

CHAPTER 9

MATERNAL AND CHILD HEALTH

Safe motherhood practices and child survival programmes are critically important in a country that is experiencing high infant and child mortality and maternal mortality. Realizing the importance of maternal and child health care services, the Ministry of Health, Government of India, took concrete steps to strengthen maternal and child health services in the First and Second Five Year Plans (1951-56 and 1956-61). The integration of family planning services with maternal and child health services and nutrition services was introduced as a part of the Minimum Needs Programme during the Fifth Five Year Plan (1974-79). The primary objective was to provide basic public health services to vulnerable groups of pregnant women, lactating mothers, and preschool children (Kanitkar, 1979). Since then, the promotion of health of mothers and children has been one of the most important aspects of the Family Welfare Programme in India and has now been further strengthened by introducing the Child Survival and Safe Motherhood Programme (Ministry of Health and Family Welfare, 1992a). The Ministry of Health and Family Welfare has also sponsored special schemes, under the Maternal and Child Health Programme, including the programme of Oral Rehydration Therapy, development of Regional Institutes of Maternal and Child Health in states where infant mortality rates are high, the Universal Immunization Programme, and the Maternal and Child Health Supplemental Programme within the Post-Partum Programme (Ministry of Health and Family Welfare, 1992a).

In the rural areas of India, maternal and child health services are delivered mainly by government-run Primary Health Centres and sub-centres. Services for pregnant women and children can also be obtained from private and public maternity homes or hospitals, as well as from private practitioners. In urban areas, maternal and child health (MCH) services are available mainly through government or municipal hospitals, urban health posts, hospitals and nursing homes operated by nongovernmental voluntary organizations, and various private nursing homes or maternity homes.

The Village Health Guide is a link between the community and MCH services in rural areas. The Female Health Worker, who is an Auxiliary Nurse Midwife, renders maternal and child health and family welfare services (Ministry of Health and Family Welfare, 1978). The Female Health Worker is supposed to assist the Medical Officer and Female Health Assistant in providing maternal and child health services. She is responsible for registering pregnant women and assessing their health throughout pregnancy in their homes or in the antenatal clinic. Another responsibility of the Female Health Worker is to refer pregnant women who have symptoms of abnormal pregnancy or labour, or who have gynaecological problems that are beyond her level of competence, to the Primary Health Centre. The basic maternal and child care services offered at Primary Health Centres are antenatal and postnatal care of mothers as well as care of infants and children.

A major objective of the NFHS was to provide information on maternal and child health care practices. The relevant information was collected in the Woman's Questionnaire from the mothers of all children born since 1 January 1988 for states where the NFHS was initiated in 1992, and 1 January 1989, where the NFHS was carried out in 1993 (see Table 2.1 for the dates

of fieldwork). The information covered matters related to pregnancy and childbirth; infant and child feeding practices, including breastfeeding; immunizations; episodes of illnesses such as acute respiratory infection, fever and diarrhoea, and the treatment received; mothers' knowledge and use of Oral Rehydration Salts (ORS); and the level of child nutrition assessed by measuring the weight and height of children.

This chapter analyzes the data collected on antenatal and delivery care, immunization coverage, prevalence of acute respiratory infection, fever and diarrhoea and their treatment, and mothers' knowledge and use of ORS. Chapter 10 deals with infant feeding and child nutrition.

Although information was obtained for each child born since January 1988/1989, the analysis in this chapter is restricted to children born during the four years before the date each woman was interviewed. If a woman had more than one live birth during this four-year period, information was collected for the three most recent live births; all of these births are used in the current analysis.

9.1 Maternal Care Indicators

Antenatal Care

Antenatal care (ANC) refers to pregnancy-related health care provided by a doctor or a health worker in a medical facility or at home. The Safe Motherhood Initiative proclaims that all pregnant women must receive basic but professional antenatal care (Harrison, 1990). Antenatal care can contribute significantly to the reduction of maternal morbidity and mortality because it also includes advice on the correct diet and the provision of iron and folic acid tablets to pregnant women, besides medical care. Improved nutritional status, coupled with improved antenatal care, can help to reduce the incidence of low birth weight babies and thus reduce perinatal, neonatal, and infant mortality.

A pregnant woman can receive antenatal care by visiting a doctor or other health professional in a medical facility, or by receiving a home visit from a health worker, or both. In the NFHS, each woman who had a live birth during the four years prior to the survey was initially asked whether any health worker visited her at home for an antenatal check-up when she was pregnant and, if so, at which month of pregnancy the first visit was made and how many such visits were made in all. Next she was asked whether she had gone for an antenatal check-up outside the home and whom she saw for the check-up. If she saw more than one person, information was collected on all persons seen. She was asked at which month of pregnancy she first went for an antenatal check-up and how many such visits she made.

Table 9.1 and Figure 9.1 show the percentage distribution of live births in the last four years by the source of antenatal care received during pregnancy, according to selected background characteristics. Although the interviewer was instructed to record all persons if more than one source of antenatal care outside the home was mentioned for the same pregnancy, for the purpose of this tabulation only the provider with the highest qualifications is considered. For 62 percent of births during the last four years, mothers received antenatal care during pregnancy. Allopathic doctors provided antenatal care for 40 percent of births and other health professionals (such as nurse/midwives, ayurvedic doctors and homoeopathic doctors) provided

Table 9.1 Antenatal care

Percent distribution of live births during the four years preceding the survey by source of antenatal care (ANC) during pregnancy, according to selected background characteristics, India, 1992-93

Background characteristic	ANC only at home from health worker	Antenatal care provider (outside home) ¹			No ANC	Missing	Total percent	Number of births
		Doctor	Other health professional	Traditional birth attendant, other ²				
Mother's age at birth								
<20	13.3	40.8	9.8	0.4	34.6	1.1	100.0	11514
20-34	12.6	40.8	9.4	0.3	36.0	0.9	100.0	35258
35+	13.1	22.5	5.9	0.3	57.2	1.1	100.0	2597
Birth order								
1	10.4	51.9	10.0	0.4	26.2	1.0	100.0	13594
2-3	12.8	42.7	10.0	0.3	33.3	0.9	100.0	20433
4-5	15.4	28.9	8.8	0.4	45.5	1.0	100.0	9542
6+	13.9	19.6	6.2	0.1	59.4	0.8	100.0	5800
Residence								
Urban	3.9	69.6	7.2	0.4	17.8	1.1	100.0	11242
Rural	15.4	31.1	10.0	0.3	42.4	0.9	100.0	38128
Education								
Illiterate	15.5	25.3	9.2	0.3	48.8	1.0	100.0	32770
Literate, < middle complete	10.1	57.6	11.3	0.3	19.9	0.7	100.0	8190
Middle school complete	6.5	72.1	10.5	0.3	9.8	0.7	100.0	3505
High school and above	3.6	84.2	6.5	0.2	4.2	1.2	100.0	4904
Religion								
Hindu	14.0	38.6	8.9	0.3	37.2	1.0	100.0	39223
Muslim	8.6	41.6	8.5	0.4	40.3	0.6	100.0	7613
Christian	6.5	61.4	7.3	0.2	23.9	0.6	100.0	981
Sikh	3.6	37.2	44.3	0.4	14.3	0.1	100.0	822
Jain	0.6	83.3	8.1	2.4	4.3	1.3	100.0	142
Buddhist	11.6	68.6	5.7	--	14.1	--	100.0	351
Other	15.6	34.9	9.7	0.6	38.5	0.8	100.0	237
Caste/tribe								
Scheduled caste	14.0	29.4	12.8	0.2	42.2	1.4	100.0	6590
Scheduled tribe	18.5	21.0	7.1	0.2	52.3	0.9	100.0	4703
Other	11.9	44.0	9.0	0.3	34.0	0.8	100.0	38076
Total	12.8	39.8	9.3	0.3	36.8	0.9	100.0	49369

Note: Table is based on births in the period 1-47 months prior to the survey. ANC refers to pregnancy related health care provided by a doctor or a health worker in a medical facility or at home.

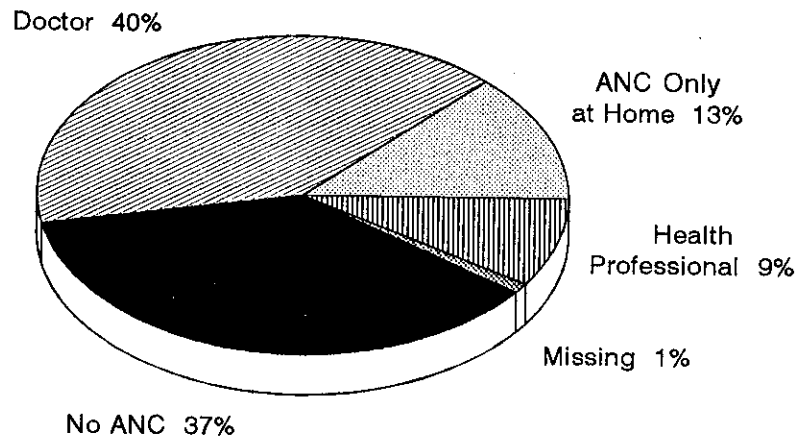
-- Less than 0.05 percent

¹Includes women who received ANC outside the home, whether or not they also received ANC at home from a health worker. If more than one source of ANC was mentioned, only the provider with the highest qualifications is considered.

²Includes *hakim* and "Don't know"

care for 9 percent of births. Mothers received antenatal care only at home from a health worker for 13 percent of births. Note that in this tabulation, those who received antenatal care outside the home, whether or not they also received care at home from a health worker, are classified as "outside home". A sizeable percentage of births (37 percent) were to mothers who did not receive any antenatal care.

Figure 9.1
Sources of Antenatal Care (ANC)
During Pregnancy



Note: Based on births in the period
1-47 months preceding the survey

NFHS, India, 1992-93

As expected, utilization of antenatal care services is substantially better in urban than in rural areas; mothers of 81 percent of births during the four years preceding the survey received antenatal care in urban areas compared with 57 percent in rural areas. Urban women are more than twice as likely to receive antenatal care from an allopathic doctor as rural women (70 percent compared with 31 percent), whereas rural women are more likely to receive antenatal care from a health worker or a health professional who is not a doctor.

The utilization of antenatal care during pregnancy decreases with the age of the mother. The coverage of antenatal care is greatest (64 percent) among births to young mothers below age 20 and lowest (42 percent) among births to mothers age 35 and over. A consistent negative relationship is also observed between the birth order and overall utilization of antenatal care services, especially care provided by allopathic doctors. While the mothers of 52 percent of first order births received antenatal care from allopathic doctors, this percentage is only 20 for births of order six or higher. The proportion of births whose mothers received antenatal care increases steadily with an increase in the educational level of the mother, from 50 percent for births to illiterate mothers to 90 percent for births to mothers who completed middle school and to 95 percent for births to mothers who completed at least high school. This relationship is produced entirely by variations in the antenatal care provided by allopathic doctors; antenatal care only at home from health workers is actually more common among births to illiterate mothers (16 percent) than among births to mothers with at least a high school education (4 percent).

Jain, Buddhist, Sikh and Christian mothers are more likely to receive antenatal care, although Sikhs are the only group who are more likely to receive antenatal care from other health professionals (44 percent) than from allopathic doctors (37 percent). Hindus are slightly more likely to be covered by antenatal care than Muslims although Muslims are more likely to consult doctors than are Hindus. Mothers from scheduled tribes are less likely to receive antenatal care (47 percent) than mothers from either scheduled castes (56 percent) or nonscheduled castes/tribes (65 percent).

It is encouraging to note that mothers in India receive antenatal care for 62 percent of births and that a large majority of all births covered by antenatal care were to mothers who received antenatal care from allopathic doctors. However, more efforts are needed to achieve the goal of providing professional antenatal care to all pregnant women. The most pressing need is for the provision of professional antenatal care services in rural areas and the encouragement of pregnant women to avail themselves of the services provided, since 43 percent of births in rural areas were to mothers who did not receive any antenatal care.

Reasons for Not Seeking Antenatal Care Services

Mothers who had not sought antenatal care outside the home were asked about the main reason for not going for an antenatal check-up. The findings shown in Table 9.2 for women who did not receive any antenatal care are quite revealing. For this group, nearly three-fifths of the births were to mothers who stated that it was not necessary to go for an antenatal check-up. Thus, a large proportion of births are to mothers who do not realize the importance of safe motherhood. It is surprising to note that a higher proportion of urban births (66 percent) than rural births (58 percent) were to mothers who felt this way, but it must be remembered that the table includes only women whose births did not involve any antenatal care, a category that is far smaller among urban births (18 percent) than among rural births (42 percent). Other major factors contributing to the nonuse of antenatal care were lack of knowledge of antenatal care services (13 percent) and financial cost (7 percent). Mothers of 6 percent of births felt that it

Table 9.2. Reasons for not receiving antenatal care

Percent distribution of live births during the four years preceding the survey to mothers who did not receive antenatal care, by main reason for not receiving antenatal care and residence, India, 1992-93

Reason for not receiving antenatal care	Urban	Rural	Total
Lack of knowledge of services	7.6	13.4	12.8
Not necessary	66.4	57.6	58.5
Not customary	4.4	5.7	5.5
Financial cost	7.3	6.8	6.9
Inconvenient	1.7	2.6	2.5
Poor quality service	1.0	1.4	1.3
No time to go	3.0	5.5	5.3
Not permitted to go	5.3	5.2	5.2
Other	2.7	1.6	1.7
Don't know, missing	0.6	0.1	0.2
Total percent	100.0	100.0	100.0
Number	1996	16171	18168

is not customary in the community to go for an antenatal check-up. Five percent of births were to women who had no time to go for antenatal care and another 5 percent were to women who were not permitted to go for an antenatal check-up. One to 3 percent of births were to mothers who said it was inconvenient to go for antenatal care and that the services were of poor quality. Thus, the most important barriers to the utilization of antenatal check-up services are the lack of conviction regarding the necessity of having an antenatal check-up, lack of knowledge of services and social customs not encouraging the utilization of antenatal care services. These findings underline the importance of developing a strong information, education and communication programme with respect to antenatal care and safe motherhood.

Number and Timing of Antenatal Care Visits

The number of antenatal care visits and the timing of the first antenatal check-up are important for the health of the mother and the outcome of the pregnancy. Ideally, for normal cases antenatal care visits after confirmation of pregnancy should be scheduled at intervals of four weeks throughout the first seven months, then every two weeks until the last month and weekly thereafter (MacDonald and Pritchard, 1980). However, working women, particularly those from lower socioeconomic groups, often find it difficult to make frequent visits to an antenatal clinic because they face a loss of wages whenever they attend. Under these circumstances, a minimum of four antenatal visits are recommended during the third, sixth, eighth, and ninth months of the pregnancy (Park and Park, 1989). The Child Survival and Safe Motherhood Programme has a slightly more modest goal of providing at least three antenatal check-ups to all pregnant women (Ministry of Health and Family Welfare, 1992b).

