

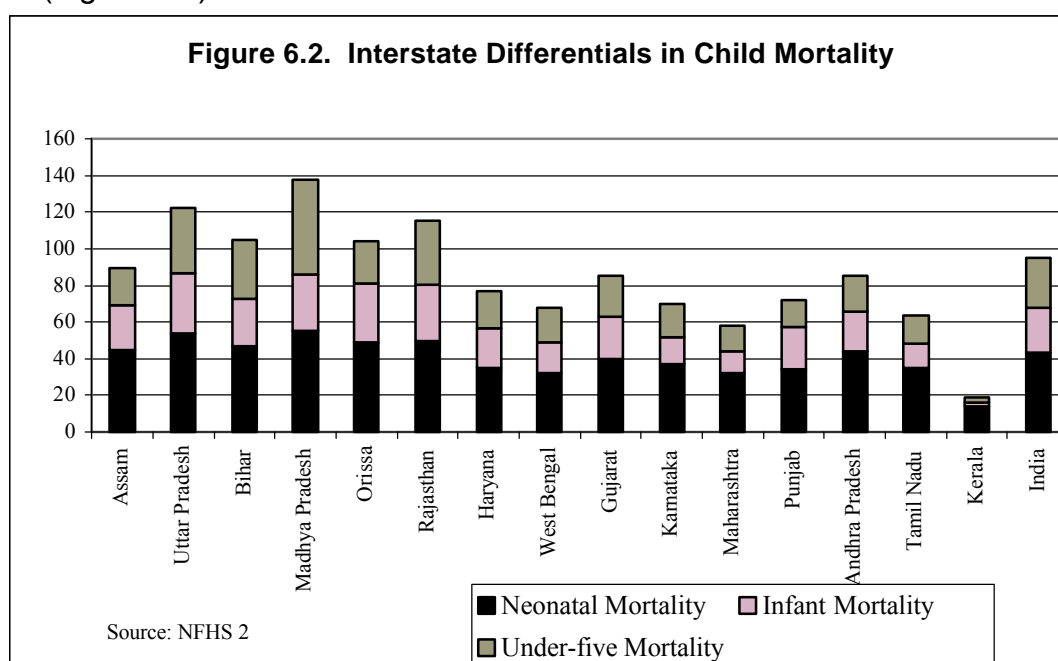
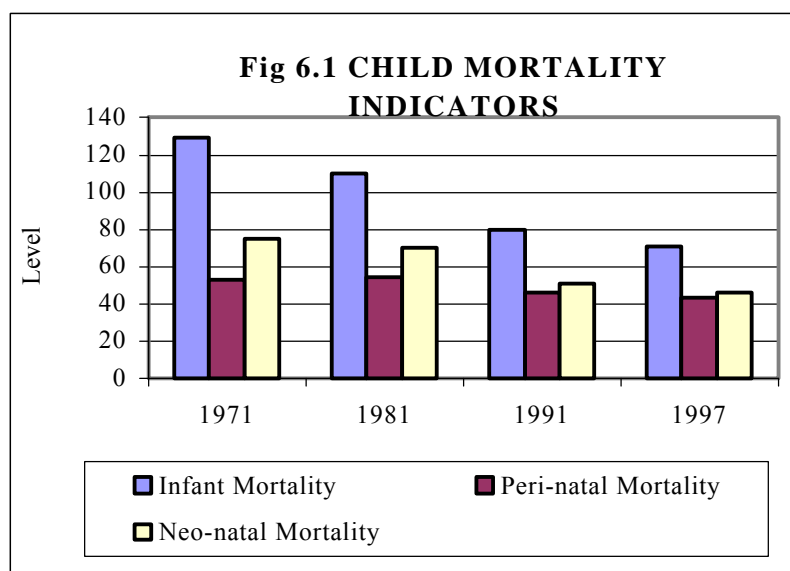
## Chapter VI CHILD HEALTH

Infant and under five mortality rates are excellent indicators of health status of the children. In India there is no system for collection and analysis of data on morbidity during childhood. In the absence of morbidity data, available mortality data and analysis of causes of death have been utilized for drawing up priority interventions for improving child health.

