9 MATERNAL AND CHILD HEALTH

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This chapter presents findings from key areas in maternal and child health namely, antenatal, postnatal and delivery care, childhood vaccination and common childhood illnesses and their treatment. One of the priorities of the Ministry of Health in Kenya is the provision of medical care and counselling services during pregnancy and at delivery that impact the survival of both the mother and infant. The 2003 KDHS results provide an evaluation of the utilisation of these health services, as well as information useful in assessing the need for service expansion. The information can be used to identify women whose babies are at risk due to non-use of maternal health services. The findings are also valuable to policy makers and programme implementers in strengthening implementation of programmes and activities to improve maternal and child care services. The results in the following sections are based on data collected from mothers about live births that occurred in the five years preceding the survey.

9.1 ANTENATAL CARE

Antenatal Care Coverage

Table 9.1 shows the percent distribution of women who had a live birth in the five years preceding the survey by the type of antenatal care provider for the most recent birth. Interviewers recorded all persons a woman may have seen for care, but in the table, only the provider with the highest qualification is considered (if more than one person was seen).

The data indicate that 88 percent of women in Kenya receive antenatal care from a medical professional, either from doctors (18 percent) or nurses or midwives (70 percent). A small fraction (2 percent) receives antenatal care from traditional birth attendants, while 10 percent do not receive any antenatal care.

The 2003 data indicate a slight decline since 1998 in medical antenatal care coverage. In the 1998 KDHS, the questions on antenatal care were asked only of women who had a birth in the three years before the survey. Moreover, the sample excluded the entire North Eastern Province and five other northern districts. Examining trends shows that the proportion of women who had antenatal care from a trained medical provider for their most recent birth in the three years before the survey declined very slightly from 92 to 90 percent (data not shown). Moreover, there has been a shift away from doctors (28 percent in 1998 versus 19 percent in 2003) towards nurses and midwives (64 percent in 1998 versus 71 percent in 2003).

Examination of differentials in antenatal care in Table 9.1 shows that the mother's age at birth and the child's birth order are not strongly related to use of antenatal care. However, higher parity women are more likely than lower parity women to see no one for antenatal care. Rural women are less likely than their urban counterparts to get antenatal care from a doctor and more likely to get no care at all. There are marked regional variations in antenatal care coverage, with over two-thirds of women in North Eastern Province not getting any antenatal care at all. Women in Western Province have low use of doctors for antenatal care compared to nurses, while for Coast Province the reverse is true.

Women's education is associated with antenatal care coverage. Women with higher education are much more likely to have received care from a medical doctor than those with no education (24 percent versus 15 percent), while the proportion of women who get no antenatal care declines steadily as education increases.

Table 9.1 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, Kenya 2003

Background characteristic	Doctor	Nurse/ midwife	Traditional birth attendant/ other	No one	Missing	Total	Number of women
Age at birth							
<20	15.1	69.2	3.9	11.5	0.3	100.0	647
20-34	19.7	70.5	1.2	8.1	0.6	100.0	2,821
35-49	12.5	69.9	2.4	14.4	0.7	100.0	584
Birth order							
1	17.7	72.2	1.7	7.9	0.5	100.0	946
2-3	20.4	70.9	1.5	6.9	0.3	100.0	1,404
4-5	18.5	70.2	1.1	8.7	1.4	100.0	842
6+	13.5	66.8	2.8	16.5	0.4	100.0	859
Residence							
Urban	22.5	70.7	1.0	5.4	0.3	100.0	835
Rural	16.7	70.1	2.0	10.6	0.6	100.0	3,217
Province							
Nairobi	28.7	66.7	0.5	3.8	0.3	100.0	307
Central	21.1	71.8	0.4	6.3	0.4	100.0	495
Coast	35.2	52.3	1.2	11.3	0.0	100.0	336
Eastern	11.4	80.2	0.7	7.4	0.3	100.0	646
Nyanza	14.7	70.6	5.0	9.1	0.6	100.0	643
Rift Valley	19.3	69.0	0.9	9.6	1.2	100.0	1,052
Western	7.1	84.0	2.5	6.1	0.3	100.0	470
North Eastern	10.1	15.1	6.5	68.3	0.0	100.0	102
Education							
No education	14.6	53.6	3.4	27.7	0.7	100.0	582
Primary incomplete	16.0	71.7	2.3	9.4	0.7	100.0	1,395
Primary complete	16.7	74.5	1.5	6.5	0.8	100.0	1,143
Secondary +	24.4	73.1	0.3	2.2	0.0	100.0	932
Wealth quintile							
Lowest	15.6	59.5	4.2	19.9	0.8	100.0	869
Second	16.4	71.0	2.3	9.8	0.5	100.0	830
Middle	17.3	75.1	0.7	6.5	0.3	100.0	777
Higher	14.8	78.2	0.7	5.6	0.8	100.0	725
Highest	24.9	69.0	0.6	4.9	0.5	100.0	851
Total	17.9	70.2	1.8	9.6	0.6	100.0	4,052

Note: If more than one source of ANC was mentioned, only the provider with the highest qualifications is considered in this tabulation.

Source of Antenatal Care

Table 9.2 shows the types of places where women say they obtained antenatal care. Since women can obtain care from several sources, multiple answers were allowed. The vast majority of women who obtained antenatal care went to government sources (71 percent), while private medical sources were only reported by 28 percent of women. The most common sources of antenatal care are government health

centres and government hospitals. The public-private distribution of sources is similar for urban and rural women; however, urban women are more likely to go to government hospitals and private hospitals and clinics than rural women, who are more likely to visit government dispensaries and Mission hospitals and clinics. Women in Nairobi use private sources more than women in other provinces, while women in Central and Coast Provinces are most likely to use public (government) sources for antenatal care. Twenty-two percent of women in North Eastern Province reported having received antenatal care at home, and very few used the private sector for this service.

Table 9.2 Source of antenatal care

Percentage of women who had a live birth in the five years preceding the survey and who received antenatal care for the most recent birth, by place(s) antenatal care was received, according to residence and province, Kenya 2003

	Residence		Province								
Source of antenatal care	Urban	Rural	Nairobi	Central	Coast	Eastern	Nyanza	Rift Valley	Western	North Eastern	Total
Home	1.4	3.4	0.5	0.0	1.8	0.8	6.1	0.9	10.2	21.6	3.0
Public sector	70.9	71.1	64.8	81.7	81.9	72.5	65.8	65.4	73.5	77.7	71.1
Government hospital	32.9	20.4	12.7	33.1	24.0	26.0	18.9	22.0	20.8	55.2	23.1
Government health centre	30.3	26.7	41.9	27.0	29.3	18.1	29.6	24.9	33.5	12.8	27.5
Government dispensary	7.2	24.5	9.0	22.0	29.6	27.8	18.6	18.8	19.4	9.7	20.7
Other public	0.7	0.5	1.4	1.0	0.2	0.7	0.3	0.3	0.1	0.0	0.5
Private medical sector	28.4	27.8	34.6	18.6	19.2	27.4	30.5	34.6	24.1	0.7	27.9
Mission hospital/clinic	8.0	16.8	6.8	8.0	5.2	18.4	18.6	19.7	14.9	0.0	14.9
Private hospital/clinic	19.4	10.6	26.8	9.8	13.4	8.2	10.9	14.7	9.3	0.7	12.5
Nursing/maternity home	1.0	0.3	0.9	1.0	0.6	0.2	0.7	0.1	0.2	0.0	0.4
Other private medical	0.6	0.3	0.5	0.0	0.0	0.8	0.6	0.2	0.0	0.0	0.3
Other	0.3	0.3	0.5	0.0	0.2	0.2	0.2	0.1	1.2	0.0	0.3
Number of women	787	2,855	294	462	298	596	581	938	440	32	3,642

Number and Timing of Antenatal Care Visits

Health professionals and providers recommend that the first antenatal visit should occur within the first trimester of pregnancy and continue on a monthly basis through the 28th week of pregnancy and fortnightly up to the 36th week or until birth. This implies that 12-13 visits should be made during the entire pregnancy. Antenatal care can be more effective in preventing adverse pregnancy outcomes when it is sought early in pregnancy and continues through to delivery.

Table 9.3 provides information on the number of antenatal care visits and the timing of the first visit. Early detection of problems in pregnancy leads to more timely referrals in case of women in higher-risk categories or complications; this is particularly true in Kenya, where 80 percent of the population lives in rural areas and where physical barriers pose a challenge to health care delivery.

In Kenya, slightly over half (52 percent) of all women make four or more antenatal visits. In addition, 36 percent of mothers make fewer than four visits, far below the recommended number of 12. Two-thirds of urban women (67 percent) make four or more antenatal care visits, compared to less than half of rural women (49 percent).

Moreover, women do not receive antenatal care early in the pregnancy. Only 11 percent of women obtain antenatal care in the first trimester of pregnancy and less than half have received care before the sixth month of pregnancy. Overall, the median number of months of pregnancy at first visit is 5.9.

Table 9.3 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 according to residence, Kenya 2003

Number and timing of ANC visits	Residence		Total
	Urban	Rural	
Number of ANC visits			
None	5.4	10.6	9.6
1	2.5	4.7	4.2
2-3	22.1	33.7	31.3
4+	66.7	48.6	52.3
Don't know/missing	3.3	2.5	2.6
Total	100.0	100.0	100.0
Number of months pregnant at time of first ANC visit			
No antenatal care	5.4	10.6	9.6
<4	15.8	9.9	11.1
4-5	38.4	36.3	36.7
6-7	36.2	37.3	37.1
8+	3.3	5.3	4.9
Don't know/missing	0.9	0.6	0.7
Total	100.0	100.0	100.0
Median months pregnant at first visit (for those with ANC)	5.7	5.9	5.9
Number of women	835	3,217	4,052

Comparing trends since the 1998 KDHS requires re-tabulating both sets of data to reflect information on the most recent birth in the three years prior to the survey to women who live in the southern half of the country. That analysis shows a decline in the proportion of women who have four or more antenatal visits, from 60 percent in 1998 to 54 percent in 2003. Overall, there has been less change in the pattern of antenatal attendance by gestational age. The median gestational age at first visit has increased slightly from 5.7 months in the 1998 KDHS to 5.9 in the 2003 survey. This calls for programme interventions that will encourage more women to attend antenatal clinics in the first trimester of pregnancy.

Components of Antenatal Care

Pregnancy complications are an important cause of maternal and child morbidity and mortality. Consequently, informing women about the danger signs associated with pregnancy and the actions they should take in case complications arise, are important elements of antenatal care services. In the 2003 KDHS, women who had a live birth in the five years before the survey were asked about antenatal care services, including whether they were told about the signs of pregnancy complications, whether they were weighed, whether their height and blood pressure were measured, whether urine and blood samples were taken, and whether they were given any information or counseled about HIV/AIDS or about breastfeeding.[1]

[1] They were also asked whether they took iron supplements (see Chapter 10) and antimalarial drugs (see Chapter 11) during the pregnancy.

