1.2	21.6	100.0	3.3	9.6	86.9	100.0	1,794
Middle	1.7	72.4	1.5	23.9	100.0	2.8	10.1	86.5	100.0	1,785
Fourth	2.4	69.4	1.9	27.0	100.0	4.0	9.6	86.0	100.0	1,742
Highest	7.8	37.0	2.5	58.4	100.0	3.3	8.1	88.1	100.0	1,548
Total	2.9	68.1	1.7	28.5	100.0	3.3	9.5	86.7	100.0	8,715

<sup>1</sup> Includes those with missing information

Table 8.7 shows results for birth weight. According to mothers' reports, for 68 percent of live births, the infants were not weighed, the reason being that most of them were born at home. The proportion of children not weighed was particularly high for mothers age 35 to 49 (73 percent) and for birth order six and above (76 percent). Similarly, nearly three-quarters of children in rural areas were not weighed at birth (73 percent). The proportion not weighed among infants whose mothers had no education was 78 percent, and the highest proportion not weighed was found in the poorest quintile (81 percent). Because of the high proportion of births for which data are not available, and the wide variations by background characteristics, the figure for low-birth-weight babies is heavily biased (almost certainly underestimated) and therefore should be viewed with caution.

Mothers were also asked if they believed their child was very large, larger than average, average, smaller than average, or very small at birth. Eighty-seven percent of the mothers said they believed their child was average or larger than average. This belief does not vary significantly by respondents' background characteristics. Ten percent of mothers said their child was smaller than average and 3 percent said it was very small. Births believed to be smaller than average were reported most frequently for mothers under the age of 20 at the time of the birth (12 percent), first births (13 percent), mothers in rural areas (10 percent), mothers in the West (11 percent) and East (11 percent) provinces, mothers with no education (11 percent), and mothers in the poorest quintile (10 percent).

### **8.3 POSTNATAL CARE**

A significant proportion of maternal and newborn deaths in the neonatal period take place within 48 hours following delivery. For this reason, Safe Motherhood programs have recently placed special emphasis on the importance of postnatal checkups, recommending that all women have a postnatal visit within two days following the delivery. During the survey, therefore, women whose most recent birth took place outside a health facility were asked if they had received a postnatal checkup, and the timing of this checkup following delivery.

Table 8.8 shows that more than one in four women (29 percent) delivered their babies in a health facility; it is presumed that these women received postnatal care prior to leaving the facility. However, practically none of the women who delivered outside a health facility received a postnatal checkup within the 42 days immediately following the delivery (95 percent), and this proportion remains very high for all background characteristics. Only 4 percent of women who did not deliver at a health facility received a postnatal checkup within two days following the delivery. The proportions who received postnatal care, though low, are highest in the City of Kigali (5 percent), among the most educated women (10 percent), and among women in the richest quintile (8 percent).

The proportion of mothers who did not receive a postnatal checkup has remained stable since 2000, when it was 96 percent, compared with 95 percent in 2005.

Table 8.8 Postnatal care

Percentage of live births in the five years preceding the survey for which the mother delivered in a health facility, and percent distribution of women whose last live birth in the five years preceding the survey occurred outside a health facility by timing of postnatal care, according to background characteristics, Rwanda 2005

Background characteristic	Delivered in a health facility	Number of births	Timing of first postnatal checkup for births occurring outside a health facility					Total	Number of births occurring outside a health facility
			0-2 days after delivery	3-6 days after delivery	7-41 days after delivery	Don't know/missing	Did not receive postnatal checkup <sup>1</sup>		
<b>Mother's age at birth</b>									
<20	44.6	276	2.6	0.0	0.5	0.0	96.9	100.0	153
20-34	31.2	3,777	3.6	0.4	0.6	0.3	95.1	100.0	2,600
35-49	21.1	1,372	4.1	0.1	0.4	0.4	95.1	100.0	1,083
<b>Birth order</b>									
1	54.2	875	3.9	0.5	1.4	0.3	93.9	100.0	400
2-3	28.9	1,706	3.5	0.3	0.5	0.2	95.5	100.0	1,214
4-5	25.6	1,349	4.0	0.4	0.3	0.5	94.7	100.0	1,004
6+	18.5	1,495	3.6	0.1	0.4	0.3	95.7	100.0	1,218
<b>Residence</b>									
Urban	55.0	774	5.4	0.7	1.1	0.6	92.2	100.0	348
Rural	25.0	4,651	3.5	0.2	0.4	0.3	95.5	100.0	3,487
<b>Province</b>									
City of Kigali	58.1	427	5.2	0.9	0.9	1.3	91.6	100.0	179
South	29.2	1,357	3.9	0.2	0.5	0.2	95.2	100.0	961
West	25.8	1,395	4.3	0.2	0.5	0.4	94.5	100.0	1,036
North	30.3	1,052	2.9	0.5	0.1	0.6	95.9	100.0	734
East	22.4	1,194	3.1	0.1	0.7	0.0	96.2	100.0	926
<b>Education</b>									
No education	19.1	1,552	2.8	0.2	0.4	0.3	96.2	100.0	1,256
Primary	28.6	3,404	3.8	0.2	0.5	0.4	95.2	100.0	2,429
Secondary or higher	67.8	469	9.9	1.6	1.1	0.0	87.5	100.0	151
<b>Wealth quintile</b>									
Lowest	17.8	1,163	2.7	0.1	0.2	0.3	96.7	100.0	956
Second	21.2	1,124	2.5	0.3	0.1	0.0	97.1	100.0	886
Middle	22.5	1,097	3.3	0.3	0.6	0.5	95.2	100.0	850
Fourth	28.5	1,069	4.6	0.4	0.6	0.6	93.7	100.0	764
Highest	61.0	972	7.9	0.2	1.5	0.4	90.0	100.0	379
Total	29.3	5,425	3.7	0.3	0.5	0.3	95.2	100.0	3,836

<sup>1</sup> Includes women who received the first postnatal checkup after 41 days

## 8.4 VACCINATION OF CHILDREN

To assess Rwanda's Expanded Program on Immunization (EPI), the RDHS-III gathered information on vaccinations for all children who were born in the five years preceding the survey.

