

# ***AN ANALYSIS OF LEVELS AND TRENDS IN INFANT AND CHILD MORTALITY RATES IN INDIA***



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**An Analysis of Levels and Trends in  
Infant and Child Mortality Rates  
in India**

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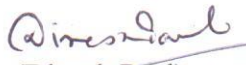
## FOREWORD

Infant and child mortality rates are considered as reliable indicators of quality of life and socio-economic conditions of a country. In India, inequalities of child health are perceptible along several dimensions. There are huge differentials across states and socio-economic groups in terms of health outcomes, access to health services and utilisation of health services. One of the Millennium Development Goals (MDG) has been to reduce the mortality rate among children under five by two thirds between 1990 and 2015.

In 2005, Government of India launched National Rural Health Mission (NRHM) to improve the availability and quality of accessible health care, especially for those residing in rural areas with accent on the poor, women and children. The major goals of the mission are to reduce the Infant Mortality Rate (IMR) and Maternal Mortality Rate (MMR) and improve universal access to public health services. Nonetheless, the current rate of progress India is likely to miss the MDG 4 on child mortality.

With the above in view, the present documentation project titled 'An Analysis of Levels and Trends on Infant and Child Mortality' is an attempt at making available data from the various surveys/sources at one place, to serve as a useful reference tool. It is hoped that such compilation shall enable academicians, administrators, policy makers and programme planners at the central and state level to appraise the progress and facilitate staying more focused for implementing the initiatives with proven success thus bring improvement in the present status of the children in India. The project has helped to gain insight on the existing trends on infant and child mortality in the country. The report throws light on valuable information about the impetus needed for bringing down the infant and child mortality in the country. I am confident that this report would serve as a ready reckoner to planners, administrators, research scholars and other stakeholders working in the area of maternal and child health and nutrition.

I would like to place on record my appreciation for the contribution and guidance provided by Shri S.K. Srivastava, Additional Director and Shri S.C. Srivastava, Joint Director. I acknowledge the painstaking efforts of Shri H.P. Joshi, Assistant Director and In-charge of the Project in successfully completing the project in the stipulated time period with the able assistance of Ms Bhavisha and Ms Kadambari Singh, Project Assistants. I extend my deep gratitude to Shri A.J. Kaul for the layout and design of the report.

  
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# CHAPTER 1

## INTRODUCTION

The infant mortality rate (IMR)—probability of dying before one year of age expressed per 1000 live-births and under-five mortality rate (U5MR)—probability of dying between birth and age 5 expressed per 1000 live-births have been used as measures of children’s well-being for many years.

Infant and child mortality rates are considered as sensitive indicators of living and socio-economic conditions of a country. This recognition has made the international organizations as well as National Governments to intensify their efforts to reduce infant mortality and improve child survival. As a result, there have been considerable improvements in the infant and child mortality rates for the world as a whole in recent years.

In India, evidence of child health inequalities exist along several dimensions. There are huge differentials across states and socio-economic groups in terms of health outcomes, access to health services and utilization of health services. Disparities in health outcomes are explained not only by disparities in utilization of services but also by the differential pace of economic and social development, differentials in the distribution of the benefits of development and the inadequacy of the public health care systems to deliver equitable health services.

### **1.1 Millennium Development Goals (MDGs)**

The Millennium Development Goals (MDGs) adopted by the United Nations in the year 2000 project the efforts of the international community to “spare no effort to free our fellow men, women and children from the abject and dehumanizing conditions of extreme poverty.” The MDGs include eight goals which were framed to address the world’s major development challenges with health and its related areas as the prime focus. In India, considerable progress has been made in the field of basic universal education, gender equality in education, and global economic growth. However there is slow progress in the improvement of health indicators related to mortality, morbidity and various environmental factors contributing to poor health conditions.

One of the 8 Millennium Development Goals (MDGs) adopted after millennium summit in 2000 is to reduce child mortality (MDG 4). Donors and Development agencies, the United Nations and National Governments around the world committed themselves to the goal of reducing the under-five mortality rates by two-thirds between 1990 and 2015 (UN Millennium Declaration). Two of the key indicators of monitoring progress towards this goal are the under-five mortality rate (U5MR) and the infant mortality Rate (IMR) (UN Development Group, 2003).

## **1.2 Initiatives by the Government to Reduce IMR and Child Mortality Rates**

The Government of India aimed to achieve IMR of 60 by the year 2000, after the Alma Ata declaration of 1978. Since then, a lot of efforts have been put into the child survival programmes over the years. The Sixth and Seventh Five-Year Plans had aimed at nationwide programmes to realize this goal.

The twenty-point programme included rapid improvement in the conditions of women and children. In 1979, the Expanded Programme of Immunization (EPI) was established to provide the tetanus toxoid (TT) vaccine to pregnant women, and BCG, DPT, polio and measles vaccine to children.

National Health Policy 1983 envisioned significant reduction in IMR, NMR & CMR by 2000. All the child health programmes are directed towards achieving these goals. Universal Immunization Programme against six preventable diseases, namely, diphtheria, pertussis, childhood tuberculosis, poliomyelitis, measles and neonatal tetanus was introduced in the country in a phased manner in 1985, which covered the whole of India by 1990. Significant progress has been made under the Programme in the initial period when more than 90 per cent coverage for all the six immunisation was achieved.

Universal Immunisation Programme (UIP) become a part of the Child Survival and Safe Motherhood (CSSM) Programme in 1992 and Reproductive and Child Health (RCH) Programme in 1997. Under the Immunisation Programme, infants are immunised against tuberculosis,



diphtheria, pertussis, poliomyelitis, measles and tetanus. Universal immunization against six vaccine preventable diseases (VPD) by 2000 was one of the goals set in the National Health Policy (1983).

The National Population Policy (2000) and National Health Policy (2002) addressed the issue of child survival and maternal health and increase the outreach and coverage of the comprehensive package of RCH services through the government, voluntary and non-government sectors in partnership.

The National Charter for Children, adopted on 9th February 2004, emphasizes Government's commitment to children's rights to survival, development and protection. It also stipulates the duties for the State and the community towards children and emphasizes the duties of children towards family, society and the nation.

The National Plan of Action for Children, 2005 commits itself to ensure all rights to all children upto the age of 18 years. To ensure child survival, the goals set up in the National Plan of Action for Children were: to reduce infant mortality rate to below 30, child mortality below 31 and neonatal mortality below 18 per 1000 live births by 2010. These goals were to be achieved by: reducing neonatal mortality rate to 26 by 2007; eliminating maternal and neonatal tetanus by 2007; promoting breast-feeding as a measure for ensuring early childhood nutrition; reducing deaths due to measles by half by 2007; ensuring full immunization of all children against vaccine preventable diseases; eradicating poliomyelitis by 2007; reducing deaths due to AARI by one third and due to diarrhea and cholera by 50 percent by 2010.

In 2005 Government of India launched National Rural Health Mission (NRHM) to improve the availability and quality of accessible health care, especially for those residing in rural areas, including poor, women and children. The Major goals of the mission are to reduce the Infant Mortality Rate (IMR) and Maternal Mortality Rate (MMR), improve universal access to public health services such as women's health, child health, water, sanitation and hygiene, immunization and nutrition; and enhance the prevention and control of communicable and non-communicable diseases. Reproductive and Child Health (RCH) Programme -II was subsumed within NRHM.

GOI has adopted ambitious targets related to children that are in line with, and at times more ambitious than, the MDGs. Centrally-sponsored schemes have increased public resources to key sectors, notably the Reproductive and Child Health Programme II, the National Rural Health Mission and the Integrated Child Development Services. The challenge remains to convert these commitments and resources into measurable results for all children, especially those belonging to socially disadvantaged and marginalized communities.

### **1.3 Rationale of the Study**

The pace of reducing child deaths has accelerated sharply since 2000, according to new data released in September, 2012 by UNICEF, the World Health Organization, the World Bank and the UN Population Division. The gains in child survival, although significant, are still insufficient to achieve Millennium Development Goal 4 of reducing the global under-five mortality rate by two-thirds between 1990 and 2015. Half of all under-five deaths occurred in five countries: India (24 per cent), Nigeria (11 per cent), Democratic Republic of the Congo (7 per cent), Pakistan (5 per cent) and China (4 per cent). India and Nigeria account for more than a third of all under-five deaths worldwide. Globally, the leading causes of death among children under five are pneumonia (18 per cent of all under-five deaths), preterm birth complications (14 per cent), diarrhoea (11 per cent), complications during birth (9 per cent) and malaria (7 per cent). The UN-Inter-agency Group for Mortality Estimation 2012 report calls for systematic action to reduce neonatal mortality as the proportion of under-five deaths during the neonatal period is rising in every region and almost all countries.

In India, according to SRS, 2012, the percentage of infant deaths to total deaths varies substantially across the states. The percentage of under-five deaths to total deaths ranges from 2.7 per cent in Kerala 5.1 per cent in Tamil Nadu to 23.4 per cent in Bihar, 23.2 per cent in Uttar Pradesh and Madhya Pradesh, 22.7 per cent in Rajasthan, while other states figure in between these

states. In 2012, the percentage of neo- natal deaths to total infant deaths is 68.5 per cent at national level and varies from 56.8 per cent in urban areas to 70.4 per cent in rural areas. Among the bigger States, Jammu & Kashmir (77.2%) registered the highest proportion of neonatal deaths to infant deaths and the lowest is in Kerala (58.4%). Cost-effective interventions are needed at the community level for accelerating the reduction in under-five mortality by expanding preventive and curative interventions that target the most vulnerable children.

The analysis of levels and trends on infant and child mortality available from the various surveys/ sources and made available at one place, would serve as a useful reference tool to appraise the progress, as also, facilitate academicians, administrators, policy makers and programme planners at the central and state level to be more focused and implement initiatives with proven success to improve the present status of the children in India.

#### **1.4 Objectives**

The objectives of the study were to:

- i. Analyse the levels and trends in infant and child mortality available from the various surveys/ sources and make it available at one place; and
- ii. Provide a reference tool to appraise the progress in infant and child mortality, as also, facilitate academicians, administrators, policy makers and programme planners at the central and state level to develop and implement initiatives with proven success to improve the status of the children in India.

#### **1.5 Methodology**

The data on infant and child mortality and its determinants available from the various surveys/ sources, such as the Sample Registration System; National Family Health Surveys (1992-

93; 1998-99; and 2005-06); Annual Health Surveys; Coverage Evaluation Surveys; District Level Household Surveys; Census of India (2011) etc. has been analysed and presented in the subsequent chapters. Some detailed tables are placed at **Annexure-I**. Though In India, the Registration of Births and Deaths Act, 1969, provides for the compulsory registration of births and deaths but due to low level of registration of births and deaths the data from Civil Registration system was not analysed.

## **1.6 Data Sources**

Primarily, two large data sources Sample Registration System (SRS) from 1991 to 2013 and NFHS (three rounds) have been used to examine the issues in depth. As the levels of infant and child mortality rates are comparatively higher in some bigger States, Annual health surveys are being conducted in these Empowered Action Group States. The AHS data has also been examined for the years 2010-11, 2011-12 and 2012-13. Data relating to the socio-economic and maternal determinants of infant and child mortality has also been analysed from District Level Household Surveys and Coverage Evaluation Surveys. Data on environmental determinants like availability of drinking water, access to an improved toilet facility and type of fuel used by households for cooking has been analysed from Houselisting and Housing Census Data – 2011. The details of data sources are placed at **Annexure-II**.

## CHAPTER 2

### Levels and Trends of Infant and Child Mortality

Child mortality trends, differentials, and determinants in India have been the subject of many studies. These studies have provided a framework for analysing factors that contributed to it. These included proximate factors (such as nonmedical factors and medical care during the antenatal period, care at birth, and preventive and curative care in the postnatal period); maternal factors (age, parity, and birth intervals); and household- and community-level factors (water, sanitation and housing). These studies concluded that a substantial decline in infant mortality rate is possible without significant improvement in economic development. They propose increased access to a minimum package of essential services that would significantly reduce high infant mortality rates: reproductive health services; perinatal care; improved breastfeeding practices; immunization; home-based treatment of diarrhoea; and timely introduction of supplementary foods.

#### 2.1 Levels and Trends of IMR and U5MR

Mortality is one of the basic components of population change. Information on death events recorded in SRS is used to estimate mortality indicators. In India at the national level 12.4 per cent of the total deaths are infant deaths (<1 year) and toddlers (1-4 years) accounts for 2.5 per cent of the deaths in the year 2013. There has been a consistent decline in Infant Mortality Rate (IMR) and Under-Five Mortality Rate (U5MR). The rate of decline in current decade is higher than in the previous. However, it is unlikely to meet the targets for Millennium Development Goal (MDG)-4, which aims to reduce by two third, between 1990 and 2015, the under-five mortality rate.

##### 2.1.1 Infant Mortality Rate (IMR)

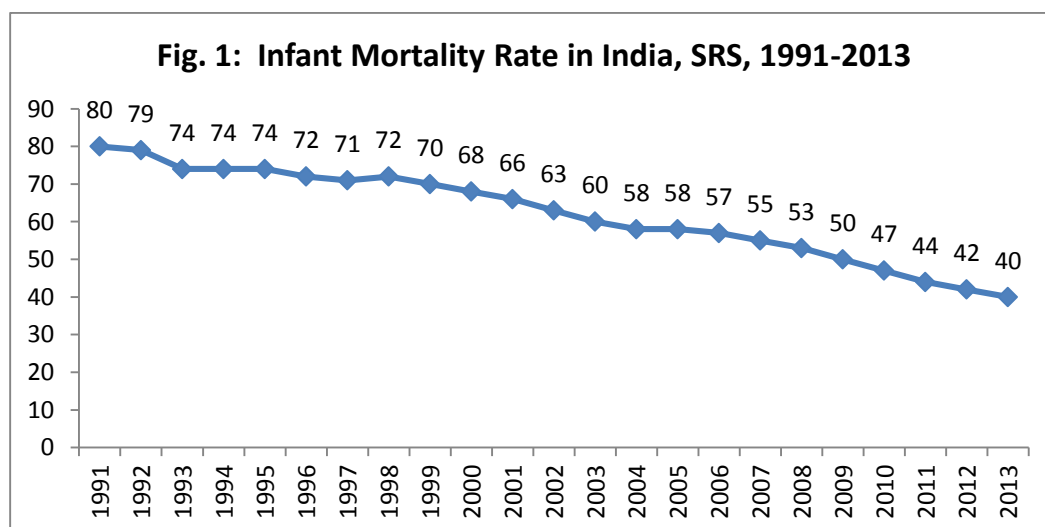
Several indicators of childhood mortality are used to measure levels and trends, including the neonatal and post neonatal mortality rates, the infant mortality rate, the child mortality rate, and the under-5 mortality rate.

Infant Mortality Rate is the number of deaths of children less than one year of age in a given year per 1000 live births in that year. The present Infant mortality rate stands at 40 per 1000

live births in 2013. Since 1991, **IMR has declined from 80 in 1991, to 40 in 2013. It has seen a steady decline of 2-3 points every year since 1991 (Table 1 and Fig. 1).**

**Table 1: Infant Mortality Rate in India, SRS, 1991-2013**

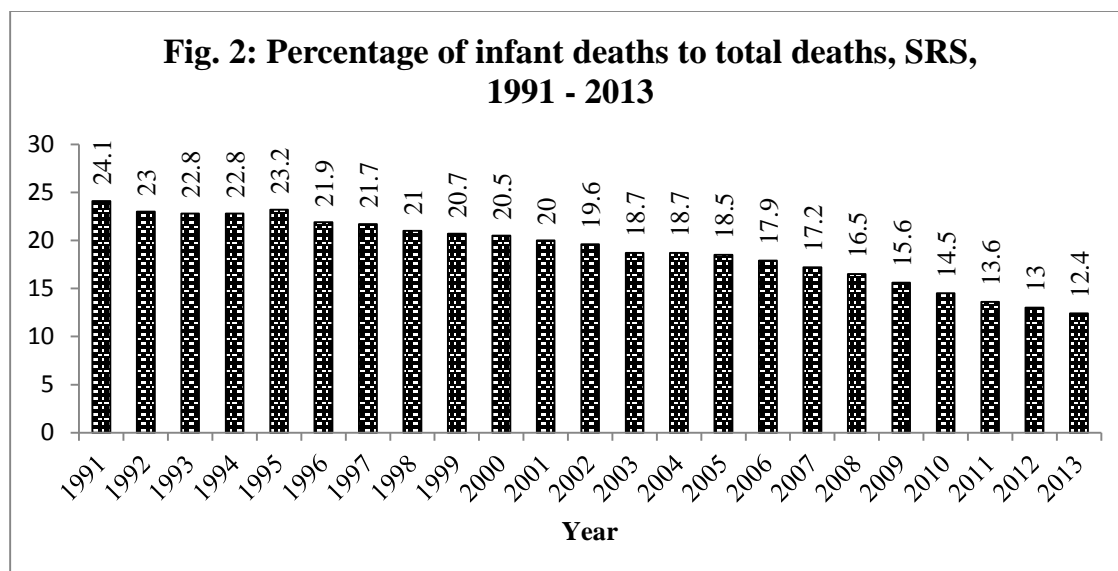
Year	IMR
1991	80
1992	79
1993	74
1994	74
1995	74
1996	72
1997	71
1998	72
1999	70
2000	68
2001	66
2002	63
2003	60
2004	58
2005	58
2006	57
2007	55
2008	53
2009	50
2010	47
2011	44
2012	42
2013	40



Although concerted global and national efforts have been made to improve child mortality, especially in the post neonatal phase, less attention has been given to determinants of perinatal and neonatal mortality. **Neonatal mortality has gradually increased as a percentage of total child mortality, because of a faster decline in the post neonatal mortality rate.** Table 2 and Fig. 2 present the percentage of infant deaths to total deaths over the years, which has shown a gradual decline.

**Table 2: Percentage of Infant Deaths to Total Deaths, SRS, 1991-2013**

<b>Year</b>	<b>Percentage of infant deaths to total deaths</b>
1991	24.1
1992	23
1993	22.8
1994	22.8
1995	23.2
1996	21.9
1997	21.7
1998	21
1999	20.7
2000	20.5
2001	20
2002	19.6
2003	18.7
2004	18.7
2005	18.5
2006	17.9
2007	17.2
2008	16.5
2009	15.6
2010	14.5
2011	13.6
2012	13
2013	12.4



### 2.1.2 Neonatal and Post Neonatal Mortality

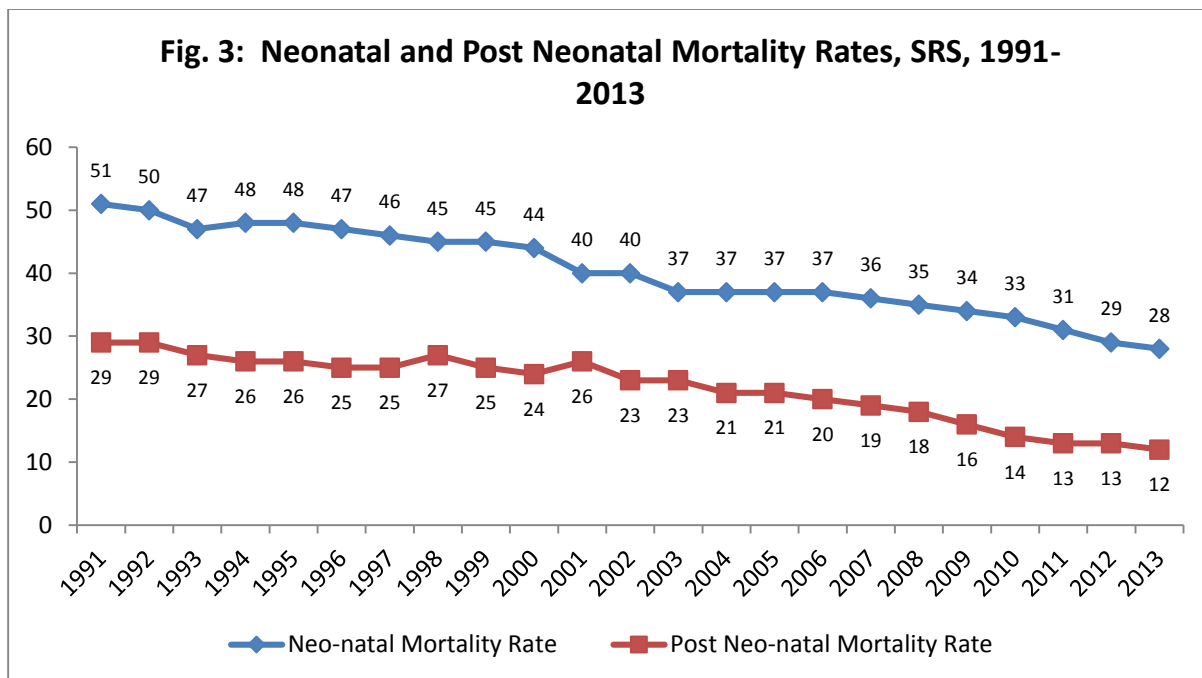
Infant Mortality Rate comprises of two components Neonatal Mortality Rate (Number of infant deaths of less than 29 days per thousand live births during the year) and Post Neonatal Mortality Rate (Number of deaths of 29 days to less than one year per thousand live births during the year). The level of Neonatal mortality is greatly affected by biological and maternal factors including nutritional status of the mother. **Table 3** presents the neonatal and post neonatal mortality rates in India from 1991 to 2013. **During the period 1991 to 2013, the infant mortality rate was declined by 50 percent. If we compare the decrease between neonatal and post neonatal mortality rates, neonatal mortality rates decreased by 45 percent whereas post neonatal mortality rates declined by 58.6 percent** during the same period. It is also observed that post neonatal mortality rates declined more rapidly than neonatal mortality rate between 2001 and 2013.



**Table 3 : Neonatal and Post Neonatal Mortality Rates in India, SRS, 1991-2013**

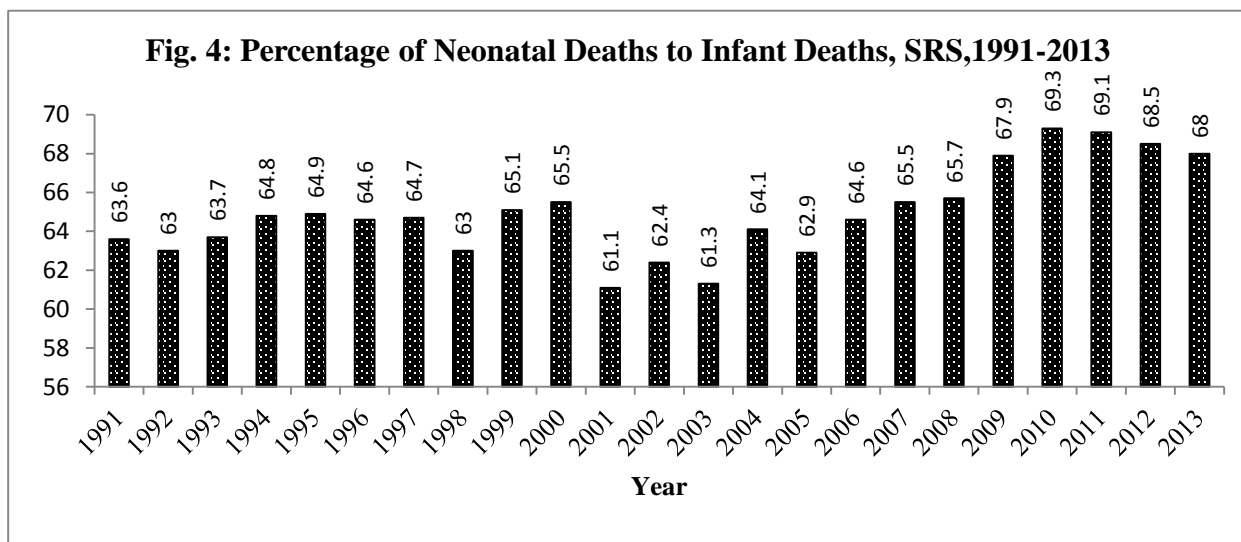
<b>Year</b>	<b>Neonatal Mortality Rate</b>	<b>Post Neonatal Mortality Rate</b>
1991	51	29
1992	50	29
1993	47	27
1994	48	26
1995	48	26
1996	47	25
1997	46	25
1998	45	27
1999	45	25
2000	44	24
2001	40	26
2002	40	23
2003	37	23
2004	37	21
2005	37	21
2006	37	20
2007	36	19
2008	35	18
2009	34	16
2010	33	14
2011	31	13
2012	29	13
2013	28	12

Post neonatal mortality declined from 29 in 1991 to 12 in 2013. Neonatal mortality was recorded as 51 in 1991 which declined to 28 in 2013. The present level of neonatal mortality indicates that more than two-third (70%) of infant deaths occur within the first month of life (**Fig. 3**).



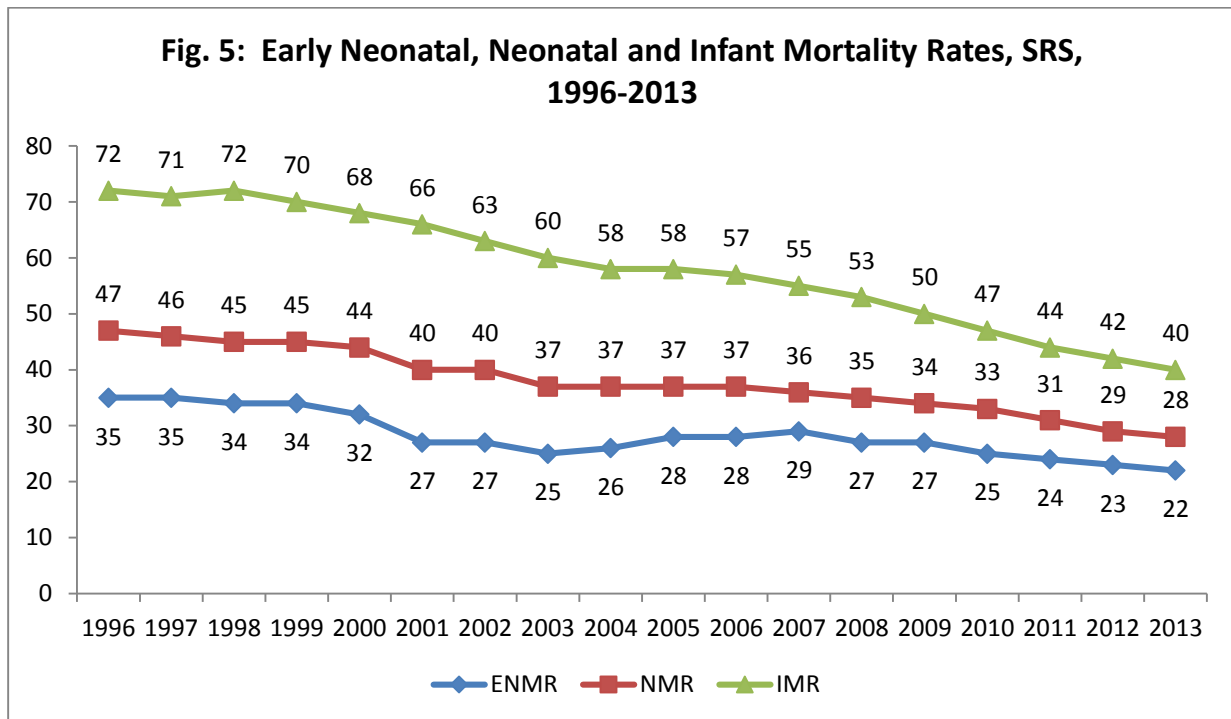
### Percentage of Neonatal Deaths to Infant Deaths

The percentage of neonatal deaths to infant deaths is presented in **Fig. 4**. In the year 1991, the share of neonatal deaths in infant deaths was 63.6 percent which increased to 68 per cent in 2013. Though the neonatal mortality declined from 51 in 1991 to 28 in 2013, but increase in percentage is seen due to comparatively sharper decline in post neonatal mortality during the same period.



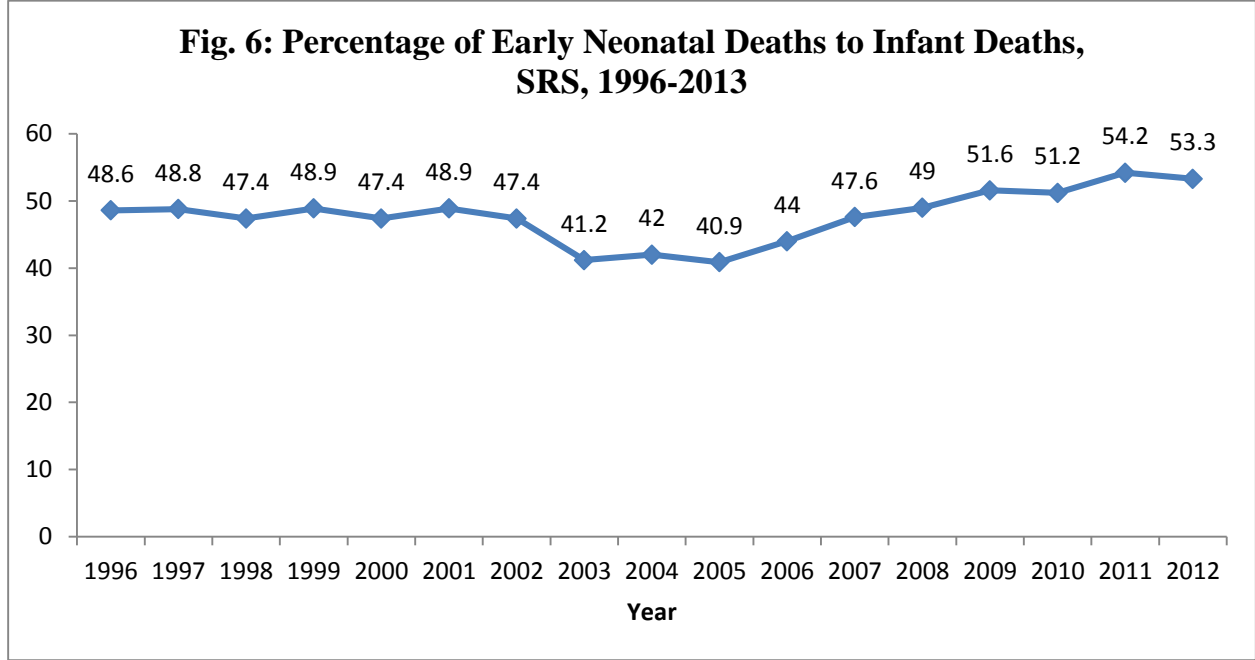
### 2.1.3 Early Neonatal Mortality

Early neonatal mortality refers to the deaths in the first week of life. In the year 2013 out of 1000 live births 40 children died in the first year of life and 28 children died in the first month of life out of which 22 children died in the first week of life. Early neonatal mortality rate (ENMR) is an indicator of quality of perinatal care. As shown among all the components of the under-five mortality, early neonatal mortality has been slowest to decline which has been constantly contributing to slow decrease in IMR over the years.



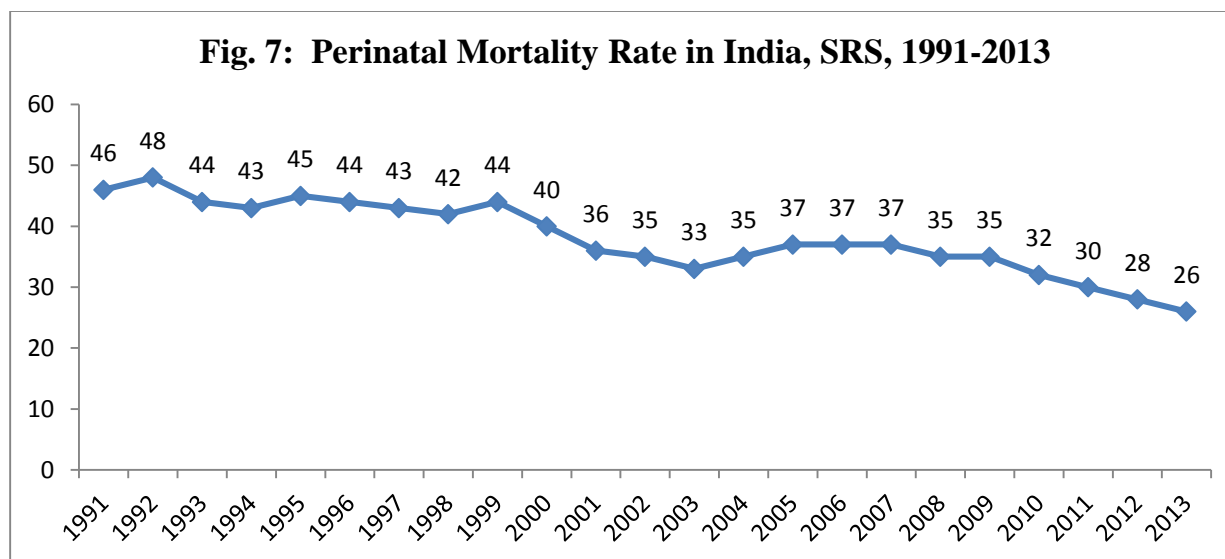
### Percentage of Early Neonatal Deaths to Infant Deaths

Percentage of early neonatal deaths to infant deaths from 1996 to 2013 is presented in **Fig. 6**. In the year 1996, 48.6 percent of infant deaths occurred in the first week of life which increased to 53.5 percent in 2013. **Though the early neonatal mortality rate declined from 35 in 1996 to 22 in 2013, but the percentage share of early neonatal mortality rate in IMR increased due to slower decline in deaths within 7 days of birth as compared to deaths of infants between 7 days to one year.**



#### 2.1.4 Perinatal Mortality Rates

Perinatal mortality rate is the number of fatal deaths after 28 weeks of pregnancy and infant deaths under 7 days of age in a given year per 1000 total births in that year. In another words Perinatal mortality rate is defined as the number of still births taken together with infant deaths less than seven days per thousand live births and still births during the year. Perinatal mortality rates from 1991 to 2013 are given in **Fig. 7**. **The perinatal mortality rate has declined from 46 in 1991 to 26 in 2013. From 2001 to 2009 it showed almost stagnant trend, however, after 2009 there was a declining trend.**

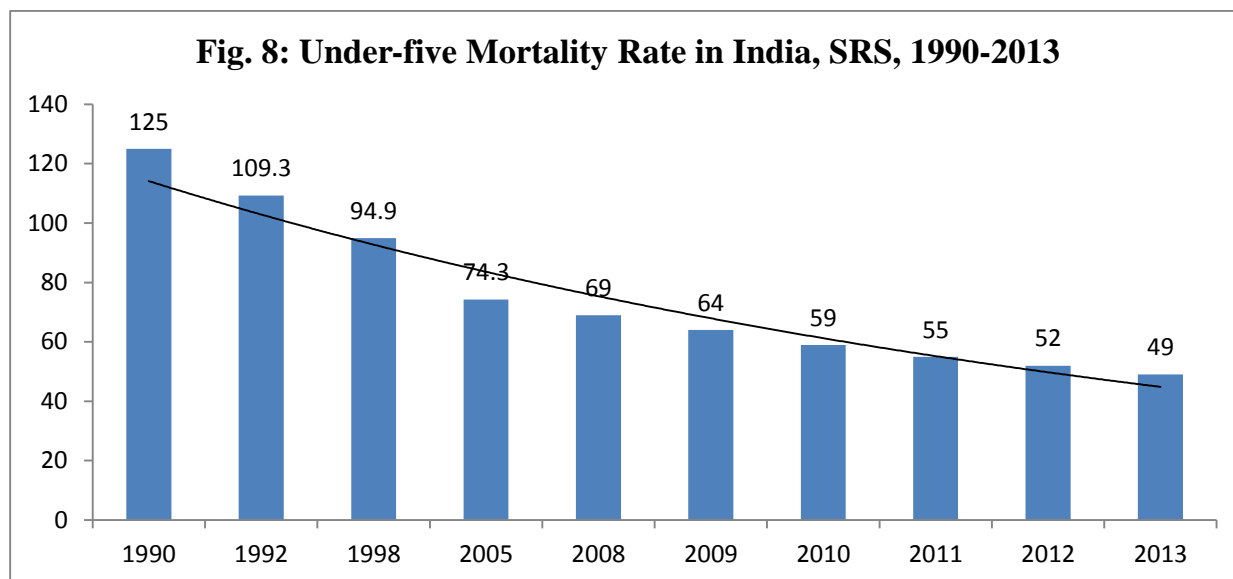


### 2.1.5 Under 5 Mortality Rates (U5MR)

The under-five mortality is the probability (expressed as a rate per 1000 live births) that a child born in a specific year or time period will die before reaching the age of five, subject to current age specific mortality rates. It is expressed as a rate per 1,000 live births. U5MR was estimated as 49 in the year 2013 by Sample Registration System. **Since 1990 a rapid decline was seen in the U5MR and from an estimated level of 125 in 1990, it fell to a level of 49 in 2013.** Given to reduce under-five mortality rate to 42 per thousand live births by 2015, as per the historical trend, India may be missing the target. However, considering the continuance of the sharper annual rate of decline witnessed in the recent years, India is likely to achieve the target (Table 4 and Fig. 8).

**Table 4: Under-Five Mortality Rate in India, SRS, 1990-2013**

Year	U5MR (per 1000 live births)
1990	125.0
1992	109.3
1998	94.9
2005	74.3
2008	69.0
2009	64.0
2010	59.0
2011	55.0
2012	52.0
2013	49.0

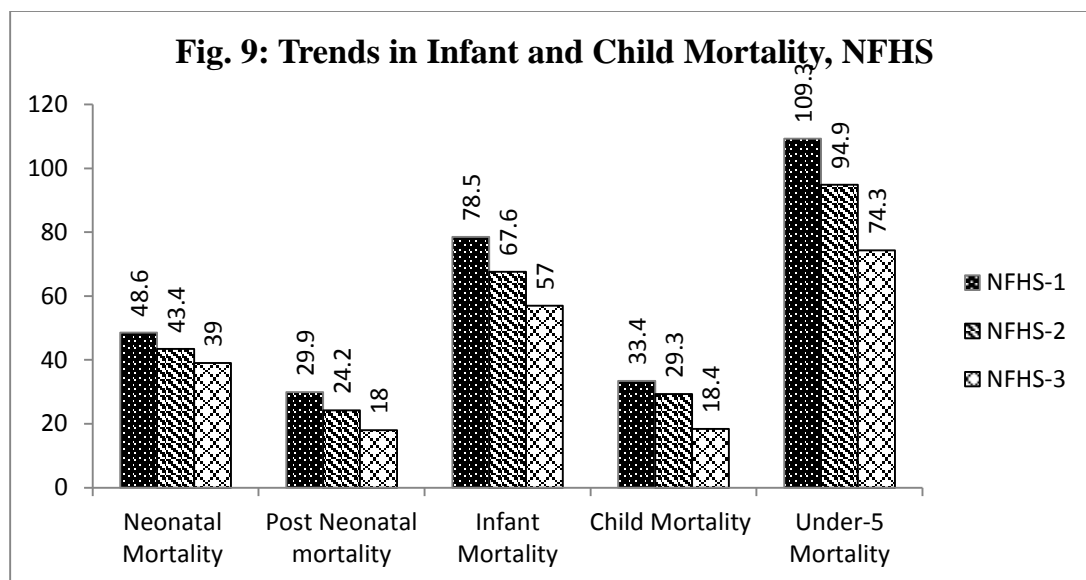


### 2.1.6 Levels and Trends in Infant and Child Mortality based on NFHS data

We can use the estimates from National Family Health Surveys NFHS-1, NFHS-2 and NFHS-3 to see the trends in infant and child mortality. Besides Neonatal mortality, post neonatal mortality, infant mortality and under-5 mortality, National Family Health Surveys also provide information on child mortality which is defined as the probability of dying between the first and fifth birthdays. The estimates of three surveys are presented in **Table 5** and **Fig. 9**. All estimates are for the five years preceding the survey (approximately 1988-1992 for NFHS-1, 1994-1998 for NFHS-2, and 2001-2005 for NFHS-3).

**Table 5: Trends in Infant and Child Mortality as per NFHS-1, NFHS-2 and NFHS-3**

Data Source	Neonatal Mortality (NN)	Post Neonatal mortality (PNN)	Infant Mortality (1q0)	Child Mortality (4q1)	Under-5 Mortality (5q0)
NFHS-1	48.6	29.9	78.5	33.4	109.3
NFHS-2	43.4	24.2	67.6	29.3	94.9
NFHS-3	39	18	57	18.4	74.3



For the period 0-4 years before the survey, NFHS-1 and NFHS-2 recorded infant mortality rates of 79 and 68, respectively. Comparison of these estimates with the NFHS-3 estimate of 57 indicates that the infant mortality rate declined by 22 deaths per 1,000 live births in approximately 13 years. This implies an average reduction of 1.7 infant deaths per year. Neonatal mortality has declined from 49 for the period 1988-92 to 39 for the period 2001-2005 and the post neonatal mortality declined from 30 to 18 between the same time period. It is observed that the decline was more in the post neonatal (12) and child mortality (15) as compared to neonatal mortality (10).

## 2.2 Rural-Urban Differentials

In India, infant and under-5 mortality is generally lower in urban than in rural areas. Various factors account for this, including the higher incomes in urban areas, better education in urban areas, the concentration of public infrastructure in urban areas that provides sanitation services, including water supply, household waste and excreta removal, and hospital infrastructure, with health conditions that are more favorable in urban than in rural areas.

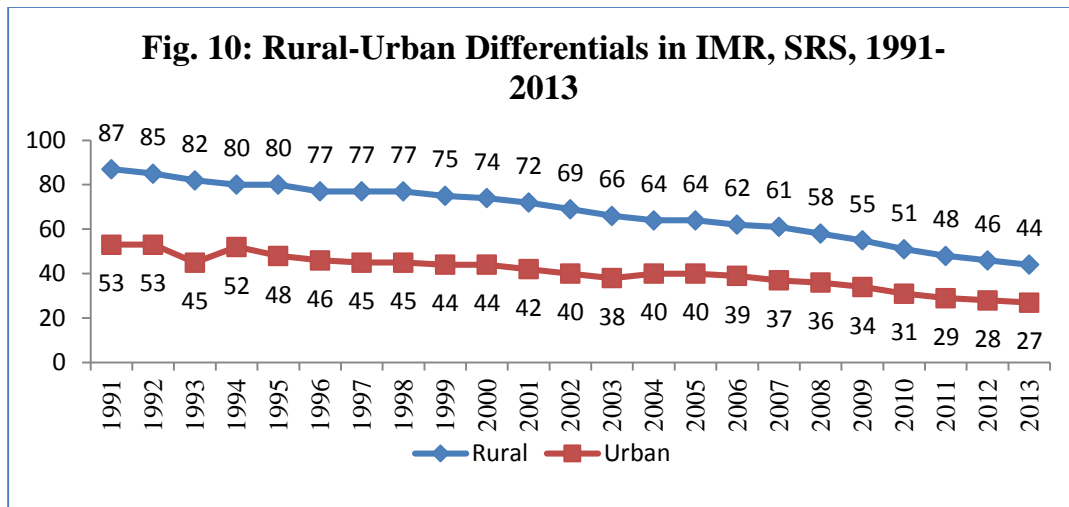
### 2.2.1 Rural-Urban Differentials in IMR as per SRS Data

There are visibly large differences between rural and urban mortality rates. In 1991 the rural mortality rate was 87 as compared to 53 of urban rates. However the rate of decline seen in rural mortality rates was greater than in urban mortality rates. In 1996 rural mortality rate declined to 77 while the urban mortality rate was 46 per 1000 live births. The rural infant mortality rate in 2013 is 44 while the urban mortality rate stands at 27. **The difference between rural and urban areas which was 34 deaths in 1991 has narrowed down to 17 deaths in 2013 (Table 6 and Fig. 10).**

**Table 6 : Rural-Urban Differentials in Infant Mortality Rate in India, SRS, 1991-2013**

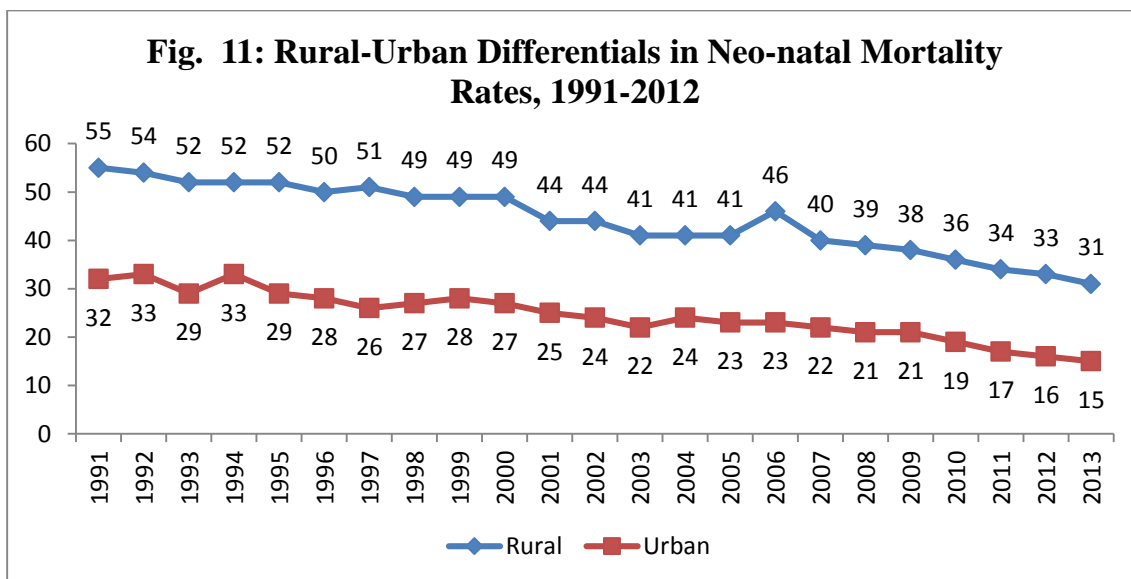
Year	Rural	Urban	Difference
1991	87	53	34
1992	85	53	32
1993	82	45	37
1994	80	52	28
1995	80	48	32
1996	77	46	31
1997	77	45	32
1998	77	45	32
1999	75	44	31
2000	74	44	30
2001	72	42	30
2002	69	40	29
2003	66	38	28
2004	64	40	24
2005	64	40	24
2006	62	39	23
2007	61	37	24
2008	58	36	22
2009	55	34	21
2010	51	31	20
2011	48	29	19
2012	46	28	18
2013	44	27	17





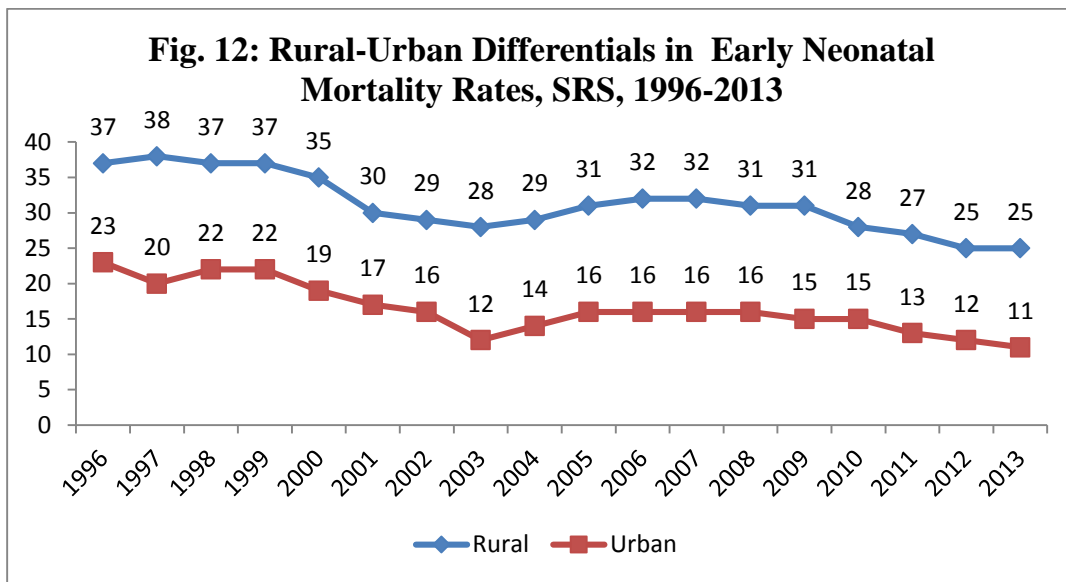
### 2.2.2 Rural-Urban Differentials in Neonatal Rates

**Fig. 11** given below presents the neonatal deaths from 1991 to 2013 based on SRS data. It is seen from the figure that **during the period 1991 to 2013 neonatal mortality declined by 53 per cent in urban areas as compared to 44 per cent in rural areas.** In 2013, the neonatal mortality rate was about double in rural areas compared to urban areas.



### 2.2.3 Rural-Urban Differentials in Early Neonatal Mortality Rates

**Fig. 12** presents early neonatal deaths from 1996 to 2013. Early neonatal death rate in 1996 was estimated 37 in rural areas and 23 in urban areas. In 2013 the same was estimated 25 in rural areas and 11 in urban areas which shows more decline (52%) in urban areas as compared to (32%) in rural areas.



### Rural –Urban Differentials in the Percentage of Neonatal Deaths and Early Neonatal Deaths to Infant Deaths

In the early nineties neonatal deaths constituted around 62-63 percentage of infant deaths both in rural and urban areas but gradually it decreased in urban areas whereas an upward trend was seen in rural areas. In the year 2013 the percentage share of neonatal deaths was 70 percent in comparison to 56 percent in the urban areas.

During 1996 to 2002 there was not much difference in percentage of early neonatal deaths to infant deaths in rural and urban areas and was almost same but during the 2003 to 2013 the percentage was higher in rural areas as compared to urban areas (**Table 7**).

**Table 7: Rural –Urban Differentials in the Percentage of Neonatal Deaths and Early Neonatal Deaths to Infant Deaths in India, SRS, 1991-2013**

Year	Percentage of Neonatal Deaths to Infant Deaths		Percentage of Early Neonatal Deaths to Infant Deaths	
	Rural	Urban	Rural	Urban
1991	63.9	61	-	-
1992	63.1	62.3	-	-
1993	63.7	63.9	-	-
1994	65.2	62.5	-	-
1995	65.5	60.6	-	-
1996	65	62	48.3	50.5
1997	65.6	58	49.3	44.9
1998	63.3	60.1	47.4	48.1
1999	65.4	63.1	48.9	49.4
2000	65.8	63	47.4	44.7
2001	61.4	58.8	41.2	39.8
2002	62.8	60	42	41.3
2003	61.9	57.1	40.9	31.4
2004	64.9	59.7	44	36.5
2005	63.7	58.2	47.6	39.6
2006	65.5	59.4	49	40.5
2007	66.8	58.3	51.6	42.4
2008	67	57.7	51.2	43.7
2009	69.1	61	54.2	45.7
2010	70.6	61.9	53.9	49.6
2011	70.9	58.2	54.1	45
2012	70.4	56	53.3	42.9
2013	69.9	56.4	55.5	41.6

#### 2.2.4 Rural –Urban Differentials in Perinatal Mortality Rates

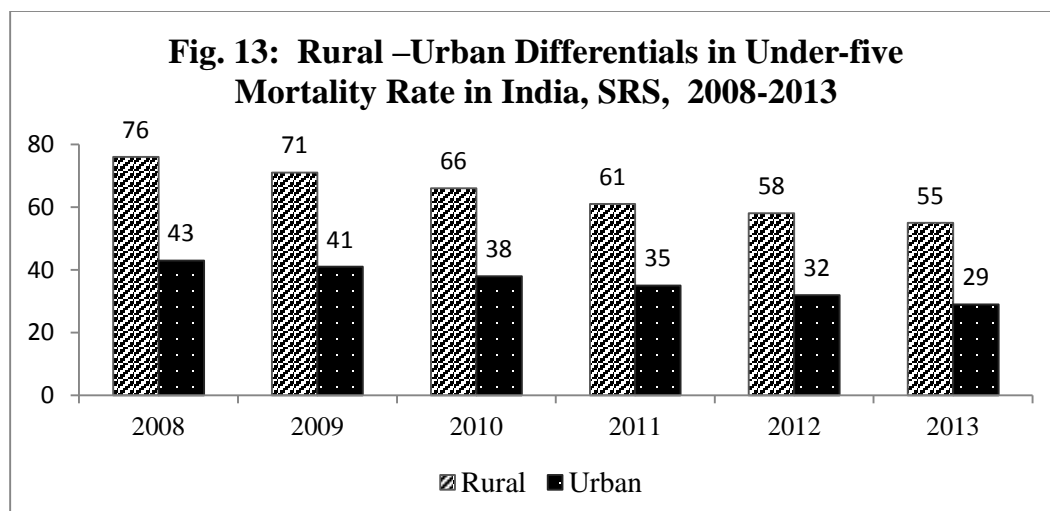
Perinatal mortality rates in rural and urban areas are presented in **Table 8**. In 1991 perinatal mortality rate was 49 in rural areas and 33 in urban areas, it decreased in 2013 to 28 and 16 in rural and urban areas respectively. From 1991 to 2013 in rural areas perinatal mortality rates decreased by 43 percent whereas in urban areas, it decreased by 52 percent.

**Table 8 : Rural –Urban Differentials in Perinatal Mortality Rate in India, SRS, 1991-2013**

	<b>Rural</b>	<b>Urban</b>
1991	49	33
1992	50	34
1993	48	31
1994	43	39
1995	48	31
1996	46	32
1997	46	29
1998	45	29
1999	47	30
2000	44	26
2001	39	25
2002	38	23
2003	36	20
2004	39	23
2005	40	24
2006	41	24
2007	41	24
2008	39	22
2009	39	23
2010	35	22
2011	33	19
2012	31	17
2013	28	16

### **2.2.5 Rural –Urban Differentials in Under-five Mortality Rate**

Rural –urban differentials in under-five mortality are given in **Fig. 13**. For rural areas the under-five mortality rate was estimated in 2008 as 76 and urban areas as 43. In 2013, it was estimated to be 55 for rural areas and 29 for urban areas. **Though the gap between rural and urban residence is decreasing, the under-five mortality rate is much higher in rural areas as compared to urban areas.**



### 2.2.5 Rural- Urban Differentials in Childhood Mortality as per NFHS Data

On the basis of NFHS-3 data infant and child mortality rates are considerably higher in rural areas than in urban areas in 2001-2005, the infant mortality rate was 50 per cent higher in rural areas (62) than in urban areas (42). Infant mortality rates have declined slightly faster in rural areas than in urban areas. Between 1988-1992 (NFHS-1) and 2001-2005 (NFHS-3) infant mortality rate declined by 27 per cent in rural areas, compared with 26 per cent in urban areas. However, during the same period decline in child mortality (1-4 years) was higher in urban areas (46%) as compared to rural areas (44%). The decline in neonatal mortality recorded slightly higher in rural areas (19.7%) compared to (16.4%) in urban areas, however, the post neonatal mortality and under-five mortality declined more in urban areas (Table 9).

**Table 9 : Rural –Urban Differentials in Childhood Mortality Rate in India, NFHS-1, NFHS-2 and NFHS-3**

Data Source	Neonatal Mortality	Post Neonatal mortality	Infant Mortality	Child Mortality	Under-5 Mortality
<b>Urban</b>					
NFHS-3	28.5	13	41.5	10.6	51.7
NFHS-2	31.7	15.4	47	16.9	63.1
NFHS-1	34.1	22	56.1	19.6	74.6
<b>Rural</b>					
NFHS-3	42.5	19.7	62.2	21	82
NFHS-2	46.7	26.6	73.3	32.8	103.7
NFHS-1	52.9	32.2	85	37.6	119.4

## 2.3 Sex Differentials

Sex differentials in survival result from a complex interplay of biological and behavioral factors that impact mortality at different stages in of life. In India females have lower mortality than males, however, in the age group below 5 years female disadvantage in mortality has been found.

### 2.3.1 Sex Differentials in IMR

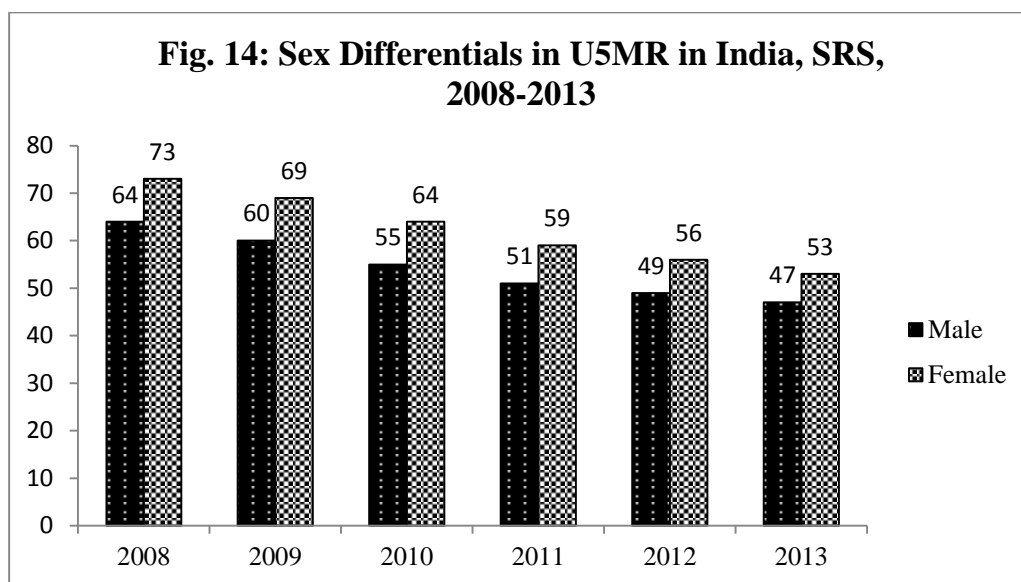
The infant mortality rates from 1991 to 2013 are presented in **Fig. 14**. In the year 1991, the IMR was marginally higher for male as compared to female but after that the IMR for female was higher than male in subsequent years. In the year 2013, the IMR was 39 for male and 42 for female.

**Table 10: Sex Differentials in Infant Mortality Rate in India, SRS, 1991-2013**

Year	Male	Female
1991	81	80
1992	79	80
1993	73	75
1994	75	73
1995	73	76
1996	71	73
1997	70	73
1998	70	73
1999	70	71
2000	67	69
2001	64	68
2002	62	65
2003	57	64
2004	58	58
2005	56	61
2006	56	59
2007	55	56
2008	52	55
2009	49	52
2010	46	49
2011	43	46
2012	41	44
2013	39	42

### 2.3.2 Sex Differentials in Under-Five Mortality Rates

The under-five mortality rates for males and females are given in **Fig. 14**. In 2008 under-five mortality rate was estimated at 64 for males and 73 for females which declined to 47 for males and 53 for females in 2013.



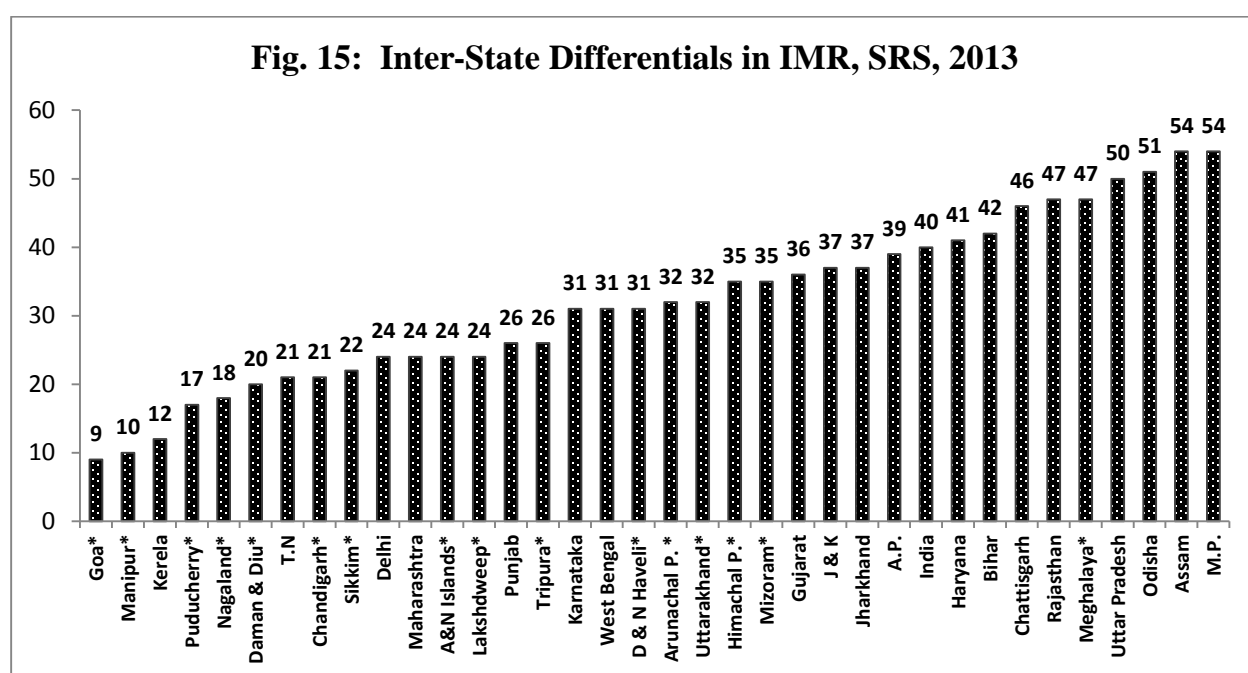
## 2.4 Inter- State Differentials

In India infant and child mortality varies considerably from state to state. States such as Assam, Bihar, Chhattisgarh, Madhya Pradesh, Orissa, Rajasthan, Uttar Pradesh, and Meghalaya have higher infant and Under-five mortality than the rest of India. Efforts have been made during the past two decades to reduce child mortality. Despite socio-economic development and implementation of child survival interventions, high mortality rates are prevailing.

### 2.4.1 Inter- State Differentials in IMR

There are large variations in the levels of IMR among states. State-wise Infant Mortality Rates in the year 2013 are given in **Fig. 15**. Among the states, Kerala, Tamil Nadu, Delhi, Punjab, Maharashtra, Goa, Manipur, Nagaland, Sikkim and Tripura, in 2013 the IMR have been estimated below the Millennium Development Goal (27) set for the year 2015. Also, Karnataka (31), West Bengal (31), Arunachal Pradesh and Uttarakhand (32) are likely to

achieve the reduction of IMR to the level of MDG by the year 2015. In the States of Assam (54), Madhya Pradesh (54), Odisha (51), Uttar Pradesh (50), Rajasthan (47), Chhattisgarh (46), Bihar (42), Meghalaya (47) and Haryana (41) the IMR was recorded more than the national level (40) in the year 2013 which is far away from the target. In Andhra Pradesh, Jammu & Kashmir, Jharkhand, Gujarat, Himachal Pradesh and Mizoram the infant mortality rates were recorded between 35 and 40 and may not achieve the target by 2015. In all the Union Territories IMR has been recorded below 27 except Dadra & Nagar Haveli (31) which is likely to achieve the target by 2015.



\* IMR based on last three years period

**Table 11** presents the inter-state trend in IMR in India since 1991. There has been a significant decline in infant mortality rate among all States. **In 1991, the highest IMR (124) was estimated for Odisha which decreased to 51 in 2013. In Madhya Pradesh it declined from 117 in 1991 to 54 in 2013.** Other States also have witnessed the decrease in infant mortality rate since 1991. In 2013, the highest IMR were estimated for Madhya Pradesh and Assam (54) followed by Odisha (51), Uttar Pradesh (50), Rajasthan and Meghalaya (47), Chhattisgarh (46) and Bihar (42) and Haryana (41). Lowest IMR was in Goa (9) followed by Manipur (10) and Kerala (12).



**Table 11: Inter-State Differentials in IMR in India, SRS, 1991 – 2013**

S. No.	India & States	1991	1993	1995	1997	1999	2000	2001	2003	2005	2007	2009	2011	2013
	<b>India</b>	<b>80</b>	<b>74</b>	<b>74</b>	<b>71</b>	<b>70</b>	<b>68</b>	<b>66</b>	<b>60</b>	<b>58</b>	<b>55</b>	<b>50</b>	<b>44</b>	<b>40</b>
1	A.P.	73	64	67	63	66	65	66	59	57	54	49	43	39
2	Assam	81	81	77	76	76	75	74	67	68	66	61	55	54
3	Bihar	69	70	73	71	63	62	62	60	61	58	52	44	42
4	Chhattisgarh	-	-	-	-	78*	79*	77*	70*	63	59	54	48	46
5	Delhi	48*	37*	39*	35*	31*	32*	29	28*	35	36	33	28	24
6	Gujarat	69	58	62	62	63	62	60	57	54	52	48	41	36
7	Haryana	68	66	69	68	68	67	66	59	60	55	51	44	41
8	J & K	NA	NA	NA	NA	NA	50*	48*	44*	50	51	45	41	37
9	Jharkhand	-	-	-	-	71*	70*	62*	51*	50	48	44	39	37
10	Karnataka	77	67	62	53	58	57	58	52	50	47	41	35	31
11	Kerala	16	13	15	12	14	14	11	11	14	13	12	12	12
12	M.P.	117	106	99	94	90	87	86	82	76	72	67	59	54
13	Maharashtra	60	50	55	47	48	48	45	42	36	34	31	25	24
14	Odisha	124	110	103	96	97	95	91	83	75	71	65	57	51
15	Punjab	53	55	53	51	53	52	52	49	44	43	38	30	26
16	Rajasthan	79	82	86	85	81	79	80	75	68	65	59	52	47
17	T.N	57	57	54	53	52	51	49	43	37	35	28	22	21
18	Uttar Pradesh	97	93	86	85	84	83	83	76	73	69	63	57	50
19	West Bengal	71	58	58	55	52	51	51	46	38	37	33	32	31
20	Arunachal P. *	80	58	61	47	43	44	39	34	37	37	32	32	32
21	Goa*	23	20	13	19	21	23	19	16	16	13	11	11	9
22	Himachal P.*	73	68	61	63	62	60	54	49	49	47	45	38	35
23	Manipur*	29	22	27	30	25	23	20	16	13	12	16	11	10
24	Meghalaya*	57	53	45	54	56	58	56	57	49	56	59	52	47
25	Mizoram*	-	-	-	19	19	21	19	16	20	23	36	34	35
26	Nagaland*	18	7	6	NA	NA	NA	NA	NA	18	21	26	21	18
27	Sikkim*	56	45	47	51	49	49	42	33	30	34	34	26	22
28	Tripura*	52	49	45	51	42	41	39	32	31	39	31	29	26
29	Uttarakhand*	-	-	-	-	52	50	48	41	42	48	41	36	32
30	A&N Islands*	36	35	32	33	25	23	18	18	27	34	27	23	24
31	Chandigarh*	27	22	44	40	28	28	24	19	19	27	25	20	21
32	D & N Haveli*	NA	75	78	63	56	58	58	54	42	34	37	35	31
33	Daman & Diu*	56	50	36	38	35	48	40	39	28	27	24	22	20
34	Lakshadweep*	38	30	36	36	32	27	33	26	22	24	25	24	24
35	Puducherry*	30	24	25	22	22	23	22	24	28	25	22	19	17

Note : \* IMR based on last three years period

**Table 12: Inter-State Differentials in Percentage decline in IMR between 1991 and 2013**

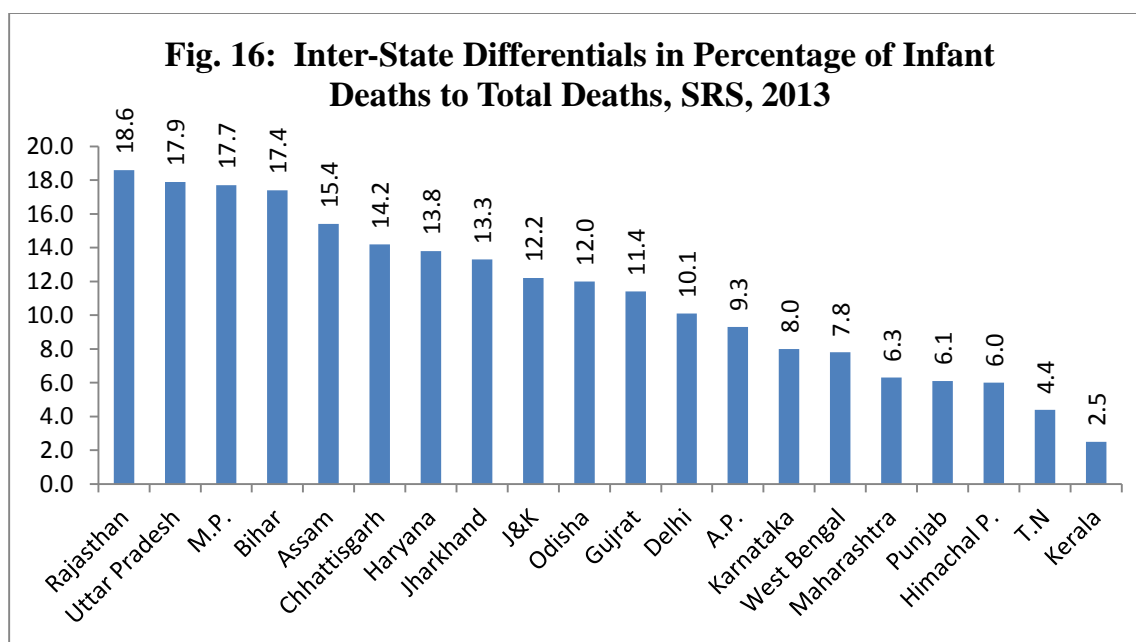
Sl. No.	India & States	1991 and 1996	1996 and 2001	2001 and 2006	2006 and 2011	2008 and 2013	1991 and 2013
	<b>India</b>	<b>10.0</b>	<b>8.3</b>	<b>13.6</b>	<b>22.8</b>	<b>24.5</b>	<b>50.0</b>
1	A.P.	11.0	-1.5	15.2	23.2	25.0	46.6
2	Assam	8.6	0.0	9.5	17.9	15.6	33.3
3	Bihar	-2.9	12.7	3.2	26.7	25.0	39.1
4	Chhattisgarh	-	-	-	21.3	19.3	-
5	Delhi	8.3	34.1	-27.6	24.3	31.4	50.0
6	Gujarat	11.6	1.6	11.7	22.6	28.0	47.8
7	Haryana	0.0	2.9	13.6	22.8	24.1	39.7
8	Jammu and Kashmir	-	-	-	21.2	24.5	-
9	Jharkhand	-	-	-	20.4	19.6	-
10	Karnataka	31.2	-9.4	17.2	27.1	31.1	59.7
11	Kerala	12.5	21.4	-36.4	20.0	0.0	25.0
12	M.P.	17.1	11.3	14.0	20.3	22.9	53.8
13	Maharashtra	20.0	6.3	22.2	28.6	27.3	60.0
14	Odisha	22.6	5.2	19.8	21.9	26.1	58.9
15	Punjab	3.8	-2.0	15.4	31.8	36.6	50.9
16	Rajasthan	-7.6	5.9	16.3	22.4	25.4	40.5
17	T.N	7.0	7.5	24.5	40.5	32.3	63.2
18	Uttar Pradesh	12.4	2.4	14.5	19.7	25.4	48.5
19	West Bengal	22.5	7.3	25.5	15.8	11.4	56.3
20	Arunachal Pradesh*	32.5	27.8	-2.6	20.0	0.0	60.0
21	Goa*	34.8	-26.7	21.1	26.7	10.0	60.9
22	Himachal Pradesh*	15.1	12.9	7.4	24.0	20.5	52.1
23	Manipur*	3.4	28.6	45.0	0.0	28.6	65.5
24	Meghalaya*	15.8	-16.7	5.4	1.9	19.0	17.5
25	Mizoram*	-	24.0	-31.6	-36.0	5.4	-
26	Nagaland*	61.1	-	-	-5.0	30.8	0.0
27	Sikkim*	16.1	10.6	21.4	21.2	33.3	60.7
28	Tripura*	5.8	20.4	7.7	19.4	23.5	50.0
29	Uttarakhand*	-	-	10.4	16.3	27.3	-
30	A&N Islands*	25.0	33.3	-72.2	25.8	22.6	33.3
31	Chandigarh*	-66.7	46.7	4.2	13.0	25.0	22.2
32	D & N Haveli*	-	18.3	39.7	0.0	8.8	-
33	Daman & Diu*	23.2	7.0	30.0	21.4	35.5	64.3
34	Lakshadweep*	5.3	8.3	24.2	4.0	22.6	36.8
35	Puducherry*	16.7	12.0	-27.3	32.1	32.0	43.3

Note: \* IMR based on last three years period

The percentage decline in the IMR between 1991 and 2013 is given in **Table 12**. During this period, IMR, at the national level, declined by 50 per cent. Among the bigger States, decline varies from 63.2 per cent in Tamil Nadu to 25 per cent in Kerala and 33.3 per cent in Assam. During the period 1991-1996 and 1996-2001 the IMR declined slowly at the national level. During the period 2006-2011, 22.8 per cent decline in IMR was recorded at the national level. Among the bigger States Punjab (36.6%), Tamil Nadu (32.3%), Delhi (31.4%), Karnataka (31.1%) recorded more than thirty percent decline in IMR during 2008-13 but during the same period the decline was slower (less than 20 %) in Kerala (0.0%), West Bengal (11.4%), Assam (15.6%), Chhattisgarh (19.3%) and Jharkhand (19.6%).