Table 9.4 shows that among women who had a birth in the five years preceding the survey, only 36 percent who received antenatal care for the most recent birth reported that they had been informed about pregnancy complications. Urban women and those with more education are more likely to have been told about pregnancy complications than rural or uneducated women. Similarly, the likelihood of a woman being told about pregnancy complications declines as parity increases. Women in the highest wealth quintile are twice as likely to receive information on pregnancy complications than those in the lowest quintile.

Table 9.4 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, according to background characteristics, Kenya 2003

	Among women who received antenatal care								
Background characteristic	Informed of signs of pregnancy compli-cations	Weight measured	Height measured	Blood pressure measured	Urine sample taken	Blood sample taken	Given information on AIDS	Given information on breast-feeding	Number of women
Age at birth									
<20	32.4	88.1	29.8	78.6	45.3	56.4	27.7	34.9	570
20-34	37.6	92.4	27.1	84.0	51.3	58.6	33.7	39.5	2,575
35-49	32.5	91.3	27.0	86.0	50.8	56.0	34.1	41.1	496
Birth order									
1	40.9	91.2	29.9	84.3	56.8	66.6	35.4	41.7	867
2-3	38.0	92.4	28.3	83.2	50.9	57.5	32.7	38.7	1,304
4-5	33.1	93.0	24.4	84.2	47.9	55.7	34.6	40.7	757
6+	30.0	89.1	26.5	82.0	43.7	50.4	28.0	34.3	714
Residence									
Urban	53.3	96.0	42.6	94.8	71.1	83.3	42.5	49.7	787
Rural	31.3	90.4	23.4	80.3	44.6	50.9	30.2	36.0	2,855
Province									
Nairobi	58.7	96.5	51.3	94.7	67.5	85.4	49.6	53.6	294
Central	39.5	92.2	22.1	92.8	60.2	71.1	41.4	45.6	462
Coast	39.4	91.2	28.2	86.6	78.6	80.1	29.6	31.2	298
Eastern	35.3	92.3	28.5	75.9	46.1	49.9	33.8	37.3	596
Nyanza	30.1	89.5	21.5	75.7	35.0	42.1	27.0	31.8	581
Rift Valley	29.5	91.8	26.5	85.2	47.5	55.9	27.2	39.4	938
Western	39.4	91.0	23.9	82.5	40.4	46.0	33.5	40.1	440
North Eastern	18.6	64.7	52.2	57.9	58.3	63.2	26.5	17.2	32
Education									
No education	21.5	85.5	31.6	77.2	45.8	48.1	23.0	25.3	417
Primary incomplete	29.4	89.5	22.8	77.4	39.1	48.2	26.0	31.2	1,255
Primary complete	38.9	93.5	26.4	85.6	51.3	61.9	35.9	39.9	1,059
Secondary +	48.6	95.0	33.5	92.1	66.7	71.0	43.2	55.0	911
Wealth quintile									
Lowest	24.5	88.7	22.8	73.9	35.9	42.1	24.0	30.7	690
Second	32.7	90.7	22.4	77.2	39.5	44.1	29.6	36.5	745
Middle	30.4	89.4	21.0	80.5	43.2	50.9	29.8	34.2	724
Fourth	36.1	92.4	26.5	89.3	58.0	66.0	34.3	40.8	678
Highest	54.1	96.2	42.9	95.0	72.4	83.7	44.8	51.2	805
Total	36.1	91.6	27.5	83.4	50.3	57.9	32.8	39.0	3,642

As concerns antenatal tests and examinations, 92 percent of pregnant women said they were weighed, 28 percent had their heights measured, and 83 percent had their blood pressure measured. Half of the women had a urine sample taken, while 58 percent had a blood sample taken. Thirty-three percent of pregnant women said they were given information or counseled about HIV/AIDS during an antenatal care visit, while 39 percent were given information or counselling about breastfeeding.

The socio-economic characteristics that appear to influence the content of antenatal care include residence, wealth, and level of education. Women in urban areas are more likely to receive all the specified components of antenatal care than rural women. Similarly, women with more education and those higher on the wealth index are more likely to receive most of the components of ANC compared to less educated and poorer women. In general, women in Nairobi who receive antenatal care are the most likely and those in North Eastern Province are the least likely to have received the stated services. This is not the case for height measurement and urine and blood samples, which pregnant women in North Eastern who receive antenatal care are not the least likely to receive.

Tetanus Toxoid Immunisation

Tetanus toxoid injections are given during pregnancy for the prevention of neonatal tetanus, historically one of the principal causes of death among infants in many developing countries. To achieve protection for herself and her newborn baby, typically, a pregnant woman will receive at least two doses of tetanus toxoid. On the other hand, if a woman has been fully vaccinated during a previous pregnancy, she may only require one dose during her current pregnancy to achieve such protection. Five doses are considered adequate to provide lifetime protection. In order to estimate the extent of tetanus toxoid coverage during pregnancy, the 2003 KDHS collected data on the number of tetanus injections women received during pregnancy for the most recent birth in the five years preceding the survey. These results are presented in Table 9.5. The data may underestimate the actual extent of protection against tetanus, since women who had received prior vaccinations may not have received additional injections, as they were considered unnecessary.

The data indicate that 52 percent of mothers received two or more doses of tetanus toxoid during pregnancy, while 34 percent received one dose. The remaining 14 percent of mothers did not receive any tetanus injection. Lower parity births and those occurring in urban areas are more likely to have been protected by tetanus vaccination than higher parity and rural births. Similarly, births to wealthier and more educated women are more likely to be protected than those to poorer and less educated women. Coverage with two doses of tetanus toxoid ranges from a low of 18 percent of women in North Eastern Province to 62 percent of those in Central Province.

There has been little change in the proportion of women receiving tetanus toxoid injections during pregnancy. The proportion of women (excluding those in the northern areas) who received two or more tetanus injections during the pregnancy that resulted in their most recent birth in the three years before the survey increased from 51 percent in 1998 to 54 percent in 2003; however, the proportion who did not receive any tetanus injection at all also increased from 10 to 13 percent (data not shown).

Table 9.5 Tetanus toxoid injections

Percent distribution of women who had a live birth in the five years preceding the survey by number of tetanus toxoid injections received during pregnancy for the most recent birth, according to background characteristics, Kenya 2003

Background characteristic	None	One injection	Two or more injections	Don't know/ missing	Total	Number of women
Age at birth						
<20	19.1	30.0	50.2	0.8	100.0	647
20-34	11.2	34.5	53.5	0.8	100.0	2,821
35-49	20.2	32.6	46.2	1.0	100.0	584
Birth order						
1	13.9	27.7	57.2	1.2	100.0	946
2-3	10.0	34.8	54.4	0.8	100.0	1,404
4-5	12.6	35.0	51.8	0.7	100.0	842
6+	20.7	36.3	42.3	0.7	100.0	859
Residence						
Urban	8.4	32.6	57.2	1.8	100.0	835
Rural	15.1	33.7	50.6	0.6	100.0	3,217
Province						
Nairobi	8.5	33.4	55.3	2.8	100.0	307
Central	7.8	29.4	61.7	1.1	100.0	495
Coast	15.9	28.9	54.6	0.6	100.0	336
Eastern	12.4	30.5	56.6	0.5	100.0	646
Nyanza	16.2	40.4	42.7	0.8	100.0	643
Rift Valley	13.5	33.3	52.2	0.9	100.0	1,052
Western	9.6	39.7	50.6	0.1	100.0	470
North Eastern	64.6	17.3	18.1	0.0	100.0	102
Education						
No education	30.4	28.7	40.3	0.6	100.0	582
Primary incomplete	15.0	36.2	48.2	0.6	100.0	1,395
Primary complete	11.0	34.6	53.5	0.9	100.0	1,143
Secondary +	4.8	31.1	63.0	1.1	100.0	932
Wealth quintile						
Lowest	28.0	32.7	38.7	0.5	100.0	869
Second	12.3	35.4	52.2	0.1	100.0	830
Middle	10.3	33.1	55.8	0.8	100.0	777
Fourth	8.8	36.1	54.1	1.0	100.0	725
Highest	7.9	30.6	59.9	1.7	100.0	851
Total	13.7	33.5	51.9	0.8	100.0	4,052

9.2 DELIVERY CARE

Place of Delivery

The objective of providing safe delivery services is to protect the life and health of the mother and her child. An important component of efforts to reduce the health risk to mothers and children is to increase the proportion of babies delivered under the supervision of health professionals. Proper medical attention under hygienic conditions during delivery can reduce the risk of complications and infections that may cause death or serious illness either to the mother, baby or both. In the 2003 KDHS, women were asked where they delivered their children born in the five years preceding the survey (Table 9.6 and Figure 9.1).

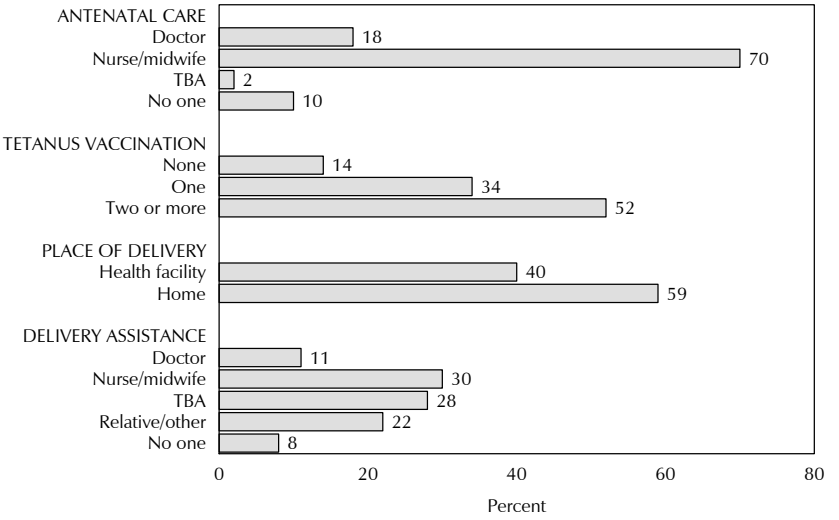
Table 9.6 Place of delivery

Percent distribution of live births in the five years preceding the survey by place of delivery, according to background characteristics, Kenya 2003