Table 9.3 and Figure 9.2 show the percentage distribution of live births in the last four years by the number and timing of antenatal visits. Among the births for which the mother received any form of antenatal care, the median frequency of antenatal care visits either in the home or elsewhere is 3.7; the median number of home visits is 3.2 and of visits outside the home is 3.6. These medians make it clear that women who receive antenatal care are meeting the recommended minimum of 3 visits during pregnancy but they are far behind the expanded recommendation of 12 visits during a normal pregnancy. The median number of visits is larger in urban areas (4.6) than in rural areas (3.5), but even in urban areas the expanded recommendations are not being met. No home visits were made by health workers to the mothers of 79 percent of births; only 24 percent of births in rural areas and 10 percent of births in urban areas received antenatal care through home visits.

Obstetricians advise that antenatal care should begin, at the latest, six weeks after the last menstrual period. However, studies of the impact of the initial antenatal visit show that, even when antenatal care is initiated as late as the third trimester, there is a substantial reduction in perinatal mortality (Ramachandran, 1992). The median gestational age for the first antenatal visit of either type (home or outside) is 5.0 months. It is 4.2 months in urban areas and 5.1 months in rural areas. The median gestational age in urban areas is higher for home visits (5.2 months) than outside visits (4.2 months). No such difference is observed in rural areas. The proportion of births whose mothers received antenatal care in the first trimester is 39 percent in urban areas, 20 percent in rural areas, and 24 percent in the country as a whole. Thus, in both urban and rural areas a substantial majority of mothers who receive antenatal care receive it for the first time at a later gestational age than is recommended.

Table 9.3 Number of antenatal care visits and stage of pregnancy

Percent distribution of live births during the four years preceding the survey by number of antenatal care (ANC) visits, and by the stage of pregnancy at the time of the first visit, according to residence, India, 1992-93

ANC visits/ months pregnant	Home visits	Outside visits	Any type
URBAN			
Number of ANC visits			
None	89.9	21.6	17.8
1 visit	1.9	4.2	4.1
2-3 visits	5.0	30.4	30.7
4 or more visits	2.7	43.5	46.9
Don't know/missing	0.5	0.3	0.5
Total percent	100.0	100.0	100.0
Median number of visits (for those with ANC)	3.2	4.5	4.6
Months pregnant at the time of the first ANC visit			
No antenatal care	89.9	21.6	17.8
First trimester	2.9	37.4	39.3
Second trimester	4.7	26.4	28.1
Third trimester	2.0	14.3	14.4
Don't know/missing	0.4	0.3	0.3
Total percent	100.0	100.0	100.0
Median months pregnant at first visit (for those with ANC)	5.2	4.2	4.2
Number of live births	11242	11242	11242
RURAL			
Number of ANC visits			
None	75.2	57.8	42.4
1 visit	4.1	5.7	6.7
2-3 visits	13.2	23.0	28.9
4 or more visits	6.6	13.0	21.0
Don't know/missing	0.9	0.5	0.9
Total percent	100.0	100.0	100.0
Median number of visits (for those with ANC)	3.2	3.3	3.5
Months pregnant at the time of the first ANC visit			
No antenatal care	75.2	57.8	42.4
First trimester	7.0	13.9	19.5
Second trimester	12.4	18.7	26.9
Third trimester	4.7	9.0	10.5
Don't know/missing	0.8	0.5	0.7
Total percent	100.0	100.0	100.0
Median months pregnant at first visit (for those with ANC)	5.3	5.3	5.1
Number of live births	38128	38128	38128

Table 9.3 Number of antenatal care visits and stage of pregnancy (Contd.)

Percent distribution of live births during the four years preceding the survey by number of antenatal care (ANC) visits, and by the stage of pregnancy at the time of the first visit, according to residence, India, 1992-93

ANC visits/ months pregnant	Home visits	Outside visits	Any type
TOTAL			
Number of ANC visits			
None	78.6	49.6	36.8
1 visit	3.6	5.3	6.1
2-3 visits	11.3	24.7	29.3
4 or more visits	5.7	19.9	26.9
Don't know/missing	0.8	0.5	0.8
Total percent	100.0	100.0	100.0
Median number of visits (for those with ANC)	3.2	3.6	3.7
Months pregnant at the time of the first ANC visit			
No antenatal care	78.6	49.6	36.8
First trimester	6.0	19.2	24.0
Second trimester	10.6	20.5	27.2
Third trimester	4.1	10.2	11.4
Don't know/missing	0.7	0.5	0.6
Total percent	100.0	100.0	100.0
Median months pregnant at first visit (for those with ANC)	5.3	5.0	5.0
Number of live births	49369	49369	49369

Note: Table is based on births in the period 1-47 months prior to the survey.

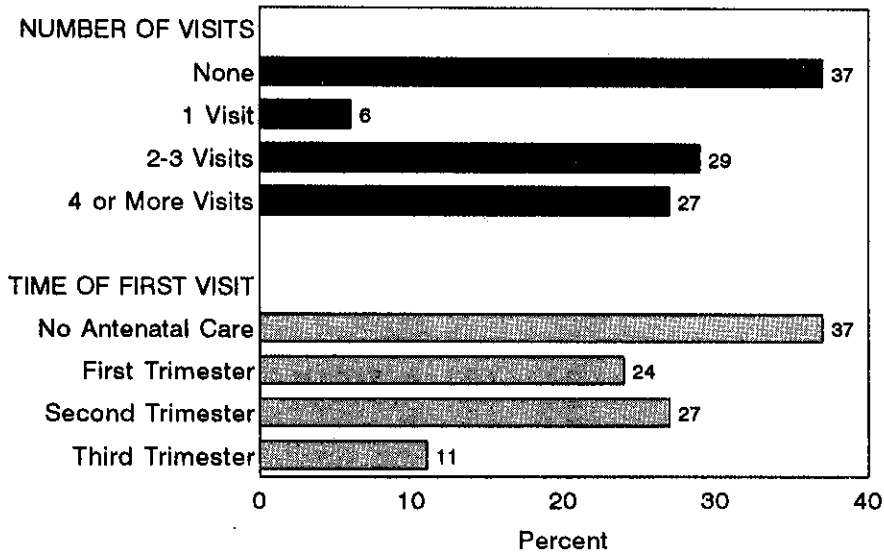
Tetanus Toxoid Vaccination

Tetanus is an important cause of death among neonates in India. Neonatal tetanus is a particular problem in Madhya Pradesh, Orissa, and Uttar Pradesh, where the proportion of all deaths due to neonatal tetanus is higher than the state's share in the total population of India (Central Bureau of Health Intelligence, 1991).

Neonatal tetanus is caused by infection of the newborn (usually at the umbilical stump) with tetanus organisms. Neonatal tetanus is most common when the delivery takes place in an unhygienic environment and nonsterilized instruments are used for cutting the umbilical cord. Tetanus typically develops during the first or second week of life and is fatal in 70 to 90 percent of cases (Foster, 1984). Where this disease is most common, such as in rural areas of several states, expert medical help is also rarely available, thereby leading to a particularly high fatality rate. Neonatal tetanus is a preventable disease, however. Two doses of tetanus toxoid vaccine given to the pregnant woman one month apart during early pregnancy are nearly 100 percent effective in preventing tetanus among newborns (and among mothers).

In India, the tetanus immunization programme for expectant mothers was initiated in 1975-76 and was integrated with the Expanded Programme on Immunization (EPI) in 1978

Figure 9.2
Number and Timing of Antenatal Visits



Note: Based on births in the period 1-47 months preceding the survey

NFHS, India, 1992-93

(Ministry of Health and Family Welfare, 1991). In order to hasten implementation of the immunization programme the Government of India started a special programme called the Universal Immunization Programme (UIP) in 1985-86. In 1986, the UIP was recognized as one of the seven Technology Missions. According to the National Immunization Schedule, a pregnant woman should receive two doses of tetanus toxoid injection, the first when she is 16 weeks pregnant and the second when she is 20 weeks pregnant (Central Bureau of Health Intelligence, 1991). Reinoculation is recommended every three years. If the initial doses were received less than three years ago a single booster injection is recommended.

In the NFHS, each mother who had a live birth during the four years prior to the survey was asked whether she was given an injection in the arm to prevent her and her baby from getting tetanus and, if so, how many times she received such an injection. The distribution of births by the number of tetanus toxoid injections given to the mother according to selected background characteristics is shown in Table 9.4. Fifty-four percent of births were to mothers who had received two or more doses of tetanus toxoid vaccine, 7 percent were to those who had received one dose, and 39 percent were to those who did not receive even a single dose.

The receipt of two doses of tetanus toxoid vaccine is significantly higher in urban than in rural areas (74 percent compared with 48 percent). For births in the last four years, tetanus toxoid coverage is lower for older mothers and decreases consistently with an increase in birth order. The proportion of births whose mothers received two doses of tetanus toxoid vaccine increases steadily from 40 percent for illiterate mothers to 84 percent for mothers who completed

Table 9.4 Tetanus toxoid vaccinations

Percent distribution of live births during the four years preceding the survey by number of tetanus toxoid injections and whether the respondent was given iron/folic tablets during pregnancy, according to selected background characteristics, India, 1992-93

Background characteristic	Number of tetanus toxoid injections				Total percent	Percent given iron/folic tablets	Number of births
	None	One dose	Two doses ¹	Don't know/missing			
Mother's age at birth							
< 20	37.0	7.7	55.1	0.1	100.0	51.8	11514
20-34	37.8	6.9	55.1	0.2	100.0	51.5	35258
35+	62.8	6.8	30.3	0.1	100.0	30.3	2597
Birth order							
1	28.1	6.2	65.5	0.2	100.0	60.6	13594
2	32.2	7.3	60.4	0.2	100.0	56.7	11794
3	38.5	7.6	53.7	0.2	100.0	50.6	8639
4	45.8	7.8	46.4	0.1	100.0	43.3	5797
5	50.6	8.5	40.7	0.1	100.0	38.9	3745
6+	64.6	6.6	28.8	0.1	100.0	28.5	5800
Residence							
Urban	19.4	6.0	74.4	0.3	100.0	68.7	11242
Rural	44.7	7.4	47.7	0.1	100.0	45.1	38128
Education							
Illiterate	51.7	7.8	40.3	0.1	100.0	38.3	32770
Literate, < middle complete	20.9	7.0	71.9	0.2	100.0	66.6	8190
Middle school complete	10.0	5.3	84.3	0.3	100.0	77.2	3505
High school and above	4.4	4.0	91.5	0.2	100.0	85.6	4904
Religion							
Hindu	39.6	7.2	53.0	0.2	100.0	50.5	39223
Muslim	41.2	6.8	51.8	0.2	100.0	44.3	7613
Christian	27.4	7.1	65.0	0.5	100.0	65.0	981
Sikh	15.1	4.7	80.2	--	100.0	71.0	822
Jain	6.4	1.0	91.8	0.8	100.0	89.7	142
Buddhist	14.7	9.5	75.6	0.1	100.0	74.5	351
Other	42.0	9.8	47.8	0.4	100.0	49.0	237
Caste/tribe							
Scheduled caste	45.4	7.0	47.4	0.2	100.0	44.2	6590
Scheduled tribe	56.2	9.4	34.1	0.3	100.0	40.2	4703
Other	35.7	6.8	57.3	0.2	100.0	52.8	38076
Total	39.0	7.1	53.8	0.2	100.0	50.5	49369

Note: Table is based on births in the period 1-47 months prior to the survey.
 -- Less than 0.05 percent
¹Includes women who received more than two doses

middle school and to 92 percent for mothers with at least a high school education. Vaccination against tetanus is highest among births to Jain mothers (92 percent), followed by births to Sikh mothers (80 percent), Buddhist mothers (76 percent), and Christian mothers (65 percent). Vaccination against tetanus is almost the same among births to Muslim mothers (52 percent) as among birth to Hindu mothers (53 percent). The coverage is considerably lower among scheduled tribe mothers (34 percent) than scheduled caste mothers (47 percent) or non-SC/ST mothers (57 percent).

Iron and Folic Acid Tablets

The size of a woman's baby, her preparation for lactation, and the iron and folate status of both the mother and the child depends upon the mother's nutritional status at the time of conception as well as her diet during pregnancy (World Health Organization, 1994a). Proper maternal care is important for the healthy intrauterine growth of the baby and may affect the baby's birth weight. Studies in various parts of India have indicated that the percentage of low birth weight babies (weighing less than 2,500 grams) ranged from 15 in Trivandrum to 46 in Baroda (Nutrition Foundation of India, 1993). Improved nutrition (coupled with improved health care in pregnancy) has, however, substantially improved birth weights in India (Ramachandran, 1992). The provision of iron and folic acid tablets as a prophylaxis against nutritional anaemia among pregnant women forms an integral part of the MCH activities of the Indian Family Welfare Programme (Ministry of Health and Family Welfare, 1991). It is recommended that a pregnant woman take 100 tablets of iron and folic acid during her pregnancy, and health workers are instructed accordingly.

In the NFHS, information was collected on whether the mother received iron and folic acid tablets during each pregnancy resulting in a live birth during the last four years. This information is presented in Table 9.4. Fifty-one percent of births were to mothers who had received iron and folic acid tablets. Because nearly one-third of new babies in India are of low birth weight (WHO-UNICEF, 1992), the performance with regard to the intake of iron and folic acid tablets by pregnant women is very inadequate. As expected, the receipt of iron and folic acid tablets is higher in urban areas (69 percent) than in rural areas (45 percent). The differentials in the distribution of iron and folic acid tablets by other background characteristics are almost the same as those for tetanus toxoid injections.

Place of Delivery and Assistance During Delivery

From the standpoint of child survival and health of the mother, the first priority for delivery care is that it is safe and clean (World Health Organization, 1994). The majority of maternal deaths and much of the chronic morbidity resulting from childbirth are due to the failure to get timely help for complications at delivery. It is essential that delivery be conducted under proper hygienic conditions with the assistance of a trained medical practitioner. Table 9.5 and Figure 9.3 present the percent distribution of live births occurring during the four years preceding the survey according to place of delivery and selected background characteristics. Only one-quarter of births during the last four years occurred in medical institutions, with 15 percent in public institutions and 11 percent in private health facilities. Overall, 74 percent of births in India took place at home - 62 percent in the woman's own home and 12 percent in the parents' home. The percentage of births that took place in medical institutions is three and a half times as high in urban areas (58 percent) as in rural areas (16 percent). Information on the percent distribution of births by place of delivery and type of attendance at birth (for home deliveries) is also available from the Sample Registration System (SRS) (Office of the Registrar General, 1993a, 1993b). The SRS information for 1990-91 (averaged) puts the percentage of births in India occurring in medical institutions at 24 percent (53 percent in urban areas and 17 percent in rural areas). The estimates from the NFHS and SRS for India as a whole are quite close. The estimates for urban areas differ by less than 5 percentage points and the estimates for rural areas are almost identical.