### Inter-State Differentials in Percentage of Infant Deaths to Total Deaths

If we compare the percentage of infant deaths to total deaths among the bigger States, in Rajasthan 18.6 per cent of the total deaths were infant deaths, whereas, in Kerala it was only 2.5 per cent in the year 2013. In Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh also, the share of infant deaths to total deaths was around 18 per cent whereas in Andhra Pradesh, Karnataka, Himachal Pradesh, Maharashtra, Punjab, Tamil Nadu and West Bengal it was less than 10 per cent (**Fig. 16**).



## Inter-State Differentials in Neonatal Mortality Rates and Early Neonatal Mortality Rates

**Table 13** presents the inter-state differentials in neonatal (less than 29 days) mortality rates based on SRS data from 1991-2013. Among the bigger States, neonatal mortality ranges from 37 in Odisha to 6 in Kerala in 2013. From 1991 to 2013, Tamil Nadu recorded a maximum (65 %) decrease in neonatal mortality rate followed by Karnataka (58 %) and Maharashtra (55 %) whereas during the same period decrease in neonatal mortality was recorded only 32 per cent in Bihar and 33 percent in Rajasthan.

**Table 13: Inter-State Differentials in Neonatal Mortality Rates in India, SRS, 1991-2013**

State	1991	1993	1995	1997	1999	2001	2003	2005	2007	2009	2011	2013
A.P.	51	44	53	48	46	45	36	35	33	33	28	25
Assam	53	27	47	50	53	47	36	33	34	33	30	27
Bihar	41	44	44	44	41	42	34	32	31	31	29	28
Chhattisgarh	-	-	-	-	-	-	-	45	41	38	34	31
Delhi	-	-	-	-	-	-	-	20	20	18	18	16
Gujarat	45	40	45	43	43	42	35	36	37	34	30	26
Haryana	40	35	42	40	39	38	31	35	34	35	28	26
Himachal Pradesh	41	37	46	41	50	31	31	33	31	36	28	25
J&K	-	-	-	-	-	-	-	36	39	37	32	29
Jharkhand	-	-	-	-	-	-	-	28	28	28	29	26
Karnataka	53	51	44	38	43	40	31	28	26	25	24	22
Kerala	11	10	11	8	11	10	7	11	7	7	7	6
M.P.	68	65	65	64	61	59	50	51	49	47	41	36
Maharashtra	38	35	40	32	29	33	26	25	25	24	18	17
Odisha	75	78	62	63	61	61	47	53	49	43	40	37
Punjab	34	32	28	29	34	29	32	30	29	27	24	16
Rajasthan	48	52	56	55	50	49	43	43	44	41	37	32
T.N	43	46	40	38	36	36	30	26	23	18	15	15
Uttar Pradesh	64	57	52	51	52	53	48	45	48	45	40	35
West Bengal	44	38	39	37	31	31	30	30	28	25	22	21

**Table 14** presents the inter-state differentials in early neonatal mortality rate in bigger states for the years 1996 to 2013. For year 2013, among the bigger states early neonatal mortality

rate was highest 28 in Odisha followed by Madhya Pradesh and Uttar Pradesh (27) and Rajasthan (26). Minimum has been estimated for the State of Kerala at 4 followed by Tamil Nadu, Punjab and Delhi (11). From the year 1996 to 2013 highest (65.6 %) decrease in early neonatal mortality rate was recorded in Tamil Nadu, followed by Punjab (57.7 %) and Kerala (50 %). During the same period the decline was recorded only 27 per cent in Uttar Pradesh, 30 % in Bihar and 33 % in Gujarat.

**Table 14: Inter-State Differentials in Early Neonatal Mortality Rate in India, SRS, 1996-2013**

State	1996	1998	2000	2002	2004	2006	2008	2009	2010	2012	2013
A.P.	38	37	35	29	23	26	26	27	24	22	21
Assam	36	38	31	34	24	26	27	29	27	23	21
Bihar	33	33	31	25	23	28	27	26	27	23	23
Chhattisgarh	-	-	-	-	37	36	36	33	26	25	24
Delhi	-	-	-	-	16	18	15	16	16	11	11
Gujarat	30	34	33	35	24	27	30	26	24	21	20
Haryana	31	28	24	21	17	22	24	23	25	21	19
Himachal Pradesh	32	38	26	35	21	20	27	31	25	20	17
J&K	-	-	-	-	23	30	33	32	30	24	24
Jharkhand	-	-	-	-	19	22	25	24	26	23	22
Karnataka	33	34	31	26	21	20	20	19	22	20	18
Kerala	8	9	6	5	8	8	5	5	5	4	4
M.P.	47	45	44	34	33	40	38	37	34	29	27
Maharashtra	25	24	23	20	19	21	19	20	17	14	13
Odisha	44	45	45	37	36	38	34	35	33	29	28
Punjab	26	26	18	25	20	17	20	16	19	13	11
Rajasthan	44	39	33	33	32	33	33	33	33	27	26
T.N	32	29	25	20	21	18	15	13	13	11	11
Uttar Pradesh	37	38	41	30	32	35	33	35	30	28	27
West Bengal	27	22	21	17	20	20	21	19	19	17	16

## Inter-State Differentials in Perinatal Mortality Rates

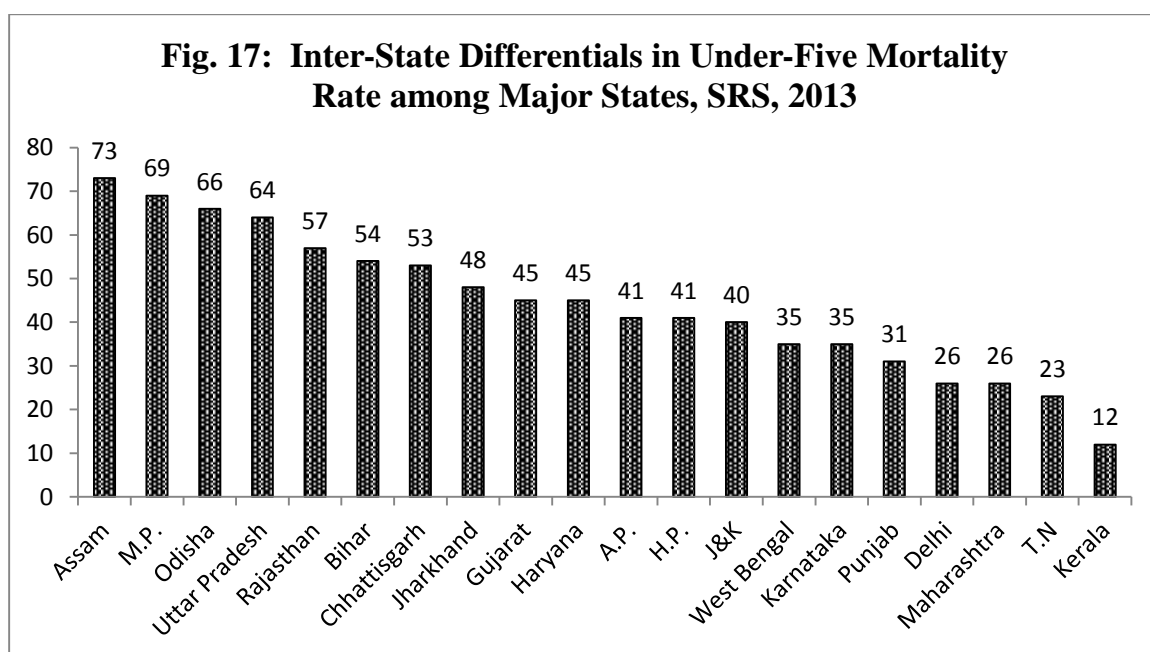
**Table 15** presents the perinatal mortality rates i.e. the number of still births taken together with infant deaths less than seven days per thousand live births and still births during the year in bigger States in India, as per SRS data from 1991-2013. Among the bigger States, perinatal mortality rate estimated for the year 2013 was highest in Odisha (35) followed by Chhattisgarh and Madhya Pradesh (33) the same was recorded lowest (9) in Kerala. From 1991 to 2013 highest (61 %) decrease recorded in Punjab followed by Tamil Nadu (59 %), Maharashtra (55 %), West Bengal and Andhra Pradesh (52 %).

**Table 15: Inter-State Differentials in Perinatal Mortality Rates in India, SRS, 1991-2013**

States	1991	1993	1995	1997	1999	2001	2003	2005	2007	2009	2011	2013
A.P.	56	45	52	49	53	40	29	37	37	37	30	27
Assam	49	38	49	45	52	44	33	34	36	37	34	28
Bihar	35	37	39	34	35	30	22	30	28	27	28	23
Chhattisgarh	-	-	-	-	-	-	-	53	52	45	36	33
Delhi	-	-	-	-	-	-	-	25	24	24	19	17
Gujarat	38	36	38	36	40	34	35	36	36	33	29	24
Haryana	38	38	42	42	41	40	28	30	29	32	32	28
Himachal Pradesh	41	33	40	32	52	34	34	38	35	40	33	28
J&K	-	-	-	-	-	-	-	36	37	38	34	29
Jharkhand	-	-	-	-	-	-	-	22	25	27	26	22
Karnataka	62	64	50	45	53	46	40	36	35	36	33	30
Kerala	18	17	16	18	16	13	11	17	12	13	10	9
M.P.	58	53	56	56	54	44	39	45	46	45	38	33
Maharashtra	40	35	41	35	37	30	28	31	32	28	21	18
Odisha	62	66	55	65	59	58	50	54	49	45	38	35
Punjab	46	35	29	32	45	41	28	32	32	24	25	18
Rajasthan	40	47	47	50	49	38	39	44	43	39	34	29
T.N	43	48	45	43	45	38	32	30	26	25	20	18
Uttar Pradesh	50	49	46	46	45	37	41	41	45	43	35	29
West Bengal	42	40	38	38	30	29	29	31	30	30	24	20

## Inter-State Differentials in Under-Five Mortality Rate

The under-five mortality rate as per SRS was estimated at 49 for India in 2013 and there were considerable inter-state variations. As presented in **Fig. 17**, among the bigger States, Assam (73) have the highest U5MR and lowest in Kerala (12). Assam (73), Madhya Pradesh (69), Odisha (66), Uttar Pradesh (64), Rajasthan (57), Bihar (54) and Chhattisgarh (53) have U5MR higher than the national average (49). The States of Kerala (12), Tamil Nadu (23), Maharashtra & Delhi (26), Punjab (31), Karnataka and West Bengal (35), Jammu & Kashmir (40), Andhra Pradesh and Himachal Pradesh (41) have already achieved the given national level MDG target to reduce U5MR to 42 per thousand live births by the year 2015. Gujarat and Haryana (45) are likely to achieve the national target by 2015.



State wise under-five mortality rates from 2008 to 2013 are presented in **Table 16**. During this period U5MR had declined by more than 35 per cent in Delhi, Karnataka, Maharashtra, Punjab and Tamil Nadu. In the State of Assam, where the U5MR is highest, there was a marginal reduction of 17 per cent. Himachal Pradesh (18%), Kerala (14%) and West Bengal (16.7 %) were

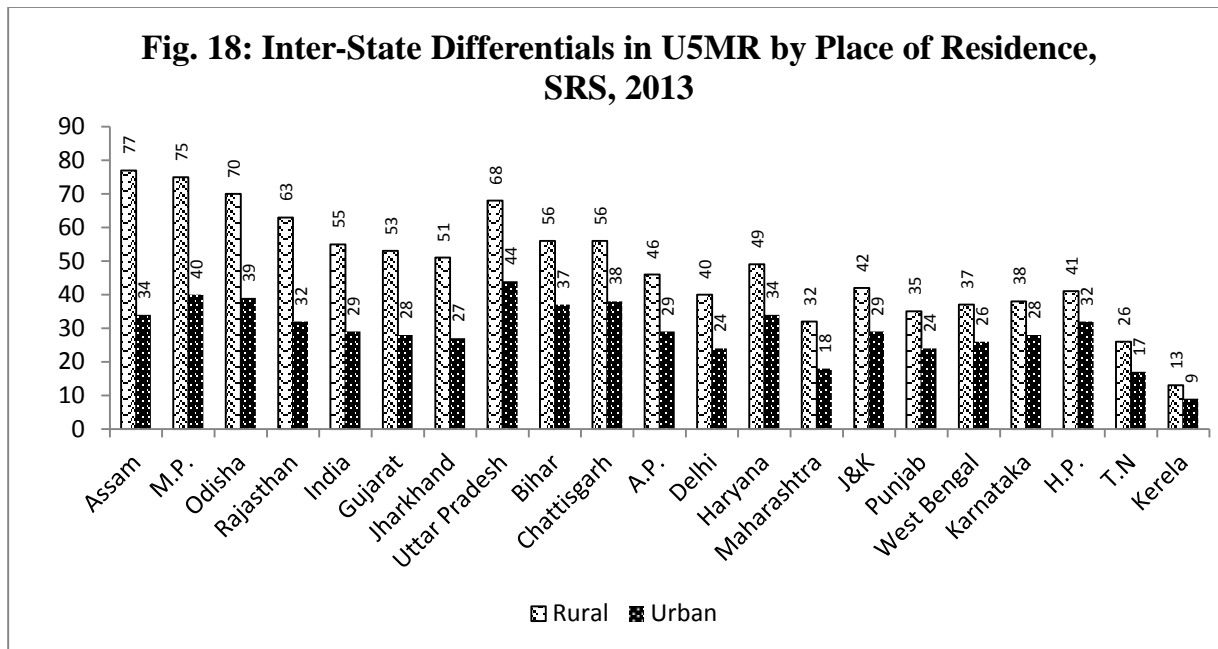
the other states where slower decline in under-five mortality has been recorded from the year 2008 to 2013.

**Table 16: Inter-State Differentials in Under-Five Mortality, SRS, 2008-2013**

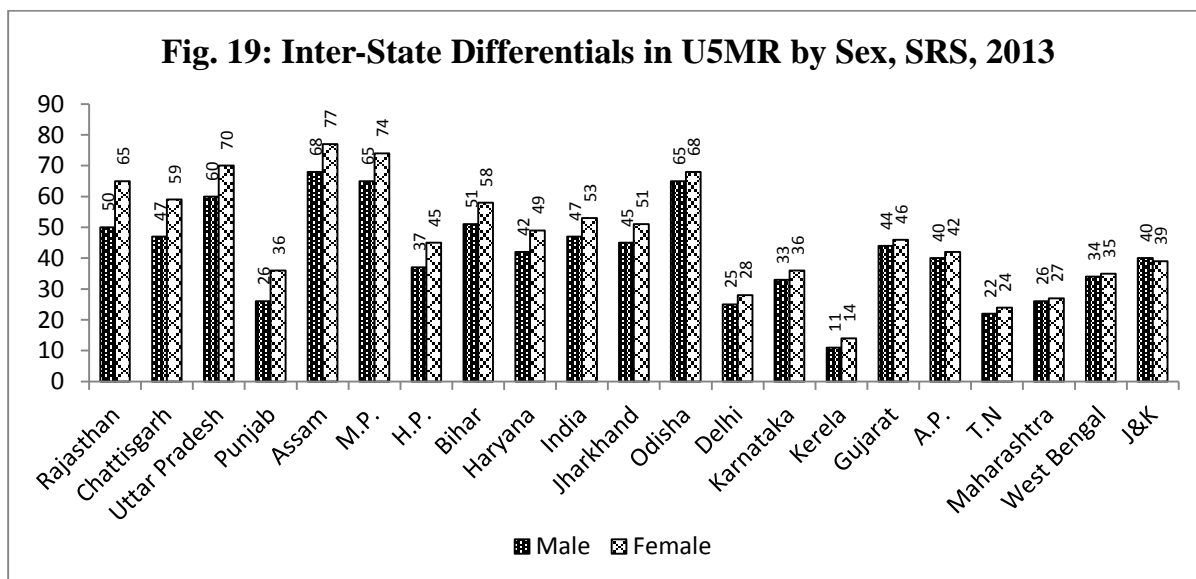
States	U5MR						% decline between 2008 and 2013
	2008	2009	2010	2011	2012	2013	
A.P.	58	52	48	45	43	41	29.3
Assam	88	87	83	78	75	73	17.0
Bihar	75	70	64	59	57	54	28.0
Chhattisgarh	71	67	61	57	55	53	25.4
Delhi	40	37	34	32	28	26	35.0
Gujarat	60	61	56	52	48	45	25.0
Haryana	65	60	55	51	48	45	30.8
H.P.	50	51	49	46	43	41	18.0
J&K	55	50	48	45	43	40	27.3
Jharkhand	65	62	59	54	50	48	26.2
Karnataka	55	50	45	40	37	35	36.4
Kerala	14	14	15	13	13	12	14.3
M.P.	92	89	82	77	73	69	25.0
Maharashtra	41	36	33	28	28	26	36.6
Odisha	89	84	78	72	68	66	25.8
Punjab	49	46	43	38	34	31	36.7
Rajasthan	80	74	69	64	59	57	28.8
T.N	36	33	27	25	24	23	36.1
Uttar Pradesh	91	85	79	73	68	64	29.7
West Bengal	42	40	37	38	38	35	16.7

The inter-State differentials among bigger states in U5MR by place of residence in 2013 are presented in **Fig.18**. U5MR is higher in rural areas than urban areas at national level and in all States. At national level, it is 55 in rural areas compared to 29 in urban areas. Among the bigger States, the gap was maximum 43 points in Assam and minimum 4 points in Kerala.





The inter-State differentials in U5MR by sex in 2013 are presented in **Fig.19**. Except Jammu & Kashmir, the U5MR for females is higher in all States compared to males. In 2013, at the national level U5MR was 53 for females and 47 for males. **The female-male gap in U5MR was highest in Rajasthan (15) followed by Chhattisgarh (12), Uttar Pradesh and Punjab (10).** In Maharashtra, Tamil Nadu, West Bengal, Jammu & Kashmir, Andhra Pradesh and Gujarat the female-male gap was only 1 to 2 points.



## **Infant and Under-five Mortality as per the Annual Health Survey (AHS)**

Though the infant and child mortality rates have been considerably declined over the time, but states such as Assam, Bihar, Chhattisgarh, Madhya Pradesh, Orissa, Rajasthan, Uttar Pradesh, Jharkhand and Uttarakhand have higher infant and Under-five mortality than the rest of India. These states constitute above 44% of the total population of India. The Ministry of Health and Family Welfare, India, established Empowered Action Group (EAG) in 2001 to have special focus by monitoring and facilitating the attainment of national health goals on some of these states which are demographically lagging behind.

The Annual Health Surveys (AHS) carried out in 8 EAG States and Assam to monitor the performance and outcome of various health interventions of the Government including those under National Rural Health Mission (NRHM). The AHS has been designed to yield benchmarks of core vital and health indicators at the district level; prevalence of disabilities; and access to maternal, child health and family planning services. AHS was conducted in 2010-11 with baseline survey and followed by two updation rounds in 2011-12 and 2012-13 in 8 Empowered Action Group (EAG) states and Assam. AHS provides data on infant and child mortality in 9 States.

**Table 17: Infant Mortality Rate, AHS**

<b>State</b>	<b>2010-11</b>	<b>2011-12</b>	<b>2012-13</b>
Uttarakhand	43	41	40
Assam	60	57	55
Jharkhand	41	38	36
Bihar	55	52	48
Chhattisgarh	53	50	46
Odisha	62	59	56
Rajasthan	60	57	55
Uttar Pradesh	71	70	68
Madhya Pradesh	67	65	62

**Table 17** shows that among the EAG States and Assam, the infant mortality rate was highest in Uttar Pradesh (68) and lowest in Jharkhand (36). **The percentage of decrease in IMR from 2010-11 to 2012-13 was lowest (4.2%) in Uttar Pradesh**, as per AHS, which indicates the low performance of NRHM in the state. Chhattisgarh, Bihar and Jharkhand have recorded a decrease of 13.2%, 12.7% and 12.2% respectively in IMR from 2010-11 to 2012-13 showing the better progress of NRHM in these three States. More attention is required in the States of Madhya Pradesh, Rajasthan, Odisha and Assam besides Uttar Pradesh for success of NRHM.

**Table 18** presents the Neonatal mortality rate in EAG states and Assam for the years 2010-11 to 2012-13. Like the IMR **highest neonatal mortality rate was recorded in Uttar Pradesh (49) and lowest in Jharkhand (23)**.

**Table 18: Neonatal Mortality Rate, AHS**

<b>States</b>	<b>2010-11</b>	<b>2011-12</b>	<b>2012-13</b>
Uttarakhand	30	29	28
Assam	39	38	37
Jharkhand	26	24	23
Bihar	35	34	32
Chhattisgarh	35	35	32
Odisha	40	39	37
Rajasthan	40	38	37
Uttar Pradesh	50	50	49
Madhya Pradesh	44	43	42

**Post neonatal mortality rates are highest in Madhya Pradesh (21)** as per AHS 2012-13. In 2010-11 the post neonatal mortality rate was 22 in Odisha and Madhya Pradesh and in 2012-13 it decreased by 3 points in Odisha but a marginal 1 point decrease recorded in Madhya Pradesh during this period (**Table 19**). More efforts are needed by the states of Assam, Bihar, Odisha, Rajasthan, Uttar Pradesh and Madhya Pradesh to make the NRHM successful.

**Table 19: Post Neonatal Mortality Rate, AHS**

States	2010-11	2011-12	2012-13
Uttarakhand	13	12	12
Assam	20	19	18
Jharkhand	15	13	13
Bihar	19	18	16
Chhattisgarh	17	16	14
Odisha	22	21	19
Rajasthan	20	19	18
Uttar Pradesh	21	20	19
Madhya Pradesh	22	21	21

Under-five mortality rate was much higher than the national level (SRS estimates for 2012) in EAG states and Assam except Uttarakhand and Jharkhand where this was around the national level. **Highest under-five mortality rate in 2012-13 was estimated in Uttar Pradesh (90) followed by Madhya Pradesh (83), Odisha (75), Rajasthan (74), Assam (71), Bihar (70) and Chhattisgarh (60).** The target set by the Government to reduce under-five mortality to 48 by 2012 is far away from the current level of U5MR in these states except the states of Uttarakhand (48) and Jharkhand (51) where it is closer to the target (**Table 20**).

**Table 20: Under Five Mortality Rate, AHS**

States	2010-11	2011-12	2012-13
Uttarakhand	53	50	48
Assam	78	75	71
Jharkhand	59	55	51
Bihar	77	73	70
Chhattisgarh	70	66	60
Odisha	82	79	75
Rajasthan	79	76	74
Uttar Pradesh	94	92	90
Madhya Pradesh	89	86	83

Rural –Urban differentials in infant mortality, neonatal mortality, post neonatal mortality and under-five mortality rates as per the Annual Health surveys are presented in **Table 21**. Infant mortality rates are higher in rural areas as compared to urban areas. Maximum difference (28) in rural and urban areas is seen in Assam, where the mortality rates in rural areas are nearly double of the urban areas, and minimum (8) is seen in Bihar.

**Table 21: Rural-Urban Differentials in IMR, AHS**

States	Rural			Urban		
	2010-11	2011-12	2012-13	2010-11	2011-12	2012-13
Uttarakhand	46	44	42	33	33	31
Assam	64	61	59	35	32	31
Jharkhand	45	42	40	26	24	22
Bihar	56	53	49	44	43	41
Chhattisgarh	55	53	48	40	37	34
Orissa	65	62	59	44	41	37
Rajasthan	64	61	59	43	40	38
Uttar Pradesh	74	73	72	54	53	51
Madhya Pradesh	72	70	68	50	49	47

Table 22 presents the rural-urban differentials in neonatal mortality rate. Data reveals that maximum difference between rural and urban areas was found in Assam(19) followed by Uttar Pradesh (17), Madhya Pradesh and Odisha (16), Rajasthan (14), Jharkhand (12), Uttarakhand (7) and minimum (6) in Bihar.

**Table 22: Rural-Urban Differentials in Neonatal Mortality Rate, AHS**

States	Rural			Urban		
	2010-11	2011-12	2012-13	2010-11	2011-12	2012-13
Uttarakhand	32	31	30	23	24	23
Assam	42	41	40	22	21	21
Jharkhand	29	27	26	17	15	14
Bihar	36	35	32	27	26	26
Chhattisgarh	37	36	34	29	27	25
Odisha	42	41	39	28	26	23
Rajasthan	43	41	40	30	28	26
Uttar Pradesh	53	52	52	36	37	35
Madhya Pradesh	49	47	46	32	31	30

The post neonatal mortality rates in rural and urban areas among EAG States and Assam is presented in Table 23. The difference between rural and urban areas was maximum (9) in Assam and no difference in Bihar.

**Table 23: Rural-Urban Differentials in Post Neonatal Mortality Rate, AHS**

State	Rural			Urban		
	2010-11	2011-12	2012-13	2010-11	2011-12	2012-13
Uttarakhand	14	14	13	10	9	8
Assam	22	20	19	12	11	10
Jharkhand	16	15	14	9	9	8
Bihar	19	18	16	17	16	16
Chhattisgarh	18	17	15	12	10	9
Odisha	23	21	20	16	15	14
Rajasthan	21	20	19	14	12	12
Uttar Pradesh	22	21	20	18	16	15
Madhya Pradesh	24	23	22	18	17	16

Rural –urban differentials in under-five mortality rate are presented in **Table 24**. It is seen that U5MR rates were much higher in rural areas as compared to urban areas among all EAG States and Assam. Maximum difference was estimated in Assam where U5MR was more than double (114%) in rural areas than in urban areas. Minimum (40%) difference was estimated in Uttarakhand.

**Table 24: Rural-Urban Differentials in U5MR, AHS**

States	Rural			Urban		
	2010-11	2011-12	2012-13	2010-11	2011-12	2012-13
Uttarakhand	58	54	52	39	39	37
Assam	84	81	77	42	39	36
Jharkhand	66	61	57	35	32	29
Bihar	80	76	72	57	54	51
Chhattisgarh	75	71	65	47	44	40
Odisha	87	83	80	54	52	48
Rajasthan	85	83	81	57	54	52
Uttar Pradesh	101	99	97	68	65	63
Madhya Pradesh	99	96	93	62	60	57

**Table 25** presents the sex differentials in infant mortality rate as per the Annual Health Surveys. The table shows that **the IMR for female children is higher than the male children**. From 2010-11 to 2012-13 decrease in IMR for both the sex has been witnessed. In Uttarakhand, Assam, Jharkhand, Bihar and Uttar Pradesh the difference in mortality rates between male and female is marginal (1 or 2 point) whereas, in Chhattisgarh, Odisha, Rajasthan and Madhya Pradesh the difference is considerable (5 to 9 points) in the year 2012-13.

**Table 25: Sex Differentials in Infant Mortality Rate, AHS**

States	Male			Female		
	2010-11	2011-12	2012-13	2010-11	2011-12	2012-13
Uttarakhand	42	41	39	44	42	40
Assam	58	56	55	62	58	56
Jharkhand	40	37	36	42	39	37
Bihar	53	50	47	56	53	49
Chhattisgarh	51	48	43	55	53	49
Odisha	59	56	53	66	63	59
Rajasthan	55	53	51	65	61	60
Uttar Pradesh	69	69	67	72	71	69
Madhya Pradesh	64	62	60	69	67	65

**Table 26: Sex Differentials in Under-Five Mortality Rate (U5MR), AHS**

States	Male			Female		
	2010-11	2011-12	2012-13	2010-11	2011-12	2012-13
Uttarakhand	53	50	47	54	51	49
Assam	76	74	71	80	76	72
Jharkhand	57	53	49	61	57	52
Bihar	74	70	67	81	77	73
Chhattisgarh	68	63	58	71	69	63
Odisha	80	76	73	84	81	78
Rajasthan	72	70	68	87	83	81
Uttar Pradesh	90	88	86	99	97	95
Madhya Pradesh	86	82	80	93	89	86

Under-five mortality rate also presents that the U5MR for female is higher in comparison to male (**Table 26**). The difference is more visible in Bihar, Chhattisgarh, Odisha, Uttar Pradesh and Madhya Pradesh. **It is also observed that in Uttar Pradesh and Bihar the difference between two sexes is wider for U5MR than IMR which indicates that the female children aged 1-4 years are more discriminated and neglected in these States.**



## CHAPTER 3

### Maternal Determinants of Infant and Child Mortality

The demographic characteristics of both mother and child have been found to play an important role in the survival probability of children. In this chapter maternal determinants like age at effective marriage, mother's age at child birth, birth order of the child, birth interval, and child's weight/size at birth and sex of the child based on three rounds of NFHS levels and trends of infant and child mortality and its components for India are discussed. The data from Coverage Evaluation Survey (CES), District Level Household Survey (DLHS) on the indicators has also been presented to examine the levels of the maternal determinants of infant and child mortality.

#### 3.1 Age at Effective Marriage

Age at effective marriage has an impact on child bearing because women who marry early have on an average a longer period of exposure to pregnancy and a greater number of lifetime births. As per legal provisions, a girl in India can't marry before the age of 18, and a boy before 21 but still a large number of girls particularly in rural areas marry before the age of 18 years.

The Sample Registration System collects information on the number of female who got effectively married during the reference period of six months of each half yearly survey. Based on the information on number of females, who got married during the year by age from 1993 to 2013 is presented in **Table 27**. The data revealed that **the percentage of effective marriage below the legal age of marriage i.e. 18 has declined from 20.3 percent in 1993 to 2.2 percent in 2013.**

**Table 27: Percentage of Female by Age at Effective Marriage, SRS, 1993-2013**

<b>Year</b>	<b>&lt;18</b>	<b>18-20</b>	<b>21+</b>
1993	20.3	53.8	25.9
1994	20.9	53.8	25.3
1995	21.6	53.5	24.9
1996	17.8	53.4	28.8
1997	17.4	52.6	30
1998	17.8	51.7	30.4
1999	15.7	52.7	31.6
2000	13.8	52.8	32.9
2001	12.7	51.7	35.7
2002	11.6	52.2	36.2
2003	10.4	51.6	38.1
2004	10.8	45.2	43.9
2005	12	49.7	38.3
2006	9.1	49	41.9
2007	7.6	49.7	42.7
2008	5.9	49.3	44.8
2009	6.5	48.3	45.2
2010	5	46.1	48.8
2011	3.7	44.2	52.2
2012	2.9	43.8	53.8
2013	2.2	41.6	56.3

### **3.2 Mother's Age at Childbirth**

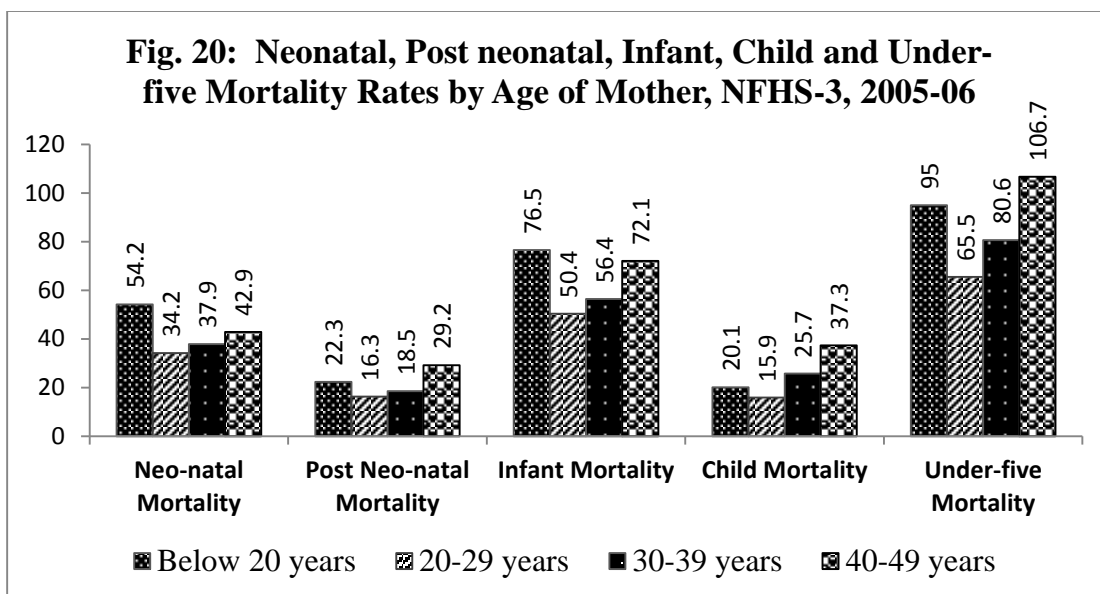
Age of the mother at the time of child birth has an important bearing on the survival of the child. Women who give birth or become pregnant before they attain full physical growth tend to be at greater risk of complications during pregnancy of child birth (Govindasamy, et al., 1993). Children born to adolescent mothers are at higher risk. Infant and under-five mortality rates are highest among mothers under 20 years of age, whereas children born to mothers aged 35 and above are likely to have the increased risk of mortality because of higher risk of pregnancy complications. Thus, a U-shaped relationship is observed between mother's age at childbirth and U-5 mortality.

**Table 28: Neonatal, Post neonatal, Infant, Child and Under-Five Mortality Rates by Mother's Age at Childbirth, NFHS**

Mortality rates	NFHS Rounds	Mother's age at childbirth (in years)			
		<20	20-29	30-39	40-49
Neonatal Mortality (NN)	<b>NFHS-1 (1992-1993)</b>	70.8	44.8	53.7	51
	<b>NFHS-2 (1998-1999)</b>	63.1	40.7	48.7	61.9
	<b>NFHS-3 (2005-2006)</b>	54.2	34.2	37.9	42.9
Post neonatal mortality (PNN)	<b>NFHS-1 (1992-1993)</b>	36.5	31	37.4	60.8
	<b>NFHS-2 (1998-1999)</b>	29.7	22.6	27.9	44.3
	<b>NFHS-3 (2005-2006)</b>	22.3	16.3	18.5	29.2
Infant Mortality	<b>NFHS-1 (1992-1993)</b>	107.3	75.8	91.1	111.8
	<b>NFHS-2 (1998-1999)</b>	92.7	63.3	76.7	106.2
	<b>NFHS-3 (2005-2006)</b>	76.5	50.4	56.4	72.1
Child Mortality	<b>NFHS-1 (1992-1993)</b>	37.6	34.6	34.3	57.5
	<b>NFHS-2 (1998-1999)</b>	31	28.7	37.4	57.2
	<b>NFHS-3 (2005-2006)</b>	20.1	15.9	25.7	37.3
Under-5 Mortality	<b>NFHS-1 (1992-1993)</b>	140.9	107.8	122.3	162.9
	<b>NFHS-2 (1998-1999)</b>	120.8	90.2	111.2	157.4
	<b>NFHS-3 (2005-2006)</b>	95	65.5	80.6	106.7

**Table 28** shows that **the neonatal mortality rates among the children whose mother's age was below 20 years at the birth of child was highest during all three rounds of NFHS.** The lowest mortality rates were among the children born to mothers between the age of 20-29, and increase again after that age. **Post neonatal mortality, infant mortality, child mortality (age group 1-4 years), and under-five mortality rates are also higher among the children whose mother's age was below 20 years or above 40 years.**

The effect of maternal age on mortality is highest during the neonatal period, and progressively diminishes during the post-neonatal and 1-4 year age-group. The effect of young age of a mother (<20 years) on neonatal mortality was 1.58 times higher for NFHS 1 and 3 and 1.55 times higher for NFHS-2 than the child born to mothers whose age between 20-30 years. Similarly the children born to mothers above 40 years of age have 1.13 - 1.52 times risk of death within first month of birth (NFHS-1, 2 & 3) in comparison to mothers with age 20-29 years. This observation suggests that young age at birth exerts an independent impact on mortality and not through the possible association with poor social, economic or environmental factors.



The under-five mortality in India for the five years preceding the survey NFHS-3, for mothers between 20-30 years of age was 66, whereas among the children with mother's age below 20 years and above 40 years were 95 and 107 respectively. Levels of neonatal, post neonatal and child mortality were lowest among children born to mothers between 20-29 years of age (**Fig. 20**).

### 3.2.1 Antenatal Care by Age of Mother

**Table 29** presents the TT injections received by the pregnant women and consumption of IFA tablets during pregnancy by women of different age groups. It is observed that among the women aged 35 years and above, only 56 per cent received two or more TT injections compared to women below 35 years of age. **Only 12 per cent women above 35 years and 20 per cent women below 20 years consumed the IFA tablets for 90 days** as recommended whereas 25 percent women of the age between 20-34 years consumed IFA tablets for 90 days.

**Table 29: Antenatal Care by Age of Mother, NFHS-3, 2005-06**

Mother's Age at Birth	Took IFA for 90 days or more	Received two or more TT injections
<20	19.5	79.7
20-34	24.6	76.9
35-49	12.4	56

**Table 30 : Antenatal Care, TT Injections and IFA Tablets by Age of Mother, CES, 2009**

AGE of mother (in years)	Received Antenatal Checkup				TT Injections			IFA tablets/syrup for 100+ days		Full ANC
	0	At Least one	3+	4+	0	1	2+	Received	Consumed	
15-19	8.2	91.4	72.7	55.7	5.2	4.4	90.5	37.2	25.1	21.6
20-24	8.3	91	71.8	56.5	5.6	6.4	88	40.6	30.7	26.1
25-34	9.7	89.2	67.3	51.5	6.7	7.1	86.2	42.4	33.3	28.7
35-44	22.9	75.7	45.1	30.7	14.4	7.5	78.2	25.1	17.8	14.7
45+	31.3	67.8	20.6	24.5	0.5	54.5	45	45.2	26.1	2.6

**Table 30** presents the antenatal care received by different age groups of mothers who delivered during 12 months preceding the Coverage Evaluation Survey, 2009. Maximum 29 percent mothers in the age group 25-34 and 26 per cent in the age group 20-24 received full ANC whereas the women in the high risk category age group 35-44 years and above 45 years only 15 percent and 3 percent respectively, received full ANC.

**Table 31** presents the percentage of mothers in the different age group provided ANC for the recent child birth during five years preceding the survey (NFHS-3) by ANC provider. The table reveals that no one provided antenatal check up to 45 percent mothers above 34 years of age. For 51 per cent mothers below the age of 35 years, ANC provider was Doctor whereas to the 27 percent mothers between 35 – 49 years of age, ANC was provided by a Doctor.

**Table 31: Antenatal Care (ANC) by Mother's Age at Birth, NFHS-3 2005-06**

Mother's age at birth	Doctor	ANM/nurse/midwife/LHV	Other health Personnel	Dai/TBA	Anganwadi/ICDS Worker	Other	No one
<20	51.4	25.1	1	1.1	1.7	0.1	19.5
20-34	51.5	22.5	1	1.1	1.6	0.1	22
35-49	27.4	22.7	1.3	1.8	1.5	0.2	45.1

### 3.2.2 Place of Delivery and Assistance at Delivery by Age of Mother

One of the reasons of high Neonatal mortality rate is high percentage of births delivered at a place other than a health facility. **Table 32** presents the percentage of live births delivered in a health facility according to the age of mother for five years preceding three rounds of NFHS surveys. Though the trend shows that the percentage of mothers delivered in a health facility increased in each succeeding survey, the percentage of mothers aged above 35 was much lower than the mothers below 35 years.

**Table 32: Percentage of Live Births Delivered in a Health Facility by Age of Mother, NFHS**

Mother's Age at Birth	NFHS-1 1992-93	NFHS-2 1998-99	NFHS-3 2005-06
<20	24	31.8	38
20-34	27	35	39.6
35-49	12.5	19.9	21.7

The percentage of institutional deliveries and the assistance provider in case of home delivery for different age groups of mother who delivered in 12 months preceding the CES surveys 2006 and 2009 is presented in **Table 33**. Over a period of three years between the two surveys a **significant increase in institutional deliveries has been seen which may be attributed to the efforts made by the government in this regard.**

**Table 33: Place of Delivery and Assistance at Delivery by Age of Mother, CES, 2006 & 2009**

Mother's Age (in Years)	CES, 2006				CES, 2009				
	Institutional Delivery	Home Delivery Assisted by			Institutional Delivery	Home Delivery Assisted by			Skilled Birth Attendant
		Skilled Workers	Dai	Others		Skilled Workers	Dai	Others	
15-19	51.3	5.3	31.5	10.7	78.7	1.8	15.3	4.2	80.5
19-24	57.4	5.6	25	9.6	75.8	3.3	15.5	5.4	79
25-34	51.4	5.8	30.6	10.9	70.6	3.6	17.9	7.6	74.2
35-44	32.5	5.7	41.4	19.8	60	2.9	27.3	9.7	62.9
45+					29.4	-	61.7	8.9	29.4

### 3.2.3 Early Initiation of Breastfeeding by Age of Mother

**Table 34** presents the early initiation of breastfeeding by mothers of different age group who delivered a live in last 12 months preceding the Coverage Evaluation surveys 2006 and 2009. It is revealed from the table that a large proportion of the mothers of all age groups fed colostrum to their child. However, lower proportion of mother below 20 years and above 34 years old, initiated breastfeeding within one hour and one day of birth, as compared to mothers between 20-34 years age group.

**Table 34: Early Initiation of Breastfeeding by Age of Mother, CES, 2006 & 2009**

Mother's age in Years	CES, 2006			CES, 2009		
	% who started breastfeeding		Percent of mothers who fed colostrum	% who started breastfeeding		Percent of mothers who fed colostrum
	within one hour of birth	within one day of birth		within one hour of birth	within one day of birth	
15-19	29.5	74	79.1	26.6	66	80
20-24	31.6	79.6	82.3	34.8	73.7	85.2
25-34	28.7	77.3	80.9	34.8	75.3	86.6
35-44	16.2	61.7	75.6	23.2	65.9	80
45+				16.1	32.9	96.8

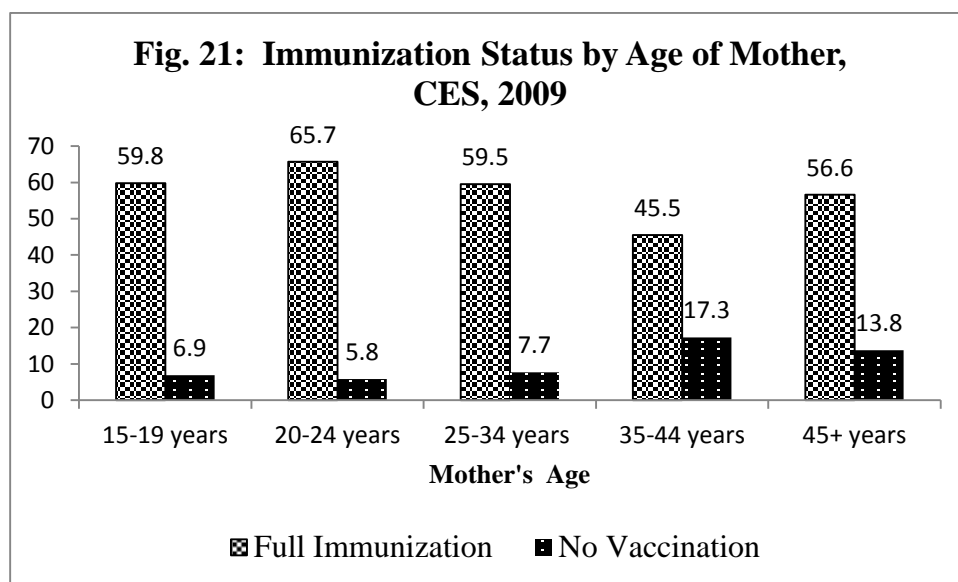
### 3.2.4 Immunization Status by Age of Mother

Immunization of the child plays an important role in reducing the child mortality and morbidity. Percentage of children age 12-23 years who received all basic vaccination and those who did not receive any vaccination during any time before the survey according to either vaccination card or mother's report, by age of the mother is presented in **Table 35**. The data revealed **not much improvement in vaccination of children over a period of three years between the two surveys** of CES 2006 and 2009. Comparatively lower proportion of children born to mothers of 35 years and above received vaccination than the mothers below the age of 35 years.

**Table 35: Immunization Status by Age of Mother, CES, 2006 and 2009**

Mother's Age	CES, 2006		CES, 2009	
	Full Immunization	No Vaccination	Full Immunization	No Vaccination
15-19	62.2	7.8	59.8	6.9
20-24	66	8.1	65.7	5.8
25-34	62	10.2	59.5	7.7
35-44	42	22.9	45.5	17.3
45+			56.6	13.8

**Fig.21** shows the percentage of children fully immunized and completely not immunized based on CES, 2009. It is also observed that a large proportion of the children did not receive all basic vaccines or all doses.



### 3.2.5 Vitamin A Status by Age of Mother

Vitamin A has been considered essential for decreasing the morbidity and mortality during childhood. As per the schedule, the first dose of Vitamin A is to be at the age of nine months subsequent doses are to be given after every six months.



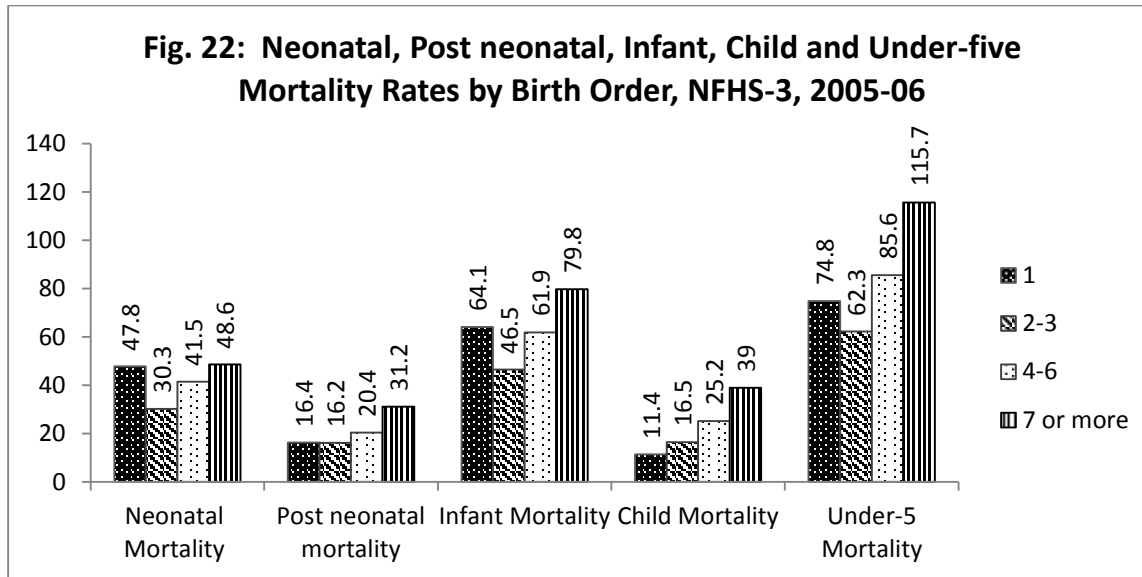
**Table 36: Vitamin A Status by Age of Mother, CES, 2006 & 2009**

Mother's age (in Years)	CES, 2006			CES, 2009		
	Received First dose of Vitamin A	Received at least one dose of vitamin A	Received one dose during past six months	Received First dose of Vitamin A	Received at least one dose of vitamin A	Received one dose during past six months
15-19	-	62	44.8	67.1	67.7	63.2
19-24	-	60	38.1	68.8	69.9	64
25-34	-	57.2	35.9	62.3	64	57.6
35-44	-	48.8	32.8	47.6	48.9	44.3
45+	-			58.1	60.1	55.1

The percentage of children 1- 2 year who received first dose, received at least one dose and received one dose during the last six months preceding the CES 2006 & 2009 by age of mother is presented in **Table 36**. It is seen from the table that between the two consecutive surveys an increase in proportion of children who received vitamin A, but larger number of children born to mothers aged 35 years and above did not received any dose of vitamin A than the children of the mothers below 35 years of age.

### **3.3 Birth Order**

The effect of birth order affects one's risk of survival mostly during infancy. Analyzing mortality by birth order reveals that the neonatal and under-five mortality was higher among the first order births. Reasons behind it may be first born children are born to young mother who is biologically unprepared to bear and bring up a child. First order births are born to mothers with limited knowledge and experiences. Children of high birth orders (7 and above) have highest risk of dying in the first five years of age. It may be attributed to mothers who are physically more worn out and older, affected by competition from older siblings in terms of food and other family resources, cared by someone other than the mother, considered superfluous, families of lower education and income.



**Fig 22** presents the early childhood mortality rates for the five year period preceding the NFHS-3 by order of birth. If we analyze the components of under-five mortality rates by order of birth, there has been a U-shaped relationship with birth order. The first order children have 57 percent higher risk of dying in the first month of life as compared to birth order 2 and 3. There is no increased risk of dying for first order birth beyond the neonatal period. In fact, child mortality is lowest among first order births and increased with the order births. Fourth to sixth order children have 37 percent higher risk of dying in the neonatal period, 26 percent in the post neonatal period and 53 percent during 1-4 year age as compared to birth order 2 and 3. In case of under-five mortality, second and third order births have the lowest risk of dying before age of five. The risk of dying before age of five for seventh and higher order births may not be considered reliable due to small number of births in the sample. The neonatal mortality rate among fourth to sixth order children was 41.5 and seventh and above order children was 48.6.

**Table 37: Percentage Distribution of Current Live Births by Birth Order, SRS, 1991-2013**

Year	Order of birth			
	1st	2nd	3rd	4th &+
1991	31.4	25.9	18.5	24.2
1992	31.8	26.1	18.2	23.9
1993	31.9	26.4	18.1	23.5
1994	30.7	25.7	18.3	25.3
1995	30.6	25.7	18.3	25.4
1996	30.7	25.9	18.2	25.2
1997	30.8	26.5	18.0	24.7
1998	31.6	26.8	17.7	23.9
1999	31.6	27.4	17.8	23.3
2000	33.4	27.0	17.5	22.2
2001	33.3	27.5	17.2	22.0
2002	33.7	27.9	16.9	21.5
2003	35.1	28.1	16.5	20.3
2004	35.5	27.9	16.3	20.2
2005	35.0	28.9	16.4	19.7
2006	36.7	28.8	15.8	18.7
2007	37.0	29.8	15.9	17.3
2008	38.4	29.7	15.2	16.7
2009	39.1	30.6	15.0	15.3
2010	41.5	30.5	14.3	13.7
2011	41.0	31.4	14.6	13.0
2012	43.2	31.4	13.8	11.6
2013	43.6	32.4	13.5	10.5

The percentage distribution of current live births by order of birth is presented in the **Table 37. Over the period of time, the higher order births are decreasing.** In 1991, 24.2 per cent of births were in 4<sup>th</sup> or higher order which declined to 10.5 percent in 2013. Third and higher order births were 42.7 per cent in 1991 which decreased to 24 per cent in 2013 which highlights that more efforts to promote family planning are required.

Percentage distribution of births during three years preceding the District Level Household Survey (DLHS-3), 2007-08 is presented in **Table 38.** It is seen from the table that in 70 per cent of the total births, during the period, mother's age was between 20-30 years. About 8 per cent of

the births were given by the mothers aged 35 years and above and more than two-third of them were fourth and higher order creating double risk of survival to the child.

**Table 38: Percentage Distribution of Births among Ever Married Women 15-49 Years, DLHS-3, 2007-08**

Age Group of the mother (in years)	Distribution of births	Birth order				
		1	2	3	4+	2 & above
15-19	5.6	79.1	18	2.3	0.4	20.4
20-24	35.7	49.5	33.4	12.3	4.8	48.4
25-29	34.7	24.0	30	22.8	23.1	74
30-34	15.9	13.7	18	17.2	51	85.5
35-39	6.3	11.1	10.6	11	67.3	88.9
40-44	1.8	9.1	5.1	6.3	79.5	90.7
45-49	na	10.8	3.9	2.8	82.5	na

### 3.3.1 Antenatal Care by Birth Order

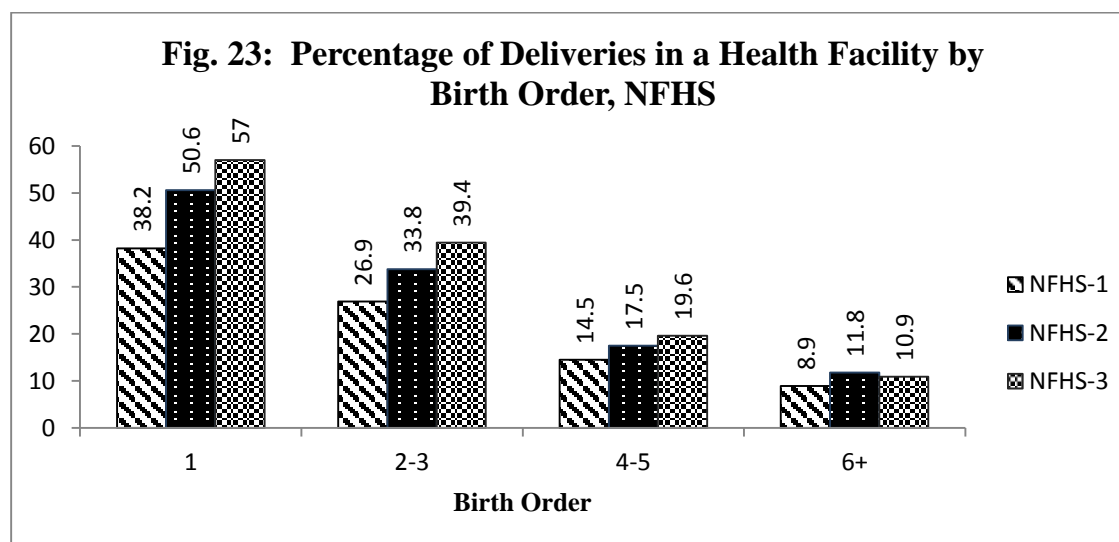
Percent distribution of women who had a live birth in the five years preceding the survey by antenatal care (ANC) provider for the most recent live birth, according to birth order, NFHS-3 is presented in **Table 39**. It is observed from the table that **36 per cent mothers with birth order 4-5 and 53 per cent mothers with birth order 6 and above did not receive antenatal care**. Two-third of the women with first pregnancy received antenatal care from the Doctor and another 19 per cent received from ANM/Nurse/Midwife/LHV. Fifty six per cent mothers with 4-5 birth order received ANC from Doctor and 23 per cent from ANM/Nurse/Midwife/LHV. Lower percentage of mothers (59) with birth order 4 & 5 received ANC either from Doctor or the ANM/Nurse/Midwife/LHV, whereas in case of mothers with sixth or higher order pregnancy, only in 17 percent cases ANC provider was a Doctor and another 27 per cent received ANC from ANM/Nurse/ Midwife/LHV.

**Table 39: Antenatal Care (ANC) Provider by Birth Order, NFHS-3, 2005-06**

Birth Order	Doctor	ANM/nurse/midwife/LHV	Other health personnel	Dai/TBA	Anganwadi Worker	Other	No one
1	66.5	19	0.7	0.8	1.3	0.1	11.6
2-3	55.7	22.6	1.1	1.2	1.6	0.1	17.6
4-5	31.2	27.5	1.4	1.3	2.5	0.2	35.8
6+	16.5	27.1	0.7	1.5	1.4	0.2	52.5

### 3.3.2 Place of Delivery by Birth Order

Percentage of births according to birth order delivered in a health facility during five-years preceding the National Health Surveys are shown in **Fig. 23**. Though the percentage of deliveries in a health facility increased over the three surveys but it shows a decreasing trend with higher order of birth. The data of three round of National Family Survey shows that the percentage of deliveries in a health facility decreased with higher birth order.



### 3.3.3 Assistance at Delivery by Birth Order

The percent distribution of live births in the five years preceding the survey by person providing assistance during delivery, and according to birth order of the child, as per NFHS surveys is presented in **Table 40**. The table reveals that with each higher order of birth, the percentage of deliveries with assistance by a skilled personnel decreased. NFHS-3 data shows that assistance was provided by a doctor during first order deliveries 52.2%, second & third order

deliveries 35.8%, fourth & fifth order deliveries 17.5 % and only in 9.7 % deliveries of sixth and higher order.

**Table 40: Assistance at Delivery by Birth Order, NFHS**

Birth Order	Doctor			ANM/nurse/midwife/LHV			Other health personnel			percentage delivered by a skilled provider		
	NFHS-1 (1992-1993)	NFHS-2 (1998-1999)	NFHS-3 (2005-2006)	NFHS-1 (1992-1993)	NFHS-2 (1998-1999)	NFHS-3 (2005-2006)	NFHS-1 (1992-1993)	NFHS-2 (1998-1999)	NFHS-3 (2005-2006)	NFHS-1 (1992-1993)	NFHS-2 (1998-1999)	NFHS-3 (2005-2006)
1	33.6	46.1	52.2	14.4	13.7	12	-	0.7	1	28.9	25.2	65.2
2-3	22.3	30.1	35.8	13.6	11.9	10.7	-	0.6	1.2	34.4	35	47.7
4-5	11.7	15.9	17.5	10.7	9	8.7	-	0.7	1.1	41	44.3	27.3
6+	6.9	10.5	9.7	8	6.8	5.8	-	0.6	1	43.7	46.7	16.5

### 3.3.4 Vaccinations by Birth Order

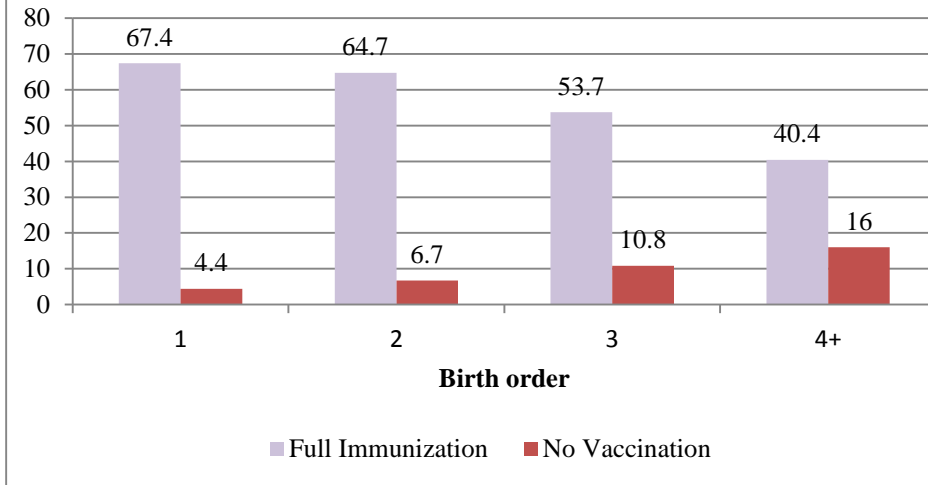
**Table 41** presents the percentage of children who received all basic vaccines by birth order of the child based on three rounds of National Family Health Survey and **Fig. 25** shows the vaccination status of children of different birth order based on CES, 2009.

**Table 41: Percentage of children who received all basic vaccines by birth order of the child, NFHS**

Birth Order	NFHS-1		NFHS-2		NFHS-3	
	All Basic Vaccinations	No Vaccination	All Basic Vaccinations	No Vaccination	All Basic Vaccinations	No Vaccination
1	45.5	21.2	54	9.8	54.6	3.7
2-3	38.3	26.6	48.9	9.1	45.3	4.7
4-5	26.1	37.6	38.8	15	29.9	7
6+	15.2	51.7	24.1	24.4	18.5	8.6

As shown in the table, an increasing trend in percentage of children vaccinated from NFHS-1 to NFHS-3 but the percentage of incomplete vaccination also increased. **All the NFHS surveys highlighted the decreasing trend in proportion of the children fully immunized with higher order of birth.** Percentage of children aged 12-23 months who received specific vaccination according to birth order as per, CES, 2009 also shows that among children of succeeding order of birth, the percentage of fully immunized children declined, whereas the percentage of children who have not received any vaccine increased with higher birth order (Fig. 24).

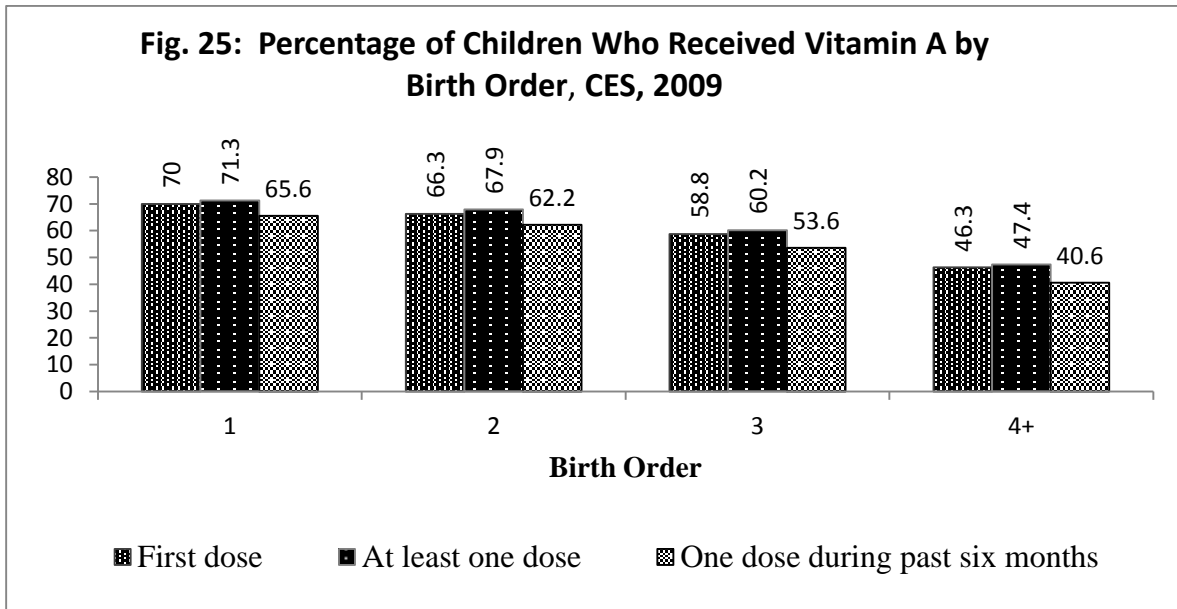
**Fig. 24: Vaccinations by Birth Order , CES, 2009**



### 3.3.5 Vitamin A Supplementation and Birth Order

**Fig. 25** presents the percentage of children aged 12-23 months who received Vitamin A by birth order of the children, based on Coverage Evaluation Survey, 2009. A decreasing trend is seen in vitamin A supplementation with each higher order.

**Fig. 25: Percentage of Children Who Received Vitamin A by Birth Order, CES, 2009**



### 3.3 Birth Interval

The interval between two births shows a strong effect on infant and child mortality rates. It has two way effects on infant and child mortality. The shortest birth interval, less than two years, carries the greatest risk of mortality and the risk of mortality is generally observed to decline with each increase in the birth interval. Mothers whose births are spaced too closely may not recover their health before becoming pregnant and this can hinder the growth and development of the fetus. On the other hand a child born too soon after the first may divert time, attention and resources of the caretakers from the first child, affecting the care that the child receives. This in turn may diminish the prospects of this child surviving the childhood.

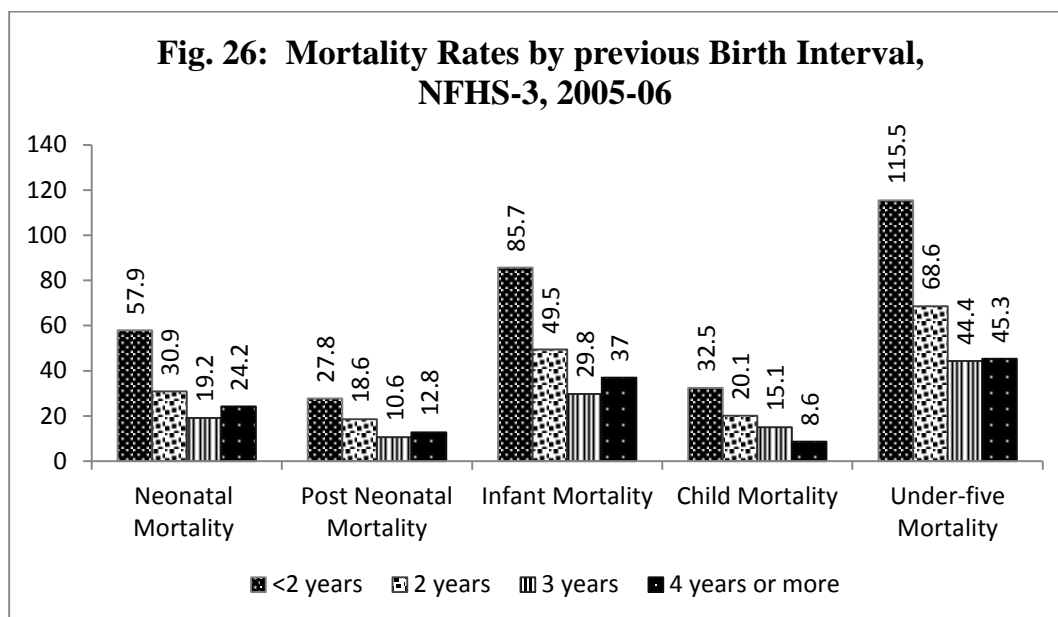
**Table 42: Neonatal, Post neonatal, Infant, Child and Under-five Mortality Rates by Birth Interval, NFHS**

Mortality rates	NFHS rounds	<2 years	2 years	3 years	4 years or more
<b>Neonatal Mortality (NN)</b>	<b>NFHS-1 (1992-1993)</b>	76	38.4		26.2
	<b>NFHS-2 (1998-1999)</b>	71.7	35.5		24.1
	<b>NFHS-3 (2005-2006)</b>	57.9	30.9	19.2	24.2
<b>Post neonatal mortality (PNN)</b>	<b>NFHS-1 (1992-1993)</b>	53.6	29.2		15.9
	<b>NFHS-2 (1998-1999)</b>	37.8	22.6		14.4
	<b>NFHS-3 (2005-2006)</b>	27.8	18.6	10.6	12.8
<b>Infant Mortality</b>	<b>NFHS-1 (1992-1993)</b>	129.6	67.6		42.1
	<b>NFHS-2 (1998-1999)</b>	109.5	58.1		38.5
	<b>NFHS-3 (2005-2006)</b>	85.7	49.5	29.8	37
<b>Child Mortality</b>	<b>NFHS-1 (1992-1993)</b>	55	35.2		15.8
	<b>NFHS-2 (1998-1999)</b>	49.2	31.4		13.6
	<b>NFHS-3 (2005-2006)</b>	32.5	20.1	15.1	8.6
<b>Under-5 Mortality</b>	<b>NFHS-1 (1992-1993)</b>	177.5	100.5		57.2
	<b>NFHS-2 (1998-1999)</b>	153.3	87.7		51.5
	<b>NFHS-3 (2005-2006)</b>	115.5	68.6	44.4	45.3

Neonatal, post neonatal, infant, child and under five mortality rates for 10 years (NFHS-1 & 2) and 5 years (NFHS-3) preceding the survey by previous birth interval is presented in **Table 42**. In NFHS-1 & 2 the mortality rates were estimated for preceding 10 years from the survey and birth intervals <24 months, 24-47 months and above 48 months, whereas for NFHS-3 mortality rates were estimated for five-years preceding the survey and birth intervals <24 months, 24-35 months, 36-47 months and above 48 months. **It is evident from the NFHS data table that**



mortality rate among the children with previous birth interval below 2 years is much higher than those children whose previous interval was 2-3 years. It is also seen that if the interval is 4 years and more, the rate of neonatal and infant mortality increased.



The infant mortality rate was 85.7 among the children with previous birth interval below 24 months which is 73 percent higher than the IMR for the interval 24-35 months and 2.9 times higher than the IMR for the birth interval 36-47 months. But when the interval is four years or more, the infant mortality rate is somewhat higher (37). This pattern is observed for both neonatal and post-neonatal mortality rates. Child mortality, however, is negatively related to the previous birth interval throughout, with mortality being lowest for intervals of four years or more. Under five mortality is 115.5 for the birth interval <24 months, if the previous birth interval is 24-35 months it is 68.6 and if birth interval is 36-47 months, it is only 44.4. There is a consistent and significant impact of birth intervals less than 24 months on child survival. A short birth interval not only increases mortality risk of the subsequently born children, but also of those born earlier (Fig. 26). It is revealed that previous birth interval is one of the important determinants of IMR and U5MR. The IMR and U5MR is considerably low when the previous birth interval is 36-48 months, therefore, the IMR and U5MR can be reduced significantly by spacing births.

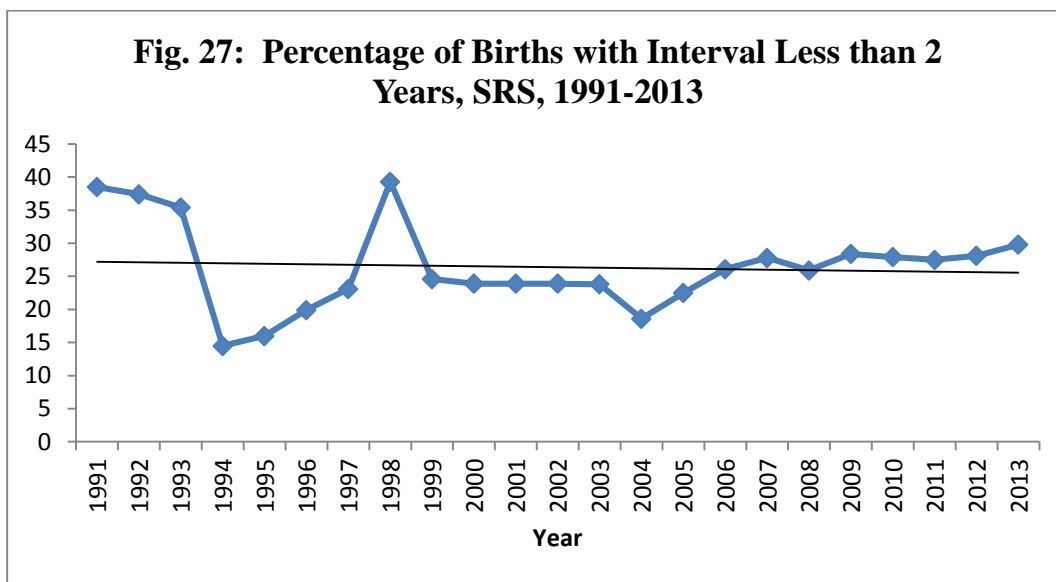
### 3.3.1 Percentage of Higher Order Births by Birth Interval

**Table 43** presents the percentage distribution of second and higher order of birth by birth interval estimated by Sample Registration System from 1991 to 2013. The data reveals that in 1991, 38.5 per cent births of second and higher order were with an interval of less than 2 years. Though during succeeding years there was no similar trend in decrease, the percentage of births with below two years interval declined. The proportion of births with birth interval less than two years is still at a higher level i.e. 31 per cent during 2013. There was not much change over the period in births with an interval between 24-36 months; however, an increase has been seen in proportion of births with interval more than 36 months.

**Table 43: Percentage Distribution of Second and Higher Order Live Births by Birth Interval, SRS, 1991-2013**

Year	Birth interval			
	10-12 months	12-24 months	24-36 months	36 months +
1991	4.2	34.3	32.5	29.1
1992	3.7	33.7	32.2	30.4
1993	3.3	32.1	32.6	32
1994	0.8	13.7	28.8	56.8
1995	1	15	25.9	58.1
1996	1.1	18.8	29.1	51.1
1997	0.5	22.6	33.4	43.5
1998	2.8	36.5	30.8	29.9
1999	0.9	23.7	34.5	40.8
2000	0.8	23.1	34.1	42.1
2001	0.8	23.1	33.6	42.5
2002	0.7	23.2	34.2	41.9
2003	0.8	23	33.5	42.6
2004	0.9	17.7	27.3	54.1
2005	1.3	21.2	24.6	52.9
2006	1.3	24.8	28.6	45.3
2007	1.5	26.3	32	40.2
2008	1.3	24.6	32.4	41.7
2009	1.7	26.7	31	40.6
2010	1.6	26.3	30.9	41.2
2011	1.7	25.8	30.1	42.4
2012	1.5	26.6	29.3	42.6
2013	1.9	29.1	30.3	38.8

**Fig. 27** presents the percentage of births of second and higher order from 1991 to 2013 with previous interval below 24 months. The trend line shows a negligible decline in proportion of births with short interval (<24 months) which highlights the lack of awareness among the mothers about the higher risk associated with short interval births and methods of delaying pregnancy. More efforts are required for awareness generation and family planning among the mothers.



### 3.5 High Risk Births

As discussed above, mother’s age at birth of the child, birth order of the child and the interval between births have a strong influence on infant and child mortality. High risk births can be avoided by the parents by controlling these proximate determinants. On the basis of National Family Health Survey (NFHS-3) all births during the five years preceding the survey (approximately year 2001-2005) have been categorized according to proportionate risk associated to the survival of child. A birth is classified as high risk if it has one or more of the following characters: (i) mother’s age is less than 18 years, (ii) mother’s age is more than 34 years, (iii) previous birth interval is less than 2 years, and (iv) birth order is more than three. **Table 44** presents

the percent distribution of children born in the five years preceding the survey by different categories of risk.