The EPI largely follows the World Health Organization's (WHO) guidelines for vaccinating children. These guidelines stipulate that, to be considered fully immunized, children should receive the following vaccines by the age of 12 months: one dose of BCG (against tuberculosis), three doses of DPT (against diphtheria, pertussis, and tetanus), three doses of the oral polio vaccine, and one dose of the measles vaccine. Vaccines against *Haemophilus influenza* and hepatitis were introduced in Rwanda in January 2001.

Each child who is vaccinated receives a card on which all of the vaccines received are recorded. The information on vaccinations was gathered from two sources: where vaccination cards were available,

the interviewer copied the information directly onto the questionnaire; where cards were not available—because the mother never had one, or it was unavailable at the time of the survey, or she had lost it—mothers were asked to recall whether or not the child had received each of the vaccines covered by the survey.

Table 8.9 presents vaccination coverage results by source of information for children age 12 to 23 months, thereby including only children who had reached the age by which they should be fully immunized. According to the vaccination cards, 66 percent of children age 12 to 23 months are fully immunized. When information from both information sources is considered, the percentage of children fully immunized reaches 75 percent. Vaccination coverage based solely on the mother’s report occurred in only 9 percent of cases. Of the fully immunized children, 69 percent received their vaccinations before their first birthday as recommended by WHO and the Rwanda EPI. Only 3 percent of children age 12 to 23 months had not received any vaccinations at the time of the survey.

**Table 8.9 Vaccinations by source of information**  
Percentage of children age 12-23 months who received specific vaccines at any time before the survey, by source of information (vaccination card or mother’s report), and percentage vaccinated by 12 months of age, Rwanda 2005

Source of information	BCG	DPT			Polio <sup>1</sup>			Measles	All <sup>2</sup>	No vaccinations	Number of children	
		1	2	3	0	1	2					3
<b>Vaccinated at any time before the survey</b>												
Vaccination card	75.1	75.7	74.8	72.7	61.4	75.6	74.6	72.7	66.9	65.9	0.0	1,234
Mother’s report	21.3	21.1	18.6	14.3	12.5	20.9	18.4	11.6	18.7	9.3	2.5	392
Either source	96.5	96.8	93.4	87.0	73.9	96.5	93.0	84.3	85.6	75.2	2.5	1,626
<b>Vaccinated by 12 months of age<sup>3</sup></b>												
	96.4	96.5	93.0	86.4	73.8	96.2	92.6	83.7	79.4	69.3	3.8	1,626

<sup>1</sup> Polio 0 is the polio vaccination given at birth.  
<sup>2</sup> BCG, measles and three doses each of DPT and polio vaccine (excluding polio vaccine given at birth)  
<sup>3</sup> For children whose information was based on the mother’s report, the proportion of vaccinations given during the first year of life was assumed to be the same as for children with a written record of vaccination.

According to the vaccination cards, 75 percent of children age 12 to 23 months have received the BCG vaccine; 21 percent more have received it based on mothers’ reports. Therefore, a total of 97 percent of children had been immunized against tuberculosis at the time of the survey, almost all of them before their first birthday (12 months). According to both sources of information, the proportion of children who received the first dose of DPT is also very high (97 percent); however, DPT vaccination coverage gradually declines for subsequent doses, from 97 percent for the first dose, to 93 percent for the second dose, to 87 percent for the third dose. These figures represent a dropout rate of 10 percent between the first and third doses of DPT.

Because polio vaccine is given at the same time as DPT, its levels are expected to be similar, which is the case in Rwanda. For this vaccine as well, coverage gradually declines for subsequent doses, from 96 percent for the first dose, to 93 percent for the second dose, to 84 percent for the third dose. The dropout rate is 13 percent between the first and third doses. According to both sources of information, just under three-quarters of children received polio dose 0 at birth (74 percent).

According to both sources of information, 86 percent of children received the measles vaccine; however, only 79 percent received it before the age of 12 months. Although the proportion of fully immunized children had declined between the two previous surveys, from 87 percent in 1992 to 76 percent in 2000, the results of the current survey show some improvement in vaccination coverage, which has maintained its 2000 level (76 percent) (Figure 8.3).