Table 9.5 Place of delivery

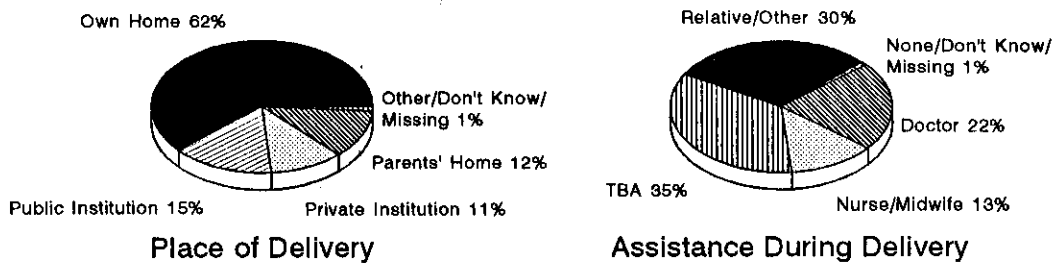
Percent distribution of live births during the four years preceding the survey by place of delivery, according to selected background characteristics, India, 1992-93

Background characteristic	Place of delivery						Total percent	Number of live births
	Health facility/institution		Home			Don't know/missing		
	Public	Private	Own home	Parents' home	Other			
Mother's age at birth								
< 20	15.2	8.8	54.1	20.7	0.6	0.7	100.0	11514
20-34	15.0	12.0	62.3	9.8	0.5	0.4	100.0	35258
35+	7.2	5.3	84.2	1.9	0.6	0.8	100.0	2597
Birth order								
1	21.1	17.1	42.7	18.1	0.5	0.5	100.0	13594
2-3	15.3	11.6	59.6	12.5	0.5	0.4	100.0	20433
4-5	9.3	5.2	77.1	7.2	0.6	0.6	100.0	9542
6+	5.9	3.0	87.1	3.0	0.5	0.5	100.0	5800
Residence								
Urban	30.2	27.4	34.6	6.9	0.5	0.4	100.0	11242
Rural	10.0	6.0	69.5	13.4	0.5	0.5	100.0	38128
Education								
Illiterate	8.6	3.2	74.5	12.7	0.5	0.6	100.0	32770
Lit., < middle complete	23.1	14.7	48.1	13.1	0.7	0.3	100.0	8190
Middle school complete	30.9	24.5	34.5	9.3	0.7	0.1	100.0	3505
High school and above	29.3	46.0	17.2	7.0	0.2	0.3	100.0	4904
Religion								
Hindu	14.8	10.0	62.0	12.1	0.5	0.5	100.0	39223
Muslim	11.9	11.8	64.8	10.8	0.5	0.2	100.0	7613
Christian	22.3	26.2	43.5	7.4	0.4	0.2	100.0	981
Sikh	12.9	16.1	54.9	15.7	0.5	--	100.0	822
Jain	21.3	59.8	8.8	10.1	--	--	100.0	142
Buddhist	40.2	12.9	30.4	15.9	0.6	--	100.0	351
Other	10.2	7.7	69.5	12.4	--	0.2	100.0	237
Caste/tribe								
Scheduled caste	10.9	5.1	71.5	11.2	0.6	0.8	100.0	6590
Scheduled tribe	6.7	2.4	77.9	11.7	0.6	0.8	100.0	4703
Other	16.3	12.9	57.8	12.1	0.5	0.4	100.0	38076
Antenatal care visits								
None	3.0	1.2	84.8	10.5	0.5	--	100.0	18168
1-3 visits	16.2	7.2	61.9	14.1	0.5	--	100.0	17513
4+ visits	28.8	29.2	30.2	11.2	0.6	0.1	100.0	13279
Don't know/missing	4.4	1.8	33.9	6.2	--	53.7	100.0	410
Total	14.6	10.9	61.6	11.9	0.5	0.5	100.0	49369

Note: Table is based on births in the period 1-47 months prior to the survey.

-- Less than 0.05 percent

Figure 9.3
Place of Delivery and
Assistance During Delivery



Note: Based on births in the period 1-47 months preceding the survey

NFHS, India, 1992-93

The proportion of births taking place in medical institutions is lower among births to older women than among births to younger women and is likewise lower among higher order births than among lower order births. As is the case for antenatal visits, tetanus vaccination, and iron and folic acid supplements, institutional deliveries are also more common among births to well educated women than among births to poorly educated women. For example, only 12 percent of births to illiterate women occurred in medical institutions, compared to 75 percent of births to women with at least a high school education. Institutional births are most common among Jain women (81 percent), followed by Buddhist women (53 percent), Christian women (49 percent) and Sikh women (29 percent). There is not much difference in the proportion of institutional deliveries between Hindu and Muslim women. Institutional deliveries are less common among births to scheduled tribe women (9 percent) than among births to scheduled caste women (16 percent) or non-SC/ST women (29 percent).

In India, delivery in a medical institution (26 percent) is less common than antenatal care (62 percent), but the two are related. The percentage of institutional births is higher among women who had four or more antenatal visits (58 percent) than among women who had fewer than four antenatal visits (23 percent) or none (4 percent). This could be due to the availability of both antenatal and delivery care services in the same setting. It might also reflect complications during pregnancy which often lead women to seek antenatal care and to deliver in an institutional setting. It is also possible that pregnant women receiving antenatal care are encouraged by the antenatal care provider to have medical assistance during delivery.

Table 9.6 and Figure 9.3 present information on assistance during delivery according to selected background characteristics. As in the case of antenatal care, the interviewer was instructed to record all responses if more than one person was reported to have assisted during delivery. In Table 9.6 and Figure 9.3, however, only the most highly qualified attendant is considered if there is more than one attendant. In all, slightly more than one-fifth of all births were attended by a doctor (22 percent) and 13 percent were attended by a nurse/midwife. Only 34 percent of births were attended by trained medical persons. Another 35 percent of deliveries were attended by traditional birth attendants, and 30 percent were attended only by relatives, friends or neighbours.

As one would expect, the proportion of deliveries attended by doctors is higher in urban areas (48 percent) than in rural areas (14 percent). Birth attendance by a nurse/midwife is also more common in urban areas (18 percent) than in rural areas (11 percent). Attendance by a trained medical person increases steadily with an increase in the educational attainment of women. The proportion of births delivered by a trained medical person is 20 percent among births to illiterate mothers, 65 percent among births to mothers who completed middle school and 83 percent among births to mothers who completed at least high school. Attendance during delivery by a trained medical person is most common among Jains (93 percent), Buddhists (60 percent), and Christians (56 percent). Fifty percent of births to Sikh mothers were attended by trained medical persons. However, the proportion of births delivered by traditional birth attendant is 45 percent among Sikh mothers (higher than any other religion). One-third of the births to Hindu women received assistance from a trained medical person, as did 30 percent of births to Muslim women. Attendance at birth by a trained medical person is less common among births to mothers of scheduled tribes (18 percent) and scheduled castes (25 percent) than among births to women in the non-SC/ST category (38 percent). Trained medical assistance during a birth is strongly related to the number of antenatal visits.

The type of assistance during delivery also varies according to the place of delivery. Among deliveries that occurred in private medical facilities, 86 percent were attended by a doctor and 13 percent by a nurse/midwife, whereas among deliveries in public health facilities, 67 percent were attended by a doctor and 31 percent by a nurse/midwife. Among deliveries taking place in the woman's home, 48 percent were attended by a traditional birth attendant, 40 percent by relatives or others, less than 3 percent by a doctor, and 8 percent by a nurse/midwife. Because nearly three-quarters of births take place at home, it is not surprising to find that traditional birth attendants, relatives, friends and neighbours play a major role in assisting deliveries in India.

Because only one-quarter of deliveries in India take place in medical institutions and two-thirds of deliveries are unattended by a trained medical professional, a large majority of deliveries are likely to take place without proper hygienic care and timely professional help when complications develop. The situation is particularly serious in rural areas where five out of every six births take place at home and medical assistance is not available for three-quarters of births.

Table 9.6 Assistance during delivery

Percent distribution of live births during the four years preceding the survey by type of assistance during delivery, according to selected background characteristics, India, 1992-93

Background characteristic	Attendant assisting during delivery ¹						Total percent	Number of live births
	Doctor	Nurse/ midwife	Traditional birth attendant	Relative/ other	None	Don't know/ missing		
Mother's age at birth								
< 20	20.8	13.5	35.1	29.7	0.4	0.5	100.0	11514
20-34	22.6	12.6	34.8	28.8	0.6	0.5	100.0	35258
35+	10.3	8.8	41.3	37.6	1.0	1.0	100.0	2597
Birth order								
1	33.6	14.4	28.9	22.3	0.2	0.4	100.0	13594
2-3	22.3	13.6	34.4	28.8	0.5	0.4	100.0	20433
4-5	11.7	10.7	41.0	35.1	0.9	0.6	100.0	9542
6+	6.9	8.0	43.7	39.5	1.2	0.7	100.0	5800
Residence								
Urban	47.6	17.7	22.0	12.0	0.4	0.3	100.0	11242
Rural	13.9	11.1	39.1	34.6	0.6	0.6	100.0	38128
Mother's education								
Illiterate	9.9	10.1	41.8	36.8	0.7	0.7	100.0	32770
Lit., < middle complete	29.6	18.9	30.2	20.6	0.5	0.2	100.0	8190
Middle school complete	45.5	19.3	20.4	14.5	0.1	0.2	100.0	3505
High school and above	68.7	14.5	10.5	5.9	0.2	0.2	100.0	4904
Religion								
Hindu	21.0	12.6	35.3	29.9	0.6	0.6	100.0	39223
Muslim	19.6	10.6	37.4	31.5	0.6	0.3	100.0	7613
Christian	41.7	14.3	18.7	24.3	0.8	0.2	100.0	981
Sikh	27.0	22.9	45.1	5.0	--	--	100.0	822
Jain	80.9	12.1	4.7	2.3	--	--	100.0	142
Buddhist	32.6	27.8	17.8	21.2	0.6	--	100.0	351
Other	15.9	10.4	40.7	31.7	1.4	--	100.0	237
Caste/tribe								
Scheduled caste	13.7	11.4	39.5	33.9	0.7	0.9	100.0	6590
Scheduled tribe	7.4	10.1	41.8	39.2	0.9	0.7	100.0	4703
Other	24.7	13.2	33.7	27.5	0.5	0.4	100.0	38076
Antenatal care								
None	3.9	5.2	45.6	44.3	0.7	0.2	100.0	18168
1-3 visits	18.5	15.7	36.6	28.6	0.6	0.1	100.0	17513
4+ visits	50.3	18.8	20.1	10.6	0.2	--	100.0	13279
Don't know/missing	5.8	6.0	14.1	22.6	4.8	46.7	100.0	410
Place of delivery								
Public health facility	67.1	31.1	0.9	0.7	0.1	--	100.0	7226
Private health facility	86.2	12.9	0.4	0.5	--	--	100.0	5368
Own home	2.5	8.2	48.1	40.3	0.7	0.2	100.0	30397
Parents' home	6.3	13.0	43.8	36.3	0.5	0.1	100.0	5887
Other	11.0	15.1	40.9	31.4	1.7	--	100.0	258
Don't know/missing	5.3	--	1.1	3.9	8.5	81.2	100.0	234
Total	21.6	12.6	35.2	29.5	0.6	0.5	100.0	49369

Note: Table is based on births in the period 1-47 months prior to the survey.

-- Less than 0.05 percent

¹If the respondent mentioned more than one attendant, only the most qualified attendant is considered.

Maternal Care Indicators by State

Table 9.7 provides information on several important maternal care indicators for Indian states. Interstate variations are substantial on each of the indicators of maternal care. The percentage of births for which mothers received antenatal care is highest in Kerala (97 percent), followed by Goa (95 percent), and Tamil Nadu (94 percent). Among the major states (states with more than 5 million population in 1991), Punjab, Andhra Pradesh, Karnataka, Maharashtra and Delhi have also achieved antenatal coverage for more than 80 percent of births. Among the

Table 9.7 Maternal care indicators by state

Percentage of live births during the four years preceding the survey by various maternal care indicators and state, India, 1992-93

State	Percentage receiving antenatal care	Percentage receiving two doses of tetanus toxoid vaccine ¹	Percentage receiving iron/folic tablets	Percentage of births delivered in medical institutions	Percentage of deliveries assisted by health professionals ²
India	62.3	53.8	50.5	25.5	34.2
North					
Delhi	82.4	72.5	74.9	44.3	53.0
Haryana	72.7	63.3	59.9	16.7	30.3
Himachal Pradesh	76.0	47.4	71.7	16.0	25.6
Jammu Region of J & K	79.5	68.9	70.7	21.9	31.2
Punjab	87.9	82.7	73.6	24.8	48.3
Rajasthan	31.2	28.3	29.2	11.6	21.8
Central					
Madhya Pradesh	52.1	42.8	44.3	15.9	30.0
Uttar Pradesh	44.7	37.4	29.5	11.2	17.2
East					
Bihar	36.8	30.7	21.4	12.1	19.0
Orissa	61.6	53.8	49.9	14.1	20.5
West Bengal	75.3	70.4	56.3	31.5	33.0
Northeast					
Arunachal Pradesh	48.9	31.9	44.7	19.9	21.3
Assam	49.3	34.9	39.4	11.1	17.9
Manipur	63.4	48.0	35.5	23.0	40.4
Meghalaya	51.8	30.0	49.6	29.6	36.9
Mizoram	88.9	42.5	63.7	48.9	61.5
Nagaland	39.3	33.0	23.9	6.0	22.2
Tripura	64.9	58.7	53.2	30.7	33.5
West					
Goa	95.4	83.4	89.3	86.8	88.4
Gujarat	75.7	62.7	69.3	35.6	42.5
Maharashtra	82.7	71.0	70.6	43.9	53.2
South					
Andhra Pradesh	86.3	74.8	76.4	32.8	49.3
Karnataka	83.5	69.8	74.9	37.5	50.9
Kerala	97.3	89.8	91.2	87.8	89.7
Tamil Nadu	94.2	90.1	84.1	63.4	71.2

Note: Table is based on births in the period 1-47 months prior to the survey.

¹Includes women who received more than two doses

²Allopathic doctor or nurse/midwife

smaller states, Mizoram and Jammu stand out with coverage rates of 89 and 80 percent, respectively. Utilization of antenatal care services is lowest in Rajasthan (only 31 percent of births during the last four years were to mothers who received antenatal care). The percentage of births for which mothers received antenatal care is also low in Bihar (37 percent), Uttar Pradesh (45 percent), Assam (49 percent), Madhya Pradesh (52 percent) and Orissa (62 percent). In the six small states in the northeastern region, there is substantial variation in the coverage of antenatal care, ranging from 39 percent in Nagaland to more than 60 percent in Mizoram, Tripura and Manipur.