Background characteristic	Health facility		Home	Other	Missing	Total	Number of births
	Public sector	Private sector					
Mother's age at birth							
<20	32.4	13.3	53.6	0.6	0.2	100.0	1,070
20-34	26.0	14.8	58.2	0.8	0.2	100.0	4,287
35-49	17.7	10.3	69.4	1.6	1.0	100.0	745
Birth order							
1	39.8	19.2	40.2	0.4	0.3	100.0	1,469
2-3	26.5	15.6	56.8	0.9	0.1	100.0	2,177
4-5	21.7	11.4	65.9	0.9	0.2	100.0	1,215
6+	13.6	7.4	77.0	1.2	0.8	100.0	1,240
Residence							
Urban	44.9	25.3	29.2	0.4	0.2	100.0	1,143
Rural	21.8	11.4	65.5	0.9	0.3	100.0	4,959
Province							
Nairobi	38.2	39.7	21.5	0.5	0.1	100.0	398
Central	50.3	16.6	31.9	1.1	0.0	100.0	652
Coast	23.7	7.5	67.4	0.8	0.6	100.0	510
Eastern	26.4	11.3	60.8	1.4	0.1	100.0	946
Nyanza	22.1	14.1	62.6	0.9	0.4	100.0	1,000
Rift Valley	23.1	12.8	63.0	0.7	0.4	100.0	1,639
Western	16.8	11.6	70.6	0.6	0.4	100.0	776
North Eastern	7.4	0.3	91.9	0.0	0.4	100.0	181
Mother's education							
No education	7.8	6.4	83.9	1.0	0.8	100.0	938
Primary incomplete	19.6	9.9	69.2	0.9	0.4	100.0	2,222
Primary complete	33.4	12.6	52.9	1.0	0.1	100.0	1,678
Secondary +	41.4	28.7	29.5	0.3	0.1	100.0	1,263
Antenatal care visits[1]							
None	6.8	3.4	89.1	0.7	0.0	100.0	387
1-3	21.8	13.5	63.9	0.8	0.0	100.0	1,438
4+	35.0	18.9	45.2	0.8	0.0	100.0	2,119
Don't know/missing	26.9	20.3	45.9	1.7	5.2	100.0	107
Wealth quintile							
Lowest	9.2	6.8	82.9	0.6	0.5	100.0	1,509
Second	19.1	12.3	66.7	1.6	0.3	100.0	1,271
Middle	27.8	8.7	62.3	1.0	0.2	100.0	1,159
Fourth	38.5	14.7	45.8	0.7	0.3	100.0	1,032
Highest	43.5	30.3	25.8	0.2	0.2	100.0	1,131
Total	26.1	14.0	58.7	0.8	0.3	100.0	6,102

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

Figure 9.1 Antenatal Care, Tetanus Vaccinations, Place of Delivery, and Delivery Assistance



TBA = Traditional birth attendant

KDHS 2003

Two out of five births (40 percent) in Kenya are delivered in a health facility, while 59 percent are delivered at home. Births to older women and births of higher order are more likely to occur at home. Similarly, rural children are twice as likely to be born at home than urban children. The proportion of children born at home decreases with increasing education and wealth quintile of the mother. For example, 84 percent of children whose mothers have no education are born at home, compared with 30 percent of those whose mothers have some secondary education. Similarly, children whose mothers had more antenatal care visits during the pregnancy are less likely to deliver at home. Births at home are substantially lower among women who live in Nairobi or Central Provinces and extremely high (92 percent) for those in the North Eastern Province.

There has been no change since 1998 in the proportion of births occurring at home. Excluding the northern areas and analysing births in the three years prior to the surveys in order to maintain comparability, the proportion of births occurring at home has remained steady at 57 percent.

Assistance at Delivery

The type of assistance a woman receives during birth has important health consequences for both the mother and the child. Women interviewed in the 2003 KDHS were asked who assisted with the delivery of their children born in the five years preceding the survey. Interviewers were able to record multiple responses if more than one person assisted during delivery; however, for the purpose of this tabulation, only the most highly qualified attendant was considered if there were more than one response.

Table 9.7 shows that 42 percent of births in Kenya are delivered under the supervision of a health professional, mainly a nurse or midwife. Traditional birth attendants continue to play a vital role in delivery, assisting with 28 percent of births. Relatives and friends assist in 22 percent of births. Maternal age and child's birth order are associated with the type of assistance at delivery. Births to older women and those of higher birth order are more likely to occur with no assistance, compared to births to younger women and those of lower birth order.

Table 9.7 Assistance during delivery

Percent distribution of live births in the five years preceding the survey by person providing assistance during delivery, according to background characteristics, Kenya 2003

Background characteristic	Doctor	Nurse/ midwife	Traditional birth attendant	Relative/ friend	No one	Don't know/ missing	Total	Number of births
Mother's age at birth								
<20	13.8	33.2	29.5	18.8	4.4	0.2	100.0	1,070
20-34	11.4	30.9	27.3	23.0	7.1	0.3	100.0	4,287
35-49	7.7	21.7	29.8	21.5	18.4	1.0	100.0	745
Birth order								
1	18.8	41.5	21.6	15.6	2.0	0.4	100.0	1,469
2-3	11.0	32.8	26.4	23.6	6.0	0.1	100.0	2,177
4-5	9.0	25.2	30.2	24.8	10.7	0.2	100.0	1,215
6+	5.7	16.9	36.3	24.3	15.9	0.9	100.0	1,240
Residence								
Urban	24.0	48.0	12.5	11.1	4.2	0.1	100.0	1,143
Rural	8.5	26.0	31.6	24.6	8.9	0.4	100.0	4,959
Province								
Nairobi	33.8	45.2	9.4	7.8	3.6	0.1	100.0	398
Central	17.9	50.0	4.9	19.3	7.5	0.3	100.0	652
Coast	12.2	21.6	28.0	32.1	5.7	0.4	100.0	510
Eastern	9.0	29.6	25.5	28.4	7.5	0.0	100.0	946
Nyanza	5.8	32.8	33.1	18.0	9.8	0.4	100.0	1,000
Rift Valley	12.1	25.2	27.6	25.8	8.8	0.5	100.0	1,639
Western	4.9	24.5	41.6	18.1	10.6	0.4	100.0	776
North Eastern	1.5	7.0	82.8	7.9	0.2	0.6	100.0	181
Mother's education								
No education	3.3	12.5	47.0	23.4	13.0	0.8	100.0	938
Primary incomplete	8.0	22.5	31.7	27.7	9.6	0.5	100.0	2,222
Primary complete	12.2	35.5	24.1	21.6	6.5	0.1	100.0	1,678
Secondary +	22.3	49.7	12.7	11.7	3.4	0.1	100.0	1,263
Wealth quintile								
Lowest	4.0	13.0	48.2	23.9	10.3	0.6	100.0	1,509
Second	7.8	25.0	28.1	27.3	11.4	0.4	100.0	1,271
Middle	7.4	30.8	27.5	26.7	7.5	0.2	100.0	1,159
Fourth	13.4	41.5	17.2	21.3	6.1	0.4	100.0	1,032
Highest	27.5	47.9	11.4	9.6	3.5	0.1	100.0	1,131
Total	11.4	30.2	28.0	22.1	8.0	0.3	100.0	6,102

Note: If the respondent mentioned more than one person attending during delivery, only the most qualified person is considered in this tabulation.

As expected, births in urban areas and those whose mothers have more education or are in wealthier quintiles are more likely to be assisted by medical personnel than those whose mothers are rural, have less education, or are in poorer wealth quintiles. Regional differentials in type of assistance at delivery are also pronounced, with North Eastern Province recording the lowest proportion (9 percent) of births assisted by medical professionals, followed by Western Province (29 percent). Nairobi has the highest proportion of births assisted by medical personnel (79 percent).

The proportion of births assisted by medically trained personnel has remained constant since 1998, at 44 percent, considering births in the three years prior to the survey and excluding those in the northern areas of the country.

Delivery Characteristics

The 2003 KDHS obtained information on a number of aspects of deliveries, including the frequency of caesarean sections and low-birth-weight babies. The caesarean section rate is sometimes considered to be a proxy indicator of women's access to care for complicated deliveries.

Table 9.8 shows that only 4 percent of live births in Kenya are delivered by caesarean section. Caesarean section is slightly more common among first births (7 percent), births to urban women (9 percent), births in Nairobi (10 percent), births to mothers with some secondary education (10 percent) and births to women in the highest wealth quintile (11 percent).

Table 9.8 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, Kenya 2003

Background characteristic	Delivery by C-section	Birth weight					Size of child at birth					Number of births
		Not weighed	Less than 2.5 kg	2.5 kg or more	Don't know/ missing	Total	Very small	Smaller than average	Average or larger	Don't know/ missing	Total	
Mother's age at birth												
<20	4.3	51.6	4.4	41.6	2.4	100.0	4.5	13.0	82.2	0.3	100.0	1,070
20-34	4.1	53.6	3.2	41.9	1.3	100.0	3.3	12.7	83.4	0.6	100.0	4,287
35-49	3.1	64.2	3.6	29.9	2.3	100.0	5.1	10.9	82.6	1.4	100.0	745
Birth order												
1	6.7	38.2	5.6	54.0	2.2	100.0	4.1	13.6	81.7	0.5	100.0	1,469
2-3	4.6	52.9	3.5	42.2	1.4	100.0	3.3	12.3	83.9	0.5	100.0	2,177
4-5	2.5	58.7	2.2	38.5	0.6	100.0	3.5	12.0	83.9	0.6	100.0	1,215
6+	1.4	72.6	2.1	23.0	2.3	100.0	4.1	12.2	82.6	1.0	100.0	1,240
Residence												
Urban	9.4	23.8	5.8	68.4	2.1	100.0	5.0	9.6	84.6	0.8	100.0	1,143
Rural	2.8	61.6	2.9	33.9	1.5	100.0	3.4	13.2	82.7	0.6	100.0	4,959
Province												
Nairobi	10.3	17.8	4.8	76.1	1.3	100.0	5.4	8.7	85.0	1.0	100.0	398
Central	6.2	26.2	4.7	68.7	0.4	100.0	3.2	11.9	84.5	0.4	100.0	652
Coast	4.3	50.5	5.8	41.4	2.3	100.0	5.5	12.3	81.6	0.6	100.0	510
Eastern	4.2	58.1	4.4	36.1	1.4	100.0	3.1	15.3	81.1	0.5	100.0	946
Nyanza	1.9	63.2	2.4	32.7	1.7	100.0	2.0	10.8	86.7	0.5	100.0	1,000
Rift Valley	3.8	57.8	2.6	37.7	1.9	100.0	4.3	13.0	81.9	0.9	100.0	1,639
Western	2.2	69.3	2.8	26.4	1.5	100.0	3.0	13.6	83.0	0.4	100.0	776
North Eastern	2.5	88.4	1.2	7.0	3.4	100.0	7.6	11.4	79.8	1.2	100.0	181
Mother's education												
No education	1.8	75.1	2.2	19.6	3.0	100.0	6.8	15.7	76.1	1.5	100.0	938
Primary incomplete	2.1	65.8	3.1	29.7	1.4	100.0	3.6	12.5	83.3	0.7	100.0	2,222
Primary complete	3.7	48.1	3.2	47.3	1.4	100.0	2.7	12.5	84.4	0.4	100.0	1,678
Secondary +	9.5	28.0	5.4	65.5	1.2	100.0	3.1	10.4	86.2	0.2	100.0	1,263
Wealth quintile												
Lowest	1.2	78.8	2.0	17.9	1.3	100.0	3.8	15.0	80.4	0.8	100.0	1,509
Second	3.0	65.2	2.4	31.3	1.1	100.0	3.0	12.9	83.6	0.5	100.0	1,271
Middle	2.6	55.8	3.2	39.3	1.7	100.0	3.4	12.0	84.0	0.6	100.0	1,159
Fourth	3.2	41.0	5.2	51.3	2.4	100.0	4.2	14.1	81.1	0.6	100.0	1,032
Highest	11.2	21.3	5.2	71.8	1.7	100.0	4.3	8.1	86.9	0.7	100.0	1,131
Total	4.0	54.5	3.5	40.4	1.6	100.0	3.7	12.5	83.1	0.6	100.0	6,102

Considering trends, the caesarean section rate has declined since 1998. Among births in the three years prior to the survey to women living in the southern part of the country, the proportion delivered by caesarean section declined from 7 percent in 1998 to 4 percent in 2003.