**Figure 8.3 Trends in Vaccination Coverage among Children Age 12-23 Months, Rwanda 1992, 2000, and 2005**

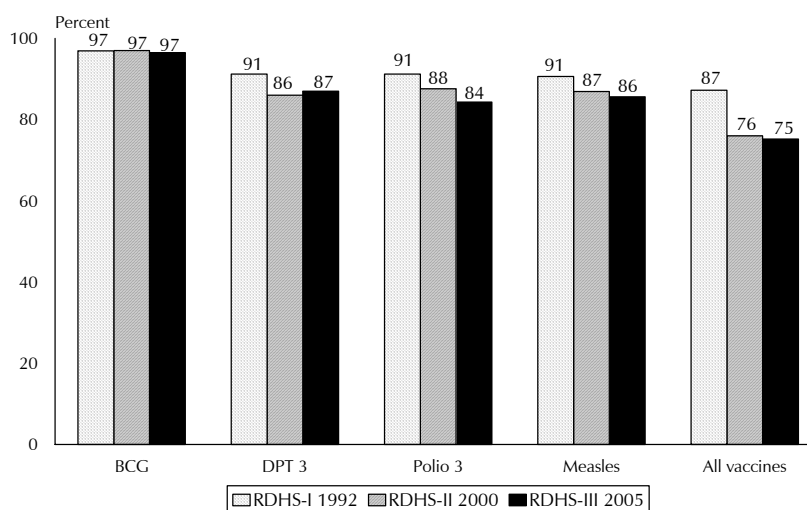


Table 8.10 shows the results for vaccination coverage among children age 12 to 23 months according to background characteristics of mother and child. The data show practically no disparity by sex (75 percent for males and females). However, complete coverage declines with children’s birth order: 79 percent for the first birth; 75 percent for birth orders 2-3 and 4-5; and 73 percent for children of birth order 6 and above. By residence, complete vaccination coverage is higher in rural areas (76 percent) than in urban areas (71 percent), primarily because the City of Kigali has the lowest vaccination coverage in the country (62 percent). This low proportion in the City of Kigali is due in part to the high dropout rate between polio doses (22 percent between the first and third doses). The East province has the second lowest coverage rate (67 percent) after the City of Kigali.

Complete vaccination coverage increases steadily with the mother’s level of education, although the differentials are not great: 72 percent for children whose mothers have no education; 76 percent for children whose mothers have a primary education; and 78 percent for children whose mothers have a secondary education or higher. However, the proportion of vaccinated children varies little according to household wealth: it is highest in the fourth quintile (79 percent); in the other quintiles the proportions are all approximately 74 percent.

Table 8.10 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, by background characteristics, Rwanda 2005

Background characteristic	BCG	DPT			Polio <sup>1</sup>				Measles	All <sup>2</sup>	No vaccinations	Percentage with a vaccination card seen	Number of children
		1	2	3	0	1	2	3					
<b>Sex</b>													
Male	95.6	96.0	92.2	85.3	72.4	95.4	91.7	83.3	84.9	75.0	3.4	75.1	844
Female	97.4	97.6	94.8	88.8	75.5	97.6	94.4	85.3	86.4	75.4	1.7	76.8	782
<b>Birth order</b>													
1	95.9	96.1	92.2	87.6	76.8	96.4	93.4	84.8	90.7	79.0	3.1	77.5	324
2-3	97.7	97.7	96.3	88.8	73.8	97.1	93.7	84.1	85.5	74.6	1.7	75.6	519
4-5	96.2	97.2	92.6	85.9	73.4	96.9	93.7	84.2	85.6	74.7	2.4	75.5	380
6+	95.6	95.7	91.5	85.2	72.2	95.2	91.3	84.2	81.7	73.3	3.4	75.3	402
<b>Residence</b>													
Urban	97.6	96.4	90.7	84.9	81.9	98.3	93.6	81.0	89.6	71.0	1.5	69.3	214
Rural	96.3	96.8	93.8	87.3	72.7	96.2	92.9	84.8	85.0	75.8	2.7	76.9	1,412
<b>Province</b>													
City of Kigali	97.4	96.2	89.4	80.6	83.1	98.3	91.5	76.4	85.4	61.7	1.7	69.0	103
South	98.3	98.1	96.9	92.5	73.3	97.7	94.7	88.8	94.1	84.3	1.1	76.4	393
West	96.7	98.4	92.6	84.4	71.4	97.1	92.0	82.6	82.5	72.0	1.6	76.0	440
North	99.0	98.8	95.7	90.3	79.1	98.8	97.5	86.6	92.1	81.2	0.2	76.6	340
East	91.4	91.4	89.5	82.6	69.9	91.4	88.5	81.4	73.9	67.0	7.9	76.6	350
<b>Education</b>													
No education	94.2	94.7	91.0	83.7	69.7	94.1	90.5	80.4	82.6	71.8	4.7	71.0	423
Primary	97.2	97.5	94.8	88.3	75.0	97.2	93.6	86.0	86.0	76.2	1.8	78.8	1,067
Secondary or higher	98.2	97.2	90.3	86.4	78.2	98.2	96.9	82.8	92.0	77.7	1.8	67.9	135
<b>Wealth quintile</b>													
Lowest	95.8	96.0	92.9	85.7	68.6	96.0	91.8	82.3	84.9	74.3	3.7	71.4	335
Second	96.3	95.8	91.5	84.8	71.9	94.3	90.2	82.4	83.9	73.8	3.0	76.6	345
Middle	95.1	96.4	94.4	88.1	74.9	96.4	93.6	85.5	84.1	75.0	3.0	78.3	339
Fourth	97.0	97.7	95.3	90.1	71.3	97.7	95.1	87.6	88.1	78.7	1.4	77.7	329
Highest	98.5	98.1	93.0	86.0	84.6	98.3	94.9	83.7	87.6	74.0	1.3	75.3	277
Total	96.5	96.8	93.4	87.0	73.9	96.5	93.0	84.3	85.6	75.2	2.5	75.9	1,626

<sup>1</sup> Polio 0 is the polio vaccination given at birth.