**Table 44: Category of Elevated Risk of Mortality and the Risk Ratio, and Percent Distribution of Currently Married Women by Category of Risk NFHS-3, 2005-06**

Risk Category	Births in the 5 years preceding the survey		Percentage of currently married women
	Percentage of births	Risk Ratio	
Not in any high-risk category	29.9	1	52.3
<b>Unavoidable risk category</b>			
First order births between ages 18 and 34 years	24.1	1.52	8.1
<b>Single high-risk category</b>			
Mothers age < 18	6.8	2.33	1.2
Mothers age > 34	0.6	1.11	6.1
Birth interval < 24 months	11.3	1.85	7.6
Birth order > 3	16.3	1.4	7.9
Subtotal	35	1.72	22.8
<b>Multiple high-risk category</b>			
Age < 18 and birth interval < 24 months	0.9	4.22	0.3
Age > 34 and birth interval < 24 months	0	0.1	0.1
Age >34 and birth order >3	3	1.7	11.6
Age >34 and birth interval <24 months and birth order >3	0.6	3.11	0.7
Birth interval , 24 months and birth order > 3	6.4	3.13	4
Subtotal	11	2.82	16.7
In any avoidable high-risk category	46	1.98	39.6
Total	100	na	100
Number of births	56,438	na	93,089

Total 46 percent births in the preceding five-year from NFHS-3 (approximately from 2001 to 2005) were in an avoidable risk category. These births had nearly twice the risk of dying as births that were not in any high risk category. Among the avoidable high risk category 35 per cent

births were in single high risk category and 11 per cent of the births in multiple high-risk category. The births in multiple risk category had 2.8 times more risk than births which were not in any risk category. Thus, infant and child mortality can be reduced by delaying the marriage and using family planning methods.

### 3.6 Effect of Assistance at Childbirth on Neonatal and Post-Neonatal Mortality

Neonatal and post-neonatal mortality according to type of assistance at childbirth based on most recent birth to ever married women during 35 months preceding the reference date of the survey, NFHS-1, NFHS-2 and NFHS-3 is presented in **Table 45**. NFHS-3 revealed that neonatal mortality is lowest for children delivered at home by health professionals (19.8/1000 live births) and was highest for children delivered at home by traditional birth attendants (27.2/1000 live births). Mortality among those delivered in a hospital was in between the two (25.2/1000 live births). Post neonatal mortality was lowest among the children who born in a hospital.

**Table 45: Effect of Assistance at Childbirth on Neonatal and Post-Neonatal Mortality, NFHS**

Type of assistance at childbirth	Neonatal mortality rate			Post-neonatal mortality rate		
	NFHS-1	NFHS-2	NFHS-3	NFHS-1	NFHS-2	NFHS-3
Home delivery, assisted by TBA	36.7	29.9	27.2	27.2	22.4	16.8
Home delivery, assisted by health professional	23.1	19.6	19.8	20.2	12.2	14.3
Hospital delivery	26.1	24.8	25.5	11.4	10.8	8.1

### 3.7 Effect of Maternal Nutrition Status

Mother's nutritional status affects the nutritional status of babies and the infant mortality. In National Family Health surveys, maternal nutrition status was assessed using Body Mass Index

(BMI) and presence or absence of anaemia. **Table 46** presents the height and BMI of the women in the reproductive age group 15-49 years in 2005-06. Women's height can be used to identify women at risk of having a difficult delivery. The risk of having a baby with low birth weight is also higher for mothers who are short. The cutoff point for height, below which a woman can be identified as nutritionally at risk, varies among populations, but it is usually considered to be in the range of 140-150 centimeters. A cutoff point of 145 cm was used for NFHS-3. Table shows that in India 11.4 percent of the women age 15-49 years were of the height shorter than 145 cm and therefore nutritionally at risk. The percentage of women who are short (height less than 145 cm) is highest in Meghalaya (22 %) and Tripura (19%) and lowest (4-5 percent) in Haryana, Punjab, Jammu & Kashmir, and Rajasthan.

The BMI is defined as weight in kilograms divided by height in meters squared ( $\text{kg/m}^2$ ) and the same definition was used to calculate the BMI in NFHS-3. This index excludes women who were pregnant at the time of the survey and women who gave birth during the two months preceding the survey. A cutoff point of 18.5 was used to define thinness or acute under-nutrition and a BMI of 25 or above indicates overweight or obesity. The table shows that the mean BMI for women age 15-49 in India is 20.5, varying within the narrow range of 19.4 in Bihar to 22.9 in Delhi and Punjab. Chronic energy deficiency is usually indicated by a BMI of less than 18.5 and 36 percent of women in India had a BMI below 18.5, indicating a high prevalence of nutritional deficiency. Among women who are thin, 43 percent are moderately or severely thin. Across the states, the proportion of thin women varies from 11.2 per cent in Sikkim to 45.1 percent in Bihar. Rajasthan, Chhattisgarh, Uttar Pradesh, Bihar, Jharkhand, Odisha, West Bengal, Assam, Tripura, Gujarat, Maharashtra, Andhra Pradesh and Karnataka were the states where nutritional deficiency was prevailing among more than one third of the women age 15-49.

**Table 46 : Percentage of Women Age 15-49 Below 145 cm, Mean Body Mass Index (BMI), and Percentage with Specific BMI Levels by State, NFHS-3, 2005-06**

India/States	Height	Body Mass Index (BMI) <sup>1</sup> in Kg/m <sup>2</sup>							
		Mean BMI	18.5-24.9 (normal)	Thin			Overweight/obese		
	Percentage below 145 cm			<18.5 (total thin)	17.0-18.4 (mildly thin)	<17.0 (moderately/severely thin)	≥ 25.0 (overweight or obese)	25.0-29.9 (overweight)	≥ 30.0 (obese)
India	11.4	20.5	51.8	35.6	19.7	15.8	12.6	9.8	2.8
Delhi	6.9	22.9	58.7	14.8	9.1	5.8	26.4	18.6	7.8
Haryana	4.4	21.1	51.2	31.3	16.8	14.5	17.4	13	4.4
H.P	6.1	20.8	56.6	29.9	16.7	13.2	13.5	11.4	2.1
J & K	4.8	21.4	58.6	24.6	15.5	9.1	16.7	13.4	3.3
Punjab	4.5	22.9	51.2	18.9	11.4	7.5	29.9	20.8	3.3
Rajasthan	5	20.1	54.4	36.7	21.5	15.2	8.9	7.1	1.8
Uttaranchal	7.5	20.8	57.2	30	18.3	11.7	12.8	10.1	2.7
Chhattisgarh	11.9	19.5	51	43.4	24.4	19	5.6	4.3	1.3
M.P	8.4	19.7	50.8	41.7	22.8	18.9	7.6	6.2	1.4
U.P	14.4	20.1	54.8	36	21.1	14.9	9.2	7.5	1.7
Bihar	15.9	19.4	50.4	45.1	25.9	19.2	4.6	4	0.6
Jharkhand	18	19.5	51.7	43	25	18	5.4	4.5	0.9
Orissa	13.1	19.7	52	41.4	23.1	18.3	6.6	5.5	1.1
West Bengal	14.3	20.2	49.6	39.1	21.4	17.6	11.4	9.4	2
Arunachal Pradesh	13.3	21.1	74.8	16.4	11	5.4	8.8	7.7	1.1
Assam	15.8	20	55.7	36.5	21.4	15.2	7.8	6.9	0.9
Manipur	8	21.5	72	14.8	11.6	3.1	13.3	11.4	1.9
Meghalaya	21.6	21	80.1	14.6	9.8	4.8	5.3	4.5	0.8
Mizoram	9.2	21.2	75	14.4	10.3	4.1	10.6	9.4	1.2
Nagaland	7	20.8	76.2	17.4	13	4.4	6.4	5.7	0.7
Sikkim	12	22.1	73.5	11.2	7.9	3.2	15.4	12.4	3
Tripura	19.2	19.9	55.9	36.9	20.8	16.1	7.1	6.4	0.7
Goa	10.1	21.5	51.9	27.9	13.4	14.5	20.2	15.4	4.8
Gujarat	8.7	20.8	47	36.3	17.7	18.6	16.7	12.1	4.6
Maharashtra	10.6	20.6	49.3	36.2	19.3	17	14.5	10.9	3.6
A.P	12.1	20.9	50.9	33.5	17.8	15.6	15.6	11.5	4.1
Karnataka	9.9	20.7	49.2	35.5	18.6	16.9	15.3	11.6	3.7
Kerala	8.6	22.6	53.9	18	9.6	8.4	28.1	23.1	5
T.N	9.5	21.6	50.6	28.4	14.9	13.5	20.9	15.8	5.1

Thirteen percent of women are overweight or obese (10 percent are overweight and 3 percent are obese). The percentage of women who are overweight or obese is highest in Punjab (30 %), followed by Kerala (28 %) and Delhi (26 %). Lowest (5-6 %) overweight/obese women were in Bihar, Chhattisgarh, Jharkhand and Meghalaya.

**Table 47: Percentage of Women Age 15-49 with Anaemia by States, NFHS-3, 2005-06**

India & States	Mild anaemia	Moderate anaemia	Severe anaemia	Any anaemia
	(10.0-11.9 g/dl) <sup>1</sup>	(7.0-9.9 g/d)	(<7.0 g/d)	(< 12.0 g/d) <sup>2</sup>
<b>India<sup>3</sup></b>	38.6	15	1.8	95.3
Delhi	35.2	8.8	0.2	44.3
Haryana	37.6	16.7	1.7	56.1
Himachal Pradesh	31.6	10.5	1.2	43.3
J & k	37.3	13.1	1.6	52.1
Punjab	26.2	10.4	1.4	38
Rajasthan	35.2	15.4	2.5	53.1
Uttaranchal	40.4	13.3	1.5	55.2
Chhattisgarh	39.9	15.7	1.9	57.5
Madhya Pradesh	40.8	14.1	1	56
Uttar Pradesh	35.1	13.2	1.6	49.9
Bihar	50.5	15.9	1	67.4
Jharkhand	49.6	18.6	1.3	69.5
Orissa	44.9	14.9	1.5	61.2
West Bengal	45.8	16.4	1	63.2
Arunachal Pradesh	36.6	12.5	1.6	50.6
Assam	44.8	21.2	3.4	69.5
Manipur	30.1	5.1	0.5	35.7
Meghalaya	32.8	12.6	1.8	47.2
Mizoram	29.1	8.8	0.7	38.6
Sikkim	42.1	16.2	1.7	60
Tripura	49	14.8	1.3	65.1
Goa	29.6	7.8	0.6	38
Gujarat	36.2	16.5	2.6	55.3
Maharashtra	32.8	13.9	1.7	48.4
Andhra Pradesh	39	20.6	3.3	62.9
Karnataka	34.4	15.1	2	51.5
Kerala	25.8	6.5	0.5	32.8
Tamil Nadu	37.4	13.6	2.2	53.2



Anaemia is characterized by a low level of haemoglobin in the blood. Three levels of severity of anaemia are distinguished: mild anaemia (10.0-10.9 grams/deciliter for pregnant women, 10.0-11.9 g/dl for non-pregnant women), moderate anaemia (7.0-9.9g/dl) and severe anaemia (less than 7.0 g/dl). **Table 47** shows anaemia levels for women age 15-49. **Fifty five percent of women whose haemoglobin level was tested were found to be anaemic. Thirty-nine percent women were mildly anaemic, 16 percent were moderately anaemic and 2 percent were severely anaemic.** Although the prevalence of anaemia varies considerably among the states, it is widespread in every Indian state. The prevalence of anaemia in **Jharkhand, Bihar and Assam was very high where more than two-third of women were anaemic.** Other states with particularly high levels of anaemia were Tripura, Odisha, Andhra Pradesh, Sikkim.

## CHAPTER 4

### Child Determinants of Infant and Child Mortality

#### 4.1 Child's Sex

Typically, males have higher levels of mortality than females at any period of life. In traditionally male dominated Indian society, male child is preferred and more attention and care is given to male child compared to female child.

##### 4.1.1 Child Mortality by Child's Sex

Changes in levels and differentials in neonatal, post-neonatal, infant, child and under-five mortality, for three rounds of NFHS are presented in **Table 48**. It is observed from the table that neonatal mortality rates for males are higher than female during ten years preceding NFHS-1 & 2 and five years preceding NFHS-3 which can be attributed to biological advantage of girls. However, during this period the neonatal mortality between male and female showed narrowing gap as per the consecutive surveys the gap was 9, 6 and 4. The parental care of the child affects the mortality beyond the neonatal period. The data shows the reverse trend of increasing mortality rate among female children after neonatal period as we can observe from the table that the difference between male and female is more in the age group 1-4 years. A variety of cultural and traditional factors may be responsible for the higher mortality among girls beyond neonatal period. Traditionally preference is given to sons over daughter in terms of food, prevention of diseases and treatment of illness resulting in higher post neonatal and child mortality among girls. The infant mortality rate during 1992-98 (NFHS-1 & 2) among boys was higher in comparison to girls due to higher neonatal mortality, but during 2001-05 (NFHS-3) it became almost equal.

**Table 48: Neonatal, Post neonatal, Infant, Child and Under-Five Mortality Rates by Child's Sex, NFHS**

Mortality rates	NFHS rounds	Child's sex	
		Male	Female
Neonatal Mortality (NN)	NFHS-1 (1992-1993)	57	48.1
	NFHS-2 (1998-1999)	50.7	44.6
	NFHS-3 (2005-2006)	40.9	36.8
Post neonatal mortality (PNN)	NFHS-1 (1992-1993)	31.7	35.8
	NFHS-2 (1998-1999)	24.2	26.6
	NFHS-3 (2005-2006)	15.4	20.9
Infant Mortality	NFHS-1 (1992-1993)	88.6	83.9
	NFHS-2 (1998-1999)	74.8	71.1
	NFHS-3 (2005-2006)	56.3	57.7
Child Mortality	NFHS-1 (1992-1993)	29.4	42
	NFHS-2 (1998-1999)	24.9	36.7
	NFHS-3 (2005-2006)	14.2	22.9
Under-5 Mortality	NFHS-1 (1992-1993)	115.4	122.4
	NFHS-2 (1998-1999)	97.9	105.2
	NFHS-3 (2005-2006)	69.7	79.2

#### 4.1.2 Immunisation Status by Child's Sex

**Table 49** presents the vaccination received by male and female children aged 12-23 months based on three rounds of National Family Health Survey. A little higher percentage of male children received all vaccinations, whereas, comparatively higher percentage of female did not receive any vaccine.

**Table 49: Immunisation Status by Child's Sex, NFHS**

Sex of the child	NFHS-1		NFHS-2		NFHS-3	
	All Basic Vaccinations	No Vaccination	All Basic Vaccinations	No Vaccination	All Basic Vaccinations	No Vaccination
Male	36.7	27.8	43.1	13.5	45.3	4.3
Female	34.1	32.3	40.9	15.3	41.5	6

The Coverage Evaluation Surveys conducted in 2006 and 2009 also revealed that a little higher percentage of male children received full immunization than the female children (**Table**

50). The data on immunisation was based on either vaccination card or mother's report. The percentage of children fully immunised was lower in 2009 than in 2006 which may be due to sampling error.

**Table 50: Immunisation Status by Child's Sex, CES, 2006 and 2009**

Sex of child	CES, 2006		CES, 2009	
	Full Immunization	No Vaccination	Full Immunization	No Vaccination
Male	63.5	9.3	61.9	7.9
Female	61	11	59.9	7.2

#### 4.1.3 Vitamin A Status

Vitamin A is an essential micronutrient for the immune system and plays an important role in maintaining the epithelial tissue in the body. Severe vitamin A deficiency (VAD) can cause eye damage. VAD can also increase the severity of infections such as measles and diarrhoeal diseases among children and slow recovery from illness. Periodic dosing with Vitamin A supplements every six months until they reach three years of age, starting at age of 9 months. Some states have decided to extend that period to include children until they reach age of five years, as recommended by the World Health Organisation.

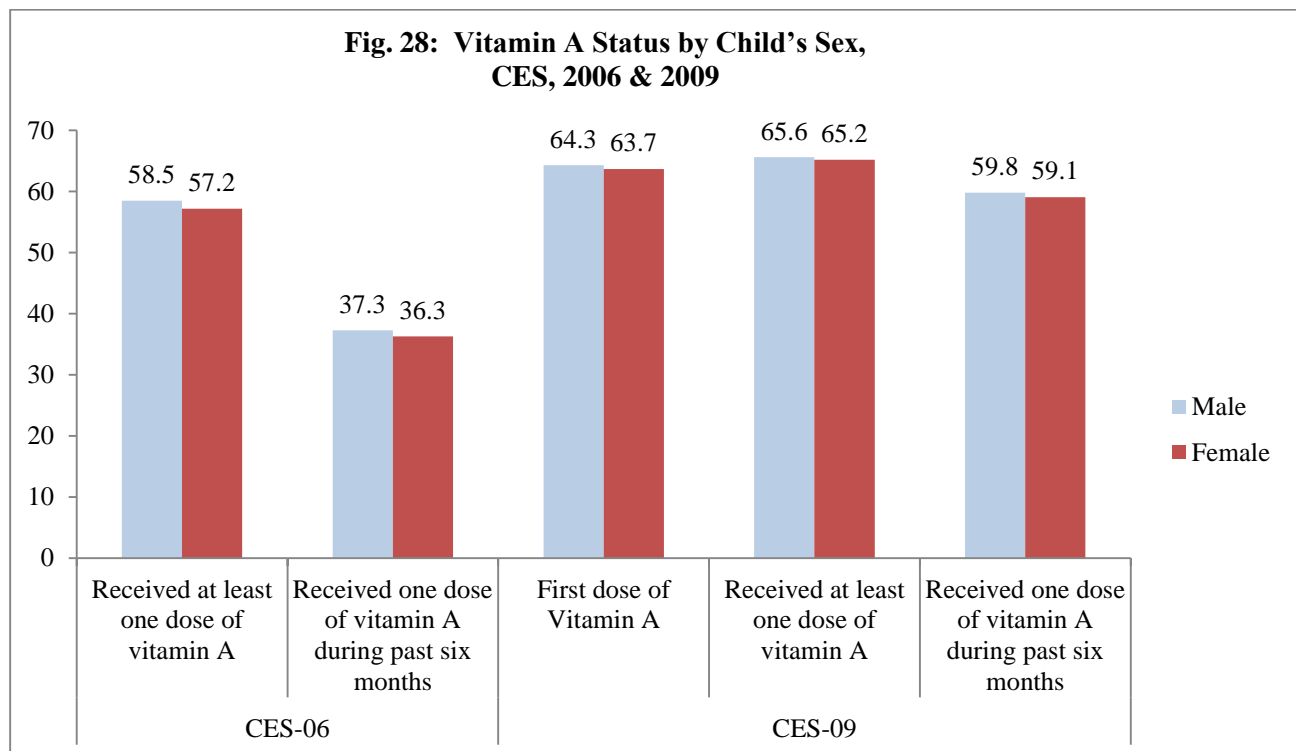
**Table 51** presents the consumption of vitamin A rich foods and on the administration of vitamin A supplements. Table shows that 47 percent children aged 6-35 months living with the mother consumed foods rich in vitamin A in the day or night preceding the survey. These foods include meat, organ meat, fish, poultry, eggs, pumpkin, carrots, sweet potatoes that are yellow or orange inside, dark green leafy vegetables, ripe mango, papaya, cantaloupe, and jackfruit. The consumption of food rich in vitamin A is higher in West Bengal, Manipur, Meghalaya, Sikkim, Tripura, Goa and Kerala where more than two third of children consumed food rich in vitamin A in preceding 24 hours from the survey in comparison to Haryana and Maharashtra where around one third of children consumed vitamin A rich food.

**Table 51: Percentage of Children who Consumed Vitamin A rich food and Vitamin A Supplements by states, India, NFHS-3, 2005-06**

<b>States</b>	<b>Children (6-35 months) consumed foods rich in vitamin A in last 24 hours</b>	<b>Children (12-35 months) given vitamin A supplements in last 6 months</b>	<b>Children (6-59 months) given vitamin A supplements in the last 6 months</b>
<b>India</b>	<b>47.1</b>	<b>24.8</b>	<b>18.1</b>
Delhi	48.6	20.2	13.8
Haryana	33	15.9	11
Himachal Pradesh	61.6	33.1	29.2
Jammu & Kashmir	58.8	17.2	12.7
Punjab	44.1	20.8	16.8
Rajasthan	28.8	16.4	10
Uttaranchal	53.4	20.4	14.4
Chhattisgarh	53	14.4	9.1
Madhya Pradesh	40.5	20.1	14.1
Uttar Pradesh	40.9	8.7	6.1
Bihar	51.1	32.6	26.4
Jharkhand	50.3	27.5	19.7
Odisha	61.4	29.5	21.3
West Bengal	68.7	46.8	31.4
Arunachal Pradesh	65.6	18.7	16.3
Assam	51.1	18.7	12.6
Manipur	76.4	15.2	9.3
Meghalaya	66.6	20.9	14.8
Mizoram	64.1	46.5	40.9
Nagaland	54.4	8.9	6.7
Sikkim	66.5	24.2	19.2
Tripura	69	41.2	29.1
Goa	75.7	41.8	30.7
Gujarat	42.2	20.6	14.8
Maharashtra	34	37.6	25.1
Andhra Pradesh	34.8	29	21.1
Karnataka	53.1	22.8	16.1
Kerala	78.4	46.5	34.8
Tamil Nadu	63.1	44.8	38.5

One fourth children aged 12-35 months received Vitamin A supplements in the six months before the survey. This figure drops further to only 18 percent, among children aged 6-59 months. Among the states vitamin A supplementation for young children is low in most states reaching a maximum of only 47 percent for children aged 12-35 months in West Bengal and Kerala whereas in Uttar Pradesh only 9 percent received vitamin A supplements.

**The proportion of children aged 12-23 months who received vitamin A was almost same for the male and female children as per CES, 2006 & 2009 (Fig. 28).**



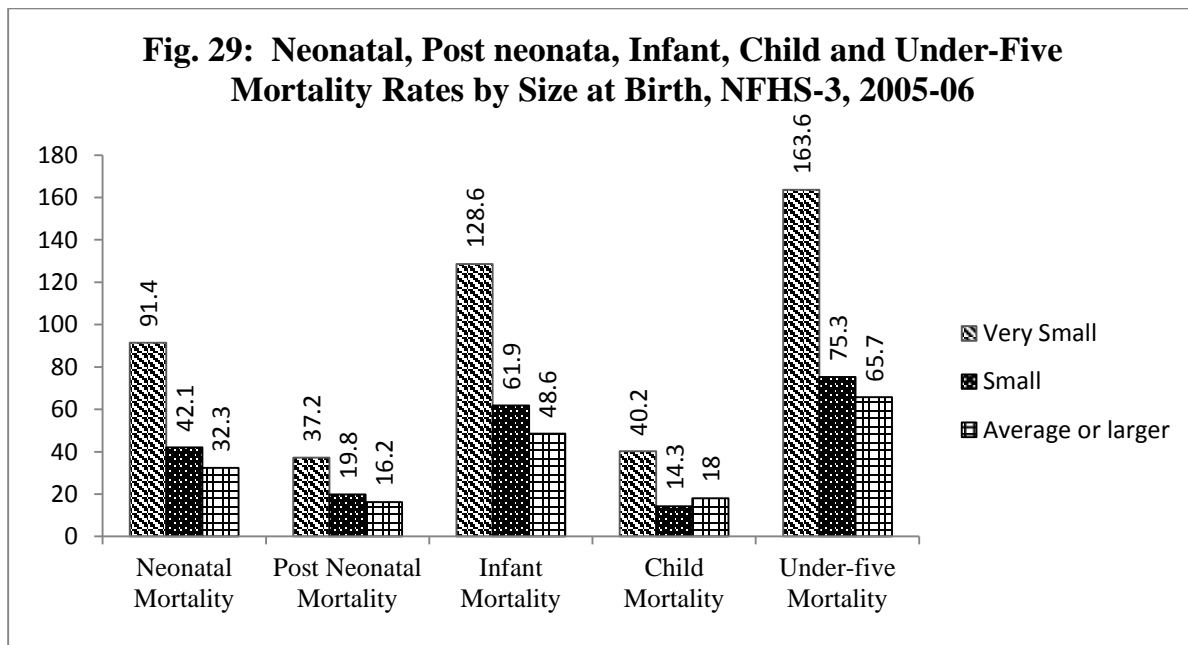
#### 4.2 Child's Size at Birth

Birth weight is an important indicator of the chances of child's survival and the risk of childhood diseases. In India, the weight of babies was not being measured at birth in most cases, however with increase in institutional deliveries the situation has improved substantially. In absence of birth weight, size of the child at birth reported by mother is a useful proxy for birth weight. In NFHS-3 birth weight was recorded for 34 per cent of babies born in the five years

preceding the survey from a weight recorded on a health card or from the mother's memory. But the sample of births for which weights are reported is only one- third of all births; therefore, the mother's estimate of the baby's size at birth was obtained for all births. Among those whose birth weight was recorded, 21.5 per cent births weighed less than 2.5 kg and among those babies whose birth size was recorded based on mother's estimation, 15 per cent babies were smaller than average size and 6 percent were very small.

#### 4.2.1 Child's Size at Birth and Child Mortality

**Fig. 29** presents the mortality rates among children according to size of the child at birth. The infant mortality rate is 49 for an average or large size baby, but it is 62 for a smaller than average baby and 129 for a very small baby. When compared to average or larger size baby, the infant mortality rate is 27 per cent higher for smaller and 165 per cent higher for very small baby. The neonatal mortality is 30 per cent higher for small and 183 per cent higher for very small babies. The risk of mortality is much higher for small babies during the neonatal period.



### 4.3 Nutritional Status of Children

Like in other developing countries, children in India are vulnerable to malnutrition because of low dietary intakes, infectious diseases, lack of appropriate care. During National Family Health Surveys all children under five years of age were weighed and measured to assess the nutritional status. Evaluation of nutritional status is based on the rationale that in a well-nourished population, there is a statistically predictable distribution of children of a given age with respect to height and weight. Use of a standard reference population as a point of comparison facilitates the examination of differences in the anthropometric status of subgroups in a population and changes in nutritional status over time.

The use of a reference population is based on the empirical finding that well-nourished children in all population groups for which data exist follow very similar growth patterns before puberty. Until 2006 the most commonly used reference population was National Center for Health Statistics (NCHS) standard and in April 2006 WHO released a new international reference population which was accepted by the Government of India. The new WHO growth standard adopts a prescriptive approach, describing how healthy children should grow. Three standard indices of physical growth that describe the nutritional status of children are expressed in standard deviation units from the median of the reference population. **Table 52** presents the percentage of children below the age of five years classified as undernourished by selected demographic characteristics.



**Table. 52: Percentage of Children Under Age Five Years Classified as Malnourished According to Three Anthropometric Indices of Nutritional Status: Height-for-Age, Weight-for-Height, and Weight-for-Age, by Background Characteristics, NFHS-3, 2005-06**

Background Characteristics	Height-for-age		Weight-for-Height			Weight-for-age		
	Percentage below -3 SD	Percentage below -2 SD	Percentage below -3 SD	Percentage below -2 SD	Percentage above +2 SD	Percentage below -3 SD	Percentage below -2 SD	Percentage above +2 SD
<b>Birth interval in months</b>								
First birth	18	41.1	5.4	17.8	2	12.1	36.1	0.5
< 24	30.4	55.6	6.1	18.9	1.4	19	47.6	0.1
24-47	26	51.2	7.3	21.8	1.2	17.9	46.2	0.3
48+	20.9	44.7	6.9	20.4	1.7	14.5	40.3	0.5
<b>Birth Order</b>								
1	17.9	41	5.4	17.8	1.9	12	36.1	0.5
2-3	22.2	47.8	6.3	19.6	1.6	14.4	41.4	0.3
4-5	30.4	54.3	7.6	21.8	1	21.2	49.9	0.2
6+	37.2	61	8.7	24.5	0.9	26.3	56.6	0.3
<b>Residence</b>								
Urban	17.6	39.6	5.7	16.9	2.5	10.8	32.7	0.6
Rural	25.6	50.7	6.7	20.7	1.2	17.5	45.6	0.3
<b>Mother's education</b>								
No education	31.6	57.2	8	22.7	1.1	22.1	52	0.2
< 5 years complete	24.1	50.4	6.2	20.8	1.1	15.6	45.8	0.2
5-7 years complete	20.3	45.6	5.5	18.8	1.8	12.3	38.5	0.4
8-9 years complete	15.6	40.7	5.2	17.5	1.9	9.4	34.9	0.3
10-11 years complete	10.9	33	3.9	14.3	2.2	6.5	26.8	0.9
12 or more years complete	7	21.9	4	12.8	2.6	4.5	17.9	0.8
<b>Religion</b>								
Hindu	23.4	48	6.6	20.3	1.5	16.1	43.2	0.3
Muslim	26.2	50.3	6.1	18.4	1.6	15.6	41.8	0.4
Christian	17.9	39	5.1	15.5	3.1	8.7	29.7	0.9
Sikh	13.4	29.8	2.8	11	1.9	7.8	22	0.7
Buddhist/Neo-Buddhist	23.2	56.1	7	21	3.1	14.7	39.2	0.8
Jain	5.9	31.2	5.2	15.8	0.8	6.6	24	0
Other	34	58.5	10.5	33.6	1.3	35.4	62.7	0.1

Table contd.....

Table contd.....

<b>Caste/tribe</b>								
Scheduled caste	27.6	53.9	6.6	21	1.3	18.5	47.9	0.3
schedule tribe	29.1	53.9	9.3	27.6	1.5	24.9	54.5	0.4
Other backward class	24.5	48.8	6.6	20	1.3	15.7	43.2	0.3
Other	17.8	40.7	5.2	16.3	2.1	11.1	33.7	0.5
Don't know	22.3	45.8	3.1	14.1	1.4	16.3	35.1	0
<b>Mother's nutritional status</b>								
Underweight(BMI<18.5)	27.3	53.5	7.9	25.2	1.1	20.9	52	0.2
Normal (BMI 18.5-24.9)	22.5	46.3	5.9	17.4	1.7	13.6	38.7	0.4
Overweight (BMI>_25)	12	31.2	2.7	9.3	3	4.6	20.1	1
Mother not measured	28.9	51.7	7.7	19.6	1.4	19.6	41.3	0.3
<b>Wealth index</b>								
Lowest	34.2	59.9	8.7	25	1	24.9	56.6	0.2
Second	27.9	54.3	6.7	22	1.1	19.4	49.2	0.2
Middle	23.1	48.9	6.2	18.8	1.3	14.1	41.4	0.3
Fourth	16.5	40.8	5	16.6	2.1	9.5	33.6	0.5
Highest	8.2	25.3	4.2	12.7	2.7	4.9	19.7	0.8
Total	23.7	48	6.4	19.8	1.5	15.8	42.5	0.4

**Table 52** shows that **almost half of children under five years of age (48 %) are stunted and 43 percent are underweight. The proportion of children who are severely undernourished (more than three standard deviations below the median of the reference population) is also notable – 24 percent according to height-for-age and 16 percent according to weight-for age.** Wasting is also quite a serious problem in India, affecting 20 percent of children under five year of age. Very few children under five year of age are overweight. Undernutrition is substantially higher in rural areas than in urban areas. Even in urban areas, 40 percent of children are stunted and 33 percent are underweight. Undernutrition has a strong negative relationship with the mother's education. The percentage of children who are severely underweight is almost five times higher for children whose mothers have no education as for children whose mothers have 12 or more years of education. Christian, Sikh and Jain children are considerably better nourished. Children from scheduled tribes have the poorest nutritional status on almost every measure.

The nutritional status of children is strongly related to maternal nutritional status. Undernutrition is much more common for children of mothers whose body mass index is below 18.5 than for children whose mothers are not underweight. Table presenting state wise nutritional status of children is annexed in Annexure I, detailed tables.

#### 4.4 Anaemia Status in Children

Prevalence of anaemia is another indicator to assess the nutritional status of children. Haemoglobin is necessary for transporting oxygen from the lungs to other tissues and organs of the body. Anaemia in young children is a serious concern because it can result in impaired cognitive performance, behavioral and motor development, coordination, language development, and scholastic achievement, as well as increased morbidity from infectious diseases. **Table 53** presents the anaemia levels for children aged 6-59 months as per the measurement undertaken during National Family Health Survey, 2005-06. Table shows that **70 percent of the children below 5 years were anaemic, including 26 percent who were mildly anaemic, 40 percent moderately anaemic and 3 percent who were severely anaemic.**

**Table 53: Percentage of Children Aged 6-59 Months Classified as Having Anaemia, by Background Characteristics, NFHS-3, 2005-06**

Background characteristics	Anaemia Status by haemoglobin level			
	Mild (10.0-10.9 g/dl)	Moderate (7.0-9.9 g/dl)	Severe (<7.0 g/dl)	Any anaemia (<11.0 g/dl)
<b>Age in months</b>				
6-8	27.5	50.5	1.6	79.7
9-11	27.6	51.7	2.4	81.7
12-17	24	56	4.6	84.5
18-23	23.8	53.4	4.4	81.6
24-35	26.6	44.1	3.9	74.6
36-45	27.3	33.1	2.7	63
48-59	26.9	24.9	1.2	53
<b>Sex</b>				
Male	25.7	40.2	3.2	69
Female	27.1	40.2	2.7	69.9
<b>Birth Order</b>				
1	25.4	37.4	2.4	65.2
2-3	26.8	40.2	2.8	69.9
4-5	26	44.6	3.4	74
6+	27.2	43.3	3.9	74.5

Table contd .....

<b>Residence</b>				
Urban	25.6	34.2	3.1	63
Rural	26.5	42.1	2.9	71.5
<b>Mother's Education</b>				
No education	26.3	44.7	3.6	74.5
<5 years complete	28.2	38.5	2.1	68.8
5-7 years complete	26.5	39.7	3.1	69.4
8-9 years complete	26.1	36.1	2.5	64.8
10-11 years complete	26.6	33.6	1.5	61.8
12 or more years complete	24.3	29.7	1.4	55.4
<b>Religion</b>				
Hindu	26.1	40.7	3	69.7
Muslim	28.4	38.5	2.8	69.7
Christian	25.6	32.5	1.9	60
Sikh	22.3	35.9	5.7	63.8
Buddhist/Neo-Buddhist	15.9	49.9	0.2	66
Jain	20.1	36.1	0	56.2
Other	26.4	48.7	3.9	78.9
<b>Caste/Tribe</b>				
Schedule caste	24.9	43.7	3.6	72.2
Schedule Tribe	26.3	47.2	3.3	76.8
Other Backward class	26.7	40.5	3	70.3
Other	26.9	34.8	2.1	63.8
Don't know	27.5	34.8	3.5	65.8
<b>Mother's anaemic status</b>				
Not anaemic	26.8	33.1	1.6	61.5
Mildly anaemic	27.3	43	2.7	73
Moderately anaemic	23.2	50	5.6	78.8
Severely anaemic	21.6	49.7	10.5	81.9
<b>Wealth index</b>				
Lowest	27.7	45.8	3	76.4
Second	26.9	43.4	3.3	73.6
Middle	26.2	39.7	3.4	69.3
Fourth	24.9	37.3	2.6	64.8
Highest	25	29.2	2.1	56.2
Total	26.3	40.2	2.9	69.5

Although there are differentials in the prevalence of anaemia by background characteristics like age, birth order, residence, mother's education, religion, caste etc., more than half of children in every subgroup shown in the table were anaemic. Anaemia increases with the birth order of the child, but the relationship is not strong. In rural areas anaemia was considerably higher than in urban areas. For children of women with no education, for scheduled tribes and for children in the households of lower wealth quintiles it was higher. The prevalence of children's anaemia increased steadily with the mother's level of anaemia, reaching 82 percent for children of mothers who were severely anaemic. Children of mothers who were severely anaemic were seven times as likely to be severely anaemic as children of mothers who are not anaemic.

#### **4.5 Iron Supplementation, Deworming and Use of Iodised Salt**

The consumption of iron-rich foods such as meat, organ meat, fish, poultry and eggs etc. is considerably low in India. **Table 54** shows that overall, only 15 percent of children ate foods rich in iron during the 24 hours before the survey. Very few children aged 6-59 months (4.7 %) were given an iron supplement in last seven days before the survey. Only 12 percent of children aged 6-59 months received deworming medication in the six months preceding the survey. Among states, maximum 57 percent children were given deworming medication in Goa followed by Kerala (45 %) and Tripura (41 %).

Iodine is an important micronutrient. A lack of iodine in the diet can lead to Iodine Deficiency Disorders (IDD), which can cause speech and hearing impairments and depleted levels of energy in children. Iodine deficiency is the single most important and preventable cause of mental retardation.

**Table 54: Percentage of Children Consuming Food Rich in Iron, Iron Supplementation, Deworming Tablets and Iodised Salt by states, NFHS-3, 2005-06**

States	Children (6-35 months) consumed foods rich in iron in last 24 hours	Children (6-59 months) given iron supplements in last 7 days	Children 6-59 months) given deworming medication in last 6 months	Children 6-59 months) using adequately iodized salt
<b>India</b>	<b>14.6</b>	<b>4.7</b>	<b>11.9</b>	<b>47.5</b>
Delhi	15.8	9.3	9.5	79.7
Haryana	2.7	4.2	3.2	50.2
Himachal Pradesh	10.1	4.1	4.8	80.5
Jammu & Kashmir	24.3	5.3	23.3	69.8
Punjab	10.3	5.4	5.2	72.8
Rajasthan	1.3	1	1.6	35.1
Uttaranchal	13.2	4.1	8.3	39.6
Chhattisgarh	13.5	3.1	6.3	49.5
Madhya Pradesh	4.1	3.5	4	32.5
Uttar Pradesh	6.9	1.5	8.1	32.6
Bihar	6.4	2.9	20.6	64.4
Jharkhand	11.4	3.5	5.4	51.1
Orissa	14.8	5.2	15.8	38
West Bengal	47.6	4.5	25.6	65.2
Arunachal Pradesh	34.3	4.1	28.4	83
Assam	24	0.8	15	68.1
Manipur	58.8	2.3	14.7	92.4
Meghalaya	40.3	4.8	20.6	76.8
Mizoram	31.5	22.1	41	82.7
Nagaland	38.4	3.1	23.2	81
Sikkim	23.1	9.8	26.9	73.2
Tripura	45.6	3.1	41.5	72.5
Goa	48	16.7	57.1	67.1
Gujarat	5.6	10.3	7.1	53.2
Maharashtra	9.3	7.1	8.2	58.4
Andhra Pradesh	15.7	7.1	7.7	28.7
Karnataka	19.8	12.5	16.6	37.8
Kerala	60.5	6.4	44.7	70.2
Tamil Nadu	32.8	10	12	39

Overall, 48 percent of the children aged 6-59 months were taking adequately iodised salt (Salt containing 15 parts per million or more of iodine). Among states, Highest (92 %) children in Manipur were using iodised salt, followed by Mizoram (83 %), Nagaland and Himachal Pradesh (81 %) and Delhi (80 %). Use of iodised salt was lowest in Karnataka (29 %), Madhya Pradesh and Uttar Pradesh (33 %) and Rajasthan (35 %).

#### **4.6 Childhood Morbidity**

Acute respiratory infection (ARI) is one of the leading causes of childhood morbidity and mortality. Early diagnosis and treatment with antibiotics can prevent a large proportion of deaths caused by ARI. **Table 55** presents the percentage of children with symptoms of ARI during the two weeks preceding the National Family Health survey (NFHS-3), 2005-06. During the survey, mothers were asked whether their children under age five years had been ill with a cough accompanied by short, rapid breathing which was chest related in the two weeks preceding the survey. Among the states percentage of children with ARI symptoms varies from 1 percent in Himachal Pradesh to 13 percent in West Bengal and 14 percent in Tripura. More than 80 percent of children with ARI symptoms were taken to a health facility or provider in Delhi, Kerala, Haryana, Punjab, Goa and Tripura. The percentage of children with ARI symptoms who received antibiotics was highest in Mizoram (52 %), followed by Uttarakhand (46 %) and lowest in Chhattisgarh (1 %).

**Table 55: Among Children Under Age Five, Percentage who had Symptoms of Acute Respiratory Infection (ARI) in the Two Weeks Preceding the Survey and who Received Specific Treatment, According to State, NFHS-3, 2005-06**

State	Percentage of children under five with symptoms of ARI	Percentage for whom treatment was sought From a health facility or provider	Percentage who received antibiotics
<b>India</b>	5.8	69	12.5
Delhi	6.4	89.3	23.4
Haryana	2.7	(88.0)	(12.0)
Himachal Pradesh	1.3	*	*
Jammu and Kashmir	7.6	71.6	9.2
Punjab	6.9	87.1	12.8
Rajasthan	6.9	64.7	16.5
Uttaranchal	4.3	74.0	46.0
Chhattisgarh	4.4	66.8	1.0
Madhya Pradesh	3.7	51.5	14.2
Uttar Pradesh	7.1	73.4	8.5
Bihar	6.8	70.2	13.5
Jharkhand	5.2	67.0	12.4
Orissa	2.8	(76.5)	(13.5)
West Bengal	13	69.1	7.7
Arunachal Pradesh	6.7	43.6	36.2
Assam	7.3	34.3	8.6
Manipur	4.7	45.1	17.5
Meghalaya	1.9	*	*
Mizoram	4.1	(61.5)	(51.8)
Nagaland	4.2	27.1	31.2
Sikkim	5	(45.8)	(17.1)
Tripura	14.2	81.2	18.8
Goa	3.6	(83.0)	(28.3)
Gujarat	4.7	63.0	7.2
Maharashtra	4.6	71.8	23.5
Andhra Pradesh	2	(58.5)	(35.3)
Karnataka	1.7	(68.9)	(27.3)
Kerala	2.7	(88.8)	(33.2)
Tamil Nadu	3.7	75.3	6.5

() Based on 25-49 underweighted cases

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



Diarrhoea is another single most common causes of death among children under age five following acute respiratory infection. Deaths from acute diarrhea are most often caused by dehydration due to loss of water and electrolytes. Dehydration related deaths can be prevented by prompt administration of rehydration solutions. Government of India has launched the Oral Rehydration Therapy Programme as one of its priority activities for child survival. One major goal of this programme is to increase awareness among mothers and communities about the causes and treatment of diarrhoea.

**Table 56: Percentage of Children below Five Years who had Diarrhoea in the Two Weeks Preceding the Survey, by Age in Months, India, 2005-06**

Age of children in months	Any diarrhoea	Diarrhoea with blood
<6	10.6	0.2
6-11	18.1	1.0
12-23	13.8	1.3
24-35	8.3	1.2
36-47	5.0	0.5
48-59	3.9	0.6
Total	9.0	0.9

**Table 56** presents the percentage of children under age five with diarrhoea in the two weeks preceding the survey, by age of children in months. Overall, 9 percent of all children under age five had diarrhoea with 1 percent having diarrhoea with blood. Among children 0-59 months, children 6-11 months were most susceptible to diarrhoea.

**Table 57: Among Children Under Age Five who had Diarrhoea in the Two Weeks Preceding the survey, Percentage who Received Advice or Treatment from a Health Provider, Received Oral Rehydration Therapy (ORT), and Other Treatments, by State, NFHS-3, 2005-06**

State	Children with diarrhoea taken to a health provider (%)	Oral rehydration Therapy (ORT)			Increased Fluids	Any ORT or increased fluids	Other treatments						
		ORS Packets	Gruel	Either ORS or Gruel			Antibiotic drugs	Antimotility drugs	Zinc supplements	Other drug	Unknown drug	Intravenous solution	Home remedy/herbal/other
India	59.8	26	20.2	38.5	10.2	43	15.5	1.5	0.3	3.9	30.4	0.5	7.5
Delhi	75	29.9	19.1	42.1	9.4	43.4	31.3	0	0	0	19.1	1.3	6.2
Haryana	81.7	24.3	17.3	32.3	2.3	33.1	24	0	0	1.9	21.5	0	10
H.P.	68.9	56.3	39.2	69.9	32.3	75.3	12.6	0	0	3.3	19.2	0	4.3
J & K	67	40.6	13.9	44	14.8	46.6	15.2	0	0	0.9	33.2	0	5.9
Punjab	75.2	34.1	15.5	39.3	1.1	40.4	16.4	0	1.1	1	22.5	0	15.7
Rajasthan	56.7	16.5	6.7	21.4	5.5	25.4	11.7	2.9	0	8.5	32.7	1.6	7.6
Uttaranchal	61.7	33.1	29.7	49.1	16.7	53.2	14	0.7	0.7	4.6	23.1	0	13.3
Chhattisgarh	61.6	40	20.5	46.4	3.2	46.4	20.9	6.1	0	0	31.4	0	9
M.P.	58.1	29.8	25	44.2	8.4	47.8	14.9	4	0	2.1	40.2	0	7.5
U.P.	58.3	12.5	11.9	22.3	5.5	26.2	8.9	1.2	0.5	4.4	46.9	0	6.7
Bihar	53.9	20.9	25.8	39.7	18.2	46.6	23	0	0	2.2	27.8	0.2	3.6
Jharkhand	44.1	17.3	17.4	31.3	9.9	38.9	10.3	2.1	0.6	1.9	25	1.1	6.4
Orissa	58.9	39.8	15	48.6	9.4	54.8	11.7	1.2	0	3.2	24.9	1.8	12
West Bengal	67.4	42.3	22.6	52.3	17.4	63.3	10.3	2.7	0	4.6	29.5	0	8.3
Arunachal P.	35.5	31.7	12.4	39.9	12.4	47.2	14.4	0.7	0	3.2	4.9	0	13.6
Assam	31.4	14.5	13	24.6	1	25.6	10.1	1.9	0	1.9	17.9	1	15
Manipur	37.8	36.2	13.3	44.2	13	47.7	18.6	0.6	0	1.7	17.1	0.8	36.5
Meghalaya	72.2	65.1	13	72.1	16	72.1	24.9	0	0	10.1	32.1	0	21
Mizoram	27.4	48.3	30.3	64.8	24.2	69.4	54.5	0	1.1	2.2	1.1	1.1	16.9
Nagaland	17.6	16.5	34.3	44.8	16.9	52.7	20.2	0	0	4.5	9.3	0	15.9
Sikkim	33.4	33.2	27.5	47.7	43.9	65.3	9.6	10.8	0	1	4	1.2	9.8
Tripura	64.5	58.1	23.4	64.5	19.1	66.6	12.8	2.1	0	3.5	20.5	0	20.6
Goa	72.1	50.6	40.6	64.8	8.1	68.2	28.4	1.7	0	5.6	15.6	0	17.2
Gujarat	56.8	26.3	21.7	38.8	8.8	42.9	8.8	0	0	1	30.5	0	7.2
Maharashtra	77.3	38.5	30.3	52.1	9.8	53.8	24.4	2.1	1	7.7	20.6	2.7	3.2
Andhra P.	65.3	36.9	7.9	43.1	9.8	47	32.3	0.4	1.1	8.9	12.7	0	7.5
Karnataka	65.6	31.9	24.2	46.5	10.1	48.7	21.6	1.7	1.1	3.4	20	0	8.3
Kerala	63.3	32.3	78	80.9	44.1	85.3	13.3	0	2.9	11.7	5.9	0	19.1
Tamil Nadu	63.3	32.2	32.4	54.5	9.6	58.7	8.5	0	0	1.3	31.9	0	7.1

Note: ORT includes solution prepared from an oral rehydration salt (ORS) packet and gruel.

1 Excludes pharmacy, shop, and traditional practitioner.

**Table 57** shows the diarrhoea treatment and management practices among the states. Advice or treatment was sought from a health provider for 60 percent children who had diarrhoea. Table also shows the percentages of children with diarrhoea in the past two weeks who received various types of oral rehydration therapy (ORT) and who received other types of treatment, by states. Twenty-six percent of children age 0-59 months who suffered from diarrhoea during the two weeks preceding the survey were treated with a solution made from ORS packets. The percentage of children for whom advice or treatment was sought from a health facility or provider when sick with diarrhoea is considerably higher in Haryana, Maharashtra, Punjab, Delhi, Meghalaya, and Goa (70 -82 percent) than in other states.

Use of ORS packets for treatment of diarrhoea remained particularly limited in several states. Their use ranged from 13 percent of children sick with diarrhoea were receiving ORS in Uttar Pradesh, 15 percent in Assam and 17 percent in Rajasthan, Nagaland, and Jharkhand to almost two-third of children in Meghalaya and almost half or more in Tripura, Himachal Pradesh, Goa and Mizoram. The provision of any ORT or increased fluids to children with diarrhoea is also quite limited in Rajasthan, Uttar Pradesh and Assam, where about three-quarters of children who had diarrhoea in the two weeks preceding the survey were given neither ORT nor increased fluids. In Kerala more than 80 percent children received ORT or increased fluids. Fifty-five percent in Mizoram, 32 percent in Andhra Pradesh and 31 percent children in Delhi who had diarrhoea in the two weeks preceding the survey were treated with antibiotics.

## CHAPTER 5

### Socio-Economic Determinants of Infant and Child Mortality

#### 5.1 Rural/Urban Distribution

Research on child mortality in India has shown that mortality is relatively low in urban areas when compared to rural areas. As discussed in chapter 2, higher levels of neonatal, post neonatal and child mortality in rural areas was observed as compared to urban areas. As per NFHS-3, neonatal and post neonatal mortality rates were 1.5 times and child mortality was 2 times more in rural areas during 2000-2005 when compared to urban areas.

##### 5.1.1 Rural- Urban Distribution of Antenatal Care (ANC)

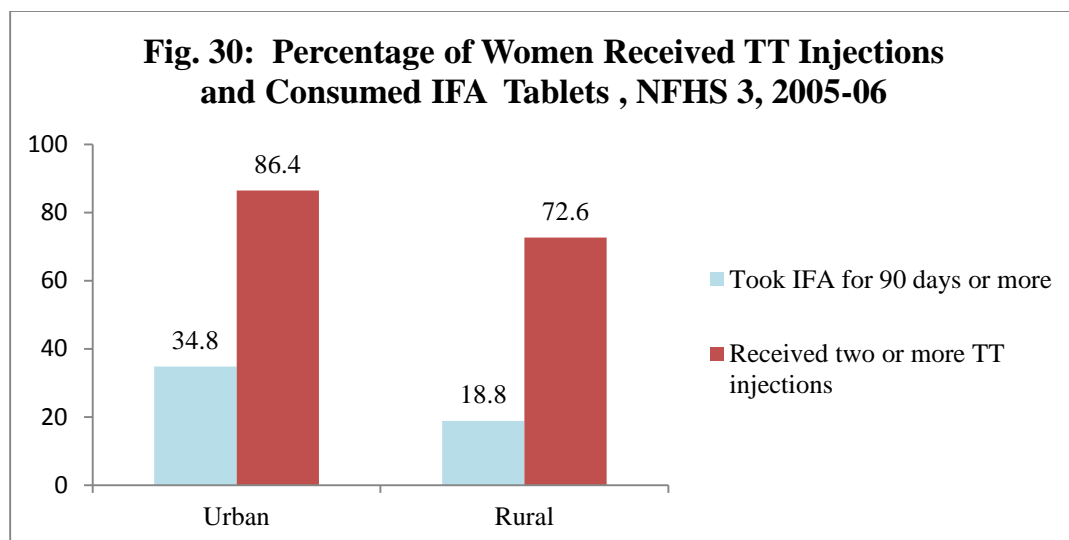
The percent distribution of women in rural and urban areas who had a live birth in the five years preceding the survey by antenatal care (ANC) by provider during pregnancy, 2005-06 is presented in **Table 58**. In urban areas 77 per cent mothers were provided ANC by doctor as compared to 41 percent in rural areas. In rural areas no ANC was received by 28 percent mothers whereas in urban areas 9 percent mothers did not receive any ANC.

**Table 58: Rural-Urban Distribution in Antenatal Care by Provider, NFHS-3, 2005-06**

Residence	Doctor	ANM/nurse/ midwife/LHV	Other health personnel	Dai/TBA	Anganwadi / ICDS Worker	Other	No one
Urban	76.7	12.4	0.3	0.9	0.4	0	9.3
Rural	40.6	26.9	1.3	1.2	2.1	0.2	27.7

##### 5.1.2 Rural- Urban Distribution of TT Injections and IFA Tablets Consumption

The percentage of women who delivered during 12 months preceding the survey, according to women who received antenatal care, number of ANC received, ANC according to stage of pregnancy, TT injections received and IFA tablets consumed by residence as per NFHS-3, 2005-06, CES, 2009 is presented in **Fig. 30**.



Among the women who delivered during 12 months preceding the Coverage Evaluation Survey, 2009, **12 percent in rural areas and 4 percent in urban areas did not receive any antenatal checkup. Percentage of women who received more than 3 antenatal checkups was 63 in rural areas compared to 83 in urban areas (Table 59).** Two or more TT injections were received by 86 percent women in rural areas and 89 percent women in urban areas. Full ANC was received by 23 percent women in rural areas compared to 36 percent in urban areas.

**Table 59: Rural-Urban Distribution in Antenatal Care (ANC), TT Injections and IFA Tablets Consumption, CES, 2009**

Residence	Received Antenatal Checkup				TT Injections			IFA tablets/syrup for 100+ days		Full ANC
	0	At Least one	3+	4+	0	1	2+	Received	Consumed	
Rural	11.7	87.7	63.3	46.3	7	7.1	85.9	37.5	27.6	22.8
Urban	4.2	94.4	82.7	70.6	4.8	5.8	89.4	48.5	39.7	36.1

**Table 60** presents the timings of the first antenatal checkup by women who delivered during preceding one year from CES 2009. Table shows that **59 percent women received the first antenatal checkup in the first trimester.** Urban women (70.4%) were more likely to receive ANC in the first trimester than rural women (54.9%). About 12 percent women in rural areas and 4 percent in urban areas did not receive any antenatal checkup.

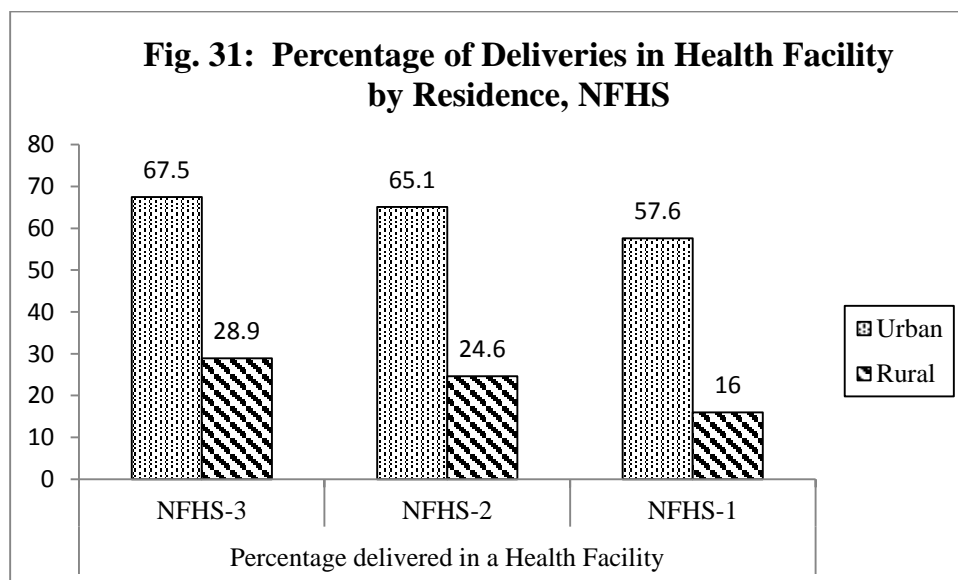
**Table 60: Rural-Urban Distribution of Women by Stage of Pregnancy at the time of first ANC, CES, 2009**

Stage of Pregnancy	Rural	Urban	Total
No Antenatal Check-up	11.7	4.2	9.6
First Trimester	54.9	70.4	59.2
Second Trimester	27.9	21	26
Third Trimester	4.8	3.3	4.4

It is evident from the tables above that for reduction in the neonatal and infant mortality, health facilities in rural areas should be improved to provide antenatal care to mothers.

### 5.1.3 Rural- Urban Distribution of Place of Delivery and Assistance Provider

Deliveries in proper hygienic conditions under the supervision of trained health professional are one of the important objectives of the Reproductive and Child Health Programme. **Fig. 31** presents the percentage of mothers who gave birth to child in a health facility during preceding five years from NFHS surveys. Though increased percentage of deliveries in health facilities were found in succeeding surveys, but still a large proportion of mothers in rural areas delivered at home. **More than two third mothers in urban areas delivered in health facility/institution during 2000-2005 whereas during the same period only 29 percent rural mothers delivered in a health facility/institution as per NFHS.**



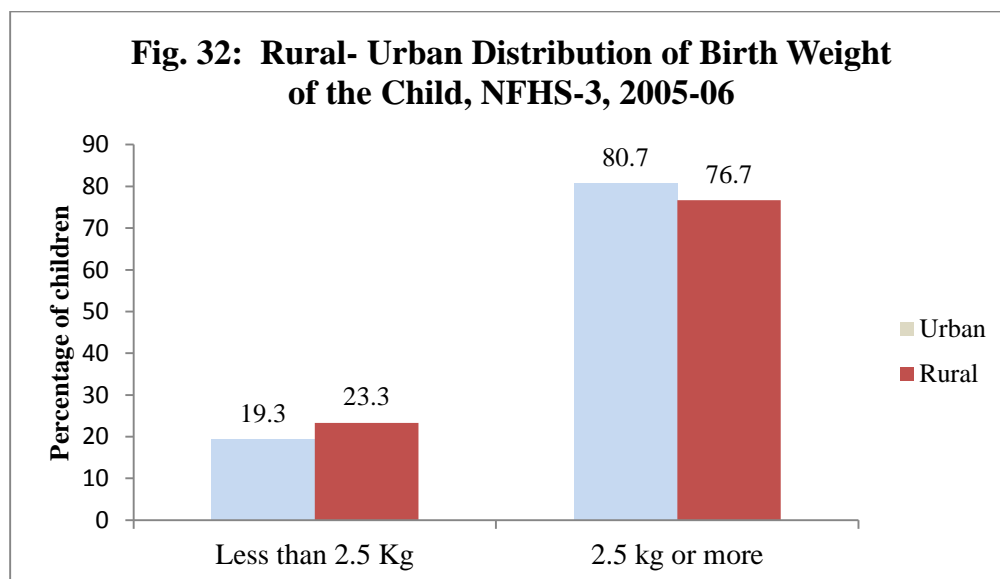
**Table 61** presents the percentage distribution of women who delivered during 12 months preceding the Coverage Evaluation Survey, 2009 according to place of delivery and assistance received during home delivery by residence. A significant increase in institutional deliveries from NFHS-3 to CES, 2009 has been observed particularly in rural areas. As the table shows 68 percent deliveries in rural areas and 86 percent in urban areas were institutional deliveries which may be attributed to the interventions like NRHM, JSY, JSSK etc.

**Table 61: Assistance Received during Delivery by Residence, CES, 2009**

Residence	Institutional Delivery	Home Delivery Assisted by			Skilled Birth Attendant
		Skilled Workers	Dai	Others	
Rural	68	3.7	19.9	8.4	71.7
Urban	85.6	2.3	9.7	2.4	87.9

#### 5.1.4 Rural- Urban Distribution of Birth Weight of the Child

The rural- urban distribution of birth weight of the child as per NFHS-3, 2005-06 is presented in **Fig. 32**. The figure shows that the percentage of low birth weight babies was more in rural areas as compared to urban areas.



### 5.1.5 Rural- Urban Distribution of Initiation of Breastfeeding

The percentage of mothers who breast fed the child within one hour and one day of birth and fed colostrum according to residence is presented in **Table 62**. The percentage of mothers who had breast fed the child within one hour and one day of birth was better for rural areas as per CES, 2009 as compared to the rates of CES, 2006, however, the practice of feeding colostrum to the child increased in both rural and urban areas.

**Table 62: Rural-Urban Distribution of Status of Initiation of Breastfeeding, CES, 2006 and 2009**

Residence	CES, 2006			CES, 2009		
	Started breastfeeding within one hour of birth	Started Breastfeeding within one day of birth	Fed colostrum to the child	Started breastfeeding within one hour of birth	Started Breastfeeding within one day of birth	Fed colostrum to the child
Rural	27.4	75.8	79.7	34	73.3	84.6
Urban	34.8	82.2	85.4	32.3	72.9	87.2

### 5.1.6 Rural- Urban Distribution of Post Natal Check-ups

The percentage distribution of mothers according to timing of first post natal check-up by rural/urban residence as per NFHS-3, 2005-06 is presented in **Table 63**. The percentage of mothers with no postnatal check-up was high (66.1 per cent) for rural areas as compared to urban areas (34.3 per cent).

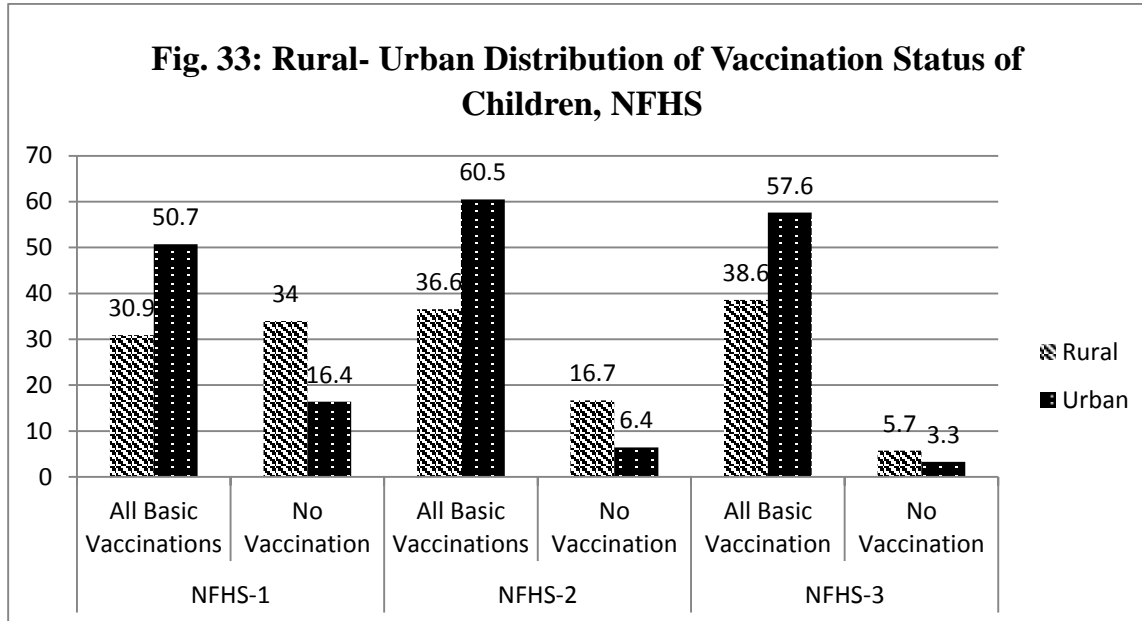
**Table 63: Timing of First Post Natal Check-up by Rural/Urban Residence, NFHS-3, 2005-06**

Residence	Timing of First Post Natal Check-up					
	Less than 4 hours	4-23 hours	1-2 days	3-41 days	Don't Know/Missing	No Postnatal check up
Urban	45.2	8.1	7.7	2.7	2	34.3
Rural	20.8	3.7	4.1	4.4	0.9	66.1

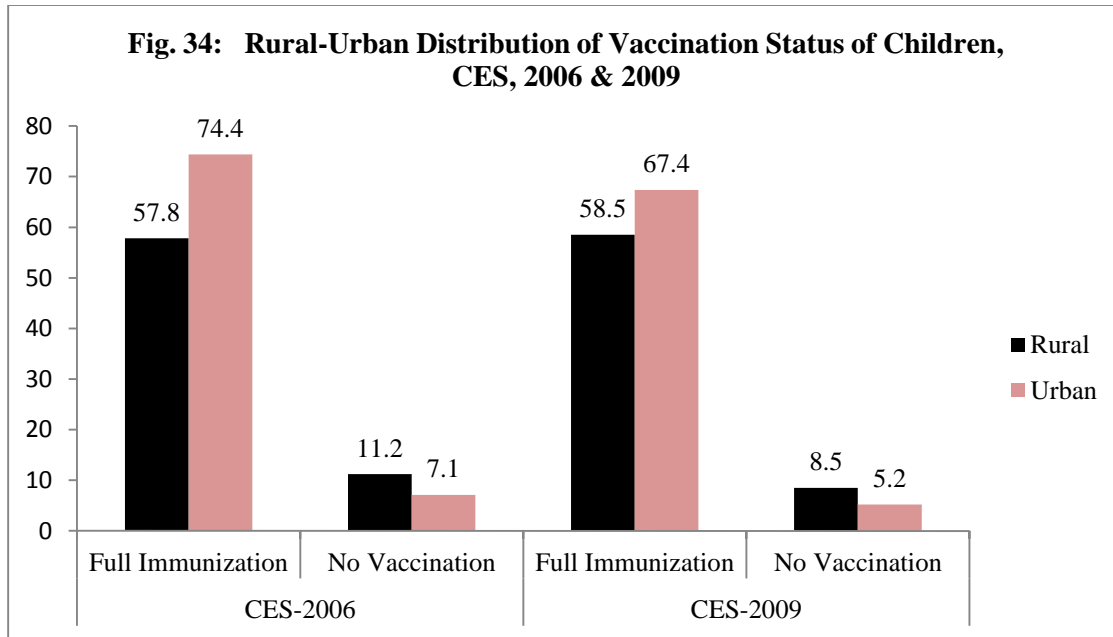


### 5.1.7 Rural-Urban Distribution of Vaccination Status

The percentage of children age 12-23 months who received specific vaccination by rural/urban residence according to vaccination card or mother's report as per NFHS-1, NFHS-2 & NFHS-3 and CES, 2006 & 2009 is presented in **Fig. 33 & 34**.

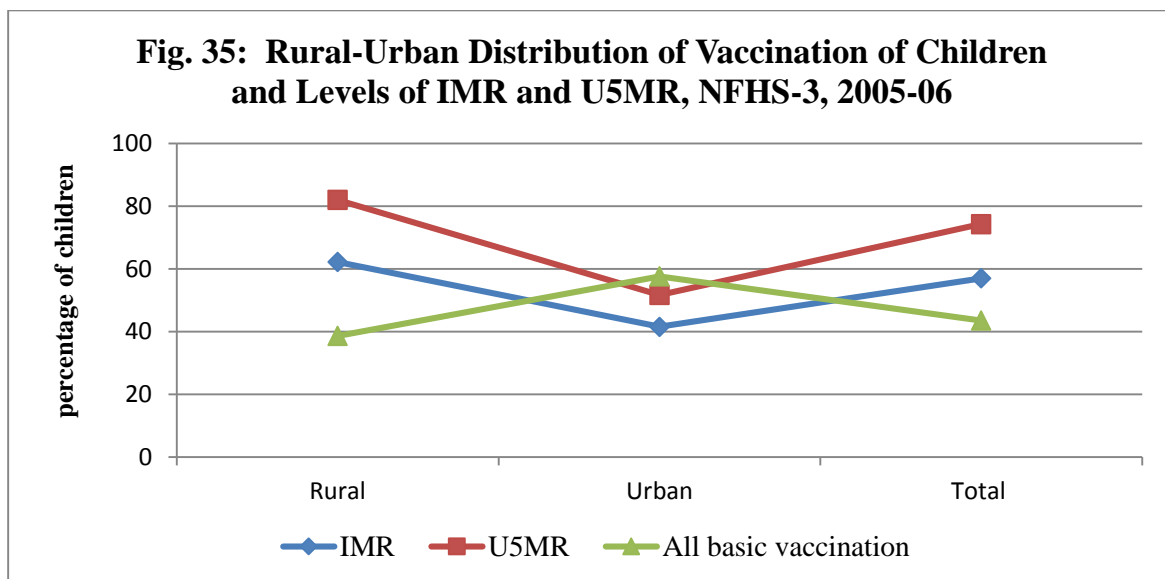


It is observed that higher percentage of children in urban areas were vaccinated than in rural areas. Fig. 33 shows that the percentage of children not received any vaccine decreased in subsequent surveys. As per NFHS-3, about 6 percent children in rural areas and 3 percent children in urban areas did not receive any vaccine, however, 56 percent children in rural areas and 39 percent children in urban areas did not received all basic vaccines i.e. 1 dose of BCG, 3 doses of OPV excluding OPV 0, 3 doses of DPT and one dose of Measles vaccine. Fig. 34 also describes that as per Coverage Evaluation Survey, 33 percent rural children and 30 percent urban children in 2009 did not receive all vaccines completely.



### 5.1.8 Rural-Urban Distribution of Vaccination of Children and Levels of IMR and U5MR

The rural-urban distribution of vaccination of children and levels of IMR and U5MR is presented in Fig. 35. The levels of IMR and U5MR are higher for rural areas than urban areas. Figure shows a strong negative relationship between vaccination and mortality rates.



The figure shows that there is a negative correlation between vaccination of children and mortality. To reduce the infant and under-five mortality, all children should be fully vaccinated.

### 5.1.9 Rural- Urban Distribution of Status of Vitamin A Supplementation

The rural-urban distribution of percentage of children aged 12-23 months who received vitamin A supplementation as per CES, 2006 and 2009 is presented in **Table 64**. The status of vitamin A supplementation for urban area was better than that of rural area.

**Table 64: Rural-Urban Distribution of Status of Vitamin A Supplementation, CES, 2006 and 2009**

Residence	CES, 2006		CES, 2009	
	Received at least one dose of vitamin A	Received one dose of vitamin A during past six months	Received at least one dose of vitamin A	Received one dose of vitamin A during past six months
Rural	56.8	36	64.6	58.3
Urban	60.9	39.1	67.4	62.5

## 5.2 Mother's Education

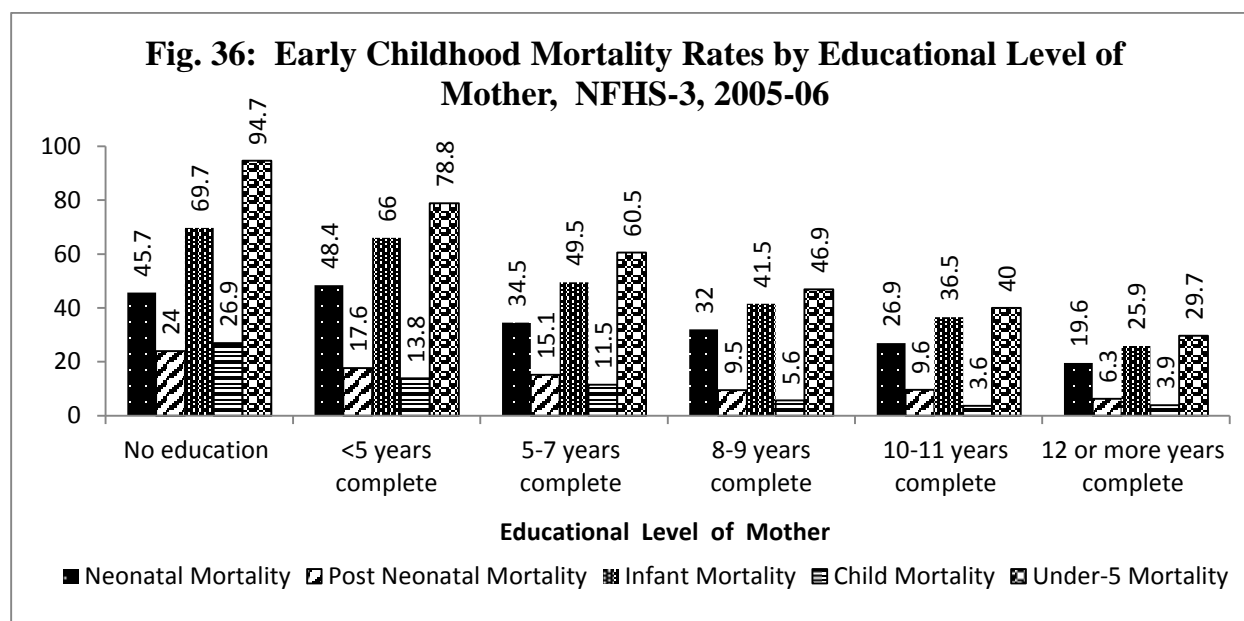
A mother's education is important because it facilitates her integration into a society impacted by traditional customs, exposes her to information about better nutrition, use of contraceptives to space births and knowledge about childhood illnesses and treatment. Education heightens a mother's ability to make use of government and private health care resources and it may increase the autonomy necessary to advocate for her child in the household and the outside world. Mother's education is often just a good indicator of other socioeconomic factors that affect under-five mortality directly.

**Table 65 and Fig. 36** present the neonatal, post neonatal, infant, child and under-five mortality rates by the education level of the mothers for the period 2001-05. It is evident from the table that mother's education is strongly associated with higher rates of child survival. Children born to a mother with secondary or higher education have lowest rates for all types of childhood mortality. IMR and U5MR among children born to illiterate mothers have been consistently higher

than those born to mothers with any education. As shown in the table, children born to mothers with 8-9 years of schooling have 30% lesser chances of dying in neonatal period and 60% lesser chances in the post-neonatal period, as compared to the illiterate mothers. The IMR is 40 percent less for the children of mothers with 8-9 years of schooling, 48 percent less for mothers with 10-11 years of schooling and 63 percent less among the children whose mothers have completed 12 and more years of education as compared to illiterate mothers. Similarly the under-five mortality rates are 69% lesser for the children whose mothers have more than 12 years of schooling as compared to children having illiterate mothers.