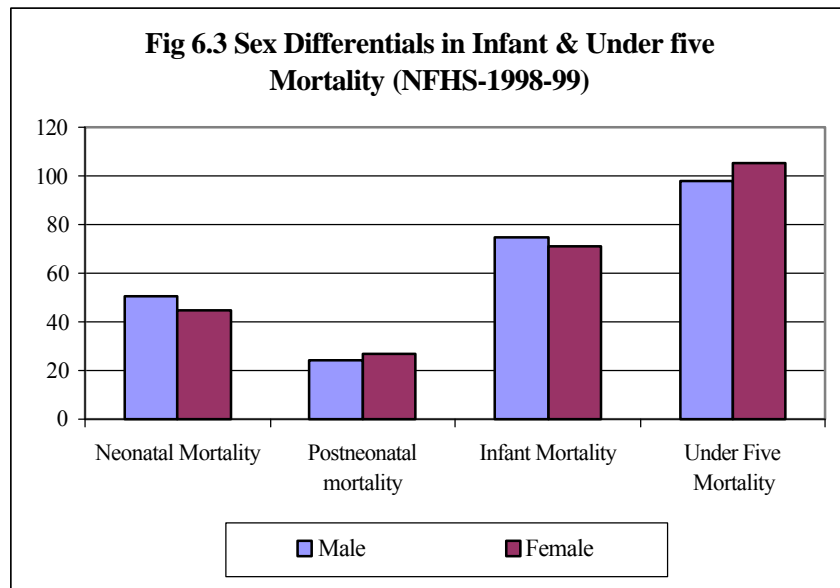
Ongoing major intervention programmes in child health include:

- essential new born care.
- programmes for reducing mortality due to ARI and diarrhea and
- immunization to prevent morbidity and mortality due to vaccine preventable diseases;
- food and micronutrient supplementation programmes aimed at improving the nutritional status;

Improved access to immunization, health care and nutrition programmes have resulted in substantial decline in IMR over the last five decades. However it is a matter of concern that the decline in perinatal and neonatal mortality have been very slow (Figure-6.1).



IMR has remained unaltered in the last few years. It is estimated that under nutrition and anaemia are contributory factors in over 50% of under five deaths. There are substantial differences in the neonatal, infant and under five mortality rates between states (Fig 6.2). The gender differences in IMR and under five mortality rates persist (Fig 6.3)



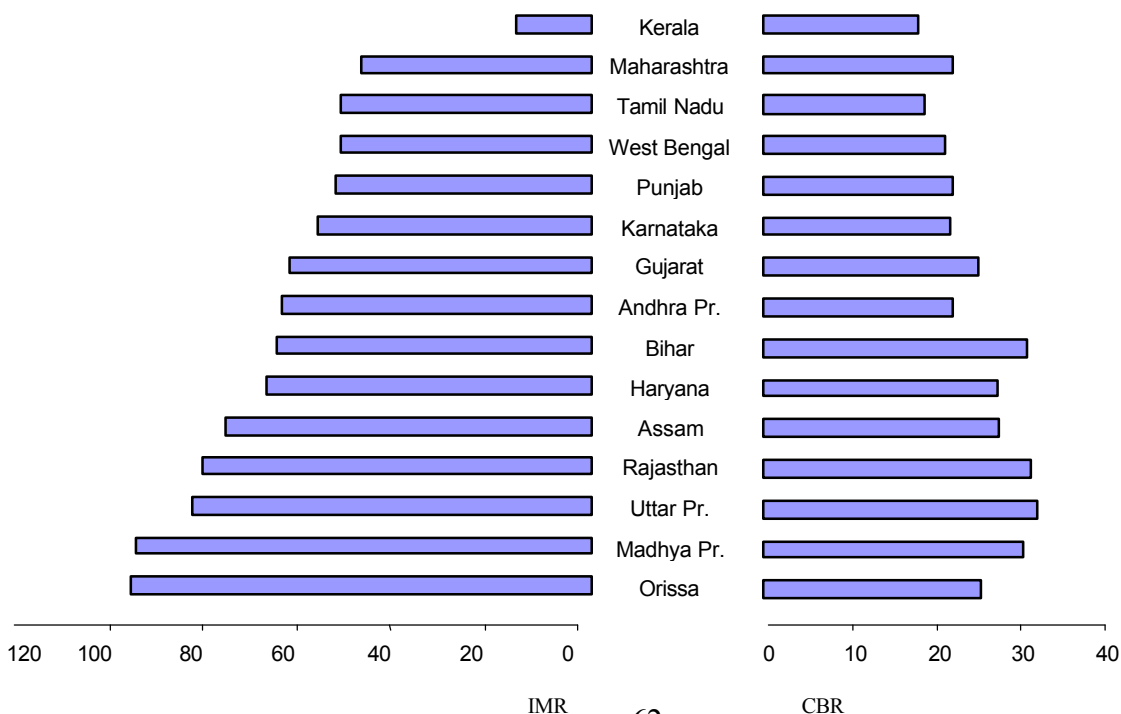
There is no biological reason for a higher mortality rate in females in the age group 0-4 years. The social causes, which adversely affect the mortality rate of girls, need to be tackled. Over the last three decades there has not been any substantial change in the major causes of deaths during infancy. Major causes of infant mortality continue to be:

- Prematurity and low birthweight
- Poor intrapartum and newborn care
- Diarrhoeal diseases;
- Acute respiratory infections and other infections
- Other infections

**Inter relationship between IMR and CBR**

Fig 6.4 INFANT MORTALITY RATE 1998

CRUDE BIRTH RATE 1998



Access to family welfare services and contraceptive care is a critical determinant of infant mortality and birth rate. In spite of the fact that health and contraceptive care are provided to the same personnel the decline in these indices do not always go hand in hand ( Fig 6.4). There are massive differences in the birth rates and IMR mortality rates not only between states but also between districts in the same states. In spite of relatively high IMR states like Tamil Nadu and Andhra Pradesh have achieved steep decline in fertility. In States/districts in which fertility has declined without commensurate decline in IMR there should be focussed area specific situation analysis and intervention to reduce IMR. For undertaking such decentralised district specific action it is essential that reliable district specific data on birth rates and IMR is available yearly. This can be achieved only through 100% birth and death recording, collation and analysis at district level. Such a system would also enable continuous monitoring of the impact of the intervention and midcourse corrections. In view of this strengthening of the CRS to achieve this will be given priority during the Tenth Plan period.

### **Child Health interventions during the Ninth Plan**

Under the RCH programme comprehensive integrated interventions to improve child health were initiated to address each of the major factors contributing to high IMR and under five mortality. Components of child health care include:

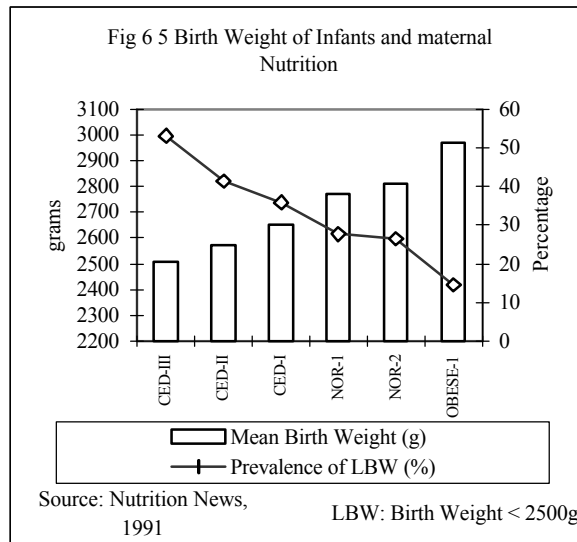
- ☛ Essential newborn care
- ☛ Immunisation
- ☛ Nutrition
  - Exclusive Breastfeeding for 6 months
  - Timely introduction of complimentary feeding
  - Detection and management of growth faltering
  - Massive dose Vitamin A supplementation
  - Iron supplementation if needed
- ☛ Early detection and appropriate management of
  - Acute Respiratory Infections
  - Diarrhoea
  - other infections

### **Essential new born care**

India has the dubious distinction of having very high prevalence of the low birth weight. Currently nation wide data on birth weight in different states and districts is not available because majority of births occur at home and these infants are not weighed soon after birth. Estimates based on available data from institutional deliveries and smaller community based studies suggest that about 1/3 of all Indian infants weigh less than 2.5 Kg at birth. There are interstate and inter economic group differences in birth weight. There has hardly been any change in birth weight in the past three decades. A gender difference has been noted in mean birth weights, female infants tending to be lighter than male counterparts. Birth weight is influenced

by the nutritional and health status of the mother. The incidence of low birth weight is highest in low -income groups.