<sup>2</sup> BCG, measles and three doses each of DPT and polio vaccine (excluding polio vaccine given at birth)

## 8.5 CHILDHOOD ILLNESSES

### 8.5.1 Acute Respiratory Infection (ARI) and Fever

Acute Respiratory Infections (ARI), particularly pneumonia, constitute one of the main causes of child deaths in developing countries. To assess the prevalence of these infections, mothers were asked if their children under five years had been ill with a cough during the two weeks preceding the survey. If the answer was yes, they were asked if the cough had been accompanied by short, rapid breathing. Fever is the primary symptom of many illnesses including malaria and measles, which cause numerous deaths in developing countries. For this reason, mothers were asked whether their children had suffered from a fever during the two weeks preceding the interview. In addition, for children who had presented

symptoms of ARI and fever, information was gathered concerning whether or not treatment or advice had been sought. The results are presented in Table 8.11.

Among children under the age of five, 17 percent had been ill with a cough accompanied by short, rapid breathing in the two weeks preceding the survey. These respiratory infections were the most frequent among children age 6-11 months (28 percent) and 12-23 months (21 percent) (see Figure 8.4). There is no notable difference in ARI prevalence between boys and girls (17 percent for both). The prevalence of AIR is similar in rural and urban areas (17 percent and 18 percent, respectively).

Table 8.11 Prevalence and treatment of symptoms of ARI and fever					
Percentage of children under five years who had a cough accompanied by short, rapid breathing (symptoms of ARI), and percentage of children who had fever in the two weeks preceding the survey, and percentage of children with symptoms of ARI and/or fever for whom treatment was sought from a health facility or provider, by background characteristics, Rwanda 2005					
Background characteristic	Percentage of children with symptoms of ARI	Percentage of children with fever	Number of children	Among children with symptoms of ARI and/or fever, percentage for whom treatment was sought from a health facility/provider <sup>1</sup>	Number of children
<b>Age in months</b>					
<6	15.5	19.5	891	24.4	228
6-11	27.5	38.9	830	35.8	374
12-23	21.3	36.9	1,626	30.9	684
24-35	15.8	24.0	1,732	26.8	500
36-47	14.2	20.8	1,373	18.6	362
48-59	11.2	18.4	1,346	18.8	302
<b>Sex</b>					
Male	17.2	26.5	3,959	27.8	1,258
Female	16.9	26.0	3,839	26.0	1,192
<b>Residence</b>					
Urban	18.4	25.3	1,144	40.6	362
Rural	16.9	26.4	6,653	24.5	2,088
<b>Province</b>					
City of Kigali	17.4	25.2	599	43.6	188
South	17.7	29.5	1,909	28.1	652
West	15.5	23.6	2,075	20.0	593
North	14.9	22.9	1,571	32.1	437
East	20.4	29.3	1,644	23.2	580
<b>Education</b>					
No education	18.6	28.3	2,172	23.7	719
Primary	16.7	26.0	4,938	26.5	1,549
Secondary or higher	14.7	21.0	687	43.0	183
<b>Wealth quintile</b>					
Lowest	18.1	27.8	1,612	21.7	531
Second	16.3	24.8	1,605	24.5	481
Middle	17.0	25.8	1,620	23.9	505
Fourth	16.7	27.5	1,525	23.8	492
Highest	17.4	25.2	1,436	42.7	441
Total	17.1	26.2	7,797	26.9	2,450

<sup>1</sup> Excludes pharmacy, shop, and traditional practitioner



Results according to province show a higher prevalence of ARI in the East (20 percent) and South (18 percent) provinces and in the City of Kigali (17 percent) than elsewhere. Results according to mother's level of education vary somewhat: from a high of 19 percent for children of mothers with no education, to 17 percent for children of mothers with primary education, to 15 percent for children of mothers with secondary or higher education. ARI prevalence does not vary much by wealth quintile.

In the two weeks preceding the survey, just over one-quarter of the children had had a fever (26 percent). As with ARI, age seems to be the most important factor affecting fever prevalence: children age 6-11 months (39 percent) and 12-23 months (37 percent) were the most likely to have had a fever (Figure 8.4). Fever prevalence does not vary much by gender of child (27 percent for boys; 26 percent for girls) or residence (25 percent for urban; 26 percent for rural), and there are only slight variations between provinces, prevalence being highest in the South (30 percent) and East (29 percent) provinces and in the City of Kigali (27 percent). Similarly, children whose mothers have no education (28 percent) were more likely to have suffered from fever (28 percent, compared with 21 percent for those whose mothers have a secondary education or higher). Household wealth does not significantly affect the prevalence of fever in children under the age of five.

The table also shows the proportion of children for whom treatment was sought. Treatment or advice was sought from a health facility or provider for only 27 percent of children with the symptoms of acute respiratory infection and/or fever. Treatment was sought most often for children age 6-11 months (35 percent) and 12-23 months (31 percent), who, as seen above, have the highest prevalence of fever and ARI.