**Table 65: Early Childhood Mortality Rates by Mother's Education, NFHS-3, 2005-06**

Education	Neonatal Mortality	Post neonatal mortality	Infant Mortality	Child Mortality	Under-5 Mortality
No education	45.7	24.0	69.7	26.9	94.7
<5 years complete	48.4	17.6	66.0	13.8	78.8
5-7 years complete	34.5	15.1	49.5	11.5	60.5
8-9 years complete	32.0	9.5	41.5	5.6	46.9
10-11 years complete	26.9	9.6	36.5	3.6	40.0
12 or more years complete	19.6	6.3	25.9	3.9	29.7



**Table 66** presents the neonatal, post neonatal, infant and under-five mortality rates by education of mothers in rural and urban areas. In both, rural and urban areas similar pattern was observed for the level of education of the mother.

**Table 66: Rural-Urban Distribution of Early Childhood Mortality by Education of Mother, NFHS-3, 2005-06**

Residence	Mortality	Education					
		No education	<5 years complete	5-7 years complete	8-9 years complete	10-11 years complete	12 or more years complete
Urban	Neonatal Mortality (NN)	38.2	39.9	31.4	25.8	16.2	19.4
	Post neonatal mortality (PNN)	23.1	13.4	16.7	5.4	8.3	4.2
	Infant Mortality	61.3	53.3	48.1	31.2	24.5	23.6
	Child Mortality	21.4	6.5	7.5	4.7	4.3	4.7
	Under-5 Mortality	81.4	59.4	55.2	35.7	28.7	28.2
Rural	Neonatal Mortality (NN)	47	50.5	35.8	35.1	35	20
	Post neonatal mortality (PNN)	24.1	18.6	14.4	11.6	10.5	9.6
	Infant Mortality	71.1	69.2	50.1	46.7	45.5	29.6
	Child Mortality	27.8	15.8	13.3	6.1	3	2.3
	Under-5 Mortality	97	83.8	62.8	52.5	48.3	31.8

### 5. 2.1 Antenatal Care (ANC) by Mother's Education

The percentage of mothers who had received ANC by provider as per the NFHS-3 is presented in **Table 67**. It is seen from the table that higher percentage of mothers with more years of schooling, received ANC from the doctor. **Eighty eight percent mothers, who have completed 12 or more year's education, were provided ANC by a doctor compared to 29 percent of mothers with no education. A large proportion of uneducated mothers (38%) did not receive antenatal care compared to the educated mothers.**

**Table 67: Antenatal Care (ANC) Provider by Mother's Education, NFHS-3, 2005-06**

Education	Doctor	ANM/nurse/ midwife/LHV	Other health personnel	Dai/ TBA	Anganwadi/ ICDS Worker	Other	No one
No education	28.7	28	1.3	1.6	2.3	0.1	37.9
<5 years complete	51.7	25.3	1.6	0.7	2.8	0.2	17.6
5-7 years complete	60.6	22.9	1.1	1.2	1.1	0.1	13
8-9 years complete	69.2	19.7	0.6	0.8	0.9	0.1	8.6
10-11 years complete	79.2	13.8	0.7	0.6	0.7	0.1	4.9
12 or more years complete	88.1	9.2	0.4	0.3	0.2	0	1.7

Number of antenatal check-ups, TT injections and IFA tablets consumed according to Coverage Evaluation Survey 2009 are presented in **Table 68**. As observed, one fifth of the illiterate mothers did not receive any health checkup whereas 98 percent mothers with 12 years or more schooling received three or more health checkups. Among illiterate mothers, 11 per cent were not given any TT injection compared to 94 percent mothers with 12 years or more education who received 2 or more TT injections. **Fifty five percent mothers with education for 12 years or more consumed IFA tablets for at least 100 days whereas among illiterate mothers only 17 per cent consumed 100 days or more.** The percentage of mothers received full ANC increased with the higher level of education of the mothers.

**Table 68: Percentage of Mothers Received Antenatal Checkup, TT Injections and Consumed IFA Tablets by Education, CES, 2009**

Mother's Education	Received Antenatal Checkup				TT Injections			IFA tablets/syrup for 100+ days		Full ANC
	0	At Least one	3+	4+	0	1	2+	Received	Consumed	
No Education	20.3	79.2	45.8	27.7	11.3	8.6	80.1	25.3	17.2	12
<5 years completed	7	92.4	71.3	51.3	6.6	9.4	84	35.2	26	22.1
5-7 years completed	6.3	92.8	74.8	58.4	4.7	6.4	88.9	39.1	28.7	25.2
8-9 Years completed	4	95.2	77.5	59.8	3.1	6.9	88.9	41.8	31.8	27
10-11 years completed	2.2	96.4	85.9	73.7	3.8	4.8	91.4	54.6	43.7	39.8
12 or more years completed	1.9	98.8	98.2	80.8	2.7	3.3	94	65.4	54.9	50.5

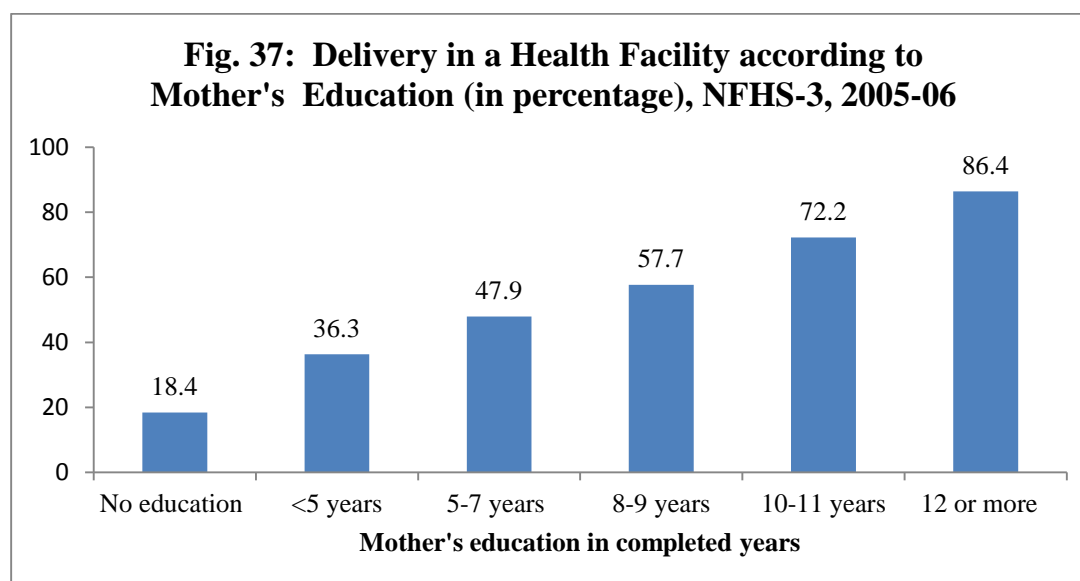
## 5.2.2 Place of Delivery and Assistance Provider by Mother's Education

The percentage of mothers who delivered with assistance by a skilled provider during five years preceding the NFHS-3 survey according to completed years of education is presented in **Table 69**. It is seen from the table that among mothers with no education only 26 percent received assistance from a skilled provider and 16 percent of them received assistance from a doctor whereas 91 percent mothers with education of 12 years or more were assisted during delivery by a skilled provider and in 81 percent cases, the assistance provider was a doctor.

**Table 69: Assistance Received during Delivery by Education of Mother, NFHS-3, 2005-06 (in percentage)**

Mother's Education	Doctor	ANM/nurse/ midwife/LHV	Other health personnel	percentage delivered by a skilled provider
No education	16.3	8.4	1.4	26.1
<5 years completed	33.1	10.2	1.6	45
5-7 years completed	43.4	12.5	1	56.9
8-9 years completed	53	13.4	0.7	67.1
10-11 years completed	66	13.6	0.7	80.3
12 or more years completed	80.6	10.1	0.3	91

Place of delivery for the births during the five years preceding the survey (NFHS-3) is presented in **Fig. 37**. As evident from the figure, higher the level of education of the mother, higher is the percentage of institutional deliveries.



Percentage of institutional deliveries and assistance provided during home deliveries according to level of education of the mothers as per the Coverage Evaluation Survey, 2009 are presented in **Table 70**. It is seen that only 54 percent of uneducated mothers delivered in a health institution. With increase in the years of education completed by mothers, the percentage of institutional deliveries increased. During the last one year from the date of survey, 58 percent deliveries by mothers with no education attended by a skilled attendant whereas 95 per cent deliveries by mothers with 12 or more years completed education were conducted by a skilled birth attendant.

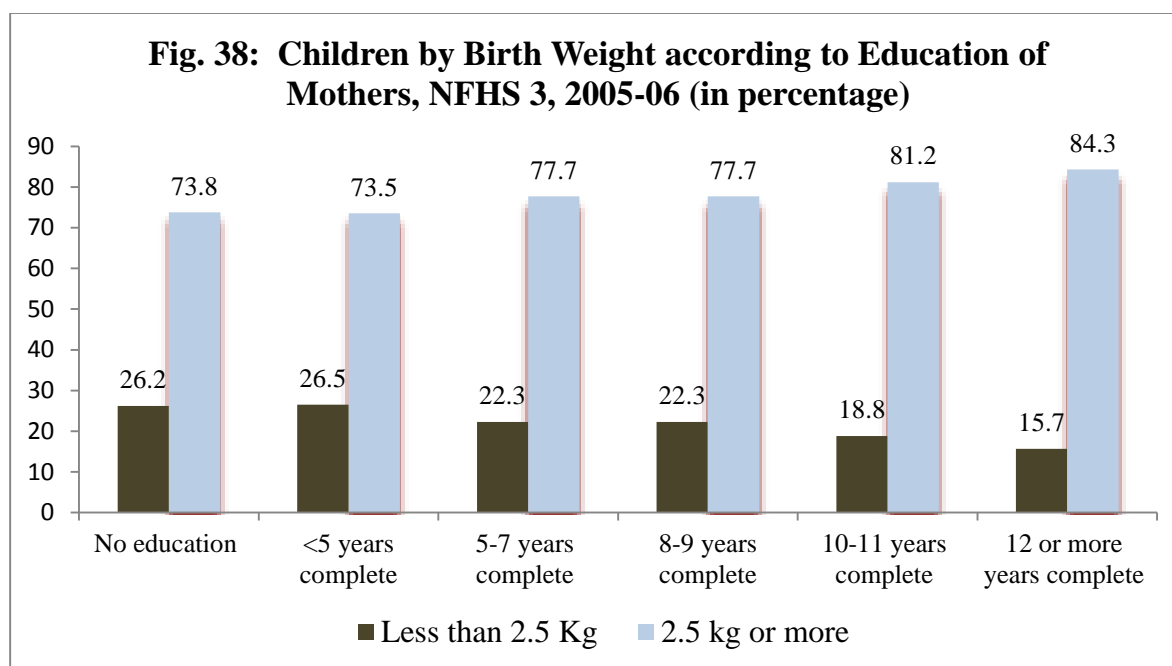
**Table 70: Assistance Received according to Place of Delivery by Education of Mother, CES, 2009 (in percentage)**

Mother's Education	Institutional Delivery	Home Delivery Assisted by			Skilled Birth Attendant
		Skilled Workers	Dai	Others	
No education	53.5	4.2	30.3	12	57.7
<5 years completed	69	4.9	19.1	7	73.9
5-7 years completed	74.7	3.5	15.7	6.1	78.2
8-9 years completed	82.2	2.7	11	4.1	84.9
10-11 years completed	89	2.2	6.8	2.1	91.1
12 or more years completed	93.1	1.9	2.9	2.1	95

### 5.2.3 Birth Weight of the Child by Mother's Education

Birth weight is an indicator of the chances of child's survival. In NFHS-3, birth weight was recorded for 34 per cent of babies born in the five years preceding the survey either on the basis of health card or from the mother's memory (recall). The percentage of children by birth weight according to education of mothers is presented in **Fig. 38**. It is seen from the figure that with the higher level of schooling of the mothers the birth weight of the baby increased. Among the babies born to uneducated mothers, 26 per cent were low birth weight as compared to 15.7 per cent among the babies born to the mothers who have completed 12 years or more schooling.





#### 5.2.4 Postnatal Care by Mother's Education

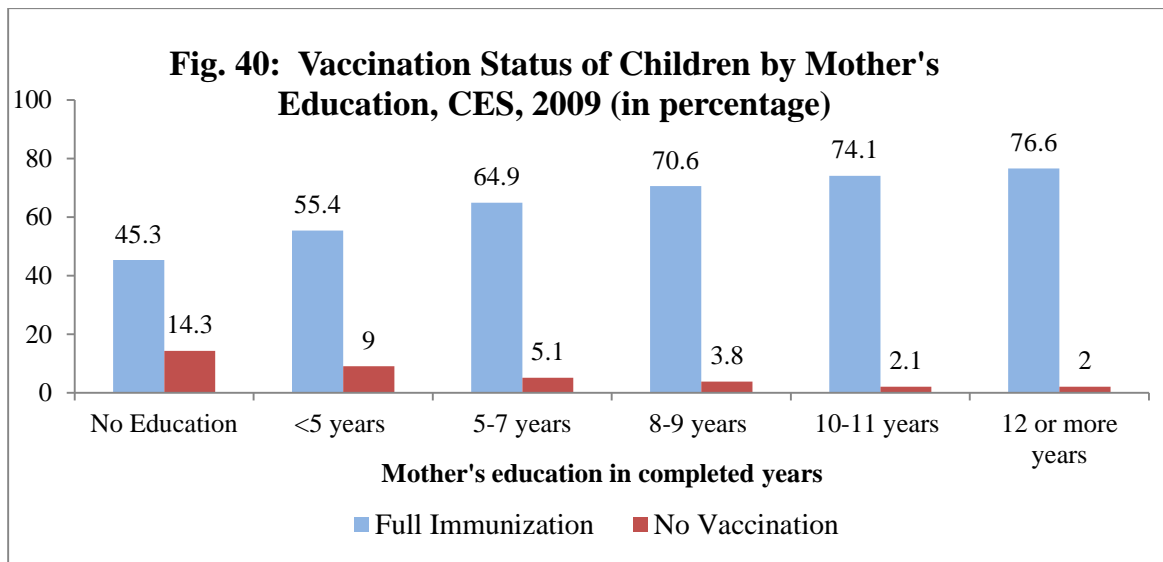
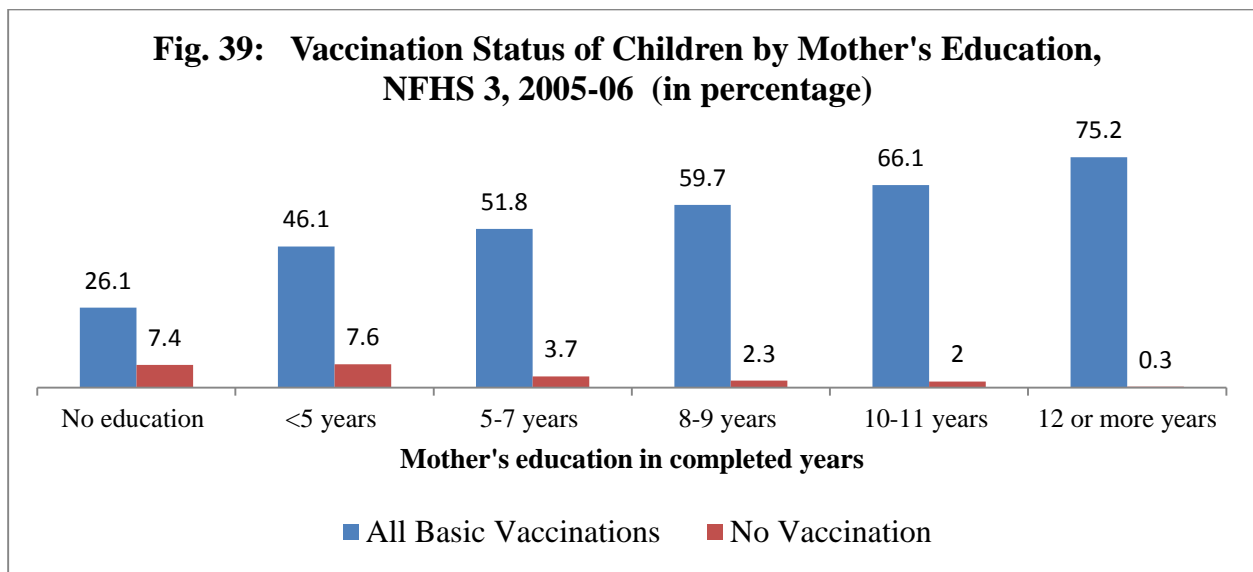
Reproductive and Child Health Programme recommends three postnatal visits to provide health care to mother and the infant during first few weeks after delivery. A large proportion of maternal and neonatal deaths occur during the 48 hours after delivery, therefore, it is important to receive health checkup soon after delivery particularly for non-institutional births. The percentage distribution of mothers according to timing of first post natal check-up by education level of mother as per NFHS-3, 2005-06 is presented in **Table 71**. **The percentage of mothers with no postnatal check-up was 76 for mothers with no education as compared to 30 percent for mothers with 10-11 years of education and 17 percent for mothers with 12 or more years of schooling.**

**Table 71: Timing of First Post Natal Check-up by Mother's Education, NFHS-3**

Mother's Education	Less than 4 hours	4-23 hours	1-2 days	3-41 days	No Postnatal check up
No education	13.4	2.4	3.3	3.9	76.4
<5 years complete	23.7	4.5	5.4	5.3	60.2
5-7 years complete	32.8	5.4	5.6	4.4	50.3
8-9 years complete	36	7.4	6.9	4.2	44
10-11 years complete	48.6	8.5	8	3.3	29.7
12 or more years complete	59.2	10.2	8.1	2.9	17.2

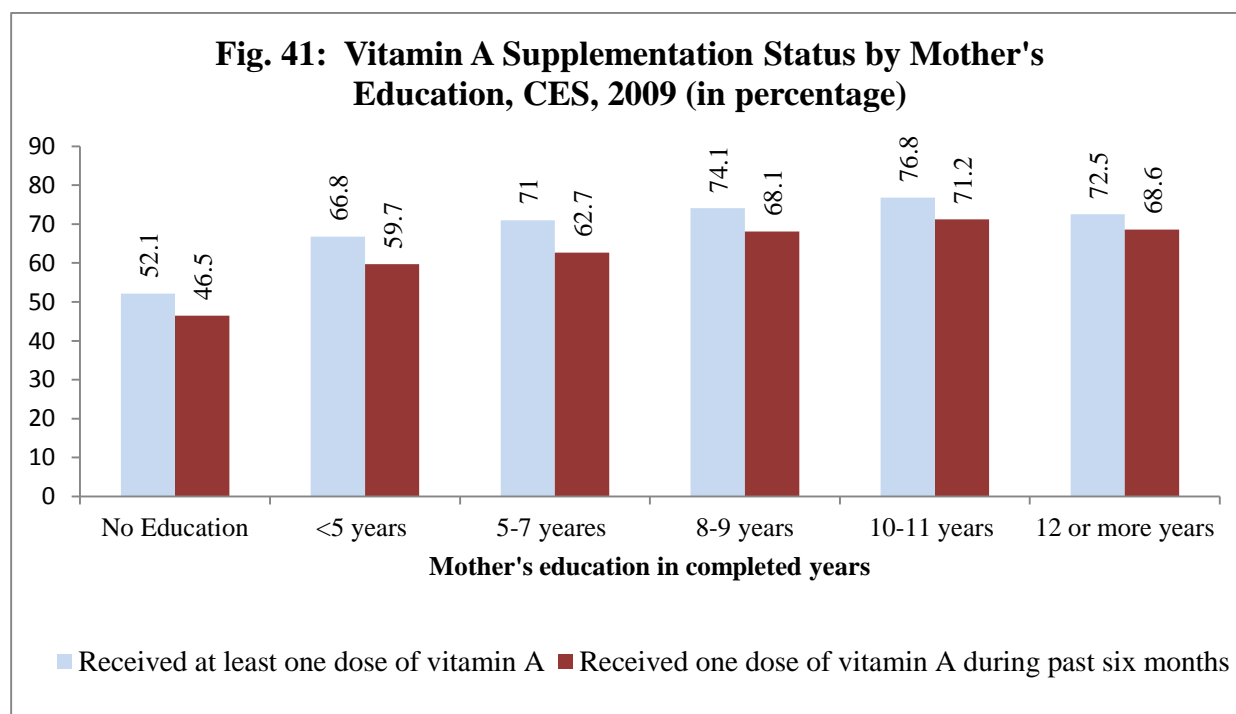
### 5.2.5 Vaccination Status by Mother's Education

The percentage of children aged 12-23 months who received vaccination according to education of mother as per NFHS-3, 2005-06 and CES, 2009 is presented in **Fig. 39 and 40**. The percentage of full immunization of children as per NFHS3, 2005-06 was 75 percent for mothers with completed education for 12 years or more in comparison to 26 percent for the children of mothers with no education in 2005-06. Similarly, CES, 2009 data shows that 77 percent children of the mothers with 12 years or more schooling education were given complete vaccination, whereas only 45 percent children of the mothers with no education received all vaccinations.



### 5.2.6 Vitamin A Supplementation Status by Mother's Education

The percentage of children aged 12-23 months who received vitamin A supplementation by mother's education as per CES, 2009 is presented by **Fig. 41**. The status of vitamin A supplementation to the children was better among mothers who were educated than mothers with no education.



### 5.3 Religious Groups

Some of the effect of religion on mortality may be due to differences in life-style based on traditions and beliefs. Such differences may include customary practices related to childbirth, infant feeding, and health care, and these should have an effect on infant and child mortality independently of other variables. Part of the effect of religion on mortality, however, may be due to other related socioeconomic conditions.

**Table 72** presents the early childhood mortality rates estimated on the basis of National family health survey (NFHS-3), 2005-06 for the five year period preceding the survey. Among the largest religious groups, Hindus have the highest rate of infant mortality (58.5), followed by

Buddhist (52.8), Muslims (52.4), Sikhs (45.6) and Christians (41.7). Neonatal mortality was highest among Buddhist (43) but post neonatal mortality was very lower (9.8) as compared to Hindu and Muslim (18.2). Under-five mortality rate was highest among Hindus (76) followed by Muslims (70), Buddhist (69), Christian (52.8) and Sikhs (52.1). Children belonging to Muslim communities have similar or slightly lower levels of mortality than Hindus. Among the others, who did not belong to these major religious groups, the infant and child mortality rates were much higher.

**Table 72: Early Childhood Mortality Rates by Religion, NFHS-3, 2005-06**

Religion	Neonatal Mortality	Post neonatal mortality	Infant Mortality	Child Mortality	Under-5 Mortality
Hindu	40.3	18.2	58.5	18.5	76
Muslim	34.1	18.2	52.4	18.6	70
Christian	31.5	10.1	41.7	11.6	52.8
Sikh	35.9	9.7	45.6	6.8	52.1
Buddhist	43	9.8	52.8	17.1	69
Other	43.3	41.4	84.6	50.4	130.7

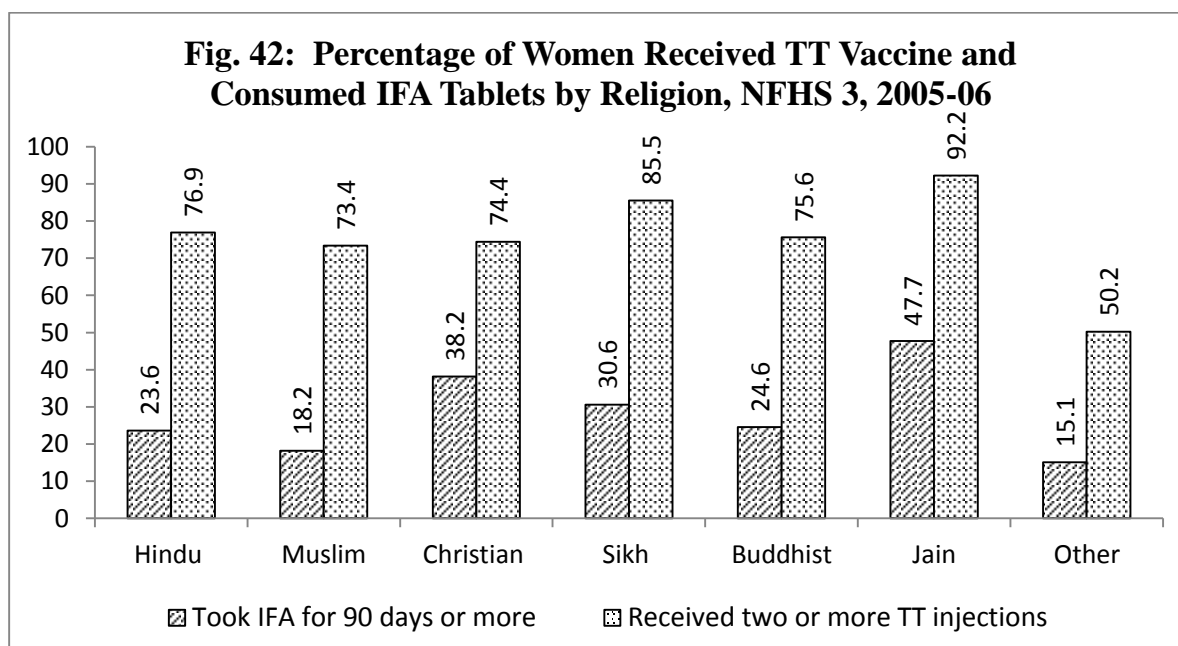
### 5. 3.1 Antenatal Care (ANC) by Religion

The percentage of mothers of different religions who had received ANC by provider, as per NFHS-3, 2005-06 is presented in **Table 73**. The table shows that 96 percent mothers belonging to Jain religion had received ANC from Doctor, followed by Christian (70%), Buddhist/Neo Buddhist and Sikh (58 %). One half of the Hindu mothers and little below (48 %) Muslim mothers received ANC from Doctor. Only one fourth mothers belonging to other religious groups received ANC from a Doctor.

**Table 73: Antenatal Care (ANC) by Provider and Religion, NFHS-3, 2005-06  
(in percentage)**

Religion	Doctor	ANM/nurse/ midwife/LHV	Other health personnel	Dai/ TBA	Anganwadi/ ICDS Worker	Other	No one
Hindu	50	23.7	0.8	1.2	1.9	0.1	22.3
Muslim	48.2	21.3	2.2	0.7	0.5	0.2	26.8
Christian	69.8	10.3	0.7	1.3	0.7	0.1	17.1
Sikh	57.8	25.8	1.5	4.8	0.2	0.1	9.8
Buddhist/ Neo-Buddhist	58.2	23.9	0.1	2	2.8	0	12.9
Jain	95.8	3.5	0	0	0	0	0.7
Other	25.4	20.5	0.7	0.6	4.4	0.1	48.3

**Fig. 42** shows that majority of the women of all religious groups were not consuming the IFA tablets during pregnancy and a considerable proportion of women did not received two TT injections. Considering the prevalence of anaemia among women, more efforts are required to create awareness among women.



**Table 74** presents the percentage of mothers who received number of check-ups, TT vaccine and consumed IFA tablets and received full ANC as per CES, 2009 by religion. Though,

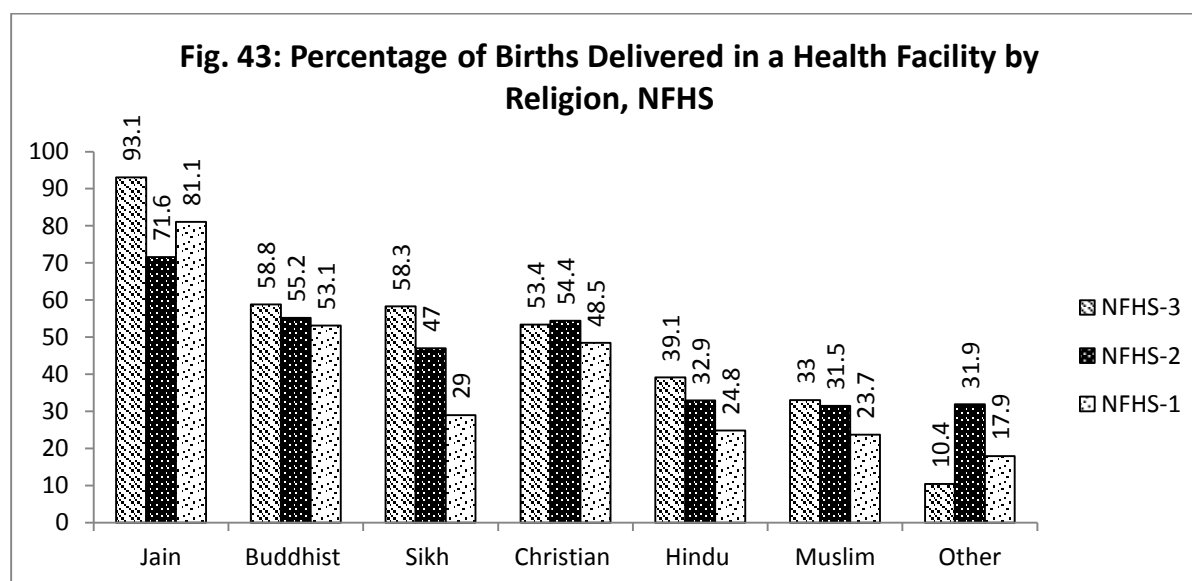
the level of complete antenatal care received by the mothers of all religious groups is very low, it is seen from the table that Christian mothers were more aware of receiving antenatal care than others and Muslim mothers were receiving least antenatal care.

**Table 74: Percentage of Mothers Received Antenatal Checkup, TT Injections and Consumed IFA Tablets by Religion, CES, 2009**

Religion	Received Antenatal Checkup				TT Injections			IFA tablets/syrup for 100+ days		Full ANC
	0	At Least one	3+	4+	0	1	2+	Received	Consumed	
Hindu	9.2	90.1	69.4	53.9	5.9	7	87.2	41.5	31.7	27
Islam	12.5	86.2	62.4	46.4	8.4	5.6	86	33.6	25.5	22
Sikh	5.4	94.2	74.8	55.4	5.6	2.3	92.1	43.5	34.7	29.5
Christian	8	88.1	74.9	64.2	10.2	7.1	82.7	49.1	40.5	36.6
Other religious groups	4.9	93.6	79.7	57.5	10.7	8.3	81	41.6	24.7	22.3

### 5.3.2 Place of Delivery and Assistance Provider by Religion

The percentage of mothers who delivered in a health facility by religion based on three rounds of NFHS is presented in **Fig. 43**. The table presents that though the proportion of institutional deliveries increased over the time but the proportion of deliveries among Hindus and Muslims is lower as compared to Christian, Sikh, Buddhists and Jains.



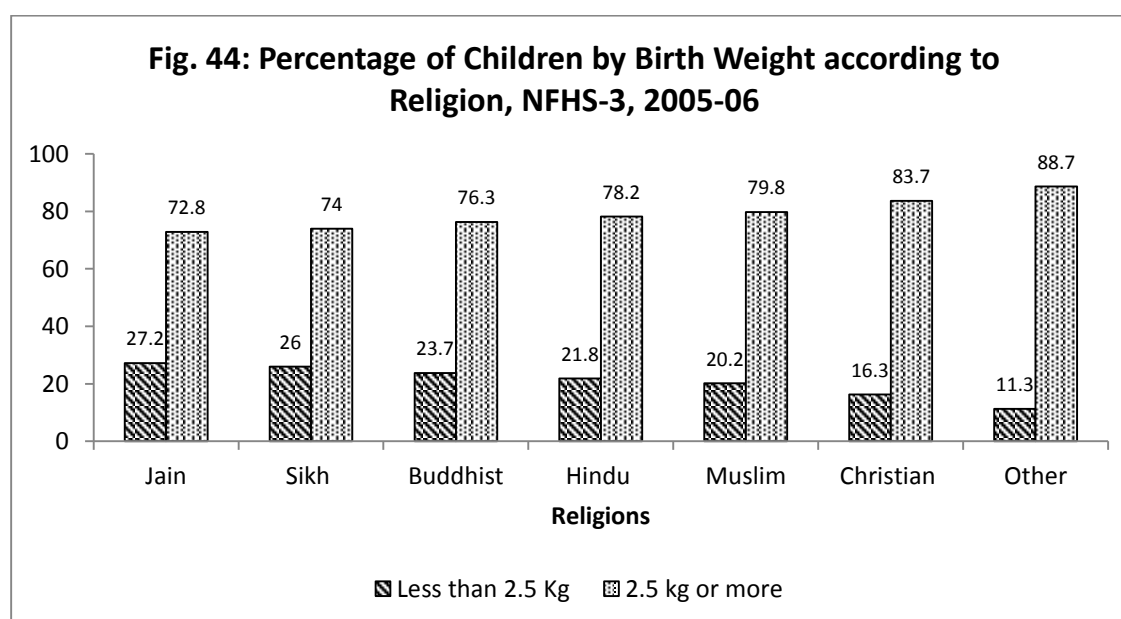
**Table 75** presents the place of delivery and assistance received during delivery by religion as per the Coverage Evaluation Survey, 2009. Table shows that lowest (62 %) Muslim women and highest (76 %) Christian women delivered in a health facility. Highest percentage of home deliveries attended by unskilled personnel was among Muslims.

**Table 75: Place of Delivery and Assistance Received during Delivery by Religion, CES, 2009 (in percentage)**

Religion	Institutional Delivery	Home Delivery Assisted by			Skilled Birth Attendant
		Skilled Workers	Dai	Others	
Hindu	74.8	3.3	15.4	6.5	78
Islam	62.4	3.2	26.9	7.5	65.6
Sikh	72.7	5	22.1	0.2	77.7
Christian	76	2.8	10.9	10.2	78.9
Other Religious Group	72.6	3.9	15.4	8.2	76.5

### 5.3.3 Birth Weight of the Child by Religion

The percentage of children by birth weight according to religion as per NFHS-3 is presented in **Fig. 44**. As seen, among major religious groups, minimum low birth weight babies (16.3%) born to Christian mothers and maximum (27.2 %) among Jains followed by Sikh (26 %). Among the other than major religious groups the incidence of low birth babies was only 11.3 per cent.



### 5.3.4 Initiation of Breastfeeding by Religion

The percentage of mothers who breast fed the child within one hour and one day of birth and fed colostrum according to religion as per NFHS-3 is presented in **Table 76**. As observed, about half of the mothers belonging to Christianity and Buddhism initiated breastfeeding within one hour of birth whereas less than one fourth mothers belonging to remaining religions initiated within one hour of birth. Majority of children belonging to Hindu, Muslim and Sikh religion received something other than breast milk during the first three days of life compared to one fourth children belonging to Christianity and Buddhism.

**Table 76: Status of Initiation of Breastfeeding by Religion, NFHS-3, 2005-06**

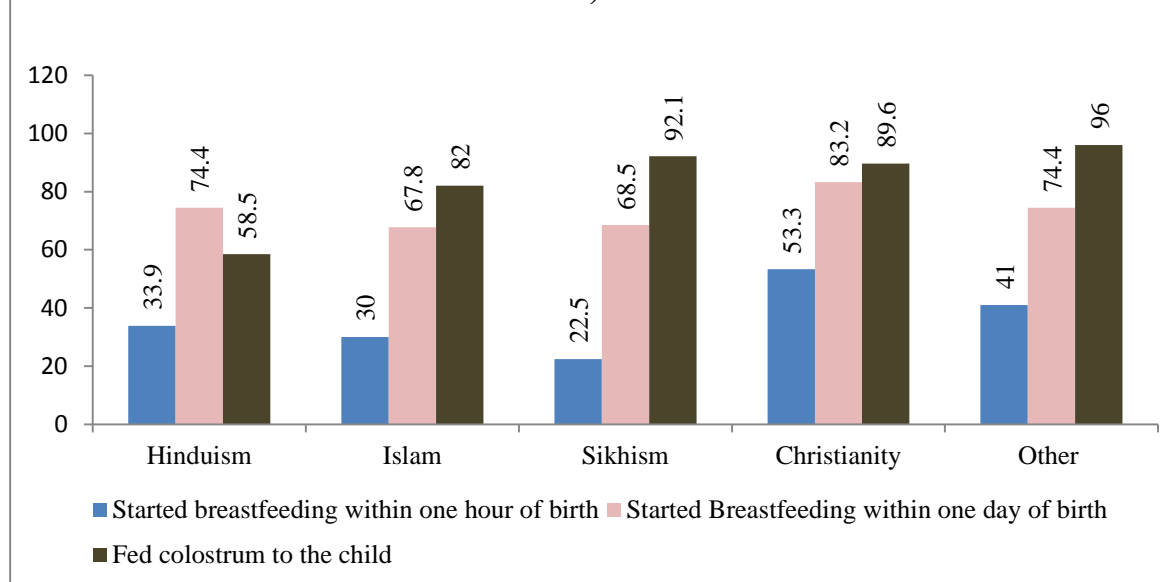
Religion	% who started breastfeeding within one hour of birth	% who started breastfeeding within one day of birth	% who received a prelacteal feed*
Hindu	24.4	55.0	57.2
Muslim	21.7	52.6	62.4
Sikh	13.1	49.6	61.9
Christian	49.5	82.5	25.7
Buddhist/Neo-Buddhist	50.9	79.5	25.1
Jain	23.1	74.0	38.5
Others	19.6	60.5	46.1

\*Children given something other than breast milk during the first three days of life.

**Fig. 45** presents the initiation of breastfeeding by religion as per the Coverage Evaluation Survey 2009. The figure depicts that lower proportion (58.5 %) children belonging to Hindu religion were fed colostrum as compared to Sikhism (92.1%) and Christianity (89 %), and others (96 %). Highest percentage of Christian mothers initiated breastfeeding their children within one hour or one day of the birth.



**Fig. 45: Status of Initiation of Breastfeeding by Religion, CES, 2009**



### 5.3.5 Vaccination Status by Religion

The percentage of children aged 12-23 months who received vaccination according to religion as per Coverage Evaluation Survey, 2006 and 2009 is presented in **Table 77**. The percentage of full immunization was highest (78 %) for Sikhs and lowest (56 %) for children belonging to Islam as per CES, 2009. Twelve percent Muslim children and seven per cent Hindu children did not receive any vaccination according to CES, 2009.

**Table 77: Vaccination Status of Children by Religion, CES, 2006 and 2009 (in percentage)**

Religion	CES, 2006		CES, 2009	
	Full Immunization	No Vaccination	Full Immunization	No Vaccination
Hindu	63.5	9	61.2	7
Islam	51.8	17.6	55.7	12
Sikh	74.4	5	78.2	3.8
Christian	74.3	7.6	65.6	5.6
Other Religious group	55.4	3.2	76.6	2.8
Jain	83.2	1	-	-

### 5.3.6 Vitamin A Supplementation Status by Religion

The percentage of children aged 12-23 months who received vitamin A supplementation by religion as per CES, 2006 & 2009 is presented in **Table 78**. The status of vitamin A supplementation was better among the Sikhs as compared to Hindus, Muslims and Christians as per CES, 2009.

**Table 78: Status of Vitamin A Supplementation by Religion, CES, 2006 and 2009 (in percentage)**

Religious Group	CES, 2006		CES, 2009	
	Received at least one dose of vitamin A	Received one dose of vitamin A during past six months	Received at least one dose of vitamin A	Received one dose of vitamin A during past six months
Hindu	59.5	38	65.9	59.8
Islam	47.8	29.1	61.1	55.4
Sikh	58.6	42.7	72.5	71
Christian	61.9	33.3	64	59.2
Other Religious Group	57.3	46.2	75.6	69
Jain	56.4	34.9	-	-

### 5.4 Social Groups

Social groups such as castes and tribes may differ in many of the determinants of child survival. Besides socio-economic differences the cultural patterns of unique social groups can be quite varied and different groups may be at different stages of transition in the process of cultural change. The beliefs about reproductive rights, child care and the causes of childhood diseases and their treatment vary. These should have an effect on infant and child mortality independently of other variables. Children born in SC and ST families have higher risk of dying than others. Membership in a scheduled caste or scheduled tribe is known to affect many aspects of life in India and is likely to affect levels of infant and child mortality as well.

### 5.4.1 Early Childhood Mortality by Social Groups

Early childhood mortality rates by different social groups are presented in **Table 79** for the period 2001-05 based on National Family Health Survey (NFHS-3) 2005-06. In general, scheduled caste and schedule tribe children have higher levels of under-five mortality than others during all time-periods and for all sub-components. Although scheduled tribes have a lower infant mortality rate (62) than scheduled castes (66), the under-five mortality rate is higher among scheduled tribes (96) than among scheduled castes (88). The infant mortality rate was 36 percent higher among scheduled castes, 27 percent higher among Scheduled tribes and 16 percent higher among other backward classes as compared to others. Under-five mortality rate was 62 percent higher among scheduled tribes, 49 percent higher among scheduled castes and 23 per cent higher among OBCs in comparison to others.

**Table 79: Early Childhood Mortality Rates by Caste, NFHS-3, 2005-06**

Caste/Tribe	Neonatal Mortality	Post neonatal mortality	Infant Mortality	Child Mortality	Under-5 Mortality
Scheduled caste	46.3	20.1	66.4	23.2	88.1
Scheduled tribe	39.9	22.3	62.1	35.8	95.7
Other backward class	38.3	18.3	56.6	17.3	72.8
Other	34.5	14.5	48.9	10.8	59.2

Percentage decline in infant and under-five mortality rates estimated on the basis of NFHS-1, NFHS-2 and NFHS-3 is presented in **Table 80**. Infant and child mortality decreased between the period 1988-92 (NFHS-1) and 2001-05 (NFHS-3) among all social groups. The infant mortality rates declined 31 percent among scheduled tribes as compared to 38 percent among scheduled castes and 41 percent among others. Similarly under-five mortality rate declined only 29 percent among scheduled tribes as compared to 41 percent among scheduled castes and 47 percent among others during the same period.

**Table 80: Percentage Decline in Infant and Under-Five Mortality Rates by Social Groups and Rural Urban Residence between Three Rounds of NFHS**

Caste/Tribe	Infant Mortality			Under-5 Mortality		
	Between NFHS-1 and NFHS-2	Between NFHS-2 and NFHS-3	Between NFHS-1 and NFHS-3	Between NFHS-1 and NFHS-2	Between NFHS-2 and NFHS-3	Between NFHS-1 and NFHS-3
<b>Urban</b>						
Scheduled caste	25.1	16.1	37.1	24.5	22.1	41.2
Scheduled tribe	-3.8	24.0	21.1	-0.4	32.4	32.2
Other backward class	-	17.6	-	-	18.2	-
Other	23.8	17.0	36.8	23.4	26.1	43.4
<b>Rural</b>						
Scheduled caste	22.0	19.4	37.1	19.0	25.6	39.8
Scheduled tribe	7.3	26.5	31.8	6.5	24.0	29.0
Other backward class	-	25.7	-	-	29.9	-
Other	23.7	19.6	38.7	25.2	26.7	45.2
<b>Total</b>						
Scheduled caste	22.6	20.0	38.1	20.0	26.2	40.9
Scheduled tribe	7.0	26.2	31.4	6.4	24.4	29.2
Other backward class	-	25.5	-	-	29.4	-
Other	24.8	20.9	40.5	25.9	28.3	46.9

#### 5.4.2 Antenatal Care (ANC) by Social Groups

Percentage of mothers who received number of check-ups, TT vaccine and consumed IFA tablets for 100 and above days and received full ANC as per CES, 2009 by social groups is presented in **Table 81**. The table shows that highest percentage of women belonging to other castes and lowest percentage of women belonging to Scheduled Tribes received full ANC. The proportion of women receiving full ANC during pregnancy is very low as more than two third of women did not receive full ANC.

**Table 81: Percentage of women Received Antenatal Care (ANC), TT Injections and Consumed IFA Tablets by Social Groups, CES, 2009**

Social Group	Received Antenatal Checkup				TT Injections			IFA tablets/syrup for 100+ days		Full ANC
	0	At Least one	3+	4+	0	1	2+	Received	Consumed	
Scheduled Caste	10.2	89.3	65.6	49.3	6.8	8.1	85.1	37.2	27.4	22.7
Scheduled Tribe	13	85.8	61.4	40.4	12.1	8	79.9	33.2	23.5	18.9
Other Backward Classes	11.6	87.5	66	51.8	6.1	6.2	87.7	39.1	30.8	26.7
others	5.1	93.9	77.2	61.4	4.9	6.1	89	47.5	36.1	31.2

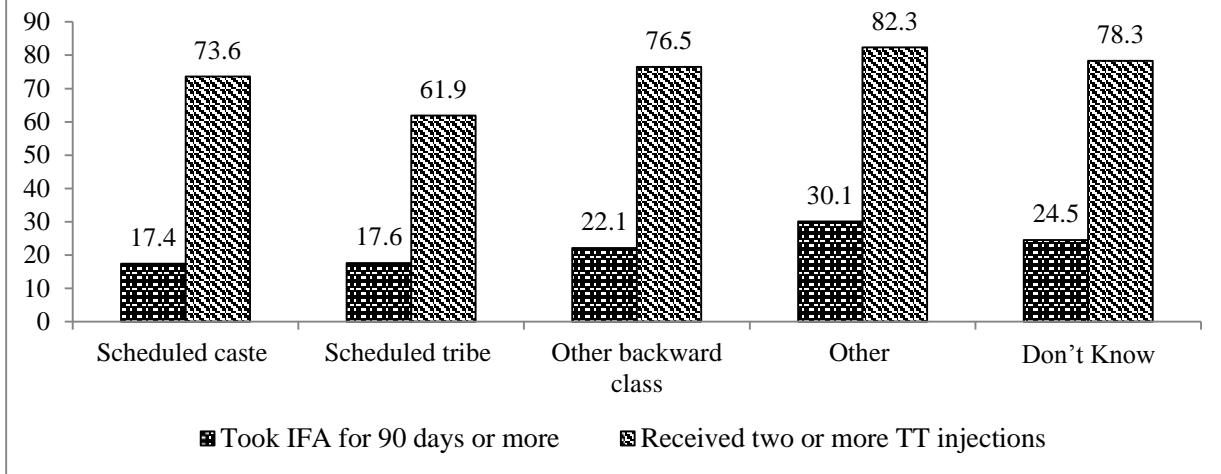
The percentage of mothers of different social groups who had received ANC by provider, as per NFHS-3, (2005-06) is presented in **Table 82**. Table shows that no one provided ANC to more than one fourth of women belonging to Scheduled Castes, Scheduled Tribes and Other Backward Classes. Only one third scheduled tribe mothers were provided ANC by doctor compared to others (63.8 %). Six percent mothers belonging to scheduled tribes received ANC from Anganwadi Workers.

**Table 82: Antenatal Care (ANC) by Provider and Social Groups, NFHS-3, 2005-06**

Social Groups	Doctor	ANM/nurse/midwife/LHV	Other health personnel	Dai/TBA	Anganwadi/ICDS Worker	Other	No one
Scheduled caste	42	28.1	0.7	1.5	1.8	0.1	25.9
Scheduled tribe	32.8	28.3	1	2.3	5.9	0.2	29.4
Other backward class	48.4	23.1	0.8	0.7	1.3	0.1	25.5
Other	63.6	17.7	1.6	1.1	0.7	0.1	15.2
Don't Know	62.4	22.1	4.3	0	0	0	11.1

**Fig. 46** presents the percentage of women belonging to different social groups who received two or more TT injections and consumed IFA tablets for more than 90 days. Consumption of IFA tablets for 90 or more days was too low among all social groups. Minimum 17 percent mothers of Scheduled Castes and maximum 30 percent mothers of other castes consumed IFA tablets for 90 or more days. Only 62 percent mothers belonging to Scheduled Tribes received two TT injections.

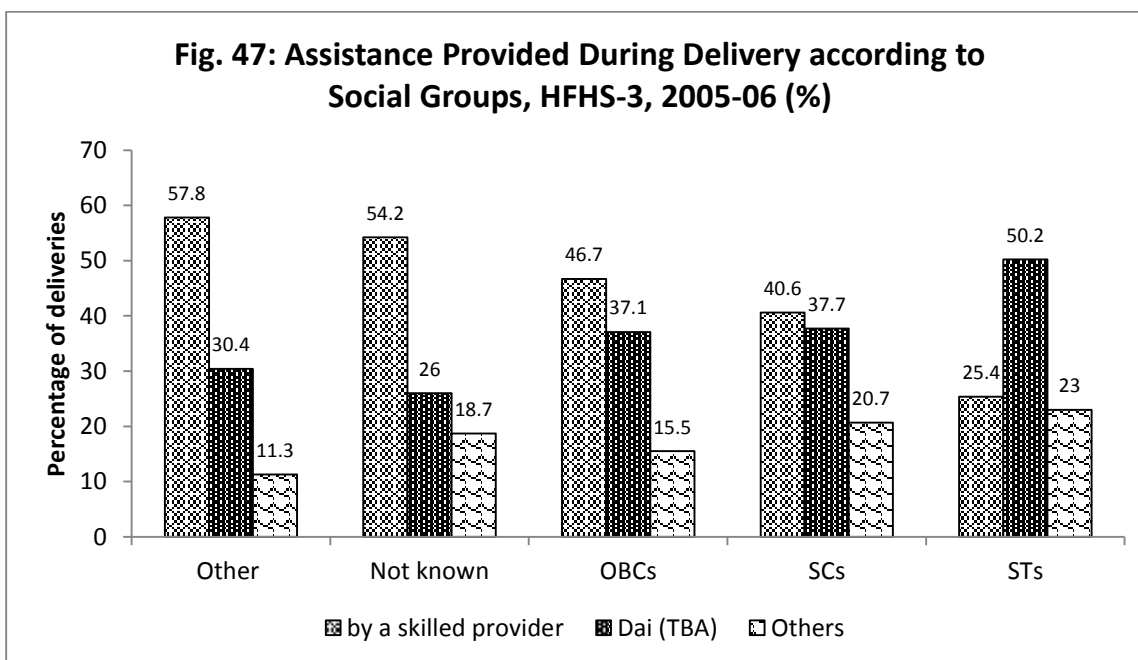
**Fig. 46: Percentage of Women Received Two or More TT Injections and Consumed IFA Tablets by Social Groups, NFHS 3, 2005-06**



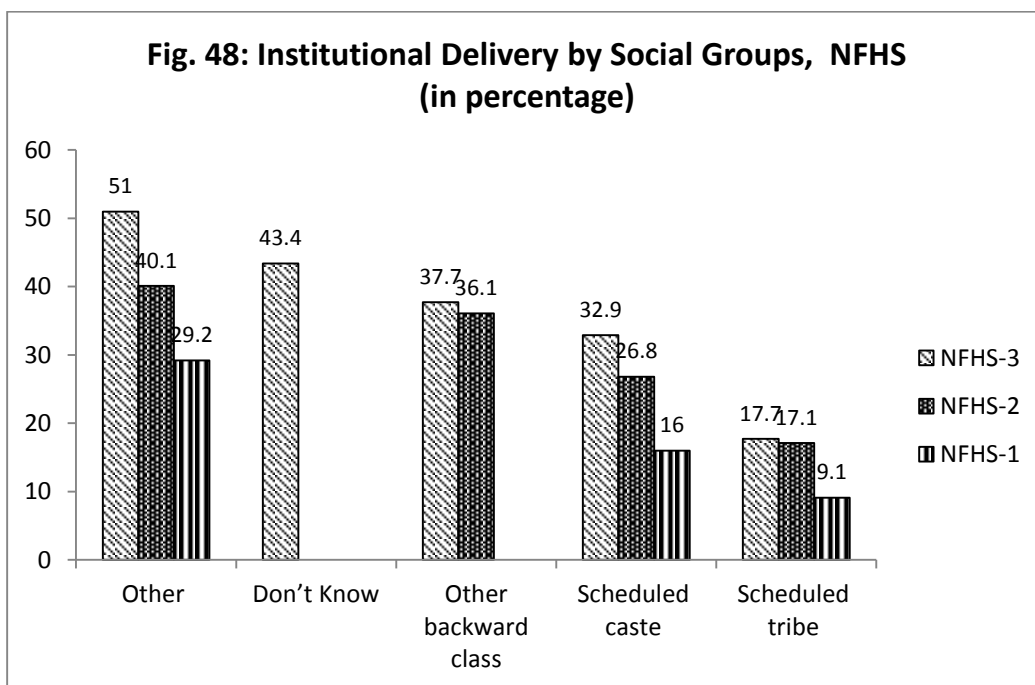
### 5.4.3 Place of Delivery and Assistance Provider by Social Groups

The percentage of mothers according to assistance received during delivery by social groups as per NFHS-3, 2005-06 is presented in **Fig. 47**. Highest (58%) mothers belonging to other castes and lowest (25%) mothers belonging to Scheduled Tribes were assisted during delivery by a skilled provider. Half of the tribal mothers received assistance from Dais (TBA).

**Fig. 47: Assistance Provided During Delivery according to Social Groups, HFHS-3, 2005-06 (%)**

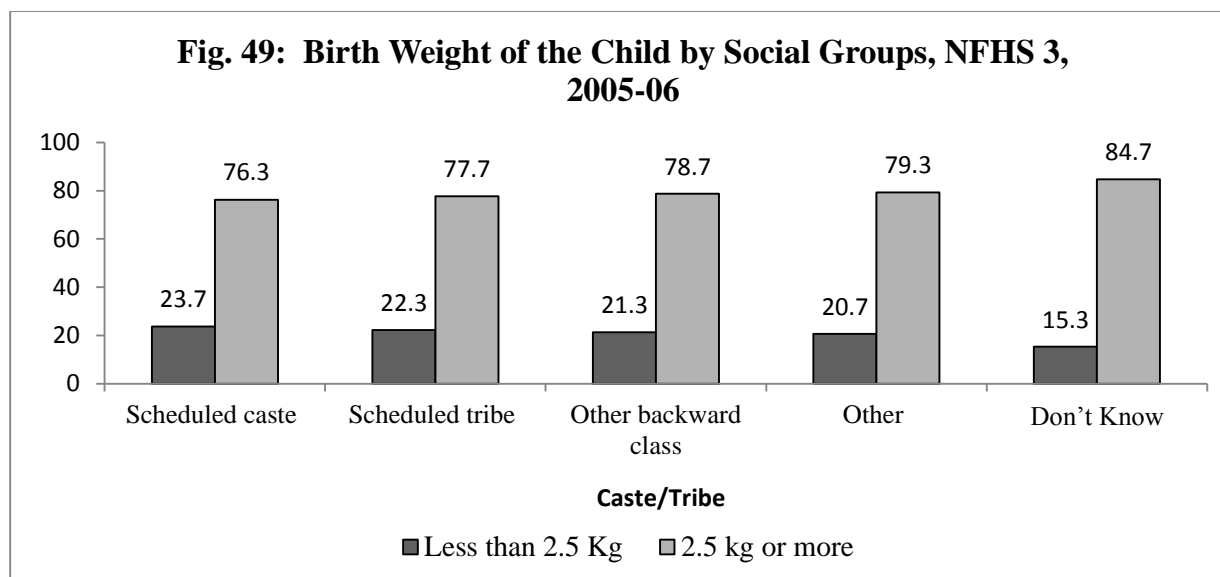


**Fig. 48** presents the percentage of mothers belonging to different social groups who delivered in a health facility as per three rounds of NFHS. Though the percentage of institutional deliveries increased during the successive rounds of National Family Health Survey, but among the Scheduled Tribe mothers the percentage of institutional deliveries is very low. As per NFHS-3 only 18 percent of Scheduled Tribe women delivered in a health facility compared to other castes (51 %), OBCs (38 %) and Scheduled Castes (33 %). Among the mothers whose caste was not known, 43 percent delivered in a health facility. More efforts are required to encourage the women belonging to Scheduled Castes and Tribes to deliver children in a hospital/health facility.



#### 5.4.4 Birth Weight of the Child by Social Groups

The percentage of children by birth weight according to social groups as per NFHS-3, 2005-06 is presented by **Fig. 49**. There is not much difference in birth weight among different social groups, however, incidence of low birth weight was highest among Scheduled Castes (23.7 %), followed by Scheduled Tribes (22.3 %), Other Backward classes (21.3 %) and other castes (20.7 %).



#### 5.4.5 Initiation of Breastfeeding by Social Groups

The percentage of mothers who breast fed the children within one hour and one day of birth and fed colostrum according to social groups as per Coverage Evaluation Surveys 2006 & 2009 is presented in **Table 83**. The percentage of mothers who had breastfed the child within one hour and one day of birth was the highest among the Scheduled Tribes which may be attributed to the prevailing traditions among tribes.

**Table 83: Status of Initiation of Breastfeeding by Social Groups, CES, 2006 and 2009 (in percentage)**

Social Group	CES, 2006			CES, 2009		
	Started breastfeeding within one hour of birth	Started Breastfeeding within one day of birth	Fed colostrum to the child	Started breastfeeding within one hour of birth	Started Breastfeeding within one day of birth	Fed colostrum to the child
Scheduled Caste	28.7	76.2	80.6	33.6	73.1	86.1
Scheduled Tribe	34.3	85.8	83.4	37.4	79.2	83
Other Backward class	-	-	-	31.7	71.8	84
Others	29	76.8	81.2	35.9	75.1	87.1



#### 5.4.6 Postnatal Care by Social Groups

The timing of first post natal check-up by social groups as per NFHS-3, 2005-06 is presented in **Table 84**. Among different social groups, mothers belonging to other castes (51%), OBC (39 %), SCs (36 %) and STs (30 %) received post natal health check-up within six weeks from delivery. Least percentage of tribal mothers received post natal check-up.

**Table 84: Timing of First Post Natal Check-up by Social Groups, NFHS-3 (in percentage)**

Social Group	Timing of first post natal check-up					
	Less than 4 hours	4-23 hours	1-2 days	3-41 days	Don't Know/Missing	No Postnatal check up
Scheduled caste	23.7	3.9	4.8	3.8	1	62.9
Scheduled tribe	16.3	2.3	4.4	7.4	1.1	68.6
Other backward class	26.4	4.5	4.7	3.7	0.8	59.8
Other	34.5	7	6.1	3.3	1.7	47.4
Don't Know	26.3	5.2	5.6	6.9	1.5	54.5

#### 5.4.7 Vaccination Status by Social Groups

The percentage of children aged 12-23 months who received vaccination according to social groups, NFHS-1, NFHS-2 and NFHS-3 is presented in **Table 85**. The percentage of children who did not receive any vaccination decreased significantly from NFHS-1 (1992-93) to NFHS-3 (2005-06) among all social groups, but a large number of children did not receive all vaccines. **As per NFHS-3, maximum (53.8%) children belonging to others and minimum (31.3%) children belonging to Scheduled Tribes received all basic vaccination.**

**Table 85: Vaccination Status of Children by Social Groups, NFHS (in percentage)**

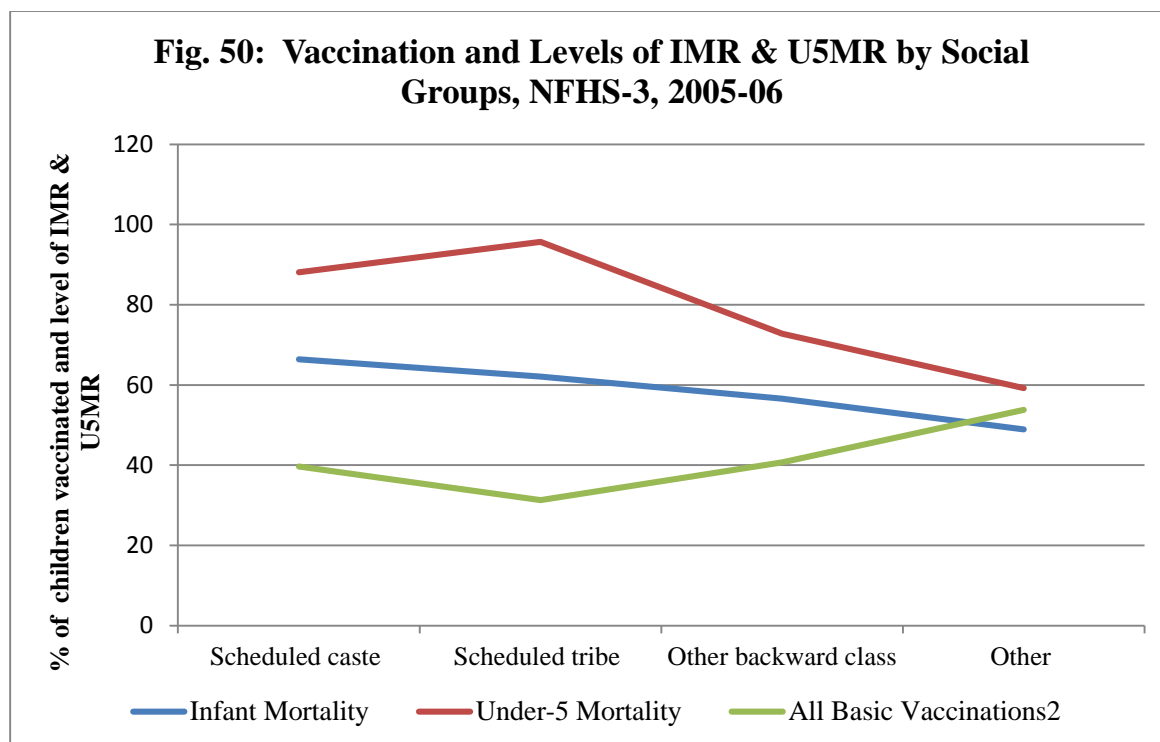
Caste/Tribe	NFHS-1		NFHS-2		NFHS-3	
	All Basic Vaccinations	No Vaccination	All Basic Vaccinations	No Vaccination	All Basic Vaccinations	No Vaccination
Scheduled castes	26.8	36.9	40.2	15.1	39.7	5.4
Scheduled tribes	24.8	41.8	26.4	24.2	31.3	11.5
Other backward classes	-	-	43	11.6	40.7	3.9
Others	38.2	27.4	46.8	13.3	53.8	4.3

**Table 86** presents the status of vaccination of children as per CES, 2006 and 2009. As shown in 2009 half of the children belonging to Scheduled Tribes were fully immunized, another 40 % children received incomplete vaccines and 10 % did not receive any vaccination. Among Other Castes 66 % children were fully immunized, 28 % received incomplete vaccination and 6 % did not receive any vaccination.

**Table 86: Vaccination Status of Children by Social Groups, CES, 2006 and 2009 (in percentage)**

Social Group	CES, 2006		CES, 2009	
	Full Immunization	No Vaccination	Full Immunization	No Vaccination
Scheduled Caste	60.6	10.5	58.9	7.8
Scheduled Tribe	61.2	10	49.8	9.9
Other Backward Classes			60.6	8.6
Others	63.4	9.9	66.3	5.5

Status of Vaccination and levels of IMR & U5MR among different social groups as per NFHS-3 is presented in **Fig. 50**. As observed, the status of immunization and level of U-5MR are negatively correlated. Among the Scheduled Tribes, least proportion of children received all vaccines and the Under-five mortality rate among them is highest and on the other side among other caste children most children received all vaccines and U-5MR is least among them. It emphasizes the role of immunization in reducing child mortality particularly in the age group 1-4 years and there is a need for full immunization of all children.



#### 5.4.8 Vitamin A Supplementation Status by Social Group

The percentage of children aged 12-23 months who received vitamin A supplementation by social groups as per CES, 2006 & 2009 is presented in **Table 87**. In 2009, maximum (71.5%) children belonging to other castes received at least one dose of vitamin A followed by Scheduled castes (64.7%), OBCs (62.7%) and Scheduled Tribes (59.4%).

**Table 87: Status of Vitamin A Supplementation by Social Groups, CES, 2006 and 2009**

Social Group	CES, 2006		CES, 2009	
	Received at least one dose of vitamin A	Received one dose of vitamin A during past six months	Received at least one dose of vitamin A	Received one dose of vitamin A during past six months
Scheduled Caste	59.1	37	64.7	59.5
Scheduled Tribe	62	39.5	59.4	51.6
Other Backward class	-	-	62.7	57.2
Others	56.6	36.2	71.5	64.7

## 5.5 Wealth Index/Standard of Living Index

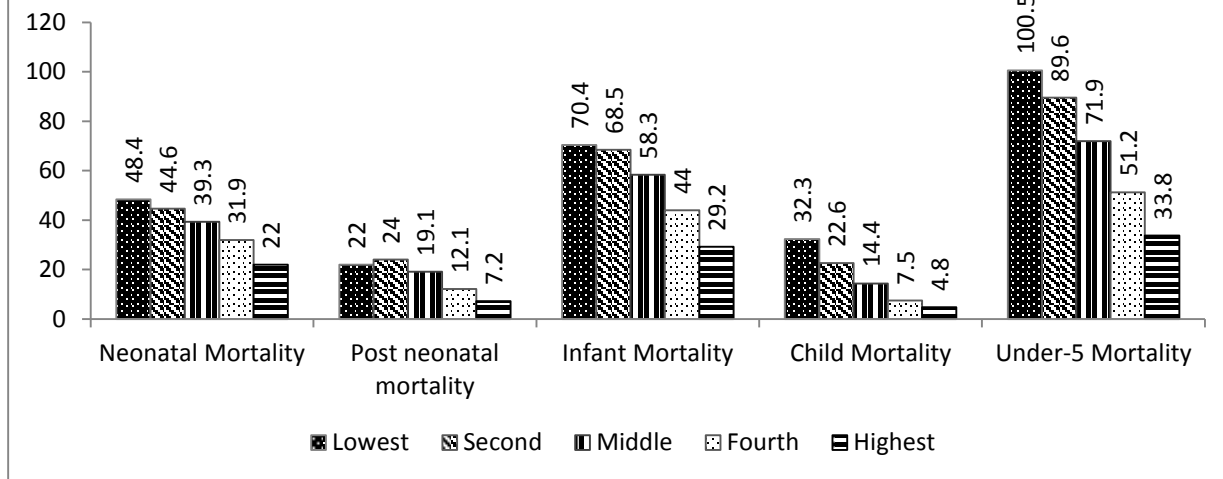
Wealth index is an index of the economic status of households. The wealth index has been developed and tested in a large number of countries in relation to inequalities in household income, use of health services, and health outcomes (Rutstein et al., 2000). It is an indicator of the level of wealth that is consistent with expenditure and income measures (Rutstein, 1999). For NFHS-3, the wealth index was constructed using 33 household assets and housing characteristics. Each household was assigned a score for each asset and the scores were summed for each household. The sample was then divided into quintiles i.e., five groups with an equal number of individuals in each. In NFHS-3, one wealth index was developed for the whole sample and for the country as a whole.

In CES 2009, based on the methodology used in NFHS, assets, amenities, facilities and consumer durable items were included. Applying principal component analysis, asset scores were computed for each single household and then normalized. By the National Family Health Surveys and Coverage Evaluation Surveys the households were classified into five categories- lowest, second, middle, fourth and highest - according to the wealth index score.

### 5.5.1 Early Childhood Mortality Rates by Wealth Index/Standard of Living Index

Early childhood mortality rates based on NFHS-3 by wealth index are presented in **Fig.51**. As observed, **Under-five mortality and its components vary inversely with economic status of the household**, as measured by the Standard of Living Index (SLI): children born in low SLI households had the highest mortality rates, and those born in high SLI households had low mortality rates. **The infant mortality rate is 70 among children in households in the lowest wealth quintile, 58 in the middle wealth quintile households, and only 29 in the highest wealth quintile households.** Households in the highest wealth quintile experience the under-five mortality rate only one-third of households in the lowest quintile. The ratio between the highest and lowest quintiles in child mortality is lowest in the neonatal phase (1:2.2) and highest in the age interval 1-4 years (1:6.7).

**Fig. 51: Early Childhood Mortality Rates by Wealth Index, NFHS-3, 2005-06**



The Neonatal mortality rates, post neonatal mortality rates, infant mortality rates, child mortality rates and under-five mortality rates by wealth index of the households in rural and urban areas are presented in **Table 88**. The neonatal mortality rate was more among rural households in all wealth quintiles as compared to their respective counterparts in urban areas. Child mortality rate among rural household in middle and higher wealth quintiles were found comparatively lesser as compared to their urban counterparts.

**Table 88: Early Childhood Mortality Rates By Wealth Index, NFHS-3**

Wealth Index	Urban					Rural				
	NNMR	PNM R	IM R	CM R	U5M R	NNMR R	PNM R	IM R	CM R	U5M R
Lowest	39.4	25.4	64.8	29.2	92.1	48.8	21.9	70.7	32.5	100.9
Second	40.8	21.6	62.4	21.5	82.5	44.9	24.2	69.2	22.8	90.4
Middle	32	17.8	49.8	16.4	65.3	41.2	19.4	60.6	13.8	73.6
Fourth	31.3	14.9	46.2	8	53.9	32.4	9.9	42.3	7.1	49.1
Highest	21.1	6.3	27.4	5.6	32.8	24.3	9.2	33.6	2.7	36.2

### 5.5.2 Antenatal Care (ANC) by Wealth Index

The percentage of mothers who had received check-ups, TT injections and consumed IFA tablets for 100 or more days, as per CES, 2009 wealth index of the household is presented in **Table 89**. As presented in the table, **with higher wealth index, higher percentage of mothers availing antenatal care**. Mothers of the lowest wealth index households received 3 or more antenatal check-ups (47 %), 2 or more TT injections (82 %), and consumed IFA tablets/syrup (17 %) and received full ANC (12 %) whereas the mothers of the households with highest wealth index received 3 or more antenatal check-ups (89 %), 2 or more TT injections (93 %), consumed IFA tablets for 100 or more days (52 %) and received full ANC (47 %).

**Table 89: Number of Antenatal Care (ANC), Received TT Injections and Consumed IFA Tablets by Wealth Index, CES, 2009**

Wealth Index	Received Antenatal Checkup				TT Injections			IFA tablets/syrup for 100+ days		Full ANC
	0	At Least one	3+	4+	0	1	2+	Received	Consumed	
Lowest	18.7	80.9	46.7	27.2	9.3	8.5	82.1	26.3	16.5	11.5
Second	8.1	91.2	71.1	53.2	6.2	5.8	88	39.1	29.3	25.1
Middle	5.1	93.9	78.7	65.9	4.9	6.8	88.3	45.1	35	31.4
Fourth	4.2	94.5	83.5	71.1	4.9	6.4	88.7	50.4	40.6	36.5
Highest	1.7	97	88.5	78.9	3.2	4.1	92.7	60.4	52.3	47.4

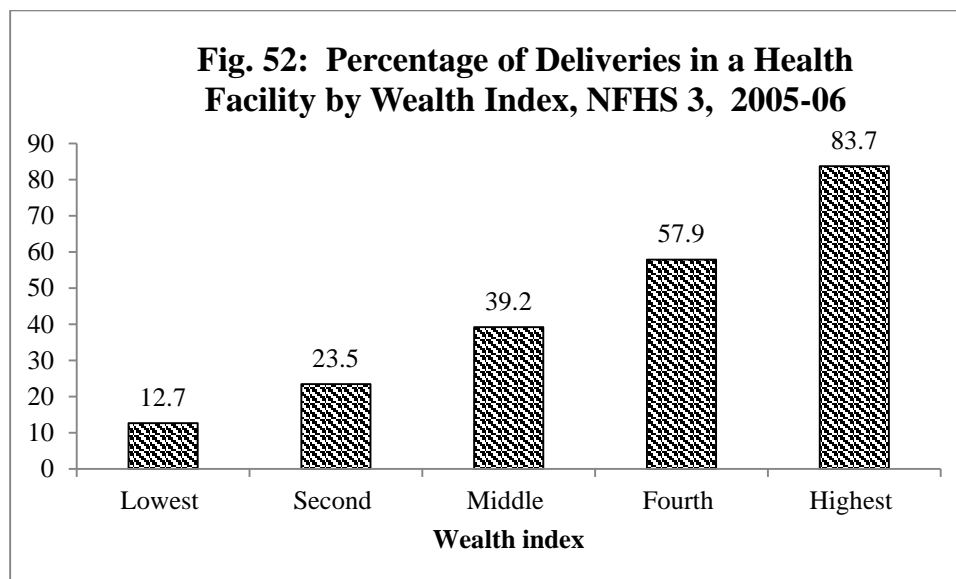
**Table 90** presents the percentage of mothers by wealth index according to ANC provider as per NFHS-3, 2005-06. As evident from the table, **with higher wealth status of the household increased percentage of mothers were provided ANC by a Doctor**. To 41 % mothers of lowest wealth status households no one provided ANC in comparison to 3 % mothers of the highest wealth status households.