There is a good correlation between birth weights and BMI of mother (Fig 6.5). A significant reduction in birth weight has been observed in anaemic women; low birth weight rate doubles when Hb levels fall below 8 gms/dl. Some factors , which have profound influence on birth weight such as parent's stature, are not amenable to short term corrective interventions. On the other hand factors like anaemia, PIH and nutritional factor such as maternal weight gain during pregnancy which affected birth weight can be corrected during pregnancy and could result in substantial reduction both in pre-term birth and birth of small for dates children. During the Tenth Plan efforts will be made to identify women with correctable problems through the improvement in the coverage, quality and content of antenatal care and provide appropriate management including referral services .



Available data from India suggested that only 10-15% of all births occur before 37 weeks (preterm births); about 20-25% weigh less than 2.5 kg but are mature; they thrive under normal care of new born even at home. If all the neonates weighing below 2.5 kg are considered as being at risk and sent to hospitals for care, hospitals will get over loaded. Studies conducted in India during the last three decades have shown that the neo-natal and infant mortality rate steeply increase only when birth weight falls below 2.2 kg or infants are premature.

Earlier efforts were to reduce low birth weight because :

- LBW is very highly associated with infant (and especially neonatal) mortality
- Developing countries with the highest IMRs also have the highest rates of LBW
- Developing countries cannot afford the technologies for neonatal intensive care needed to reduce mortality among LBW infants
- During the last three decades there has not been any major reduction in proportion of low birth weight babies.
- In most states there has been substantial reduction in IMR even though there is no change in Birth weight.
- Reduction in LBW is not an essential prerequisite for reduction in IMR

Experience of states like Kerala , Pondicherry and Goa have shown that at the state level it is possible to achieve substantial decline in IMR and

child mortality rates without any significant improvement in birth weight and reduction in infants weighing below 2.5 kg.

**During the Tenth Plan** every effort will be made to

- screen pregnant women for undernutrition and anaemia and provide appropriate intervention;
- At risk individuals will be advised to have delivery in institutions which can provide optimal intrapartum and neonatal care and improve neonatal survival.
- In all home deliveries AWW worker checks the birth weight as soon after delivery as possible and refer those neonates with birth weight less than 2.2 kg to hospitals where there is a pediatrician is available and FRU/ CHCs honour the referrals. If these interventions are fully operationalised it will be possible to achieve substantial reduction in the neonatal mortality rate within a short period.

### Operationalisation of newborn care

	%
Early neonatal mortality	48
Late neonatal mortality	17
Post neonatal mortality	35

Two third of all the neonatal deaths occur in the first seven days after birth (Table 6.1). Percentage of infant deaths in the first week to the total infant deaths in the first 28 days is as high as 67% while the remaining 33% of deaths occur between 1-4 week. Major causes of neonatal deaths are prematurity, asphyxia,

sepsis. (Table 6.2) If neonates requiring care are identified and referred to appropriate facility they can be effectively treated and it will be possible to achieve substantial decline in neonatal mortality.

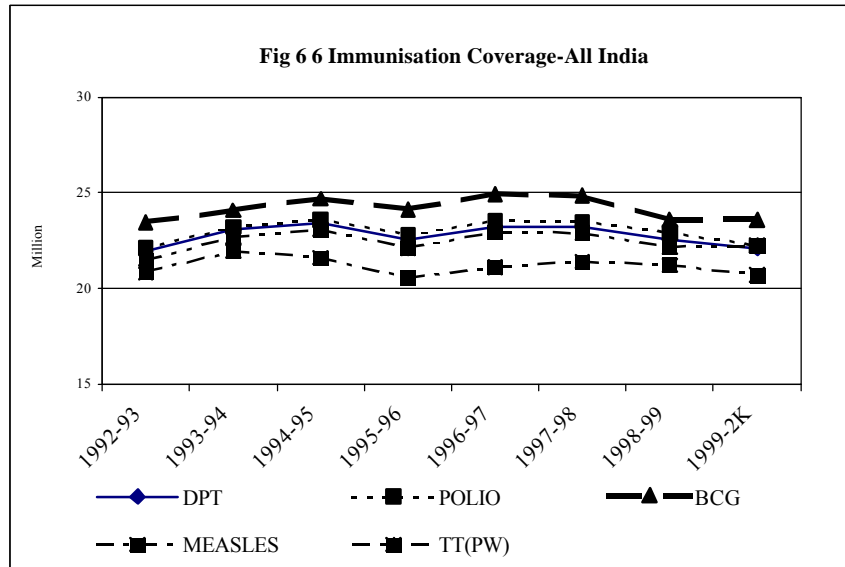
Sepsis	52
Asphyxia	20
Prematurity	15
Others	13