Whether or not treatment is sought from a health facility for ARI or fever is influenced by residence, mother's level of education, and wealth quintile. In urban areas, treatment was sought for 41 percent of children, compared with only one in four children in rural areas (25 percent). Similarly, treatment or advice was sought for 43 percent of children whose mothers have a secondary education or higher, compared with only 27 percent of children whose mothers have a primary education, and 24 percent of those whose mothers have no education.

Finally, treatment was sought for 43 percent of children in the richest households, while in the poorest households, this proportion was only 22 percent. The data for treatment seeking show no significant variation by gender of child.

The results according to province show that seeking treatment is not necessarily linked to prevalence of ARI or fever. Apart from the City of Kigali, which has a high proportion of children for whom treatment or advice was sought (44 percent), treatment was most often sought in the North province (32 percent), which has the lowest prevalence of ARI and/or fever. However, the proportion of children for whom advice or treatment was sought was only 23 percent in the East province, which has relatively high levels of ARI and fever.

## **8.5.2 Diarrhea**

### ***Prevalence of diarrhea***

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

To assess the prevalence of diarrheal diseases in children under the age of five, mothers were asked whether their children had suffered from diarrhea during the two weeks preceding the survey (Table 8.12). Information was also gathered on the percentage of mothers who had heard of ORS packets (Table 8.13), the percentage of children for whom treatment or advice was sought, and the type of treatment used to treat the diarrhea. Regarding treatment, mothers were asked whether they had used ORS packets and/or RHF, or other treatments during the diarrheal episodes (Table 8.14).

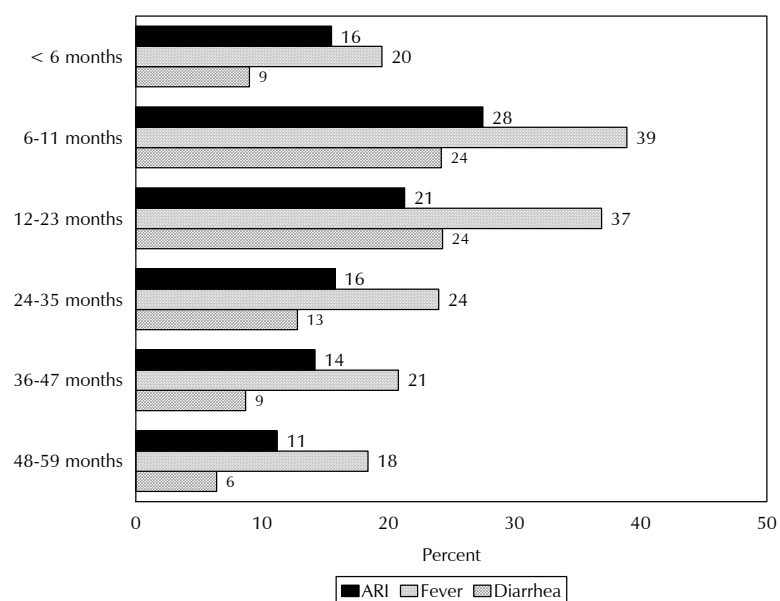
Table 8.12 shows that, according to mothers' reports, 14 percent of children had suffered from diarrhea in the two weeks preceding the survey. The prevalence of diarrhea is especially high among children age 6-23 months (24 percent) (Figure 8.4). These high-prevalence ages are also the ages at which children begin to be weaned and consume foods other than breast milk. They also correspond to the ages at which children begin to explore their environment, resulting in greater exposure to pathogens. Diarrhea prevalence seems to have little relation to a child's gender or residence: 15 percent of male children suffered from diarrhea, compared with 13 percent of female children, and 13 percent of children in rural areas were affected by diarrhea, compared with 14 percent in urban areas. By province, the City of Kigali has the lowest diarrhea prevalence (11 percent); variations are small among the other provinces, the proportion of children with diarrhea ranging between 14 percent and 15 percent. However, mother's level of education seems to play an important role, with prevalences being higher among children whose mothers have no education or have a primary education than among those whose mothers have a secondary education or higher (15 percent, compared with 9 percent). Moreover, children who drink piped (tap) water have the lowest prevalence of diarrhea (12 percent). Although unclean water is an increased risk factor for contracting diarrheal diseases, surprisingly, the prevalence of diarrhea among children in households that drink water from open wells (14 percent) or surface water (from lakes or marsh creeks—15 percent) does not differ substantially from the prevalence of diarrhea among children who consume piped water (12 percent). Moreover, children who drink protected well water have the highest prevalence of diarrhea (16 percent). There also does not appear to be a strong link between diarrhea prevalence and household wealth. In households in the poorest quintile, 16 percent of children had diarrhea in the two weeks preceding the survey, compared with 11 percent among children in the richest quintile, but diarrhea prevalence in the fourth quintile is identical to that of the poorest quintile (16 percent).