**Table 90: Antenatal Care (ANC) Provider by Wealth Index, NFHS-3, 2005-06**

Wealth Index	Doctor	ANM/nurse/ midwife/LHV	Other health personnel	Dai/TBA	Anganwadi/ ICDS Worker	Other	No one
<b>Lowest</b>	22.5	29.6	1.8	1.4	3.2	0.2	41.3
<b>Second</b>	36.4	28.1	1.4	1.2	2	0.2	30.7
<b>Middle</b>	52.4	24	0.9	1.3	1.4	0.1	19.9
<b>Fourth</b>	69	18.7	0.4	1.2	0.6	0.1	10
<b>Highest</b>	86.2	10	0.3	0.6	0.1	0	2.6

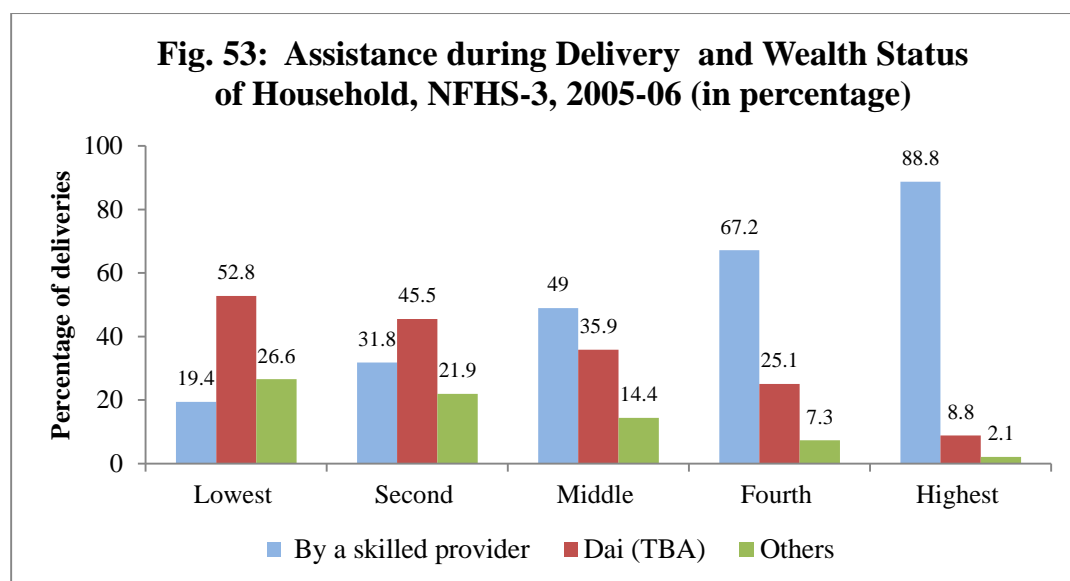
### 5.5.3 Place of Delivery and Assistance Provider by Wealth Index

The percentage of mothers who delivered in a health facility by wealth index of the household as per NFHS-3, 2005-06 is presented in **Fig. 52**. It is seen from the figure that higher the economic status of the household, higher the percentage of institutional deliveries. About 13 percent women of lowest wealth index household delivered in a health facility compared to 84 percent women of highest wealth index households.



**Fig. 53** presents the percentage distribution of mothers by assistance provider during delivery among different categories of household based on wealth index. As evident from the figure, the assistance during the delivery depended on the economic status of the household. Only 19 per cent mothers belonging to the households with lowest wealth index received assistance from

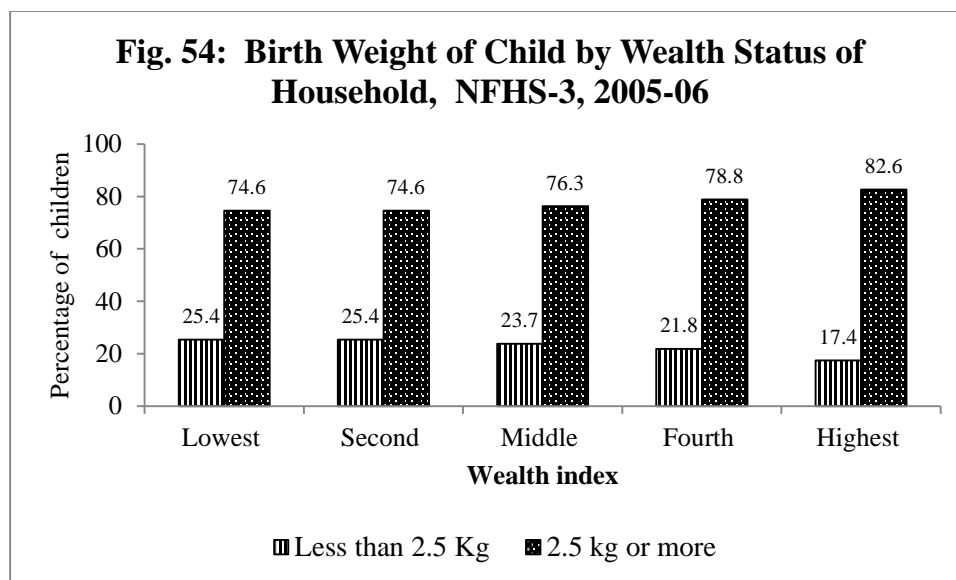
a skilled provider whereas in case of the mother from highest wealth index household it was 89 %. During delivery 79 percent mothers of lowest wealth index households were assisted by Dai (TBA) or others in comparison to 11 percent mothers of the households in highest wealth index.



#### 5.5.4 Birth Weight of the Child by Wealth Index

The percentage distribution of children by birth weight according to wealth index of the household as per NFHS-3, 2005-06 is presented by **Fig. 54**. Much difference was not seen in birth weight of children belonging to different categories of household based on wealth index. Among the children born in the households with highest wealth index, 17 % were low birth weight (<2.5 k.g.) whereas 25 % children born in the lowest wealth index households were low birth weight.





### 5.5.5 Postnatal Care by Wealth Index

The percentage of mothers according to timing of first post natal check-up by wealth index as per NFHS-3, 2005-06 is presented in **Table 91**. Seventy seven percent mothers of the highest wealth status households received post natal checkups out of which 56 % received post natal check-up within 4 hours of delivery. On the other side 81 per cent mothers of the households with lowest wealth index did not receive any post natal check-up.

**Table 91: Timing of First Post Natal Check-up by Wealth Index, NFHS-3, 2005-06 (in percentage)**

Wealth Index	Timing of first post natal check-up					
	Less than 4 hours	4-23 hours	1-2 days	3-41 days	Don't Know/Missing	No Postnatal check up
Lowest	9.9	2	2.5	4.5	0.5	80.7
Second	16.4	2.6	3.8	4.2	0.7	72.3
Middle	27.3	4.5	5	5	1.2	57.1
Fourth	37.7	7.3	7.1	3.1	1.6	43.2
Highest	55.9	10.1	8.6	2.4	2.3	20.7

### 5.5.6 Initiation of Breastfeeding by Wealth Index

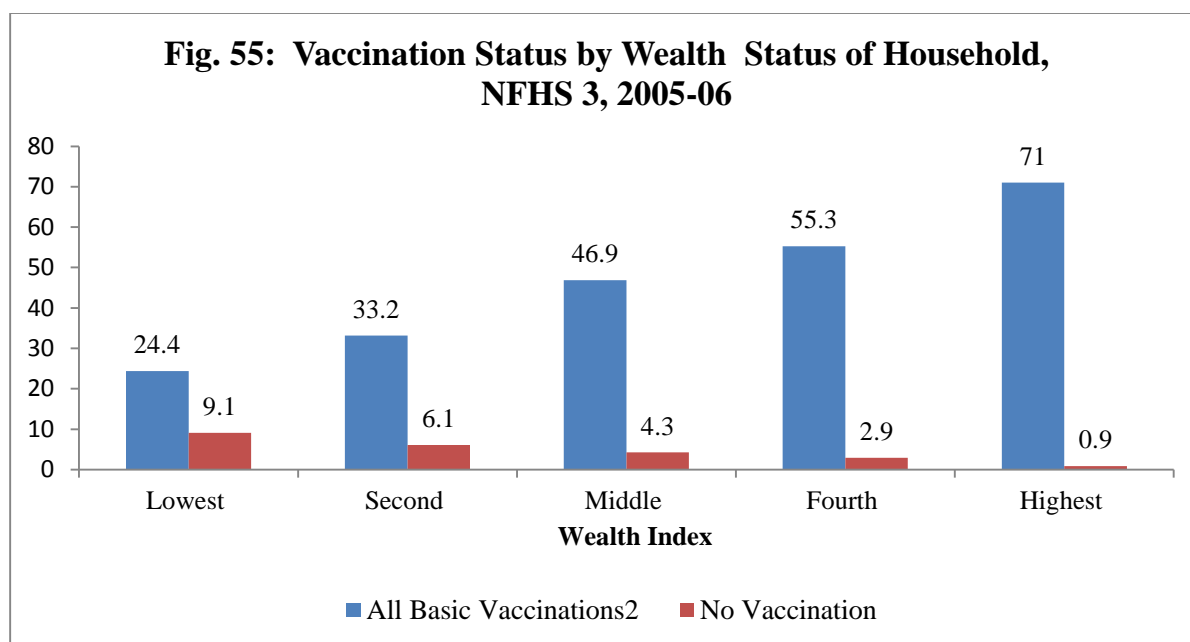
The percentage of mothers who breast fed the child within one hour and one day of birth and fed colostrum according to wealth index as per CES, 2009 is presented in **Table 92**. Maximum 39 percent mothers of the middle and fourth wealth index group and minimum 28 percent mothers of lowest wealth index group initiated breastfeeding within one hour of birth as per CES, 2009. The percentage of mothers who fed colostrum to the child increased with higher wealth index group.

**Table 92: Status of Initiation of Breastfeeding by Wealth Index, CES, 2006 and 2009**

Wealth Index	CES, 2006			CES, 2009		
	Started breast feeding within one hour of birth	Started Breast feeding within one day of birth	Fed colostrum to the child	Started breastfeeding within one hour of birth	Started Breast feeding within one day of birth	Fed colostrum to the child
Lowest	23.4	67.1	75.1	28.1	66.9	79.8
Second	30.3	79.5	79.7	35.3	75.5	85.1
Middle	31	80.8	80.7	38.7	79.3	86.1
Fourth	35.3	82.8	86.7	39.1	76.3	90.4
Highest	32.5	86.7	90.9	32.4	76.2	91.9

### 5.5.7 Vaccination Status by Wealth Index

The status of immunization of children aged 12-23 months according to either vaccination card or mother's report by wealth index as per NFHS-3, 2005-06 is presented in **Fig. 55**. The percentage of fully immunized children depended on the wealth status of the households. **With each higher wealth index category of households, the percentage of children fully immunized increased.** Only 24.4 percent children of lowest wealth status households received all basic vaccinations as compared to 71 percent children of highest wealth status households. Maximum (9.1 %) children of lowest wealth index households and minimum (0.9%) children of highest wealth index households did not receive any vaccine.

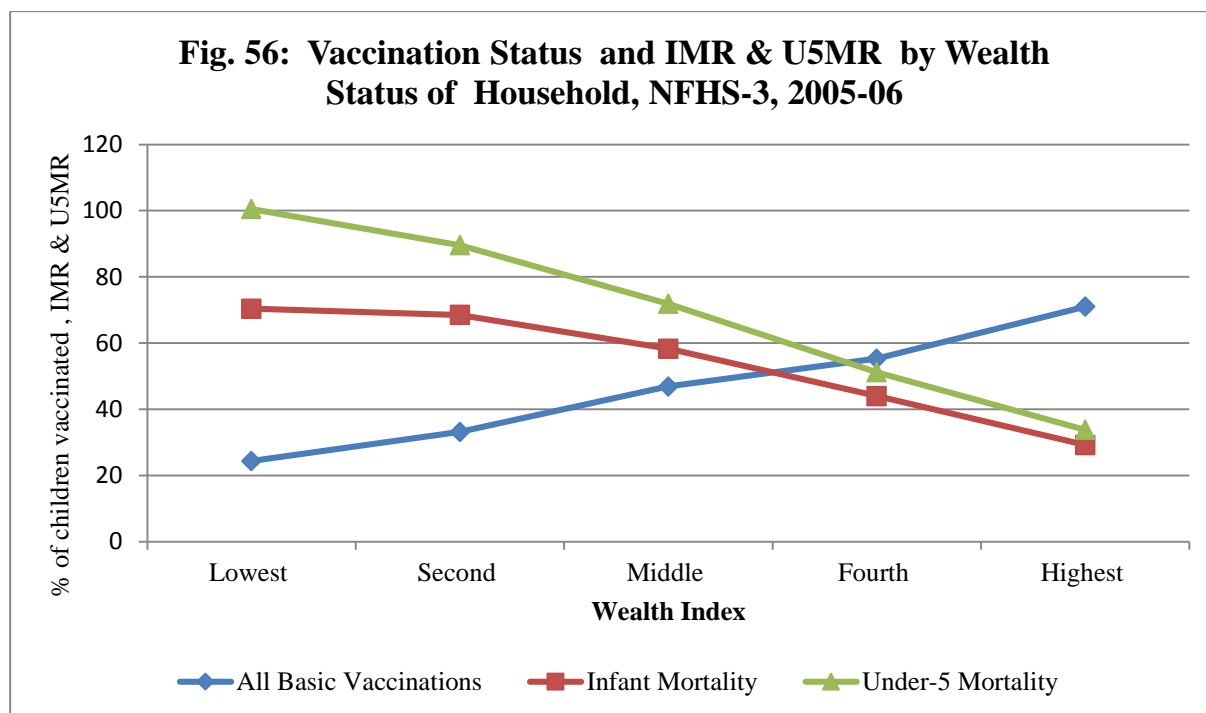


**Table 93** presents the vaccination status of children aged 12 – 23 months by wealth index of the households as per Coverage Evaluation Surveys, 2006 and 2009. Though the trend of higher percentage of children among higher wealth status of the household was seen in both the surveys but the percentage of children fully immunized increased in lowest and second wealth index category and decreased in other categories in 2009 over 2006. As per CES, 2009, 13.7 percent children of lowest wealth index category did not receive any vaccine as compared to 2.7 percent children of highest wealth index category.

**Table 93: Vaccination Status by Wealth Index, CES, 2006 and 2009**

Wealth Index	CES, 2006		CES, 2009	
	Full Immunization	No Vaccination	Full Immunization	No Vaccination
Lowest	44.9	16	47.3	13.7
Second	58.9	9.9	61.6	6.3
Middle	67.3	8.7	66.4	4.2
Fourth	73.6	7.2	70	4.7
Highest	83.6	3.5	75.5	2.7

**Fig. 56** presents the vaccination status and IMR and under-five mortality rate across households with different wealth status. As per NFHS-3, 2005-06, **it can be observed that among the household of lowest wealth index, lowest level of immunization of children and highest rates of infant and under-five mortality exists.** On the contrary among the highest wealth index households highest level of immunization coverage and lowest IMR & U5MR is seen.



### 5.5.8 Vitamin A Supplementation Status by Wealth Index

The percentage of children aged 12-23 months who received vitamin A supplementation by wealth index as per CES, 2006 & 2009 is presented in **Table 94**. Lowest percentage of children of the lowest wealth index households received vitamin A supplementation and the percentage increased with the higher categories of the wealth index.

**Table 94: Status of Vitamin A Supplementation by Wealth Index, CES, 2006 and 2009**

<b>Wealth Index</b>	<b>CES, 2006</b>		<b>CES, 2009</b>	
	<b>Received at least one dose of vitamin A</b>	<b>Received one dose of vitamin A during past six months</b>	<b>Received at least one dose of vitamin A</b>	<b>Received one dose of vitamin A during past six months</b>
Lowest	51.5	32.7	54.9	49.3
Second	54.7	34.2	68.3	61.7
Middle	61.8	39.5	71	63.8
Fourth	59.8	35.3	70.7	65.1
Highest	68.1	46.4	72.9	68.1

It is revealed from the above discussion that rural-urban differences in health facilities; differences in level of women education; differences in beliefs, traditions and customary practices related to child birth, infant feeding, health care, reproductive rights, causes of childhood diseases and their treatment among different religious and social groups have an effect on infant and child mortality independent of other variables. The economic status of the household is also an important factor of the infant and child mortality rates. To reduce infant and child mortality, not only the health services need be improved by proper implementation of health programmes and awareness generation among people in all areas on health and care of mother and children but also the poverty elimination programmes be implemented effectively.

## CHAPTER 6

### Environmental Determinants of Infant and Child Mortality

#### 6.1 Availability of Drinking Water Facility

Availability and distribution of water is essential for good health status of people. In India most of the people particularly living in rural areas have no access to safe drinking water. There have been many policies that have helped in proper distribution and accessibility of water in India. Based on NFHS data, it was concluded by National Institute of Medical Statistics and UNICEF (Infant and Child Mortality in India – Levels, Trends and Determinants) that between 1981 and 2005, infant mortality rates and under-five mortality rates were consistently lower among children living in families who accessed drinking water from a safe source as compared to those who accessed drinking water from an unsafe source.

**Table 95** presents the source of drinking water across the States as per Census of India, 2011. The table shows that maximum (93.7%) households in Chandigarh were availing tap water from treated source followed by Pondicherry (90.8%), Himachal Pradesh (83.9%), Goa (82.1%) and Delhi (75.2%) in comparison to Bihar (3.1%), Nagaland (6.1%), Lakshadweep (9.1%), Assam (9.2%) and Jharkhand & Orissa (10%). The other States are in between these figures. **At the National level, 32 per cent households are availing tap water from treated sources, 33.5 per cent from handpumps, 8.5 per cent from tubewells and 1.6 per cent from covered wells.**

**Table 95: Percentage Distribution of Households by Source of Drinking Water, Census, 2011**

States	Tap Water			Well			Handpump	Tubewell
	Total	From Treated Source	From Un-treated Source	Total	Covered Well	Un-covered well		
India	43.5	32	11.6	11	1.6	9.4	33.5	8.5
Jammu & Kashmir	63.9	34.7	29.2	6.5	1.9	4.7	11.4	1.5
Himachal Pradesh	89.5	83.9	5.6	2.9	1.6	1.3	3.6	0.7
Punjab	51	41.1	9.9	0.5	0.2	0.2	24.7	21.9
Chandigarh	96.7	93.7	3	0.1	0.1	0	1.8	0.9
Uttarakhand	68.2	53.9	14.3	1.1	0.7	0.4	22	2
Haryana	68.8	55.9	12.9	3	0.7	2.3	12	12.9

NCT of Delhi	81.3	75.2	6.1	0.1	0.1	0	5.3	8.4
Rajasthan	40.6	32	8.5	10.8	1.2	9.6	25.3	12.2
Uttar Pradesh	27.3	20.2	7.1	4	0.6	3.4	64.9	2.9
Bihar	4.4	3.1	1.3	4.3	0.7	3.7	86.6	3
Sikkim	85.3	29.2	56.1	0.6	0.5	0.2	0	0
Arunachal Pradesh	65.5	26.4	39.1	5.7	1.4	4.3	10.7	2.4
Nagaland	47.2	6.1	41.1	25.7	6.6	19.1	2.2	4.5
Manipur	38.6	25.6	13	7.5	2.8	4.7	6.5	0.4
Mizoram	58.7	39.4	19.3	4.7	2	2.7	0.8	0.9
Tripura	33.2	20.3	12.9	27.4	2.9	24.5	18.1	16.3
Meghalaya	39.3	27.8	11.5	25.4	6.9	18.5	2.8	2.6
Assam	10.5	9.2	1.3	18.9	1.7	17.2	50.2	9.2
West Bengal	25.4	21	4.4	6	0.7	5.4	50.1	16.7
Jharkhand	12.9	10	2.9	36.5	1.9	34.6	43.8	3.5
Odisha	13.8	10	3.9	19.5	2.2	17.3	41.5	20
Chhattisgarh	20.7	12.3	8.4	11.4	0.8	10.6	58.4	7.2
Madhya Pradesh	23.4	16.5	6.9	20	1.1	18.9	47.1	7.6
Gujarat	69	39.9	29.2	7.1	2.3	4.8	11.6	9.6
Daman & Diu	75.2	54.6	20.6	0.7	0.5	0.2	5.5	18.1
D & N Haveli	46.5	26	20.5	7.2	1.5	5.7	24.5	20.6
Maharashtra	67.9	56.3	11.6	14.4	2.2	12.2	9.9	5.7
Andhra Pradesh	69.9	49	20.9	6.4	0.5	5.9	13.7	6.9
Karnataka	66.1	41.2	24.8	9	1	8	5.5	16
Goa	85.4	82.1	3.4	11.1	4	7.1	0.1	0.3
Lakshadweep	20.3	9.1	11.1	71.7	6.9	64.9	2.5	0.1
Kerala	29.3	23.4	6	62	14.6	47.4	0.5	3.7
Tamil Nadu	79.8	55.8	24	5.1	1.2	3.8	4.6	8.2
Puducherry	95.3	90.8	4.5	1.9	0.1	1.8	1.2	1.4
A&N Islands	85	68.9	16.2	7.3	0.7	6.6	0	0.5

### 6.1.1 Distance of the Water Source from the House

**Table 96** presents the availability of drinking facility within premises, near and away for various states. **At the national level, 46.6 per cent households have source of drinking water within the premises, in case of 35.8 per cent households the source of water was near the premises and 17.6 per cent were bringing the water from a distant place.** The source of drinking water within premises is highest in Chandigarh (86.2%), and the lowest in Chhattisgarh (19%). In Jammu & Kashmir, Rajasthan, Nagaland, Manipur, Tripura, Meghalaya, West Bengal,

Jharkhand, Orissa, Chhattisgarh and Madhya Pradesh, the source of drinking water was away from the house for more than one fourth of the households.

**Table 96: Distance of the Water Source from the House, Census, 2011**

States	Availability of Drinking Water Source		
	Within the premises	Near the premises	Away
India	46.6	35.8	17.6
Jammu & Kashmir	48.2	28.7	23.1
Himachal Pradesh	55.5	35	9.5
Punjab	85.9	10	4.1
Chandigarh	86.2	11.7	2.2
Uttarakhand	58.3	26.6	15.2
Haryana	66.5	21.4	12.1
NCT of Delhi	78.4	15.4	6.2
Rajasthan	35	39	25.9
Uttar Pradesh	51.9	36	12.1
Bihar	50.1	37.9	12
Sikkim	52.6	29.7	17.7
Arunachal Pradesh	41.1	37.4	21.6
Nagaland	29.3	42.4	28.3
Manipur	16.1	46.2	37.8
Mizoram	31.2	46.7	22.2
Tripura	37.1	30.5	32.4
Meghalaya	24.1	43.2	32.7
Assam	54.8	26.7	18.5
West Bengal	38.6	34.7	26.6
Jharkhand	23.2	44.9	31.9
Odisha	22.4	42.2	35.4
Chhattisgarh	19	54.5	26.5
Madhya Pradesh	23.9	45.6	30.5
Gujarat	64	23.5	12.4
Daman & Diu	76.4	22.1	1.5
Dadra & Nagar Haveli	52.6	36.4	11
Maharashtra	59.4	27.6	13.1
Andhra Pradesh	43.2	37.3	19.5
Karnataka	44.5	37.3	18.2
Goa	79.7	15.5	4.8
Lakshadweep	83.7	14.3	2



Kerala	77.7	14.1	8.2
Tamil Nadu	34.9	58.1	7
Puducherry	77.4	21.5	1.1
A&N Islands	60.6	27	12.4

## 6.2 Access to an Improved Toilet Facility

Toilet facilities is another household characteristic that help us to understand the living conditions of people in various states of India. Access to an improved toilet (flush or pit) is potentially an important determinant of infant and child mortality in developing countries. Children in households that lack such access could have higher exposure than other children to diarrhoea and other gastrointestinal disorders (Puffer and Serrano, 1973). There have been various governmental policies like Nirmal Bharat Abhiyan that have helped in increasing toilet facilities for rural and urban populations but much more efforts have to be made to provide improved toilet facility for having a good health status of the people and specifically to reduce child mortality. **Table 97** presents the situation of access to improved toilet facility in India across the States.

**Table 97: Distribution of Households by Type of Toilet Facility, Census, 2011**

States	Latrine Facility Available within premises	Flush/Pour flush latrine connected to			Pit latrine		Latrine Not available within premises		
		Piped sewer system	Septic tank	Other system	With slab/ventilated improved pit	without slab/open pit	Total	Public latrine	Open
India	46.9	12	22.2	2.3	7.6	1.8	53.1	3.2	49.8
Jammu & Kashmir	51.2	10	17.7	5.3	3.3	2.2	48.8	2.7	46.1
Himachal Pradesh	69.1	7.4	51.6	1.7	7.1	1	30.9	1.2	29.7
Punjab	79.3	28.3	27.7	3.3	16	3.2	20.7	1.2	19.5
Chandigarh	87.6	85.9	1	0.2	0.4	0.1	12.4	9.1	3.2
Uttarakhand	65.8	11.8	40	1.4	11.3	0.6	34.2	1.1	33.1
Haryana	68.6	21.9	25.4	3.1	14.5	2.9	31.4	1.5	29.8
NCT of Delhi	89.5	59.3	25.5	0.9	1.6	0.2	10.5	7.2	3.3
Rajasthan	35	7.2	18.6	1.9	4	2.5	65	0.7	64.3
Uttar Pradesh	35.7	8.1	19.9	1.8	3.4	0.7	64.4	1.3	63
Bihar	23.1	1.8	16	2.3	1.7	0.8	76.9	1.1	75.8
Sikkim	87.2	11.8	59.8	3.4	6.6	5.5	12.8	1.5	11.3
Arunachal Pradesh	62	6	22.4	10	4.4	14.4	38	3.2	34.8

Nagaland	76.5	3.3	34.4	10	11.2	16.4	23.5	7	16.5
Manipur	89.3	6.1	24.7	15.9	15.7	19	10.7	1.8	8.9
Mizoram	91.9	5.7	48.4	6.7	15.1	15.5	8.1	1.5	6.6
Tripura	96	3.5	14.2	7.2	44.8	15.4	14	2.5	11.5
Meghalaya	62.9	5.8	23.7	8.6	6.9	16.4	37.1	2.8	34.3
Assam	64.9	5.2	14.9	8.4	10.5	24.2	35.1	1.9	33.2
West Bengal	58.9	5.6	20.7	5.6	22.3	3.2	41.2	2.5	38.6
Jharkhand	22	3.7	15.7	1	1.1	0.3	78	1	77
Odisha	22	2.5	13.6	1.6	2.1	1.4	78	1.4	76.6
Chhattisgarh	24.6	2.5	16.6	1.9	2.1	1.3	75.4	1.4	74
Madhya Pradesh	28.8	5.8	19.1	1.3	1.7	0.7	71.2	1.2	70
Gujarat	57.4	29	22.8	0.8	4.2	0.3	42.7	2.3	40.4
Daman & Diu	78.2	5.3	71.5	0.4	0.8	0.2	21.8	11.3	10.5
D & N Haveli	54.8	4.9	48.2	0.6	0.7	0.1	45.3	5.3	40
Maharashtra	53.1	18.4	23.5	1.6	8.3	0.5	46.9	12.9	34
Andhra Pradesh	49.6	12.4	29.7	1	5	0.5	50.4	2.5	48
Karnataka	51.2	22.7	13	1.2	13.2	0.3	48.8	3.8	45
Goa	79.7	14.5	56.5	3.3	3.7	0.7	20.3	3.9	16.4
Lakshadweep	97.8	2.4	94.6	0.4	0.4	0	2.2	0.4	1.8
Kerala	95.2	12	50.3	4.4	27.6	0.7	4.8	1.1	3.8
Tamil Nadu	48.3	14.4	25.7	1.1	5.7	0.3	51.7	6	45.7
Puducherry	68.5	14	53.1	0.3	0.7	0.1	31.6	4.4	27.1
A&N Islands	70.1	2.6	62.5	1.9	0.5	2.4	29.9	2.5	27.5

At the national level, majority of the population does not have latrine facility available. In 47 per cent of the total households, latrine facility is available within premises out of which 12 per cent had flush/pour flush latrine connected to piped sewer system, in 22.2 per cent households it was connected to septic tank and 2.3 percent cases it was connected to other system. About 9 per cent households have pit latrines with slab/ventilated improved latrine and without slab/open pit. Total 53.1 per cent houses were without latrine facility within the premises. Among them 3 per cent households were using public latrine and 50 per cent were going to an open place. **About three-fourth of the households in Bihar, Jharkhand, Odisha and Chhattisgarh had not been using any type of latrine facility.** In Madhya Pradesh, (70%), Rajasthan (64.3%), Uttar Pradesh (63%) had no access to any type of latrine facility. Among these States the infant and child mortality is higher compared to other States.

### 6.3 Use of a Clean Cooking Fuel

Type of fuel used for cooking is an important indicator of a household's general economic status. Improved cooking fuel like LPG have become very expensive therefore, many of the households in India cannot afford the improved fuel and use firewood, crop residue etc. The type of cooking fuel used in a household could affect under-five mortality. If children spend a great deal of time where cooking takes place, the use of cooking fuel that emits harmful smoke could elevate their risk of respiratory disease and hence mortality (Mishra and Retherford, 1997). Children born to mothers who have exposure to smoke during pregnancy are more likely to be low birth weight and therefore at a higher risk of death.

**Table 98: Distribution of Households by Type of Fuel used for Cooking, Census, 2011**

States	Firewood	Crop residue	Cow-lung Cake	Coal, Lignite, Charcoal	Kero-sene	LPG	Electri-city	Biogas	Any Other	No Cooking
India	49	8.9	8	1.5	2.9	28.6	0.1	0.4	0.5	0.3
Jammu & Kashmir	58.9	2.5	4.2	0	1.3	31.6	0.4	0.8	0.2	0.2
Himachal Pradesh	57.5	1.1	0.2	0	2.1	38.6	0.2	0.1	0	0.3
Punjab	13.4	6.5	20.4	0.2	3.2	54.5	0	1.4	0.1	0.3
Chandigarh	4.6	0.3	0.2	0.1	21.9	71.6	0	0.1	0.1	1.1
Uttarakhand	48.7	1.3	3.2	0.1	1.8	44.2	0	0.5	0	0.3
Haryana	26.1	14.1	14.2	0.1	1	44	0	0.3	0.1	0.2
NCT of Delhi	3.4	0.3	0.6	0.1	5.3	89.9	0	0.1	0.1	0.3
Rajasthan	61.8	11	3	0.1	0.9	22.8	0	0.1	0.1	0.2
Uttar Pradesh	47.7	8.7	23.1	0.3	0.7	18.9	0.1	0.2	0.1	0.2
Bihar	34.7	32.5	21.7	1	0.3	8.1	0.1	0.3	1.2	0.2
Sikkim	52.5	0.6	0.2	0.1	4.4	41.3	0.3	0.1	0	0.6
Arunachal Pradesh	68.7	0.7	0.1	0	0.7	29.2	0.1	0.1	0.1	0.3
Nagaland	77.9	0.8	0.1	0	0.6	20	0.1	0.1	0.1	0.2
Manipur	65.7	1.1	0.2	2.1	0.2	29.7	0.1	0.2	0.6	0.1
Mizoram	44.5	0.3	0.1	0.4	1.8	52.6	0.2	0.1	0.1	0.1
Tripura	80.5	0.8	0.1	0.1	0.6	17.6	0	0.1	0.1	0.1
Meghalaya	79	0.9	0.3	2.3	3.7	11.9	1.6	0.2	0.1	0.2
Assam	72.1	6.4	0.9	0.1	0.6	19	0.1	0.1	0.4	0.4
West Bengal	33.1	25.6	10	7.9	2.1	18	0.1	0.3	2.7	0.3
Jharkhand	57.6	4	7.2	18.1	0.2	11.7	0.3	0.1	0.6	0.1
Odisha	65	10.2	9.4	1.6	1.1	9.8	0.4	0.2	2	0.3

Chhattisgarh	80.8	0.9	3.7	2.3	0.5	11.2	0.1	0.2	0.1	0.2
Madhya Pradesh	66.4	5.6	7.7	0.2	1.3	18.2	0.1	0.4	0.1	0.2
Gujarat	44	5.7	2.6	0.5	7.6	38.3	0	0.9	0.1	0.4
Daman & Diu	10.8	1.5	0.2	0.2	30.8	53	0.1	0.9	0.1	2.4
D &N Haveli	40.4	0.4	0.2	0.1	17.8	39.8	0	0.4	0	0.8
Maharashtra	42.6	4.5	1.2	0.2	6.5	43.4	0.1	0.7	0.1	0.8
Andhra Pradesh	65.8	1.4	0.6	0.3	3.9	35.8	0.1	0.7	0.1	0.3
Karnataka	57.5	2.9	0.2	0.1	5.4	32.5	0.1	0.9	0.1	0.3
Goa	20.7	0.9	0.2	0.1	4.1	72.7	0.1	0.4	0.1	0.7
Lakshadweep	54.8	10.7	0.1	0.1	13.7	16.6	1.2	0.2	0	2.5
Kerala	61.9	0.8	0.1	0.1	0.4	35.8	0	0.6	0	0.3
Tamil Nadu	43.5	0.6	0.2	0.1	6.9	47.9	0.1	0.3	0.1	0.4
Puducherry	18	0.3	0.1	0	10.3	70.5	0.1	0.1	0	0.6
A&N Islands	33.8	0.4	0	0	19.8	44.5	0	0	0.1	1.4

**Table 98** shows that firewood, crop residue and cowdung cake are more affordable and available in rural and tribal areas whereas LPG and electricity is more expensive and used in urban and semi urban areas. Table 63 presents the percentage distribution of households by type of fuel used for cooking as per census 2011. It is shown in the table that firewood was used for cooking purposes by 49 percent households, 9 percent households were using crop residue and another 8 percent used cowdung cake. LPG and kerosene were used by 28.6 percent and 2.9 percent households respectively. In Delhi, Chandigarh and Puducherry a large majority of households were using LPG for cooking. Among the States, maximum users of LPG were in Punjab (54.5%) followed by Mizoram (52.6%), Tamil Nadu (47.9%), and Maharashtra (43.4%) in comparison to Bihar (8.1%), Odisha (9.8%), Chhattisgarh (11.2%) and Jharkhand (11.7%). About 81 percent households in Chhattisgarh and Tripura were using firewood for cooking. Crop residue was used for cooking by one third households in West Bengal and Bihar. Cow dung cake was used for cooking by 23 % households in Uttar Pradesh, 21.7 % households in Bihar and 20.4 % households in Punjab.

## Summary and Conclusions

The infant mortality rate (IMR) and under-five mortality rate (U5MR) have been used as measures of children's well-being for many years. An attempt to analyse the levels and trends on **infant and** child mortality as also the determinants of mortality was made to present status of the children in India. The summary and conclusions of the analysis are presented in the following paragraphs:

### Levels and trends in infant and under-five mortality rates

2. One of the MDG goals is to reduce the mortality rate by two third among children under five between 1990 and 2015. Under-five mortality comprises of infant mortality (death before one year of age) and child mortality (death in the 1-4 year age group). The present Infant mortality rate stands at 40 per 1000 live births in 2013. Infant and child mortality in India have declined substantially over the past two decades. According to SRS data, infant mortality declined by 50% between 1991 and 2013. Though the Infant Mortality Rate is decreasing 2-3 points annually but the slow pace of reduction in the IMR is a major worry for the country as it is still higher than expected and India may not achieve the millennium development goal of 27 per 1000 live births by 2015.

3. Infant Mortality Rate comprises of two components - Neonatal Mortality Rate (Number of infant deaths of less than 29 days per thousand live births during the year) and Post Neonatal Mortality Rate (Number of deaths of 29 days to less than one year per thousand live births during the year). Neonatal mortality rate was recorded as 51 in 1991 which declined to 28 in 2013. The present level of neonatal mortality indicates that about two-third of infant deaths occur within the first month of life.

4. Between the two components of infant mortality i.e. neonatal and post neonatal mortality, during the period 1991 to 2013, post neonatal mortality rate declined more rapidly than neonatal mortality rate as a decline in post neonatal mortality by 58.6 percent was recorded in comparison to 45 percent decline in neonatal mortality. The level of Neonatal mortality is greatly affected by biological and maternal factors including nutritional status of the mother. Although concerted national efforts have been made to improve child mortality, especially in the post neonatal phase, less attention has been given to determinants of peri-natal and neonatal mortality.

5. Early neonatal mortality refers to the deaths in the first week of life. Early neonatal mortality rate (ENMR) is an indicator of quality of peri-natal care. As observed among all the components of the under-five mortality, early neonatal mortality has been slowest to decline which has been constantly contributing to slow decrease in IMR over the years.

6. Peri-natal mortality rate (PNMR) is the number of fatal deaths after 28 weeks of pregnancy and infant deaths under 7 days of age in given year per 1000 total births in that year. The peri-natal mortality rate has declined from 46 in 1991 to 26 in 2013. From 2001 to 2009, it showed almost stagnant trend, however, after 2009 there was a declining trend.

7. The under-five mortality is the probability (expressed as a rate per 1000 live births) that a child born in a specific year or time period will die before reaching the age of five, subject to current age specific mortality rates. Since 1990, a rapid decline was seen in the U5MR and from an estimated level of 125 in 1990, fell to a level of 49 in 2013. Given to reduce under-five mortality rate to 42 per thousand live births by 2015, as per the historical trend, India may be missing the target. However, considering the continuance of the sharper annual rate of decline witnessed in the recent years, India is likely to reach near the target.

8. Under-five mortality has declined because of reductions in the neonatal, post neonatal and child mortality rates. Proportionately, child mortality rates has declined more than infant mortality and similarly post neonatal mortality has declined more than neonatal mortality, increasing the relative importance of peri-natal and neonatal mortality.

9. Comparison of estimated infant mortality rates based on three rounds of NFHS indicates that the infant mortality rate declined by 22 deaths per 1,000 live births in approximately 13 years. This implies an average reduction of 1.7 infant deaths per year. Neonatal mortality has declined from 49 for the period 1988-92 to 39 for the period 2001-2005 and the post natal mortality declined from 30 to 18 between the same time periods. It is observed that the decline was more in the post neonatal (12) and child mortality (15) as compared to neonatal mortality (10).

### **Inter- State Differentials in IMR and U5MR**

10. Among the states, Kerala, Tamil Nadu, Delhi, Punjab, Maharashtra, Goa, Manipur, Nagaland, Sikkim and Tripura, in 2013 the IMR have been estimated below the Millennium Development Goal (27) set for the year 2015. Also, Karnataka (31), West Bengal (31), Arunachal Pradesh and Uttarakhand (32) are likely to achieve the reduction of IMR to the level of MDG by the year 2015. In the States of Assam (54), Madhya Pradesh (54), Odisha (51), Uttar Pradesh (50), Rajasthan (47), Chhattisgarh (46), Bihar (42), Meghalaya (47) and Haryana (41) the IMR was recorded more than the national level (40) in the year 2013 which is far away from the target. In Andhra Pradesh, Jammu & Kashmir, Jharkhand, Gujarat, Himachal Pradesh and Mizoram, the infant mortality rates were recorded between 35 and 40 and may not achieve the target by 2015. In all the Union Territories, IMR has been recorded below 27 except Dadra & Nagar Haveli (31) which is likely to achieve the target by 2015.

11. The under-five mortality rate as per SRS was estimated 49 at national level in 2013 and there were considerable inter-state variations. Among the bigger States, highest U5MR was in Assam (73) and lowest in Kerala (12). Assam (73), Madhya Pradesh (69), Odisha (66), Uttar Pradesh (64), Rajasthan (57), Bihar (54) and Chhattisgarh (53) have U5MR higher than the national average (49). The States of Kerala (12), Tamil Nadu (23), Maharashtra & Delhi (26), Punjab (31), Karnataka and West Bengal (35), Jammu & Kashmir (40), Andhra Pradesh and Himachal Pradesh (41) have already achieved the given national level MDG target to reduce U5MR to 42 per thousand live births by the year 2015. Gujarat and Haryana (45) are likely to achieve the national target by 2015.

### **Infant and Under-five Mortality in EAG States and Assam**

12. AHS was conducted in 2010-11 with baseline survey and followed by two updating rounds in 2011-12 and 2012-13 in 8 Empowered Action Group (EAG) states and Assam. AHS provided data on infant and child mortality for 9 States.

13. Among the EAG States and Assam, the infant mortality rate was highest in Uttar Pradesh (68) and lowest in Jharkhand (36) in 2012-13. The percentage of decrease in IMR from 2010-11 to 2012-13 was lowest (4.2%) in Uttar Pradesh which indicates the lower performance of NRHM and other health interventions in the state. Chhattisgarh, Bihar and Jharkhand have recorded a decrease of 13.2 percent, 12.7 percent and 12.2 percent respectively in IMR from 2010-11 to 2012-

13 showing the better progress in these three States. More attention is required in the States of Madhya Pradesh, Rajasthan, Odisha and Assam besides Uttar Pradesh for success of various health interventions including NRHM.

14. Highest under-five mortality rate in 2012-13 was estimated in Uttar Pradesh (90) followed by Madhya Pradesh (83), Odisha (75), Rajasthan (74), Assam (71), Bihar (70) and Chhattisgarh (60). The national target set by the Government to reduce under-five mortality to 42 by 2015 is far away from the current level of U5MR in these states except the states of Uttarakhand (48) and Jharkhand (51) where it is closer to the target.

15. Annual Health Surveys also indicate that the infant and child mortality rates are higher in rural areas as compared to urban areas. Maximum difference in rural and urban areas is seen in Assam where the mortality rates in rural areas are nearly double of the urban areas.

### **Maternal Determinants of Infant and Child Mortality**

16. The demographic characteristics of both mother and child like age at marriage, mother's age at child birth, birth order of the child, birth interval, and child's weight/size at birth and sex of the child have been found to play an important role in the survival probability of children. As per SRS data, the percentage of effective marriage below the legal age of marriage i.e. 18 has declined from 20.3 percent in 1993 to 2.2 percent in 2013.

17. Age of the mother at the time of child birth has an important bearing on the survival of the child as children born to adolescent mothers are at higher risk. Infant and under-five mortality rates are highest among mothers below 20 years of age, whereas children born to mothers aged 35 and above are likely to have the increased risk of mortality.

18. The effect of maternal age on mortality is highest during the neonatal period, and progressively diminishes during the post-neonatal and 1-4 year age-group. Based on NFHS-3, the effect of young age of a mother (<20 years) on neonatal mortality was 1.58 times higher than the child born to mothers whose age was between 20 and 30 years. Similarly the children born to mothers above 40 years of age have 1.25 times higher risk of death within first month of birth in comparison to mothers of age 20-29 years.



19. As per NFHS-3, 2005-06, the first order children have 57 percent higher risk of dying in the first month of life as compared to birth order 2 and 3. There is no increased risk of dying for first order birth beyond the neonatal period. In fact, child mortality is lowest among first order births and increased with the order births. Fourth to sixth order children have 37 percent higher risk of dying in the neonatal period, 26 percent in the post neonatal period and 53 percent during 1-4 year age as compared to birth order 2 and 3. Children in birth order 7 or more have 86 percent higher chances of dying before fifth birthday. According to DLHS-3, 2007-08 more than two third children of fourth and higher order were born to mothers whose age was above 35 years. Though declining trend in percentage of fourth and higher order births have been seen as it decreased from 24.2 percent in 1991 to 10.5 percent in 2013, but more efforts in implementation of the family planning programme are required. With higher birth order, decreased utilization of health services by mothers and children like ANC, delivery in a health facility, vaccination and vitamin A supplementation has been observed.

20. The interval between two births shows a strong effect on infant and child mortality rates. The shortest birth interval, less than two years, carries the greatest risk of mortality and the risk of mortality decline with increased birth interval. Mothers whose births are spaced too closely may not recover their health before becoming pregnant and this can hinder the growth and development of the foetus and a child born too soon after the first may divert time, attention and resources of the caretakers from the first child.

21. According to Sample Registration System, among the children born in the year 2013, 31 percent were with previous birth interval less than 24 months and another 30 percent with an interval of 24-36 months. Among the children born between 2001 and 2005, the infant mortality rate was 2.9 times higher for the children with previous birth interval below 24 months and 1.7 times higher for the interval 24-35 months than the birth interval 36-47 months. It is revealed that previous birth interval is one of the important determinants of IMR and U5MR. The IMR and U5MR is considerably low when the previous birth interval is 36-48 months, therefore, the IMR and U5MR can be reduced significantly by spacing births.

22. Any birth when the mother's age is less than 18 years or more than 34 years; where the previous birth interval is less than 2 years or the birth order is more than three can be categorized as high risk. Total 46 percent births in the preceding five-year from NFHS-3 (approximately from

2001 to 2005) were in an avoidable risk category. These births had nearly twice the risk of dying than those which were not in any high risk category. Among the avoidable high risk category, 35 percent births were in single high risk category and 11 percent of the births in multiple high-risk category.

23. Neonatal and post neonatal mortality was found highest when the deliveries were conducted at home by traditional birth attendants. NFHS data revealed that neonatal mortality is lowest among the children delivered at home by health professionals. Thus maximizing the number of deliveries assisted by trained health personnel can be helpful in minimizing the risk of dying in neonatal and post neonatal period.

24. Mother's nutritional status affects the nutritional status of babies and the infant mortality. The risk of having a baby with low birth weight is also higher for mothers who are short. Based on NFHS-3, 11 percent women in the age group 15-49 had height below 145 centimeter, 16 percent were moderately/severely thin (BMI <17.0), 20 percent mildly thin (BMI 17.0-18.4) and 13 percent were overweight/obese. Fifty five percent of women whose haemoglobin level was tested were found to be anaemic. Thirty-nine percent women were mildly anaemic, 16 percent were moderately anaemic and two percent were severely anaemic.

### **Child Determinants of Infant and Child Mortality**

25. As per SRS data, in the year 1991, the IMR was marginally higher for male as compared to female but after that the IMR for female was higher than male and in the year 2013, the IMR was 39 for male and 42 for female. It is observed that mortality rate for female was lower than male during neonatal period as per three rounds of National Family Health Survey which can be attributed to biological advantage of girls, however, during this period the narrowing gap in neonatal mortality between male and female has been seen. The data shows the reverse trend of increasing mortality rate among female children after neonatal period and the difference between male and female is more in the age group 1-4 years.

26. A variety of cultural and traditional factors may be responsible for the higher mortality among girls beyond neonatal period as the parental care of the child affects the mortality beyond this period. Traditionally, preference is given to sons over daughters in terms of food, prevention of diseases and treatment of illness resulting in higher post neonatal and child mortality among girls.

27. The vaccination received by male and female children of 12-23 months, based on NFHS and CES, revealed that a little higher percentage of male children received all vaccinations, whereas, among the children who did not receive any vaccine percentage of female was comparatively higher.

28. As per NFHS-3, almost half of children under five years of age (48%) were stunted and 43 percent were underweight. The proportion of children who were severely undernourished (below -3SD from the median of the reference population) was also notable – 24 percent according to height-for-age and 16 percent according to weight-for age. Wasting was also quite a serious problem in India, affecting 20 percent of children under five years of age. Under nutrition was substantially higher in rural areas than in urban areas. Even in urban areas, 40 percent of children were stunted and 33 percent were underweight.

29. National Family Health Survey, 2005-06, reveal that 70 percent of the children below 5 years were anaemic, including 26 percent mildly anaemic, 40 percent moderately anaemic and 3 percent severely anaemic.

### **Socio-Economic Determinants of Infant and Child Mortality**

30. Despite substantial progress in reducing under-five deaths, children from rural and poorer households remain disproportionately affected. The SRS data for the year 2013 shows that children in rural areas are about 1.6 times more likely to die before their first birthday and 1.9 times more likely to die before fifth birthday than those in urban areas. During the period 1991 to 2013, neonatal mortality declined by 53 percent in urban areas as compared to 44 percent in rural areas. In 2013, the neonatal mortality rate was about double in rural areas as compared to urban areas.

31. As per NFHS-3, in rural areas 28 percent mothers did not receive any ANC as compared to 9 percent mothers in urban areas. Among the women who delivered during 12 months preceding CES, 2009, in urban areas 82.7 percent women received more than three ANCs, 89.4 percent received two doses of TT injections and 39.7 percent women areas consumed IFA tablets/syrup for 100+ days as compared to 63.3 percent, 85.9 percent and 27.6 percent respectively in rural areas. Full ANCs were received by 26 percent women in rural areas and 36 percent in urban areas.

32. Urban women (70.4%) were more likely to receive ANC in the first trimester than rural women (54.9%). About 12 percent women in rural areas and 4 percent in urban areas did not receive any antenatal checkup. A significant increase in institutional deliveries from 28.9 percent (NFHS-3, 2005-06) to 68 percent (CES, 2009) has been observed in rural areas which may be attributed to interventions like NRHM, JSY and JSSK.

33. It was observed that higher percentage of children in urban areas received vaccination and vitamin A supplementation than in rural areas. Though the immunization coverage increased in subsequent surveys but still more efforts are required to cover all children.

34. Mother's education is often just a good indicator of other socioeconomic factors that affect under-five mortality directly. A mother's education is important because it facilitates her integration into a society impacted by traditional customs, exposes her to information about better nutrition, spacing births, childhood illnesses and treatment.

35. The data revealed that children born to a mother with secondary or higher education have lowest rates for all types of childhood mortality. IMR and U5MR among children born to illiterate mothers have been consistently higher than those born to mothers with any education. Under-five mortality was highest (94.7) among children whose mothers were uneducated which decreased with each higher level of education and was lowest (29.7) among children of mothers who completed 12 years or more education.

36. It was observed that the level of utilization of health services like ANC, assistance of skilled health personnel during delivery, immunization of children etc. depended on educational level of mother.

37. Some of the effect of religion on mortality may be due to differences in life-style based on traditions and beliefs. Such differences may include customary practices related to childbirth, infant feeding, and health care. According to NFHS-3, highest rate of infant mortality was found among Hindus and it was lowest among Christians. Though, the level of complete antenatal care was low among all religious groups, it was seen that Christian mothers were more aware of receiving antenatal care. Majority of children belonging to Hindu, Muslim and Sikh religion received prelacteal feed (something other than breast milk during the first three days of life). Immunization of children and vitamin A supplementation was lowest among Muslims.

38. Besides socio-economic differences, the cultural patterns of unique social groups can be quite varied and different groups may be at different stages of transition in the process of cultural change. In general, scheduled caste and schedule tribe children have higher levels of under-five mortality than others. The infant mortality rate was 36 percent higher among scheduled castes, 27 percent higher among scheduled tribes and 16 percent higher among other backward classes as compared to others. Between NFHS-1 (1992-93) and NFHS-3 (2005-06), about 37 percent decline in infant mortality was recorded among Other Castes and Scheduled Castes but during the same period only 21 percent decline was recorded among Scheduled Tribes.

39. Under-five mortality rate was 49 percent higher among scheduled castes, 62 percent higher among scheduled tribes and 23 percent higher among OBCs in comparison to others. Although scheduled tribes had a lower infant mortality rate (62) than scheduled castes (66), the child mortality rate (1-4 years of age) was higher among scheduled tribes (36) than among scheduled castes (23).

40. Lowest proportion of ST women received ANC, assistance during delivery and post natal check up followed by SCs and OBCs. As observed, among the Scheduled Tribes, least proportion of children received all vaccines and the Under-five mortality rate among them is highest and on the other side among other caste children, most children received all vaccines and U-5MR is least among them. It emphasizes the role of immunization in reducing child mortality particularly in the age group 1-4 years. More efforts are required to encourage the women particularly those who belong to Scheduled Castes and Tribes to avail antenatal care services, institutional deliveries and to get their children fully immunized.

41. Wealth Index or Economic status (as measured by Standard of Living Index) affects the infant and child mortality directly. As observed, Under-five mortality and its components vary inversely with economic status of the household, as measured by the Standard of Living Index (SLI): children born in low SLI households had the highest mortality rates, and those born in high SLI households had low mortality rates. The infant mortality rate is 70 among children in households in the lowest wealth quintile, 58 in the middle wealth quintile households, and only 29 in the highest wealth quintile households. Households in the highest wealth quintile experience the under-five mortality rate only one-third of households in the lowest quintile.

42. As observed, the level of utilization of health services like antenatal care, deliveries assisted by skilled health personnel, early initiation of breast feeding, immunization of children, and vitamin A supplementation depended on the economic status of the household.

### **Environmental Determinants of Infant and Child Mortality**

43. It is acknowledged that availability and distribution of water is essential for good health status of people. There have been many policies that have helped in proper distribution and accessibility of water in India. As per Census, 2011, at the National level, only 32 percent households are availing tap water from treated sources, whereas 33.5 percent using water from handpumps, 8.5 percent from tubewells and 1.6 percent from covered wells. Also, 46.6 percent households have source of drinking water within the premises and 17.6 percent were bringing the water from a distant place.

44. In Bihar, Nagaland, Assam, Odisha, Jharkhand and Lakshdweep only upto 10 percent households and in Uttar Pradesh, Tripura, Chhattisgarh, West Bengal, Madhya Pradesh and Kerala 10 to 25 percent households were using tap water from a treated source in 2011.

45. Access to an improved toilet (flush or pit) is potentially an important determinant of infant and child mortality in India. Roughly, 53 percent houses were without latrine facility within the premises. Among them 3 percent households were using public latrine and 50 percent were still going to an open place for defecation. There have been various governmental policies like Nirmal Bharat Abhiyan that have helped in increasing toilet facilities for rural and urban populations but much more efforts have to be made to provide improved toilet facility for having a good health status of the people and specifically to reduce child mortality.

46. Studies have revealed that the type of cooking fuel used in a household could affect under-five mortality as the use of cooking fuel that emits harmful smoke could elevate their risk of respiratory disease and children born to mothers who have exposure to smoke during pregnancy are more likely to be low birth weight and therefore at a higher risk of death. As per census 2011, firewood was used for cooking purposes by 49 percent households, 9 percent households were using crop residue and another 8 percent used cowdung cake. LPG and kerosene were used by 28.6 percent and 2.9 percent households respectively.

47. In conclusion, this analysis confirms the hypothesis that the infant and under-five mortality and associated determinants vary among different States and households with different socio-economic background. To enhance child survival, many determinants such as age at marriage, age at child birth, intensive antenatal and delivery care to pregnant women, spacing the birth interval, complete immunization of children, nutritional status of women and children and child care practices can be modified by child survival programs.

48. Factors contributing to slow decline include the lower social, cultural and health status of women in India. Thus, improving female education and nutrition, as well as increasing the use of health services during pregnancy and delivery, would lower child mortality. The level of child morbidity and mortality is higher for girls aged one month to 5 years than for boys. Eliminating gender differences in mortality rates would significantly reduce infant and child mortality overall. An initiative by Government of India 'Beti Bachao Beti Padhao' aims to create awareness among masses to eliminate discrimination to girl child at all stages.

49. Child health policies should be reviewed to sustain the achievements that have already been made, enhance quality and efficiency and address specific gaps in neonatal care. Existing child health programmes and strategies, including initiatives for the eradication of vaccine-preventable childhood diseases, and specific health and nutrition interventions, need to be examined in the context of socio-economic and State specific approaches. It is revealed from the above discussion that the economic status of the household is an important factor of the infant and child mortality rates. To reduce infant and child mortality not only the health services, water and sanitation facilities be improved by proper implementation of the programmes but also the poverty elimination programmes be implemented effectively.

**ANNEXURE-I**

**Detailed Tables**



**Table A1 : Percentage of 0-4 Years Population to Total Population and Percentage of Deaths in the Age Group to Total Deaths, India, 1991-2013**

Year	Percentage of 0-4 years population to total population			Percentage of deaths in the age group 0-4 years to total deaths		
	Total	Rural	Urban	Total	Rural	Urban
1991	13.6	11.3	13.1	26.5	29.1	16
1992	13.1	13.6	11.2	34.5	36.3	24.8
1993	12.8	13.6	10.5	32.7	34.3	24.4
1994	12	12.6	10.2	30.9	32.5	23.8
1995	11.7	12.2	9.9	31.3	33.1	22.5
1996	11.4	11.9	9.7	30.3	32.1	21.3
1997	11.2	11.7	9.9	29.1	31	19.8
1998	11.5	12	10	28.8	30.6	19.4
1999	11.6	12.2	10	27.7	29.7	18.7
2000	11.7	12.3	9.8	26.8	28.9	17.8
2001	11.5	12.1	9.6	26.5	28.7	16.9
2002	11.3	11.9	9.4	24.9	26.9	15.9
2003	11	11.6	9.1	23.9	25.9	15.5
2004	10.7	11.2	9.4	24.4	26.5	16.5
2005	10.4	10.9	9.1	23.8	26.1	15.6
2006	10.2	10.6	8.9	23	25.3	15
2007	9.9	10.4	8.7	21.4	23.5	14
2008	10.1	10.6	8.8	20.7	22.7	13.5
2009	10.2	10.8	8.6	19.7	21.5	12.9
2010	10	10.6	8.4	18.4	20.3	11.4
2011	9.7	10.3	8.2	16.7	18.4	10.7
2012	9.7	10.3	8	15.8	17.4	10
2013	9.5	10	7.9	14.9	16.5	9.1

Source : Sample Registration System, Office of RGI, New Delhi.

**Table A2 : Infant Mortality Rates in States and UTs, 1991-2013**

States	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
<b>India</b>	<b>80</b>	<b>79</b>	<b>74</b>	<b>74</b>	<b>74</b>	<b>72</b>	<b>71</b>	<b>72</b>	<b>70</b>	<b>68</b>	<b>66</b>	<b>63</b>	<b>60</b>	<b>58</b>	<b>58</b>	<b>57</b>	<b>55</b>	<b>53</b>	<b>50</b>	<b>47</b>	<b>44</b>	<b>42</b>	<b>40</b>
A.P.	73	71	64	65	67	65	63	66	66	65	66	62	59	59	57	56	54	52	49	46	43	41	39
Assam	81	82	81	78	77	74	76	76	76	75	74	70	67	66	68	67	66	64	61	58	55	55	54
Bihar	69	73	70	67	73	71	71	67	63	62	62	61	60	61	61	60	58	56	52	48	44	43	42
Chhattisgarh	-	-	-	-	-	-	-	-	78*	79*	77*	73*	70*	60	63	61	59	57	54	51	48	47	46
Delhi	48*	44*	37*	43*	39*	44*	35*	36*	31*	32*	29*	30*	28*	32	35	37	36	35	33	30	28	25	24
Gujarat	69	67	58	64	62	61	62	64	63	62	60	60	57	53	54	53	52	50	48	44	41	38	36
Haryana	68	75	66	70	69	68	68	70	68	67	66	62	59	61	60	57	55	54	51	48	44	42	41
H.P.	75	67	63	59	63	63	63	68	54	51	54	61	42	51	49	50	47	44	45	40	38	36	35
J&K	NA	NA	NA	NA	NA	NA	NA	45*	NA	50*	48*	45*	44*	49	50	52	51	49	45	43	41	39	37
Jharkhand	-	-	-	-	-	-	-	-	71*	70*	62*	51*	51*	49	50	49	48	46	44	42	39	38	37
Karnataka	77	73	67	67	62	53	53	58	58	57	58	55	52	49	50	48	47	45	41	38	35	32	31
Kerala	16	17	13	16	15	14	12	16	14	14	11	10	11	12	14	15	13	12	12	13	12	12	12
M.P.	117	104	106	98	99	97	94	98	90	87	86	85	82	79	76	74	72	70	67	62	59	56	54
Maharashtra	60	59	50	55	55	48	47	49	48	48	45	45	42	36	36	35	34	33	31	28	25	25	24
Odisha	124	115	110	103	103	96	96	98	97	95	91	87	83	77	75	73	71	69	65	61	57	53	51
Punjab	53	56	55	53	53	51	51	54	53	52	52	51	49	45	44	44	43	41	38	34	30	28	26
Rajasthan	79	90	82	84	86	85	85	83	81	79	80	78	75	67	68	67	65	63	59	55	52	49	47
T.N	57	58	57	59	54	53	53	53	52	51	49	44	43	41	37	37	35	31	28	24	22	21	21
Uttar Pradesh	97	98	93	88	86	85	85	85	84	83	83	80	76	72	73	71	69	67	63	61	57	53	50
West Bengal	71	65	58	62	58	55	55	53	52	51	51	49	46	40	38	38	37	35	33	31	32	32	31

Table contd....

Table A2 Contd.....

States	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Arunachal P. *	80	64	58	63	61	54	47	44	43	44	39	37	34	38	37	40	37	32	32	31	32	33	32
Goa*	23	20	20	14	13	15	19	23	21	23	19	17	16	17	16	15	13	10	11	10	11	10	9
Manipur*	29	24	22	22	27	28	30	25	25	23	20	14	16	14	13	11	12	14	16	14	11	10	10
Meghalaya*	57	58	53	49	45	48	54	52	56	58	56	61	57	54	49	53	56	58	59	55	52	49	47
Mizoram*	-	-	-	-	-	25	19	23	19	21	19	14	16	19	20	25	23	37	36	37	34	35	35
Nagaland*	18	10	7	6	6	7	NA	NA	NA	NA	NA	NA	NA	17	18	20	21	26	26	23	21	18	18
Sikkim*	56	46	45	37	47	47	51	52	49	49	42	34	33	32	30	33	34	33	34	30	26	24	22
Tripura*	52	51	49	43	45	49	51	49	42	41	39	34	32	32	31	36	39	34	31	27	29	28	26
Uttarakhand*	-	-	-	-	-	-	-	-	52	50	48	41	41	42	42	43	48	44	41	38	36	34	32
A&N Islands*	36	34	35	30	32	27	33	30	25	23	18	15	18	19	27	31	34	31	27	25	23	24	24
Chandigarh*	27	16	22	32	44	45	40	32	28	28	24	21	19	21	19	23	27	28	25	22	20	20	21
D & N Haveli*	NA	68	75	78	78	71	63	61	56	58	58	56	54	48	42	35	34	34	37	38	35	33	31
Daman & Diu*	56	57	50	43	36	43	38	51	35	48	40	42	39	37	28	28	27	31	24	23	22	22	20
Lakshadweep*	38	31	30	27	36	36	36	26	32	27	33	25	26	30	22	25	24	31	25	25	24	24	24
Puducherry*	30	29	24	31	25	25	22	21	22	23	22	22	24	24	28	28	25	25	22	22	19	17	17

Note : \* IMR based on last three years period

Source : 1. Sample Registration System Statistical Reports for different years, Office of RGI, New Delhi.

2\* SRS Bulletins for different years, Sample Registration System, Office of RGI, New Delhi.

**Table A3 : Infant Mortality Rates (Male) in States and UTs, 1991-2013**

States	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
<b>India</b>	<b>81</b>	<b>79</b>	<b>73</b>	<b>75</b>	<b>73</b>	<b>71</b>	<b>70</b>	<b>70</b>	<b>70</b>	<b>67</b>	<b>64</b>	<b>62</b>	<b>57</b>	<b>58</b>	<b>56</b>	<b>56</b>	<b>55</b>	<b>52</b>	<b>49</b>	<b>46</b>	<b>43</b>	<b>41</b>	<b>39</b>
A.P.	76	73	70	73	65	67	64	65	69	66	65	64	59	59	56	55	54	51	48	44	40	40	39
Assam	88	86	81	84	80	73	75	85	75	66	69	70	69	76	66	67	64	62	58	56	55	54	53
Bihar	68	71	68	69	75	68	72	67	63	62	57	56	59	60	60	58	57	53	52	46	44	42	40
Chhattisgarh	-	-	-	-	-	-	-	-	92	92	72	61	68*	78	63	59	58	57	50	48	47	46	45
Delhi	-	-	-	-	-	-	29	23	29	30	27	29	28*	32	33	36	36	34	31	29	25	24	23
Gujarat	70	66	58	62	61	57	62	63	62	59	61	55	54	50	52	52	50	49	47	41	39	36	35
Haryana	69	73	60	65	63	67	68	61	59	63	63	54	54	55	51	57	55	51	48	46	41	41	40
H.P.	81	67	72	55	68	57	64	60	57	57	48	66	46	56	47	45	45	43	44	35	36	35	33
J&K	-	-	-	-	-	-	-	40	-	59	43	45	46*	41	47	51	49	48	41	41	40	38	36
Jharkhand	-	-	-	-	-	-	-	-	64	59	37	44	50*	42	43	46	47	45	42	41	36	36	35
Karnataka	82	77	69	71	62	55	51	61	59	65	59	56	51	49	48	46	46	44	41	37	34	30	30
Kerala	17	21	16	16	15	13	12	18	14	15	14	9	11	14	14	14	12	10	10	13	11	10	10
M.P.	116	109	106	101	96	97	98	99	90	81	83	81	77	82	72	72	72	68	66	62	57	54	52
Maharashtra	60	61	50	58	56	50	50	42	48	46	43	48	32	31	34	35	33	33	28	27	24	24	23
Odisha	126	114	118	103	105	100	95	98	97	98	90	95	82	76	74	73	70	68	65	60	55	52	50
Punjab	55	54	49	47	49	47	48	53	51	45	43	38	46	37	41	39	42	39	37	33	28	27	25
Rajasthan	77	88	82	84	83	84	75	83	79	76	78	75	70	66	64	65	63	60	58	52	50	47	45
T.N	60	58	57	58	54	54	48	48	50	49	45	46	44	43	35	36	34	30	27	23	21	21	20
Uttar Pradesh	95	92	87	86	82	80	80	79	85	81	82	76	69	71	71	70	67	64	62	58	55	52	49
West Bengal	72	67	57	60	58	60	59	59	61	54	53	53	45	45	38	37	36	34	33	29	30	31	30

Table Contd.....

Table A3 Contd.....

States	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Arunachal P.	-	-	-	-	-	-	57	46	43	41	35	36	31	34*	29*	38*	35*	30*	31*	31*	33*	32*	32*
Goa	-	-	-	-	-	-	29	30	26	27	11	17	15	17*	14*	16*	11*	10*	7*	6*	7*	8*	8*
Manipur	-	-	-	-	-	-	28	24	22	21	8	13	18	16*	12*	10*	9*	13*	14*	11*	8*	10*	9*
Meghalaya	-	-	-	-	-	-	74	59	67	65	52	64	56	52*	48*	53*	55*	58*	59*	55*	52*	48*	46*
Mizoram	-	-	-	-	-	-	28	32	19	18	20	9	16	21*	18*	24*	21*	37*	33*	36*	31*	33*	33*
Nagaland	-	-	-	-	-	-	-	-	21	-	-	-	-	18*	19*	17*	21*	23*	23*	19*	15*	15*	14*
Sikkim	-	-	-	-	-	-	47	64	50	50	30	23	34	37*	29*	26*	26*	34*	35*	28*	23*	22*	20*
Tripura	-	-	-	-	-	-	53	50	23	31	39	35	36	36*	30*	31*	37*	34*	33*	25*	29*	26*	22*
Uttarakhand	-	-	-	-	-	-	-	-	60	54	40	16	31	37*	37*	42*	47*	44*	41*	37*	34*	33*	30*
A&N Islands	-	-	-	-	-	-	40	22	11	19	7	17	12	17*	26*	27*	26*	29*	29*	24*	19*	18*	20*
Chandigarh	-	-	-	-	-	-	41	26	9	24	26	15	21	24*	17*	20*	24*	27*	26*	20*	21*	19*	20*
D & N Haveli	-	-	-	-	-	-	69	61	58	53	81	51	69	56*	42*	28*	28*	33*	38*	36*	35*	31*	29*
Daman & Diu	-	-	-	-	-	-	13	17	12	73	45	46	43	44*	27*	28*	22*	26*	21*	22*	17*	20*	19*
Lakshadweep	-	-	-	-	-	-	37	32	29	15	43	6	21	30*	23*	29*	28*	29*	21*	21*	27*	23*	19*
Puducherry	-	-	-	-	-	-	25	24	31	14	26	24	29	30*	29*	20*	15*	22*	25*	22*	17*	15*	15*

Note : \* IMR based on last three years period

Source : 1. Sample Registration System Statistical Reports for different years, Office of RGI, New Delhi.

2. SRS Bulletins for different years, Sample Registration System, Office of RGI, New Delhi.

**Table A4 : Infant Mortality Rates (Female) in States and UTs, 1991-2013**

States	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
<b>India</b>	<b>80</b>	<b>80</b>	<b>75</b>	<b>73</b>	<b>76</b>	<b>73</b>	<b>72</b>	<b>73</b>	<b>71</b>	<b>69</b>	<b>68</b>	<b>65</b>	<b>64</b>	<b>58</b>	<b>61</b>	<b>59</b>	<b>56</b>	<b>55</b>	<b>52</b>	<b>49</b>	<b>46</b>	<b>44</b>	<b>42</b>
A.P.	70	68	57	56	69	63	62	68	64	64	68	60	59	58	58	58	55	54	50	47	46	43	40
Assam	74	78	81	71	73	77	77	67	76	83	80	71	65	55	69	68	67	65	64	60	56	57	55
Bihar	71	74	72	66	71	75	71	66	62	61	68	66	62	63	62	63	58	58	52	50	45	45	43
Chhattisgarh	-	-	-	-	-	-	-	-	62	66	78	66	71*	42	64	62	61	58	57	54	50	47	47
Delhi	-	-	-	-	-	-	29	45	21	34	23	38	29*	32	37	39	36	37	34	31	31	26	25
Gujarat	67	69	58	67	63	66	63	66	65	67	60	66	61	57	55	54	54	51	48	47	42	39	37
Haryana	67	78	73	75	76	70	68	81	78	71	70	73	65	68	70	58	56	57	53	49	48	44	42
H.P.	67	66	53	64	56	71	61	77	51	44	36	55	38	45	51	55	49	45	45	47	39	38	36
J&K	-	-	-	-	-	-	NA	52	NA	46	36	40	41*	59	55	53	52	51	51	45	41	40	38
Jharkhand	-	-	-	-	-	-	-	-	79	79	54	37	52*	57	58	52	49	48	46	44	43	39	38
Karnataka	72	67	66	62	61	52	54	56	57	47	58	53	52	49	51	50	47	46	42	39	35	34	32
Kerala	16	12	10	15	15	14	13	13	15	13	9	12	12	11	15	16	13	13	13	14	13	13	13
M.P.	119	98	106	94	102	96	90	97	90	93	89	88	86	75	79	77	72	72	68	63	62	59	55
Maharashtra	59	57	50	53	53	47	45	56	48	50	48	42	54	42	37	36	35	33	33	29	25	26	25
Odisha	123	116	101	104	101	92	98	97	96	92	93	79	83	79	77	74	72	70	66	61	58	54	52
Punjab	51	60	62	60	62	57	54	56	56	61	63	66	52	55	48	50	45	43	39	35	33	29	27
Rajasthan	80	92	81	83	91	86	96	84	84	81	82	80	81	69	72	69	67	65	61	57	53	51	49
T.N	54	59	56	60	54	53	57	58	55	54	54	43	41	38	39	37	36	33	29	24	23	22	21
Uttar Pradesh	100	105	100	90	91	90	90	93	84	86	84	84	84	72	75	73	70	70	65	63	59	55	52

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Table A-4 Contd.....

States	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
West Bengal	69	62	59	65	58	50	53	48	43	47	49	45	46	34	39	40	37	37	33	32	34	33	32
Arunachal P.	-	-	-	-	-	-	47	50	28	39	31	40	38	42*	46*	43*	38*	34*	34*	32*	31*	35*	33*
Goa	-	-	-	-	-	-	5	21	7	15	17	16	18	17*	17*	14*	14*	11*	14*	15*	14*	12*	10*
Manipur	-	-	-	-	-	-	34	18	24	24	12	7	13	12*	13*	13*	15*	15*	18*	16*	15*	11*	10*
Meghalaya	-	-	-	-	-	-	57	47	56	67	50	69	59	55*	51*	52*	56*	58*	59*	56*	52*	50*	48*
Mizoram	-	-	-	-	-	-	2	20	9	17	16	2	17	16*	22*	25*	25*	38*	38*	39*	37*	37*	37*
Nagaland	-	-	-	-	-	-	NA	NA	43	NA	NA	NA	NA	16*	18*	23*	20*	29*	28*	28*	26*	22*	23*
Sikkim	-	-	-	-	-	-	27	36	42	44	29	27	31	27*	31*	40*	43*	32*	33*	32*	30*	27*	25*
Tripura	-	-	-	-	-	-	37	43	32	39	31	31	27	27*	31*	41*	41*	35*	30*	29*	29*	29*	30*
Uttarakhand	-	-	-	-	-	-	-	-	44	43	40	55	53	49*	48*	44*	48*	45*	42*	39*	38*	35*	33*
A&N Islands	-	-	-	-	-	-	27	35	17	13	6	29	24	21*	27*	36*	42*	32*	25*	27*	27*	31*	28*
Chandigarh	-	-	-	-	-	-	41	31	24	31	2	30	16	17*	22*	27*	32*	29*	23*	25*	19*	22*	22*
D & N Haveli	-	-	-	-	-	-	37	65	27	61	39	52	39	39*	43*	44*	40*	35*	37*	40*	36*	35*	34*
Daman & Diu	-	-	-	-	-	-	17	95	3	29	40	12	34	28*	28*	28*	34*	37*	28*	23*	27*	25*	20*
Lakshadweep	-	-	-	-	-	-	31	21	14	29	33	26	32	30*	21*	21*	21*	34*	29*	29*	20*	25*	29*
Puducherry	-	-	-	-	-	-	33	29	10	25	17	25	18	17*	27*	36*	35*	27*	20*	22*	20*	18*	19*

Note : \* IMR based on last three years period

- Source :
1. Sample Registration System Statistical Reports for different years, Office of RGI, New Delhi.
  2. SRS Bulletins for different years, Sample Registration System, Office of RGI, New Delhi.