Information was also collected on the baby's birth weight and size, because low birth weight is associated with higher neonatal morbidity and mortality. To obtain the birth weight data, mothers were asked whether their baby was weighed at birth, and if so, how much the baby weighed. Two and a half kilograms or more is considered normal birth weight and babies weighing less than that are regarded as small or low birth weight. Because most women do not deliver in a health facility, the mothers were also asked whether the baby was very large, larger than average, average, smaller than average or very small at birth.

The data in Table 9.8 show that more than half (55 percent) of babies are not weighed at birth, presumably in part because of the low percentage of deliveries occurring in health facilities. Four percent of all births (8 percent of those who were weighed) are underweight. A large majority of babies (83 percent) are considered by their mothers to be of average or larger weight; 13 percent are considered to be smaller than average and 4 percent are considered very small.

Socioeconomic differentials in child's birth weight are not large. However, children whose mothers have no education are more likely to be smaller than average or very small than children whose mothers have at least some education. Similarly, there is a decrease in the proportion of babies considered to be smaller than average or very small as the wealth quintile of the mother increases.

9.3 POSTNATAL CARE

Postnatal care is important for mothers for treatment of complications arising from delivery, especially for births that occur at home. For non-institutional births particularly, postnatal care enables detection of complications that may threaten the survival of the mother. The timing of postnatal care is important. To provide the best outcome possible, it should occur within two days of the delivery since this is the critical period when most maternal deaths occur.

In the 2003 KDHS, to assess the extent of postnatal care utilisation, women whose last birth was delivered outside a health facility were asked whether they received a postnatal check up from a health professional or a traditional birth attendant. It is assumed that deliveries in any health facility will entail a postnatal check before the mother is discharged.

Table 9.9 shows the percent distribution of women whose last birth in the five years preceding the survey occurred outside a health facility by timing of postnatal care. The table shows that 81 percent of women who deliver outside a health facility do not receive postnatal care. Only 10 percent attend postnatal care within two days of delivery, while 2 percent get care three to six days after delivery and 7 percent get a checkup seven to 41 days after delivery. Women with at least some secondary education and those in the highest wealth quintile are more likely to utilise postnatal services than other women.

There are marked provincial differentials in postnatal care coverage. Nyanza Province shows the highest proportion of women with non-institutional births obtaining postnatal care within two days of the birth (20 percent), compared with North Eastern (1 percent) and Eastern (4 percent) Provinces.

Table 9.9 Postnatal care by background characteristics

Percent distribution of women who had a noninstitutional live birth in the five years preceding the survey by timing of postnatal care for the most recent noninstitutional birth, according to background characteristics, Kenya 2003

Background characteristic	Timing of first postnatal checkup						
	Within 2 days of delivery	3-6 days after delivery	7-41 days after delivery	Don't know/ missing	Did not receive postnatal checkup[1]	Total	Number of women
Age at birth							
<20	11.6	3.2	6.2	0.5	78.5	100.0	319
20-34	9.4	2.4	6.7	0.2	81.4	100.0	1,582
35-49	11.2	1.7	6.7	0.0	80.4	100.0	409
Birth order							
1	11.4	2.5	8.2	0.1	77.7	100.0	331
2-3	10.3	2.2	7.0	0.5	79.9	100.0	766
4-5	9.1	2.7	4.6	0.0	83.6	100.0	539
6+	9.7	2.2	7.1	0.0	81.0	100.0	674
Residence							
Urban	9.3	3.9	7.9	0.0	78.9	100.0	225
Rural	10.1	2.2	6.5	0.2	81.0	100.0	2,086
Province							
Nairobi	8.3	4.9	10.7	0.0	76.0	100.0	59
Central	7.9	2.3	10.8	0.0	78.9	100.0	159
Coast	6.1	2.5	7.0	0.2	84.1	100.0	222
Eastern	3.5	0.4	4.2	0.3	91.6	100.0	380
Nyanza	20.4	3.5	8.9	0.0	67.3	100.0	411
Rift Valley	9.8	2.2	6.3	0.2	81.5	100.0	650
Western	11.4	3.3	5.7	0.3	79.3	100.0	336
North Eastern	1.4	1.2	2.3	0.0	95.1	100.0	94
Education							
No education	4.8	1.7	6.5	0.3	86.8	100.0	496
Primary incomplete	10.4	3.5	5.0	0.0	81.1	100.0	967
Primary complete	10.1	1.3	8.9	0.4	79.2	100.0	584
Secondary +	18.1	1.9	8.1	0.0	71.8	100.0	263
Wealth quintile							
Lowest	10.1	2.8	5.5	0.3	81.3	100.0	729
Second	8.4	2.7	6.2	0.0	82.8	100.0	569
Middle	10.0	1.4	6.5	0.0	82.1	100.0	483
Fourth	9.1	1.2	9.5	0.5	79.8	100.0	331
Highest	16.0	4.4	7.9	0.0	71.8	100.0	198
Total	10.0	2.4	6.6	0.2	80.8	100.0	2,310

[1] Includes women who received the first postnatal checkup after 41 days

9.4 REPRODUCTIVE HEALTH CARE AND WOMEN'S STATUS

Table 9.10 shows how antenatal, delivery and postnatal care coverage differ according to certain measures of women's status. The table shows only a very slight positive correlation between the number of household decisions in which a woman participates and all three variables: the proportion of women who receive antenatal care from a medical professional, the proportion who receive postnatal care within two days of delivery, and the proportion who receive delivery assistance from a doctor, nurse, or midwife.

Table 9.10 Reproductive health care by women's status

Percentage of women with a live birth in the five years preceding the survey who received antenatal and postnatal care from a health professional for the most recent birth, and percentage of births in the five years preceding the survey for which mothers received professional delivery care, by women's status indicators, Kenya 2003

Women's status indicator	Percentage of women who received antenatal care from a doctor, nurse, or midwife	Percentage of women who received postnatal care within first two days of delivery[1]	Number of women	Percentage of births for which mothers received delivery care from a doctor, nurse, or midwife	Number of births
Number of decisions in which woman has final say[2]					
0	83.0	48.2	503	42.7	716
1-2	86.8	41.7	1,307	35.2	2,073
3-4	91.1	52.9	1,255	44.7	1,880
5	88.7	52.9	986	46.1	1,433
Number of reasons to refuse sex with husband					
0	78.4	37.2	248	34.1	374
1-2	85.3	42.5	603	35.3	926
3-4	89.4	50.7	3,201	43.3	4,802
Number of reasons wife beating is justified					
0	89.9	59.0	1,090	54.6	1,523
1-2	90.1	50.0	1,303	41.6	1,978
3-4	85.3	41.8	1,221	35.2	1,908
5	85.3	38.2	438	30.1	692
Total	88.1	48.7	4,052	41.6	6,102

[1] Includes mothers who delivered in a health facility
[2] Either by herself or jointly with others

The number of reasons for which women feel that a wife is justified in refusing to have sex with her husband has a stronger positive relationship with all three variables. For example, the proportion of women who receive postnatal care within two days of delivery increases from 37 percent among women who think a wife is not justified in refusing to have sex with her husband for any of the specified reasons to 51 percent of those who said three or four reasons cited were justifiable.

Similarly, there is a mostly steady decline in all three of the reproductive health indicators as the number of reasons for which women believe wife beating is justified increases. Among women who say wife beating is not justified under any of the situations described, 55 percent of their births are attended by medical professionals. This compares to only 30 percent of births to women who say that wife beating is justified in all five of the cited circumstances.

9.5 VACCINATION OF CHILDREN

To assess the Kenya Expanded Programme of Immunisation (KEPI), the 2003 KDHS collected information on vaccination coverage for all children who were born in the five years preceding the survey; however, the focus of the data presented here is on children age 12-23 months at the time of the survey, since they are the age group that should be fully immunised. The KEPI largely follows the World Health Organisation's (WHO) guidelines for vaccinating children. These guidelines stipulate that for a

child to be considered fully vaccinated, he/she should receive the following vaccinations: one dose of BCG, three doses each of DPT/HepatitisB/Influenza[2] and polio, and one dose of measles.

BCG should be given at birth or first clinic contact and protects against tuberculosis. DPT-HepB-Hib protects against diptheria, pertussis, tetanus, Hepatitis B and Haemophilus influenza. DPT-HepB-Hib and polio require three vaccinations at approximately 6, 10 and 14 weeks of age; measles should be given at or soon after reaching 9 months of age. The government of Kenya has adopted the WHO goal to ensure completion of vaccinations by 12 months of age; the target is to fully vaccinate 80 percent of children in 80 percent of districts by that age by the year 2005.

Information presented in Table 9.11 was collected in two ways: from vaccination cards (under-five cards) seen by the interviewer and from mothers' verbal reports if the card was not available. Health facilities and clinics in Kenya routinely provide cards on which vaccinations and other important health indicators are recorded.

If a mother presented such a card to the interviewer, it was used as the source of information by directly transferring dates of vaccination to the questionnaire. Besides collecting vaccination information from cards, there were two ways of collecting information from the mother herself. If a card was presented, but a vaccine was not recorded as having been given, then the mother was asked to recall whether that particular vaccine had been given. In the event that the mother was not able to present a card for a child at all, she was asked to recall whether or not the child had received BCG, DPT-HepB-Hib and polio (including the number of doses for each), and measles vaccination.

Table 9.11 presents information on vaccination coverage, according to the sources of information. The data presented are for children aged 12-23 months, thereby including only those children who have reached the age by which they should be fully vaccinated. Vaccination cards were available for 60 percent of the children.