Because tetanus toxoid vaccinations and iron/folic acid tablets are often given during antenatal check-ups, it is not surprising that the interstate variations in these two maternal care indicators are similar to the variations observed in the utilization of antenatal care services. The states which have a higher percentage of births covered by antenatal care also have higher percentages of births whose mothers received two doses of anti-tetanus injections and iron and folic acid tablets during pregnancy.

There are also large interstate variations in the proportion of institutional deliveries, ranging from 87-88 percent in Kerala and Goa to 11-12 percent in Rajasthan, Assam, Bihar and Uttar Pradesh. Only 6 percent of births in Nagaland are reported to have occurred in a health facility. Apart from Kerala and Goa, the only other state where more than half of all births take place in institutions is Tamil Nadu. It is surprising to note that in Punjab, which has achieved a strong performance in the provision of antenatal care services, only 25 percent of births are institutional. Between 13 and 17 percent of births take place in health facilities in Orissa, Madhya Pradesh, Himachal Pradesh and Haryana. Even in the predominantly urban state of Delhi, only 44 percent of births occur in institutions. In every state, more births are assisted by health professionals than take place in a medical institution, but the pattern of variations among the states is similar for these two indicators.

In sum, the provision of antenatal and delivery care services is better than average in all of the southern and western states in India. The northern states (with the major exception of Rajasthan) perform relatively well on the antenatal care indicators, but the situation with respect to delivery care is quite mixed. Maternal care is poor across the board in Rajasthan, Bihar, Uttar Pradesh, Assam and Nagaland. Renewed efforts to improve maternal care in these states should be a top priority.

Delivery Characteristics

Table 9.8 presents findings on complications during delivery, prematurity, birth weight and the mother's estimates of the baby's size at birth for live births in the four years preceding the survey. As reported by mothers, 88 percent of the deliveries had no complications, 6 percent were characterized by a long period of labour, 2 percent were accompanied by excessive bleeding, and 3 percent required a Caesarian section (C-section). Forceps were used for less than one percent of births and a similar proportion had the delayed delivery of the placenta. C-section deliveries were three and a half times as prevalent in urban areas (where institutional deliveries are more common) as in rural areas; otherwise, urban-rural differences in delivery complications are minor. A very small proportion of live births (3 percent) are reported as premature.

Table 9.8 Delivery characteristics

Percent distribution of live births during the four years preceding the survey by whether the delivery had complications, whether premature, and by birth weight and the mother's estimate of the baby's size at birth, according to residence, India, 1992-93

Delivery characteristic	Urban	Rural	Total
Complications at delivery¹			
No complications	84.7	88.8	87.9
Caesarian section	5.7	1.6	2.5
Use of forceps	1.6	0.7	0.9
Excessive bleeding	1.6	1.8	1.8
Long period of labour	5.1	6.5	6.2
Delayed delivery of placenta	0.9	1.0	0.9
Other	1.4	0.7	0.9
Premature birth			
Yes	3.9	3.0	3.2
No	95.6	96.0	95.9
Don't know/missing	0.5	1.0	0.9
Total percent	100.0	100.0	100.0
Birth weight			
Less than 2.5 kg	10.0	1.9	3.8
2.5 kg or more	28.0	5.8	10.8
Don't know/missing	12.3	4.5	6.3
Not weighed	49.7	87.8	79.1
Total percent	100.0	100.0	100.0
Size at birth			
Large	15.3	13.4	13.8
Average	63.8	63.5	63.6
Small	20.0	21.4	21.1
Don't know/missing	0.9	1.6	1.5
Total percent	100.0	100.0	100.0
Number of births	11242	38128	49369

Note: Table is based on births in the period 1-47 months prior to the survey.
¹All complications were recorded if there was more than one complication. Births with missing information on complications are not included.

A large majority of children (79 percent) were not weighed at birth. Fifty percent of children born in urban areas and 88 percent in rural areas were not weighed at birth, which is to be expected because of the large proportion of deliveries that take place at home, where scales for weighing babies are rarely available. Moreover, for 12 percent of births in urban areas and 5 percent in rural areas, the baby was weighed but the mother could not provide information on the birth weight at the time of the interview. Thus, the resulting sample of birth weights is small and subject to substantial selection bias. Twenty-six percent of babies whose weight at birth was known had a low birth weight (less than 2.5 kg.). The proportion of low birth weight babies is almost the same in urban and rural areas. The proportion of low birth weight babies observed in the NFHS is slightly smaller than observed in several previous studies conducted in India, according to which around 30 percent of babies have a low birth weight (WHO-UNICEF, 1992).

Because of the difficulty of weighing newborns in India due to the fact that most deliveries take place at home, a question on the size of the baby at the time of birth (small, average or large) was asked in the NFHS. Experience has shown that mothers can give useful information about the size of their newborns. Slightly more than one-fifth of newborns were reported by mothers to be small in size. As previously noted in Chapter 8, these children have a much higher risk of dying than children who are at least of average size at the time of birth.

Table 9.9 shows differentials in delivery characteristics by the type of antenatal care, length of the previous birth interval and the mother's age at birth. Complications and

Table 9.9 Delivery characteristics by background characteristics

Percent distribution of live births during the four years preceding the survey by whether the delivery had complications, whether premature, and by birth weight and the mother's estimate of the baby's size at birth, according to antenatal care, birth interval, and mother's age, India, 1992-93

Delivery characteristic	Antenatal care			Previous birth interval				Age of mother at birth		
	None	1-3 visits	4+ visits	Under 2 years	2-3 years	4+ years	First birth	<20	20-34	35+
Complications at delivery										
No complications	91.8	88.4	81.6	90.5	90.5	88.5	82.1	86.7	88.1	90.6
Caesarian section	0.3	1.4	7.0	1.2	1.4	2.2	5.2	2.1	2.7	1.4
Use of forceps	0.1	0.7	2.3	0.6	0.4	0.6	2.0	1.3	0.8	0.1
Excessive bleeding	1.9	1.7	1.7	1.9	1.8	1.5	1.9	1.8	1.8	2.2
Long period of labour	5.6	6.7	6.3	5.1	5.3	6.4	8.0	7.3	5.8	5.6
Delayed delivery of placenta	0.8	1.0	1.1	0.8	0.8	1.2	1.1	1.1	0.9	0.4
Other	0.6	1.0	1.2	0.9	0.7	0.9	1.1	1.0	0.9	0.4
Premature birth										
Yes	2.9	3.1	3.8	3.4	2.2	2.4	4.8	4.6	2.8	2.5
No	96.3	96.5	96.1	95.5	97.0	96.7	94.2	94.2	96.5	96.2
Don't know/missing	0.8	0.4	0.2	1.0	0.9	0.9	0.9	1.2	0.8	1.3
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Birth weight										
Less than 2.5 kg	0.4	3.3	9.1	3.2	2.4	2.9	6.6	3.8	3.9	1.4
2.5 kg or more	0.7	7.7	29.1	9.3	7.3	11.1	16.7	8.5	12.0	4.7
Don't know/missing	1.1	5.7	12.6	6.0	5.3	5.4	8.3	6.6	6.3	3.9
Not weighed	97.8	83.4	49.2	81.5	85.0	80.6	68.3	81.1	77.7	90.0
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Size at birth										
Large	11.8	13.0	18.0	13.9	13.3	14.7	14.0	14.6	13.8	10.9
Average	65.1	64.4	61.5	63.6	65.1	64.5	61.0	59.1	64.9	65.3
Small	21.6	21.8	19.9	20.6	20.2	19.5	23.6	24.5	19.9	22.1
Don't know/missing	1.5	0.8	0.6	1.9	1.4	1.3	1.3	1.8	1.3	1.7
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of births	18168	17513	13279	8912	19776	7012	13670	11514	35258	2597

Note: Table is based on births in the period 1-47 months prior to the survey. Cases with missing information on antenatal care visits are not shown separately.

All complications were recorded if there was more than one complication. Births with missing information on complications are not included.

premature births were more common for births to mothers who had four or more antenatal visits. This suggests that there is a tendency among pregnant women having complications to obtain antenatal care. Not surprisingly, antenatal care is also related to newborns being weighed. The proportion of newborns who were weighed was 2 percent for those whose mothers did not receive antenatal care, 17 percent for those whose mothers had 1-3 antenatal check-ups and 51 percent for those whose mothers had 4 or more antenatal visits. As indicated in Table 9.5, 58 percent of births to mothers who had four or more antenatal visits were delivered in institutions, where the probability of weighing children is very high.

There is little relationship between the previous birth interval and complications at delivery, but first births have a slightly higher complication rate, especially with respect to the period of labour. Perhaps because of the long period of labour, C-sections were carried out for 5 percent of first births compared with 1-2 percent of other births. First births are also slightly more likely to be premature (5 percent compared with 2-3 percent for other births), to have a low birth weight, and to be smaller than average at the time of birth. Births to mothers less than 20 years of age at the time of delivery are also more likely than other births to be premature, small in size and underweight.

9.2 Child Care Indicators

Immunization of Children

The immunization of children against six serious but preventable diseases (namely, tuberculosis, diphtheria, pertussis, tetanus, poliomyelitis and measles) has been a cornerstone of the child health care system in India. As part of the National Health Policy, the National Immunization Programme is being implemented in India on a priority basis (Gupta and Murli, 1989). The Expanded Programme on Immunization (EPI) was started by the Government of India in 1978 with the objective of reducing morbidity, mortality, and disabilities due to these six diseases by making free vaccinations easily available to all eligible children. Immunization against polio was introduced to the programme in 1979-80 and tetanus toxoid for school children was added in 1980-81. BCG was brought under the EPI in 1981-82. The latest addition to the Programme is vaccination against measles, introduced in 1985-86 (Ministry of Health and Family Welfare, 1991).

In order to accelerate implementation of the immunization scheme, the Government of India started a special programme called the Universal Immunization Programme (UIP) in 1985-86. The UIP was designated as one of the seven Technology Missions and was charged with two objectives: i) to vaccinate at least 85 percent of all infants by 1990 against the six vaccine-preventable diseases; and ii) to achieve self-sufficiency in vaccine production and the manufacture of cold chain equipment (Ministry of Health and Family Welfare, 1991).

The standard immunization schedule developed for the immunization programme for children contains the age at which each vaccine is to be administered, the number of doses to be given, and the route of vaccination (intramuscular, oral or subcutaneous). Vaccinations received by infants and children are usually recorded on a vaccination card, which is given to the mother of each child.

In the NFHS, every mother was asked whether she had a vaccination card for each child born since 1 January 1988 for surveys that started in 1992 and 1 January 1989 for surveys that started in 1993. If a card was available, the interviewer was required to copy carefully the dates on which the child received vaccinations against each disease. When the mother could not produce the vaccination card, she was asked whether the child had received a vaccination against tuberculosis (BCG); diphtheria, whooping cough (pertussis) and tetanus (DPT); poliomyelitis (polio) and measles. For DPT and polio, information was obtained on the number of injections or oral doses given. The date of vaccination was not asked of the mother.

Table 9.10 presents the percentage of children age 12-23 months who received each vaccine at any time before the interview and the percentage who received each vaccine before 12 months of age, according to whether a written vaccination record was shown to the interviewer or the mother was the source of all vaccination information. The proportion receiving vaccinations before 12 months is chosen for analysis because international guidelines specify that children should be fully immunized by the time they complete their first year of life. The denominator for any given row in each part of the table is the number of children age 12-23 months whose vaccination status was recorded from a card (Row 1), reported by the mother (Row 2), or determined from either source (Rows 3 and 4). The numerator of each entry in the row labelled "Vaccination card" is the number of children who received the specific vaccination or dose any time prior to the survey, as indicated in the vaccination card seen by the interviewer. The numerator for this row also includes those cases where a card was shown and (1) there was an indication on the card that the vaccination was given but the actual date was either missing or inconsistent, or (2) there was no record of receipt of the vaccination on the card, but the mother reported that the vaccination was given. The numerator for each entry in the row labelled "Mother's report" is the number of children whose mothers did not show a card to the interviewer but reported that the child had received the vaccination. The numerator for each entry in the row labelled "Either source" is the sum of the numerators in the preceding two rows for the vaccination under consideration. The numerator for each entry in the fourth row, "Vaccinated by 12 months of age", is derived from the numerators of the preceding two rows. Because the date of vaccination was not asked of the mother if she could not show the card, the proportion of vaccinations given during the first year of life among children whose information is based on the mother's report is assumed to be the same as the proportion of vaccinations given during the first year of life among children with an exact date of vaccination on the card.

Of the 11,853 children age 12-23 months, vaccination cards were seen by the interviewers for only 31 percent. The percentage producing cards was 38 for urban areas and 29 for rural areas. As expected, the percentages vaccinated are much higher for children whose vaccination cards were seen by the interviewer than for children who either did not have a card or whose card was not seen.

Based on the information either recorded on cards or reported by the mother, only 35 percent of children in India are fully vaccinated¹. Another 35 percent have received some

¹ They have received BCG, measles, and three doses of DPT and polio (excluding polio 0). Polio 0 was introduced only recently and because it is a vaccination given at the time of birth (whereas polio 1 is typically given at the age of six weeks), mothers may not remember whether the first dose of the polio vaccine was given just after birth or later. Therefore, the coverage of polio 0 reported in the NFHS may be subject to response errors.

Table 9.10 Vaccinations by source of information

Among children age 12-23 months, the percentage who have received each vaccine at any time before the interview and before 12 months of age, according to whether the information is from the vaccination card or from the mother, India, 1992-93

Source of information	Percentage vaccinated among children age 12-23 months											Number of children
	BCG	Polio 0	DPT			Polio			Measles	All ¹	None	
			1	2	3	1	2	3				
URBAN												
Vaccinated at any time before interview												
Vaccination card	93.4	8.0	99.1	95.7	89.3	99.0	96.1	89.1	72.8	67.5	--	1027
Mother's report	68.0	7.7	69.0	62.7	56.3	69.8	65.1	58.8	48.2	40.5	26.4	1688
Either source	77.6	7.8	80.4	75.2	68.8	80.8	76.8	70.2	57.5	50.7	16.4	2715
Vaccinated by 12 months of age²	74.8	7.8	77.3	72.1	64.2	78.0	73.0	65.8	46.3	41.5	19.5	2715
RURAL												
Vaccinated at any time before interview												
Vaccination card	89.4	4.2	98.8	91.3	82.3	98.3	91.2	82.8	64.4	57.9	0.1	2603
Mother's report	45.0	3.4	47.5	39.9	32.4	48.8	42.7	34.7	27.0	20.1	47.5	6535
Either source	57.6	3.6	62.1	54.5	46.6	62.9	56.5	48.4	37.7	30.9	34.0	9138
Vaccinated by 12 months of age²	54.0	3.6	58.0	50.3	41.8	58.8	52.1	43.2	28.7	23.4	38.0	9138
TOTAL												
Vaccinated at any time before interview												
Vaccination card	90.5	5.3	98.9	92.5	84.3	98.5	92.6	84.6	66.8	60.6	--	3630
Mother's report	49.7	4.3	51.9	44.6	37.3	53.1	47.3	39.6	31.3	24.3	43.2	8223
Either source	62.2	4.6	66.3	59.2	51.7	67.0	61.2	53.4	42.2	35.4	30.0	11853
Vaccinated by 12 months of age²	58.7	4.6	62.4	55.3	46.9	63.2	56.9	48.3	32.7	27.5	33.7	11853

-- Less than 0.05 percent
¹Children who are fully vaccinated, i.e., those who have received BCG, measles and three doses of DPT and polio vaccine (excluding polio 0).
²For 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.

vaccinations and 30 percent have not received any vaccinations. Thus, India has a long way to go to achieve the goal of the universal immunization of children.