**Table A5 : Infant Mortality Rates (Rural) in States/UTs, 1991-2013**

State	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
<b>India</b>	<b>87</b>	<b>85</b>	<b>82</b>	<b>80</b>	<b>80</b>	<b>77</b>	<b>77</b>	<b>77</b>	<b>75</b>	<b>74</b>	<b>72</b>	<b>69</b>	<b>66</b>	<b>64</b>	<b>64</b>	<b>62</b>	<b>61</b>	<b>58</b>	<b>55</b>	<b>51</b>	<b>48</b>	<b>46</b>	<b>44</b>
A.P.	77	78	70	69	74	73	70	75	75	74	74	71	67	65	63	62	60	58	54	51	47	46	44
Assam	83	83	84	78	78	79	79	80	79	78	77	73	70	69	71	70	68	66	64	60	58	58	56
Bihar	71	74	73	68	74	73	73	68	64	63	63	62	62	63	62	62	59	57	53	49	45	44	42
Chhattisgarh	-	-	-	-	-	-	-	-	95*	95*	88*	80*	77*	61	65	62	61	59	55	52	49	48	47
Delhi	62*	55*	62*	54*	45*	42*	34*	36*	33*	32*	34*	31*	32*	48	44	42	41	40	40	37	36	36	35
Gujarat	73	72	65	70	68	68	69	71	70	69	68	68	65	62	63	62	60	58	55	51	48	45	43
Haryana	73	79	70	70	70	70	70	72	70	69	68	64	61	66	64	62	60	58	54	51	48	46	44
H.P.	76	69	65	60	64	65	64	70	55	52	56*	63	44	54	53	52	49	45	46	41	38	37	35
J&K	-	-	-	-	-	-	-	46*	NA	51*	49*	47*	46*	51	53	54	53	51	48	45	43	41	39
Jharkhand	-	-	-	-	-	-	-	-	76*	74*	67*	55*	54*	51	53	52	51	49	46	44	41	39	38
Karnataka	87	82	79	73	69	63	63	70	69	68	69	65	61	54	54	53	52	50	47	43	39	36	34
Kerala	17	17	15	16	16	13	11	15	14	14	12	11	12	13	15	16	14	12	12	14	13	13	13
M.P.	125	109	113	105	104	102	99	104	96	93	92	89	86	84	80	79	77	75	72	67	63	60	57
Maharashtra	69	67	63	68	66	58	56	58	58	56	55	52	48	42	41	42	41	40	37	34	30	30	29
Odisha	129	118	115	108	107	99	100	101	100	99	94	90	86	80	78	76	73	71	68	63	58	55	53
Punjab	58	61	60	59	58	54	54	58	57	56	55	55	53	50	49	48	47	45	42	37	33	30	28
Rajasthan	84	94	88	87	90	90	89	87	85	82	84	81	78	74	75	74	72	69	65	61	57	54	51
T.N	65	66	66	64	61	60	58	59	58	56	55	50	48	45	39	39	38	34	30	25	24	24	24
Uttar Pradesh	102	102	98	91	89	88	89	89	88	87	86	83	79	75	77	75	72	70	66	64	60	56	53
West Bengal	76	71	64	64	61	58	58	56	55	54	54	52	48	42	40	40	39	37	34	32	33	33	32

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Table A-5 Contd.....

States	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Arunachal P. *	82	65	62	68	65	57	49	46	45	45	41	38	35	39	39	44	41	34	35	34	36	37	36
Goa*	23	22	27	19	19	17	23	25	23	24	20	19	18	17	16	14	11	10	11	10	6	8	8
Manipur*	29	25	21	22	29	30	21	22	22	23	19	12	15	13	12	11	13	16	18	15	11	10	10
Meghalaya*	60	61	57	53	47	50	56	54	59	61	57	62	59	55	50	54	57	60	61	58	54	50	48
Mizoram*	-	-	-	-	-	27	22	26	22	23	23	14	18	23	26	32	27	45	45	47	43	44	44
Nagaland*	20	11	4	3	2	4	NA	NA	NA	NA	NA	NA	NA	17	17	18	18	25	27	24	21	18	18
Sikkim*	60	48	48	39	47	47	51	52	50	49	43	34	33	33	31	35	36	35	36	31	28	25	23
Tripura*	54	52	50	44	46	49	53	50	43	42	40	35	32	33	31	37	40	36	33	29	31	29	27
Uttarakhand*	-	-	-	-	-	-	-	-	75	73	69	62	62	57	56	54	52	48	44	41	39	36	34
A&N Islands*	37	36	40	34	35	29	39	37	30	27	21	17	20	22	30	35	38	35	31	29	28	31	29
Chandigarh*	47	19	15	11	28	37	46	44	36	38	28	25	25	25	25	23	25	22	25	20	19	20	18
D & N Haveli*	61	68	75	78	80	75	67	65	61	62	62	58	57	50	45	38	38	38	41	43	39	37	34
Daman & Diu*	62	64	70	62	52	40	41	42	34	38	42	42	41	39	32	33	29	29	21	19	18	18	17
Lakshadweep*	50	39	39	19	17	18	22	22	26	25	34	31	31	24	17	19	25	28	22	23	21	21	20
Puducherry*	35	29	26	28	29	27	30	31	32	33	31	29	33	33	38	35	31	31	28	25	21	18	20

Note : \* IMR based on last three years period

Source : 1. Sample Registration System Statistical Reports for different years, Office of RGI, New Delhi.  
2 \* SRS Bulletins for different years, Sample Registration System, Office of RGI, New Delhi.

**Table A6 : Infant Mortality Rates (Urban) in States/UTs, 1991-2013**

States	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
<b>India</b>	<b>53</b>	<b>53</b>	<b>45</b>	<b>52</b>	<b>48</b>	<b>46</b>	<b>45</b>	<b>45</b>	<b>44</b>	<b>44</b>	<b>42</b>	<b>40</b>	<b>38</b>	<b>40</b>	<b>40</b>	<b>39</b>	<b>37</b>	<b>36</b>	<b>34</b>	<b>31</b>	<b>29</b>	<b>28</b>	<b>27</b>
A.P.	56	42	46	52	43	38	37	38	37	36	40	35	33	39	39	38	37	36	35	33	31	30	29
Assam	42	50	60	76	59	37	37	36	36	35	34	38	35	38	39	42	41	39	37	36	34	33	32
Bihar	46	49	41	61	57	54	53	51	55	53	52	50	49	47	47	45	44	42	40	38	34	34	33
Chhattisgarh	-	-	-	-	-	-	-	-	47*	49*	58*	59*	55*	52	52	50	49	48	47	44	41	39	38
Delhi	47*	43	35*	42*	38*	44*	35*	36*	31*	32*	28*	30*	28*	30	33	36	35	34	31	29	26	23	22
Gujarat	57	53	43	51	47	46	46	46	45	45	42	37	36	38	37	37	36	35	33	30	27	24	22
Haryana	49	56	53	68	65	60	59	59	58	57	55	51	49	47	45	45	44	43	41	38	35	33	32
H.P.	38	32	36	43	39	38	38	37	37	35	32*	28	18	15	20	26	25	27	28	29	28	25	23
J&K	NA	NA	NA	NA	NA	NA	NA	45*	NA	45*	39*	34*	32*	37	39	38	38	37	34	32	28	28	28
Jharkhand	-	-	-	-	-	-	-	-	48*	48*	40*	33*	34*	34	33	32	31	32	30	30	28	27	27
Karnataka	47	41	42	50	43	25	24	25	24	24	26	25	24	38	39	36	35	33	31	28	26	25	24
Kerala	16	13	8	14	13	16	15	17	16	14	9	8	10	9	12	12	10	10	11	10	9	9	9
M.P.	74	74	67	57	61	61	57	56	55	54	53	56	55	56	54	52	50	48	45	42	39	37	37
Maharashtra	38	40	32	38	34	31	31	32	31	33	28	34	32	27	27	26	24	23	22	20	17	17	16
Odisha	71	80	69	65	65	65	65	66	65	66	61	56	55	58	55	53	52	49	46	43	40	39	38
Punjab	40	41	39	36	39	40	38	40	39	38	37	35	34	36	37	36	35	33	31	28	25	24	23
Rajasthan	50	65	54	62	62	60	61	60	59	58	57	55	53	42	43	41	40	38	35	31	32	31	30
T.N	42	42	38	48	39	39	40	40	39	38	35	32	31	35	34	33	31	28	26	22	19	18	17
Uttar Pradesh	74	78	66	65	66	67	66	65	66	65	62	58	55	53	54	53	51	49	47	44	41	39	38
West Bengal	47	38	33	52	45	44	43	41	40	37	37	36	34	32	31	29	29	29	27	25	26	26	26

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Table A-6 Contd.....

States	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Arunachal P. *	56	46	20	14	9	7	17	10	10	11	11	12	11	17	17	19	15	19	14	12	10	13	14
Goa*	23	16	8	7	5	13	14	22	17	21	15	14	14	16	15	16	13	11	10	10	13	11	10
Manipur*	27	21	22	23	22	21	28	26	24	25	23	21	19	19	14	11	9	8	11	9	12	11	10
Meghalaya*	29	29	15	15	27	35	52	36	33	32	41	49	44	43	42	43	46	43	40	37	38	40	40
Mizoram*	NA	NA	NA	NA	NA	18	15	18	14	17	12	14	14	13	10	13	16	24	19	21	19	19	19
Nagaland*	NA	NA	26	23	22	13	16	16	16	23	13	15	16	16	22	27	29	28	23	20	20	18	19
Sikkim*	33	29	18	10	27	32	41	44	33	36	31	25	23	20	15	16	20	19	21	19	17	16	15
Tripura*	33	36	31	35	41	47	39	39	33	32	30	32	31	29	29	30	32	26	20	19	19	19	19
Uttarakhand*	-	-	-	-	-	-	-	-	27	26	26	21	21	22	19	22	25	24	27	25	23	23	22
A&N Islands*	31	27	16	19	24	21	16	9	9	10	8	10	11	11	18	21	23	23	20	18	14	12	13
Chandigarh*	25	16	22	34	46	46	40	30	27	26	23	21	18	20	18	23	28	29	25	23	20	20	21
D & N Haveli*	NA	NA	NA	NA	NA	5	7	7	7	14	9	21	19	21	29	24	18	20	24	22	22	20	22
Daman & Diu*	35	35	14	19	22	45	35	59	36	57	35	43	38	35	21	18	23	36	30	29	29	29	26
Lakshadweep*	20	20	18	35	54	53	49	30	37	29	33	18	21	37	27	31	23	35	28	27	27	28	28
Puducherry*	26	29	22	33	23	23	16	14	15	15	15	17	11	19	22	24	22	22	19	21	18	16	15

Note : \* IMR based on last three years period

Source : 1. Sample Registration System Statistical Reports for different years, Office of RGI, New Delhi.  
2. SRS Bulletins for different years, Sample Registration System, Office of RGI, New Delhi.

**Table A7 : Percentage of Infant Deaths to Total Deaths India and Major States, 1991-2013**

India and States	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
India	24.1	23.0	22.8	22.8	23.2	21.9	21.7	21.0	20.7	20.5	20.0	19.6	18.7	18.7	18.5	17.9	17.2	16.5	15.6	14.5	13.6	13.0	12.4
A.P.	19.5	18.8	18.0	18.6	19.5	17.7	17.0	16.8	17.6	16.9	17.1	16.0	15.1	15.8	14.8	14.5	13.8	12.8	11.7	10.6	10	9.8	9.3
Assam	22	22.5	23.3	26.2	23.3	21.8	21.7	21.2	21.1	21.0	20.9	20.4	19.3	19.0	19.6	19.1	18.5	17.8	17.2	16.4	15.8	15.8	15.4
Bihar	21.6	21.5	21.1	21.0	22.3	22.4	22.6	22.2	22.1	22.3	23.4	23.6	23.5	23.0	22.9	23.5	22.6	22.1	21.1	19.6	18.1	18.1	17.4
Chhattisgarh	-	-	-	-	-	-	-	-	-	-	-	-	-	21.3	21.3	20.1	19.3	18.4	17.0	16.1	15.2	14.5	14.2
Delhi	-	-	-	-	-	-	-	-	-	-	-	-	-	12.5	14.0	14.6	13.7	13.5	13.5	12.7	11.2	10.2	10.1
Gujarat	22.2	20.6	20.0	20.0	21.8	20.7	20.9	20.8	20.4	20.9	19.3	19.2	18.4	18.9	17.8	17.0	16.6	16.3	15.4	14.3	12.9	12.0	11.4
Haryana	27.7	27.6	25.7	26.5	25.4	24.4	24.2	23.5	23.6	23.8	23.1	23.3	21.9	23.0	21.7	21.0	19.6	18.0	17.3	16.1	15	14.2	13.8
H.P.	24.0	21.3	19.4	18.0	18.2	18.2	17.4	19.8	17.5	15.7	12.9	16.8	12.2	14.6	15.5	12.3	10.5	10.7	11.1	7.4	8.9	10.2	6
J&K	-	-	-	-	-	-	-	-	-	-	-	-	-	16.2	17.3	16.6	16.7	16.1	14.7	13.8	13.1	12.6	12.2
Jharkhand	-	-	-	-	-	-	-	-	-	-	-	-	-	16.1	17.1	17.0	17.2	16.9	16.0	15.1	14.2	13.8	13.3
Karnataka	23.1	22.4	21.4	20.2	19.7	16.1	15.8	16.2	16.7	16.0	16.9	16.7	15.7	14.8	14.5	13.5	12.8	11.9	11.2	10.4	9.2	8.4	8
Kerala	5.0	4.7	3.9	4.5	4.6	4.0	3.5	4.4	4.0	3.9	3.0	2.6	3.0	3.0	3.4	3.4	2.7	2.5	2.5	2.8	2.6	2.5	2.5
M.P.	30.4	28.1	28.1	27.9	29.3	28.1	27.3	26.8	26.7	26.5	26.3	26.1	25.2	25.5	24.8	24.4	23.7	22.8	21.9	20.4	19.5	18.6	17.7
Maharashtra	19.1	19.0	17.4	18.4	17.9	15.3	14.9	14.2	13.6	13.4	12.4	12.6	11.5	11.0	10.1	9.7	9.3	8.9	8.0	7.4	6.5	6.6	6.3
Odisha	27.9	27.3	24.5	26.1	26.5	23.9	23.4	22.6	21.9	22.0	20.7	20.6	19.5	18.3	17.8	17.2	16.7	16.3	15.5	14.4	13.3	12.4	12
Punjab	19.1	18.6	18.3	17.2	17.9	16.5	16.1	15.8	15.4	15.3	15.6	14.9	14.3	13.0	12.0	11.5	10.8	9.8	9.1	8.1	7.3	6.6	6.1
Rajasthan	27.2	29.9	30.7	31.5	31.5	30.3	30.7	29.9	30.0	29.2	31.2	30.9	29.7	27.8	27.8	27.2	26.8	25.4	24.5	21.8	20.3	19.2	18.6
T.N	13.5	14.4	13.5	14.2	13.7	12.9	12.5	12.0	12.6	12.4	12.2	10.7	10.3	9.3	8.3	8.0	7.7	6.8	5.9	5.0	4.7	4.5	4.4
Uttar Pradesh	30.6	27.7	29.2	28.1	29.0	27.8	27.8	26.4	26.2	26.6	26.3	25.9	24.8	25.0	25.6	24.8	23.9	23.0	22.1	21.2	20.1	18.8	17.9
West Bengal	23.1	19.0	20.3	18.9	17.4	16.1	16.1	15.1	15.2	14.9	15.2	14.9	14.0	12.3	11.4	11.3	10.4	9.9	9.2	8.5	8.4	8.1	7.8

Note : For years 1991-2003 the States of Bihar, Uttar Pradesh and Madhya Pradesh include Jharkhand , Uttarakhand and Chhattisgarh respectively.

Source : Sample Registration System, Office of RGI, New Delhi.

**Table A8 : Neo-Natal Mortality Rate in Major States, 1991-2013**

States	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
A.P.	51	52	44	48	53	46	48	46	46	45	45	41	36	36	35	33	33	34	33	30	28	27	25
Assam	53	47	27	51	47	47	50	51	53	47	47	45	36	35	33	35	34	34	33	33	30	29	27
Bihar	41	45	44	44	44	45	44	44	41	42	42	37	34	33	32	32	31	32	31	31	29	28	28
Chhattisgarh	-	-	-	-	-	-	-	-	-	-	-	-	-	43	45	43	41	39	38	37	34	31	31
Delhi	-	-	-	-	-	-	-	-	-	-	-	-	-	20	20	22	20	19	18	19	18	16	16
Gujarat	45	45	40	44	45	38	43	44	43	42	42	43	35	37	36	38	37	37	34	31	30	28	26
Haryana	40	41	35	45	42	41	40	41	39	38	38	33	31	31	35	34	34	34	35	33	28	28	26
H.P.	41	43	37	42	46	45	41	50	50	31	31	46	31	31	33	30	31	33	36	31	28	26	25
J&K	-	-	-	-	-	-	-	-	-	-	-	-	-	38	36	39	39	39	37	35	32	30	29
Jharkhand	-	-	-	-	-	-	-	-	-	-	-	-	-	26	28	29	28	25	28	29	29	27	26
Karnataka	53	54	51	45	44	39	38	42	43	40	40	38	31	25	28	28	26	24	25	25	24	23	22
Kerala	11	11	10	13	11	10	8	11	11	10	10	7	7	9	11	10	7	7	7	7	7	7	6
M.P.	68	64	65	60	65	64	64	61	61	59	59	51	50	50	51	51	49	48	47	44	41	39	36
Maharashtra	38	43	35	41	40	33	32	29	29	33	33	28	26	26	25	27	25	24	24	22	18	18	17
Odisha	75	73	78	71	62	64	63	60	61	61	61	53	47	49	53	52	49	47	43	42	40	39	37
Punjab	34	31	32	27	28	34	29	33	34	29	29	34	32	30	30	30	29	28	27	25	24	17	16
Rajasthan	48	56	52	53	56	56	55	50	50	49	49	48	43	42	43	45	44	43	41	40	37	35	32
T.N	43	43	46	42	40	39	38	35	36	36	36	30	30	29	26	24	23	21	18	16.0	15	15	15
Uttar Pradesh	64	57	57	53	52	51	51	52	52	53	53	47	48	50	45	46	48	45	45	42	40	37	35
West Bengal	44	38	38	40	39	36	37	30	31	31	31	29	30	29	30	28	28	26	25	23	22	22	21

Note : For years 1991-2003 the States of Bihar, Uttar Pradesh and Madhya Pradesh include Jharkhand , Uttarakhand and Chhattisgarh respectively.

Source : Sample Registration System, Office of RGI, New Delhi.

Table A9 : Neo-Natal Mortality Rate (Rural) in Major States, 1991-2013

States	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
India	55	54	52	52	52	50	51	49	49	49	44	44	41	41	41	41	40	39	38	36	34	33	31
A.P.	54	57	47	50	59	50	54	52	52	51	43	47	41	42	43	41	41	42	40	36	34	33	31
Assam	55	48	24	51	48	50	52	53	55	49	48	46	38	36	35	36	36	36	36	36	32	31	29
Bihar	43	46	47	45	45	47	45	45	43	44	39	38	34	34	34	34	33	34	33	32	31	29	29
Chhattisgarh	-	-	-	-	-	-	-	-	-	-	-	-	-	43	46	45	42	40	38	38	34	32	31
Delhi	-	-	-	-	-	-	-	-	-	-	-	-	-	18	17	20	17	14	17	17	25	25	24
Gujarat	50	48	44	51	50	41	49	49	49	48	45	50	39	42	40	41	41	43	40	36	35	33	31
Haryana	42	46	38	47	42	42	42	43	42	40	40	36	32	33	38	38	38	36	38	36	32	31	29
H.P.	42	45	38	42	48	46	42	51	51	32	33	48	32	32	35	31	32	34	37	32	29	27	26
J&K	-	-	-	-	-	-	-	-	-	-	-	-	-	40	37	41	41	41	40	37	34	32	31
Jharkhand	-	-	-	-	-	-	-	-	-	-	-	-	-	28	30	31	30	27	31	32	31	30	28
Karnataka	60	61	58	50	52	47	46	50	52	48	48	46	38	31	34	33	32	30	30	31	31	29	27
Kerala	12	12	11	13	11	10	7	11	10	10	10	8	7	10	11	12	9	9	8	8	8	8	7
M.P.	73	67	68	65	68	66	68	63	64	63	56	54	53	53	54	54	52	52	49	47	44	42	39
Maharashtra	45	48	48	49	50	40	38	33	34	39	39	33	29	32	30	33	31	28	27	27	22	22	21
Odisha	78	75	81	74	66	66	67	64	64	63	61	56	49	50	56	54	51	50	44	43	42	41	39
Punjab	38	36	35	30	29	37	32	35	36	32	34	38	35	34	33	34	32	32	31	27	26	16	15
Rajasthan	52	58	58	56	58	59	56	53	53	52	49	51	45	45	47	50	49	48	45	45	41	39	36
T.N	49	49	55	46	47	45	43	39	39	41	35	36	33	35	31	29	29	24	21	18.0	18	18	18
Uttar Pradesh	67	60	60	56	55	54	54	55	56	56	50	49	51	53	48	49	51	48	48	45	43	40	38
West Bengal	48	43	43	42	42	39	40	33	33	33	34	31	33	32	32	30	30	28	27	24	23	23	22

Note : For years 1991-2003 the States of Bihar, Uttar Pradesh and Madhya Pradesh include Jharkhand , Uttarakhand and Chhattisgarh respectively.

Source : Sample Registration System, Office of RGI, New Delhi.

Table A10 : Neo-Natal Mortality Rate (Urban) in Major States, 1991-2013

States	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
India	32	33	29	33	29	28	26	27	28	27	25	24	22	24	23	23	22	21	21	19	17	16	15
A.P.	37	32	32	40	30	30	28	26	26	26	29	23	16	17	11	10	10	11	13	13	13	12	10
Assam	27	28	45	56	37	27	26	26	26	26	18	30	19	22	18	19	18	14	12	13	10	10	10
Bihar	25	28	21	37	34	30	21	29	29	29	37	32	25	20	18	15	15	14	12	13	12	12	11
Chhattisgarh	-	-	-	-	-	-	-	-	-	-	-	-	-	41	36	35	32	34	36	32	31	28	26
Delhi	-	-	-	-	-	-	-	-	-	-	-	-	-	21	21	23	21	20	18	19	17	14	15
Gujarat	32	35	33	31	32	31	27	29	28	26	26	24	25	27	27	31	30	28	22	19	19	17	16
Haryana	29	21	25	38	39	36	29	29	29	27	30	20	26	27	27	25	25	26	28	24	18	20	19
H.P.	19	18	24	33	14	26	19	31	31	17	14	15	11	12	14	21	15	21	28	19	15	15	11
J&K	-	-	-	-	-	-	-	-	-	-	-	-	-	29	31	30	28	29	25	25	19	19	18
Jharkhand	-	-	-	-	-	-	-	-	-	-	-	-	-	13	16	14	15	14	13	14	13	12	12
Karnataka	31	31	33	30	24	17	18	17	17	17	18	16	13	12	15	15	13	12	12	14	12	12	12
Kerala	10	8	7	10	10	10	8	12	14	9	6	4	7	7	10	7	2	3	6	5	3	3	3
M.P.	42	48	46	34	45	44	33	45	45	40	35	35	36	34	36	37	35	31	33	30	24	23	23
Maharashtra	23	29	16	30	21	20	21	22	22	24	16	20	20	18	19	18	18	18	19	15	13	12	11
Odisha	38	49	54	39	29	40	27	30	30	42	35	28	34	35	32	32	30	28	32	32	27	27	26
Punjab	21	18	22	16	25	25	18	25	26	19	19	19	21	23	23	24	23	21	22	22	21	18	16
Rajasthan	29	39	23	40	42	37	46	33	34	32	37	31	30	31	25	24	23	23	24	23	19	18	17
T.N	30	30	28	34	25	28	29	27	29	24	25	17	21	20	19	17	16	16	14	13.0	12	11	11
Uttar Pradesh	49	45	43	35	35	34	31	33	33	39	35	33	32	33	33	33	31	29	29	27	23	21	20
West Bengal	25	18	20	29	25	25	26	21	23	21	19	18	16	17	20	20	19	19	19	19	17	16	15

Note : For years 1991-2003 the States of Bihar, Uttar Pradesh and Madhya Pradesh include Jharkhand , Uttarakhand and Chhattisgarh respectively.

Source : Sample Registration System, Office of RGI, New Delhi.

**Table A11 : Early Neo-Natal Mortality rate in Major States, 1996-2013**

States	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
A.P.	38	39	37	36	35	28	29	21	23	26	26	26	26	27	24	24	22	21
Assam	36	36	38	38	31	30	34	23	24	25	26	28	27	29	27	25	23	21
Bihar	33	30	33	31	31	27	25	20	23	28	28	27	27	26	27	25	23	23
Chhattisgarh	-	-	-	-	-	-	-	-	37	36	36	36	36	33	26	25	25	24
Delhi	-	-	-	-	-	-	-	-	16	16	18	16	15	16	16	12	11	11
Gujarat	30	32	34	34	33	29	35	24	24	28	27	29	30	26	24	22	21	20
Haryana	31	30	28	28	24	26	21	17	17	24	22	23	24	23	25	24	21	19
H.P.	32	26	38	39	26	25	35	24	21	19	20	19	27	31	25	23	20	17
J&K	-	-	-	-	-	-	-	-	23	29	30	31	33	32	30	26	24	24
Jharkhand	-	-	-	-	-	-	-	-	19	22	22	24	25	24	26	25	23	22
Karnataka	33	32	34	34	31	27	26	21	21	23	20	20	20	19	22	20	20	18
Kerala	8	6	9	7	6	6	5	5	8	9	8	6	5	5	5	5	4	4
M.P.	47	48	45	44	44	34	34	33	33	38	40	38	38	37	34	32	29	27
Maharashtra	25	25	24	24	23	22	20	19	19	20	21	21	19	20	17	15	14	13
Odisha	44	49	45	45	45	45	37	35	36	41	38	37	34	35	33	30	29	28
Punjab	26	22	26	26	18	19	25	18	20	18	17	20	20	16	19	18	13	11
Rajasthan	44	44	39	40	33	30	33	33	32	33	33	34	33	33	33	29	27	26
T.N	32	32	29	30	25	23	20	21	21	19	18	17	15	13	13	11	11	11
Uttar Pradesh	37	38	38	37	41	30	30	32	32	32	35	36	33	35	30	30	28	27
West Bengal	27	28	22	23	21	21	17	22	20	23	20	23	21	19	19	18	17	16

Note : For years 1991-2003 the States of Bihar, Uttar Pradesh and Madhya Pradesh include Jharkhand , Uttarakhand and Chhattisgarh respectively.

Source : Sample Registration System, Office of RGI, New Delhi.



**Table A12 : Early Neo-Natal Mortality Rates (Rural) in Major States, 1996-2013**

States	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
A.P.	41	44	41	41	39	29	33	25	27	32	31	32	33	33	28	30	28	27
Assam	37	37	40	39	32	32	35	24	25	27	27	30	29	31	28	27	25	23
Bihar	34	31	34	32	32	26	26	20	23	29	30	28	28	27	28	26	25	24
Chhattisgarh	-	-	-	-	-	-	-	-	37	38	37	37	37	34	26	25	25	24
Delhi	-	-	-	-	-	-	-	-	11	10	13	10	8	14	17	14	14	13
Gujarat	30	38	38	38	38	33	41	25	25	31	29	32	33	32	28	25	24	23
Haryana	31	32	30	30	27	26	23	18	20	28	26	26	27	27	28	27	24	22
H.P.	33	27	39	39	27	25	37	25	22	19	21	20	28	32	25	23	20	17
J&K	-	-	-	-	-	-	-	-	25	31	32	34	36	35	32	29	27	26
Jharkhand	-	-	-	-	-	-	-	-	21	24	24	26	27	27	28	27	25	24
Karnataka	41	38	41	41	37	32	31	25	25	27	23	25	24	24	26	24	24	22
Kerala	8	6	8	7	7	8	5	5	9	8	8	7	6	5	6	6	5	5
M.P.	48	51	45	45	46	37	34	35	35	40	42	40	40	40	36	34	31	29
Maharashtra	30	29	28	27	26	28	24	22	23	23	25	25	22	22	21	18	17	16
Odisha	45	52	47	47	47	48	40	37	38	44	41	40	36	37	35	31	30	29
Punjab	28	24	28	28	20	22	28	21	25	24	22	25	25	21	21	20	12	11
Rajasthan	46	44	41	42	35	32	34	35	36	38	38	39	38	38	38	32	31	29
T.N	35	37	32	33	29	26	23	24	25	23	23	21	19	15	15	13	13	14
Uttar Pradesh	39	40	40	40	43	32	31	35	35	35	38	40	35	37	32	32	31	30
West Bengal	29	30	24	24	23	23	18	25	23	25	22	25	23	20	19	19	18	17

Note : For years 1991-2003 the States of Bihar, Uttar Pradesh and Madhya Pradesh include Jharkhand , Uttarakhand and Chhattisgarh respectively.

Source : Sample Registration System, Office of RGI, New Delhi

**Table A13 : Early Neo-Natal Mortality rate (Urban) in Major States, 1996-2013**

State	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
A.P.	29	21	20	21	22	25	19	7	8	8	9	9	10	11	11	10	9	8
Assam	20	22	17	18	16	11	24	12	12	10	12	12	11	10	11	10	6	6
Bihar	24	14	23	25	20	30	14	18	13	13	13	11	11	11	11	8	8	7
Chhattisgarh	-	-	-	-	-	-	-	-	34	25	28	26	29	28	27	26	23	22
Delhi	-	-	-	-	-	-	-	-	17	17	19	17	16	16	16	12	10	11
Gujarat	28	17	24	24	20	19	19	20	21	21	23	24	23	14	15	15	15	14
Haryana	29	19	19	20	15	26	10	11	9	11	12	14	14	13	18	14	13	12
H.P.	19	15	28	28	12	14	11	9	6	11	9	10	9	25	13	14	14	11
J&K	-	-	-	-	-	-	-	-	16	18	18	16	17	19	17	12	10	12
Jharkhand	-	-	-	-	-	-	-	-	10	12	11	12	11	11	14	12	9	9
Karnataka	13	14	14	15	14	13	11	10	10	13	11	10	10	10	13	11	11	10
Kerala	8	6	10	8	4	3	4	5	5	10	6	2	3	4	3	1	2	3
M.P.	36	24	41	41	32	18	29	23	24	28	31	29	26	24	26	19	18	18
Maharashtra	16	18	18	18	16	11	13	12	11	15	15	14	15	16	12	10	9	8
Odisha	31	23	24	24	27	16	18	18	17	15	15	17	17	17	21	22	21	19
Punjab	18	15	18	18	11	9	13	8	10	8	8	10	9	8	15	14	14	12
Rajasthan	30	41	28	28	21	20	22	20	19	16	15	17	17	17	16	14	13	12
T.N	24	23	22	23	16	17	13	14	16	13	11	12	11	11	12	8	8	7
Uttar Pradesh	27	23	24	24	29	19	20	13	15	18	18	20	21	23	20	17	15	14
West Bengal	18	19	16	15	12	10	11	6	8	14	13	15	13	14	16	14	12	12

Note : For years 1991-2003 the States of Bihar, Uttar Pradesh and Madhya Pradesh include Jharkhand , Uttarakhand and Chhattisgarh respectively.

Source : Sample Registration System, Office of RGI, New Delhi.

**Table A14 : Peri-Natal Mortality Rate in Major States, 1991-2013**

States	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
A.P.	56	58	45	48	52	48	49	53	53	48	40	44	29	33	37	37	37	36	37	31	30	28	27
Assam	49	47	38	46	49	47	45	49	52	43	44	44	33	32	34	35	36	33	37	35	34	31	28
Bihar	35	40	37	35	39	39	34	37	35	34	30	29	22	24	30	29	28	27	27	28	28	25	23
Chhattisgarh	-	-	-	-	-	-	-	-	-	-	-	-	-	51	53	54	52	51	45	37	36	36	33
Delhi	-	-	-	-	-	-	-	-	-	-	-	-	-	28	25	26	24	22	24	22	19	16	17
Gujarat	38	39	36	43	38	33	36	38	40	37	34	43	35	32	36	34	36	34	33	32	29	28	24
Haryana	38	42	38	44	42	41	42	39	41	37	40	32	28	27	30	29	29	30	32	34	32	30	28
H.P.	41	56	33	33	40	38	32	50	52	35	34	47	34	40	38	39	35	37	40	35	33	31	28
J&K	-	-	-	-	-	-	-	-	-	-	-	-	-	31	36	37	37	39	38	35	34	32	29
Jharkhand	-	-	-	-	-	-	-	-	-	-	-	-	-	19	22	23	25	26	27	27	26	23	22
Karnataka	62	65	64	48	50	47	45	54	53	50	46	47	40	33	36	34	35	35	36	35	33	33	30
Kerala	18	19	17	21	16	17	18	15	16	12	13	13	11	16	17	15	12	13	13	12	10	10	9
M.P.	58	58	53	51	56	56	56	51	54	52	44	40	39	42	45	48	46	45	45	42	38	35	33
Maharashtra	40	43	35	40	41	37	35	35	37	30	30	29	28	30	31	33	32	30	28	24	21	19	18
Odisha	62	69	66	63	55	58	65	61	59	60	58	54	50	51	54	52	49	47	45	41	38	37	35
Punjab	46	40	35	32	29	36	32	42	45	40	41	40	28	33	32	31	32	30	24	25	25	20	18
Rajasthan	40	48	47	46	47	49	50	45	49	39	38	41	39	41	44	43	43	43	39	39	34	33	29
T.N	43	46	48	45	45	42	43	41	45	39	38	33	32	29	30	29	26	24	25	23	20	19	18
Uttar Pradesh	50	48	49	41	46	45	46	44	45	47	37	34	41	44	41	44	45	42	43	35	35	31	29
West Bengal	42	42	40	42	38	39	38	30	30	29	29	27	29	30	31	29	30	28	30	28	24	22	20

Note : For years 1991-2003 the States of Bihar, Uttar Pradesh and Madhya Pradesh include Jharkhand , Uttarakhand and Chhattisgarh respectively.

Source : Sample Registration System, Office of RGI, New Delhi.

Table A15 : Peri-Natal Mortality Rate (Rural) in Major States, 1991-2013

States	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
A.P.	58	62	47	49	56	50	52	58	58	51	41	49	34	39	44	44	45	43	44	36	36	35	33
Assam	50	48	37	44	51	48	46	51	54	44	46	45	35	33	35	36	37	34	39	37	36	33	30
Bihar	36	42	38	34	39	39	35	38	36	35	29	31	22	25	31	31	29	28	28	29	29	26	25
Chhattisgarh	-	-	-	-	-	-	-	-	-	-	-	-	-	51	55	55	53	52	46	38	36	36	34
Delhi	-	-	-	-	-	-	-	-	-	-	-	-	-	28	27	28	22	17	15	20	22	20	21
Gujarat	40	41	38	40	42	33	42	41	43	43	38	49	35	33	39	36	38	37	38	35	32	30	27
Haryana	40	45	41	46	42	41	44	41	44	40	41	36	30	29	33	31	31	33	36	37	37	34	31
H.P.	42	58	33	33	41	39	33	51	52	36	34	49	35	42	39	40	36	39	41	36	33	32	29
J&K	-	-	-	-	-	-	-	-	-	-	-	-	-	33	39	40	40	43	40	37	37	35	31
Jharkhand	-	-	-	-	-	-	-	-	-	-	-	-	-	21	24	25	27	29	29	29	28	25	24
Karnataka	68	71	72	49	55	53	52	61	59	57	53	55	46	39	43	42	44	44	45	41	40	40	36
Kerala	19	20	18	20	15	17	17	14	15	12	15	14	11	18	18	16	13	15	14	13	12	11	10
M.P.	62	60	55	53	58	58	59	52	54	54	47	41	41	42	46	48	46	46	48	43	40	37	34
Maharashtra	45	46	45	46	50	44	40	39	42	34	37	33	31	36	35	38	37	34	29	26	23	22	21
Odisha	64	71	69	65	58	60	69	64	62	62	62	57	53	52	57	54	51	48	47	42	39	38	36
Punjab	52	44	40	34	30	39	35	46	51	44	46	46	31	39	39	37	38	36	28	27	26	18	17
Rajasthan	42	50	53	46	49	52	50	46	51	40	40	42	40	45	49	47	48	47	43	44	38	36	33
T.N	47	51	55	46	51	45	47	46	50	43	41	39	36	35	38	37	33	30	29	29	25	24	23
Uttar Pradesh	52	49	50	42	48	46	48	46	47	50	39	35	45	49	45	49	49	46	46	37	37	34	31
West Bengal	46	47	44	43	40	41	40	33	32	31	32	28	33	33	34	31	33	31	33	29	25	23	20

Note : For years 1991-2003 the States of Bihar, Uttar Pradesh and Madhya Pradesh include Jharkhand , Uttarakhand and Chhattisgarh respectively.

Source : Sample Registration System, Office of RGI, New Delhi.

Table A16 : Peri-Natal Mortality Rate (Urban) in Major States, 1991-2013

States	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
A.P.	47	42	41	44	39	42	35	35	36	35	38	27	12	17	15	18	16	17	20	17	14	12	11
Assam	28	28	45	66	36	31	32	23	23	22	19	30	13	21	19	20	18	18	17	20	18	14	10
Bihar	26	21	28	43	37	36	24	24	28	22	32	16	22	14	14	13	12	11	11	12	14	12	7
Chhattisgarh	-	-	-	-	-	-	-	-	-	-	-	-	-	53	44	44	42	45	39	33	36	33	32
Delhi	-	-	-	-	-	-	-	-	-	-	-	-	-	28	25	25	24	22	26	23	19	16	17
Gujarat	31	32	32	49	30	33	20	28	33	24	23	28	33	29	29	31	32	30	23	24	24	23	19
Haryana	26	25	29	37	39	38	30	28	30	24	36	14	22	20	22	22	23	22	20	25	20	19	18
Himachal P.	19	24	30	37	18	28	23	35	46	29	27	18	17	18	23	21	17	12	31	17	32	22	14
J&K	-	-	-	-	-	-	-	-	-	-	-	-	-	20	23	22	22	21	24	25	17	15	15
Jharkhand	-	-	-	-	-	-	-	-	-	-	-	-	-	11	12	11	13	12	14	15	13	9	9
Karnataka	41	45	45	44	35	29	27	35	36	28	25	25	23	18	18	18	15	14	18	24	21	20	18
Kerala	13	16	14	22	19	19	18	17	18	10	8	11	10	9	14	11	8	5	8	8	6	7	8
M.P.	36	44	40	38	41	43	34	45	54	39	26	38	31	39	43	46	45	39	34	36	27	27	24
Maharashtra	29	34	19	33	25	25	26	27	28	23	19	23	23	21	26	26	25	24	25	21	18	15	14
Odisha	42	45	40	49	29	39	29	32	34	38	28	27	23	38	34	34	35	34	29	32	27	26	25
Punjab	28	28	21	25	26	25	21	29	23	24	22	18	14	23	20	20	21	19	17	21	22	23	20
Rajasthan	24	36	21	49	34	35	47	39	36	30	27	33	30	29	27	26	27	27	21	21	19	20	16
T.N	36	34	33	42	31	35	35	31	33	30	33	21	22	20	19	17	18	17	19	16	14	13	12
Uttar Pradesh	39	38	42	36	32	33	31	29	30	32	22	25	20	21	23	23	24	24	28	24	21	17	16
West Bengal	23	22	25	39	29	30	30	21	22	18	17	20	9	15	21	19	21	18	19	21	19	17	17

Note : For years 1991-2003 the States of Bihar, Uttar Pradesh and Madhya Pradesh include Jharkhand , Uttarakhand and Chhattisgarh respectively.

Source : Sample Registration System, Office of RGI, New Delhi.

Table A17 : Still Birth Rate in Major States, 1991-2013

States	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
A.P.	15	16	12	10	11	11	10	17	17	13	16	15	8	11	11	12	12	10	11	7	6	6	6
Assam	14	14	17	10	13	12	9	11	15	13	14	10	11	8	9	9	8	6	8	9	9	8	7
Bihar	5	8	7	4	7	6	4	4	4	3	3	4	3	1	2	1	1	0.46	1	1	3	1	0
Chhattisgarh	-	-	-	-	-	-	-	-	-	-	-	-	-	15	18	19	17	15	12	12	12	11	9
Delhi	-	-	-	-	-	-	-	-	-	-	-	-	-	12	10	8	8	7	8	6	7	6	6
Gujarat	6	5	4	10	3	4	4	4	6	5	5	8	11	8	8	7	7	5	7	8	7	7	4
Haryana	11	14	14	12	12	10	12	12	13	13	14	12	12	9	7	7	6	6	9	9	9	9	8
H.P.	14	21	10	7	6	7	6	12	14	9	10	13	10	20	19	19	16	11	9	10	10	12	11
J&K	-	-	-	-	-	-	-	-	-	-	-	-	-	8	7	8	7	7	6	5	8	8	5
Jharkhand	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	2	2	1	1	1	0
Karnataka	20	23	24	15	12	14	14	21	20	19	19	21	20	12	13	15	15	15	17	14	14	14	12
Kerala	9	10	8	10	8	10	11	6	8	6	7	8	6	8	9	8	7	7	8	7	6	6	5
M.P.	11	12	8	11	9	10	9	7	11	8	10	7	6	9	8	8	8	7	8	8	7	6	5
Maharashtra	11	12	10	13	11	12	10	11	13	7	8	10	10	12	12	12	12	11	8	7	6	6	6
Odisha	18	18	14	14	14	15	17	17	15	15	14	18	16	15	14	14	13	13	11	8	8	8	7
Punjab	25	22	15	14	9	10	10	17	20	22	22	16	10	14	14	14	12	11	8	6	7	7	7
Rajasthan	6	5	6	8	6	6	6	6	9	6	9	8	6	10	11	10	10	10	6	6	5	6	4
T.N	10	10	10	11	10	11	12	13	16	15	15	14	11	8	11	11	9	9	11	10	9	8	7
Uttar Pradesh	9	10	9	5	9	8	8	6	8	7	7	4	9	13	10	10	9	9	9	5	5	3	1
West Bengal	12	15	15	14	12	13	11	8	8	8	9	10	7	10	9	9	8	8	11	9	6	5	3

Note : For years 1991-2003 the States of Bihar, Uttar Pradesh and Madhya Pradesh include Jharkhand , Uttarakhand and Chhattisgarh respectively.

Source : Sample Registration System, Office of RGI, New Delhi.

**Table A18 : Estimated Death Rates for Children Aged 0-4 Years in Major States, 1991-2013**

States	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
A.P.	21.3	20	17.1	17	19.1	17.8	16.8	18.1	16.6	15.9	16	15.4	15.2	13.8	14.8	15.2	14.6	13.2	11.6	10.4	9.7	8.8	8.7
Assam	32.4	30.5	29.7	24.7	24.7	24	26.9	27.5	24.2	22.9	23.6	22.7	22.4	21.3	19.7	19.7	18.2	20.4	19.0	17.9	17	16.5	15.8
Bihar	22.8	26.8	25.3	24.9	28.3	27.9	25.9	22.9	20.6	19.2	19.4	17.2	17.4	16.8	20.1	18.5	18.9	16.3	14.7	13.4	12.4	11.5	11.3
Chhattisgarh	-	-	-	-	-	-	-	-	-	-	-	-	-	19.3	20.2	18.4	16.9	17.1	15.5	14.9	13.1	12.4	12.4
Delhi	-	-	-	-	-	-	-	-	-	-	-	-	-	7.6	8.3	9.3	8.4	7.8	7.1	6.5	6.3	5.7	5.5
Gujarat	23.3	23.7	20.7	22.2	19.9	20.4	20.8	19.6	19.7	19	18.5	18.4	16.7	16.0	16.0	16.2	15.1	13.7	13.7	12.9	12.1	10.9	10.4
Haryana	23	22.8	20.3	22.3	22.7	23.4	22.2	22.4	19.6	18.5	19.2	17.5	16.6	17.7	17.8	16.2	15.2	14.5	13.3	12.5	11.3	10.7	10.1
H.P.	19.3	17.6	16.1	16	17.2	17.6	15.8	16.7	13	13	9.4	14.4	10	11.9	13.5	10.5	9.6	9.9	10.6	7.9	9.3	10	6.6
J&K	-	-	-	-	-	-	-	-	-	-	-	-	-	11.7	12.0	12.3	12.4	11.6	10.4	10.8	10.3	9.7	9
Jharkhand	-	-	-	-	-	-	-	-	-	-	-	-	-	13.8	16.1	15.4	13.7	14.2	13.4	13.0	12.2	10.9	10.7
Karnataka	23.6	21.7	20	18.6	18.2	16.6	16.4	16.7	15.4	15.2	16.2	14.8	14.4	12.8	13.1	12.5	12.1	12.3	11.0	10.3	8.6	8	7.4
Kerala	4.3	3.9	3.4	3.4	4.3	3.8	3.2	3.6	3.5	3.3	2.6	2.2	2.7	3.0	3.4	3.2	2.8	2.4	2.6	2.9	2.6	2.5	2.4
M.P.	44.5	38.5	36.9	34.8	33	33.5	32.3	32.6	30.4	26.9	28.1	25.9	26.7	26.9	24.6	24.3	23.5	22.6	21.4	20.0	18.8	17.8	16.5
Maharashtra	16.3	15.9	14.1	14.4	14.9	13.1	12.2	12.7	11.5	11	10.3	10.4	9.9	8.7	8.6	8.8	8.5	7.9	6.8	6.4	5.1	5.2	4.9
Odisha	39	33.4	33.7	31.6	32.2	30.6	28.1	29	27.4	25.1	24.4	24.6	23.3	22.2	21.4	22.0	20.0	19.5	18.4	17.1	15.8	14.7	14.6
Punjab	17	17.4	16.1	15.7	14.9	15.2	14.9	16.8	14.5	15	14.1	14.8	14.6	12.2	11.3	11.0	11.1	10.2	9.5	8.7	7.4	7.4	7
Rajasthan	30.9	33.6	26.2	27.4	29.3	31.4	29.5	27.7	24.9	24.6	24.3	22.3	21.8	21.0	20.3	22.4	19.5	18.8	17.2	16.2	15	14.3	13.4
T.N	16.1	15.3	13.6	13.4	14.5	12.6	13.4	13	13.2	12	11.8	10.6	10.4	10.1	9.0	9.2	8.4	7.3	6.7	5.8	5	4.9	4.6
Uttar Pradesh	35.6	37.8	32.9	33	30.8	31.4	31.1	29.6	28.1	26.8	26.8	24.5	23.8	24.3	24.7	23.9	22.3	21.6	20.1	19.6	17.9	16.8	16.5
West Bengal	20.6	18.4	17	19.8	18.6	18.1	16.8	15	13.9	13.2	13.3	12.4	11.9	10.4	10.0	9.7	9.2	8.5	7.9	7.4	7.8	7.6	7.1

Death Rate of children : number of children below 5 years died in a population year per thousand child population.

Note : For years 1991-2003 the States of Bihar, Uttar Pradesh and Madhya Pradesh include Jharkhand , Uttarakhand and Chhattisgarh respectively.

Source : Sample Registration System, Office of RGI, New Delhi.

**Table A19 : Estimated Death Rates for Children (Male) Aged 0-4 Years in Major States, 1991-2013**

States	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
A.P.	22	20	19	19	20	18	17	18	17	16	16	15	16	14	14	16	15	13	12	10	9	8	8.8
Assam	34	30	37	26	25	23	25	29	23	20	23	22	23	24	20	20	17	20	18	17	17	16	14.9
Bihar	21	24	23	25	26	25	25	21	19	18	18	15	17	16	19	17	18	15	14	13	12	11	10.7
Chhattisgarh	-	-	-	-	-	-	-	-	-	-	-	-	-	23	19	18	17	15	14	13	12	12	11.4
Delhi	-	-	-	-	-	-	-	-	-	-	-	-	-	8	8	9	8	7	7	6	6	6	5.1
Gujarat	23	23	20	20	19	18	19	19	19	18	18	17	16	15	15	15	14	13	13	12	12	11	10.2
Haryana	22	21	18	19	19	20	20	19	16	17	16	15	14	16	15	15	14	13	12	12	10	10	9.6
H.P.	20	18	18	15	20	14	16	14	13	14	11	16	11	12	9	9	13	8	9	7	9	10	5
J&K	-	-	-	-	-	-	-	-	-	-	-	-	-	10	12	12	13	12	10	10	10	10	9
Jharkhand	-	-	-	-	-	-	-	-	-	-	-	-	-	12	14	14	14	13	12	12	11	10	10.2
Karnataka	23	23	20	20	19	16	16	17	16	17	16	15	14	13	13	12	13	12	11	10	8	8	6.8
Kerala	5	5	4	4	5	4	3	4	3	3	3	2	3	4	4	3	3	2	2	3	2	2	2.1
M.P.	42	37	35	35	32	32	33	32	29	24	26	24	24	27	24	23	22	22	20	20	18	17	15.7
Maharashtra	16	16	14	15	15	12	13	11	11	10	9	11	8	8	9	9	8	8	6	6	5	5	4.9
Odisha	39	32	35	31	32	32	28	29	27	25	24	26	24	22	21	22	20	19	19	17	15	14	14.1
Punjab	16	17	15	14	15	13	13	16	14	13	12	11	13	10	10	10	10	9	9	8	6	6	6.3
Rajasthan	28	31	26	27	29	29	26	27	23	22	23	22	20	21	19	21	18	17	15	15	14	12	12
T.N	17	15	14	13	15	13	12	12	13	12	11	11	10	11	9	10	9	7	7	6	5	5	4.5
Uttar Pradesh	33	33	30	31	28	28	27	25	27	25	25	23	21	23	23	23	20	20	19	18	16	16	15.9
West Bengal	20	18	17	29	18	19	18	16	15	14	13	13	12	12	10	10	9	9	8	8	8	8	7.1

Death Rate of Children : number of children below 5 years died in a population year per thousand child population.

Note : For years 1991-2003 the States of Bihar, Uttar Pradesh and Madhya Pradesh include Jharkhand , Uttarakhand and Chhattisgarh respectively.

Source : Sample Registration System, Office of RGI, New Delhi.



**Table A20 : Estimated Death Rates for Children (Female) Aged 0-4 Years in Major States, 1991-2013**

States	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
A.P.	20	20	16	15	19	18	16	18	16	16	16	16	15	13	15	15	15	14	12	11	10	9	8.6
Assam	30	30	35	23	24	25	29	16	25	26	24	24	22	18	19	20	20	21	20	19	18	17	16.8
Bihar	25	30	28	25	31	31	27	25	23	20	21	19	18	18	21	20	20	18	16	14	13	12	11.9
Chhattisgarh	-	-	-	-	-	-	-	-	-	-	-	-	-	15	22	19	17	19	17	17	14	13	13.4
Delhi	-	-	-	-	-	-	-	-	-	-	-	-	-	7	9	9	9	9	7	7	7	6	5.9
Gujarat	24	25	21	24	20	23	23	21	20	20	19	21	18	17	17	17	17	14	14	14	13	11	10.5
Haryana	24	25	24	26	27	27	25	26	25	20	23	21	20	20	22	17	16	16	14	13	13	12	10.7
H.P.	18	18	14	18	15	22	16	20	13	12	7	13	9	12	18	11	7	12	12	9	10	11	8.3
J&K	-	-	-	-	-	-	-	-	-	-	-	-	-	14	13	12	12	11	11	11	11	10	9
Jharkhand	-	-	-	-	-	-	-	-	-	-	-	-	-	15	18	17	14	16	15	14	14	11	11.2
Karnataka	24	21	21	18	18	18	17	17	15	14	16	16	14	12	14	13	12	13	11	10	9	8	8
Kerala	4	3	3	3	4	4	4	3	4	3	2	3	3	3	3	3	3	3	3	3	3	3	2.6
M.P.	47	40	39	35	34	36	32	34	32	30	31	28	28	27	25	26	25	23	22	20	20	19	17.3
Maharashtra	17	16	15	13	15	14	11	14	12	12	12	10	12	10	9	9	9	8	7	7	5	5	4.9
Odisha	39	35	32	32	33	29	28	29	28	25	25	23	23	22	22	22	20	20	18	17	16	15	15
Punjab	18	18	18	18	15	18	18	18	16	18	17	20	16	14	13	13	12	11	10	10	9	9	7.8
Rajasthan	34	36	27	27	30	34	33	28	27	28	26	23	23	21	22	24	21	21	20	18	17	16	15.1
T.N	15	16	14	14	15	13	15	14	14	13	13	10	11	9	9	9	8	7	7	6	5	5	4.7
Uttar Pradesh	38	43	37	35	34	35	35	35	30	29	29	26	27	26	26	25	25	24	22	22	20	18	17.2
West Bengal	21	18	17	21	19	18	16	14	13	13	13	12	12	9	10	10	9	9	8	7	8	8	7

Death Rate of Children : number of children below 5 years died in a population year per thousand child population

Note : For years 1991-2003 the States of Bihar, Uttar Pradesh and Madhya Pradesh include Jharkhand , Uttarakhand and Chhattisgarh respectively.

Source : Sample Registration System, Office of RGI, New Delhi

**Table A21 : Estimated Death Rates for Children (Rural) Aged 0-4 Years in Major States , 1991-2013**

States	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
A.P.	23	22	17	18	21	20	19	21	19	18	18	18	17	16	17	18	17	15	13	12	11	10	9.8
Assam	34	37	35	25	26	25	28	29	25	24	25	24	24	23	21	21	19	22	20	19	18	18	16.8
Bihar	23	28	27	25	29	28	27	24	21	20	20	18	18	17	20	19	19	17	15	14	13	12	11.6
Chhattisgarh	-	-	-	-	-	-	-	-	-	-	-	-	-	21	22	19	18	18	16	16	14	13	13.2
Delhi	-	-	-	-	-	-	-	-	-	-	-	-	-	13	13	9	9	8	8	7	8	7	7.9
Gujarat	26	28	24	25	22	22	24	22	23	22	21	22	20	19	20	20	18	17	16	15	14	13	12.5
Haryana	25	25	21	23	23	24	23	24	21	19	20	19	17	20	20	18	17	16	14	13	12	12	11.1
H.P.	20	18	17	16	18	18	16	17	13	13	10	15	10	13	14	11	10	10	11	8	9	10	6.8
J&K	-	-	-	-	-	-	-	-	-	-	-	-	-	13	13	13	13	12	11	11	11	10	9.5
Jharkhand	-	-	-	-	-	-	-	-	-	-	-	-	-	15	18	17	15	15	14	14	13	12	11.4
Karnataka	27	25	23	21	21	20	20	20	19	18	19	18	17	15	16	15	15	14	12	12	10	9	8.3
Kerala	4	4	4	3	4	4	3	3	3	3	3	2	3	3	4	3	3	2	3	3	3	3	2.6
M.P.	49	42	41	39	35	36	35	35	33	29	31	28	28	30	27	27	26	25	23	22	21	20	18.3
Maharashtra	18	18	17	17	18	15	14	15	14	13	12	12	11	10	10	10	10	10	8	8	6	6	5.6
Odisha	41	34	35	33	34	32	29	30	28	26	25	26	24	23	23	23	21	21	19	18	17	16	15.5
Punjab	18	19	18	18	16	17	16	18	16	17	15	16	16	14	13	13	13	11	11	10	9	8	7.9
Rajasthan	33	36	28	29	31	34	32	30	27	26	26	23	23	23	23	26	22	21	19	18	16	16	14.8
T.N	18	17	15	14	16	14	15	15	15	13	14	12	12	11	10	10	9	8	7	6	6	6	5.3
Uttar Pradesh	38	40	35	35	32	33	32	31	29	28	28	26	25	26	26	25	23	23	21	21	19	18	17.3
West Bengal	22	20	19	20	20	20	18	16	15	14	14	13	13	12	11	11	10	9	9	8	8	8	7.6

Death Rate of Children : number of children below 5 years died in a population year per thousand child population.

Note : For years 1991-2003 the States of Bihar, Uttar Pradesh and Madhya Pradesh include Jharkhand , Uttarakhand and Chhattisgarh respectively.

Source : Sample Registration System, Office of RGI, New Delhi.

**Table A22 : Estimated Death Rates for Children (Urban) Aged 0-4 Years in Major States, 1991-2013**

States	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
A.P.	15	22	12	14	12	11	9	10	8	9	9	8	8	8	9	8	9	8	8	7	7	6	6
Assam	31	16	39	22	16	11	13	13	12	9	11	10	9	8	9	10	10	10	9	8	8	8	7.1
Bihar	16	18	14	23	21	22	15	16	15	15	16	14	13	12	15	12	13	11	10	9	9	8	7.7
Chhattisgarh	-	-	-	-	-	-	-	-	-	-	-	-	-	12	13	13	12	12	11	10	10	8	8
Delhi	-	-	-	-	-	-	-	-	-	-	-	-	-	7	7	9	8	8	7	6	6	5	5
Gujarat	18	15	15	17	15	15	14	13	12	12	12	10	10	11	9	10	9	9	9	8	8	7	6.4
Haryana	26	14	17	22	20	21	17	15	16	16	16	12	14	12	13	12	11	11	11	10	9	8	7.5
H.P.	8	9	9	12	9	9	9	8	8	7	5	6	5	3	6	7	3	7	8	3	8	9	3.5
J&K	-	-	-	-	-	-	-	-	-	-	-	-	-	7	8	8	8	9	8	7	7	6	6.2
Jharkhand	-	-	-	-	-	-	-	-	-	-	-	-	-	8	9	8	8	9	8	7	7	12	6.2
Karnataka	13	12	14	13	12	8	8	7	7	7	8	7	7	9	9	8	8	8	8	7	7	6	5.6
Kerala	4	3	3	4	5	4	4	4	4	3	2	2	2	2	3	3	2	2	2	2	2	2	1.7
M.P.	24	22	18	17	18	18	15	17	15	15	14	15	15	15	14	14	13	13	13	11	11	10	8.5
Maharashtra	12	11	9	10	10	9	9	9	8	8	7	8	8	6	7	7	6	5	5	5	4	4	3.6
Odisha	16	22	20	19	21	20	17	19	20	17	17	15	14	14	13	12	12	12	10	9	8	8	7.5
Punjab	13	12	10	10	12	9	11	12	10	9	9	10	10	10	9	8	9	8	7	7	5	6	5.4
Rajasthan	20	21	15	21	20	20	17	16	16	15	16	16	15	14	11	11	11	11	11	8	9	9	7.9
T.N	11	12	9	12	11	10	10	9	10	10	8	7	7	9	8	8	7	6	6	5	4	4	3.6
Uttar Pradesh	23	25	22	23	25	24	23	20	21	19	20	17	16	17	18	17	17	15	15	14	14	13	12.1
West Bengal	14	10	9	16	14	12	12	11	10	9	9	8	8	6	6	6	6	6	6	5	5	5	4.9

Table Death Rate of Childeren : number of children below 5 years died in a population year per thousand child population.

Note : For years 1991-2003 the States of Bihar, Uttar Pradesh and Madhya Pradesh include Jharkhand , Uttarakhand and Chhattisgarh respectively.

Source : Sample Registration System, Office of RGI, New Delhi.

**Table A23 : Under 5 mortality rate by Sex in Major States, 2008-2013**

States	2008		2009		2010		2011		2012		2013	
	Male	Femle	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
A.P.	55	61	51	54	46	51	42	49	40	46	40	42
Assam	81	96	83	91	79	87	75	82	71	80	68	77
Bihar	69	82	66	74	60	68	56	62	54	60	51	58
Chhattisgarh	65	78	59	74	52	70	49	66	48	62	47	59
Delhi	38	43	36	38	33	35	29	35	27	30	25	28
Gujarat	58	63	59	64	52	60	49	54	46	50	44	46
Haryana	60	71	55	65	51	59	45	58	45	52	42	49
H.P.	37	64	48	55	43	57	43	49	40	46	37	45
J&K	55	55	46	54	46	50	45	45	42	45	40	39
Jharkhand	58	72	55	70	52	66	45	63	47	54	45	51
Karnataka	54	56	48	51	43	47	38	42	35	39	33	36
Kerala	12	15	12	16	14	16	12	14	12	14	11	14
M.P.	90	93	86	92	79	85	72	82	69	78	65	74
Maharashtra	39	42	32	40	31	35	27	28	27	28	26	27
Odisha	87	91	83	85	76	79	70	74	67	70	65	68
Punjab	45	55	42	50	38	48	33	43	29	40	26	36
Rajasthan	72	88	66	84	60	79	57	72	52	67	50	65
T.N	36	36	31	34	26	28	23	27	23	26	22	24
Uttar Pradesh	83	100	78	93	71	87	67	81	62	75	60	70
West Bengal	42	42	39	41	37	38	37	40	37	39	34	35

Source : Sample Registration System, Office of RGI, New Delhi

**Table A24 : Under 5 mortality rate by Rural/Urban residence in Major States, 2008-2013**

States	2008		2009		2010		2011		2012		2013	
	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
A.P.	64	40	58	39	53	36	49	34	48	31	46	29
Assam	93	50	92	43	88	42	82	39	80	37	77	34
Bihar	77	56	71	49	65	47	62	41	58	39	56	37
Chhattisgarh	74	56	69	54	63	48	66	46	57	40	56	38
Delhi	40	41	42	36	42	33	35	30	39	26	40	24
Gujarat	72	38	71	42	65	39	54	35	56	32	53	28
Haryana	7	50	64	50	58	47	58	43	52	39	49	34
H.P.	50	39	52	36	50	37	49	36	43	37	41	32
J&K	58	41	52	39	51	33	45	30	46	30	42	29
Jharkhand	69	44	66	38	63	35	63	32	53	31	51	27
Karnataka	62	40	55	39	49	36	42	33	40	31	38	28
Kerala	14	12	14	13	16	12	14	10	13	10	13	9
M.P.	98	62	95	58	88	54	82	50	79	46	75	40
Maharashtra	49	28	43	26	39	23	28	19	33	20	32	18
Odisha	93	59	88	52	81	46	74	43	72	42	70	39
Punjab	55	39	53	33	49	31	43	28	38	26	35	24
Rajasthan	88	49	82	46	76	42	72	38	65	36	63	32
T.N	39	31	35	28	30	24	27	21	28	20	26	17
Uttar Pradesh	97	63	89	63	82	60	81	54	72	49	68	44
West Bengal	45	32	42	30	40	28	40	29	40	29	37	26

Source : Sample Registration System, Office of RGI, New Delhi.

**Table A25 : Under-Five Mortality Rates for the Five Years Period Preceding the Surveys, by States, NFHS-1, NFHS-2 and NFHS-3**

India & States	Under-5 Mortality		
	NFHS 1	NFHS 2	NFHS 3
<b>India</b>	109.3	94.9	74.3
Delhi	83.1	55.4	46.7
Haryana	98.7	76.8	52.3
Himachal Pradesh	69.1	42.4	41.5
Jammu & Kashmir	59.1	80.1	51.2
Punjab	68	72.1	52
Rajasthan	102.6	114.9	85.4
Uttaranchal	-	-	56.8
Chhattisgarh	-	-	90.3
Madhya Pradesh	130.3	137.6	94.2
Uttar Pradesh	141.3	122.5	96.4
Bihar	127.5	105.1	84.8
Jharkhand	-	-	93
Orissa	131	104.4	90.6
West Bengal	99.3	67.6	59.6
Arunachal Pradesh	72	<b>98.1</b>	87.7
Assam	142.2	89.5	85
Manipur	61.7	56.1	41.9
Meghalaya	86.9	122	70.5
Mizoram	29.3	54.7	52.9
Nagaland	20.7	63.8	64.7
Sikkim	104.6	71	40.1
Tripura	-	-	59.2
Goa	38.9	46.8	20.3
Gujarat	104	85.1	60.9
Maharashtra	70.3	58.1	46.7
Andhra Pradesh	91.2	<b>85.5</b>	63.2
Karnataka	87.3	69.8	54.7
Kerala	32	18.8	16.3
Tamil Nadu	86.5	63.3	35.5

Source : National Family Health Surveys.

**Table A26 : Crude Death Rate in Major States, 1991-2013**

State	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
A.P.	9.7	9.2	8.6	8.3	8.4	8.4	8.3	8.8	8.2	8.2	8.2	8.1	8	7	7.3	7.3	7.4	7.5	7.6	7.6	7.5	7.4	7.3
Assam	11.5	10.4	10.2	9.2	9.6	9.6	9.9	10	9.7	9.6	9.6	9.2	9.1	8.8	8.7	8.7	8.6	8.6	8.4	8.2	8	7.9	7.8
Bihar	9.8	10.9	10.6	10.4	10.5	10.2	10	9.4	8.9	8.8	8.2	7.9	7.9	8.1	8.1	7.7	7.5	7.3	7	6.8	6.7	6.6	6.6
Chhattisgarh	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	8.1	8.1	8.1	8.1	8.1	8	7.9	7.9	7.9
Delhi	-	-	-	-	-	-	-	-	-	-	-	-	-	4.7	4.6	4.7	4.8	4.8	4.4	4.2	4.3	4.2	4.1
Gujarat	8.5	9.2	8.2	8.7	7.6	7.6	7.6	7.9	7.9	7.5	7.8	7.7	7.6	6.9	7.1	7.3	7.2	6.9	6.9	6.7	6.7	6.6	6.5
Haryana	8.2	8.7	7.9	8.1	8.1	8.1	8	8.2	7.7	7.5	7.6	7.1	7.1	6.6	6.7	6.5	6.6	6.9	6.6	6.6	6.5	6.4	6.3
H.P.	8.9	8.8	8.7	8.6	8.7	8	8.1	7.7	7.3	7.2	7.1	7.5	7.1	6.8	6.9	6.8	7.1	7.4	7.2	6.9	6.7	6.7	6.7
J&K	-	-	-	-	-	-	-	-	-	-	-	-	-	5.6	5.5	5.9	5.8	5.8	5.7	5.7	5.5	5.4	5.3
Jharkhand	-	-	-	-	-	-	-	-	-	-	-	-	-	8	7.9	7.5	7.3	7.1	7.0	7.0	6.9	6.8	6.8
Karnataka	9	8.5	8	8.3	7.6	7.6	7.6	7.9	7.7	7.8	7.6	7.2	7.2	6.9	7.1	7.1	7.3	7.4	7.2	7.1	7.1	7.1	7
Kerala	6	6.3	6	6.1	6	6.2	6.2	6.4	6.4	6.4	6.6	6.4	6.3	6.1	6.4	6.7	6.8	6.6	6.8	7.0	7	6.9	6.9
M.P.	13.8	12.9	12.6	11.6	11.2	11.1	11	11.2	10.4	10.3	10.1	9.8	9.8	9.2	9.0	8.9	8.7	8.6	8.5	8.3	8.2	8.1	8
Maharashtra	8.2	7.9	7.3	7.5	7.5	7.4	7.3	7.7	7.5	7.5	7.5	7.3	7.2	6.2	6.7	6.7	6.6	6.6	6.7	6.5	6.3	6.3	6.2
Odisha	12.8	11.7	12.2	11.2	10.8	10.8	10.9	11.1	10.7	10.5	10.4	9.8	9.7	9.6	9.5	9.3	9.2	9.0	8.8	8.6	8.5	8.5	8.4
Punjab	7.8	8.2	7.9	7.6	7.3	7.4	7.4	7.7	7.4	7.4	7	7.1	7	6.4	6.7	6.8	7.0	7.2	7.0	7.0	6.8	6.8	6.7
Rajasthan	10.1	10.5	9.1	9	9.1	9.1	8.9	8.8	8.4	8.5	8	7.7	7.6	7	7.0	6.9	6.8	6.8	6.6	6.7	6.7	6.6	6.5
T.N	8.8	8.4	8.2	8	8	8	8	8.5	8	7.9	7.7	7.7	7.6	7.5	7.4	7.5	7.2	7.4	7.6	7.6	7.4	7.4	7.3
Uttar Pradesh	11.3	12.8	11.6	11	10.3	10.3	10.3	10.5	10.5	10.3	10.1	9.7	9.5	8.8	8.7	8.6	8.5	8.4	8.2	8.1	7.9	7.7	7.7
West Bengal	8.3	8.4	7.4	8.3	7.9	7.8	7.7	7.5	7.1	7	7	6.7	6.6	6.3	6.4	6.2	6.3	6.2	6.2	6.0	6.2	6.3	6.4

Note : For years 1991-2003 the States of Bihar, Uttar Pradesh and Madhya Pradesh include Jharkhand , Uttarakhand and Chhattisgarh respectively.

Source : Sample Registration System, Office of RGI, New Delhi.

Table A27 : Early Childhood Mortality Rate by State, NFHS-1, NFHS-2 and NFHS-3

India & States	Neonatal Mortality			Postnatal mortality			Infant Mortality			Child Mortality			Under-5 Mortality		
	NFHS 1	NFHS 2	NFHS 3	NFHS 1	NFHS 2	NFHS 3	NFHS 1	NFHS 2	NFHS 3	NFHS 1	NFHS 2	NFHS 3	NFHS 1	NFHS 2	NFHS 3
India	48.6	43.4	39	29.9	24.2	18	78.5	67.6	57	33.4	29.3	18.4	109.3	94.9	74.3
Delhi	34.9	29.5	29.3	30.5	17.4	10.5	65.4	46.8	39.8	19	9	7.3	83.1	55.4	46.7
Haryana	38.4	34.9	23.6	34.9	21.9	18.1	73.3	56.8	41.7	27.4	21.2	11.1	98.7	76.8	52.3
Himachal Pradesh	34.2	22.1	27.3	21.7	12.3	8.9	55.8	34.4	36.1	14.1	8.3	5.6	69.1	42.4	41.5
Jammu & Kashmir	31.9	40.3	29.8	13.5	24.7	14.9	45.4	65	44.7	14.3	16.1	6.8	59.1	80.1	51.2
Punjab	31.2	34.3	28	22.5	22.8	13.7	53.7	57.1	41.7	15	15.9	10.8	68	72.1	52
Rajasthan	37.2	49.5	43.9	35.4	30.9	21.4	72.6	80.4	65.3	32.3	37.6	21.5	102.6	114.9	85.4
Uttaranchal	-	-	27.6	-	-	14.3	-	-	41.9	-	-	15.5	-	-	56.8
Chhattisgarh	-	-	51.1	-	-	19.7	-	-	70.8	-	-	21	-	-	90.3
Madhya Pradesh	53.2	54.9	44.9	32	31.2	24.7	85.2	86.1	69.5	49.3	56.4	26.5	130.3	137.6	94.2
Uttar Pradesh	59.9	53.6	47.6	40	33.1	25	99.9	86.7	72.7	46	39.2	25.6	141.3	122.5	96.4
Bihar	54.8	46.5	39.8	34.4	26.4	21.9	89.2	72.9	61.7	42	34.7	24.7	127.5	105.1	84.8
Jharkhand	-	-	48.6	-	-	20.2	-	-	68.7	-	-	26.1	-	-	93
Orissa	64.7	48.6	45.4	47.4	32.3	19.3	112.1	81	64.7	21.3	25.5	27.6	131	104.4	90.6
West Bengal	51.8	31.9	37.6	23.5	16.8	10.4	75.3	48.7	48	26	19.9	12.2	99.3	67.6	59.6
Arunachal Pradesh	17.5	41.8	34	22.5	21.3	26.7	40	63.1	60.7	33.3	37.4	28.8	72	98.1	87.7
Assam	50.9	44.6	45.5	37.8	24.9	20.6	88.7	69.5	66.1	58.7	21.4	20.2	142.2	89.5	85
Manipur	25.1	18.6	18.7	17.3	18.4	11.1	42.4	37	29.7	20.2	19.9	12.6	61.7	56.1	41.9
Meghalaya	37.8	50.7	23.6	26.3	38.3	21	64.2	89	44.6	24.3	36.2	27.1	86.9	122	70.5
Mizoram	8.3	18.8	16.3	6.3	18.2	17.7	14.6	37	34.1	14.9	18.4	19.5	29.3	54.7	52.9
Nagaland	10	20.1	19.8	7.2	22	18.5	17.2	42.1	38.3	3.6	22.7	27.5	20.7	63.8	64.7
Sikkim	43.6	26.3	19.4	32.3	17.6	14.3	75.8	43.9	33.7	31.2	28.4	6.7	104.6	71	40.1
Tripura	-	-	33.1	-	-	18.3	-	-	51.5	-	-	8.2	-	-	59.2
Goa	20.6	31.2	8.8	11.3	5.5	6.5	31.9	36.7	15.3	7.2	10.5	5	38.9	46.8	20.3
Gujarat	42.3	39.6	33.5	26.4	23	16.2	68.7	62.6	49.7	37.9	24	11.9	104	85.1	60.9
Maharashtra	36.4	32	31.8	14	11.7	5.7	50.5	43.7	37.5	20.9	15	9.5	70.3	58.1	46.7
Andhra Pradesh	45.3	43.8	40.3	25	22.1	13.2	70.4	65.8	53.5	22.4	21	10.2	91.2	85.5	63.2
Karnataka	45.3	37.1	28.9	20.2	14.4	14.3	65.4	51.5	43.2	23.5	19.3	12.1	87.3	69.8	54.7
Kerala	15.5	13.8	11.5	8.2	2.5	3.8	23.8	16.3	15.3	8.4	2.6	1	32	18.8	16.3
Tamil Nadu	46.2	34.8	19.1	21.5	13.3	11.2	67.7	48.2	30.4	20.1	15.9	5.3	86.5	63.3	35.5

Source : National Family Health Surveys



Table A28 : Mean age at effective marriage in India and Major States, 1992-2013

States	1992			1993			1994			1995			1996			1997			1998			1999			2000					
	<18	18-20	21+	<18	18-20	21+	<18	18-20	21+	<18	18-20	21+	<18	18-20	21+	<18	18-20	21+	<18	18-20	21+	<18	18-20	21+	<18	18-20	21+			
India	16	20.5	-	16	18.9	24	16	18.9	23	16	18.9	23	16	18.9	24	16	18.9	24	16	18.9	24	16	18.9	24	16	18.9	24	16	19	23
A.P.	16	19.3	-	16	18.7	23	16	18.7	22	16	18.6	23	16	18.6	23	16	18.6	23	15	18.6	23	16	18.6	23	16	18.6	23	16	18.7	23
Assam	16	21.7	-	16	19.1	24	16	18.9	24	16	19	24	16	18.9	24	16	19	25	16	19.1	24	16	19	25	16	19	25	16	19	25
Bihar	16	20.2	-	16	18.9	23	16	18.9	23	16	18.9	23	16	18.9	23	16	18.9	24	16	18.9	23	16	18.9	24	16	18.9	24	16	18.9	23
Chattisgarh	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Delhi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gujarat	17	20.5	-	17	19	23	17	19.2	23	17	19.2	23	17	19.1	23	17	19.1	24	17	19.1	23	17	19.1	23	17	19.1	23	17	19.1	23
Haryana	16	19.6	-	16	18.8	22	17	18.9	23	17	18.9	23	17	18.9	23	17	18.9	23	17	18.9	22	17	18.9	23	17	18.9	23	17	18.9	23
H.P.	16	20.6	-	16	19.2	23				16	19.1	22	16	19.1	23	17	19.2	23	17	19.3	23	17	19.2	23	17	19.2	23	17	19.4	23
J&K	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Jharkhand	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Karnataka	16	20	-	16	18.8	24	16	18.7	24	16	18.7	24	16	18.7	23	16	18.7	23	16	18.8	24	16	18.8	24	16	18.8	24	16	18.8	23
Kerala	17	22.5	-	16	19.1	24	16	19.1	24	17	19.1	24	17	19.1	24	17	19.1	24	16	19.1	24	16	19.1	24	16	19.1	24	17	19.1	24
M.P.	16	20	-	16	18.9	25	16	18.9	24	16	18.9	24	16	18.8	24	16	18.8	25	16	18.9	23	16	18.9	24	16	18.9	24	16	18.9	24
Maharashtra	16	19.7	-	16	18.8	23	16	18.8	23	16	18.8	23	16	18.8	23	16	18.8	24	16	18.8	23	16	18.8	24	16	18.8	24	17	18.9	23
Odisha	16	21.6	-	16	19	23	16	19	23	16	18.9	24	16	18.9	23	16	19	23	16	19	23	16	19	23	16	19	23	16	19	23
Punjab	17	20.6	-	16	19.3	23	17	19.3	23	17	19.2	23	17	19.2	23	17	19.2	23	17	19.3	23	17	19.3	23	17	19.3	23	17	19.4	23
Rajasthan	16	19.6	-	16	18.8	22	16	18.9	22	16	18.9	23	16	18.9	23	16	18.9	23	16	18.9	23	16	18.9	24	16	18.9	24	16	18.8	24
T.N	17	20.5	-	16	19	23	16	19.1	23	17	19.1	23	17	19.1	23	17	19.1	23	17	19.1	23	17	19.1	24	17	19.1	24	17	19.2	24
Uttar Pradesh	16	20.3	-	16	19	24	16	19	24	16	19	24	16	18.9	23	16	19	23	16	19	24	16	19.1	23	16	19.1	23	16	19.1	23
West Bengal	16	20.4	-	16	18.9	24	16	18.8	24	16	18.8	24	16	18.8	24	16	18.8	24	16	18.9	24	16	18.9	24	16	18.9	24	16	18.9	24

Note : For years 1991-2003 the States of Bihar, Uttar Pradesh and Madhya Pradesh include Jharkhand , Uttarakhand and Chhattisgarh respectively.