Table 9.11 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, Kenya 2003

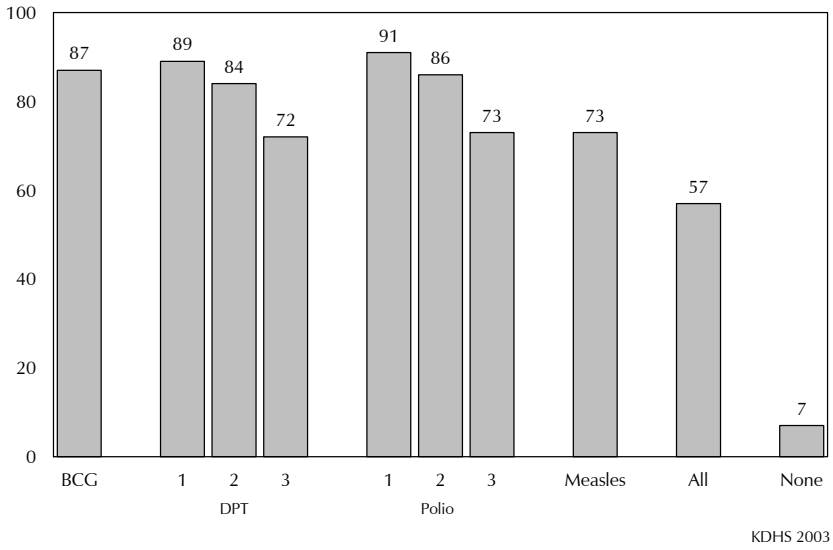
	Percentage of children who received:											
		DPT-HepB-Hib			Polio[1]							
Source of information	BCG	1	2	3	0	1	2	3	Measles	All[2]	No vaccinations	Number of children
Vaccinated at any time before the survey												
Vaccination card	57.0	59.3	57.1	52.6	43.5	59.3	57.2	52.2	46.4	42.5	0.0	678
Mother's report	30.3	29.9	26.8	19.6	5.9	31.7	28.3	20.3	26.1	14.4	7.4	453
Either source	87.3	89.2	83.9	72.2	49.4	91.0	85.5	72.5	72.5	56.8	7.4	1,131
Vaccinated by 12 months of age[3]	87.0	88.2	83.0	70.5	49.1	89.6	84.1	70.3	62.8	48.7	8.1	1,131

[1] Polio 0 is the polio vaccination given at birth. The data on polio vaccinations is adjusted for a likely misinterpretation of polio 0 and polio 1; for children who received three doses of DPT-HepB-Hib and polio 0, polio 1, and polio 2, it was assumed that polio 0 was in fact polio 1, polio 1 was polio 2, and polio 2 was polio 3.
[2] BCG, measles, and three doses each of DPT-HepB-Hib and polio vaccine (excluding polio vaccine given at birth)
[3] 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.

[2] In 2001, the government adopted the DPT-HepB-Hib, (pentavalent) vaccine in place of DPT alone.

According to information from both the vaccination card and the mothers' reports, 87 percent of children 12-23 months have received BCG, 89 percent have received the first dose of DPT-HepB-Hib, while 91 percent have received the first dose of polio.[3] Coverage declines for subsequent doses of DPT-HepB-Hib and polio, so that only 72 percent and 73 percent of children receive the third doses of these vaccines, respectively (Figure 9.2). These figures represent a drop out rate of 19 percent for DPT-HepB-Hib and 20 percent for polio. Overall, 57 percent of children are considered fully immunised. Seven percent of children have not received any of the recommended immunisations.

Figure 9.2 **Percentage of Children Age 12-23 Months with Specific Vaccinations According to Health Cards and Mother's Reports**



Vaccinations are most effective when given at the proper age; thus it is recommended that children complete the schedule of immunisations during their first year of life, i.e. by 12 months of age. Overall, 49 percent of children age 12-23 months had all the recommended vaccinations before their first birthday.

Table 9.12 presents vaccination coverage (according to card information and mothers' reports) among children age 12-23 months by selected background characteristics. The table shows that 60 percent of mothers of children age 12-23 months presented a vaccination card. There is no marked difference in vaccination status by sex of the child. Birth order, however is related to immunisation coverage, with first born children more likely to be fully vaccinated than those of sixth or higher birth order (66 percent compared to 42 percent, respectively). Full vaccination coverage among urban children (59 percent) is only slightly higher than among rural children (56 percent).

[3] Data for polio vaccinations were adjusted for a likely underreporting. It appeared that for some children who did not receive polio at birth, interviewers may have mistakenly written the date polio 1 was given in the space for recording the date of polio 0. To correct for any such errors, the total number of doses of DPT and polio was checked, since the two vaccines are usually given at the same time. For children reported as having received all three doses of DPT and polio 0, polio 1, and polio 2 only, it was assumed that polio 0 was in fact polio 1, polio 1 was in fact polio 2, and polio 2 was in fact polio 3.

Table 9.12 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, Kenya 2003

Background characteristic	Percentage of children who received:											Percentage with a vaccination card	Number of children
		DPT-HepB-Hib			Polio[1]						No vaccinations		
	BCG	1	2	3	0	1	2	3	Measles	All[2]			
Sex													
Male	86.6	88.6	83.2	71.0	49.4	90.7	85.3	71.6	72.9	56.4	7.7	58.3	570
Female	88.1	89.8	84.7	73.3	49.4	91.2	85.7	73.5	72.1	57.2	7.0	61.6	561
Birth order													
1	92.2	92.6	90.3	77.3	59.7	93.1	90.6	77.7	81.1	65.6	5.1	62.8	276
2-3	90.9	92.5	85.5	73.1	51.8	93.8	87.5	71.9	76.9	57.4	4.8	62.5	397
4-5	86.6	89.1	86.4	75.0	49.1	89.8	87.5	74.7	71.3	58.8	8.1	60.9	243
6+	75.3	79.0	69.9	60.6	32.1	84.1	72.8	64.6	54.7	42.1	14.2	50.3	214
Residence													
Urban	95.9	93.7	88.0	68.7	55.4	95.2	89.7	69.0	85.9	58.7	3.0	48.2	199
Rural	85.5	88.3	83.1	72.9	48.2	90.1	84.6	73.3	69.7	56.4	8.3	62.4	932
Province													
Nairobi	97.6	97.6	88.8	73.6	59.1	98.4	96.5	73.8	87.6	63.1	0.7	49.9	60
Central	97.9	96.3	95.0	87.5	66.2	96.3	94.2	88.5	90.0	78.5	2.1	64.9	125
Coast	88.8	95.4	88.9	76.7	53.0	95.4	91.1	83.1	79.4	65.8	4.6	70.7	104
Eastern	85.4	95.7	93.9	87.1	54.6	94.9	93.1	84.7	74.1	65.0	4.3	77.6	188
Nyanza	76.0	74.0	65.0	54.6	35.5	80.6	71.0	51.4	48.2	37.6	18.3	39.6	142
Rift Valley	90.4	88.8	85.0	70.3	54.0	90.8	85.6	70.4	74.4	55.5	6.8	58.9	326
Western	90.6	92.2	83.0	66.7	33.9	93.7	83.3	70.1	70.9	50.0	3.9	59.7	157
North Eastern	29.7	39.7	27.4	25.0	10.9	47.8	34.9	23.1	37.4	8.8	45.7	18.4	28
Education													
No education	61.6	69.1	59.6	51.9	27.2	73.5	63.0	50.7	51.1	33.6	23.9	45.9	163
Primary incomplete	90.1	91.1	84.5	70.9	47.0	92.4	86.3	71.0	66.6	53.8	5.8	65.8	398
Primary complete	91.7	93.5	89.4	76.5	55.5	93.9	90.5	78.6	81.3	61.8	3.8	61.9	329
Secondary +	94.2	93.9	91.9	82.0	60.1	96.4	92.5	81.5	84.9	70.6	3.6	57.1	241
Wealth quintile													
Lowest	70.0	74.3	65.7	56.5	33.7	79.1	69.5	58.1	54.8	40.0	18.5	55.1	286
Second	88.7	93.2	85.5	71.2	48.1	93.3	87.9	72.6	68.1	53.3	5.1	66.2	232
Middle	93.0	93.5	91.6	85.8	53.8	95.3	91.2	84.7	79.3	69.3	4.1	64.3	220
Fourth	95.7	95.8	94.1	80.7	61.1	95.2	93.0	79.9	80.3	63.7	2.0	64.5	193
Highest	96.2	94.9	89.9	72.4	57.5	96.3	91.9	72.5	88.0	64.5	2.9	50.4	201
Total	87.3	89.2	83.9	72.2	49.4	91.0	85.5	72.5	72.5	56.8	7.4	59.9	1,131
Excluding north													
2003	89.3	91.0	86.0	74.2	50.6	92.3	87.7	76.2	74.4	60.1	6.1	61.1	1,075
1998	95.9	95.8	90.0	79.2	u	95.4	90.4	80.8	79.2	65.4	2.7	55.4	1,097

u = Unknown (not available)

[1] Polio 0 is the polio vaccination given at birth. The data on polio vaccinations is adjusted for a likely misinterpretation of polio 0 and polio 1; for children who received three doses of DPT-HepB-Hib and polio 0, polio 1, and polio 2, it was assumed that polio 0 was in fact polio 1, polio 1 was polio 2, and polio 2 was polio 3.

[2] BCG, measles, and three doses each of DPT-HepB-Hib and polio vaccine (excluding polio vaccine given at birth)

Provincial variation in vaccination coverage needs to be interpreted with caution since the numbers of observation in which the estimates are based are, in some cases small. However, some important differences are apparent. The highest proportion of children fully vaccinated is in Central Province (79 percent), followed by Coast Province with 66 percent. North Eastern Province has the lowest proportion of children fully immunised—9 percent.

Education of the mother is associated with higher chances of their children having been fully vaccinated; 71 percent of children whose mothers had at least some secondary education are fully vaccinated as opposed to 34 percent of children whose mothers had no schooling. Table 9.12 also shows that children in the middle wealth quintile are the most likely to be fully vaccinated (69 percent), compared with those in the lowest quintile (40 percent).

Table 9.12 provides some comparable data from the 1998 KDHS, as well as data from the 2003 KDHS excluding the northern half of the country so as to be comparable to the 1998 KDHS. The result of this comparison indicates a worsening picture in the fight against vaccine-preventable diseases in Kenya. Full coverage has fallen from 65 percent to 60 percent. BCG coverage has declined from 96 percent to 89 percent, while measles coverage has declined from 79 percent to 74 percent. Failure to complete the DPT-HepB-Hib and polio series as described above has resulted in a decline of coverage from 79 to 74 percent for DPT-HepB-Hib and from 81 to 76 percent for polio.