Table 8.12 Prevalence of diarrhea

Percentage of children under five years with diarrhea in the two weeks preceding the survey, by background characteristics, Rwanda 2005

Background characteristic	Diarrhea in the two weeks preceding the survey	Number of children
<b>Age in months</b>		
<6	9.0	891
6-11	24.2	830
12-23	24.3	1,626
24-35	12.8	1,732
36-47	8.7	1,373
48-59	6.4	1,346
<b>Sex</b>		
Male	15.2	3,959
Female	13.1	3,839
<b>Residence</b>		
Urban	12.7	1,144
Rural	14.4	6,653
<b>Province</b>		
City of Kigali	11.2	599
South	14.5	1,909
West	13.7	2,075
North	14.5	1,571
East	15.1	1,644
<b>Mother's education</b>		
No education	15.1	2,172
Primary	14.5	4,938
Secondary or higher	8.5	687
<b>Source of drinking water</b>		
Piped	12.1	2,216
Protected well	15.8	484
Open well	14.0	1,046
Surface	15.3	3,975
Other	5.2	76
<b>Wealth quintile</b>		
Lowest	16.0	1,612
Second	14.2	1,605
Middle	13.6	1,620
Fourth	16.0	1,525
Highest	10.8	1,436
Total	14.1	7,797

**Figure 8.4 Prevalence of ARI, Fever, and Diarrhea, by Age**



RDHS 2005

### ***Knowledge of ORS packets***

Table 8.13 shows that 87 percent of women with births in the five years preceding the survey reported knowing about oral rehydration salt (ORS) packets. This proportion is slightly higher than that of the RDHS-II survey (86 percent).

The level of knowledge of ORS packets increases with the age of the mother, ranging from a low of 63 percent for mothers age 15 to 19, to a high of 91 percent for mothers age 35 to 49. There is not much variation between urban and rural areas (90 percent and 86 percent, respectively). Neither is there any significant difference between the provinces, knowledge of ORS ranging between 83 percent and 89 percent. However, knowledge of ORS packets increases with mother's level of education and household wealth. The proportion of women who had heard of ORS packets increases from 85 percent among women with no education to 95 percent among the most educated women; similarly, it rises from 84 percent among the poorest women to 91 percent among women in the richest quintile.

Table 8.13 Knowledge of ORS packets

Percentage of mothers with births in the five years preceding the survey who know about ORS packets for treatment of diarrhea, by background characteristics, Rwanda 2005

Background characteristic	Percentage of mothers who know about ORS packets	Number of mothers
<b>Age</b>		
15-19	63.2	84
20-24	79.0	1,060
25-29	85.9	1,359
30-34	90.3	1,175
35-49	91.1	1,747
<b>Residence</b>		
Urban	90.0	774
Rural	86.3	4,651
<b>Province</b>		
City of Kigali	88.3	427
South	87.8	1,357
West	82.9	1,395
North	89.3	1,052
East	87.7	1,194
<b>Education</b>		
No education	84.5	1,552
Primary	86.9	3,404
Secondary or higher	94.5	469
<b>Wealth quintile</b>		
Lowest	84.4	1,163
Second	84.3	1,124
Middle	88.9	1,097
Fourth	86.8	1,069
Highest	90.5	972
Total	86.9	5,425

ORS = Oral rehydration salts

### ***Treatment of diarrhea***

Table 8.14 shows that advice or treatment was sought for only 14 percent of children with diarrhea. Treatment was most often sought for children age 12-35 months (17 percent). Only 12 percent of children age 6-11 months—who have the highest prevalence of diarrhea—received treatment. Boys (16 percent) were more likely to be taken to health facilities for treatment than girls (12 percent).

There is little difference in treatment seeking for diarrhea between urban (16 percent) and rural (14 percent) areas. However, there are major differences with respect to provinces; the proportion of children taken to a health facility ranges from a high of 23 percent in the North province to a low of 10 percent in the East province. Children whose mothers have a secondary education or higher (24 percent, compared with 16 percent for those whose mothers have no education) and those living in the richest households (18 percent, compared with 13 percent in the poorest quintile) received treatment more frequently than other children.

Table 8.14 Diarrhea treatment

Percentage of children under five years who had diarrhea in the two weeks preceding the survey taken for treatment to a health provider, percentage who received oral rehydration therapy (ORT), and percentage given other treatments, according to background characteristics, Rwanda 2005

Background characteristic	Percentage taken to a health provider <sup>1</sup>	Oral rehydration therapy (ORT)				Other treatments				Number of children	
		ORS packets	RHF	Either ORS or RHF	Increased fluids	ORS, RHF, or increased fluids	Pill/syrup	Injection	Home remedy/other		No treatment
<b>Age in months</b>											
<6	7.1	2.5	7.4	9.9	7.4	16.0	9.7	0.0	29.0	52.1	80
6-11	11.7	12.8	9.3	19.3	17.0	30.9	13.5	1.3	36.5	36.1	201
12-23	16.6	12.0	9.1	19.5	17.9	31.9	20.2	1.3	31.3	31.8	395
24-35	15.5	16.0	6.7	21.1	22.5	36.2	22.4	0.5	34.4	25.0	222
36-47	14.7	9.0	8.5	16.6	25.3	36.1	24.8	0.3	28.7	30.0	119
48-59	10.5	7.3	9.6	16.9	16.6	32.1	10.3	0.0	29.2	42.4	86
<b>Sex</b>											
Male	16.1	11.5	7.7	17.7	18.4	31.0	19.9	1.0	31.9	34.5	600
Female	11.8	11.7	9.5	19.6	18.9	33.1	16.6	0.6	32.6	31.9	503
<b>Residence</b>											
Urban	16.2	14.6	13.0	26.8	25.4	39.5	25.0	0.9	26.8	27.9	145
Rural	13.8	11.1	7.8	17.3	17.6	30.8	17.4	0.8	33.1	34.1	958
<b>Province</b>											
City of Kigali	18.6	20.3	11.6	30.4	26.6	40.9	23.3	1.3	27.1	28.5	67
South	10.9	6.6	11.8	17.7	24.7	35.9	14.4	0.8	28.9	35.0	277
West	13.2	17.0	7.9	22.5	14.6	32.8	17.6	0.9	27.9	35.9	284
North	22.5	14.7	4.9	18.8	14.2	27.6	22.1	0.9	26.8	36.8	227
East	9.9	5.6	8.0	11.7	18.3	28.0	19.0	0.7	47.4	26.5	248
<b>Mother's education</b>											
No education	16.0	12.8	6.8	18.6	16.1	29.9	19.8	0.9	30.9	33.3	328
Primary	12.5	10.4	9.1	18.0	18.3	31.5	16.5	0.7	32.9	34.7	717
Secondary or higher	24.4	18.4	11.0	26.1	36.9	48.7	33.9	1.5	32.6	16.4	58
<b>Wealth quintile</b>											
Lowest	13.3	10.6	7.0	15.2	15.8	27.1	16.4	0.3	34.0	36.0	257
Second	11.5	6.6	8.1	13.0	18.7	27.2	16.1	1.2	36.2	31.9	227
Middle	13.5	10.2	6.5	15.2	18.8	29.3	15.7	0.0	29.4	39.7	220
Fourth	15.4	14.3	10.7	24.5	16.0	37.9	16.6	1.2	33.3	31.7	243
Highest	18.3	18.1	10.9	27.8	26.9	41.3	31.6	1.7	26.0	24.4	155
Total	14.1	11.6	8.5	18.6	18.6	31.9	18.4	0.8	32.3	33.3	1,103