TableA28 Contd.....

States	2000			2001			2002			2003			2004			2005			2006		
	<18	18-20	21+	<18	18-20	21+	<18	18-20	21+	<18	18-20	21+	<18	18-20	21+	<18	18-20	21+	<18	18-20	21+
India	16.2	19	23.1	16.2	19	23.5	16.3	19.0	23.4	16.3	19	23.3	16.3	19.0	23.8	16.3	18.9	24	16.3	19.0	24.1
A.P.	16	18.7	23	16.2	18.7	22.7	16.4	18.8	22.6	16.3	18.8	22.6	16.4	18.8	22.8	16.3	18.8	23.3	16.3	18.9	23.3
Assam	15.9	19	24.7	15.9	19	24.2	16.1	19.1	24.3	16.2	19.1	24.6	16.2	19.4	23.4	16.2	19.1	26.0	16.2	19.2	25.4
Bihar	16.1	18.9	22.9	16.1	18.9	23.8	16.1	18.9	23.9	16.3	18.9	23.8	16.2	18.8	23.1	16.3	18.8	23.0	16.0	18.9	25.8
Chattisgarh	-	-	-	-	-	-	-	-	-	-	-	-	16.4	18.8	23.5	16.6	18.9	24.3	16.4	18.9	23.4
Delhi	-	-	-	-	-	-	-	-	-	-	-	-	16.5	19.1	24	16.5	19.2	23.9	16.2	19.2	23.6
Gujarat	16.5	19.1	23.1	16.3	19.1	22.8	16.6	19.1	23.2	16.6	19.1	23	16.4	19.0	23.6	16.5	19.1	23.2	16.4	19.1	24.3
Haryana	16.5	18.9	22.5	16.7	19	22.1	16.7	18.8	22.3	16.4	19	22.3	16.4	19.0	22.9	16.5	19.2	22.9	16.7	19.2	22.5
H.P.	16.9	19.4	23.1	15.9	19.3	23	16.7	19.4	22.7	17	19.1	23	16.7	19.3	23.2	16.1	19.3	23.5	16.8	19.2	23.4
J&K	-	-	-	-	-	-	-	-	-	-	-	-	15.2	19.4	25.3	16.3	19.4	24.9	16.5	19.4	25.1
Jharkhand	-	-	-	-	-	-	-	-	-	-	-	-	16.2	18.9	23.1	16.2	18.8	23.6	16.0	18.9	23.4
Karnataka	16.2	18.8	23.4	16.2	18.8	23.7	16.4	18.8	23.4	16.2	18.9	23.7	16.3	19.0	23.4	16.2	18.9	23.5	16.4	18.9	23.3
Kerala	16.5	19.1	24.2	16.5	19.1	24.2	16.6	19.1	24.3	16.7	19.2	24.2	16.8	19.3	24.4	16.8	19.2	24.4	16.7	19.2	24.3
M.P.	16.1	18.9	23.5	16.3	18.9	23.3	16.2	18.9	23.5	16.3	18.9	22.6	16.4	18.9	23.6	16.3	18.8	26.0	16.5	18.9	24.4
Maharashtra	16.5	18.9	23.4	16.5	18.9	23.1	16.6	18.9	23.1	16.6	18.9	23.3	16.4	19.0	23.4	16.4	18.9	23.6	16.3	19.0	24.1
Odisha	16.3	19	22.9	16.4	19	22.9	16.3	18.9	23.2	16.4	18.9	23.1	16.3	19.0	23.6	16.1	19.1	23.6	16.3	19.0	23.3
Punjab	16.9	19.4	22.9	16.7	19.3	23.3	16.8	19.3	22.9	16.8	19.4	23.1	16.7	19.2	23.5	16.6	19.3	23.5	16.7	19.2	23.6
Rajasthan	16.3	18.8	24.2	16.2	18.9	23.2	16.4	18.8	22.9	16.5	19	23.3	16.1	18.9	25.0	16.1	18.9	24.1	16.4	19.0	24.5
T.N	16.7	19.2	23.5	16.7	19.2	23.3	16.5	19.2	23.5	16.4	19.2	23.4	16.6	19.2	23.5	16.7	19.3	23.5	16.6	19.4	23.7
U.P.	16.4	19.1	23.2	16.3	19.1	23.7	16.5	19.1	23.0	16.4	19.1	22.9	16.4	19.0	23.4	16.2	18.9	24.3	16.5	19.0	24.1
West Bengal	16	18.9	24	15.9	18.8	23.7	16.1	18.9	24.0	16	18.9	23.8	16.0	18.9	24.4	16.2	18.9	24.1	16.1	18.9	24.6

Note : For years 1991-2003 the States of Bihar, Uttar Pradesh and Madhya Pradesh include Jharkhand , Uttarakhand and Chhattisgarh respectively.

TableA28 Contd.....

States	2007			2008			2009			2010			2011			2012			2013		
	<18	18-20	21+	<18	18-20	21+	<18	18-20	21+	<18	18-20	21+	<18	18-20	21+	<18	18-20	21+	<18	18-20	21+
India	16.4	19.0	24.1	16.3	19	23.9	16.3	19	23.9	16.4	19.1	23.9	16.5	19.1	23.6	16.5	19.1	23.6	16.5	19.2	23.6
A.P.	16.4	18.9	23.0	16.5	19	23.2	16.3	19	23.2	16.3	19.1	23.4	16.5	19.1	23	16.7	19.2	23	16.8	19.2	22.8
Assam	16.0	19.0	24.6	16.3	19	24.6	16.5	19	24.9	15.9	19.0	24.7	16.3	19	24.7	16.2	19.1	24.6	16.2	19	24.1
Bihar	16.3	19.0	23.3	16.1	19	23.4	16.2	19.1	23.1	16.4	19.2	23.5	16.3	19.3	23.2	16.7	19.2	23.1	16.4	19.1	23.4
Chattisgarh	16.3	19.0	23.1	16.3	19.1	23.6	16.4	19	25	16.8	19.2	25.2	16.5	19.1	23.2	16.4	19	24.1	16.8	18.9	23.4
Delhi	16.5	19.2	23.7	16.4	19.3	23.7	16.8	19.3	23.9	16.7	19.3	24.0	16.8	19.5	23.8	16.6	19.3	24.4	16.8	19.3	24.1
Gujarat	16.4	19.1	23.9	16.4	19.1	23.7	16.6	19.1	23.4	16.5	19.2	23.5	16.5	19.3	23.7	16.7	19.3	23.6	16.6	19.4	23.5
Haryana	16.6	19.1	22.7	16.8	19.1	22.7	16.5	19.2	22.8	16.8	19.2	22.7	16.4	19.4	22.7	16.7	19.3	22.8	16.1	19.3	23.1
H.P.	17.0	19.4	23.3	16.5	19.3	23.1	16.7	19.2	23.4	16.1	19.4	23.7	17	19.4	23.6	16.9	19.4	23.4	17	19.6	23.3
J&K	16.6	19.4	24.7	16.2	19.4	25.3	16.5	19.4	24.7	16.6	19.4	25.0	16.1	19.5	25.2	16.5	19.5	25.5	16.3	19.5	25.1
Jharkhand	16.2	18.9	24.6	16.1	19	23.5	16	19	24	16.0	19.2	23.7	16.2	19.2	23.7	16.2	19.1	23	16.6	19.2	23.3
Karnataka	16.4	18.9	23.8	16.2	18.9	23.7	16.4	18.9	23.7	16.5	19.1	23.6	16.5	19.1	23.6	16.6	19.1	23.7	16.7	19.1	23.8
Kerala	16.6	19.2	24.5	16.7	19.2	24.4	16.7	19.2	24.4	16.6	19.2	24.3	16.4	19.2	24.3	16.6	19.2	24.6	16.5	19.2	24.6
M.P.	16.4	18.9	27.1	16.3	18.9	25.1	16.4	18.9	25.5	16.2	19.0	23.9	16.3	19	23.7	16.6	19.1	23.5	16.8	19	23.2
Maharashtra	16.5	19.0	24.8	16.6	19	23.6	16.5	19	23.7	16.6	19.0	23.7	16.6	19.2	23.9	16.6	19.1	23.5	16.7	19.1	23.3
Odisha	16.4	19.0	23.4	16.4	19	23.8	16.2	19	24.4	15.8	19.2	23.9	16.5	19.2	23.9	16.2	19.2	23.9	16.4	19.1	24
Punjab	16.8	19.4	23.7	16.5	19.3	23.6	16.5	19.3	24	16.9	19.4	23.5	16.9	19.4	23.7	16.6	19.4	23.7	17	19.4	23.6
Rajasthan	16.3	19.0	23.0	16.3	19	23.1	16.3	19	23	16.4	19.0	23.4	16.3	19.1	22.9	16.3	19.1	23.2	16.5	19.2	22.8
T.N	16.5	19.3	23.5	16.7	19.3	23.8	16.2	19.3	24	16.5	19.3	24.0	16.7	19.4	23.9	16.7	19.3	23.9	16.7	19.3	23.8
U.P.	16.4	19.0	23.8	16.4	19.1	23.6	16.3	19	23.2	16.5	19.1	23.9	16.5	19.1	23.3	16.6	19.2	23.4	16.3	19.3	23.7
West Bengal	16.3	18.9	24.3	16.3	18.9	24.4	16.4	18.8	24.5	16.4	18.9	24.1	16.5	18.9	23.7	16.6	18.9	23.8	16.7	19	23.5

Table A29 : Total Fertility Rate in Major States, 1991-2013

State	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
A.P.	3	2.8	2.7	2.7	2.7	2.5	2.5	2.4	2.4	2.3	2.3	2.2	2.2	2.1	2.0	2.0	1.9	1.8	1.9	1.8	1.8	1.8	1.8
Assam	3.5	3.4	3.3	3.8	3.5	3.2	3.2	3.2	3.2	3.1	3	3.0	2.9	2.9	2.9	2.7	2.7	2.6	2.6	2.5	2.4	2.4	2.3
Bihar	4.4	4.6	4.6	4.6	4.5	4.5	4.4	4.3	4.5	4.5	4.4	4.3	4.2	4.3	4.3	4.2	3.9	3.9	3.9	3.7	3.6	3.5	3.4
Chhattisgarh	-	-	-	-	-	-	-	-	-	-	-	-	-	3.3	3.4	3.3	3.1	3.0	3.0	2.8	2.7	2.7	2.6
Delhi	-	-	-	-	-	-	-	-	-	-	-	-	-	2.1	2.1	2.1	2.0	2.0	1.9	1.9	1.8	1.8	1.7
Gujarat	3.1	3.2	3.2	3.1	3.2	3	3	3	3	2.9	2.9	2.8	2.8	2.8	2.8	2.7	2.6	2.5	2.5	2.5	2.4	2.3	2.3
Haryana	4	3.8	3.7	3.7	3.7	3.5	3.4	3.3	3.2	3.2	3.1	3.1	3	3	2.8	2.7	2.6	2.5	2.5	2.3	2.3	2.3	2.2
H.P.	3.1	3.1	2.8	2.9	2.7	2.4	2.4	2.4	2.4	2.3	2.2	2.1	2.1	2.1	2.2	2.0	1.9	1.9	1.9	1.8	1.8	1.7	1.7
J&K	-	-	-	-	-	-	-	-	-	-	-	-	-	2.4	2.4	2.3	2.3	2.2	2.2	2.0	1.9	1.9	1.9
Jharkhand	-	-	-	-	-	-	-	-	-	-	-	-	-	3.5	3.5	3.4	3.2	3.2	3.2	3.0	2.9	2.8	2.7
Karnataka	3.1	2.9	2.9	2.8	2.7	2.6	2.5	2.4	2.5	2.4	2.4	2.4	2.3	2.3	2.2	2.1	2.1	2.0	2.0	2.0	1.9	1.9	1.9
Kerala	1.8	1.7	1.7	1.7	1.8	1.8	1.8	1.8	1.8	1.9	1.8	1.8	1.8	1.7	1.7	1.7	1.7	1.7	1.7	1.8	1.8	1.8	1.8
M.P.	4.6	4.4	4.2	4.2	4.2	4.1	4	3.9	3.9	4	3.9	3.8	3.8	3.7	3.6	3.5	3.4	3.3	3.3	3.2	3.1	2.9	2.9
Maharashtra	3	2.9	2.9	2.9	2.9	2.8	2.7	2.7	2.5	2.5	2.4	2.3	2.3	2.2	2.2	2.1	2	2	1.9	1.9	1.8	1.8	1.8
Odisha	3.3	3.1	3.1	3.3	3.3	3.1	3	2.9	2.7	2.8	2.6	2.6	2.6	2.7	2.6	2.5	2.4	2.4	2.4	2.3	2.2	2.1	2.1
Punjab	3.1	3.1	3	2.9	2.9	2.8	2.7	2.6	2.5	2.4	2.4	2.3	2.3	2.2	2.1	2.1	2.0	1.9	1.9	1.8	1.8	1.7	1.7
Rajasthan	4.6	4.5	4.5	4.5	4.4	4.2	4.2	4.1	4.2	4.1	4	3.9	3.8	3.7	3.7	3.5	3.4	3.3	3.3	3.1	3	2.9	2.8
T.N	2.2	2.2	2.1	2.1	2.2	2.1	2	2	2	2.1	2	2.0	1.9	1.8	1.7	1.7	1.6	1.7	1.7	1.7	1.7	1.7	1.7
Uttar Pradesh	5.1	5.2	5.2	5.1	5	4.9	4.8	4.6	4.7	4.7	4.5	4.4	4.4	4.4	4.2	4.2	3.9	3.8	3.7	3.5	3.4	3.3	3.1
West Bengal	3.2	2.9	3	3	2.8	2.6	2.6	2.4	2.4	2.4	2.4	2.3	2.3	2.2	2.1	2.0	1.9	1.9	1.9	1.8	1.7	1.7	1.6

Note : For years 1991-2003 the States of Bihar, Uttar Pradesh and Madhya Pradesh include Jharkhand , Uttarakhand and Chhattisgarh respectively.

Source : Sample Registration System, Office of RGI, New Delhi.

**Table A30 : General Fertility Rate in India and Major States, 1991-2013**

States	####	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
<b>India</b>	119	119	117	118	117	113	110	107	103	103	99.5	97.1	95.3	98.6	95.8	93.3	89.5	88	86.5	83.9	81.2	80.3	<b>78.5</b>
A.P.	102	96.1	95.1	93	95.1	88.9	86.8	85.5	82.4	79.7	78.4	76.0	74	71.8	70.5	68.5	66.1	64.6	64.6	62.2	60.7	62.7	60.8
Assam	120	119	115	128.8	120	113	111	110	105	103	101	99.0	95.6	99.8	97.9	95.1	91.9	89.3	87.7	84.9	82.8	80.6	78.7
Bihar	134	140	139	146	142	141	137	135	137	139	132	130	126	142	140	138	129	128	123	120.1	114	114	110
Chattisgarh	-	-	-	-	-	-	-	-	-	-	-	-	-	110	110	106	103	98.7	97.0	94.4	91.9	91	89
Delhi	-	-	-	-	-	-	-	-	-	-	-	-	-	73.3	72.4	70.8	68.2	68.8	67.2	65.7	63.3	62.5	61.2
Gujarat	107	110	110	106	105	99.3	98.8	98.7	97	95.7	94.6	92.7	92.8	95.7	92.2	91	88	86.2	85.2	82.1	79.7	78.5	77
Haryana	139	135	130	131	129	123	118	114	109	108	107	105	103	103	97	94.1	90.4	88.2	85.6	83.2	80.7	79.7	78.4
H.P.	111	109	103	98.9	92.7	84.3	81.3	80.8	84.7	78.6	75.4	73.5	72.9	71.4	72.5	67.5	61.7	62.3	60.6	59.3	57.3	56.1	55.6
J&K	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	73.7	71.9	71.4	69.1	68	64.4	62.5	61.3	60.9
Jharkhand	-	-	-	-	-	-	-	-	-	-	-	-	-	116	115	111	106	105	102.8	98.6	96.1	94.5	91.3
Karnataka	105	102	98.9	96.9	92.6	87.6	84.5	81.6	83	80.9	80.3	79.7	77.6	78.5	75.9	73.1	71.3	70.3	69.5	68.1	65.8	64.9	63.7
Kerela	64	62	60.8	60.2	62.1	61.7	61.2	62.2	61.1	61.5	59.2	58.0	57.6	53.7	53.2	52.9	52.2	50	52.3	52.8	54.2	53.4	53.3
M.P.	151	146	140	140	144	138	136	129	131	132	128	124	122	127	123.6	121	115	112	110	106.8	103	101	99.5
Maharashtra	104	101	101	101	99.8	94	91.9	89	82.6	81.8	80.4	77.8	75.7	75.5	74.3	70.8	68.4	67.3	66	63.8	61.6	61.1	60.8
Odisha	110	106	104	109	110	106	103	98.8	92.3	92.8	88.3	85.9	84.4	89.5	85.6	83.3	79.7	79.3	78.1	75.3	72.6	71.2	69.6
Punjab	111	109	106	99.6	98.5	93.1	90.9	85.7	82.5	82.4	79.9	77.5	76.4	74.5	70.6	68.9	66.2	64.7	63.1	61.3	59.9	57.4	57.2
Rajasthan	149	148	147	148	145	140	137	134	132	133	128	126	123	128	124.9	120	116	113	110	106	102	99.8	97
T.N	77	77.2	72.6	71.2	74.2	70.4	68.5	68.6	69.1	69.4	68	66.0	65.1	61.7	59.1	57.6	55.6	56.5	58.2	56.8	56.4	55.6	55.4
Uttar Pradesh	156	162	161	159	158	154	151	144	147	146	139	136	134	141	135	133	125	123	119	115	109	107	103
West Bengal	107	98.9	102	102	93.9	90.2	86.5	82.1	79.3	78.5	76.5	75.3	73.5	76.6	72.7	69.7	66.3	64.5	63.3	60.8	57.9	56.9	55.6

General fertility rate is defined as number of live births per thousand women in the age group (15-49 years) in a given year.

Note : For years 1991-2003 the States of Bihar, Uttar Pradesh and Madhya Pradesh include Jharkhand , Uttarakhand and Chhattisgarh respectively.

Source : Sample Registration System, Office of RGI, New Delhi.

Table A31 : Percentage distribution of current live births by birth order in India and Bigger States, 1991-2013

States	1991				1992				1993				1994				1995				1996			
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th+</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th+</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th+</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th+</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th+</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th+</sup>
India	31.4	25.9	18.5	24.2	31.8	26.1	18.2	23.9	31.9	26.4	18.1	23.5	30.7	25.7	18.3	25.3	30.6	25.7	18.3	25.4	30.7	25.9	18.2	25.2
A.P.	37.6	29.1	17.9	15.4	39.1	30.6	17.1	13.2	40.8	30.4	16.7	12.1	37.2	34.4	17.5	10.9	39.9	32.0	16.2	12.0	40.1	32.3	17.7	10.0
Assam	30.2	24.7	18.1	27.0	30.0	24.2	18.6	27.1	33.1	23.7	18.1	25.1	30.5	23.4	17.1	29.0	30.4	23.4	17.3	28.9	31.6	23.3	17.3	27.8
Bihar	25.0	21.4	19.6	34.0	26.1	22.1	18.4	33.5	26.3	21.7	18.3	33.7	25.3	21.1	18.7	34.9	25.3	20.8	18.6	35.3	24.8	21.1	19.0	35.1
Chattisgarh	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Delhi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gujrat	39.2	25.1	17.3	18.4	38.0	26.0	17.1	18.8	34.0	29.0	19.0	18.1	36.4	28.9	17.8	16.9	35.0	27.2	19.3	18.4	35.2	29.3	18.2	17.2
Haryana	31.0	26.7	20.0	22.3	30.5	26.5	20.3	22.5	32.0	27.7	18.4	21.9	30.9	29.6	19.4	20.0	30.9	28.5	20.0	20.6	31.4	29.3	18.6	20.7
Himachal P.	35.3	28.9	18.3	17.5	33.9	32.7	18.8	14.5	37.6	31.4	17.9	13.1	35.6	33.5	16.9	14.0	37.8	32.5	16.9	12.8	37.4	35.6	16.8	10.1
J&K	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Jharkhand	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Karnataka	33.7	28.1	18.0	20.2	34.3	27.7	18.6	19.5	32.8	29.7	17.9	19.7	36.8	29.1	16.7	17.4	35.8	30.9	15.8	17.5	37.3	31.2	16.5	15.0
Kerela	44.9	34.4	13.3	7.4	45.6	35.1	12.4	7.0	45.3	36.5	11.7	6.5	47.3	35.5	11.6	5.6	46.3	35.9	11.4	6.4	48.6	34.7	11.3	5.4
M.P.	26.4	24.9	20.8	27.9	27.9	25.0	20.3	26.8	29.2	24.9	20.2	25.7	28.5	24.0	20.8	26.7	28.6	25.0	20.1	26.3	28.7	25.1	20.2	26.0
Maharashtra	32.1	27.2	21.1	19.6	32.5	27.6	21.1	18.9	31.1	28.9	21.0	18.9	31.4	29.1	20.7	18.8	32.8	29.7	19.0	18.5	34.8	28.7	19.0	17.5
Odisha	29.7	27.6	19.7	23.0	31.5	28.0	18.3	22.2	26.4	28.1	21.2	24.4	29.9	27.6	19.6	22.9	32.7	24.9	19.2	23.1	29.8	27.4	20.4	22.5
Punjab	32.8	30.4	19.3	17.5	36.1	27.7	19.0	17.2	34.1	29.9	18.7	17.3	34.4	31.3	18.3	16.0	31.7	30.6	20.8	17.0	32.3	33.3	19.3	15.1
Rajasthan	27.2	24.0	20.1	28.7	29.1	23.8	19.1	28.0	31.3	23.5	18.0	27.2	29.0	22.9	19.2	28.9	27.6	25.2	19.5	27.8	27.9	25.5	20.0	26.6
T.N	42.7	30.4	15.6	11.3	41.5	31.9	17.1	9.5	41.9	32.4	16.5	9.2	41.4	34.3	15.9	8.4	42.6	33.4	15.7	8.3	43.3	33.8	15.1	7.8
Uttar Pradesh	26.0	22.6	18.7	32.7	26.2	22.3	18.3	33.0	25.1	21.7	18.4	34.8	25.1	21.6	18.3	35.1	24.5	20.9	18.7	35.9	23.8	20.6	18.1	37.5
West Bengal	30.6	26.1	17.8	25.5	31.0	26.7	16.7	25.6	33.1	25.9	17.0	24.0	36.2	26.3	16.3	21.2	35.3	28.1	16.7	20.0	36.3	28.9	16.4	18.5

Note : For years 1991-2003 the States of Bihar, Uttar Pradesh and Madhya Pradesh include Jharkhand , Uttarakhand and Chhattisgarh respectively.

Table Contd.....

Table A31 : Contd....

States	1997				1998				1999				2000				2001				2002			
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th+</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th+</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th+</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th+</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th+</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th+</sup>
India	30.8	26.5	18.0	24.7	31.6	26.8	17.7	23.9	31.6	27.4	17.8	23.3	33.4	27.0	17.5	22.2	33.3	27.5	17.2	22.0	33.7	27.9	16.9	21.5
A.P.	38.8	36.3	16.2	8.7	40.7	35.6	15.9	7.8	40.9	37.3	14.4	7.4	47.6	34.4	12.9	5.2	46.1	37.0	11.9	5.0	47.0	39.5	10.1	3.4
Assam	31.5	23.4	16.8	28.4	33.1	24.3	16.7	25.9	33.9	24.6	16.7	24.8	35.1	26.0	15.2	23.7	34.8	25.6	16.2	23.3	37.6	24.8	15.3	22.3
Bihar	25.4	22.2	18.8	33.6	25.6	23.0	18.4	33.0	24.3	22.9	18.7	34.1	27.3	22.0	19.1	31.6	25.1	23.1	18.8	33.0	25.8	22.5	19.4	32.3
Chattisgarh	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Delhi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gujrat	35.1	28.2	18.8	17.8	35.9	29.2	18.1	16.8	36.3	29.7	18.0	15.9	37.0	29.2	18.1	15.8	37.1	31.2	16.9	14.8	36.6	30.9	18.0	14.5
Haryana	29.7	30.0	19.2	21.1	33.7	28.8	18.0	19.5	32.7	31.1	17.1	19.1	34.8	29.7	17.4	18.1	35.1	30.4	17.9	16.6	33.8	31.5	17.0	17.7
Himachal P.	38.8	34.3	16.4	10.4	39.4	32.7	18.1	9.7	40.4	35.7	14.6	9.3	44.6	33.3	14.6	7.5	42.9	34.8	14.3	7.9	46.4	33.3	13.6	6.8
J&K	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Jharkhand	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Karnataka	37.8	32.0	15.6	14.6	40.0	31.4	15.6	12.9	40.5	32.3	15.1	12.1	41.4	31.6	15.2	11.7	41.0	34.5	13.7	10.8	41.2	34.0	14.5	10.4
Kerela	47.4	36.0	11.7	4.9	47.5	35.0	12.4	5.1	48.8	35.8	10.9	4.5	47.8	36.7	10.6	4.9	48.8	35.7	11.1	4.4	47.2	37.7	10.8	4.2
M.P.	28.5	25.9	19.8	25.8	28.9	25.7	19.7	25.8	27.9	27.2	20.0	24.8	29.8	25.8	20.1	24.3	30.0	26.6	20.4	23.0	29.7	27.3	19.8	23.2
Maharashtra	35.7	30.1	18.1	16.2	35.9	30.4	18.1	15.5	36.8	31.0	17.5	14.7	36.6	30.8	18.0	14.6	38.9	32.1	16.4	12.6	38.9	33.2	15.6	12.3
Odisha	31.0	27.6	19.5	21.9	30.3	28.7	19.6	21.4	32.5	28.2	18.6	20.7	33.4	27.6	19.4	19.6	32.2	28.7	19.1	19.9	34.4	28.3	17.5	19.8
Punjab	34.3	31.2	19.0	15.9	36.8	30.5	19.2	13.4	37.4	32.6	18.2	11.8	38.5	34.0	16.9	10.6	40.9	33.0	15.3	10.8	39.3	34.9	16.7	9.1
Rajasthan	27.9	24.6	20.1	27.4	28.1	25.7	19.7	26.4	28.8	25.4	19.0	26.8	30.7	25.5	19.0	24.9	29.9	25.9	19.5	24.7	31.4	26.0	18.2	24.4
T.N	41.2	35.5	15.7	7.6	42.0	35.3	15.7	6.9	42.2	35.5	15.5	6.8	42.6	35.5	14.9	7.0	44.5	35.7	13.9	5.9	42.5	37.7	14.1	5.7
U.P.	23.7	20.9	18.2	37.1	24.4	21.5	17.7	36.4	23.6	21.4	18.8	36.2	26.3	21.6	18.1	33.0	25.7	21.3	18.2	35.0	25.7	21.4	18.3	34.6
West Bengal	38.5	28.6	15.8	17.1	39.6	29.2	15.0	16.1	39.0	30.4	15.6	15.0	39.4	31.0	14.8	14.8	41.3	30.0	14.2	14.5	44.7	29.7	13.5	12.1

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Table A31 Contd....

States	2003				2004				2005				2006				2007				2008			
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th+</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th+</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th+</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th+</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th+</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th+</sup>
India	35.1	28.1	16.5	20.3	35.5	27.9	16.3	20.2	35.0	28.9	16.4	19.7	36.7	28.8	15.8	18.7	37.0	29.8	15.9	17.3	38.4	29.7	15.2	16.7
A.P.	47.0	38.6	10.4	4.1	47.1	38.2	11.0	3.7	46.3	41.2	9.3	3.3	47.1	38.4	11.0	3.6	49.9	37.9	9.6	2.5	50.9	38.0	8.9	2.2
Assam	38.8	26.0	15.3	19.9	34.1	27.6	15.0	23.3	34.3	27.5	16.5	21.7	36.9	27.0	16.1	20.0	36.9	26.6	15.7	20.8	37.6	28.0	15.2	19.2
Bihar	27.8	22.7	18.9	30.6	28.3	22.0	17.9	31.8	26.1	23.3	18.7	31.9	26.8	23.9	18.1	31.2	28.2	24.7	18.5	28.6	28.5	24.1	18.3	29.1
Chattisgarh	-	-	-	-	34.9	27.1	20.1	17.9	35.6	24.9	18.2	21.4	36.4	25.8	19.4	18.4	33.8	28.8	18.9	18.6	37.3	29.7	18.1	14.8
Delhi	-	-	-	-	37.9	29.2	16.8	16.1	37.8	29.6	16.8	15.8	38.4	31.8	15.6	14.2	40.3	31.6	14.8	13.4	42.2	30.1	15.6	12.0
Gujrat	38.4	30.1	16.8	14.6	39.3	28.6	16.6	15.5	36.6	30.2	16.6	16.6	39.2	30.0	15.4	15.4	39.9	31.4	14.4	14.3	40.2	31.4	15.1	13.3
Haryana	36.2	31.9	16.2	15.7	35.9	30.1	17.5	16.6	38.5	32.2	15.6	13.7	42.2	32.1	14.8	10.9	40.7	33.7	14.8	10.8	40.9	33.3	15.0	10.8
Himachal P.	43.9	34.3	14.0	7.9	39.7	34.8	16.6	8.9	44.6	33.5	12.5	9.4	43.6	32.7	13.5	10.2	49.2	32.7	11.4	6.7	44.5	36.8	11.0	7.6
J&K	-	-	-	-	35.8	25.4	17.3	21.4	36.1	25.4	16.8	21.7	35.4	28.4	16.7	19.5	36.7	29.4	17.2	16.7	38.8	30.1	15.7	15.3
Jharkhand	-	-	-	-	33.6	24.4	15.9	26.1	30.1	26.6	17.6	25.7	29.1	27.3	18.0	25.6	33.2	27.7	18.7	20.4	32.3	25.9	19.0	22.8
Karnataka	42.9	33.7	13.5	9.9	44.3	34.1	13.7	7.9	42.4	34.2	15.1	8.4	45.8	33.9	13.0	7.3	45.2	33.8	13.3	7.8	47.2	33.7	12.3	6.8
Kerala	49.8	35.5	10.6	4.0	48.6	37.9	10.7	2.8	49.5	37.5	9.8	3.2	50.9	37.0	9.5	2.7	50.2	37.7	9.8	2.3	50.4	38.5	9.0	2.1
M.P.	31.8	28.3	18.8	21.1	33.8	26.3	18.6	21.3	33.4	27.6	18.6	20.4	35.2	28.2	17.9	18.8	33.6	30.5	18.0	17.9	36.0	31.0	17.6	15.4
Maharashtra	40.8	32.7	15.9	10.5	43.1	32.6	14.5	9.9	42.2	32.6	15.2	10.0	43.2	34.6	13.8	8.4	44.6	35.6	12.1	7.8	45.0	35.8	12.3	6.9
Odisha	36.2	27.5	18.1	18.2	36.6	28.5	16.7	18.1	37.1	28.7	16.0	18.2	38.4	28.5	17.2	15.9	38.5	30.3	16.6	14.6	38.5	30.6	15.5	15.4
Punjab	40.7	35.3	15.2	8.8	42.2	32.7	16.2	8.9	43.6	31.9	16.1	8.4	45.2	31.9	13.9	9.0	44.4	33.9	14.1	7.5	45.9	34.2	13.2	6.7
Rajasthan	33.6	26.5	17.9	22.0	31.6	26.5	17.7	24.2	32.6	27.4	17.5	22.5	32.4	28.4	17.6	21.5	30.4	30.1	17.3	22.2	32.9	27.5	18.3	21.3
T.N	47.0	36.6	11.9	4.5	45.2	37.5	12.8	4.5	47.2	37.0	11.6	4.1	48.8	37.1	10.6	3.4	47.8	38.2	11.1	2.9	50.8	36.5	9.9	2.8
U.P.	25.9	22.5	18.3	33.3	27.3	22.3	18.4	31.9	26.7	24.5	18.6	30.2	29.7	23.2	17.9	29.2	29.9	24.7	18.8	26.6	31.9	25.2	16.8	26.1
West Bengal	44.4	30.5	13.1	12.0	42.9	31.7	13.0	12.4	43.7	32.0	13.2	11.1	45.4	31.1	12.4	11.1	46.6	31.3	12.7	9.5	48.2	31.2	11.5	9.0

Table Contd.....



Table A31 Contd....

States	2009				2010				2011				2012				2013			
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th+</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th+</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th+</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th+</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th+</sup>
India	39.1	30.6	15.0	15.3	41.5	30.5	14.3	13.7	41.0	31.4	14.6	13.0	43.2	31.4	13.8	11.6	43.6	32.4	13.5	10.5
A.P.	48.5	41.0	8.5	2.0	53.8	37.4	7.0	1.7	48.5	40.9	8.9	1.6	50.3	39.7	8.1	1.8	49.1	41.9	7.7	1.2
Assam	40.5	28.3	14.2	17.1	43.8	26.3	14.6	15.2	44.3	27.3	14.0	14.4	49.7	27.1	11.4	11.7	49.2	27.8	12.6	10.4
Bihar	29.3	25.4	18.3	27.1	31.8	25.7	18.4	24.1	32.0	25.0	18.4	24.6	34.4	25.6	17.9	22.0	35.4	27.5	17.5	19.6
Chattisgarh	36.7	33.9	16.7	12.7	39.3	32.0	17.1	11.6	38.7	32.4	19.1	9.8	43.1	32.2	16.2	8.6	38.7	35.4	17.0	8.8
Delhi	45.1	28.4	15.2	11.3	50.2	29.1	10.8	9.9	47.0	28.4	14.7	9.9	48.7	29.2	13.4	8.7	48.3	32.0	12.1	7.6
Gujrat	41.9	31.6	13.7	12.7	42.3	32.2	13.3	12.2	41.1	33.3	14.9	10.7	46.7	30.9	12.9	9.5	47.0	30.8	13.2	9.0
Haryana	41.9	34.2	14.7	9.2	44.1	33.6	13.4	8.9	41.2	36.7	14.1	8.0	45.5	33.5	13.2	7.8	44.8	35.4	12.1	7.7
Himachal Pradesh	51.6	34.3	8.8	5.3	51.7	34.8	8.8	4.7	51.6	35.2	9.7	3.4	52.2	37.1	7.3	3.4	50.5	36.5	8.1	4.8
J&K	39.5	30.7	14.9	14.9	42.6	29.2	15.9	12.3	40.1	30.8	16.2	12.9	42.2	32.1	15.2	10.5	43.2	31.8	14.1	11.0
Jharkhand	32.3	28.3	20.4	19.0	33.1	27.3	19.6	20.0	35.7	29.7	17.4	17.1	35.8	29.4	17.8	17.0	38.4	29.9	17.6	14.1
Karnataka	45.3	36.4	12.4	5.9	48.7	33.7	11.4	6.2	49.3	33.4	12.4	4.8	47.5	36.9	11.3	4.4	46.5	36.2	12.9	4.4
Kerala	50.7	38.2	9.0	2.1	50.7	36.9	10.0	2.4	49.7	38.5	9.7	2.1	49.1	39.9	9.1	1.9	48.7	38.3	10.7	2.3
M.P.	36.8	30.6	17.3	15.2	40.5	30.3	15.8	13.4	39.3	31.9	15.6	13.3	41.6	32.7	14.1	11.6	41.0	33.2	14.5	11.3
Maharashtra	47.1	35.2	12.2	5.5	47.9	35.2	11.5	5.4	47.8	34.9	11.6	5.7	47.6	35.7	11.4	5.3	47.8	36.1	11.3	4.9
Odisha	39.8	31.1	15.9	13.2	43.1	30.5	15.2	11.2	43.5	32.0	14.4	10.2	47.4	30.1	13.4	9.0	45.1	34.4	12.4	8.1
Punjab	47.1	35.3	11.9	5.7	50.8	33.8	11.0	4.4	50.9	34.2	10.5	4.4	57.3	30.0	9.5	3.3	55.2	32.5	8.5	3.7
Rajasthan	35.0	28.1	17.2	19.7	35.1	28.3	17.3	19.3	34.5	30.6	16.8	18.0	37.9	30.0	16.1	16.0	38.5	30.2	15.6	15.7
T.N	49.4	39.0	9.1	2.4	52.4	37.4	8.4	1.9	50.9	39.4	8.2	1.6	52.7	37.9	7.9	1.6	51.4	40.1	7.2	1.3
Uttar Pradesh	32.7	25.7	17.4	24.2	35.8	27.4	16.3	20.6	35.6	28.7	17.0	18.8	37.1	29.5	16.9	16.5	39.3	30.5	15.8	14.4
West Bengal	49.0	31.2	11.7	8.0	50.2	33.0	10.0	6.7	51.6	31.2	10.2	7.1	54.9	30.4	8.8	5.9	57.4	29.5	8.2	4.9

Source : Sample Registration System, Office of RGI, New Delhi.

**Table A32 : Percentage distribution of births preceding three years of the survey to ever married women aged 15-49 years by birth order and state, India, DLHS-3, 2007-08.**

State	Birth Order			
	1	2	3	4+
Andaman & Nicobar islands	51.4	31.7	10	6.9
Andhra Pradesh	43.8	38.1	12.8	5.3
Arunachal Pradesh	42.4	22.6	14.4	20.6
Assam	38.2	25.8	14.7	21
Bihar	24.1	22	17.8	36.1
Chandigarh	43.6	37	13.3	6.1
Chattisgarh	30.8	27.6	18.7	23
Dadra & Nagar Haveli	33.1	26.5	20.2	20.2
Daman & Diu	36.2	33.9	18.6	11.3
Delhi	39.4	30.1	14.1	16.4
Goa	40.1	42	12.7	5.2
Gujarat	38.6	28	15.4	18
Haryana	36.7	29.8	15.6	17.9
Himachal Pradesh	45.9	32.1	12.8	9.2
Jammu & Kashmir	59.3	20.9	9.6	10.2
Jharkhand	28.2	24.3	18.5	29
Karnataka	33.1	35.3	17.1	14.4
Kerala	47.7	36.6	11.5	4.2
Lakshadweep	37.7	23	13.7	25.6
Madhya Pradesh	41	26.2	13.8	19
Maharashtra	39	34.2	15.7	11.1
Manipur	31.9	27.3	17.3	23.5
Meghalaya	31.2	23.6	14.3	30.4
Mizoram	41.9	26.1	16	16.1
Nagaland	-	-	-	-
Orissa	40.6	27.1	14.4	17.9
Puducherry	57.6	33.8	7.1	1.6
Punjab	42.5	33	15.1	9.4
Rajasthan	34.3	26.3	16.4	23
Sikkim	40.7	28.3	14.6	16.5
Tamil Nadu	46.1	36.7	12.3	4.9
Tripura	44.7	26.7	14.6	14
Uttar Pradesh	23.8	21.5	17.3	37.4
Uttarakhand	36.7	28.5	16.3	18.6
West Bengal	41.5	30.6	14.2	13.8
India	35.3	27.2	15.5	21.9

**Table A33 : Percentage distribution of second and higher order live births by interval in India and Bigger States, 1991-2013**

States	1991				1992				1993				1994				1995			
	10-12	12-24	24-36	36+	10-12	12-24	24-36	36+	10-12	12-24	24-36	36+	10-12	12-24	24-36	36+	10-12	12-24	24-36	36+
India	4.2	34.3	32.5	29.1	3.7	33.7	32.2	30.4	3.3	32.1	32.6	32.0	0.8	13.7	28.8	56.8	1.0	15.0	25.9	58.1
A.P.	5.3	33.0	31.4	30.2	4.0	33.1	31.2	31.7	2.9	31.8	29.5	35.7	0.6	16.7	35.0	47.7	2.0	15.3	29.5	53.2
Assam	3.2	31.2	33.3	32.3	3.1	30.1	31.6	35.3	3.0	30.2	33.2	33.6	0.4	7.1	27.6	65.0	0.8	9.0	25.7	64.6
Bihar	3.4	29.4	32.4	34.8	2.0	25.0	33.8	39.2	1.2	26.4	31.6	40.8	0.6	5.7	20.7	72.9	1.0	12.4	18.5	68.1
Chattisgarh	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Delhi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gujrat	2.4	39.8	33.5	24.2	1.9	39.8	34.3	24.1	1.8	33.5	37.2	27.5	0.8	32.2	30.5	36.5	1.7	26.8	33.1	38.4
Haryana	6.7	40.1	32.3	20.9	6.1	43.3	31.6	18.9	5.2	43.1	31.1	20.6	2.3	29.2	33.2	35.4	2.8	30.1	30.9	36.1
Himachal P.	5.2	44.6	33.0	17.2	3.5	45.3	30.2	21.0	1.9	46.4	30.7	21.0	2.5	26.2	37.4	33.9	3.6	31.3	34.0	31.1
J&K	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Jharkhand	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Karnataka	1.5	29.8	38.9	29.9	1.7	34.8	37.7	25.9	1.8	35.1	38.5	24.6	0.8	15.5	33.5	50.3	2.4	21.9	28.6	47.1
Kerela	2.6	30.9	29.9	36.6	1.7	32.4	27.3	38.6	3.6	26.2	24.7	45.5	1.0	17.8	28.1	53.0	1.6	13.6	24.9	59.9
M.P.	4.2	41.1	32.2	22.5	3.3	34.9	36.0	25.8	3.1	33.8	34.4	28.7	0.8	13.9	34.8	50.5	0.3	14.5	32.6	52.6
Maharashtra	1.8	32.9	38.8	26.5	2.2	33.5	36.2	28.0	1.7	27.7	38.4	32.2	1.0	24.0	38.2	36.9	0.6	24.0	36.2	39.3
Odisha	6.0	31.4	33.5	29.2	4.1	31.1	31.8	32.9	6.0	29.7	33.0	31.2	1.1	18.0	29.8	51.1	0.9	18.2	27.0	53.9
Punjab	5.5	41.6	29.4	23.5	5.3	40.1	30.3	24.3	5.9	41.2	29.6	23.2	2.4	22.6	35.4	39.6	2.3	11.9	27.8	58.0
Rajasthan	7.3	43.0	30.0	19.6	8.9	44.0	28.0	19.2	7.1	43.2	29.4	20.3	0.8	5.6	24.3	69.3	1.1	12.7	20.2	66.1
T.N	6.6	33.4	30.6	29.4	4.2	35.3	31.3	29.3	3.5	32.9	32.7	21.0	0.7	13.9	34.4	50.9	0.8	13.7	30.8	54.7
Uttar Pradesh	5.8	34.5	30.3	29.4	4.8	32.8	30.3	32.1	4.8	32.8	31.7	30.7	0.6	12.8	27.4	59.2	0.7	10.6	22.3	66.4
West Bengal	2.3	30.5	33.1	34.0	3.2	33.2	31.4	32.2	2.5	28.6	33.5	35.4	0.3	5.6	20.0	74.1	0.8	12.6	20.5	66.0

Note : For years 1991-2003 the States of Bihar, Uttar Pradesh and Madhya Pradesh include Jharkhand , Uttarakhnad and Chhattisgarh respectively.

Table Contd.....

Table A33 Contd.....

States	1996				1997				1998				1999				2000			
	10-12 mths	12-24 mths	24-36 mths	36+ mths	10-12 mths	12-24 mths	24-36 mths	36+ mths	10-12 mths	12-24 mths	24-36 mths	36+ mths	10-12 mths	12-24 mths	24-36 mths	36+ mths	10-12 mths	12-24 mths	24-36 mths	36+ mths
India	1.1	18.8	29.1	51.1	0.5	22.6	33.4	43.5	2.8	36.5	30.8	29.9	0.9	23.7	34.5	40.8	0.8	23.1	34.1	42.1
A.P.	0.9	17.5	31.6	50.1	0.8	21.2	34.8	43.2	2.3	35.9	30.8	31.0	0.2	18.8	35.9	45.2	0.3	19.0	35.2	45.5
Assam	0.6	13.5	28.2	57.7	0.3	15.3	35.1	49.3	3.8	34.2	28.0	34.0	0.6	16.0	32.7	50.7	0.3	15.1	31.6	53.0
Bihar	1.0	18.1	27.4	53.5	0.5	22.9	32.5	44.2	1.8	30.1	34.5	33.6	0.9	23.9	35.0	40.2	0.7	26.1	31.6	41.7
Chattisgarh	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Delhi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gujrat	0.7	30.5	30.8	38.0	0.6	36.7	27.9	34.8	1.5	38.9	31.4	28.2	0.6	34.8	30.5	34.1	1.1	34.7	29.2	34.9
Haryana	1.6	40.1	29.5	28.9	0.8	46.0	28.6	24.5	3.9	47.4	27.4	21.3	1.7	44.7	30.1	23.6	1.5	40.9	32.3	25.3
H.P.	1.1	40.8	32.8	25.2	1.0	46.0	32.5	20.5	4.7	45.9	30.8	18.6	1.7	43.9	32.2	22.2	3.1	44.1	29.0	23.9
J&K	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Jharkhand	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Karnataka	1.1	31.9	32.2	34.8	0.0	36.8	35.0	28.2	2.4	38.1	33.1	26.4	1.3	36.2	34.7	27.9	1.0	35.2	34.0	29.8
Kerela	1.2	14.7	25.3	58.7	0.3	18.8	26.0	54.9	2.5	28.5	26.5	42.4	0.5	19.3	26.8	53.4	0.3	17.2	27.9	54.6
M.P.	1.0	13.7	32.2	53.1	0.3	16.7	36.0	47.0	3.1	42.0	28.1	26.9	0.6	19.2	38.3	41.9	0.9	21.5	37.4	40.3
Maharashtra	1.2	24.9	35.5	38.4	0.3	27.5	39.0	33.2	1.4	39.4	32.9	26.2	1.1	24.4	37.2	37.3	0.8	26.6	37.4	35.2
Odisha	1.3	17.2	27.1	54.4	1.1	28.4	34.2	36.4	2.9	28.4	35.2	33.5	1.1	25.2	33.0	40.7	1.3	25.6	34.8	38.2
Punjab	1.3	17.2	27.1	54.4	0.2	23.6	32.6	43.6	5.5	40.5	26.5	27.6	1.6	30.8	30.6	37.0	1.5	24.6	32.0	41.9
Rajasthan	2.1	18.4	29.9	49.6	0.5	17.1	36.2	46.2	4.5	40.4	32.4	22.7	1.2	21.7	33.7	43.3	1.0	16.0	36.7	46.4
T.N	0.9	15.5	28.8	54.8	0.5	18.0	32.7	48.9	4.2	46.4	21.9	27.4	0.3	18.4	34.2	47.1	0.4	14.9	35.4	49.3
Uttar Pradesh	1.0	16.0	26.0	57.1	0.7	22.1	31.6	45.6	3.1	36.2	30.8	29.9	1.1	26.4	35.2	37.3	1.0	24.7	33.8	40.4
West Bengal	1.6	14.0	28.4	56.0	0.4	13.7	33.0	52.9	2.5	31.5	29.6	36.4	0.4	12.2	33.1	54.2	0.5	13.0	33.5	53.1

Table Contd.....

Table A33 Contd.....

States	2001				2002				2003				2004				2005			
	10-12 mths	12-24 mths	24-36 mths	36+ mths	10-12 mths	12-24 mths	24-36 mths	36+ mths	10-12 mths	12-24 mths	24-36 mths	36+ mths	10-12 mths	12-24 mths	24-36 mths	36+ mths	10-12 mths	12-24 mths	24-36 mths	36+ mths
India	0.8	23.1	33.6	42.5	0.7	23.2	34.2	41.9	0.8	23.0	33.5	42.6	0.9	17.7	27.3	54.1	1.3	21.2	24.6	52.9
A.P.	0.2	24.1	37.0	38.8	0.0	21.9	35.8	42.3	0.4	25.2	35.9	38.6	0.5	18.9	26.8	53.9	0.9	21.7	25.5	51.9
Assam	0.4	14.4	27.6	57.6	0.3	12.2	30.9	56.6	0.4	11.3	32.0	56.2	0.4	12.9	22.1	64.5	0.6	11.1	18.2	70.1
Bihar	0.8	23.0	35.6	40.7	0.6	26.2	33.8	39.4	0.9	26.6	32.3	40.1	0.5	12.7	26.9	59.9	0.9	16.9	21.6	60.6
Chattisgarh	-	-	-	-	-	-	-	-	-	-	-	-	0.6	14.3	26.6	58.5	1.1	16.9	24.8	57.2
Delhi	-	-	-	-	-	-	-	-	-	-	-	-	1.4	21.5	25.7	51.5	1.4	21.0	25.8	51.8
Gujrat	0.6	37.8	29.4	32.2	0.7	36.3	32.9	30.1	0.9	37.8	30.0	31.4	1.2	26.9	30.0	41.9	2.0	29.3	29.6	39.1
Haryana	2.3	40.7	31.5	25.6	1.7	39.4	33.7	25.2	1.5	41.0	31.3	26.2	1.6	22.2	29.2	47.0	1.9	28.7	26.7	42.7
H.P.	1.5	44.4	33.0	21.1	2.0	43.5	30.8	23.7	3.6	45.4	29.6	21.4	2.0	35.3	29.0	33.8	3.7	35.8	30.5	30.0
J&K	-	-	-	-	-	-	-	-	-	-	-	-	0.8	11.6	23.9	63.6	0.9	10.7	23.9	64.5
Jharkhand	-	-	-	-	-	-	-	-	-	-	-	-	1.1	17.5	25.5	55.8	0.6	16.7	24.5	58.2
Karnataka	0.8	35.3	34.0	29.9	0.6	34.8	35.9	28.7	0.5	33.4	37.4	28.6	0.5	22.3	32.8	44.4	0.8	26.8	33.4	39.1
Kerela	0.4	19.1	25.9	54.5	0.2	18.1	24.7	57.0	0.5	16.3	23.9	59.3	0.4	15.1	20.6	63.9	0.2	15.7	23.1	61.0
M.P.	0.3	19.2	39.0	41.5	0.5	19.0	39.7	40.7	0.7	19.4	38.6	41.3	0.4	16.1	30.6	52.9	0.8	18.4	25.6	55.1
Maharashtra	0.8	27.5	36.1	35.6	0.7	26.7	36.9	35.8	0.6	23.1	37.9	38.4	1.0	19.6	31.6	47.7	1.1	24.1	28.9	45.9
Odisha	0.9	24.5	33.3	41.3	1.1	25.0	35.5	38.3	0.9	25.0	35.2	38.9	0.6	14.3	24.3	60.8	1.6	16.5	26.6	55.2
Punjab	1.7	28.9	30.2	39.2	1.2	30.0	30.8	38.0	1.7	29.8	31.0	37.5	1.4	25.9	28.6	44.1	1.8	30.4	26.4	41.4
Rajasthan	1.3	21.1	31.3	46.3	1.4	24.2	33.8	40.7	1.2	18.8	36.5	43.5	0.9	14.5	26.2	58.4	1.7	22.3	22.4	53.6
T.N	0.3	19.4	33.6	46.8	0.6	18.9	33.6	46.8	0.5	19.0	35.6	44.9	0.6	20.3	27.2	52.0	1.3	25.4	24.3	48.9
Uttar Pradesh	1.0	22.1	32.9	43.9	0.8	21.5	34.4	43.3	1.0	22.1	32.6	44.3	1.3	18.1	26.7	53.9	1.8	22.9	23.5	51.7
West Bengal	0.3	15.0	30.8	54.0	0.5	15.6	30.4	53.5	0.7	15.5	29.7	54.0	0.8	16.5	26.0	56.7	0.9	15.8	22.4	60.9

Table Contd.....

Table A33 Contd.....

States	2006				2007				2008				2009				2010			
	10-12	12-24	24-36	36+	10-12	12-24	24-36	36+	10-12	12-24	24-36	36+	10-12	12-24	24-36	36+	10-12	12-24	24-36	36+
India	1.3	24.8	28.6	45.3	1.5	26.3	32.0	40.2	1.3	24.6	32.4	41.7	1.7	26.7	31.0	40.6	1.6	26.3	30.9	41.2
A.P.	0.7	26.4	27.0	45.9	0.5	26.4	32.3	40.9	0.6	27.8	31.2	40.3	1.2	30.0	31.5	37.3	1.1	32.5	32.4	34.0
Assam	0.7	14.5	21.1	63.8	1.2	18.1	25.3	55.4	1.0	16.5	26.6	55.9	1.9	17.4	25.6	55.1	1.2	16.5	25.9	56.4
Bihar	1.8	23.5	24.9	49.8	1.5	26.6	32.4	39.4	1.4	25.9	32.7	40.0	1.3	26.4	33.0	39.3	1.5	29.6	31.6	37.3
Chattisgarh	0.1	16.8	35.8	47.4	0.8	17.5	34.5	47.3	0.5	16.0	35.1	48.4	0.7	22.8	33.7	42.8	0.9	17.1	37.7	44.4
Delhi	1.1	25.7	26.3	46.8	1.1	26.1	24.4	48.3	0.8	24.1	27.3	47.8	1.2	23.4	26.4	49.0	0.9	20.0	25.8	53.3
Gujrat	2.2	28.5	30.0	39.3	2.2	28.6	34.0	35.2	1.4	26.9	33.4	38.3	2.2	28.9	33.5	35.5	1.7	26.9	31.1	40.3
Haryana	1.2	31.6	30.4	36.8	2.4	34.6	29.9	33.0	1.5	30.7	32.1	35.7	1.9	32.6	31.3	34.2	1.5	30.9	31.9	35.7
H.P.	2.3	42.5	27.6	27.6	1.7	36.1	31.7	30.5	2.3	30.6	34.9	32.1	2.1	33.4	33.2	31.4	2.3	32.3	28.8	36.6
J&K	2.3	22.9	21.6	53.2	2.5	25.8	27.5	44.2	1.9	24.3	28.1	45.8	2.3	25.6	26.1	46.0	1.4	24.2	26.7	47.7
Jharkhand	2.5	24.5	26.4	46.6	1.8	25.3	30.9	42.0	1.7	21.4	32.5	44.4	0.8	23.2	29.5	46.5	0.9	22.6	31.9	44.5
Karnataka	1.0	27.0	35.5	36.5	0.7	32.0	32.4	34.9	0.7	30.1	33.9	35.2	1.2	32.3	32.8	33.7	0.7	29.6	33.9	35.8
Kerela	0.3	15.1	22.8	61.7	0.3	15.3	21.4	63.0	0.2	15.6	22.8	61.4	0.2	14.7	22.5	62.7	0.2	14.7	22.4	62.8
M.P.	0.5	19.7	34.2	45.6	1.0	24.4	36.9	37.8	0.9	21.4	38.7	39.0	1.9	28.8	33.8	35.5	1.1	25.1	35.3	38.6
Maharashtra	1.0	26.4	34.8	37.7	0.9	27.2	36.7	35.2	0.8	27.3	33.9	38.0	1.2	28.2	32.1	38.5	1.3	29.1	34.3	35.3
Odisha	1.3	19.3	27.8	51.7	1.2	17.4	32.1	49.3	0.9	18.6	30.6	49.8	1.2	15.5	31.1	52.2	1.0	15.1	30.4	53.5
Punjab	2.8	32.0	28.5	36.7	1.8	31.1	27.2	40.0	1.9	33.0	25.9	39.3	2.5	29.2	26.7	41.6	2.7	30.3	23.6	43.5
Rajasthan	1.7	28.6	29.1	40.6	2.3	30.3	34.0	33.4	2.0	29.8	33.7	34.6	2.5	29.7	31.6	36.2	2.2	31.8	32.0	34.0
T.N	1.0	28.0	28.1	42.9	1.4	29.0	28.8	40.7	0.9	28.9	27.8	42.5	1.0	30.5	28.1	40.4	0.9	30.4	28.6	40.0
Uttar Pradesh	1.4	27.3	28.4	42.8	1.9	28.6	31.9	37.6	1.8	24.7	32.6	40.9	2.6	27.6	30.7	39.1	2.5	26.8	29.9	40.9
West Bengal	0.8	17.6	22.7	59.0	0.8	17.4	26.3	55.5	1.1	17.0	29.5	52.5	0.8	19.1	27.0	53.0	0.7	17.0	26.1	56.1

Table Contd.....

Table A33 Contd.....

States	2011				2012				2013			
	10-12 mths	12-24 mths	24-36 mths	36+ mths	10-12 mths	12-24 mths	24-36 mths	36+ mths	10-12 mths	12-24 mths	24-36 mths	36+ mths
India	1.7	25.8	30.1	42.4	1.5	26.6	29.3	42.6	1.8	28.0	29.5	40.7
A.P.	0.6	29.4	32.3	37.8	1.0	30.7	31.4	36.9	0.9	33.3	31.0	34.8
Assam	1.5	17.4	27.9	53.2	1.2	15.7	25.5	57.6	1.5	17.8	22.9	57.8
Bihar	1.7	30.5	33.6	34.2	1.4	29.8	31.1	37.7	1.4	32.6	30.8	35.2
Chattisgarh	0.8	19.9	36.1	43.2	1.2	26.3	36.2	36.3	2.9	26.0	33.5	37.7
Delhi	1.2	19.0	25.0	54.9	1.4	20.1	24.6	54.0	0.6	22.2	23.5	53.7
Gujrat	2.0	26.3	31.6	40.1	2.0	29.0	28.0	41.0	2.6	26.8	29.4	41.2
Haryana	1.6	31.8	30.3	36.4	1.5	28.2	30.5	39.8	1.8	29.9	31.0	37.4
H.P.	2.0	30.1	30.4	37.6	0.5	30.3	31.3	37.9	1.9	30.9	27.3	39.9
J&K	1.6	20.7	28.5	49.3	1.2	22.1	27.0	49.6	1.3	22.3	27.0	49.4
Jharkhand	1.1	17.9	28.2	52.8	0.8	26.5	26.8	45.9	2.5	24.1	29.4	44.0
Karnataka	1.2	28.7	35.2	34.9	0.9	29.0	34.5	35.6	0.6	31.3	33.7	34.3
Kerela	0.3	14.7	19.2	65.8	0.2	11.8	21.9	66.1	0.2	12.0	21.9	65.9
M.P.	2.4	28.6	33.0	35.9	1.7	29.0	33.9	35.4	2.2	30.9	35.9	31.0
Maharashtra	0.7	24.4	33.3	41.6	0.7	24.6	33.0	41.7	1.1	28.8	30.2	40.0
Odisha	1.3	14.0	28.0	56.7	1.2	13.5	28.6	56.8	0.9	16.6	26.8	55.7
Punjab	1.4	18.1	20.8	59.7	2.8	26.0	25.7	45.5	1.7	26.8	28.6	42.9
Rajasthan	2.0	30.9	31.5	35.7	2.3	30.2	30.2	37.2	2.8	32.8	29.0	35.5
T.N	1.1	27.9	28.2	42.8	1.1	27.3	28.0	43.5	0.8	26.6	30.4	42.2
Uttar Pradesh	2.4	27.5	28.1	42.0	2.1	28.1	27.5	42.2	2.2	29.2	28.2	40.4
West Bengal	0.9	15.4	25.3	58.4	0.7	17.2	23.1	59.0	1.1	17.8	24.5	56.5

Source : Sample Registration System, Office of RGI, New Delhi.

Table A34 : Among women with a live birth in the five years preceding the survey, percentage who received different types of antenatal care (ANC) during the pregnancy for their most recent live birth by state, India, NFHS-2 & NFHS3

India and States	NFHS-2					NFHS-3				
	Had at least one ANC Visit	Had three or more ANC visits	An ANC visit in the first trime-ster	Recived two or more TT injections	Took IFA for at least 90 days	Had at least one ANC Visit	Had three or more ANC visits	An ANC visit in the first trime-ster	Recived two or more TT injections	Took IFA for at least 90 days
India	65.4	43.8	33	66.8	47.5	76.4	52	43.9	76.3	23.1
Delhi	83.5	68.2	49	84.9	69.5	88.8	75.1	63.8	90.3	39.5
Haryana	58.1	37.4	32.8	79.7	53.3	88.3	59.2	51.4	83.4	26.7
Himachal Pradesh	86.8	60.9	48.2	66.2	70.9	86.4	62.6	56.8	72.1	37.9
Jammu & Kashmir	83.2	66	47.9	77.7	55.8	84.6	73.5	54.8	81	27.6
Punjab	74	57	42.6	89.9	64.2	88.9	74.8	60.4	83.8	27.9
Rajasthan	47.5	22.9	19.2	52.1	30.6	74.9	41.2	34	65.2	13.1
Uttaranchal	-	-	-	-	-	69.4	44.9	43.3	68.5	26.4
Chhattisgarh	-	-	-	-	-	88.5	54.2	46	74.6	20.7
Madhya Pradesh	61	28.1	26.1	55	38.4	79.5	40.7	39.3	70.6	12.4
Uttar Pradesh	34.6	14.9	16.9	51.4	20.6	66	26.6	25.7	64.5	8.8
Bihar	36.3	17.8	15.1	57.8	19.8	34.1	17	18.7	73.2	9.7
Jharkhand	-	-	-	-	-	58.9	35.9	33.2	67.6	14.2
Orissa	79.5	47.3	33.7	74.3	62.2	86.9	61.8	48.3	83.3	33.8
West Bengal	90	57	35.1	82.4	56.4	91.9	62	38.6	90.9	25.7
Arunachal Pradesh	61.6	40.5	24.5	45.6	47.6	52.6	35.5	24.2	40.1	11.2
Assam	60.1	30.8	30.7	51.7	45.3	70.7	39.3	40	65.4	16.2
Manipur	80.2	54.4	45	64.2	38	86.3	68.6	64.5	79.2	13.1
Meghalaya	53.6	31.3	20.6	30.8	40.6	67.6	54	32.6	51.8	16.7
Mizoram	91.8	75.8	39.6	37.8	62	74.3	59.3	42.9	51.4	24.7
Nagaland	60.4	23.1	23.8	50.9	26.7	57.8	32.7	29.2	50.7	3.5
Sikkim	69.9	42.6	30.2	52.7	50.4	89.3	70.1	57.9	81.1	38.7
Tripura	-	-	-	-	-	78.3	60	47.2	74.9	18
Goa	99	95.7	73.4	86.1	87.8	97.3	94.9	85.7	86.8	68.6
Gujarat	86.4	60.2	35.8	72.7	66.6	86.7	67.5	55	80.4	37
Maharashtra	90.4	65.4	46.7	74.9	71.6	90.8	75.1	62.1	85.1	31.4
Andhra Pradesh	92.7	80.1	52.5	81.5	70.7	94.3	85.4	66.1	85.3	41.2
Karnataka	86.3	71.4	52.7	74.9	74.2	89.3	79.5	70.9	78.6	39.3
Kerala	98.8	98.3	81.1	86.4	88.6	94.4	93.6	91.9	88.7	75.1
Tamil Nadu	98.5	91.4	59.5	95.4	84.1	98.6	95.9	75.3	95.9	41.6

Note : The States of Bihar, Uttar Pradesh and Madhya Pradesh include Jharkhand , Uttarakhand and Chhattisgarh respectively  
TT = Tetanus toxoid; IFA = Iron and folic acid tablets or syrup

Source : National Family Health Surveys



Table A35 : Percent distribution of women who had a live birth in the five years preceding the survey by antenatal care (ANC) provider during pregnancy for the most recent live birth, by States, India, 2005-06

State	Doctor	ANM/nurse/ midwife/L HV	Other health personnel	Dai/TBA	AWW	Other	No one	Missing
<b>India</b>	<b>50.2</b>	<b>23</b>	<b>1</b>	<b>1.2</b>	<b>1.6</b>	<b>0.1</b>	<b>22.8</b>	<b>0.1</b>
Delhi	79.2	7.9	0.2	2.6	0.3	0.1	9.6	0
Haryana	42.1	30	1.4	10.8	5.2	0.3	10.1	0
Himachal Pradesh	66	18.3	0	5	0.2	0	10.4	0
Jammu & Kashmir	77.2	6.2	0.6	1.1	0.1	0.1	14.7	0.1
Punjab	56.1	25.8	0.7	7.6	0.1	0	9.7	0
Rajasthan	33.9	39.2	0.2	0.5	1.1	0	25.1	0
Uttaranchal	47.9	11.4	0.3	12.9	0.6	0.8	25.9	0.1
Chhattisgarh	41.8	33.7	2.4	0.9	9.8	0.1	11.3	0
Madhya Pradesh	32.6	41.1	0.3	2.2	3.5	0.1	20.3	0
Uttar Pradesh	22.5	42.9	0.5	0.3	0.3	0.1	33.5	0
Bihar	29.1	3.9	0.9	0.2	0.2	0	65.7	0.1
Jharkhand	39.3	13.4	4.3	0.1	2	0	40.6	0.2
Orissa	57.6	16.4	0.7	0.4	12.1	0	12.7	0
West Bengal	56.5	29.4	5.8	0	0.5	0	7.7	0
Arunachal Pradesh	50.3	3.2	0	0	2.1	0	1.3	42.6
Assam	52.9	13.2	0.7	2.7	0.4	2.4	27.8	0
Manipur	83.1	2.6	0.2	0.7	0	0	13.4	0
Meghalaya	55.7	7.9	0.2	4	0.2	0	31.7	0.2
Mizoram	54.8	11.1	3.8	3	2.1	0	25.1	0
Nagaland	51.2	3.5	2.6	0.4	0	0.1	42.2	0
Sikkim	63.7	24.7	1	0	0.2	0	10.4	0
Tripura	74.2	1.8	0.6	1.7	0.4	0	21.1	0.2
Goa	96.9	0.6	0.2	0.3	0.1	0.1	1.4	0.4
Gujarat	63.4	20.5	0.1	2.1	1.3	0	12.6	0.1
Maharashtra	75.9	12.1	0.1	1.6	2.9	0	7.3	0
Andhra Pradesh	87.5	6.4	0.2	0.2	0.3	0	5.2	0.2
Karnataka	79.1	9.6	0.4	0.5	0.4	0.3	9.4	0.3
Kerala	98.1	0.5	0.5	0.4	0.2	0.1	0.1	0.1
Tamil Nadu	83.6	14.3	0	0	1	0	1.1	0

Note : if more than one source of ANC was mentioned, only the provider with the highest qualification is considered.

ANM-Auxiliary Nurse Midwife; LHV-Lady Health Visitor; TBA-Traditional Birth Attendent; AWW- Anganwadi Worker

Source : NFHS-3, 2005-06

Table A36 : Percentage of mothers who received maternal care during the five years preceding the surveys by state, NFHS-1, NFHS-2 and NFHS-3

India /State	NFHS-1			NFHS-2				NFHS-3				
	Received all recommended types of antenatal care <sup>1</sup>	Births delivered in a health facility	Deliveries assisted by health personnel <sup>2</sup>	Received all recommended types of antenatal care <sup>1</sup>	Births delivered in a health facility	Deliveries assisted by health personnel <sup>2</sup>	Deliveries with a postnatal check-up within two days of birth <sup>3</sup>	Received all recommended types of antenatal care <sup>1</sup>	Births delivered in a health facility	Deliveries assisted by health personnel <sup>2</sup>	Deliveries with a post-natal check-up <sup>3</sup>	Deliveries with a postnatal check-up within two days of birth <sup>3</sup>
India	62.3	25.5	34.2	20	33.6	42.3	2.3	15	38.7	46.6	41.2	37.3
Delhi	82.4	44.3	53	32.8	59.1	65.9	2.1	29	58.9	64.1	60.9	58.4
Haryana	72.7	16.7	30.3	20.8	22.4	42	2.5	14.7	35.7	48.9	57.6	55.9
H.P.	76	16	25.6	30.2	28.9	40.2	2.9	17.4	43	47.8	50.6	43.2
J & K	79.5	21.9	31.2	30.7	35.6	42.4	1.1	17.5	50.2	56.5	51.6	48.4
Punjab	87.9	24.8	48.3	31.7	37.5	62.6	5.7	19.6	51.3	68.2	63.7	62
Rajasthan	31.2	11.6	21.8	8.3	21.5	35.8	0.5	8.6	29.6	41	31.8	28.9
Uttaranchal	-	-	-	-	-	-	-	16.1	32.6	38.5	35.8	32.4
Chhattisgarh	-	-	-	-	-	-	-	11.3	14.3	41.6	36.5	28.4
M. P.	52.1	15.9	30	10.9	20.1	29.7	0.5	7.2	26.2	32.7	33.8	28.5
Uttar Pradesh	44.7	11.2	17.2	4.4	15.5	22.4	1.5	4.1	20.6	27.2	14.9	13.3
Bihar	36.8	12.1	19	6.4	14.6	23.4	1.4	5.8	19.9	29.3	17.8	15.9
Jharkhand	-	-	-	-	-	-	-	7.5	18.3	27.8	19.6	17
Orissa	61.6	14.1	20.5	21.4	22.6	33.4	2.2	18.4	35.6	44	40.9	33.3
West Bengal	75.3	31.5	33	19.7	40.1	44.2	7.1	12.3	42	47.6	44.3	40.7
Arunachal Pradesh	48.9	19.9	21.3	17.3	31.2	31.9	0.3	6.5	28.5	30.2	23.7	22.7
Assam	49.3	11.1	17.9	15.8	17.6	21.4	0.5	9.6	22.4	31	15.9	13.9
Manipur	63.4	23	40.4	18.3	34.5	53.9	1.4	10.5	45.9	59	50.1	46.4
Meghalaya	51.8	29.6	36.9	10.4	17.3	20.6	0	8.1	29	31.1	33.2	28.8
Mizoram	88.9	48.9	61.5	13.5	57.7	67.5	0.9	8.7	59.8	65.4	53.5	50.6
Nagaland	39.3	6	22.2	8.9	12.1	32.8	0	1.9	11.6	24.7	11.8	10.6
Sikkim	64.9	30.7	33.5	15.3	31.5	35.1	0.7	27.2	47.2	53.7	52.4	44.9
Tripura	-	-	-	-	-	-	-	10.6	46.9	48.8	33.7	30.3
Goa	95.4	86.8	88.4	60.6	90.8	90.8	6.9	55.7	92.3	94	82.8	75.5
Gujarat	75.7	35.6	42.5	25	46.3	53.5	1.6	25.6	52.7	63	61.4	56.5
Maharashtra	82.7	43.9	53.2	31	52.6	59.4	6.9	21.6	64.6	68.7	64	58.7
Andhra Pradesh	86.3	32.8	49.3	35.6	49.8	65.2	1.6	28.2	64.4	74.9	73.3	64.1
Karnataka	83.5	37.5	50.9	41.5	51.1	59.1	3.6	29.6	64.7	69.7	66.9	58.5
Kerala	97.3	87.8	89.7	64.9	93	34	7.5	63.6	99.3	99.4	87.4	84.9
Tamil Nadu	94.2	63.4	71.2	50.8	79.3	83.8	10.1	34	87.8	90.6	91.3	87.2

1 - For the last live birth in the five years preceding the survey, mother received three or more antenatal check-ups (with the first check-up within the first trimester of

2 - Doctor, auxiliary nurse midwife, nurse, midwife, lady health visitor, or other health personnel.