9.6 Acute Respiratory Infection and Fever

Medical records show that pneumonia is among the top three causes of hospital admissions and among the top five causes of infant and under five mortality in Kenya. The Kenya Government adopted the Integrated Management of Childhood Illness (IMCI) strategy in 1998. However, implementation began much later, in November 2000, when the first national capacity-building training was conducted. District level implementation began in three districts (Kajiado, Embu, and Vihiga). To date, 18 districts are implementing the strategy in some health facilities. The aim is to achieve a level of 60 percent of health workers trained. The strategy's core interventions are integrated management of the five most important causes of death among children under five, namely: acute respiratory infection (ARI), diarrhoea, measles, malaria, and malnutrion and anaemia.

One of the IMCI approaches to combating ARI is to treat cases of ARI early before complications develop. Early diagnosis and treatment with antibiotics can prevent a large proportion of deaths due to pneumonia. Emphasis is therefore placed on early recognition of signs of impending severity, both by mothers and primary health care workers so that help can be sought.

It should be noted that prevalence of ARI as measured by the 2003 KDHS is based on mothers' subjective assessment of the child's symptoms, i.e., whether the child has been ill with a cough accompanied by short, rapid breathing in the two weeks preceding the survey. These signs are compatible with pneumonia. It should, however, be noted that morbidity data collected in surveys are subjective, i.e. mother's perception of illness, unvalidated by medical examination.

Malaria is endemic in most parts of Kenya and is also a common cause of hospital admission for all age groups. To assess the prevalence of malaria, whose major manifestation is fever, mothers were asked whether their children under age five had a fever in the two weeks preceding the survey. Whereas fever is the primary symptom of malaria, fever can also be a symptom of a large variety of diseases, including pneumonia, common colds/coughs and flu, etc. However, according to malaria guidelines, if fever is present, and the malaria risk in the area is high, a diagnosis of malaria is made and treated accordingly.

Table 9.13 shows that 18 percent of children under five were ill with a cough and rapid breathing during the two weeks preceding the survey. The reported prevalence of symptoms suggestive of pneumonia peaks at age 6-11 months.

ARI prevalence is slightly higher in rural areas (19 percent), compared to urban areas (16 percent). Provincial differentials are large, with Western Province having the highest level (30 percent) and North Eastern Province the lowest level (10 percent). ARI prevalence is lower for children whose mothers have some secondary education.

Table 9.13 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, Kenya 2003

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[1]	Number of children
Age in months					
<6	18.5	37.0	619	46.4	259
6-11	25.9	53.9	630	53.7	371
12-23	19.5	48.3	1,131	48.2	592
24-35	17.3	40.4	1,031	46.5	465
36-47	16.8	35.5	1,123	39.4	444
48-59	15.3	31.7	1,026	38.2	366
Sex					
Male	18.7	40.9	2,797	46.0	1,258
Female	18.1	40.2	2,762	45.0	1,239
Residence					
Urban	16.4	39.8	1,063	53.6	461
Rural	18.9	40.8	4,497	43.6	2,035
Province					
Nairobi	16.4	38.5	369	56.3	160
Central	19.6	48.9	622	45.9	314
Coast	15.9	40.7	467	58.3	209
Eastern	13.8	27.1	883	53.3	288
Nyanza	20.3	48.0	832	40.5	443
Rift Valley	16.5	35.8	1,532	47.1	614
Western	29.7	57.2	691	34.2	427
North Eastern	10.2	22.9	163	26.7	41
Education					
No education	17.6	33.3	852	46.2	320
Primary incomplete	21.2	43.2	1,980	45.9	950
Primary complete	18.9	41.2	1,539	42.9	703
Secondary +	13.7	40.5	1,189	47.8	524
Wealth quintile					
Lowest	18.0	37.5	1,343	41.7	568
Second	22.8	43.6	1,159	40.8	565
Middle	17.5	42.0	1,054	43.5	491
Fourth	17.5	41.1	957	49.5	423
Highest	15.7	39.3	1,046	54.6	450
Total	18.4	40.6	5,560	45.5	2,496

ARI = Acute respiratory infection
[1] Excludes pharmacy, shop, and traditional practitioner

Table 9.13 shows that 41 percent of children under five were reported to have had fever in the two weeks preceding the survey. Fever is more common among children aged 6-11 months (54 percent) and decreases with age, the lowest prevalence being at age 48-59 months (32 percent). Prevalence of fever is similar in the different sexes, residence groups, and education of the mother. Regional differentials show that the proportion of children with fever was highest in Western Province (57 percent) and lowest in North Eastern Province (23 percent).

Forty-six percent of children with symptoms of ARI and/or fever were taken to a health facility or provider for treatment. Younger children and urban children with ARI and/or fever are more likely to have been taken to a health facility/provider than older children and those from rural areas.

9.7 DIARRHOEAL DISEASE

Poor hygiene, which includes poor faecal matter disposal, contributes to the spread of disease, especially diarrhoea. In Kenya, most communities have believed that young children's faecal matter is safe, consequently, not much effort is made to ensure safe disposal. Table 9.14 shows that the most commonly used method of disposal of young children's stools is throwing them into a toilet or latrine (42 percent). Other methods of disposal include rinsing stools away (15 percent) and throwing them either outside the yard or outside the dwelling.

A closer look at the table shows marked differentials by province in the disposal of faecal matter. In North Eastern Province, only 13 percent of mothers throw their child's faecal matter into a latrine, while 64 percent either throw it outside the dwelling or outside the yard. Data for Western Province show that in 71 percent of cases disposal is by the child using a toilet, or faecal matter is thrown into the toilet. Use of diapers is highest in Central Province. Uneducated women are less likely to use toilets or latrines for faecal disposal, compared with more educated women (25 versus 68 percent). As expected, mothers who have no toilet facilities in their household are much less likely to dispose of their children's stools in toilets.

Table 9.14 Disposal of children's stools

Percent distribution of mothers whose youngest child under five years is living with her by way in which child's faecal matter is disposed of, according to background characteristics and type of toilet facilities in household, Kenya 2003

Background characteristic	Stools contained			Stools uncontained				Uses diapers		Missing	Total	Number of mothers
	Child always uses toilet/ latrine	Thrown into toilet/ latrine	Buried in yard	Thrown outside dwelling	Thrown outside yard	Rinsed away	Not disposed of	Dis-pos-able	Wash-able			
Residence												
Urban	12.7	49.1	1.1	1.4	3.0	16.4	0.4	1.6	14.1	0.3	100.0	742
Rural	12.1	40.0	5.2	3.9	14.0	14.4	1.9	0.3	8.0	0.2	100.0	3,017
Province												
Nairobi	11.5	48.7	0.3	0.5	2.9	20.8	0.4	2.5	12.5	0.0	100.0	268
Central	19.1	37.7	2.1	0.0	0.4	14.2	0.5	0.8	25.3	0.0	100.0	468
Coast	11.6	30.7	10.7	4.0	28.6	7.2	0.6	0.5	5.6	0.3	100.0	309
Eastern	18.6	45.5	3.4	1.3	9.4	11.2	1.4	0.0	9.0	0.2	100.0	618
Nyanza	5.5	49.7	12.8	4.0	11.0	11.0	1.3	0.0	4.7	0.0	100.0	576
Rift Valley	9.0	34.8	0.7	5.9	17.3	20.1	3.6	0.9	7.3	0.3	100.0	984
Western	15.6	55.6	2.4	1.1	3.7	16.1	0.3	0.0	4.9	0.3	100.0	442
North Eastern	0.0	13.0	9.8	21.8	42.3	10.9	2.0	0.0	0.0	0.3	100.0	93
Education												
No education	5.0	19.8	6.9	12.1	38.6	8.6	3.5	0.4	4.8	0.2	100.0	548
Primary incomplete	12.1	40.4	5.7	2.6	12.5	17.1	1.9	0.5	6.9	0.3	100.0	1,280
Primary complete	12.2	47.5	4.0	2.1	5.1	14.8	1.2	0.4	12.5	0.1	100.0	1,053
Secondary +	16.9	50.7	1.4	0.7	2.3	15.2	0.3	0.9	11.4	0.0	100.0	878
Toilet facilities												
None	3.4	3.5	13.3	12.8	47.0	12.3	4.0	0.0	3.2	0.4	100.0	761
Pit latrine	14.0	51.3	2.5	1.2	3.3	15.7	1.1	0.5	10.2	0.2	100.0	2,422
Improved latrine	18.3	54.5	0.6	0.8	2.1	11.9	0.5	0.3	10.8	0.1	100.0	259
Flush toilet	15.7	51.2	0.2	0.0	0.1	15.8	0.0	2.2	14.9	0.0	100.0	306
Wealth quintile												
Lowest	5.9	22.7	8.8	9.6	31.4	15.8	2.6	0.2	2.8	0.2	100.0	818
Second	11.6	45.6	4.2	3.1	13.0	14.3	2.2	0.2	5.4	0.3	100.0	788
Middle	15.2	46.7	4.6	1.7	7.6	13.6	1.4	0.2	8.7	0.1	100.0	727
Fourth	15.7	44.5	3.4	1.0	3.4	13.3	1.3	1.2	15.9	0.2	100.0	681
Highest	13.8	51.4	0.4	0.8	1.0	16.7	0.3	1.0	14.6	0.0	100.0	745
Total	12.2	41.8	4.4	3.4	11.8	14.8	1.6	0.6	9.2	0.2	100.0	3,759

Dehydration caused by severe diarrhoea is a major cause of morbidity and mortality among children in Kenya. In the 2003 KDHS, women with children under age five were asked if the youngest child had diarrhoea in the two weeks preceding the survey. Table 9.15 presents the prevalence of diarrhoea among children under five. Sixteen percent of children had experienced diarrhoea in the two weeks preceding the survey. Diarrhoea prevalence increases with age to peak at 6-11 months (29 percent), then falls at older ages.

There are only small variations in the prevalence of diarrhoea by sex, residence, and wealth quintile. Central Province has a considerably lower prevalence of diarrhoea (7 percent) than other provinces. Diarrhoea is less common among children whose mothers have some secondary education than those whose mothers have less education. Diarrhoea seems less common among children drinking rain water or bottled water than those drinking water from other sources, though the percentage is based on a small sample size.