Analysis of vaccine-specific data shows that more than three-fifths (62 percent) of children have received BCG vaccine, and two-thirds have received the first dose of DPT (66 percent) and the first dose of polio vaccine (67 percent). The coverage of three doses of DPT and three doses of polio vaccine is 52 and 53 percent, respectively. The DPT and polio coverage rates are about the same because both vaccines are normally administered simultaneously. The continuation rate from the first to the third dose of the DPT and polio vaccines indicates considerable dropout (22 percent in the case of DPT and 20 percent in the case of polio). Only 42 percent of children age 12-23 months have been vaccinated against

measles. The low rate of measles vaccination is responsible for lowering the percentage of children fully vaccinated.

The urban-rural differences in coverage rates are substantial. More than half (51 percent) of children in urban areas have received all the vaccines compared to 31 percent in rural areas. The urban-rural difference is also marked for individual vaccines, with the urban coverage rates for BCG, three doses of DPT and polio, and measles being higher than the rural coverage rates by 20-22 percentage points.

According to the immunization schedule, all primary vaccinations, (including measles) should be completed by the time a child is 12 months old. The data presented in Table 9.10 indicate that most vaccinations that are given are administered within the first year of life. For example, 28 percent of children were fully vaccinated by age 12 months compared with 35 percent who were fully vaccinated by the time of the survey. Thus, 78 percent of children who were fully vaccinated received all vaccinations before their first birthday. The gap between on-time and late vaccination is particularly wide for measles. Only 77 percent of children who were vaccinated against measles by the time of the survey had received the measles vaccination before their first birthday. This contrasts with on-time rates of 94 percent for BCG, 91 percent for the third dose of DPT and 90 percent for the third dose of polio.

Table 9.11 and Figure 9.4 present vaccination coverage rates among children age 12-23 months by selected background characteristics. The proportion of children for whom the mother showed a vaccination card varies by background characteristics. Vaccination cards were seen for a higher percentage of male children, lower order births, children in urban areas, children of mothers with at least a middle school education, and Jain, Buddhist and Sikh and non-SC/ST children. There are marked differences in vaccination coverage by these characteristics as well. For every type of vaccination except polio 0, coverage is higher among male than among female children, although by only a relatively small amount. The difference in coverage rates for male and female children ranges from 3 percentage points for measles to 5 percentage points for polio 2. Thus, while there appears to be discrimination against female children with regard to immunizations, the level of this discrimination is relatively modest. Sex differentials in immunizations might nevertheless be an important factor underlying higher female than male mortality in childhood, as observed in Chapter 8.

The relationship between vaccination coverage and birth order is consistently negative for all vaccinations. The majority of first order births occur to younger women who have been observed to have a higher degree of utilization of health care services, such as antenatal and natal services. As in the case of utilization of maternal health care services, there is a consistent positive relationship between the educational level of the mother and utilization of immunization services. The percentage of children who are fully vaccinated increases from 24 percent for children whose mothers are illiterate to 70 percent for children whose mothers have completed high school.

The coverage rate for all vaccinations is highest among Jain children (74 percent) followed by Buddhist (68 percent), Sikh (60 percent) and Christian children (42 percent). Hindu children are much more likely to be fully vaccinated (36 percent) than Muslim children (26 percent), despite the fact that Muslim children are more concentrated in urban areas where

Table 9.11 Vaccinations by background characteristics'

Among children age 12-23 months, the percentage who had received each vaccine by the time of the survey (according to the vaccination card or the mother) and the percentage with a vaccination card which was shown to the interviewer, by selected background characteristics, India, 1992-93

Background characteristic	Percentage vaccinated										Percentage showing vaccination card	Number of children	
	BCG	Polio 0	DPT			Polio			Measles	All ¹			None
			1	2	3	1	2	3					
Sex													
Male	64.0	4.6	68.2	61.3	53.5	69.1	63.4	55.0	43.7	36.7	27.8	32.4	6053
Female	60.3	4.6	64.4	57.1	49.8	64.8	58.9	51.7	40.6	34.1	32.3	28.7	5800
Birth order													
1	71.3	6.2	75.8	69.2	61.6	76.6	70.8	63.6	53.2	45.5	21.2	37.3	3312
2-3	66.4	5.0	69.5	63.2	56.3	70.5	65.3	57.3	44.6	38.3	26.6	31.8	4924
4-5	53.4	3.0	58.6	50.2	42.2	58.7	52.1	44.2	32.6	26.1	37.6	25.3	2342
6+	38.6	1.8	43.2	34.5	26.0	43.8	36.7	28.9	21.9	15.2	51.7	18.6	1275
Residence													
Urban	77.6	7.8	80.4	75.2	68.8	80.8	76.8	70.2	57.5	50.7	16.4	37.8	2715
Rural	57.6	3.6	62.1	54.5	46.6	62.9	56.5	48.4	37.7	30.9	34.0	28.5	9138
Mother's education													
Illiterate	50.8	2.9	55.4	47.5	39.0	56.4	49.5	41.0	30.8	24.0	40.1	23.4	7726
Lit., <middle complete	75.9	5.4	80.3	73.7	66.7	81.0	76.0	68.7	53.3	46.9	16.9	41.3	1965
Middle school complete	87.1	9.0	90.0	84.8	79.3	88.7	85.4	78.7	67.4	60.3	8.2	47.5	901
High school and above	92.8	10.4	94.2	90.5	86.3	94.6	91.9	87.7	76.7	70.0	4.2	46.1	1261
Religion													
Hindu	63.3	4.6	67.6	60.5	53.1	68.3	62.4	54.6	42.9	36.0	28.6	30.9	9467
Muslim	51.2	3.4	54.9	47.0	38.6	55.9	49.6	41.5	32.3	26.3	41.1	25.4	1769
Christian	70.7	13.4	72.3	66.9	60.3	72.9	67.7	60.6	50.0	42.4	23.4	39.1	229
Sikh	79.8	2.9	82.3	79.3	72.0	83.0	79.5	73.2	64.7	60.4	16.6	43.3	209
Jain	(99.7)	(14.9)	(99.7)	(99.7)	(92.5)	(99.7)	(98.1)	(90.9)	(81.8)	(73.7)	(0.3)	(48.9)	42
Buddhist	82.6	8.6	85.5	82.4	78.5	82.6	82.3	78.5	74.9	68.1	14.4	58.3	72
Other	67.8	0.8	69.1	64.6	49.9	73.1	68.9	57.6	42.9	36.4	23.6	19.3	66
Caste/tribe													
Scheduled caste	52.9	3.5	58.7	51.4	43.3	60.2	53.0	44.4	33.9	26.8	36.9	25.3	1565
Scheduled tribe	50.2	2.7	52.9	45.4	36.5	54.7	47.6	37.6	32.7	24.8	41.8	21.2	1104
Other	65.2	5.0	69.2	62.2	55.0	69.6	64.2	56.8	44.7	38.2	27.4	32.7	9184
Total	62.2	4.6	66.3	59.2	51.7	67.0	61.2	53.4	42.2	35.4	30.0	30.6	11853

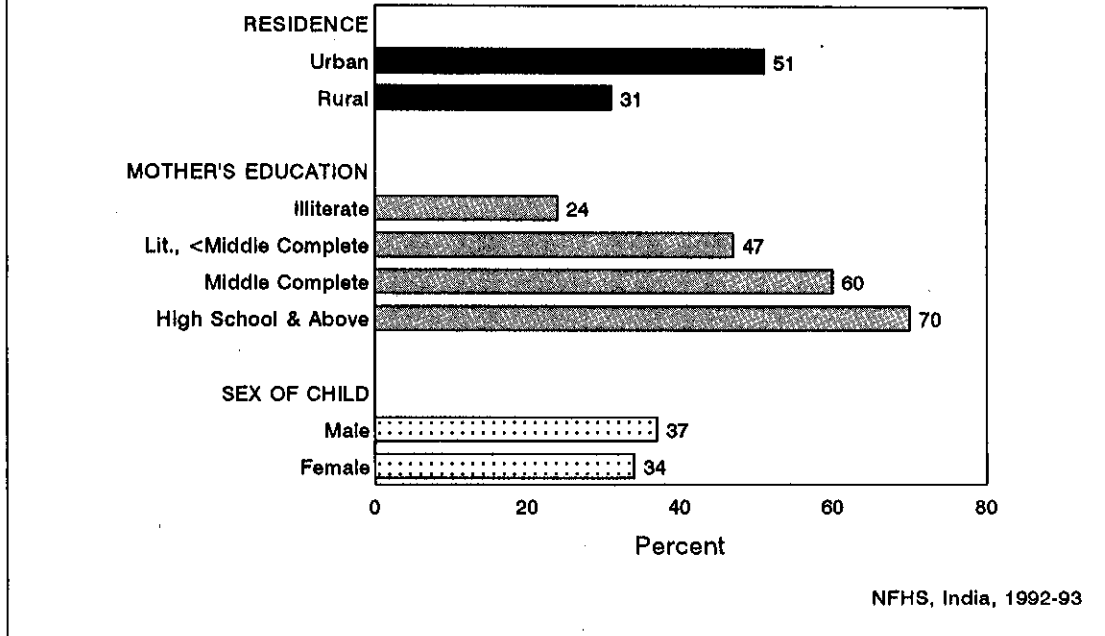
(¹) Based on 25-49 unweighted cases

¹Children who are fully vaccinated, i.e., those who have received BCG, measles and three doses of DPT and polio vaccine (excluding polio 0).

vaccination rates are relatively high. Children from scheduled castes and scheduled tribes are much less likely to be fully vaccinated than non-SC/ST children.

Table 9.12 and Figure 9.5 show vaccination coverage rates for each type of vaccination and the percentage with a vaccination card among children age 12-23 months for each state. There is a considerable interstate variation in the coverage rates for different vaccinations and for children receiving all vaccinations. The percentage of children who are fully vaccinated ranges from 4 percent in Nagaland to 75 percent in Goa. Among the major states, the percentage of children who are fully vaccinated ranges from 11 percent for Bihar to 65 percent for Tamil Nadu. Bihar (11 percent), Assam (19 percent), Uttar Pradesh (20 percent), Rajasthan

Figure 9.4
Percentage of Children Age 12-23 Months
Who Have Received All Vaccinations



(21 percent), and Madhya Pradesh (29 percent) stand out as having a much lower percentage of children fully vaccinated than the national average of 35 percent. As these states account for more than 40 percent of the total population of the country, their low coverage for vaccination pulls down the coverage rate of the country as a whole. Generally, the northern states of Jammu, Himachal Pradesh, Punjab, Delhi and Haryana have fared well with regard to full coverage of vaccinations. Similarly, all of the western states and southern states have done relatively well with respect to full coverage of immunizations. All the northeastern states except Mizoram have a poor vaccination performance. With respect to individual vaccinations, a similar picture emerges for the various states in India. In the case of BCG, and three doses of DPT and polio, Goa and Tamil Nadu are the only states to attain the national goal of at least 85 percent immunization, although neither state has attained this goal for all of the recommended vaccinations. In every state, fewer children have received measles vaccine than any of the other vaccinations. The relatively low levels of coverage for measles is a major factor in the failure to achieve full immunization. However, even if the measles vaccine were not required to achieve full immunization every state except Goa and Tamil Nadu would still fall short of the national immunization goal.

Table 9.13 shows the percentage of children age 1-3 years with vaccination cards shown to the interviewer and the percentage receiving various vaccinations in the first year of life, according to the current age of the child and the place of residence. The table illustrates changes in vaccination coverage over time. The method of estimating vaccination coverage is the same as that used in Table 9.10. Among children without a vaccination card the proportion vaccinated

Table 9.12 Vaccinations by state

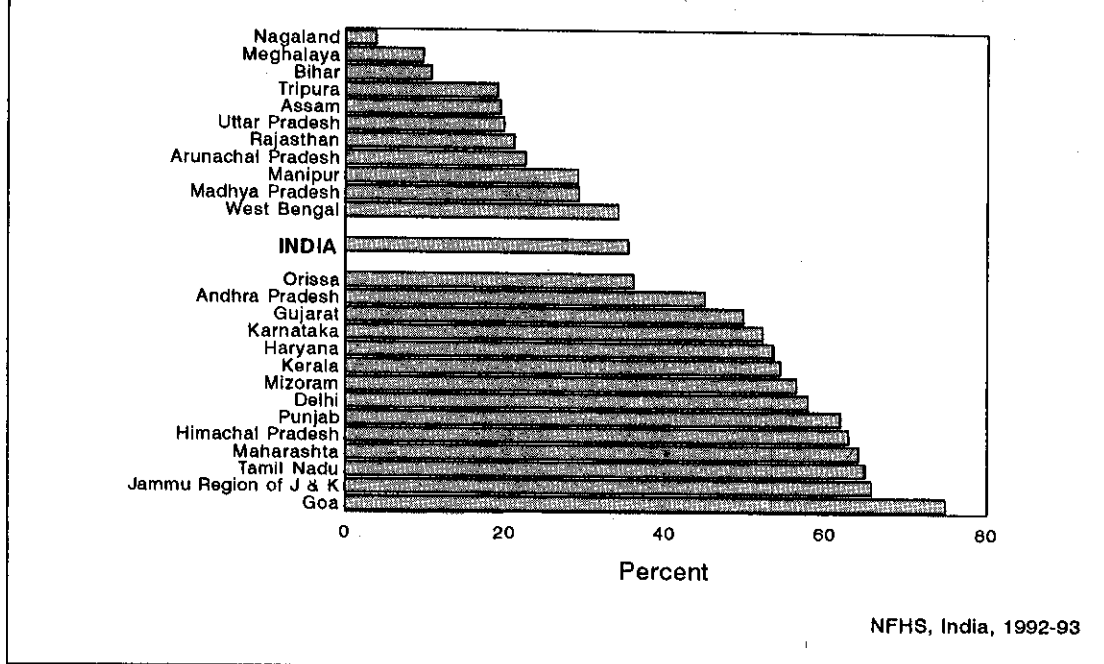
Among children age 12-23 months, the percentage who have received each vaccine at any time before the interview and the percentage with a vaccination card which was shown to the interviewer, by state, India, 1992-93