In order to accelerate the decline of IMR, essential newborn care was included as an intervention under the RCH Programme. Equipment for essential newborn care was supplied to districts and skill upgradation training for Medical officers and other staff at the district hospitals and medical colleges to improve content, quality and coverage of essential newborn care was envisaged; collaboration with the National Neonatology Forum (NNF) for operationalisation of newborn care facilities at the primary level was initiated. In addition Dept of Family Welfare and ICMR are funding research studies on the feasibility, replicability and effectiveness of community based newborn care in reducing neonatal mortality in settings where access to primary health care institutions are suboptimal. Focus during the Tenth Plan will be to operationalise the appropriate essential newborn care in all settings so that there is substantial reduction in the early neonatal mortality both in institutional deliveries and home deliveries.

## Immunisation

The Universal Immunization Programme (UIP) was taken up in 1986 as

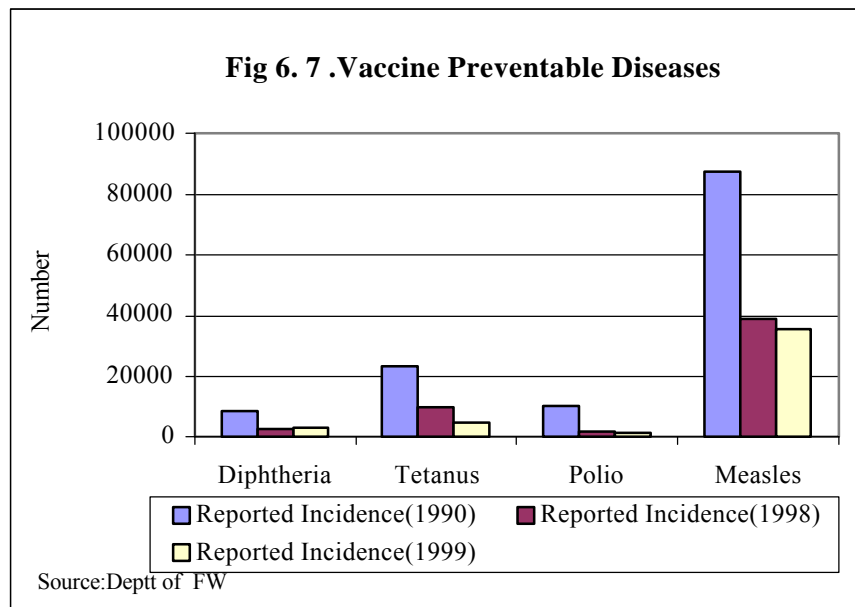
National Technology Mission and became operational in all districts in the country during 1989-90. UIP became a part of the Child Survival and Safe Motherhood (CSSM) Programme in 1992 and Reproductive and Child Health



(RCH) Programme in 1997. Under the Immunization Programme, infant are immunized against tuberculosis, diphtheria, pertussis, poliomyelitis, measles and tetanus. Universal immunisation against 6 vaccine preventable diseases (VPD) by 2000 was one of the goals set in the National Health Policy (1983). This goal however has not been achieved (Fig 6.6). Available data from service reporting indicate that there had not been any improvement in the coverage during the nineties. This has been a source of concern.

However reported cases of vaccine preventable diseases have declined over the same period (Fig 6.7).