Table 9.15 Prevalence of diarrhoea

Percentage of children under five years with diarrhoea in the two weeks preceding the survey, by background characteristics, Kenya 2003

Background characteristic	Diarrhoea in the two weeks preceding the survey	Number of children
Age in months		
<6	14.2	619
6-11	28.6	630
12-23	26.1	1,131
24-35	16.2	1,031
36-47	8.0	1,123
48-59	6.7	1,026
Sex		
Male	17.5	2,797
Female	14.5	2,762
Residence		
Urban	17.0	1,063
Rural	15.8	4,497
Province		
Nairobi	13.9	369
Central	7.0	622
Coast	21.9	467
Eastern	12.6	883
Nyanza	17.2	832
Rift Valley	16.7	1,532
Western	23.1	691
North Eastern	12.9	163
Mother's education		
No education	17.2	852
Primary incomplete	19.7	1,980
Primary complete	15.3	1,539
Secondary +	9.9	1,189
Source of drinking water		
Piped	15.4	1,415
Protected well	17.3	634
Open well	18.0	449
Surface	15.7	2,706
Rainwater/bottled water	4.9	85
Other/missing	18.8	271
Wealth quintile		
Lowest	18.2	1,343
Second	17.5	1,159
Middle	15.0	1,054
Fourth	13.0	957
Highest	15.2	1,046
Total	16.0	5,560

A simple and effective response to a child's dehydration is prompt increase in intake of appropriate fluids, possibly in the form of solution prepared from oral rehydration salts (ORS). In Kenya, families are encouraged to rehydrate children with either the commercially packaged ORS (also called Oralite), or other fluids prepared at home with locally obtained ingredients, e.g. water, juices, soups etc. They are also advised to prevent malnutrition from diarrhoea by continuing and increasing the feeding of children who have diarrhoea. Dehydration can be treated by the use of ORS, or, if dehydration is severe, intravenous fluids. ORS is usually distributed through health facilities and pharmacies, and is also available in local shops and kiosks, while preparation of recommended home-made fluids is taught in health facilities. In order to assess the extent of familiarity with ORS, women interviewed in the 2003 KDHS who had a birth in the five years preceding the survey were asked if they had ever heard of a special product called Oralite or ORS that you can get for the treatment of diarrhoea. The results are shown in Table 9.16.

Table 9.16 Knowledge of ORS packets

Percentage of mothers with births in the five years preceding the survey who know about ORS packets for treatment of diarrhoea, by background characteristics, Kenya 2003

Background characteristic	Percentage of mothers who know about ORS packets	Number of mothers
Age		
15-19	48.5	343
20-24	65.1	1,084
25-29	74.9	1,052
30-34	77.6	743
35-49	77.6	829
Residence		
Urban	78.8	835
Rural	69.1	3,217
Province		
Nairobi	76.6	307
Central	68.4	495
Coast	81.4	336
Eastern	65.2	646
Nyanza	78.4	643
Rift Valley	69.9	1,052
Western	63.7	470
North Eastern	73.3	102
Education		
No education	65.0	582
Primary incomplete	65.9	1,395
Primary complete	73.1	1,143
Secondary +	80.2	932
Wealth quintile		
Lowest	70.4	869
Second	67.1	830
Middle	69.9	777
Fourth	70.7	725
Highest	77.3	851
Total	71.1	4,052

Seven in ten mothers had heard of ORS packets. Knowledge of ORS increases with age and level of education of the mother. There is considerable difference in knowledge between urban (79 percent) and rural women (69 percent). Among provinces, mothers in Coast Province are more likely to know about ORS (81 percent) than women in other provinces, and women in the highest wealth quintile have slightly more knowledge of ORS (77 percent) compared with those in the other quintiles (approximately 70 percent).

Table 9.17 shows data concerning treatment of recent episodes of diarrhoea among children less than five years of age, as reported by the mothers. Results indicate that 30 percent of children with diarrhoea in the two weeks preceding the survey were taken to a health facility for treatment. When results are restricted to children under age three whose mothers live in the southern part of the country, comparison with data from the 1998 KDHS shows a sharp decline in the percentage of children with diarrhoea who were taken to a health facility or provider, from 44 percent in 1998 to 31 percent in 2003 (data not shown). In 2003, female children and children in Eastern and Coast Provinces were most likely to be taken to a health facility for treatment.

Overall, 29 percent of children with diarrhoea are treated with a solution made from ORS packets. About half of the children with diarrhoea are given ORS or more fluids to drink than before the diarrhoea. Twenty-two percent of children with diarrhoea are treated with a pill or syrup, while 17 percent are given home-made remedies or herbal medicines. These remedies were more likely to be given to younger children, children in rural areas, and those living in Nyanza Province. Thirty-two percent of children with diarrhoea were given no treatment at all.

Table 9.17 Diarrhoea treatment

Percentage of children under five years who had diarrhoea in the two weeks preceding the survey who were taken for treatment to a health provider, percentage who received oral rehydration therapy (ORT), and percentage given other treatments, according to background characteristics, Kenya 2003

Background characteristic	Percentage taken to a health provider[1]	Oral rehydration therapy			Other treatments				No treatment	Number of children with diarrhoea
		ORS packets	Increased fluids	ORS or increased fluids	Pill or syrup	Injection	Intravenous solution	Home remedy/ other		
Age in months										
<6	20.6	17.2	18.4	28.0	10.9	0.0	6.0	23.6	39.3	88
6-11	32.1	32.1	30.8	51.6	22.9	0.9	0.9	24.0	29.5	180
12-23	33.2	32.2	38.4	53.9	23.0	1.7	1.1	14.0	29.8	295
24-35	25.5	29.3	33.5	52.5	21.4	2.6	0.7	13.0	33.7	167
36-47	32.4	27.6	41.3	54.7	23.1	1.1	0.0	16.3	30.2	90
48-59	26.7	25.8	37.9	52.7	27.0	4.5	2.2	8.1	34.7	69
Sex										
Male	26.6	27.2	33.9	49.0	22.9	1.9	1.7	18.6	32.1	489
Female	33.5	31.6	34.6	52.6	20.4	1.4	1.1	14.0	31.5	400
Residence										
Urban	30.7	31.9	42.5	52.4	22.2	3.0	2.9	10.5	33.9	180
Rural	29.5	28.5	32.1	50.1	21.7	1.4	1.1	18.1	31.3	708
Province										
Nairobi	35.0	41.1	64.2	66.3	22.9	2.7	1.7	11.2	22.4	51
Central	26.5	22.5	55.7	63.4	13.2	0.0	2.3	16.3	25.6	44
Coast	42.8	43.4	37.5	61.2	28.2	3.8	0.7	19.0	25.0	102
Eastern	49.2	37.3	55.5	71.9	30.8	0.0	2.5	13.1	13.5	111
Nyanza	22.5	21.0	20.3	36.1	22.9	0.7	0.0	28.0	36.2	143
Rift Valley	26.3	29.7	25.8	47.6	15.1	2.8	2.9	17.6	35.6	257
Western	21.4	18.3	29.1	38.4	24.9	0.9	0.0	9.2	41.6	159
North Eastern	10.2	34.2	24.0	49.0	8.6	1.3	0.0	1.7	48.3	21
Mother's education										
No education	30.4	40.1	21.0	48.6	17.7	2.3	0.8	19.7	33.0	146
Primary incomplete	28.7	24.2	31.7	45.3	19.3	1.2	1.9	15.3	35.9	390
Primary complete	30.9	31.9	41.3	58.0	27.9	2.4	1.0	16.2	25.3	235
Secondary +	29.9	26.8	45.1	56.0	22.7	1.2	1.5	17.7	29.9	117
Wealth quintile										
Lowest	29.7	29.7	27.2	46.6	20.3	1.4	0.6	21.0	31.1	245
Second	25.0	26.6	34.1	48.0	18.5	1.2	0.5	19.9	36.3	202
Middle	25.2	26.4	38.8	53.1	22.0	0.8	1.7	14.1	30.7	158
Fourth	32.7	27.7	33.5	50.2	28.4	2.3	1.9	13.3	30.5	124
Highest	37.8	35.7	41.2	57.8	22.9	3.3	3.2	10.5	29.3	159
Total	29.7	29.2	34.2	50.6	21.8	1.7	1.4	16.6	31.8	888

Note: ORT includes solution prepared from oral rehydration salt (ORS) packets or increased fluids.
[1] Excludes pharmacy, shop and traditional practitioner

To gauge knowledge about drinking and eating practices for a child with diarrhoea, mothers with children under five who had had diarrhoea in the two weeks preceding the survey were asked about the drinking and eating patterns of these children, compared with normal practice. Table 9.18 shows that roughly one-third of children with diarrhoea are given more to drink than usual, while one-third are given the same as usual, and one-third are given less to drink than usual or nothing at all. It is particularly disconcerting to note that almost 20 percent of children with diarrhoea are given much less or nothing to drink.

Table 9.18 Feeding practices during diarrhoea

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, Kenya 2003

Liquid/food offered	Percent
Amount of liquids offered	
Same as usual	32.9
More	34.2
Somewhat less	15.1
Much less	13.4
None	4.1
Don't know/missing	0.3
Total	100.0
Amount of food offered	
Same as usual	34.5
More	6.6
Somewhat less	25.8
Much less	18.6
None	7.2
Never gave food	7.1
Don't know/missing	0.2
Total	100.0
Number of children	888

Food intake is curtailed even more than fluid intake during an episode of diarrhoea. One-third of children with diarrhoea are offered the same amount of food as usual, but only 7 percent were given more to eat than usual. More than one-quarter are given somewhat less food to eat than usual, while 26 percent are given much less or no food at all. These patterns reflect a gap in practical knowledge among some mothers regarding the nutritional requirements of children during episodes of diarrhoeal illness. This indicates a need for further health education efforts to reduce the number of children becoming dehydrated or malnourished due to diarrhoea.

9.8 CHILD HEALTH INDICATORS AND WOMEN'S STATUS

Table 9.19 shows the relationship between indicators of children's health and women's status. The results show no relationship between the number of household decisions in which a woman participates and vaccination coverage of her children or the percentage of children with ARI, fever or diarrhoea who are taken to a health provider. Similarly, there is no relationship between the child health measures and the number of circumstances in which the mother feels a woman is justified in refusing to have sex with her husband. However, there is a slight inverse correlation between the percentage of children with diarrhoea who are taken to a health provider and the number of reasons for which a woman thinks wife-beating is justified. Children whose mothers believe that wife-beating is not justified by any reason are more likely to be taken to a health provider when they have diarrhoea, compared with children whose mothers believe that wife-beating is justified for all five of the stated reasons (36 versus 26 percent).

Table 9.19 Children's health care by women's status

Percentage of children age 12-23 months who were fully vaccinated, and percentage of children under five years who were ill with a fever, symptoms of ARI and/or diarrhoea, in the two weeks preceding the survey taken to a health provider for treatment, by women's status indicators, Kenya 2003

Women's status indicator	Percentage of children 12-23 months fully vaccinated[1]	Number of children	Percentage of children with fever and/or symptons of ARI taken to a health provider[2]	Number of children	Percentage of children with diarrhoea taken to a health provider[2]	Number of children
Number of decisions in which woman has final say[3]						
0	60.5	134	38.8	301	29.0	116
1-2	57.6	404	46.2	913	31.3	339
3-4	57.1	351	45.7	779	30.8	270
5	59.8	241	47.9	503	25.1	163
Number of reasons to refuse sex with husband						
0	48.5	57	46.6	129	43.5	41
1-2	62.6	170	41.8	381	26.4	133
3-4	58.0	904	46.1	1,986	29.5	714
Number of reasons wife-beating is justified						
0	67.6	276	46.5	606	35.6	164
1-2	55.9	360	47.7	832	31.7	293
3-4	55.1	372	41.2	770	26.0	310
5	53.6	122	48.3	288	26.1	120
Total	56.8	1,131	45.5	2,496	29.7	888

[1] Those who have received BCG, measles, and three doses each of DPT and polio vaccine (excluding polio vaccine given at birth)
[2] Excludes pharmacy, shops, and traditional practitioner
[3] Either by herself or jointly with others

9.9 BIRTH REGISTRATION

Kenya is a signatory to the Convention of the Rights of the Child and has an Act of Parliament on the Rights of the Child, both of which firmly establish birth registration as a fundamental right of children. In order to assess the extent of birth registration, in the 2003 KDHS, mothers of children born in a health facility in the five years before the survey were asked if the facility gave them a birth notification form for the baby. Those who were not given a form at the facility and those who did not deliver in a health facility were asked if they obtained a birth notification form, either from the assistant chief, a village elder, or at a registrar's office. All mothers were asked if their children born in the preceding five years had a birth certificate.