State	Percentage vaccinated among children age 12-23 months											Percentage showing vaccination card
	BCG	Polio 0	DPT			Polio			Measles	All ¹	None	
			1	2	3	1	2	3				
India	62.2	4.6	66.3	59.2	51.7	67.0	61.2	53.4	42.2	35.4	30.0	30.6
North												
Delhi	90.1	12.3	89.0	81.9	71.6	88.8	85.1	75.0	69.6	57.8	6.7	45.5
Haryana	77.4	2.1	80.5	75.0	66.8	80.5	75.4	67.7	60.9	53.5	17.5	31.3
Himachal Pradesh	84.5	2.2	90.1	83.8	78.2	90.1	85.9	77.7	71.5	62.9	8.7	53.6
Jammu Region of J & K	81.3	1.7	83.7	82.3	77.8	83.8	82.4	77.1	69.1	65.7	16.2	47.9
Punjab	77.4	1.7	81.9	78.5	73.6	82.2	78.2	73.4	64.8	61.9	17.5	37.8
Rajasthan	45.7	11.4	47.8	38.6	29.7	48.8	41.2	32.8	31.2	21.1	48.5	16.3
Central												
Madhya Pradesh	56.8	4.3	60.8	53.5	43.7	62.8	56.7	46.6	40.7	29.2	34.4	21.8
Uttar Pradesh	48.9	1.5	52.2	41.8	34.1	51.8	44.7	37.1	26.3	19.8	43.3	23.0
East												
Bihar	33.9	2.8	42.8	37.0	29.1	45.0	40.6	31.6	14.6	10.7	53.5	16.7
Orissa	63.3	3.1	69.0	63.6	56.3	70.3	64.8	56.7	40.2	36.1	28.0	41.7
West Bengal	63.1	0.9	73.7	62.9	51.9	75.2	66.6	56.0	42.5	34.2	22.4	47.7
Northeast												
Arunachal Pradesh	46.3	2.5	50.0	45.6	38.8	48.1	44.4	38.8	27.5	22.5	47.5	37.5
Assam	48.2	1.2	53.4	42.2	31.0	54.2	42.9	32.7	25.8	19.4	43.6	39.5
Manipur	63.8	3.1	66.1	55.9	43.3	63.8	51.2	39.4	37.0	29.1	32.3	42.5
Meghalaya	43.8	1.4	36.8	30.6	22.9	36.1	31.9	23.6	13.2	9.7	54.9	15.3
Mizoram	77.3	4.5	83.6	80.0	71.8	80.9	76.4	69.1	65.5	56.4	14.5	38.2
Nagaland	19.4	3.1	21.3	16.9	12.5	21.9	18.8	15.0	10.0	3.8	75.0	11.9
Tripura	39.7	0.8	57.0	43.8	32.2	57.0	43.0	32.2	28.9	19.0	42.1	43.0
West												
Goa	93.5	14.0	93.9	90.0	86.7	94.3	90.7	87.1	77.8	74.9	5.4	74.9
Gujarat	77.1	4.4	77.8	71.4	63.8	77.8	71.2	62.9	55.9	49.8	18.9	32.0
Maharashtra	86.9	5.9	90.0	85.9	83.1	90.2	85.5	81.6	70.2	64.1	7.5	39.2
South												
Andhra Pradesh	73.9	3.3	77.3	72.3	66.1	78.9	74.6	68.0	53.8	45.0	17.5	35.3
Karnataka	81.7	5.3	80.6	76.6	70.7	81.9	77.7	71.4	54.9	52.2	15.2	34.4
Kerala	86.1	11.9	84.8	81.5	73.7	85.1	82.3	75.2	60.5	54.4	11.4	56.2
Tamil Nadu	91.7	19.4	95.0	92.2	86.5	94.1	91.0	85.3	71.6	64.9	3.3	38.2

¹Children who are fully vaccinated, i.e., those who have received BCG, measles and three doses of DPT and polio vaccine (excluding polio 0).

during the first year of life is estimated separately for children in each age group. The row "No vaccinations" indicates the percentage of children who have not received any vaccination by 12 months of age. In all cases, the percentage of children whose vaccination status was determined by seeing a vaccination card declines with age of the child. This may be a reflection of the increased use of vaccination cards in recent years as well as the increased overall coverage of vaccinations. In addition, in many cases the vaccination cards of older children are discarded once they have completed their vaccinations or the cards are lost.

Figure 9.5
Percentage of Children Age 12-23 Months Who
Have Received All Vaccinations by State



The highest level of vaccination coverage for each vaccination except polio 0 is observed at age 12-23 months. The coverage then progressively declines with an increase in age in both urban and rural areas. The degree of progress has been substantial over this short period of time, but progress must be further accelerated if India's immunization goal is to be achieved in the near future.

Child Morbidity and Treatment Patterns

Because the two major causes of death among infants and children in India are acute respiratory infection and diarrhoea (Central Bureau of Health Intelligence, 1991), the NFHS collected information on the occurrence of the symptoms of these diseases. Information was also collected on recent episodes of fever. Acute respiratory tract infection (ARI), primarily pneumonia, is a common cause of illness and death in infancy and childhood. Early diagnosis and treatment with antibiotics can prevent a large proportion of these deaths. Fever is a major manifestation of malaria, although it also accompanies various other illnesses. The prevention of diarrhoea and its treatment with oral rehydration therapy are also necessary to improve the chances of survival of children and their quality of life. The goals of the National Child Survival and Safe Motherhood Programme are to prevent 70 percent of deaths due to diarrhoea and 25 percent of diarrhoea cases by 2000 and to prevent 40 percent of ARI deaths by the same year (Ministry of Health and Family Welfare, 1992b).

Table 9.13 Vaccinations in the first year of life by current age

Among children one to three years of age, the percentage with a vaccination card which was shown to the interviewer and the percentage who have received each vaccine during the first year of life, according to the current age of the child and residence, India, 1992-93

Vaccination status	Current age of child in months			Total
	12-23	24-35	36-47	
URBAN				
Vaccination card shown to interviewer	37.8	27.4	17.7	27.7
Percent vaccinated at 0-11 months ¹				
BCG	74.8	70.2	68.2	71.1
Polio 0	7.8	9.5	7.2	8.1
DPT				
1	77.3	73.6	67.6	72.8
2	72.1	68.8	63.5	68.1
3	64.2	61.4	57.4	61.0
Polio				
1	78.0	73.9	68.6	73.5
2	73.0	70.7	65.7	69.8
3	65.8	63.0	60.5	63.1
Measles	46.3	43.7	39.4	43.1
All vaccinations ²	41.5	37.0	33.2	37.2
No vaccinations	19.5	23.3	28.8	23.9
Number of children	2715	2531	2704	7949
RURAL				
Vaccination card shown to interviewer	28.5	19.8	11.7	20.2
Percent vaccinated at 0-11 months ¹				
BCG	54.0	46.9	36.6	46.0
Polio 0	3.6	3.9	3.6	3.7
DPT				
1	58.0	49.9	39.1	49.2
2	50.3	44.6	34.2	43.1
3	41.8	37.3	29.3	36.2
Polio				
1	58.8	50.6	40.2	50.0
2	52.1	46.1	35.9	44.8
3	43.2	38.8	30.3	37.5
Measles	28.7	24.7	19.2	24.3
All vaccinations ²	23.4	20.3	15.4	19.8
No vaccinations	38.0	46.4	56.9	46.9
Number of children	9138	8116	8639	25892

Table 9.13 Vaccinations in the first year of life by current age (Contd.)

Among children one to three years of age, the percentage with a vaccination card which was shown to the interviewer and the percentage who had received each vaccine during the first year of life, according to the current age of the child and residence, India, 1992-93.

Vaccination status	Current age of child in months			Total
	12-23	24-35	36-47	
TOTAL				
Vaccination card shown to interviewer	30.6	21.6	13.2	21.9
Percent vaccinated at 0-11 months¹				
BCG	58.7	52.4	44.0	51.8
Polio 0	4.6	5.2	4.4	4.7
DPT				
1	62.4	55.6	46.1	54.8
2	55.3	50.4	41.3	49.0
3	46.9	43.0	36.1	42.1
Polio				
1	63.2	56.3	47.1	55.6
2	56.9	52.0	43.1	50.8
3	48.3	44.6	37.6	43.6
Measles	32.7	29.3	24.1	28.7
All vaccinations ²	27.5	24.2	19.5	23.8
No vaccinations	33.7	40.8	50.0	41.4
Number of children	11853	10646	11342	33841
¹ Information was obtained either from the vaccination card or from the mother if there was no written record. For children whose information was based on the mother's report, the proportion of vaccinations given during the first year of life was assumed to be the same as for children with a written record of vaccinations. ² Children who have received BCG, measles and three doses of DPT and polio vaccines (excluding polio 0).				

In the NFHS the mothers of children born during the past four years were asked a series of questions on the incidence of cough, fever and diarrhoea during the last two weeks and the type of treatment given to the child. Table 9.14 shows the percentage of children with cough accompanied by rapid breathing (symptoms of acute respiratory infection), fever and diarrhoea during the two weeks prior to the survey and the percentage with diarrhoea in the 24 hours before the survey by selected background characteristics. Fever was the most common of the three conditions examined, with 20 percent of children suffering from this problem during the two weeks prior to the survey. Children age 6-23 months were somewhat more prone to fever than were other children. Male children, Muslim and Christian children and children residing in rural areas also have slightly higher prevalence rates. Education generally makes little difference for the prevalence of fever.

Table 9.14 Prevalence of acute respiratory infection, fever and diarrhoea

Among all children under four years of age, the percentage who were ill with a cough accompanied by fast breathing, fever and diarrhoea during the two weeks before the survey, and the percentage with diarrhoea in the 24 hours before the survey, according to selected background characteristics, India, 1992-93

Background characteristic	Percentage of children suffering in previous two weeks from:					Number of children
	Cough accompanied by fast breathing	Fever	Diarrhoea ¹		Any diarrhoea in previous 24 hours ²	
			Any ²	Bloody		
Child's age						
<6 months	5.6	15.1	10.9	0.6	7.0	5641
6-11 months	8.4	25.9	16.3	1.1	8.6	5881
12-23 months	7.7	25.0	12.8	1.6	5.6	11853
24-35 months	6.0	18.7	8.4	1.6	3.5	10646
36-47 months	5.1	16.3	5.1	1.1	2.1	11342
Sex						
Male	7.1	21.1	10.3	1.4	5.0	23170
Female	5.9	19.4	9.8	1.2	4.6	22193
Birth order						
1	6.3	20.6	10.2	1.1	4.9	12369
2-3	6.5	19.7	9.7	1.2	4.7	19030
4-5	6.6	20.7	10.5	1.4	5.1	8756
6+	6.8	20.6	10.0	1.7	4.6	5208
Residence						
Urban	5.1	18.7	8.8	0.9	4.0	10611
Rural	6.9	20.7	10.4	1.4	5.0	34752
Mother's education						
Illiterate	6.5	19.9	10.3	1.5	4.9	29631
Lit., < middle complete	7.7	23.2	10.4	1.2	5.0	7680
Middle school complete	5.9	20.5	9.6	0.7	4.6	3328
High school and above	4.6	17.4	8.3	0.7	3.9	4724
Religion						
Hindu	6.4	19.4	10.3	1.3	4.9	35937
Muslim	7.3	24.0	8.9	1.3	4.3	7029
Christian	7.7	23.6	8.6	1.1	4.3	928
Sikh	3.8	20.9	10.1	1.2	3.9	784
Jain	1.2	9.5	5.0	--	0.4	140
Buddhist	6.5	22.7	13.2	1.9	8.4	326
Other	6.1	22.4	11.8	0.3	5.2	219
Caste/tribe						
Scheduled caste	6.8	19.0	11.4	1.8	5.5	5983
Scheduled tribe	6.1	20.2	9.9	1.7	4.7	4310
Other	6.5	20.4	9.8	1.1	4.7	35071
Source of drinking water						
Piped water	U	U	9.6	1.0	4.8	13079
Ground water	U	U	9.8	1.3	4.6	17442
Well water	U	U	10.3	1.5	5.0	12180
Surface water	U	U	12.9	1.5	5.9	1759
Other	U	U	11.2	1.7	4.0	905
Total	6.5	20.2	10.0	1.3	4.8	45363

Note: Table is based on children born in the period 1-47 months prior to the survey.

U: Not available

-- Less than 0.05 percent

¹Includes diarrhoea in the past 24 hours

²Includes diarrhoea with blood

Seven percent of children suffered from the symptoms of ARI during the two weeks preceding the survey. The highest prevalence occurs among children age 6-11 months (8 percent). Small differences are observed according to the gender and birth order of the child, residence and educational level of the mother. Sikh and Jain children are least likely to have suffered from ARI during the two weeks preceding the survey.

Table 9.14 also provides two types of prevalence estimates for diarrhoea: (1) a period prevalence measure, namely the percentage of children under age four whose mothers reported that they had diarrhoea in the two-week period before the interview and (2) a point prevalence measure, namely the percentage of children under four years of age whose mothers reported that they had diarrhoea in the 24-hour period before the interview. Both of these measures are affected by the reliability of the mother's recall of when the diarrhoeal episode occurred. In addition, the NFHS questions allow estimation of the proportion of children under four years who had bloody diarrhoea, a symptom of dysentery, during the two weeks preceding the survey.

Before initiating the discussion on the incidence of diarrhoea during the two weeks preceding the survey, it should be noted that the NFHS was not undertaken synchronously (at one point of time) in all states in India and, hence, the calendar dates of the reference period (whether the past 24 hours or the past two weeks) for the assessment of the prevalence of diarrhoea vary from state to state. Since there is seasonal variation in the incidence of diarrhoea, the prevalence rates of diarrhoea for any state cannot be assumed to reflect the situation throughout the year in that state. However, the data collection was conducted in three phases throughout the year, and hence the prevalence rate for total India may be taken as more representative of the situation throughout the year.

During the two weeks before the survey, 10 percent of children suffered from any type of diarrhoea and less than 2 percent from bloody diarrhoea. Five percent of children had diarrhoea during the preceding 24 hours. The incidence of diarrhoea was the highest among children age 6-11 months after which it declines with increasing age. There is little difference in the prevalence of diarrhoea between male and female children and between urban and rural children. The prevalence of diarrhoea is slightly lower among children whose mothers completed high school (8 percent) than among those with less education (10 percent). The prevalence of diarrhoea is highest among Buddhist children (13 percent).