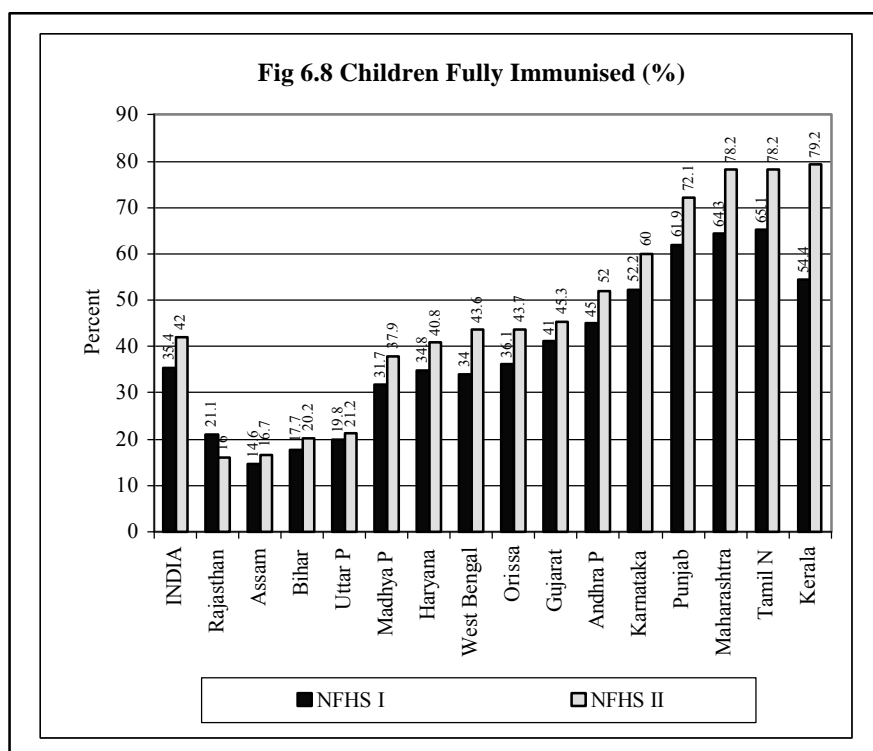
Data from NFHS indicate that there has not been any decline in the immunization coverage over



the nineties. However none of the states have achieved coverage levels over 80% (Fig 6.8); coverage level in states like Bihar UP and Rajasthan were very low. The drop out rates between the first second and third doses of oral polio vaccine and DPT have been very high in most of the states. Lower coverage (over 20%) is reported for measles as compared to other

immunisations.

It has been suggested that one of the major reasons for not achieving 100% routine immunisation is the focus on campaign mode programmes in Health and Family Welfare. The Dept of Family Welfare has now taken up a scheme for strengthening of routine immunization. A pilot project on Hepatitis B



immunization and injections safety has also been initiated. Data from NFHS 2 and RHS regarding immunization coverage is given in Annexure 6.1 .

### During the Tenth Plan every effort will be made to achieve

- 100% coverage for six vaccine preventable diseases
- Eliminate Polio and neonatal tetanus through;
- Strengthening routine immunisation programmes and
- Discourage campaign mode operations which interfere with routine services .
- Greater involvement of the private sector and
- Improving awareness through all channels of communication.
- Improve quality of care including ensuring injection safety using appropriate, sustainable technology.
- Correct overreporting of coverage under service reporting through supervision; the concept that the reduction in the disparity between service reporting and coverage evaluation service is an indication of an improvement in quality will be introduced.
- Evaluate ongoing Pilot projects on introduction of Hepatitis B vaccine including those where vaccine costs are borne by the parents.
- Explore appropriate sustainable models of providing newer vaccines without overburdening the system and programme (including charging actual costs for the newer vaccines from persons above poverty line)
- Expand on-going polio surveillance to cover all VPD in a phased manner

### Pulse Polio Immunization

India initiated the Pulse polio programme in 1995-96. Under this programme all children under five years are to be administered two doses of

OPV in the months of Dec and Jan every year until polio is eliminated. Pulse Polio Immunization in India has been a massive programme covering over 12 crores of children every year. Coverage under the pulse polio immunization has been reported to be over 90% in all States, however, it has been a matter of concern that over the last 5 years coverage under routine immunization has not improved; in fact in some States there has been a substantial decline. There are segments of population who escape both routine immunization and the pulse polio immunization. As a result of all these, the decline in number of polio cases, though substantial, was not sufficient to enable the country to achieve zero polio incidence by 2000. National Polio Surveillance Programme (NPSP) was started in 1997 with DANIDA and USAID assistance and is working under the management of WHO. The management of NPSP will ultimately transferred to GOI. The programme has helped in detection of cases, case investigations, laboratory diagnosis and mop up immunization.

Confirmed polio cases reported in the last four years is shown in Table 6.3. Uttar Pradesh and Bihar account for most of the reported cases. Mop-up immunization is being undertaken following detection of any wild poliovirus including areas with clusters of polio compatible cases and in areas of continued poliovirus transmission. The SNID and NIDs is being conducted using combined fixed posts and house to house approach in all the States. Special efforts are being made to achieve high routine and campaign coverage in under-served communities, remind families about need for routine immunization during the PPI campaigns.