Note: ORT includes solution prepared from oral rehydration salt (ORS) packets, recommended home fluids (RHF), and increased fluids.

<sup>1</sup> Excludes pharmacy, shop and traditional practitioner

During diarrheal episodes, only 12 percent of children received ORS, 9 percent received RHF, and 19 percent received either ORS or RHF. In addition, 19 percent of children received increased fluids. Overall, 32 percent of children were treated with some form of oral rehydration. In addition, 18 percent of children received pills or syrup, and a very small proportion of children (1 percent) received treatment by injection. The proportion of children treated with traditional remedies is high (33 percent), and nearly identical to that of children who received ORT (32 percent). One-third of children (33 percent) received no treatment at all. This proportion is particularly high among children younger than 6 months (52 percent).

### **Feeding practices during diarrhea**

During diarrheal episodes, it is recommended that children consume more food and liquids than usual. Table 8.15 shows that 42 percent of children who had diarrhea were offered the same amount of liquids as usual while they were ill; 22 percent were offered less than usual; and 8 percent were offered much less than usual. Only 19 percent of children were offered more liquids than usual. Nine percent of children were offered no liquids at all.

Regarding food intake, 36 percent of children with diarrhea were offered the same amount of food as usual, 29 percent were offered less than usual, and 11 percent were offered much less than usual. Only 6 percent of children were offered more food than usual. Finally, 2 percent were not given any food.

### **8.6 PROBLEMS IN ACCESSING HEALTH CARE**

Access to health care is a key priority for improving a country's overall health status. Therefore, the survey sought to obtain information on the problems women perceive as barriers to accessing health care.

The results are presented in Table 8.16. First, 71 percent of women reported lack of money for treatment as the primary barrier. The extent of this problem increases with age, with the oldest women encountering this problem more frequently than the youngest women (68 percent at age 15-19, compared with 76 percent at age 40-49). Divorced, separated, and widowed women (83 percent) reported having this problem more frequently than married women (70 percent) and never-married women (68 percent). Lack of money was also more of a barrier for women in rural areas (73 percent) than for women in urban areas (60 percent). With respect to provinces, women in the West province were proportionately more likely to mention this problem (82 percent). Similarly, women with no education mentioned this problem more often (82 percent) than women with a secondary education or higher (42 percent), and women in the poorest wealth quintile were more affected by lack of money (83 percent) than women in the richest quintile (52 percent).

Forty percent of women mentioned distance to the health facility as a problem, and 39 percent of women mentioned having to take public transport. These problems were much more frequent in rural areas than in urban areas, and even more frequent among women with little or no education and women in poorer households. This confirms the fact that women with no education who live in rural areas are in the parts of the country that are the least equipped to provide adequate health care.

Overall, more than eight in ten women (81 percent) reported having at least one of the problems mentioned. Divorced, separated, and widowed women (90 percent), women in rural areas (83 percent), women with no education (88 percent), women in the poorest households (89 percent), and women performing unpaid labor (84 percent) were the most likely to encounter barriers to accessing health care.

