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India's National Family Health Survey Provides New Information on Maternal and Child Health and AIDS Awareness

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The recently completed National Family Health Survey (NFHS) collected information from nearly 90,000 Indian women on a range of health topics. Results on child immunization and women's knowledge of AIDS were particularly striking. The respondents also answered questions on the use of services and facilities during pregnancy and childbirth, infant feeding and treatment for diarrhea, and infant, child, and maternal mortality.

CHILD IMMUNIZATION

Immunization is a cornerstone of the child health care system in India, with efforts focusing on six serious but preventable diseases—tuberculosis, diphtheria, pertussis, tetanus, polio, and measles. The government expanded its efforts to increase immunization coverage through a Universal Immunization Programme (UIP) launched in 1985/86. The goal was to vaccinate at least 85 percent of all infants by 1990.

In 1992/93, the NFHS found that only 35 percent of children 12–23 months old were fully vaccinated. Higher percentages had received at least some vaccinations: 62 percent had been vaccinated against tuberculosis, 52 percent had received the full course of vaccinations against diphtheria, pertussis, and tetanus, 53 percent were fully vaccinated against polio, and 42 percent were vaccinated against measles. Thirty percent had not received any vaccinations at all. Female children, children from rural areas, and children of illiterate mothers were less likely to be vaccinated than male children, children from urban areas, or children of mothers who had some education.

Regional differences in vaccination coverage were substantial. In Goa, Jammu, Tamil Nadu, Maharashtra, Himachal Pradesh, and Punjab, more than 60 percent of children 12–23 months old had been fully vaccinated. At the other extreme, in Bihar, Assam, Uttar Pradesh, and Rajasthan fewer than 25 percent of children in this age group were fully vaccinated.

AIDS AWARENESS

In 1992, the Ministry of Health and Family Welfare estimated that approximately 600,000 Indians were positive for the HIV virus that causes AIDS. The proportion of positive cases among those screened for the virus (who tended to come from high-risk groups) increased from 2.5 per 1,000 population in 1986 to 11.2 per 1,000 in 1992. In response to this rise, the government has launched an AIDS prevention program using the mass media—especially the electronic media—to increase awareness of AIDS and to inform the public on how it is spread.

The NFHS asked women in 13 states whether they had ever heard of AIDS.

Table 1 Percentage of mothers receiving various kinds of antenatal care for births during the four years before the NFHS

Mother's background	Check-up by doctor	Home visit by health worker	Tetanus vaccination	Iron/folic acid tablets
Age				
13–19	40.8	22.7	63.0	51.9
20–34	40.8	20.7	62.2	51.5
35+	30.3	17.2	37.4	30.3
Residence				
Urban	69.6	9.8	80.7	68.7
Rural	31.1	24.3	55.3	45.1
Education[a]				
Illiterate	25.3	21.8	48.3	38.3
Secondary school or higher	84.2	14.2	95.6	85.7
Birth order[a]				
1	51.9	20.5	72.0	60.7
6+	19.5	17.6	35.5	28.6
All respondents	39.8	21.0	61.1	50.5

[a]*Antenatal care for mothers with intermediate education and birth orders ranged between the two extremes.*

Respondents who had heard of the disease were asked about the source of their information, their understanding of AIDS transmission, and their perception of the precautions necessary to avoid AIDS.

In general, knowledge of AIDS is very low. Among the major states, AIDS awareness was highest in Tamil Nadu, but even there only 23 percent of respondents had heard of AIDS. In Assam and West Bengal the proportion was less than 10 percent. In Delhi, where considerable media attention has focused on AIDS, only 36 percent of women had heard of the disease.

In Tamil Nadu, 64 percent of the women who did know about AIDS had heard of the disease on television, 50 percent had heard about it on the radio, 37 percent had read about it in newspapers, 31 percent had read about it in magazines, and 14 percent had heard about it from friends or relatives. Sixty percent reported that AIDS could be transmitted by sexual intercourse, but fewer than 10 percent were aware that the disease could also be transmitted through transfusions of infected blood, use of non-sterile needles, or from infected mothers to their unborn children.

Thirty percent or more thought erroneously that AIDS could be transmitted through insect bites or casual contact with an infected person such as shaking hands or sharing eating utensils. When asked how AIDS is avoided, 71 percent mentioned "practicing safe sex."