Surprisingly, the source of drinking water makes only a small difference in the prevalence of diarrhoea. As one would expect, the prevalence is highest among those using surface water (13 percent). There is little difference in the prevalence of diarrhoea among those obtaining drinking water from other sources. In fact, the prevalence of all three conditions varies very little except by the age of the child. These childhood diseases are almost equally likely to strike children in any of the groups examined.

Table 9.15 presents information on the incidence of acute respiratory infection, fever and diarrhoea by state. There is a considerable variation with respect to the incidence rate of all three illnesses among children. The difference among states may reflect differences in the prevalence of these conditions as well as differences in the timing of fieldwork in each state. The reported prevalence levels may also reflect differences in the way mothers in various states perceive diseases among their children. The highest prevalence rate for ARI is in Tripura (23

Table 9.15 Prevalence of acute respiratory infection, fever and diarrhoea by state

Among all children under four years of age, the percentage who were ill with a cough accompanied by fast breathing, fever and diarrhoea during the two weeks before the survey, and the percentage with diarrhoea in the 24 hours before the survey, according to state, India, 1992-93

State	Percentage of children suffering in previous two weeks from:				
	Cough accompanied by fast breathing	Fever	Diarrhoea ¹		Any diarrhoea in previous 24 hours ²
			Any ²	Bloody	
India	6.5	20.2	10.0	1.3	4.8
North					
Delhi	4.8	11.4	9.8	0.6	4.5
Haryana	5.4	18.6	12.0	0.9	5.9
Himachal Pradesh	6.4	19.9	19.6	3.2	7.7
Jammu Region of J & K	4.4	21.6	22.3	3.3	9.2
Punjab	3.1	19.9	11.0	1.1	4.4
Rajasthan	4.9	10.7	5.7	0.7	3.7
Central					
Madhya Pradesh	4.7	15.8	8.6	1.2	3.9
Uttar Pradesh	7.2	19.1	8.9	1.5	4.6
East					
Bihar	4.3	21.1	13.7	1.4	6.3
Orissa	10.4	32.1	21.4	2.7	9.3
West Bengal	10.2	29.4	2.5	0.3	0.4
Northeast					
Arunachal Pradesh	8.7	20.1	17.6	2.0	10.5
Assam	11.3	24.6	6.3	1.3	2.4
Manipur	14.5	25.3	12.4	1.7	7.6
Meghalaya	5.9	15.8	8.3	0.5	5.9
Mizoram	4.1	26.6	22.3	5.0	12.5
Nagaland	6.1	15.9	11.2	2.4	3.6
Tripura	22.8	35.5	3.6	0.6	1.2
West					
Goa	5.6	21.4	7.8	0.8	2.3
Gujarat	5.8	18.5	12.6	1.5	6.5
Maharashtra	5.9	21.7	9.7	1.0	5.1
South					
Andhra Pradesh	4.9	16.5	11.7	1.2	6.0
Karnataka	3.4	16.9	9.7	1.2	5.1
Kerala	9.7	35.4	9.2	1.5	3.4
Tamil Nadu	8.6	17.7	12.7	1.3	5.2

Note: Table is based on children born in the period 1-47 months prior to the survey.

¹Includes diarrhoea in the past 24 hours

²Includes diarrhoea with blood

percent) and the lowest is in Punjab and Karnataka (3 percent each). The prevalence of fever is again highest in Tripura (36 percent) followed by Kerala (35 percent), Orissa (32 percent) and West Bengal (29 percent). Relatively low prevalence rates for fever are observed in Delhi and Rajasthan (11 percent each). The prevalence of diarrhoea with blood during the two weeks prior to the survey is low in all states, however Mizoram, Jammu and Himachal Pradesh (all small states) experienced relatively high prevalence rates (3 to 5 percent). A little more than 1 in 10

children experienced diarrhoea during the 24 hours before the survey in Mizoram (13 percent) and Arunachal Pradesh (11 percent). In addition to these two states, diarrhoea during the two weeks prior to the survey was relatively common in Jammu, Himachal Pradesh and Orissa. In each state, fever is the most prevalent of the three conditions examined, except for Jammu where the prevalence rates for fever and diarrhoea are almost the same.

Treatment of Acute Respiratory Infection (ARI)

Table 9.16 presents information on the type of treatment received by children suffering from symptoms of ARI by selected background characteristics. A sizeable majority of children (two-thirds) who suffered from ARI during the past two weeks were taken to a health facility for treatment or were treated by a doctor or other health professional. A little less than one-fifth did not receive any treatment. Sick children were most often treated with oral antibiotics, injections or cough syrups. Home remedies or herbal medicines were used for only 7 percent of the children. One-third of children received other types of treatment, which include non-antibiotic oral medicine or oral medicine which the respondent could not identify.

Children age less than 6 months or more than 23 months are slightly less likely to receive treatment for ARI from health professionals (60-64 percent) than children age 6 to 23 months (70 percent). The percentage of children taken for treatment to health professionals is much higher for boys (71 percent) than for girls (61 percent). Twenty-two percent of girls and 17 percent of boys did not receive any treatment. Thus, with respect to the provision and use of health care facilities for children suffering from ARI, discrimination against girls is observed. This finding is consistent with the results of previous studies, which have demonstrated that sons are often treated preferentially in receiving medical care (Jejeebhoy, 1991; Deolalikar and Vashishta, 1992; Miller, 1981). There is a negative relationship between birth order and the treatment received from a health professional. Three-quarters of first-born children suffering from ARI were taken to a health facility or treated by a doctor or a health professional, whereas only 56 percent of sixth or higher birth order children received treatment from a health professional. As expected, sick children in urban areas were more likely to receive treatment from health professionals than those in rural areas. A higher percentage of rural children (8 percent) than urban children (3 percent) received home remedies when suffering from ARI. The relationship between a mother's educational level and the treatment given to children by health professionals is consistently positive, with 62 percent of children of illiterate mothers receiving treatment from health professionals as against 85 percent of mothers with at least a high school education. Not much difference is observed between the children of Hindu mothers (66 percent) and Muslim mothers (67 percent). The children of scheduled tribe mothers are least likely to receive any treatment for ARI.

Treatment of Fever

Table 9.17 presents treatment patterns for children suffering from fever during the two weeks before the survey. A sizeable majority of children (67 percent) suffering from fever were taken to a health facility or received treatment from a doctor or other health professional. Eight percent of children were given antimalarial medication, 34 percent were treated with oral antibiotics, 22 percent were given injections and 5 percent were treated with home remedies. The patterns of differentials in the treatment of fever are very similar to those observed earlier

Table 9.16 Treatment of acute respiratory infection

Among all children under four years of age who had a cough accompanied by fast breathing during the two weeks before the survey, the percentage taken to a health facility or provider and the type of treatment given, according to selected background characteristics, India, 1992-93

Background characteristic	Among children with cough and fast breathing								
	Percentage taken to a health facility or provider ¹	Percentage treated with						Don't know/missing	Number of children
		Anti-biotic pill or syrup	Injection	Cough syrup	Home remedy/herbal medicine	Other	None		
Child's age									
<6 months	60.2	32.1	22.9	19.1	10.4	30.5	17.5	--	313
6-11 months	69.6	34.4	24.8	23.6	7.7	31.2	19.3	--	495
12-23 months	70.4	35.3	23.6	21.1	7.0	32.7	17.0	0.2	911
24-35 months	64.1	31.6	23.1	22.1	6.0	34.0	20.7	0.4	640
36-47 months	62.9	32.0	21.2	24.0	6.1	34.5	22.0	0.4	583
Sex									
Male	70.8	34.2	24.8	22.6	6.8	33.8	17.0	0.2	1636
Female	60.8	32.3	21.1	21.4	7.5	31.7	22.0	0.3	1307
Birth order									
1	74.6	36.4	26.3	25.1	5.4	30.3	17.1	0.6	778
2-3	64.5	34.0	21.3	21.7	7.6	33.2	18.8	0.1	1238
4-5	65.6	29.8	22.3	22.8	6.4	35.9	20.9	--	574
6+	56.0	30.4	24.0	15.8	10.2	32.4	22.7	--	352
Residence									
Urban	77.1	37.4	23.1	29.1	3.4	35.5	13.9	--	544
Rural	63.9	32.5	23.1	20.5	7.9	32.3	20.4	0.3	2399
Mother's education									
Illiterate	62.4	32.2	24.5	18.9	7.6	31.5	22.1	0.2	1937
Lit., < middle complete	70.4	31.5	19.8	26.1	7.3	37.7	16.1	0.5	592
Middle school complete	72.0	38.2	23.1	23.7	3.1	34.9	14.4	--	196
High school and above	84.9	44.2	20.1	38.5	5.2	30.1	6.5	--	218
Religion									
Hindu	65.8	34.0	24.8	20.0	7.0	33.2	18.9	0.2	2296
Muslim	66.7	32.3	17.5	26.9	7.9	31.8	20.0	0.5	510
Christian	70.8	28.5	16.8	42.4	5.9	20.8	25.7	--	71
Sikh	(82.8)	(12.2)	(27.4)	(34.0)	(7.1)	(59.7)	(6.1)	(--)	30
Other	(64.3)	(16.7)	(4.4)	(51.4)	(--)	(28.9)	(27.5)	(--)	13
Caste/tribe									
Scheduled caste	64.0	29.7	26.1	15.7	8.1	36.6	22.1	--	410
Scheduled tribe	59.1	27.3	25.1	16.0	6.4	34.1	24.8	0.2	265
Other	67.6	34.7	22.4	23.9	7.0	32.1	18.0	0.3	2269
Total	66.3	33.4	23.1	22.1	7.1	32.9	19.2	0.2	2943

Note: Table is based on children born 1-47 months prior to the survey. Total includes 2 Jain children and 21 Buddhist children who are not shown separately.

() Based on 25-49 unweighted cases

-- Less than 0.05 percent

¹Includes government/municipal hospital, private hospital/clinic, Primary Health Centre, sub-centre, doctor or other health professional

Table 9.17 Treatment of fever

Among all children under four years of age suffering from fever during the two weeks before the survey, the percentage taken to a health facility or provider and the type of treatment given, according to selected background characteristics, India, 1992-93

Background characteristic	Among children with fever								
	Per-centage taken to a health facility or provider ¹	Percentage treated with							Number of children
		Anti-malarial	Anti-biotic pill or syrup	Injec-tion	Home remedy/herbal medicine	Other	None	Don't know/miss-ing	
Child's age									
<6 months	60.4	6.6	30.7	17.7	6.7	35.7	25.0	0.7	854
6-11 months	68.6	7.3	35.2	21.7	7.5	39.3	18.1	0.4	1521
12-23 months	69.4	8.6	36.2	23.1	4.8	39.4	17.8	0.5	2967
24-35 months	66.5	8.9	32.5	24.4	4.0	39.6	19.9	0.7	1988
36-47 months	64.5	8.1	34.8	21.6	5.4	36.8	21.9	0.6	1849
Sex									
Male	70.1	8.4	36.1	23.5	5.0	39.5	17.8	0.4	4881
Female	63.1	7.9	32.6	21.1	5.7	37.4	22.0	0.7	4298
Birth order									
1	72.8	8.2	34.8	22.0	5.2	42.8	15.9	0.5	2543
2-3	66.8	8.2	34.8	22.0	4.8	39.5	19.2	0.6	3752
4-5	62.9	8.7	32.9	23.1	5.3	35.0	23.2	0.7	1813
6+	59.3	7.0	34.8	23.0	7.9	31.0	25.4	0.5	1071
Residence									
Urban	79.4	9.0	35.8	20.3	4.0	49.4	10.0	0.6	1986
Rural	63.4	7.9	34.1	22.9	5.7	35.6	22.5	0.6	7193
Mother's education									
Illiterate	62.9	7.9	34.6	24.2	5.5	34.3	23.8	0.5	5890
Lit., < middle complete	69.9	8.2	30.1	19.4	6.6	44.5	16.3	1.0	1784
Middle school complete	78.8	9.1	39.3	22.1	2.7	45.8	9.4	0.3	681
High school and above	78.4	9.5	38.7	15.3	4.1	50.0	7.6	0.5	824
Religion									
Hindu	66.7	7.9	35.6	24.0	5.4	37.0	20.0	0.7	6971
Muslim	65.8	9.4	31.7	17.1	5.9	39.3	21.2	0.3	1688
Christian	63.9	6.8	31.1	13.2	4.2	53.7	17.3	0.1	219
Sikh	87.3	12.0	15.5	25.2	3.5	67.0	6.1	--	164
Buddhist	74.9	--	39.0	17.2	--	57.1	16.3	--	75
Other	56.0	12.9	30.1	13.0	6.6	44.6	15.2	--	49
Caste/tribe									
Scheduled caste	67.7	7.8	35.0	27.0	5.7	36.2	20.5	0.8	1139
Scheduled tribe	55.0	6.4	31.2	21.2	5.6	31.8	27.2	0.9	871
Other	68.2	8.4	34.8	21.8	5.3	39.7	18.8	0.5	7169
Total	66.8	8.2	34.4	22.3	5.4	38.5	19.8	0.6	9179

Note: Table is based on children born 1-47 months prior to the survey. Total includes 13 Jain children, who are not shown separately.

-- Less than 0.05 percent

¹Includes government/municipal hospital, private hospital/clinic, Primary Health Centre, sub-centre, doctor, or other health professional.

for the treatment of ARI. Children age 6-23 months, male children, children of lower birth orders, children from urban areas, children of educated mothers, children of Sikh and Buddhist mothers, and children of non-SC/ST mothers are more likely than other children to receive treatment from health professionals.

Treatment of Diarrhoea

Deaths from acute diarrhoea are most often due to the dehydration that results from the loss of water and electrolytes (Black, 1984). For this reason, nearly all diarrhoeal deaths can be prevented by prompt administration of rehydration solutions. Because deaths due to diarrhoea are a significant proportion of deaths to children in India, the government has launched the Oral Rehydration Therapy Programme as one of its priority activities for child survival. A major purpose of this programme is to increase awareness among women and in the community about the causes and treatment of diarrhoea. Mothers are instructed how to manage diarrhoea by using Oral Rehydration Salt (ORS) packets, which are made widely available. The programme also promotes use of a home made solution made from sugar, salt and water, which is referred to here as a Recommended Home Solution (RHS). This instruction is provided mostly through the electronic and print media and in adult literacy classes. Documentaries on diarrhoea among children and the use of ORS and preparation of RHS are regularly shown in cinema theatres. Spot announcements are also shown on Doordarshan, and All India Radio frequently airs messages on ORS and RHS. All the messages are in languages used in the states, with appropriate local terms for ORS and RHS.