<b>Year</b>	<b>No of confirmed poliocases</b>
<b>1998</b>	<b>1931</b>
<b>1999</b>	<b>1126</b>
<b>2000</b>	<b>265</b>
<b>2001</b>	<b>268</b>

**Source: Deptt of FW**

The medical goal of polio eradication is to prevent paralytic illness due to polioviruses by elimination of wild poliovirus the virus so that the countries of the world need not continue to immunize all children perpetually. India will probably achieve zero incidence of polio by 2002. If for the next three years there are no more cases the country will be declared polio free. As and when this is achieved the country will have to take steps to ensure that the disease does not return. The oral polio vaccine contains live attenuated virus. Recent experiences in Egypt, Dominican Republic and Haiti have shown that the vaccine derived viruses can become neurovirulent and transmissible. Such mutant viruses have caused outbreaks of polio when immunization coverage drops. It may, therefore, not be possible to discontinue polio immunization. Several of the countries which have eliminated polio have shifted to injectable killed polio vaccine after elimination of the disease. India along with other developing countries of South Asia may have to consider all these options and prepare appropriate strategies during the Tenth Plan.



## Infections in children

NFHS-2 collected information on the prevalence and treatment of fever, Acute Respiratory Infection (ARI), and diarrhoea which are three major causes of mortality in young children; 30 percent of children under age three had fever during the two weeks preceding the survey, 19 percent had symptoms of ARI, and 19 percent had diarrhoea. About two-thirds of the children who had symptoms of ARI or diarrhoea were taken to a health facility or health-care provider. Knowledge of the appropriate treatment of diarrhoea remains low.

### Diarrheal disease control programme

Diarrhea is one of the leading causes of death among children. Most of these deaths are due to dehydration caused due to frequent passage of stools and are preventable by timely and adequate replacement of fluids. The Oral Rehydration Therapy (ORT) Programme was started in 1986-87. The main objective of the programme is to prevent death due to dehydration caused by diarrheal diseases among children under 5 years of age due to dehydration. Health education aimed at rapid recognition and appropriate management of diarrhea has been a major component of the CSSM. Use of home available fluids and ORS has resulted in substantial decline in the mortality associated with diarrhoea from estimated 10-15 lakh children every year prior to 1985 to 6-7 lakhs deaths in 1996 (Table 6.4). In order to further improve access to ORS packets 150 packets of ORS are provided as part of the drug kit-A. Under the RCH programme two such kits are supplied to all sub-centres in the country every year. In addition social marketing and supply of ORS through the PDS are being taken up in some states. Data from NFHS 2 & RHS regarding ORS coverage is in Annexure 6.1. However RHS data indicate that in only 9 districts in the country ORS was used in more than 50% of cases of diarrhoea. Improving access to and utilization of Home available fluids/ORS for effective management of diarrhoea will receive priority attention as an inexpensive effective tool to reduce IMR /under five mortality in the country.

**Table 6.4 Children with Diarrhoea –**

% treated with ORS	
%	Districts
>50	9
25-49	82
<25	413

### Acute Respiratory Infections Control.

Pneumonia is a leading cause of deaths of infants and young children in India, accounting for about 30% of the under-five deaths. Under the RCH Programme, Tablet co-trimoxazole is supplied to each sub-Centre in the country as part of Drug Kit-A.. Mothers and community members are being informed about the symptoms of ARI which would require antibiotic treatment or referral. Skill upgradation training for early diagnosis of ARI and appropriate treatment including referral envisaged under RCH programme has not yet been completed. This should receive immediate attention during the Tenth Plan period.

## Strategy for Tenth Plan

In view of the substantial differences in the IMR/NNMR between states and between districts differential strategy will be adopted during the Tenth Plan . Where ever data on district specific IMR and NNMR is available from CRS district specific strategy and where ever these are not available state specific strategies will be adopted. In states/districts with high IMR where Early neonatal mortality is less than 50% of the IMR focus will initially be on improving postneonatal mortality through appropriate interventions. In districts /states where IMR is relatively low and ENNMR forms more than 50% of the IMR the focus will be on antenatal and intra partum and neonatal care.