HEALTH CARE DURING PREGNANCY AND CHILDBIRTH

Respondents provided information on childbearing during the four years just before the survey. Table 1 summarizes their accounts of four types of antenatal care: check-ups by doctors, home visits by health workers, vaccination against tetanus, and dietary supplementation with iron and folic acid.

A doctor provided at least one antenatal check-up for 40 percent of the reported pregnancies. In general, mothers were most likely to receive antenatal check-ups, to be vaccinated against tetanus, and to take iron and folic acid supplements if they were less than 35 years old, were literate, lived in urban areas, and were pregnant with a lower-order birth. Home visits by health workers were more common in rural areas.

Coverage varies widely among states. Antenatal check-ups by doctors ranged from 96 percent of all pregnancies in Kerala to 16 percent in Rajasthan. Rural women in Karnataka, Tamil Nadu, and Andhra Pradesh reported home visits by health workers for about half of their pregnancies during the previous four years; in Jammu and several small northeastern states the proportion was less than 5 percent. Vaccination for tetanus ranged from more than 90 percent in Kerala, Tamil Nadu, and Goa to less than 40 percent in Rajasthan and Bihar. Provision of iron and folic acid tablets was highest (more than 84 percent) in Kerala, Goa, and Tamil Nadu and lowest (less than 30 percent) in Rajasthan, Bihar, and Uttar Pradesh.

For India as a whole, 26 percent of all births were delivered in a public or private medical facility, ranging from 88 percent in Kerala to 11–12 percent in Rajasthan, Assam, Bihar, and Uttar Pradesh. Fifty-eight percent of births in urban areas were delivered in a medical facility, compared with 16 percent of births in rural areas. Nearly 60 percent of all births that took place in a medical facility were delivered in a public institution, such as a government-operated hospital or a primary health center.

Of all the births reported, 22 percent were attended by a doctor, 13 percent by

Table 2 Breast-feeding, food supplementation, and bottle-feeding practices (%)

Age of child	Breast milk only	Breast milk and other liquids	Breast milk and solid/mushy food	Not currently breast-feeding	Other[a]	Total[b]	Of total, some bottle feeding[c]
0–3 months	50.9	45.4	1.4	1.9	0.4	100.0	9.5
4–6 months	26.4	59.5	10.5	3.5	0.2	100.0	17.0
7–9 months	9.4	48.6	36.8	5.0	0.3	100.0	16.4
10–12 months	4.0	30.5	57.5	8.0	0.0	100.0	15.4

[a]*Breast milk but information not collected on supplementation.*
[b]*Rows may not add up to exactly 100.0 percent because of rounding.*
[c]*Based on last-born children.*

another health professional, and 35 percent by a traditional birth attendant. Doctors attended a much higher proportion of births in urban areas (48 percent) than in rural areas (14 percent). They attended more than 70 percent of the births reported in Kerala and Goa, compared with fewer than 15 percent in Uttar Pradesh, Rajasthan, Himachal Pradesh, Bihar, Madhya Pradesh, Orissa, and Assam. For the country as a whole, 19 percent of all births reported were delivered in a medical facility and attended by a doctor.

INFANT FEEDING AND TREATMENT FOR DIARRHEA

Breast-feeding is nearly universal in India. At the time of the survey, women were breast-feeding 98 percent of children 0–3 months old, 92 percent of children 10–12 months old (Table 2), 88 percent of children 12–15 months old, and 67 percent of children 20–23 months old.

Adherence to specific World Health Organization (WHO) recommendations for infant feeding was less widespread. Just over half of infants 0–3 months old were breast-fed exclusively, and fewer than one-third of infants 6–9 months old were receiving breast milk plus solid or mushy food. There were wide differences among states in the exclusive breast-feeding rate, ranging from more than 60 percent of infants 0–3 months old in Rajasthan, Uttar Pradesh, Assam, Andhra Pradesh, and Karnataka to 20 percent or fewer of the same age group in Delhi, Jammu, and Punjab.

WHO recommends against bottle-feeding because of the risk of infection from unsterilized bottles and nipples. The survey revealed that 14 percent of last-born children under 12 months old received some bottle-feeding. Mothers in urban areas were much more likely to bottle-feed their children than mothers in rural areas.