3 - Based on the last live birth in the five years preceding the survey. Postnatal check-ups are checks on the woman's health within 42 days of the birth.

Source : National Family Health Surveys.

**Table A37 : Percentage of currently married women (15-49)<sup>#</sup> who received any Antenatal check-up (ANC) during pregnancy by source and place of antenatal check-ups by states, DLHS-3, 2007-08.**

State	Place of Ante Natal Checkup			Any ANC
	Government <sup>1</sup> health Facility	Private <sup>2</sup> Health Facility	Community <sup>3</sup> Based Services	
Andaman & Nicobar islands	96.2	2.8	2.1	96.4
Andhra Pradesh	43.9	63.6	4.9	95.9
Arunachal Pradesh	96.4	5.4	1.1	63.1
Assam	83.5	16.8	7.8	74.3
Bihar	23.7	44.1	32.6	59.1
Chandigarh	79	21.6	1.1	85.9
Chattisgarh	43.7	25.1	5.4	79.6
Dadra & Nagar Haveli	68.6	26	6.9	72.1
Daman & Diu	34.2	69	3.7	95.8
Delhi	62.9	38.5	1.9	91.6
Goa	44.5	57.5	0.2	99
Gujarat	38.7	48.3	6	71.5
Haryana	45.7	45.8	3.8	87.2
Himachal Pradesh	86.4	11.1	5.2	86.6
Jammu & Kashmir	79.2	22.7	2.2	84.3
Jharkhand	25.5	44.3	6.8	55.8
Karnataka	49.2	54.8	4.5	90.2
Kerela	39.3	67.7	5	99.8
Lakshadweep	97.1	11.6	0.9	99.8
Madhya Pradesh	51.5	26.8	7.9	61.7
Maharashtra	43.8	46.1	3.1	91.8
Manipur	76.1	24.1	5.3	75.1
Meghalaya	80.6	13.4	7.1	55.4
Mizoram	93.2	8.3	4.4	89.5
Orissa	58.9	15.3	5.6	84
Puducherry	68.4	34.3	9.4	92.8
Punjab	46.3	57.8	1.7	83.3
Rajasthan	76	19.7	4.1	56.6
Sikkim	96.8	7.2	0.6	95.2
Tamil Nadu	61.1	43.7	1.7	98.9
Tripura	72.2	26.1	4.3	67.2
Uttar Pradesh	48.9	26.2	26.8	64.2
Uttarakhand	68.9	21.5	7.7	55.3
West Bengal	80	37.2	8.1	96.1
India (15-49)	54.5	36.3	9.5	75.1
India (15-44) <sup>1</sup>	54.4	36.4	9.5	75.2

<sup>#</sup>Women who had their last live/still birth since 01-01-2004.

<sup>1</sup> Includes sub-centre, primary health centre, community health centre or rural hospital, urban health centre/urban health post/urban family welfare centre, government hospital or dispensary.

<sup>2</sup> Includes Private Hospitals/clinic

<sup>3</sup> Includes Non-governmental hospital/trust hospital or clinic, own home, parent home other home or other.

Source : DLHS-3, 2007-08

**Table A38 : Percentage of currently married women (aged 15-49)# who received different types of antenatal care (ANC) by states, DLHS-3, 2007-08**

State	Antenatal Check-up in the first trimester of pregnancy	three or more antenatal check-up	at least one tetanus toxoid injection	consumed 100+ IFA tablets/syrup <sup>1</sup>	Full <sup>2</sup> Antenatal Check-up	Service received for any complications
A & N islands	48.2	79.5	93.5	53.5	48.6	55
Andhra Pradesh	67.3	89.4	93.3	45.7	40.5	42.4
Arunachal Pradesh	36	46.3	61.1	43.2	5.4	29.7
Assam	39.1	45	68.8	38.5	8.5	60.2
Bihar	24.1	26.3	58.2	46.7	4.6	75.7
Chandigarh	71.2	77.6	84.4	46.3	30.2	42.9
Chattisgarh	38.5	51.1	77.9	37.9	13.7	43.7
D &N Haveli	54	63.2	68.9	51.4	23	59.1
Daman & Diu	82.5	87.4	95	49.4	43.4	55.1
Delhi	57.7	71.7	90.7	45.4	33.6	66.3
Goa	89.6	95.8	98	93.8	90.9	64.3
Gujarat	52.3	54.8	68.4	50.7	19.9	47.9
Haryana	55	51.8	85.9	29	13.2	56.5
Himachal Pradesh	62.1	59.4	85.5	55	31.4	54.8
Jammu & Kashmir	56.6	73.3	82	45.7	29.1	59.5
Jharkhand	30.8	30.5	54.7	56.3	9	67.5
Karnataka	71.9	81.2	86.9	64	51	50.1
Kerela	95.6	95.2	98.5	73.3	72.2	63.6
Lakshadweep	78.1	91.4	97.6	69.2	68.2	50.1
Madhya Pradesh	33.7	34	60.1	50	8.6	61.3
Maharashtra	61.6	74.4	89.5	45.7	33.9	58.2
Manipur	56.9	57.2	73.4	38.1	12.3	33.5
Meghalaya	24.6	39.5	51.5	60.6	14.4	44.8
Mizoram	43.9	62.4	85.9	48.4	32.9	43.9
Orissa	47.5	54.5	82.2	48	23.3	59.6
Puducherry	74.7	87.8	88.8	57	48.6	51.4
Punjab	62.9	64.6	82.5	33.6	14.3	46.4
Rajasthan	32.7	27.6	54.9	53.5	6.6	57.4
Sikkim	49	69.8	94.2	36.2	27.4	71.8
Tamil Nadu	76.8	95.6	97.2	54.7	51.8	47.8
Tripura	39.6	43.9	62.7	49	13.2	53.6
Uttar Pradesh	25	21.8	62.6	41.8	3.3	63.9
Uttarakhand	33.6	32.2	53.3	66.6	15.6	60.8
West Bengal	42.5	66.9	95	26.9	19.6	72.4
India (15-49)	44.9	49.7	72.8	46.9	18.8	58.8
India (15-44) <sup>1</sup>	45	49.8	73.4	46.6	18.8	55.5

#Women who had their last live/still birth since 01-01-2004.

<sup>1</sup> 100 or more iron and folic acid tablets or equivalent amount of syrup.

<sup>2</sup> At least three visits for antenatal check-up, at least one TT injection received and 100+ IFA tablets/syrup consumed.

Represents figures for currently married women aged (15-44) years.

Source : DLHS-3, 2007-08

**Table A39 : Percentage of women who delivered during 12 months preceding the survey and who received antenatal care, TT injections and IFA tablets according to States/Uts, CES 2009**

State/Uts	Received Antenatal Checkup				TT Injections			IFA tablets/syrup for		Full ANC
	0	At Least one	3+	4+	0	1	2+	Received	Consumed	
Andra Pradesh	0.5	99.5	97	92.9	4.4	1.7	93.9	56.4	49.1	46.2
Arunachal Pradesh	30.2	69.8	50.4	29.9	25.4	10.5	64.1	28.2	23.2	16.3
Assam	10.4	89.6	66.4	33.5	6.7	3.2	90.1	47.9	29.9	21.3
Bihar	15.7	84.3	33.8	14.7	4.8	9.3	85.9	8.4	6.7	4.5
Chhattisgarh	1.3	98.7	71.4	41.6	3.2	8.5	88.4	31	26.9	19.9
Delhi	4.1	95.9	83.4	73.9	2.9	4.7	92.4	60.2	47	41.6
Goa	0.8	99.2	97.7	95.5	5.1	7.5	87.4	64.9	55.3	53.4
Gujarat	5.2	94.8	83.2	73.1	8	12.4	79.7	53.3	48.6	45.7
Haryana	10.6	89.4	68.6	57.2	4.2	6.8	88.9	56.8	49.1	42.9
Himachal Pradesh	8.7	91.3	67.4	44.6	2.8	14.1	83.1	65.7	49.2	39.2
Jammu & Kashmir	6.2	93.8	87	76.3	3.6	2	94.5	53.1	46.6	43.5
Jharkhand	12.4	87.6	57.5	25.7	4.9	5.3	89.8	30.1	14	10.9
Karnataka	2.5	97.5	91.3	78.1	3.8	4.9	91.3	52.7	43.9	40.2
Kerela	2.6	97.4	90.8	90.1	7	3	90	87.4	83.4	77.9
Madhya Pradesh	7.7	92.3	60	36	5.8	7	87.2	20	14.3	11.1
Maharashtra	2.7	97.3	82.6	69.1	5.1	15.5	79.4	36.7	29.2	27
Manipur	6.3	93.7	85	61.1	5.6	7.5	86.9	37.3	31	28.4
Meghalaya	4.9	95.1	71	42.9	5.8	17.7	76.6	55.6	35.5	28.1
Mizoram	8.1	91.9	79	65.7	7.4	19	73.7	34.8	25.5	21.7
Nagaland	46.3	53.7	29.4	11.8	37.3	16.2	46.6	8.7	5.4	3.5
Orissa	2	98	77	58.9	4	0.8	95.2	61	46.8	37.5
Punjab	4.7	95.3	73.4	48.1	3	4.4	92.6	41.3	33.9	29.4
Rajasthan	13.2	86.8	55.2	27.8	11.1	7.9	81	28.5	22	14.6
Sikkim	8.1	91.9	87.3	83.8	11.5	2.1	86.5	49.7	29.5	27.7
Tamilnadu	1.5	98.5	92.6	89	4.4	3.1	92.5	55.1	48	44.1
Tripura	9.1	90.9	83.1	80.9	8.1	1.1	90.9	37.1	22.3	21.5
Uttar Pradesh	28.4	71.6	38.2	23.4	12.1	7.3	80.6	34.1	19.5	12.4
Uttarakhand	25.4	74.6	54.8	39.4	10	5.1	84.9	33	19.4	17
West Bengal	1	99	83.2	66.8	2.6	2.9	94.6	38.5	19.4	17.4
Uts Combined	9.8	90.2	82.8	74.5	5.3	2.8	91.9	55	45.5	41
Total	9.6	89.6	68.7	53.1	6.4	6.7	86.9	40.6	31	26.5

Source : Coverage Evaluation Survey, 2009

**Table A40 : Percentage of women age 15-49 with anemia by background characteristics, India, 2005-**

Background Characteristics	Anemia status by hemoglobin level			
	Mild	Moderate (7.0-	Severe	Any anaemia
<b>Age</b>				
15-19	39.1	14.9	1.7	55.8
20-19	38.5	16	1.7	56.1
30-39	38.1	14.4	1.8	54.2
40-49	38.9	14.1	2	55
<b>Marital Status</b>				
Never Married	37.3	12.9	1.7	51.9
Currently married	38.9	15.4	1.7	56
Widowed	40.1	16.2	2.8	59
Divorced/Separated/deserted	37.7	18.3	3.1	59.1
<b>Maternity status</b>				
Pregnant	25.8	30.6	2.2	58.7
Breastfeeding	44.9	16.6	1.7	63.2
Neither	37.9	13.5	1.7	53.2
<b>Number of children ever born</b>				
0	37	13.9	1.8	52.6
1	38.6	16.2	1.7	56.4
03-Feb	38.1	15	1.7	54.9
05-Apr	40.6	15.5	1.9	58
6+	42.1	16.2	1.6	59.9
<b>Residence</b>				
Urban	35.8	13.6	1.5	50.9
Rural	39.8	15.7	1.9	57.4
<b>Education</b>				
No education	40.8	17.2	2.1	60.1
< 5 years completed	39.6	16.2	2.2	58.1
5-7 years completed	38.9	15.3	1.9	56
8-9years completed	37.2	13.7	1.5	52.4
10-11 years complete	35.6	12.4	1.2	49.2
12 or more years complete	33.9	9.9	0.9	44.6

Table contd .....

Table A40 Contd .....

Background Characteristics	Anemia status by hemoglobin level			
	Mild	Moderate	Severe	Any anaemia
<b>Religion</b>				
Hindu	39.1	15	1.8	55.9
Muslim	38.3	15.1	1.3	54.7
Christian	32	16.2	2.2	50.3
Sikh	27.6	10.3	1.3	39.2
Buddhist/Neo-Buddhist	35.4	15.2	1.9	52.5
Jain	29.9	8	0.9	38.8
Other	49.5	19.9	2.3	71.7
<b>Caste/ Tribe</b>				
Schedule Caste	39.3	16.8	2.2	58.3
Schedule Tribe	44.8	21.3	2.4	68.5
Other backward class	38.2	14.5	1.7	54.4
Other	37	12.9	1.4	51.3
Don't Know	34.5	19.7	1.7	55.9
<b>Wealth Index</b>				
Lowest	43.6	18.7	2	64.3
Second	41.4	16.8	2.1	60.3
Middle	38.3	15.5	2.2	56
Fourth	36.9	13.8	1.6	52.2
Highest	34	11.1	1	46.1
<b>Total for ever-married women</b>				
NFHS-3	38.9	15.5	1.8	56.2
NFHS-2	35	14.8	1.9	51.8

Note: Table is based on women who stayed in a household the night before the interview. Prevalence

<sup>1</sup> For pregnant women, the value is 10.0-10.9 g/dl.

<sup>2</sup> For pregnant women, the value is < 11.0 g/dl.

Source : National Family Health Survey (NFHS-3), 2005-06

**Table A41 : Percentage of women age 15-49 below 145 cm, mean body mass index (BMI) and % with specific BMI levels, by background characteristics, India, NFHS, 2005-06**

Background Characteristics	Height	Body Mass Index (BMI) <sup>1</sup> in Kg/m <sup>2</sup>							
		Mean BMI	18.5-24.9 (normal)	Thin			Overweight/obese		
	Percentage below 145 cm			<18.5 (total thin)	17.0-18.4 (mildly thin)	<17.0 (moderately/severely thin)	≥ 25.0 (overweight or)	25.0-29.9 (overweight)	≥ 30.0 (obese)
<b>Age</b>									
15-19	11.7	19	50.8	46.8	25.9	20.9	2.4	2.1	0.2
20-29	10.9	20	53.7	38.1	21.7	16.4	8.2	6.8	1.4
30-39	10.9	21.1	51.6	31	17	14	17.4	13.5	3.9
40-49	12.8	21.9	49.8	26.4	14.1	12.3	23.7	17.4	6.4
<b>Residence</b>									
Urban	9.8	22	51.5	25	13.2	11.8	23.5	17.4	6.1
Rural	12.1	19.8	51.9	40.6	22.9	17.8	7.4	6.2	1.3
<b>Education</b>									
No education	14.1	19.7	51.1	41.7	23	18.6	7.3	5.9	1.4
< 5 years complete	13.8	20.2	52.2	37.2	21.3	15.9	10.7	8.6	2.1
5-7 years complete	11.5	20.7	51.7	34.1	18.8	15.4	14.2	10.7	3.5
8-9 years complete	10.3	20.6	51	35	19.4	15.6	14	10.9	3.1
10-11 years comp.	7.1	21.3	52.5	29.4	16	13.4	18.1	13.3	4.8
12 or more years complete	5.2	22.1	54.5	21.8	12.3	9.4	23.8	18.4	5.4
<b>Religion</b>									
Hindu	11.6	20.4	51.8	36.4	20.2	16.2	11.8	9.3	2.6
Muslim	10.7	20.6	50.7	35.1	19.3	15.9	14.1	10.7	3.5
Christian	11.8	21.6	58.6	23.2	13.2	10	18.2	14.7	3.6
Sikh	2.8	23.2	50.6	17.8	11	6.8	31.6	21.5	10.1
Buddhist/Neo-Buddhist	14.7	20	49.5	40.4	19.6	20.8	10.1	8.6	1.5
Jain	7.1	22.2	51.5	21.8	9.9	11.9	26.6	20.4	6.2
Other	19	19.5	54.9	41.1	25.2	15.9	3.9	3	0.9
<b>Caste/Tribe</b>									
Scheduled caste	15	19.9	50	41.1	22.6	18.5	8.9	7.3	1.6
Scheduled tribe	12.7	19.1	49.9	46.6	25.3	21.2	3.5	3	0.5
Other backward class	11.4	20.4	52.6	35.7	20	15.7	11.6	9.1	2.5
Other	8.9	21.3	52.3	29.4	16.3	13.1	18.3	13.8	4.5
<b>Wealth index</b>									
Lowest	15.9	18.7	46.7	51.5	28.5	23	1.8	1.6	0.2
Second	14.6	19.2	49.8	46.3	25.7	20.6	3.9	3.4	0.5
Middle	11.7	19.9	54.3	38.3	21.1	17.3	7.4	6.5	0.9
Fourth	9.5	21	55.7	28.9	16.2	12.7	15.4	12.5	2.9
Highest	6.5	22.9	51.3	18.2	10.2	8	30.5	22	8.4
Total	11.4	20.5	51.8	35.6	19.7	15.8	12.6	9.8	2.8

<sup>1</sup> Excludes pregnant women and women with a birth in preceding 2 months.



**Table A42 : Percentage distribution of currently married women (aged 15-49)<sup>#</sup> according to the place of delivery, assistance during home deliveries and safe deliveries by state, DLHS-3, 2007-08.**

State	Percentage of women who had institutional delivery	Percentage of women who had delivery at home	Home delivery assisted by skilled persons <sup>1</sup>	Percentage of safe delivery <sup>2</sup>
A & N islands	76.4	23.4	1	77.4
Andhra Pradesh	71.6	27.8	3.8	75.6
Arunachal Pradesh	47.6	52.2	1.2	48.8
Assam	35.1	63.8	4.8	39.9
Bihar	27.5	71.6	4.2	31.7
Chandigarh	76.1	23.9	4.9	81
Chattisgarh	18	81.6	11.6	29.6
Dadra & Nagar Haveli	44	56	1.4	45.4
Daman & Diu	64.1	35.3	5.1	69.2
Delhi	68.7	30.7	2.9	71.6
Goa	96.4	3.6	0.2	96.6
Gujarat	56.4	42.2	5.2	61.6
Haryana	46.8	52.7	6.4	53.2
Himachal Pradesh	48.3	51.2	2.6	50.9
Jammu & Kashmir	54.9	44.1	3.7	58.6
Jharkhand	17.7	81.9	7.2	24.9
Karnataka	65.1	34.1	6.5	71.6
Kerela	99.4	0.6	0	99.4
Lakshadweep	90.7	9.1	5	95.7
Madhya Pradesh	46.9	52.3	3	49.9
Maharashtra	63.5	35.9	5.7	69.2
Manipur	41	58.3	14.3	55.3
Meghalaya	24.5	74.8	4.4	28.9
Mizoram	55.7	43.9	7.6	63.3
Orissa	44.1	54.7	6.7	50.8
Puducherry	99	0.8	0.2	99.2
Punjab	63.1	36.5	13.8	76.9
Rajasthan	45.4	53.8	7.2	52.6
Sikkim	49.5	49.4	6.5	56
Tamil Nadu	94	5.7	1.5	95.5
Tripura	46.2	53.7	1	47.2
Uttar Pradesh	24.5	74.6	5.5	30
Uttarakhand	30	69.5	5.2	35.2
West Bengal	49.1	50	2.5	51.6
India (15-49)	46.9	52.4	5.5	52.3
India (15-44) <sup>1</sup>	47	52.3	5.7	52.7

Note: Percentage of women who had institutional and home delivery may not add to 100.0 as some deliveries took place on the way to the institute, working place or other place etc.

<sup>#</sup>Women who had their last live/still birth since 01-01-2004.

<sup>1</sup> Includes Doctors/ANM/Nurse. The percentages are calculated out of total deliveries not the home deliveries.

<sup>2</sup> Either institutional or home deliveries assisted by skilled person.

**Table A43 : Percentage of women who delivered during 12 months preceding the survey vis a vis place of delivery and assistance during home delivery according to States/Uts, CES 2006 and 2009**

States	CES-06					CES-09				
	Insti- tutional Delivery	Home Delivery Assisted			Skilled Birth Attend- ent	Insti- tutional Delivery	Home Delivery Assisted			Skilled Birth Attend- ent
		Skilled Workers	Dai	Others			Skilled Workers	Dai	Others	
Andra Pradesh	79.9	2.7	15.3	1.8	82.6	94.2	1.4	3.9	0.4	95.6
Arunachal Pradesh	67.2	2.3	9.8	20.6	69.5	69.9	2	6.4	21.7	71.9
Assam	29.3	5.4	37.5	27	34.7	64.4	1.1	24.3	10.2	65.5
Bihar	25	10.4	58.1	6.3	35.4	48.3	4.9	39.8	7	53.2
Chhattisgarh	27.2	10.5	52	9.4	37.7	44.9	11.4	37.1	6.6	56.4
Delhi	68.4	2.4	26	2.3	70.8	83.6	1	11.9	3.5	84.6
Goa	96.7	0.6	0	0	97.3	99.8	0	0.2	0	99.8
Gujarat	71	3	20.7	4.6	74	78.1	7.1	11.8	3	85.2
Haryana	54.7	3.6	39	2.4	58.3	63.3	6	29.3	1.4	69.3
Himachal Pradesh	56.8	3.2	29.3	10.3	60	50.3	3.4	28.4	17.9	53.7
Jammu & Kashmir	67.4	2.6	28.2	1.8	70	80.9	2.1	12.7	4.3	82.9
Jharkhand	25.5	5.7	66.1	2.6	31.2	40.1	7.2	45.1	7.6	47.3
Karnataka	72.9	9.1	13.9	4.1	82	86.4	2	5.7	5.9	88.4
Kerala	99.4	0.2	0.5	0	99.6	99.9	0	0	0.1	99.9
Madhya Pradesh	47.3	4.1	43.1	5.6	51.4	81	1.9	11.1	6	82.9
Maharashtra	70.4	2.8	18.9	7.7	73.2	81.8	3.7	9.4	5	85.5
Manipur	62.1	13.7	18.8	5.4	75.8	80	2.7	10.7	6.6	82.7
Meghalaya	45.6	5.5	28	20.4	51.1	63.6	1.6	13.7	21	65.2
Mizoram	78.3	9.2	6.6	5.8	87.5	83	2.1	9	5.9	85.1
Nagaland	29	11.1	27	32.8	40.1	30.4	13.4	2.3	53.9	43.8
Orissa	51.1	10.5	26.5	11.3	61.6	75.5	3.6	9.9	11	79.1
Punjab	62.3	6.9	26.7	4.1	69.2	60.3	6.4	32.8	0.5	66.7
Rajasthan	46.2	17.4	24.9	11.6	63.6	70.5	5.3	21.7	2.6	75.8
Sikkim	59.5	4.1	26.4	9.7	63.6	68.9	1	13.7	16.4	69.9
Tamilnadu	96.1	0.9	2.3	0.2	97	98.4	0.2	0.1	1.3	98.6
Tripura	65.9	0.2	28.3	5.7	66.1	82.6	0.5	9.6	7.3	83.1
Uttar Pradesh	28.1	6.2	31.5	33.2	34.3	62.1	2.1	18.9	16.9	64.2
Uttarakhand	34.5	8.4	41.7	14.4	42.9	53.5	5.1	28.1	13.3	58.7
West Bengal	60.2	2.3	30.1	7	62.5	69.5	3	23	4.5	72.6
Uts Combined	86.5	1.1	10.8	1.5	87.6	88.1	2.7	7.8	1.4	90.7
Total	54	5.7	28.5	10.7	59.7	72.9	3.3	17.1	6.7	76.2

Source : Coverage Evaluation Surveys 2006 and 2009.

**Table A44 : Percentage of live births where the mothers received medical attention at delivery either at Government hospitals or at Private hospitals, India and bigger States, 2005-13**

India & Bigger States	Total									Rural									Urban								
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2005	2006	2007	2008	2009	2010	2011	2012	2013	2005	2006	2007	2008	2009	2010	2011	2012	2013
India	34.5	34.9	38.6	47.1	58.2	60.5	86.6	73.1	74.4	24.4	24.9	28.7	38.3	49.2	53.9	60.7	67.9	69.7	70.4	71	74.5	78.5	87.3	84.2	87.9	92	92.1
A.P.	55.5	56.2	63.7	70.9	74.4	88.1	90.7	92.1	93.6	43.5	44.1	53.5	62.6	66.5	84.4	87.5	89.4	91.3	90.9	91.8	92.7	93.7	95.5	98.1	98.6	99.5	99.7
Assam	24.6	25.1	28	40.2	46.1	54	61.8	71.1	73.7	21	21.4	24.1	36.7	42.9	51.1	58.9	69	71.6	61.9	62.5	66.5	73.8	75.7	80.9	88.4	89.6	93.2
Bihar	21.8	22.4	23.5	27	32.4	41.4	48.4	59.5	60.3	20	20.7	21.3	23.5	29	38.2	45.5	57.3	58.1	40.8	41.4	47.9	66.9	70	77.9	83.6	86	86.6
Chhattisgarh	23.5	24.1	26.2	35.2	40.3	47.4	54.1	63.3	66.5	18.2	18.9	21.4	30.7	35.9	43	50.3	60.5	64	55.6	56.3	57	65.6	68.9	76.9	79.2	81.7	83.3
Delhi	62	62.6	65.4	69.5	73.7	78.3	85.6	88.7	91.1	51.3	51.5	59.2	63.6	69	77.6	81.3	85.9	89.6	64	64.6	66.6	70.7	74.6	78.4	86.5	89.3	91.3
Gujarat	52.5	53.2	59.1	71.3	73.2	79.8	84.4	86.1	88.6	36.1	36.7	42.3	60.8	63.1	72.1	78.6	80.3	83.3	83.3	83.9	90.2	90.4	91.7	94.1	95.6	97	98.7
Haryana	32.9	33.7	38.9	48.2	51.6	63	69.9	74.5	77.3	24.9	25.6	31	40.4	44.2	58.9	66.9	72.4	74.8	55.7	56.2	60.3	69	71.7	74	77.7	80	84.1
Himachal Pradesh	33	34.2	35.8	46.4	49.6	57.9	64.1	68.8	70.8	29.8	31.1	32.4	43.9	47.1	55.7	62.3	67.3	69.2	79.8	80.3	82.4	83.7	84.9	89.6	91.1	91.8	94.1
J&K	47.1	48.6	52	61.5	64.2	69.7	74.1	78.6	81.6	39.5	41.1	45.1	56.4	59.4	65.3	76.1	75.7	79	84.8	85.5	87.2	87.9	89.9	93	95.6	95.6	96.4
Jharkhand	12.1	12.8	13.9	16.2	20.4	28.9	36.3	46.5	51.2	4.9	5.4	6	7.2	11.4	21.9	29	40.5	45.3	56.1	56.6	61	69.9	73.1	69.7	79.3	82.5	86.6
Karnataka	59.4	60.4	64.2	73.4	76.1	85.7	88.4	90.8	92.9	45	45.7	50.6	63.3	66.7	83.1	85.9	88.3	90.7	92	93	94.1	94.4	95.5	90.9	93.6	96	97.3
Kerala	99	99.2	99.2	99.2	99.5	99.5	99.7	99.4	99.5	98.7	98.9	99	98.9	99.4	99.5	99.6	99.7	99.6	100	100	99.8	99.8	99.7	99.6	99.5	98.8	99.3
Madhya Pradesh	22.4	22.8	31.2	44.7	49.7	60	66.6	71.9	75.5	13.2	13.9	22.8	37.4	42.7	54.8	62	68	71.9	65.8	66	71.8	81	84.6	86.9	91	92.6	94.2
Maharashtra	57.6	58.1	63.9	73.3	77.2	86.3	90.7	92.8	94.5	35.7	36.8	42.8	57.5	63.5	78.4	85.4	89.1	91.6	89.5	89.8	94.8	96	96.7	97.8	98.3	98.6	99
Odisha	26.2	26.6	32.7	45.2	48.5	57.6	62.6	69	72.3	21.3	21.9	28.6	42	45.2	54.6	59.8	66.6	70.3	67.3	67.9	68.4	73.5	78.1	82.6	87.5	90.3	91
Punjab	41.9	42.7	46	56.3	58.5	67.6	73.4	80.3	84.3	29.4	30.3	35.4	48.9	51.5	59.9	66.8	75	80.1	64.9	65.3	65.9	69.8	71.4	81.4	85.3	90.1	92.1
Rajasthan	23.5	24.1	30.3	50.2	53.3	68	76.6	80.8	83	16.2	16.9	21.6	43.4	46.9	63.5	74	78.8	81.1	51.3	52.1	63.7	76.1	78.7	85.4	86.9	88.7	90.6
Tamil Nadu	74.9	76	82.8	87.5	88.6	91.2	92.2	92.7	93.4	58.6	59.4	70.9	78.7	80.8	85.8	87.5	87.8	89.3	98.7	99	99.4	99.3	99.6	98.5	99.1	99.6	99
Uttar Pradesh	14.5	15	16	22.5	29.8	40.1	48.4	53.9	58.1	9.4	10	10.7	18.2	26	36.6	44.7	50.2	54.7	39.7	40.2	42.4	44.5	52.8	58.2	67.6	73.4	76
West Bengal	443	44.8	48.4	55.9	62.4	66.1	70.5	74.7	77.2	36.7	40.7	40.7	49.4	56.6	61.8	66.5	71.2	73.9	78	78.6	80.6	82.6	87.1	84.3	87.8	89.2	90.9

Source : Sample Registration System, Office of RGI, New Delhi.

**Table A45 : Percentage distribution of all live births in the five years preceding the survey by birth weight reported by mothers, percentage whose weight reported, by mothers estimate of baby's size at birth, according the state, India, NFHS-3, 2005-06**

India and States	Percentage distribuion of births with a reported birth weight <sup>1</sup>		Percentage of live births whose birth weight was reported <sup>1</sup>	Percent distribution of all live births by size of child at berth		
	less than 2.5 kg	2,5 kg or more		Very small	Smaller than average	Average or Larger
<b>India</b>	21.5	78.5	34.1	6	14.8	77.7
Delhi	26.5	73.5	51.1	6	3.8	89.6
Haryana	32.7	67.3	29.9	6.2	11.9	81.7
Himachal Pradesh	24.8	75.2	44.2	9.2	10.8	79.4
Jammu & Kashmir	19.4	80.6	14.8	18.3	13.2	68.3
Punjab	27.7	72.3	40.4	7.5	20.9	66.4
Rajasthan	27.5	72.5	20.9	8.5	17.4	73.9
Uttaranchal	24.6	75.4	23.7	6.9	13.6	79.1
Chhattisgarh	17.5	82.5	22.6	3.5	11.6	83.9
Madhya Pradesh	23.4	76.6	22.3	6	18.7	75.1
Uttar Pradesh	25.1	74.9	8.3	5.2	15.4	79.3
Bihar	27.6	72.4	11.6	5.7	13.5	80.3
Jharkhand	19.1	80.9	16.9	7.1	16.1	75.8
Orissa	20.6	79.4	36.7	6.4	17.5	71
West Bengal	22.9	77.1	43	9.3	15	73.7
Arunachal Pradesh	14.1	85.9	27.8	14.8	13.1	69.4
Assam	19.4	80.6	20.2	4.4	15.1	76.7
Manipur	13.1	86.9	44.8	3.3	13.2	80.3
Meghalaya	18	82	33.5	3.7	18.4	64.1
Mizoram	7.6	92.4	84.1	1.3	12.6	81.3
Nagaland	11	89	10	3	12.6	84.1
Sikkim	10.3	89.7	54.2	2.7	11	86
Tripura	27.3	72.7	44	14.1	20.8	63.8
Goa	22.2	77.8	84.9	4	15.2	76.9
Gujarat	22	78	53.2	7.3	14.5	77.1
Maharashtra	22.1	77.9	70.3	3.8	13.6	77.4
Andhra Pradesh	19.4	80.6	62.7	1.7	6.1	91.1
Karnataka	18.7	81.3	62.9	7.5	15.7	75.5
Kerala	16.1	83.9	97	1.9	12.1	85.5
Tamil Nadu	17.2	82.8	88.4	8.1	19.5	70.5

<sup>1</sup> Based on either a written record or the Mother's recall

Source : NFHS-3, 2005-06

**Table A46 : Percentage of children age 12-23 months who received specific vaccines at any time before the survey (according to a vaccination card or the mother's report) by state, India, 1992-93, 1998-99 and 2005-06**

State	NFHS-1		NFHS-2		NFHS-3	
	All Basic Vaccinations <sup>1</sup>	No Vaccination	All Basic Vaccinations <sup>1</sup>	No Vaccination	All Basic Vaccinations <sup>1</sup>	No Vaccination
India	35.4	30	42	14.4	43.5	5.1
Delhi	57.8	6.7	69.8	5.1	63.2	9.1
Haryana	53.5	17.5	62.7	9.9	65.3	7.8
Himachal Pradesh	62.9	8.7	83.4	2.8	74.2	1.9
Jammu & Kashmir	65.7	16.2	56.7	10.4	66.7	4.5
Punjab	61.9	17.5	72.1	8.7	60.1	6.6
Rajasthan	21.1	48.5	17.3	22.5	26.5	5.5
Uttaranchal	-	-	-	-	60	9.1
Chhattisgarh	-	-	-	-	48.7	2.5
Madhya Pradesh	29.2	34.4	22.4	13.9	40.3	5
Uttar Pradesh	19.8	43.3	21.2	29.5	23	2.7
Bihar	10.7	53.5	11	16.8	32.8	7
Jharkhand	-	-	-	-	34.2	4.4
Orissa	36.1	28	43.7	9.4	51.8	11.6
West Bengal	34.2	22.4	43.8	13.6	64.3	5.9
Arunachal Pradesh	22.5	47.5	20.5	28.7	28.4	24.1
Assam	19.4	43.6	17	33.2	31.4	15.2
Manipur	29.1	32.3	42.3	17.2	46.8	6.5
Meghalaya	9.7	54.9	14.3	42.3	32.9	16.5
Mizoram	56.4	14.5	59.6	10.5	46.5	7
Nagaland	3.8	75	14.1	32.7	21	18.4
Sikkim	19	42.1	47.4	17.6	69.6	3.2
Tripura	-	-	-	-	49.7	14.7
Goa	74.9	5.4	82.6	0	78.6	0
Gujarat	49.8	18.9	53	6.6	45.2	4.5
Maharashtra	64.1	7.5	78.4	2	58.8	2.8
Andhra Pradesh	45	17.5	58.7	4.5	46	3.8
Karnataka	52.2	15.2	60.0	7.7	55	6.9
Kerala	54.4	11.4	79.7	2.2	75.3	1.8
Tamil Nadu	64.9	3.3	88.8	0.3	80.9	0

<sup>1</sup> BCG, measles, and three doses of DPT and polio vaccine (excluding polio vaccine given at birth).

Source : National Family Health Surveys.

**Table A47 : Percentage of children aged 12-23 months received vaccination by states, India DLHS-1, DLHS-2 and DLHS-3**

State	DLHS-1 (1998-99)		DLHS-2 (2002-04)		DLHS-3 (2007-08)		
	full Vaccination <sup>1</sup>	None	full Vaccination <sup>1</sup>	None	Vaccination card seen	full Vaccination <sup>1</sup>	None
A & N islands	77.4	1.8	69.3	1.2	84.6	83.6	2.8
Andhra Pradesh	74.5	2.4	62.7	2.7	44.1	66.7	1.1
Arunachal Pradesh	30.6	22.9	21.6	27.5	35.4	13.3	12
Assam	46.7	11.6	17.2	22.9	59.1	50.7	11.3
Bihar	22.4	48.8	23	49.4	44.6	41.4	1.6
Chandigarh	61.5	1.8	52.4	-	52.1	73	4.6
Chattisgarh	-	-	58.1	8.2	36.8	59.3	2.3
Dadra & Nagar Haveli	77.5	2.7	84.6	2.1	34.3	57.9	2.7
Daman & Diu	68.7	4.2	56.1	4.4	68.6	85.7	1.1
Delhi	84.8	2.4	59.2	4.7	45.7	67.3	2.1
Goa	88.6	0	76.9	1.8	81	89.8	0
Gujarat	58.1	10.2	54	7.3	33.6	54.8	6.7
Haryana	66	10.4	59.2	11.9	38.8	59.6	1.9
Himachal Pradesh	74.4	2.4	79.3	2.1	56.1	82.2	0.9
Jammu & Kashmir	52.9	1	32	2.6	56.8	62.2	4.6
Jharkhand	-	-	26.6	44.5	42.8	54	9.1
Karnataka	71.8	5.7	71.3	4.7	53.7	76.7	0.7
Kerala	84	1.8	78.6	0.7	76	79.6	0.5
Lakshadweep	94.5	0.3	64.7	0	75.4	86.2	0
Madhya Pradesh	48.4	13.2	30.2	17.2	26.5	36	9.6
Maharashtra	79.7	1.9	70.9	2.2	46.4	69	1
Manipur	51.1	20.5	34.4	9.6	49.8	47.4	10.8
Meghalaya	32.7	18	13.7	18	36.5	33.1	14.7
Mizoram	68.4	5.7	32.6	14.5	47.2	54.2	4.2
Nagaland	26.1	8.8	13.1	13.5	-	-	-
Orissa	57.8	10	53.6	5.5	61.9	62.3	2.1
Puducherry	54.2	0.1	89.3	0.1	55.9	80.2	1
Punjab	72.9	9.7	72.9	9.4	52.4	79.8	4
Rajasthan	37.1	33.6	24.7	29	24.5	48.7	12.1
Sikkim	65.6	4.2	53.1	0.8	66.3	76.8	0.5
Tamil Nadu	51.5	0.4	91.4	0.5	38	81.6	0.2
Tripura	46.3	16.9	31.3	8.6	56.6	38.2	20.7
Uttar Pradesh	43.7	28.9	26.4	36	29	30.2	3.4
Uttarakhand	-	-	44.3	23.4	35.8	62.9	7.1
West Bengal	51.5	14	50.4	7.1	81.5	75.7	1.6
India (15-49)	54.2	18.8	45.8	19.8	42.7	53.5	4.6
India (15-44) <sup>1</sup>	-	-	-	-	42.9	54	4.5

Note: Table based on youngest living child born since 01.01.2004.

<sup>1</sup> BCG, three injections of DPT, three doses of polio (excluding polio 0) and measles.

<sup>1</sup> Represents figures for currently married women aged (15-44) years.

Source : District Level Household Survey (DLHS-1, DLHS-2 and DLHS-3)

**Table A48 : Percentage of children age 12-23 months who received full immunization (according to vaccination card or mother's report) according to States, CES 2005, 2006, 2009**

States	CES-05		CES-06		CES-09	
	Full Immunisation	No immunisation	Full Immunisation	No immunisation	Full Immunisation	No immunisation
Andra Pradesh	70.3	-	80.1	1.8	68	0.2
Arunachal Pradesh	-	-	44.9	14.2	24.8	25.7
Assam	22.9	-	38.9	20.6	59.1	8.1
Bihar	17.6	-	37.7	19.4	49	15.2
Chhattisgarh	43.5	-	57.3	1.7	57.3	4.8
Delhi	66.2	-	84.6	2.4	71.5	7.3
Goa	90.7	-	94.3	0.8	87.9	3.1
Gujarat	65.2	-	71.9	7.5	56.6	2.6
Haryana	56.3	-	74.9	14.9	71.7	4.3
Himachal Pradesh	90	-	91.4	2.4	75.8	0.4
Jammu & Kashmir	80.6	-	81.8	6.4	66.6	11.7
Jharkhand	40.4	-	52.1	13.9	59.7	5.4
Karnataka	84.3	-	84	2.3	78	1
Kerela	84.7	-	87.9	0.5	81.5	1.8
Madhya Pradesh	36.9	-	55.9	6.4	42.9	5.9
Maharashtra	53.9	-	72.7	7.7	78.6	2.1
Manipur	-	-	64.8	7.3	51.9	11.9
Meghalaya	-	-	40.4	24.4	60.8	9.3
Mizoram	-	-	71.9	1.7	73.7	7.2
Nagaland	-	-	32.5	30.9	27.8	31.6
Orissa	54	-	74.8	0.9	59.5	5.8
Punjab	81.9	-	75.3	3.5	83.6	2.4
Rajasthan	47.4	-	47.8	15.4	53.8	15.6
Sikkim	-	-	81.5	1.3	85.3	3
Tamilnadu	77.4	-	89.9	0.1	77.3	3.9
Tripura	-	-	60.6	12.2	66	1.8
Uttar Pradesh	29.1	-	37.2	24	40.9	17.8
Uttarakhand	58.8	-	72.2	6.3	71.5	9.1
West Bengal	52.9	-	71.2	1.6	64.9	4.8
Uts Combined	88.7	-	88.5	1.3	71.3	3.5
Total	47.4	-	62.4	10.1	61	7.6

Source : Coverage Evaluation Surveys, 2005, 2006 & 2009

**Table A49 : Percentage of children aged under 3 years whose mother started breastfeeding within one hour of birth, within 24 hours of birth, and after 24 hours of birth by states, India, DLHS-3 (2007-08).**

State	Children received Colostrum	Percentage started breastfeeding within one hour of birth.	Percentage started breastfeeding within 24 hour of birth.	Percentage started breastfeeding After 24 hour of birth.
Andaman & Nicobar islands	95.3	76.1	94.2	5.8
Andhra Pradesh	89.7	47.5	75.6	24.4
Arunachal Pradesh	83.4	38.2	83.6	16.4
Assam	86.7	64.9	92.9	7.1
Bihar	69	16	56.6	43.4
Chandigarh	94.2	50.3	90.3	9.7
Chattisgarh	87.2	49.6	80.6	19.4
Dadra & Nagar Haveli	75.6	52.2	92.4	7.6
Daman & Diu	71.9	38.6	68.7	31.3
Delhi	85.2	29.1	68.1	31.9
Goa	85.8	60.9	84.2	15.8
Gujarat	76.1	48	77.8	22.2
Haryana	80.8	16.5	55.4	44.6
Himachal Pradesh	92.3	56.5	89.8	10.2
Jammu & Kashmir	90	54.1	89.5	10.5
Jharkhand	84.4	34.5	81.1	18.9
Karnataka	87	46.5	73.2	26.8
Kerela	97	64.6	96.8	3.2
Lakshadweep	98.1	69.7	98	2
Madhya Pradesh	83	42.7	72.3	27.7
Maharashtra	86.1	52.5	80.3	19.7
Manipur	94.5	56.8	89.5	10.5
Meghalaya	87.9	73.6	97.8	2.2
Mizoram	96.3	77.5	96.4	3.6
Orissa	87.1	63.2	88.9	11
Puducherry	95.6	69.6	96	4
Punjab	89.9	44.1	80.6	19.4
Rajasthan	91.4	41.4	80	20
Sikkim	74.5	63.6	93.5	6.5
Tamil Nadu	94.2	76.1	93.4	6.6
Tripura	78.1	40.8	83.3	16.7
Uttar Pradesh	58.7	15.1	33.6	66.4
Uttarakhand	85.2	63.5	86.1	13.9
West Bengal	80.4	38.5	80.5	19.5
India (15-49)	80.1	40.5	70.9	29.1
India (15-44) <sup>1</sup>	80.1	40.5	70.9	29.1

Note: Table based on youngest living child born since 01.01.2004.

<sup>1</sup> Represents figures for children of currently married women aged (15-44) years.

Source : DLHS-3, 2007-08



**Table A50 : Percentage of mothers who breastfed the child within one hour or one day of birth and fed colostrum according to States/Uts, CES 2006 and 2009**

States	CES-2006			CES-2009		
	Percentage who started breastfeeding within one hour of birth	Percentage who started Breastfeeding within one day of birth	Percent mothers who fed colostrum to the child	Percentage who started breastfeeding within one hour of birth	Percentage who started Breastfeeding within one day of birth	Percent mothers who fed colostrum to the child
Andra Pradesh	39.6	89.6	81.7	27.2	66.6	74.1
Arunachal Pradesh	57.8	94.7	81	55.6	91	95.3
Assam	43.3	90.7	78.7	46.1	94.3	94.4
Bihar	3.4	47.7	74.8	16.5	50.5	77.4
Chhattisgarh	35.9	79	87.3	44.4	80	87.9
Delhi	15.6	77.7	88.8	28.5	80.4	88.6
Goa	20.6	75.1	89.4	66.3	87.2	97.6
Gujarat	19.5	81.7	76.5	50	74.9	80
Haryana	6.6	95.4	88.9	51	86.5	90.8
Himachal Pradesh	31.4	77.3	92.9	38.8	76.3	93.8
Jammu & Kashmir	36.7	93.7	86.9	20.4	77.6	93.5
Jharkhand	17.5	71	69.1	15.6	57.7	84.7
Karnataka	45.7	91.1	90.2	38.2	77.5	90
Kerela	48.7	97	95.9	66	92.7	96.8
Madhya Pradesh	23.5	79.8	80.9	31.2	73.2	85.3
Maharashtra	60.3	98.1	92.6	51.3	77.7	91.2
Manipur	35.1	78.3	93	75.1	92.4	99
Meghalaya	27	97.5	90.9	67.7	95.8	93.4
Mizoram	43.4	97.5	93.2	56.5	90.3	99.3
Nagaland	46.1	92	83.2	49.4	87.8	84
Orissa	44.4	90.5	89.2	63.7	88.6	93.9
Punjab	9.9	75.4	83	16.4	54.6	95.1
Rajasthan	14.9	76.1	83.9	27.7	75.5	90.6
Sikkim	29	98.8	95.5	55.7	93.1	95.4
Tamilnadu	67.9	89.6	87.8	39.1	87.7	96.4
Tripura	27.9	88.8	88	7.1	90.2	99.2
Uttar Pradesh	13.3	51.5	69.1	15.6	55.4	75.1
Uttarakhand	27	74.5	83.3	24.9	60.7	68.2
West Bengal	26.8	85.8	79.5	29.2	77.8	87.7
Uts Combined	37.9	89.7	83.3	42.9	79.1	86.9
Total	29.4	77.6	81.3	33.5	73.1	85.3

Source : Coverage Evaluation Surveys, 2006 and 2009

**Table A51 : Percentage of children age 12-23 months who received Vitamin A according to States/Uts, CES 2006 and 2009.**

States	CES-2006			CES-2009		
	First dose of Vitamin A	Received at least one dose of vitamin A	Received one dose of vitamin A during past six months	First dose of Vitamin A	Received at least one dose of vitamin A	Received one dose of vitamin A during past six months
Andra Pradesh	-	65	40	84.4	84.7	78.4
Arunachal Pradesh	-	45.6	26	40	43.1	38.4
Assam	-	37.6	11.3	69.3	71.1	65.5
Bihar	-	46.9	34.9	49	49.4	45.1
Chhattisgarh	-	57.6	26.6	62.1	67.3	56.2
Delhi	-	30.9	18.1	65.2	67.7	63.3
Goa	-	80	11.6	87.8	87.8	70.6
Gujarat	-	46	18.3	66.9	69.3	57.5
Haryana	-	60.6	44.1	55.9	58.1	50.8
Himachal Pradesh	-	81.7	60.3	87.8	92.7	79
Jammu & Kashmir	-	56.5	47	59	61.6	54.9
Jharkhand	-	59.2	37.9	63.3	63.3	58.7
Karnataka	-	62.5	42	58.5	87.1	80.6
Kerela	-	72	25.1	66.8	68.2	65.9
Madhya Pradesh	-	66.3	30.5	45.1	48.8	44.7
Maharashtra	-	68	52.9	82.6	84.5	68.9
Manipur	-	23.8	6.9	47.9	48	46.7
Meghalaya	-	44	8.9	58.1	58.8	53.2
Mizoram	-	67.2	42.3	74.4	74.6	73.9
Nagaland	-	23.3	10.9	28.2	29.9	25.4
Orissa	-	79	43.5	69.7	71	65.3
Punjab	-	58.5	43.7	73.1	73.4	71.7
Rajasthan	-	70.5	65.5	59.9	60.5	57.2
Sikkim	-	78.3	55.5	90.1	82.6	88.7
Tamilnadu	-	61	36.7	52.6	56.6	53.9
Tripura	-	46	17.7	68	68	65.8
Uttar Pradesh	-	36.5	23.1	48.9	49.1	44.4
Uttarakhand	-	62.6	32.4	60.8	60.8	59.6
West Bengal	-	79.9	50.9	73.4	74.1	71.9
Uts Combined	-	68.5	32.5	67.8	71.4	65.8
Total	-	57.9	36.8	64	65.4	59.4

Source : Coverage Evaluation Surveys, 2006 and 2009

**Table A52 : Percentage of children age 6-59 months classified as having anaemia, according to states, India, 2005-06**

State	Anaemia status by Haemoglobin level			
	Mild (10.0-10.9 g/dl)	Moderate (7.0-9.9 g/dl)	Severe (<7.0 g/dl)	Any anaemia (<11.0 g/dl)
India <sup>1</sup>	2.6	40.2	2.9	69.5
Delhi	26.3	30	0.7	57
Haryana	25.8	42.2	4.3	72.3
Himachal Pradesh	25.7	26.8	2.2	54.7
Jammu & Kashmir	25.8	30.4	2.4	58.6
Punjab	21.7	38.1	6.6	66.4
Rajasthan	22.8	40.2	6.7	69.7
Uttaranchal	28.5	30.6	2.3	61.4
Chattisgarh	24	45.2	2	71.2
Madhya Pradesh	27.1	43.6	3.4	74.1
Uttar Pradesh	25.4	45	3.6	73.9
Bihar	29.6	46.8	1.6	78
Jharkhand	29.3	39.1	1.9	70.3
Orissa	28.9	34.5	1.6	65
West Bengal	30	29.4	1.5	61
Arunachal Pradesh	27.1	29.1	0.8	56.9
Assam	28.7	38.7	2.2	69.6
Manipur	25.6	15.2	0.3	41.1
Meghalaya	31.7	31.7	1	64.4
Mizoram	23.5	20	0.6	44.2
Sikkim	28.9	29.5	0.8	59.2
Tripura	27.5	34.6	0.7	62.9
Goa	19.5	17.1	1.5	38.2
Gujarat	25	41.1	3.6	69.7
Maharashtra	21.9	39.6	1.8	63.4
Andhra Pradesh	23.7	43.5	3.6	70.8
Karnataka	28.6	38.6	3.2	70.4
Kerala	23.5	20.5	0.5	44.5
Tamil Nadu	27.1	34.6	2.6	64.2

Note: Table is based on children who stayed in the household the night before the interview. Prevalence of anaemia based on haemoglobin levels, is adjusted for altitude using formula in CDC (1998). Haemoglobin in g/dl=grams per decilitre.

<sup>1</sup> Excludes Nagaland

Source : NFHS-3, 2005-06

**Table A53 : Percentage of children under age five years classified as malnourished according to three anthropometric indices of nutritional status: height-for-age weight-for-height and weight for age, according to state, India, 2005-06**

States	Height-for Weight		Weight-for-height		Weight-for-age	
	Percentage below -3 SD	Percentage below -2 SD <sup>1</sup>	Percentage below -3 SD	Percentage below -2 SD <sup>1</sup>	Percentage below 3 SD	Percentage below -2 SD <sup>1</sup>
<b>India</b>	<b>23.7</b>	<b>48.0</b>	<b>6.4</b>	<b>19.8</b>	<b>15.8</b>	<b>42.5</b>
Delhi	20.4	42.2	7.0	15.4	8.7	26.1
Haryana	19.4	45.7	5.0	19.1	14.2	39.6
Himachal Pradesh	16.0	38.6	5.5	19.3	11.4	36.5
Jammu and Kashmir	14.9	35.0	4.4	14.8	8.2	25.6
Punjab	17.3	36.7	2.1	9.2	8.0	24.9
Rajasthan	22.7	43.7	7.3	20.4	15.3	39.9
Uttaranchal	23.1	44.4	5.3	18.8	15.7	38.0
Chhattisgarh	24.8	52.9	5.6	19.5	16.4	47.1
Madhya Pradesh	26.3	50.0	12.6	35.0	27.3	60.0
Uttar Pradesh	32.4	56.8	5.1	14.8	16.4	42.4
Bihar	29.1	55.6	8.3	27.1	24.1	55.9
Jharkhand	26.8	49.8	11.8	32.3	26.1	56.5
Orissa	19.6	45	5.2	19.5	13.4	40.7
West Bengal	17.8	44.6	4.5	16.9	11.1	38.7
Arunachal Pradesh	21.7	43.3	6.1	15.3	11.1	32.5
Assam	20.9	46.5	4	13.7	11.4	36.4
Manipur	13.1	35.6	2.1	9	4.7	22.1
Meghalaya	29.8	55.1	19.9	30.7	27.7	48.8
Mizoram	17.7	39.8	3.5	9	5.4	19.9
Nagaland	19.3	38.8	5.2	13.3	7.1	25.2
Sikkim	17.9	38.3	3.3	9.7	4.9	19.7
Tripura	14.7	35.7	8.6	24.6	15.7	39.6
Goa	10.2	25.6	5.6	14.1	6.7	25
Gujarat	25.5	51.7	5.8	18.7	16.3	44.6
Maharashtra	19.1	46.3	5.2	16.5	11.9	37
Andhra Pradesh	18.7	42.7	3.5	12.2	9.9	32.5
Karnataka	20.5	43.7	5.9	17.6	12.8	37.6
Kerala	6.5	24.5	4.1	15.9	4.7	22.9
Tamil Nadu	10.9	30.9	8.9	22.2	6.4	29.8

Note: Each of the indices is expressed in standard deviation units (SD) from the median of the 2006 WHO  
<sup>1</sup> includes children who are below -3 standard deviations (SD) from the International Reference Population Median.

Source : National Family Health Survey (NFHS-3), 2005-06

**Table A54 : Percentage of children under 2 years who had diarrhoea and ARI during 2 weeks preceding the survey and sought treatment from health facility or provider by States/Uts, CES 2009**

States	Percentage of children suffering from Diarrhoea	Percentage of children with symptoms of ARI	Percentage treated by any health facility
Andra Pradesh	14.2	18.8	88.2
Arunachal Pradesh	10.1	6.7	64.5
Assam	7.8	14.6	79.2
Bihar	17.8	22.8	82.9
Chhattisgarh	13.7	18.5	85
Delhi	25.5	19.5	90.7
Goa	11.1	12.8	97
Gujarat	24.4	23.9	84.4
Haryana	20	13.9	92.2
Himachal Pradesh	5	9.6	92.6
Jammu & Kashmir	18.3	20.7	83.7
Jharkhand	13.6	21.5	70.9
Karnataka	26.2	11.8	90.7
Kerela	5.1	12.6	94.2
Madhya Pradesh	20.6	14.1	75.8
Maharashtra	17.9	20.5	93.1
Manipur	15.3	10.1	77.8
Meghalaya	9.5	5	94.3
Mizoram	15.8	5.1	87.6
Nagaland	11.8	4	50.6
Orissa	9.3	20.5	79.4
Punjab	12.2	16.8	94.7
Rajasthan	15.5	11.1	89.9
Sikkim	4.8	5.1	91.2
Tamilnadu	15.3	14.8	88.8
Tripura	13.1	25.9	95.5
Uttar Pradesh	14.4	23.1	72.3
Uttarakhand	8	18.9	83.2
West Bengal	8.6	22.2	77.8
Uts Combined	14.4	21.4	95.8
Total	15.5	18.8	82.6

Source : Coverage Evaluation Survey, 2009

**Table A55 : Percent distribution of mothers with a child under age five by the manner of disposing of the youngest child's last stools, and percentage of children whose stools disposed safely according to state, India, 2005-06**

India & States	Child used toilet or laterine	Children whose stools disposed safely
<b>India</b>	11.5	21.1
Delhi	39	61.8
Haryana	20	35.8
Himachal Pradesh	20.2	32.3
Jammu & Kashmir	15.9	33.5
Punjab	26.6	52.2
Rajasthan	6	11.1
Uttaranchal	18.9	36.6
Chhattisgarh	4.3	9.9
Madhya Pradesh	6.6	10.4
Uttar Pradesh	10.8	16.8
Bihar	4.7	6.9
Jharkhand	4.5	10.4
Orissa	4.8	7
West Bengal	11.2	18
Arunachal Pradesh	13.5	28.7
Assam	7.1	14
Manipur	7.1	39.8
Meghalaya	20.2	31.7
Mizoram	21	67.2
Nagaland	9.1	30.6
Sikkim	32.4	73.5
Tripura	11.2	35.5
Goa	16.1	44.2
Gujarat	23.2	37.8
Maharashtra	20.2	39.7
Andhra Pradesh	7.2	19.2
Karnataka	7	20.6
Kerala	35.7	73.7
Tamil Nadu	13.2	22.1

Source : National Family Health Survey, 2005-06

## **ANNEXURE-II**

### **Data sources**

**Sample Registration System**

The data on population growth, fertility and mortality serves as the prime constituent for population projections. Apart from these vital indicators, an adequate evaluation of a number of programmes in the health sector, is dependent upon the availability of accurate, up-to-date fertility and mortality data. In India, the registration of births and deaths started on voluntary basis and there was no uniformity in statistical returns resulting in both under-registration and incomplete coverage. In order to unify the Civil Registration activities, the Registration of Births and Deaths Act, 1969 was enacted. Despite having the registration of births & deaths compulsory under the statute, the level of registration of births and deaths under the Act has continued to be far from satisfactory in several States/UTs. To generate reliable and continuous data on the vital indicators, the Office of Registrar General, India, initiated the scheme of sample registration of births and deaths in India popularly known as Sample Registration System (SRS) in 1964-65 on a pilot basis and on full scale from 1969-70. The SRS since then has been providing data on a regular basis.

SRS is a dual reporting system with continuous and retrospective recording of events by two independent functionaries. The main objective of SRS is to provide reliable annual estimates of birth and death rates at the State and National level separately for rural and urban areas. SRS also provides data for estimating Infant Mortality Rate (IMR), Total Fertility Rate (TFR), Maternal Mortality Rate (MMR) and other measures of fertility and mortality. The sample design adopted for SRS is a uni-stage stratified simple random sample without replacement except in stratum II (larger villages) of rural areas, where two stage stratification has been applied. In rural areas, each district within a State has been divided into two strata viz. strata-1: villages with population less than or equal 1500 and strata-2 : villages with more than 1500 population. In urban areas, the categories of towns/cities have been divided into four strata based on the size classes, earlier sampling frame town/cities were divided into six stratas. Towns with population less than one lakh have been placed under stratum I, population one lakh or more but less than 5 lakhs under stratum II, population 5 lakh or more under stratum III and four metro cities of Delhi, Mumbai, Chennai and Kolkata as stratum IV. The sampling unit in urban area is a census enumeration Block. The Census Enumeration Blocks within each size stratum were ordered by the female literacy rate based on the Census 2001 and three equal size substrata were established. The sample Census Enumeration Block within each substratum was selected at random with equal probability (SRS, 2010). A simple random sample of these enumeration blocks have been selected within each substrata without replacement from each of the size classes of towns/cities in each State/Union Territory.

Estimates of population, births, deaths and infant deaths for natural division in rural areas for bigger States and at State level for smaller States separately for rural/urban areas for all States/UTs are obtained using unbiased method of estimation. The estimates of birth, death



and infant death rates are obtained as the ratios of the estimated births to estimated population, estimated deaths to estimated population and estimated infant deaths to estimated births respectively expressed in terms of per thousand. It provides limited information on socio-economic differentials of infant and child mortality.

### **National Family Health Surveys**

The three rounds of National Family Health Surveys (NFHS) conducted during 1992-93, 1998-99 and 2005-06 in India are called as NFHS-1, NFHS-2 and NFHS-3 respectively. The NFHS are conducted under the stewardship of Ministry of Health and Family Welfare, Government of India. The key aim of NFHS was to provide state and national level information on fertility, family planning, infant and child morbidity and mortality, maternal and reproductive health, nutritional status of women and children, and the quality of health services. Within each state, a two-stage stratified random sampling design was adopted in rural areas wherein first villages then households were selected for the survey. In urban areas, a three-stage random sampling design was employed with the selection of cities/towns followed by urban blocks and then households. The survey intended to obtain reliable estimates of the parameters of interest at various levels of aggregation (state, urban/rural metropolitan cities), so target sample sizes were determined based on the lowest level of aggregation at which estimates were desired. In NFHS-1 (1992-93), interviews were conducted with nationally representative sample of 88,562 households and 89,777 ever married women in the age group 13-49 from states and Delhi (which was a UT that time). In NFHS-2 (1998-99), the survey again covered a nationally representative sample of about 89,199 ever married women aged 15-49 from 26 states (the Chhattisgarh, Jharkhand and Uttaranchal were part of Madhya Pradesh, Bihar and Uttar Pradesh respectively) in India. In NFHS-3 (2005-06), more than 94,194 ever married women aged 15-49 were interviewed in the now 29 states of India. The areas covered by each of the surveys accounted for 99 percent of the country's population.

In each of the three rounds of the NFHS, all eligible women were asked to provide information on complete birth history, which included sex, month and year of birth, and survival status for each live birth. The information on age at death was recorded in days for children who had died in the first month of life; in months for children who had died after the first month but before completion of their second birthday, and in years for children who had died at later ages. For children who had died after their second birthday, the imputed values of age at death in months were provided. Detailed information were also obtained on antenatal, delivery and postnatal care, height and weight and haemoglobin level (only in NFHS-3) for the births which occurred to eligible women during the recent years.

The data on antenatal care, particulars of newborn and breastfeeding and immunization, did not have uniform reference period in all three rounds of the survey. Reference period of the data collected on these issues from eligible women, in three rounds is given in table below:

Table 1. Reference period and recent live births for information collected from eligible women

Major issue	NFHS-1	NFHS-2	NFHS-3
Antenatal Care	At most three recent live births during the four years preceding the survey.	At most two recent live births during the three years preceding the survey.	At most three recent live births during the five years preceding the survey.
Child births and breastfeeding	At most three recent live births during the four years preceding the survey.	At most two recent live births during the three years preceding the survey.	All live births during the five years preceding the survey except natal care and breast feeding which were taken for most recent live birth.
Immunization	At most three recent live births during the four years preceding the survey.	At most two recent live births alive on day of survey born during three years preceding the survey.	All children alive on date of survey who born during the five years preceding the survey.

### Annual Health Survey

Annual Health Survey has been envisaged as a panel survey to provide benchmarks for health and vital indicators at district level of nine states namely Bihar, Jharkhand, Odisha, Rajasthan, Madhya Pradesh, Chhattisgarh, Uttar Pradesh, Uttarakhand & Assam which have high fertility and mortality rates. The objective was to monitor the performance and outcome of various health interventions of the Government including those under National Rural Health Mission (NRHM) as closer interval through these benchmark indicators. The responsibility of the surveys has been entrusted to the Office of Registrar General, India on behalf of the Ministry of Health & Family Welfare. First round of the AHS was conducted in 2010-11 with baseline survey and followed by two updation rounds in 2011-12 and 2012-13.

The sample design adopted for Annual Health Surveys is a uni-stage stratified simple random sample without replacement except in case of larger villages in rural areas (population more than or equal to 2000 as per 2001 Census), wherein a two stage stratified sampling has been applied. The sample units are Census Enumeration Blocks (CEBs) in urban areas and villages in rural areas. The data in AHS is to be disseminated in two stages. In the first stage, the state-wise bulletins covering nine parameters get released followed by state-wise fact sheets with host of other indicators. The data collection for 3rd round of AHS has been undertaken through interview of 4.32 million households spread in 284 district of nine states where AHS has been operational.

## **District Level Household Surveys (DLHS)**

District Level Household Surveys (DLHS) were undertaken to monitor the ongoing health and family welfare programmes. The need for a database at the district level was felt by the Government of India and for this purpose District Level Household and Facility Surveys : DLHS-1 (Reproductive Child Health Projects Rapid Household Survey) in 1998-99 was carried out in 504 districts of India which existed in 1995. A total of 529,817 households were contacted during the survey. From these surveyed households, 474,463 eligible women (currently married women in the age group 15-44 who are usual residents of the surveyed households) and 198,566 men in the age group 20-54 were interviewed. DLHS-2 was conducted in 2002-04 in 593 districts and the data was collected by interviewing 5,07,622 currently married women aged 15-44 years and 3,30,820 husbands of eligible women from 6, 20,107 households in India.

DLHS-3 in 2007-08 were conducted. The main objective of DLHS were to provide RCH outcome indicators at the district level. DLHS was designed to provide estimates on maternal and child health, family planning and other reproductive health indicators. DLHS-3 also provided information related to the programmes under the National Rural Health Mission (NRHM). In the first two rounds of DLHS, currently married women aged 15-44 years were interviewed whereas, in DLHS-3, along with ever-married women (aged 15-49), unmarried women (aged 15-24) were also interviewed. A multi-stage stratified probability proportion to size sampling design was adopted. DLHS-3 was one of the largest ever demographic and health surveys carried out in India, with a sample size of 7,20,320 households from 34 states and union territories of India (excluding Nagaland). From these households, 6,43,944 ever married women aged 15-49 years and 1,66,260 unmarried women aged 15-24 years were interviewed.

## **Coverage Evaluation Surveys (CES)**

Promotion of maternal care and child health is one of the key objectives of the Reproductive and Child Health (RCH) Programme and the National Rural Health Mission (NRHM) in India. The Government of India is making concerted efforts in improving the quality and access of maternal, newborn and child care as well as immunisation services. The National Rural Health Mission (NRHM) was launched by the Government of India on April 12, 2005, with a vision to improve health care for the rural population throughout the country. Its special focus was on 18 States which have weak public health indicators. The 18 high-focus States are Uttar Pradesh, Bihar, Rajasthan, Madhya Pradesh, Orissa, Uttaranchal, Jharkhand, Chhattisgarh, Assam, Sikkim, Arunachal Pradesh, Manipur, Meghalaya, Tripura, Nagaland, Mizoram, Himachal Pradesh and Jammu & Kashmir. All 8 North-East States, are among the States selected under the Mission, for special focus. Among its other goals, NRHM seeks to improve the access of rural people, especially poor women and children, to equitable, affordable, accountable and effective primary health care. Maternal reproductive health care, promotion of institutional deliveries and routine immunizations are the key interventions of NRHM. To realize its vision, NRHM has as its key components, provision of a female Accredited Social Health Activist (ASHA) in each village. UNICEF has been conducting a Coverage Evaluation Surveys (CES) every year since 1995 (except

during 2002-04) to assess the key indicators related to the Universal Immunisation Program and maternal care services.

UNICEF organised a coverage evaluation survey in 2009 (CES 2009) to assess the utilisation of maternal, newborn and child health services including immunisation. The Coverage Evaluation Survey 2009 -- a nationwide survey covering all the States and Union Territories of India – was undertaken. The basic objective of CES 2009 was to assess the maternal and child health coverage including routine immunisation levels among women and children.

All children aged 12-23 months and women who delivered during 12 months preceding the survey in the urban and rural areas in the country formed the two universes of the study. The information was collected from the following target respondents: Mothers/care givers of children aged 12-23 months and Women who delivered during 12 months preceding the survey. In rural areas of each State a two/three stage stratified sampling design was used with villages as the first stage units and the respondent categories as the second stage units. In each State all the towns were stratified into five strata viz., metros/towns with less than 1 lakh population, towns with 1-5 lakh population, towns with 5-10 lakh population and towns with more than 10 lakh population. In the selected households, interviews were completed with 22,604 mothers/care givers of children aged 12-23 months. 22,984 women who delivered during the last 12 months were interviewed. In both the categories more than half of the respondents were from the rural areas.

### **Houselisting and Housing Census, 2011**

Census of India 2011 was conducted in two phases. The first phase, called the “Houselisting and Housing Census” was undertaken a few months prior to the second phase termed as “Population Enumeration”. The objective of the Houselisting and Housing Census Operations is to identify each building/census house and also to ascertain the quality of the census house, amenities accessible to it and assets available to the households living in those census houses. The fundamental principle is to cover the entire country in a systematic manner without omission or duplication. The enumerator collects the required information by visiting each and every household and canvassing a written questionnaire called the Houselist and Housing Schedule. In Census 2011, a period of 45 days was given for this purpose. Every State/Union Territory chose this period in a time window starting April 2010 to September 2010 depending upon their convenience. The information was collected on 35 items and 1.5 crore Census Schedules were canvassed in 16 Indian languages.

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## GLOSSARY & ABBREVIATIONS

AHS	:	Annual Health Survey
ANC	:	Antenatal Care
ANM	:	Auxiliary Nurse Midwife
ARI	:	Acute Respiratory Infection
BCG	:	Bacill Calmette Guerin
BMI	:	Body Mass Index
CES	:	Coverage Evaluation Survey
CMR	:	Child Mortality Rate
CSSM	:	Child Survival and Safe Motherhood (Programme)
DLHS	:	District Level Household Survey
DPT	:	Diphtheria, Pertussis and Tetanus
EPI	:	Expanded Programme of Immunization
EAG	:	Empowered Action Group
ICDS	:	Integrated Child Development Services
IFA	:	Iron-Folic Acid
IMR	:	Infant Mortality Rate
JSY	:	Janani Suraksha Yojana
JSSK	:	Janani Shishu Suraksha Karyakram
LHV	:	Lady Health Visitor
LPG	:	Liquefied petroleum gas
MDG	:	Millennium Development Goal
MMR	:	Maternal Mortality Rate
NFHS	:	National Family Health Survey
NMR	:	Neonatal Mortality Rate
NRHM	:	National Rural Health Mission
OBC	:	Other Backward Class
ORS	:	Oral Rehydration Solutions/Salts
ORT	:	Oral rehydration Therapy
OPV	:	Oral Polio Vaccine
PHC	:	Primary Health Centre
RCH	:	Reproductive and Child Health
SC	:	Scheduled Caste
SLI	:	Standard of Living Index
SRS	:	Sample Registraton System
ST	:	Scheduled Trbe
TBA	:	Trained Birth Attendant
TT	:	Tetanus Toxoid
U5MR	:	Under-five Mortality Rate
UIP	:	Universal Immunisation Programme
UNICEF	:	United Nations Children's Fund
VPD	:	Vaccine Preventable Diseases

Colostrum	:	Colostrum is a milky fluid that comes from the breasts of humans, cows, and other mammals the first few days after giving birth, before true milk appears. It contains proteins, carbohydrates, fats, vitamins, minerals, and proteins (antibodies) that fight disease-causing agents such as bacteria and viruses.
<b>Full ANC</b>	:	At least three visits for antenatal check-up, one TT injection received and 100 IFA tablets or adequate amount of syrup consumed.
<b>Full Immunization</b>	:	BCG, 3 injection of DPT, 3 doses of Polio (excluding polio zero) and Measles.
Skilled Health Personnel	:	Doctor/ANM/Nurse/midwife/LHV/other health personnel.
Death rate	:	Number of deaths per 1000 population in a given year.
Infant mortality rate	:	Number of deaths to infants under one year of age in a given year per 1000 live births in that year
Still birth rate	:	Number of still birth occurred after the completion of 28 weeks of gestation in a year per thousand total births.
Peri-natal mortality rate	:	Number of fatal deaths after 28 weeks of pregnancy (late fatal deaths) plus the number of deaths to infants under 7 days of age in given year per 1000 total births in that year.
Early Neo-natal mortality rate	:	Number of infant deaths of under 7 days of age in a given year per 1000 life births in that year.
Neo-natal mortality rate	:	Number of deaths of infants under 29 days of age in a given year per 1000 live births in that year.
Post-natal mortality rate	:	Number of infants deaths of 29 days to under one year of age in a given year per 1000 live births in that year.
Under-five mortality rate	:	The under-five mortality is the probability that a child born in a specific year or time period will die before reaching the age of five, subject to current age specific mortality rates. It is expressed as a rate per 1,000 live births.

Age-specific mortality rate	:	Number of deaths in a particular age-group in a given year per 1000 mid-year population of the same age group in that year
Stunting	:	Children whose height-for-age Z-score is below minus two standard deviation (-2SD) from the median of the reference population are considered short for their age or stunted.  Moderate - below minus two standard deviations (-2SD) from median height for age of reference population; Severe - below minus three standard deviations (-3SD) from median height for age of reference population.
Wasting	:	Moderate - below minus two standard deviations (-2SD) weight for height of reference population; Severe - below minus three standard deviations (-3SD) weight for height of reference population.
Underweight	:	Moderate - below minus two standard deviations from median weight for age of reference population; Severe - below minus three standard deviations from median weight for age of reference population.