### ***For all districts***

#### *At Birth*

- ☛ Essential new born care
- ☛ Weighment at birth and referral for preterm babies and neonates weighing less than 2.2 kg to institutions where paediatrician is available

#### *Nutrition Interventions*

- ☛ Promote exclusive breast-feeding upto 6 months
- ☛ Introduce semi-solid supplements at 6<sup>th</sup> month
- ☛ Screen all children to identify those with severe grades of under-nutrition and treat them
- ☛ Administer massive dose of vitamin A supplements as per schedule
- ☛ Administer iron-folate supplements if needed

#### *Health Interventions*

- ☛ Universal immunisation against the 6 vaccine preventable diseases
- ☛ Early detection and management of ARI/diarrhoea

### Immunisation and use of ORS - Comparison between R.H.S and NFHS II

Sl. No.	State/UT	Full Immunisation		No Immunisation		ORS packets for Diahhorea		Districts with Full Immunisation less than 40% (RHS, 98-99)	
		RHS	NFHS-II	RHS	NFHS-II	RHS @	NFHS \$	No.	Total Distt. Covered
	<b>INDIA</b>	<b>54.2</b>	<b>42.0</b>	<b>18.7</b>	<b>14.4</b>	<b>11.2</b>	<b>26.8</b>	<b>151</b>	<b>504</b>
<b>I.</b>	<b><u>MAJOR STATES</u></b>								
1	Andhra Pr	74.7	58.7	2.4	4.5	25.2	39.6	0	23
2	Assam	46.7	17.0	11.6	33.2	17.1	37.1	9	23
3	Bihar	20.1	11.0	53.1	16.8	8.6	15.4	30	30
4	Gujarat	58.2	53.0	10.2	6.6	13.8	28.9	2	19
5	Haryana	66	62.7	10.4	9.9	4.8	25.7	0	17
6	Karnataka	71.6	60.0	5.7	7.7	15.0	34.3	2	20
7	Kerala	83.8	79.7	1.8	2.2	24.3	47.9	0	14
8	Madhya Pr	47.3	22.4	13.3	13.9	7.9	29.8	16	38
9	Maharashtra	79.5	78.4	1.9	2.0	10.4	33.2	0	30
10	Orissa	57.4	43.7	10.0	9.4	24.8	35.1	2	30
11	Punjab	72.6	72.1	9.7	8.7	2.4	42.3	0	17
12	Rajasthan	36.9	17.3	33.6	22.5	4.7	20.3	19	30
13	Tamil Nadu	91.5	88.8	0.4	0.3	16.6	27.9	0	23
14	Uttar Pr	44.5	21.2	27.3	29.5	4.9	15.8	26	58
15	West Bengal	51.3	43.8	14.0	13.6	23.5	40.5	6	19
<b>II.</b>	<b><u>SMALLER STATES</u></b>								
1	Arunachal Pr	30.4	20.5	22.9	28.7	13.7	40.2	10	13
2	Chattisgarh	59.1	NA	7.8	NA	NA	NA	1	7
3	Delhi	84.8	69.8	2.4	5.1	NA	39.1	0	1
4	Goa	88.3	82.6	0.0	0.0	13.8	55.6	0	2
5	Himachal Pr	80.5	83.4	2.4	2.8	17.2	45.6	1	12
6	Jharkhand	30.8	NA	34.1	NA	NA	NA	9	13
7	J & K	52.8	56.7	1.0	10.4	12.0	47.5	2	13
8	Manipur	50.6	42.3	20.5	17.2	13.6	50.7	4	8
9	Meghalaya	32.7	14.3	18.0	42.3	10.4	22.4	5	7
10	Mizoram	66.7	59.6	5.7	10.4	23.5	44.7	1	3
11	Nagaland	26.2	14.1	8.8	32.7	30.9	29.7	5	6
12	Sikkim	65.4	47.4	4.2	17.6	40.3	27.0	0	4
13	Tripura	45.4	NA	16.9	NA	14.1	NA	1	3
14	Uttaranchal	62.8	NA	19.4	NA	NA	NA	0	10
<b>III.</b>	<b><u>UNION TERRITORIES</u></b>								
1	A&N Islands	77.4	NA	1.8	NA	29.8	NA	0	2
2	Chandigarh	61.6	NA	1.8	NA	35.7	NA	0	1
3	D&N Haveli	77.3	NA	2.7	NA	7.9	NA	0	1
4	Daman & Diu	72.0	NA	4.2	NA	17.3	NA	0	2
5	Lakshadweep	94.8	NA	0.3	NA	3.1	NA	0	1
6	Pondicherry	95.3	NA	0.1	NA	18.9	NA	0	4

@ Percentage mothers whose children got ORS packets as treatment of diarrhoea  
 \$ Percentage of children who suffered diarrhoea and got ORS packets as treatment.