Ten percent of children under age 4 were reported to have had diarrhea in the two-week period before the survey. Of these, 31 percent had been treated with a recommended commercial or home-made oral rehydration solution.

INFANT, CHILD, AND MATERNAL MORTALITY

Survey results show a steady decline in all mortality measures over the previous 15 years. During the five-year period just before the survey (approximately 1988–92), the estimated mortality rate for infants (under age 1) was 79 per 1,000 (Table 3). Orissa and Uttar Pradesh had infant mortality rates well above the national average, at 112 and 100 per 1,000, respectively, while Kerala had a particularly low rate (24 per 1,000).

Child mortality, expressed as the probability of dying for children 1–4 years old, was 33 per 1,000 for the country as a whole, ranging from 8 in Kerala to 46 in Uttar Pradesh, 49 in Madhya Pradesh, and 59 in Assam. Urban/rural differences were striking: infant mortality was 52 percent higher in rural than in urban areas, and child mortality was nearly twice as high.

Maternal mortality is of special concern in South Asia, where rates are thought to be among the highest in the world. Most demographic surveys do not have large enough samples to produce reliable estimates of maternal mortality, and for this reason the NFHS results are of particular interest.

They yielded an annual estimate of 420 maternal deaths per 100,000 live births, based on the two-year period immediately preceding the survey. Maternal mortality was 13 percent higher in rural areas (at 431 deaths per 100,000 live births) than in urban areas (at 380 per 100,000). These results imply that at least 100,000 Indian women die every year from causes related to pregnancy and childbirth.

CONCLUSION

Although infant and child mortality have decreased in India, 8 percent of all children still die before their first birthday, and 11 percent die before reaching age 5. Maternal mortality is also high. Survey results point to the importance of strengthening vaccination programs and

educating women about proper infant feeding practices. They also highlight the need to increase antenatal care and other medical services. In all these areas, the NFHS results indicate wide variation among India's regions and states.

In light of recent information suggesting increased AIDS incidence in India, survey results showing a general lack of AIDS awareness are disturbing. They suggest that the government's AIDS awareness campaign, relying primarily on electronic media, has not yet reached the majority of India's population.

Table 3 Infant and child mortality (number of deaths per 1,000 live births) in the more populous states of India, 1988–1992

State	Infant mortality (age 0)	Child mortality (1–4 years)	Under-five mortality (0–4 years)
Low-mortality states			
Kerala	23.8	8.4	32.0
Goa	31.9	7.2	38.9
Jammu Region	45.4	14.3	59.1
Punjab	53.7	15.0	68.0
Himachal Pradesh	55.8	14.1	69.1
Maharashtra	50.5	20.9	70.3
Medium-mortality states			
N.C.T. Delhi	65.4	19.0	83.1
Tamil Nadu	67.7	20.1	86.5
Karnataka	65.4	23.5	87.3
Andhra Pradesh	70.4	22.4	91.2
Haryana	73.3	27.4	98.7
West Bengal	75.3	26.0	99.3
Rajasthan	72.6	32.3	102.6
Gujarat	68.7	37.9	104.0
High-mortality states			
Bihar	89.2	42.0	127.5
Madhya Pradesh	85.2	49.3	130.3
Orissa	112.1	21.3	131.0
Uttar Pradesh	99.9	46.0	141.3
Assam	88.7	58.7	142.2
All India	78.5	33.4	109.3

ABOUT THE SURVEY

To support planning and evaluation activities under India's Family Welfare Programme, the Ministry of Health and Family Welfare (MOHFW) launched a project in 1991 to strengthen the survey capabilities of 18 population research centers around the country. Most of these are located in universities, although some are based in semi-autonomous research institutions, and one is in a state government office.

The NFHS is a component of this project, coordinated by the International Institute for Population Sciences (IIPS) in Bombay. The East-West Center and a U.S.-based consulting firm, Macro International, have provided technical assistance for the survey. The project is funded by the United States Agency for International Development (USAID).

Between April 1992 and September 1993, survey teams visited a sample of 88,562 households, drawn from 99 percent of the population of India in 24 states plus the National Capital Territory of Delhi. From this sample of households, the teams collected a basic set of information on all 500,492 household members and obtained more details on the 89,777 women within the households who had ever been married and were between the ages of 13 and 49. Information on health care during pregnancy and childbirth covered 50,000 live births that occurred during the four years preceding the survey.

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