Table 9.20 shows that overall, 45 percent of births are notified, 30 percent in health facilities and 16 percent in the registrar's office or by an assistant chief or village elder. However, a much smaller proportion of births (21 percent) can be considered to be registered with a birth certificate.

Table 9.20 Birth registration

Percentage of births in the five years before the survey for which the health facility provided a birth notification form, for which the parents obtained a birth notification form and for which there is a birth certificate, according to background characteristics, Kenya 2003

Background characteristic	Birth notification form: From health facility	Birth notification form: From registrar's office	Has birth certificate	Number of births
Birth order				
1	43.7	9.9	25.2	1,469
2-3	32.4	16.0	22.3	2,177
4-5	22.3	18.8	17.8	1,215
6+	15.5	17.9	17.2	1,240
Residence				
Urban	54.8	5.6	28.1	1,143
Rural	23.9	17.7	19.5	4,959
Province				
Nairobi	62.5	3.6	30.2	398
Central	60.5	15.6	23.6	652
Coast	20.5	31.3	26.3	510
Eastern	30.8	17.8	17.3	946
Nyanza	21.4	8.7	16.8	1,000
Rift Valley	23.8	11.8	20.1	1,639
Western	20.7	28.0	25.4	776
North Eastern	4.9	1.1	10.9	181
Education				
No education	8.9	11.7	14.0	938
Primary incomplete	19.8	20.0	20.1	2,222
Primary complete	34.2	15.4	21.0	1,678
Secondary +	56.7	10.3	28.3	1,263
Wealth quintile				
Lowest	9.0	20.8	15.9	1,509
Second	20.9	18.7	20.6	1,271
Middle	27.8	20.7	21.0	1,159
Fourth	41.5	10.6	19.2	1,032
Highest	58.4	4.0	30.3	1,131
Total	29.7	15.5	21.1	6,102

Notification in health facilities and presence of a birth certificate declines with birth order. There are marked urban-rural differentials, with 60 percent of urban births having a notification form and 28 percent having a birth certificate, compared to only 42 and 20 percent of rural births, respectively. Provincial comparison shows variation, with Central Province having the highest notification level (76 percent) and North Eastern Province the lowest (6 percent). Births in Nairobi Province are most likely to be registered with a birth certificate (30 percent). Birth notification and presence of birth certificates increases with mothers' education and wealth quintile.

9.10 KNOWLEDGE OF SIGNS OF ILLNESS

The IMCI programme aims at contributing to the reduction of morbidity and mortality among children under five. One of its strategies is to emphasise early recognition of signs of illness and early care-seeking behaviour among mothers of children under five, to prevent complications and death resulting from the common childhood illnesses. In the 2003 KDHS, women who have at least one child living

with them were asked what signs of illness would indicate that a child should be taken to a health facility or health worker.

Table 9.21 shows that almost all women (99 percent) mentioned some sign of illness. It is reassuring to note that a substantial proportion of the women were able to identify some of the general danger signs, such as not being able to drink or breastfeed (43 percent) and weakness (46 percent). Notably, many women correctly identified signs of three main killer diseases among children under five: fever and shivering for malaria (82 percent); diarrhoea (25 percent); and fast breathing for pneumonia (13 percent).

Table 9.21 Knowledge of illness signs

Among women who have at least one child living with them, percentage who report specific signs of illness in a child that would indicate the child should be taken to a health facility or health worker, Kenya 2003

Sign of illness	Total
Not able to drink/breastfeed	42.8
Fever, shivering	81.7
Repeated vomiting	19.8
Diarrhoea	25.4
Blood in stools	1.8
Fast breathing	12.8
Convulsions	5.3
Weakness	45.5
Getting sicker	13.3
Crying	14.5
Coughing	7.1
Change in color of eyes	4.1
Sleepy	2.3
Other	2.0
Able to name one sign	99.3
Number of women	5,426

9.11 SMOKING AND ALCOHOL USE

In order to measure the extent of smoking among Kenyan adults, women and men who were interviewed in the 2003 KDHS were asked if they currently smoked cigarettes or used tobacco. Less than 3 percent of women said they used tobacco of any kind and less than one percent said they smoked cigarettes (data not shown). One-quarter of men use tobacco products, with 23 percent saying that they smoke cigarettes. Although the proportion of women who smoke is too small to show details, Table 9.22 shows differentials in smoking among men.

Younger men are less likely to smoke than men in their 30s and early 40s. Similarly, men with no education and in the lowest wealth quintile are less likely to smoke cigarettes than men with some education and in higher wealth quintiles. However, men with no education are much more likely to use other tobacco products (e.g., snuff, chewing tobacco). Men in Eastern Province have the highest level of smoking (37 percent).

Table 9.22 Use of tobacco among men

Percentage of men who smoke cigarettes, smoke a pipe, or use other tobacco, according to background characteristics, Kenya 2003

Background characteristic	Type of tobacco			Does not not use tobacco	Number of respondents
	Cigarettes	Pipe	Other tobacco		
Age					
15-19	5.4	0.0	0.2	94.3	856
20-24	21.0	0.1	0.9	78.1	681
25-29	27.6	0.0	2.3	70.5	509
30-34	34.2	0.0	2.0	63.8	415
35-39	33.8	0.1	1.9	65.2	396
40-44	33.9	0.0	4.3	62.7	310
45-49	26.0	0.4	6.1	67.2	196
50-54	26.7	0.0	5.4	67.8	215
Residence					
Urban	23.5	0.1	0.6	75.8	907
Rural	22.7	0.0	2.5	75.1	2,671
Province					
Nairobi	22.7	0.0	1.0	76.1	397
Central	29.7	0.0	0.4	69.9	554
Coast	29.8	0.3	1.6	68.6	252
Eastern	37.1	0.0	0.6	62.2	588
Nyanza	11.0	0.0	0.0	89.0	481
Rift Valley	17.5	0.0	6.2	77.2	846
Western	15.5	0.2	1.0	83.0	396
North Eastern	13.0	0.0	1.5	85.5	65
Education					
No education	16.9	0.2	15.8	67.2	228
Primary incomplete	25.0	0.1	1.6	73.5	1,210
Primary complete	25.3	0.0	0.8	74.1	820
Secondary +	20.5	0.0	0.7	79.0	1320
Wealth quintile					
Lowest	16.9	0.2	6.5	77.2	548
Second	22.0	0.0	2.9	75.3	609
Middle	21.9	0.0	1.0	77.2	648
Fourth	28.4	0.0	0.4	71.1	794
Highest	23.0	0.1	0.9	76.2	979
Total	22.9	0.1	2.0	75.3	3,578

Alcohol contributes to low birth weight babies and affects brain development during pregnancy, as well as affecting the mother's health. It is recommended that women should avoid alcohol during pregnancy and breastfeeding. Alcohol use, especially drunkenness, among men is related to higher prevalence of domestic violence (see Chapter 15).

Table 9.23 shows that 12 percent of women interviewed in the 2003 KDHS report that they have ever drunk alcohol, compared to 50 percent of men. In the month preceding the survey, 5 percent of women drank alcohol, compared to 30 percent of men. In general, older women and men are more likely to drink alcohol than younger ones. Urban women are twice as likely as their rural counterparts to drink alcohol. Similarly, a higher percentage of urban than rural men use alcohol. Regional differentials indicate that alcohol use is highest among women in Nairobi and Western Provinces, while among men, it is highest in Nairobi and Eastern Provinces.

There is a greater tendency for educated men to drink alcohol than less educated men. Among women there is little difference except that uneducated women are more likely to have drunk alcohol in the month preceding the survey than women with some education. Use of alcohol by women and men in the highest wealth quintile is noticeably higher than among respondents in the lower quintiles.

Table 9.23 Use of alcohol

Percentage of respondents who ever have drunk alcohol and who have drunk alcohol in the past month, by background characteristics and maternity status, Kenya 2003

Background characteristic	Women			Men		
	Ever drank alcohol	Drank alcohol in past month	Number of respondents	Ever drank alcohol	Drank alcohol in past month	Number of respondents
Age						
15-19	6.6	2.6	1,856	24.2	10.3	856
20-24	10.0	3.9	1,691	49.7	29.6	681
25-29	12.1	4.8	1,382	57.1	33.0	509
30-34	12.3	5.8	1,086	63.8	42.0	415
35-39	14.0	6.9	871	61.5	41.4	396
40-44	18.4	8.3	788	61.2	39.0	310
45-49	18.7	9.9	521	62.9	39.8	196
50-54	na	na	0	60.4	35.0	215
Residence						
Urban	18.2	7.4	2,056	59.7	35.4	907
Rural	9.5	4.4	6,139	46.7	28.1	2,671
Province						
Nairobi	23.8	10.4	835	69.4	37.6	397
Central	10.0	2.7	1,181	38.3	25.4	554
Coast	8.5	4.8	667	46.2	31.6	252
Eastern	8.8	2.9	1,325	61.6	34.3	588
Nyanza	11.6	4.4	1,222	37.6	23.8	481
Rift Valley	9.5	5.4	1,872	52.7	31.6	846
Western	16.1	8.2	927	49.4	29.5	396
North Eastern	0.0	0.0	168	0.0	0.0	65
Education						
No education	13.9	9.0	1,039	34.4	23.8	228
Primary incomplete	10.3	4.6	2,685	44.2	25.9	1,210
Primary complete	8.4	3.1	2,069	49.0	29.6	820
Secondary +	15.1	5.7	2403	58.5	34.8	1320
Wealth quintile						
Lowest	8.1	4.9	1,364	45.3	25.6	548
Second	10.0	5.3	1,475	46.4	27.6	609
Middle	9.3	4.2	1,503	42.7	27.4	648
Fourth	8.5	2.8	1,711	48.2	28.3	794
Highest	19.4	7.5	2,141	61.0	36.8	979
Total	11.7	5.1	8,195	50.0	29.9	3,578

na = Not applicable