In order to gauge the extent of knowledge and use of oral rehydration, the NFHS asked mothers of children born during the last four years a series of questions regarding the knowledge and use of ORS and RHS. Table 9.18 shows that only 43 percent of mothers in India know about ORS and an even smaller percent (26 percent) have used ORS packets at some time in the past. The differentials by selected background characteristics of mothers are quite pronounced. As expected, both knowledge and use of ORS are higher among urban than among rural mothers. Levels of knowledge and use of ORS are also strongly positively related to the educational attainment of mothers and to their exposure to mass media. Both knowledge and use of ORS are higher among mothers exposed to electronic mass media than among those with no such exposure. However, without conducting a multivariate analysis, it is difficult to say whether the differences in ORS knowledge and use are due to media exposure or due to the underlying correlation between women's educational levels and media exposure.

Marked differences are observed across the states in the knowledge and ever use of ORS packets (Table 9.19). Manipur has the highest proportion of mothers knowing about and ever using ORS packets (86 and 60 percent, respectively). Nagaland, a neighbouring state in the northeast region is at the opposite end of the spectrum with the lowest proportion of mothers knowing about and ever using ORS packets. Among the major states, the highest level of knowledge of ORS is in Delhi (74 percent) and the lowest in Rajasthan (20 percent). With respect to ever use of ORS packets, the highest level is observed for West Bengal (50 percent) and the lowest again is for Rajasthan (8 percent). In addition to Rajasthan, knowledge and use of ORS are particularly low in Madhya Pradesh and Andhra Pradesh.

Table 9.18 Knowledge and ever use of ORS packets

Percentage of mothers with births during the four years preceding the survey who know about and have ever used ORS packets, according to selected background characteristics, India, 1992-93

Background characteristic	Know about ORS packets	Have ever used ORS packets	Number of mothers
Mother's age			
13-19	36.1	20.6	4276
20-24	44.2	25.5	13342
25-29	46.3	29.1	11183
30-34	42.1	26.7	5839
35+	34.3	22.0	3521
Residence			
Urban	55.6	32.5	8727
Rural	38.9	23.9	29434
Mother's education			
Illiterate	31.8	19.0	25062
Literate, < middle school complete	56.4	36.0	6324
Middle school complete	62.7	36.8	2717
High school and above	75.4	45.0	4059
Religion			
Hindu	41.4	24.7	30560
Muslim	46.5	30.9	5634
Christian	52.6	28.5	780
Sikh	52.9	29.6	613
Jain	64.4	31.3	115
Buddhist	52.0	30.6	273
Other	40.9	25.9	188
Caste/tribe			
Scheduled caste	35.3	21.0	5050
Scheduled tribe	26.8	14.7	3646
Other	45.9	28.1	29465
Mother's exposure to media			
Exposed to media	55.3	32.8	18126
Watches television weekly	62.2	36.0	10185
Listens to radio weekly	55.9	33.2	14899
Visits cinema/theatre monthly	56.3	32.2	5248
Not exposed to any of the media	31.2	19.5	20036
Total	42.7	25.9	38162

Table 9.20 shows the type of treatment obtained for children who had diarrhoea during the two weeks before the survey. Sixty-one percent of children who suffered from diarrhoea were taken to a health facility or provider. Eighteen percent were treated with ORS packets and 19 percent received a Recommended Home Solution with a total of 31 percent receiving at least one of these treatments. In order to reduce dehydration due to diarrhoea, mothers are also taught to increase the supply of fluids to children with diarrhoea. An increase in the supply of fluids was reported for only 14 percent of children. Sixty-one percent of children with diarrhoea received neither ORS/RHS treatment nor increased fluids. Thus, although many Indian mothers have gotten the message that young children with diarrhoea must be treated with oral rehydration therapy, many others remain unaware of the importance of this treatment. The findings suggest that more efforts are needed to increase the understanding of parents regarding the treatment of diarrhoea.

Table 9.19 Knowledge and ever use of ORS packets by state		
Percentage of mothers with births during the four years preceding the survey who know about and have ever used ORS packets, according to state, India, 1992-93		
State	Know about ORS packets	Have ever used ORS packets
India	42.7	25.9
North		
Delhi	74.2	45.3
Haryana	52.8	28.4
Himachal Pradesh	69.3	46.8
Jammu Region of J & K	66.3	43.9
Punjab	51.7	28.5
Rajasthan	20.2	8.3
Central		
Madhya Pradesh	24.3	9.6
Uttar Pradesh	36.4	21.4
East		
Bihar	36.3	24.3
Orissa	43.7	28.8
West Bengal	64.3	50.1
Northeast		
Arunachal Pradesh	43.8	27.7
Assam	53.2	32.1
Manipur	85.5	60.1
Meghalaya	39.5	19.8
Mizoram	74.5	39.0
Nagaland	20.1	6.1
Tripura	79.5	51.3
West		
Goa	55.1	31.9
Gujarat	41.2	22.7
Maharashtra	46.7	30.9
South		
Andhra Pradesh	31.1	16.3
Karnataka	49.3	31.0
Kerala	71.3	39.8
Tamil Nadu	61.4	32.0

Differentials in the treatment of diarrhoea depend in part on the type of treatment examined. Treatment at a health facility or from a health provider is more commonly sought for children age 12-23 months, male children, children of lower order births, children in urban areas, children of more educated mothers, and children of Sikh and Muslim women. While girls with diarrhoea are less likely than boys to receive ORS packets, no such distinction is observed in the provision of RHS. A consistent positive relationship is observed between the educational level of mothers and treatment with ORS or RHS. Children in urban areas are more likely to be taken to a health facility or provider, but they are also more likely to be treated with a Recommended Home Solution or other home remedy.

It is inappropriate to reduce a child's frequency of breastfeeding or the total intake of breast milk or other fluids when a child has diarrhoea. In the NFHS, the mothers of children who suffered from diarrhoea were asked about changes in feeding practices for those children

Table 9.20 Treatment of diarrhoea

Among all children under four years of age who had diarrhoea in the past two weeks, the percentage taken for treatment to a health facility or provider, and the type of treatment given, according to selected background characteristics, India, 1992-93

Background characteristics	Percent taken to a health facility or provider ¹	Oral Rehydration								Number of children with diarrhoea	
		Percent given				Percent not given ORS, RHS or increased fluids	Percent given				
		ORS packets	RHS at home	Either ORS or RHS	In-creased fluids		Anti-biotics	Injec-tion	Home remedy, other		No treat-ment
Child's age											
<6 months	54.4	8.6	11.0	17.0	13.7	73.0	25.8	8.6	38.0	28.1	612
6-11 months	61.7	18.9	19.7	32.7	11.8	60.4	32.4	14.9	40.7	19.3	958
12-23 months	65.0	20.9	20.0	34.6	15.2	57.3	32.7	17.1	45.2	16.0	1516
24-35 months	61.8	17.7	19.2	30.3	14.6	60.5	32.4	14.8	41.3	18.8	889
36-47 months	56.7	15.6	20.4	31.3	12.4	60.9	31.3	12.0	37.0	19.4	583
Sex											
Male	63.0	19.6	18.8	32.4	13.4	59.9	32.1	15.1	42.2	17.8	2386
Female	59.2	15.3	18.5	28.5	14.3	62.5	30.7	13.7	40.8	21.0	2173
Birth order											
1	64.3	19.4	17.2	31.5	14.0	60.4	32.0	15.0	43.2	18.4	1267
2-3	61.4	17.8	20.7	32.4	13.2	60.1	29.3	14.9	43.5	18.9	1854
4-5	58.6	17.7	19.5	31.0	16.1	58.5	32.8	12.9	38.0	19.4	915
6+	57.7	11.7	13.3	21.3	11.5	71.7	35.5	14.0	36.4	22.6	522
Residence											
Urban	68.7	16.9	26.4	36.8	14.4	56.5	31.9	12.2	47.5	14.2	932
Rural	59.3	17.7	16.6	29.0	13.6	62.4	31.4	15.0	40.0	20.6	3626
Mother's education											
Illiterate	58.0	15.4	14.8	25.7	13.3	65.6	31.2	14.7	38.0	22.8	3044
Lit., <middle complete	66.0	20.9	22.4	36.7	12.8	55.9	28.7	13.7	47.4	15.2	799
Middle school complete	67.5	21.0	26.3	39.9	12.6	56.2	34.5	14.4	45.9	12.8	321
High school and above	70.9	24.3	34.2	48.6	21.0	41.6	36.7	13.3	52.8	6.1	394
Religion											
Hindu	60.3	17.5	17.7	29.8	13.9	61.8	31.7	15.2	40.3	20.1	3695
Muslim	66.0	16.2	22.8	32.6	13.0	59.1	33.0	12.2	44.4	16.1	629
Christian	50.3	19.9	19.5	30.0	14.9	62.3	31.9	4.4	35.2	18.6	80
Sikh	86.9	20.9	19.0	36.2	16.6	53.9	16.0	11.8	77.5	4.7	79
Buddhist	(51.0)	(21.9)	(29.8)	(46.8)	(14.6)	(48.2)	(14.3)	(9.5)	(53.4)	(33.9)	43
Other	55.7	32.5	7.3	33.7	3.3	63.8	39.6	2.7	36.0	10.8	26
Caste/tribe											
Scheduled caste	61.2	14.9	17.5	27.7	13.2	63.3	30.5	15.3	42.8	20.8	684
Scheduled tribe	51.5	20.7	16.6	30.8	12.1	62.2	24.9	12.5	36.5	28.1	426
Other	62.4	17.7	19.1	31.1	14.1	60.6	32.5	14.5	41.8	17.9	3448
Total	61.2	17.5	18.6	30.6	13.8	61.2	31.5	14.4	41.5	19.3	4558

Note: Table is based on children born in the period 1-47 months prior to the survey. Total includes 7 Jain children, who are not shown separately.

ORS: An oral rehydration solution made from a packet

RHS: A recommended home solution of sugar, salt and water

() Based on 25-49 unweighted cases

¹Includes government/municipal hospital, private hospital/clinic, Primary Health Centre, sub-centre, doctor, or other health professional

during diarrhoea. Table 9.21 provides information on feeding practices during diarrhoea for children of different ages. For a large majority of children (85 percent), the frequency of breastfeeding remained the same or increased during the diarrhoea. In 12 percent of the cases, however, breastfeeding was actually reduced. Moreover, intake of fluids, although maintained as usual or increased in three-quarters of the cases, was actually reduced in one-fifth of the cases. Thus, contrary to medical recommendations with regard to fluid intake during diarrhoea, a substantial number of children in India have their fluid intake reduced when they are sick with diarrhoea.

Table 9.21 Feeding practices during diarrhoea			
Percent distribution of children under four years of age who had diarrhoea in the past two weeks, according to feeding practices during diarrhoea and age, India, 1992-93			
Feeding practices during diarrhoea	Age of the child		
	<1 year ¹	1-3 years	Total ²
Breastfeeding frequency³			
Same as usual	81.8	75.2	77.9
Increased	6.5	7.8	7.3
Reduced	9.8	14.0	12.3
Stopped	1.1	2.1	1.7
Don't know/missing	0.8	0.9	0.9
Total percent	100.0	100.0	100.0
Number of children	1486	2200	3686
Amount of fluids given			
Same as usual	71.7	62.6	65.8
More	7.5	10.8	9.7
Less	15.1	21.9	19.6
Don't know	5.6	4.6	5.0
Total percent	100.0	100.0	100.0
Number of children with diarrhoea	1570	2989	4558
¹ Children born in the period 1-11 months prior to the survey			
² Children born in the period 1-47 months prior to the survey			
³ Applies only to children who are still breastfed			

Table 9.22 summarizes the treatment patterns for cough accompanied by fast breathing, fever and diarrhoea for each state. The utilization of health services for all three conditions is generally best in the northern region (with the notable exception of Rajasthan), in the western region, and in Kerala and Karnataka. On the other hand, only about half of sick children in Rajasthan and Orissa are taken to a health facility or health provider. The use of oral rehydration therapy for children with diarrhoea is quite limited, particularly in Haryana, Gujarat, Rajasthan, Uttar Pradesh and Bihar where more than three-quarters of children who had diarrhoea were not given either ORS or RHS. Even in states where at least 70 percent of children are taken to a health facility or provider for the treatment of diarrhoea (with the exception of West Bengal), the use of oral rehydration therapy is limited (between 33 and 45 percent). Thus, increased efforts are necessary to promote the use of oral rehydration therapy for children who are sick with diarrhoea.

Table 9.22 Treatment of childhood diseases by state

Among all children under four years of age who were ill with a cough accompanied by fast breathing, fever and diarrhoea during the two weeks before the survey, the percentage taken to a health facility or provider, and among children who had diarrhoea in the past two weeks, the percentage who received either an oral rehydration solution made from a packet (ORS) or a recommended home solution (RHS), according to state, India, 1992-93

State	Percentage taken to a health facility or provider ¹ among children who were ill with:			Among children with diarrhoea, percentage given either ORS or RHS
	Cough accompanied by fast breathing	Fever	Diarrhoea	
India	66.3	66.8	61.2	30.6
North				
Delhi	88.0	84.8	64.7	39.4
Haryana	83.2	86.1	65.5	19.5
Himachal Pradesh	77.7	81.7	70.6	44.9
Jammu Region of J & K	77.6	71.0	70.6	44.4
Punjab	(88.1)	91.5	86.0	32.7
Rajasthan	54.3	61.9	51.3	22.7
Central				
Madhya Pradesh	61.8	64.9	64.4	33.0
Uttar Pradesh	68.3	70.7	65.7	22.7
East				
Bihar	72.9	59.7	58.5	23.0
Orissa	56.4	52.7	47.0	41.1
West Bengal	61.7	59.4	82.1	74.7
Northeast				
Arunachal Pradesh	50.0	44.2	38.1	33.3
Assam	40.7	31.8	35.8	35.2
Manipur	39.5	34.6	40.0	63.1
Meghalaya	(86.8)	59.8	66.7	40.7
Mizoram	*	35.0	31.6	24.5
Nagaland	(31.6)	33.7	11.6	24.6
Tripura	59.6	55.4	*	*
West				
Goa	82.3	86.1	70.1	41.4
Gujarat	73.3	76.0	62.6	20.7
Maharashtra	72.6	75.4	60.9	41.7
South				
Andhra Pradesh	68.7	69.8	62.5	32.5
Karnataka	74.0	76.6	64.6	34.0
Kerala	81.3	74.1	70.6	37.8
Tamil Nadu	67.4	73.1	54.8	27.1

Note: Table is based on children born 1-47 months prior to the survey.

() Based on 25-49 unweighted cases

* Percentage not shown; based on fewer than 25 unweighted cases

¹ Includes government/municipal hospital, private hospital/clinic, Primary Health Centre, sub-centre, doctor, or other health professional