Table 8.15 Feeding practices during diarrhea

Percent distribution of children under five years who had diarrhea in the two weeks preceding the survey by amount of liquids and food offered compared with normal practice, Rwanda 2005

Liquid/food offered	Percentage
<b>Amount of liquids offered</b>	
Same as usual	41.9
More	18.6
Somewhat less	21.7
Much less	7.8
None	8.8
Total <sup>1</sup>	100.0
<b>Amount of food offered</b>	
Same as usual	36.2
More	5.7
Somewhat less	28.8
Much less	11.2
None	1.6
Never gave food	15.6
Total <sup>1</sup>	100.0
Number of children	1,103

<sup>1</sup> Includes those with missing information

Table 8.16 Problems in accessing health care

Percentage of women who reported they have big problems in accessing health care for themselves when they are sick, by type of problem and background characteristics, Rwanda 2005

Background characteristic	Problems in accessing health care							Any of the specified problems	Number of women
	Knowing where to go for treatment	Getting permission to go for treatment	Getting money for treatment	Distance to health facility	Having to take transport	Not wanting to go alone	Concern there may not be a female provider		
<b>Age</b>									
15-19	7.6	6.2	68.1	40.0	38.4	17.3	18.5	79.9	2,585
20-29	3.8	2.9	69.6	38.8	37.6	15.4	8.4	79.8	4,092
30-39	3.5	1.4	71.2	39.5	39.4	17.4	4.9	80.1	2,600
40-49	4.2	1.4	76.4	42.9	42.1	19.2	4.9	84.7	2,045
<b>Number of living children</b>									
0	6.4	5.2	67.5	40.0	38.5	16.9	15.5	79.3	4,363
1-2	4.0	2.1	71.9	39.4	39.8	17.5	6.2	81.9	2,722
3-4	3.4	1.6	72.6	39.2	38.0	17.5	4.8	80.7	2,266
5 or more	3.2	1.2	74.7	41.5	40.4	16.2	4.9	82.7	1,970
<b>Marital status</b>									
Never married	6.3	5.3	68.2	39.1	37.5	16.8	15.3	79.4	4,263
In union	3.2	1.8	69.5	39.1	38.9	15.6	5.7	79.3	5,510
Divorced, separated, widowed	5.3	1.4	82.9	45.3	43.8	22.8	5.3	89.6	1,548
<b>Residence</b>									
Urban	5.4	4.5	59.6	28.5	30.0	16.4	10.0	70.5	1,921
Rural	4.5	2.7	73.1	42.3	40.9	17.1	9.1	82.9	9,400
<b>Province</b>									
City of Kigali	5.8	3.5	62.0	35.1	35.3	17.2	9.2	72.5	1,127
South	3.5	2.5	70.6	44.3	43.9	17.1	7.4	83.6	2,958
West	5.4	4.4	81.8	44.1	43.6	19.1	12.2	89.4	2,824
North	3.4	1.4	59.5	22.6	23.1	11.3	5.7	66.9	2,063
East	5.8	3.3	72.2	47.1	43.0	19.3	11.3	83.1	2,348
<b>Education</b>									
No education	5.0	2.7	82.1	43.5	42.6	18.7	8.6	88.2	2,646
Primary	4.8	3.2	71.1	40.6	39.5	16.9	10.0	81.9	7,591
Secondary or higher	2.8	2.6	41.7	26.5	26.6	13.2	5.4	54.8	1,084
<b>Employment</b>									
Not employed	5.4	4.6	69.4	36.9	34.9	14.9	10.8	78.3	3,055
Working for cash	3.9	3.4	64.9	38.6	37.5	16.4	8.0	77.2	2,522
Working, not for cash	4.6	2.0	74.2	42.2	41.9	18.4	9.0	83.7	5,738
<b>Wealth quintile</b>									
Lowest	5.8	2.8	83.1	46.4	45.3	20.7	10.0	89.0	2,421
Second	4.4	2.5	74.1	44.3	43.3	17.5	10.2	85.0	2,325
Middle	4.2	2.7	74.7	40.7	39.0	15.8	8.4	83.0	2,099
Fourth	4.4	3.2	70.4	40.3	39.3	16.4	8.3	82.6	2,133
Highest	4.5	3.9	51.9	28.0	28.0	14.4	9.2	64.5	2,342
Total	4.7	3.0	70.8	40.0	39.0	17.0	9.3	80.8	11,321

## 8.7 TOBACCO CONSUMPTION

The consumption of tobacco has a negative impact on children's health, because it affects the health of those who consume it and the health of those around people who consume it. For this reason, the RDHS-III asked questions to determine the level of tobacco consumption among the women surveyed.

Table 8.17 shows that the vast majority of women in Rwanda do not smoke tobacco (95 percent). The proportion of women who smoke cigarettes is insignificant, although 3 percent of women reported smoking a pipe and 2 percent consume tobacco in other forms.

The oldest women (7 percent), women in rural areas (3 percent), and women with no education (6 percent) smoke pipes or consume tobacco more frequently than other women. The proportion of pregnant or breastfeeding women who smoke is very low.

Background characteristic	Cigarettes	Pipe	Other tobacco	Does not use tobacco	Number of women
<b>Age</b>					
15-19	0.0	0.0	0.1	99.7	2,585
20-34	0.2	1.3	1.4	97.1	5,557
35-49	0.7	6.7	3.9	88.7	3,179
<b>Residence</b>					
Urban	0.4	0.4	0.9	98.2	1,921
Rural	0.3	2.9	2.0	94.7	9,400
<b>Education</b>					
No education	0.3	6.1	3.9	89.6	2,646
Primary	0.2	1.6	1.3	96.8	7,591
Secondary or higher	0.6	0.1	0.2	99.1	1,084
<b>Maternity status</b>					
Pregnant	0.0	2.0	2.5	95.1	901
Breastfeeding (not pregnant)	0.1	2.9	2.3	94.5	3,867
Neither	0.4	2.3	1.4	95.8	6,553
<b>Total</b>	<b>0.3</b>	<b>2.5</b>	<b>1.8</b>	<b>95.3</b>	<b>11,321</b>