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Growth and Gap in Child Health Achievements in West Bengal, India

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Abstract

Health is a state of complete physical, mental and social wellbeing and not merely the absence of diseases or infirmity (WHO). The performance of West Bengal has been noticeable in health care delivery system but still there are more to be done because the results become often blurred due to the prevalence of the rural-urban disparity in the achievements of health sector initiatives. The current paper particularly deals with child population and the various indicators of mortality to substantiate the pattern of its spatial discrepancy. Nutrition and immunization are regarded as the other major pillars of healthy life. It also examines the State's achievements in these two fields to explore the pattern of growth and gap in child health in West Bengal.

Introduction

In 2011, the volume of child population is about 158 million, that is about 13% of total population and the same for the State of West Bengal are respectively 10+ million (i.e., about 11%). Child and infant mortality are both very high in India. About 1.5 million children die in India every year before the first birthday (MOSPI, 2009). India accounts for 30% of infant mortality in the world. Nearly, half of the children below 3 years suffer from various levels of malnutrition which implies that children in India are at risk of stunting, mental retardation and are therefore prone to infectious diseases (Sathyamala and Kurian, 2008). West Bengal has shown a considerable improvement in reducing the mortality rate in infants, yet the result is obliterated due to uneven health achievements hinting at the rural-urban gap in the healthcare delivery system. Much of these sickness and death among children can be prevented with effective health care of mothers during the critical hours of child birth.

It is believed that good health leads to better economic performance and better living. There is an imbalance between increasing number of infants and performance of immunization programmes owing to lack of incentives and management (Das et al, 2000). Although the number of infants have increased but that does not mean better survival of girl children in the gender biased states and also hints at increasing neo-natal mortality (Agnihotri, 2001). Moreover, the privatization initiatives of healthcare institutions in West Bengal has led to a dichotomy in rural healthcare due to persistent resistance to modern medical innovations (Sonam, 2002). To reduce child mortality, vaccine preventable diseases (VPDs) were launched to protect the children only forgetting about their mothers (Kulkarni, 2006). Neonatal mortality is higher in rural areas and there is an intrinsic relation between neonatal mortality and maternal health as maternal factors contribute to neonatal mortality long before the baby is born (Kumar et al, 2007). Although WHO launched the flagship programme of reproductive and child healthcare (RCH) including mothers but its implementation at the State level was higher than that at the district level (Srinivasan et al, 2007). There is a glaring gap in universal immunization programme (UIP) as well, as gender gap prevails on rural-urban basis

(Patra, 2008). Hence, immunisation achievement has been partial due to large gap in immunization coverage between poor and non poor households, minority groups and rural population.

Objectives

The objectives of this study are

1. To assess and account for the mortality indicators of children in West Bengal
2. To identify the pattern of rural-urban differences in the achievements of child healthcare in West Bengal.

Methodology

Data

This study is based on the secondary data source. For analysis, data has been gleaned from Sample Registration System 2009, Health on the March 2010, National Family Health survey-III,II,I, District Level Health Survey II and III and Census of West Bengal 2001.

Methods

The methodology of study comprises three stages. In the first stage a theoretical structure has been constructed by reviewing the available literature associated with child health care and various health problems. In the second stage the conventional determinants of child mortality and its linkage with rural and urban areas is constructed. In the final stage evidential connection has been examined by estimating trends of child mortality and attempt has been made to substantiate the theory with the help of statistical measures.

Annual Change = $[(IMR_t - IMR_{t-1})/IMR_{t-1}]x\,100\%$
Where, the suffix t and (t-1) represent current and previous years.

Disparity Ratio = R_R / U_R
Where, R_R = Rural Rate, and U_R = Urban Rate

Health Scenario in West Bengal

The health status of West Bengal can be measured in terms of the mortality indicators. The indicators like infant mortality rate, neo-natal mortality rate, under-five mortality rate and maternal mortality rate are crucial as they portray the health of children and their mothers. These indicators of child mortality are below the national average for West Bengal (Table-1).

However, when compared with the better performing States of Kerala, Tamil Nadu, Maharashtra, the progress of health sector in West Bengal seems to be sluggish. West Bengal ranks fourth in IMR after Kerela (12), Tamil Nadu (28) and Maharashtra (31). West Bengal stands fifth in terms of neo-natal mortality, fourth in under 5 mortality rates and fourth in MMR (Table-1). In all the indicators Kerala ranks first and has already achieved the targets of Millennium Development Goals of United Nations Organization. Health outcome depends on the countries/states dedication towards the betterment of Public health delivery system. In terms of health outcomes, northern and eastern states are lagging far behind that of the southern states.

Mortality Indicators

In 1968, an international conference was held at Alma Ata on primary health. During these meet issues on child mortality and the strategies to reduce it gained importance. In 1994, the International Conference on Population and Development was held at Cairo which incorporated the issue of child and women mortality. After the Conference of Alma Ata, Government of India envisioned a national objective of reducing IMR to 60 by 2000 and a huge fund was allocated to child survival and Universal Immunization Programme.

In rural West Bengal the infant mortality rate was quite high from 1982 to 1995 and the number was as high as 93 in the initial years.Although India envisaged for IMR of 60 by the year 2000 but this goal could be achieved in West Bengal after 1995 inspite of substantial allocation of resource in health sector. Since 1996, IMR in rural West Bengal showed a gradual decline. In 1996 IMR in rural areas was 58 which declined to 34 in 2009. Although the decline in Infant Mortality in West Bengal below 60 started from 1996 but the fall was substantial from 2004 onward (Table-2). On the contrary the situation of infant mortality rate in Urban West Bengal was at a considerably better situation than the rural areas. IMR was well below 60 in the initial years much before the United Nations endeavour to reduce child mortality. IMR in urban areas fluctuated from 1982 to 1994 and it is only after 1994 that a steady decline in IMR could be achieved. IMR for both rural and urban areas started reducing in 1990s due to the initiation of Child Survival and Safe Motherhood Programme. In 1994 the Reproductive and Child Health Services(RCH) further helped in diminishing child mortality.

Like many health outcomes IMR also shows rural urban differentials in West Bengal. This disparity can be attributed to lack of access to medical facilities, poverty and remoteness of rural areas than urban areas. Poor nutritional status, large family size, low per capita income, high illiteracy and lack of healthcare services in rural areas are the crucial factors that escalate IMR in rural areas (Ghosh,2009). In urban areas higher income, better health care delivery system and greater awareness about health results in lower IMR. National Population policy of 2002 also recognized this urban bias in health indicators and formulated strategies to reduce the same.

The rural-urban disparity in infant mortality is prevalent in West Bengal although the gap is narrowing down. In Table - 3 the rural urban disparity ratio has been calculated to understand the extent of disparity. The disparity ratio of rural and urban areas in terms of

infant mortality rate can be classed as 'less than 1' (i.e., less disparity), '1 2' (i.e., medium disparity) and 'above 2' (i.e., high disparity). Rural-urban disparity was low in the initial years from 1999 till 2003. After 2003, it took a sudden lip and high ruralurban disparity was observed. This disparity was low in the initial years because IMR was high both in rural and urban areas. Then due to better medical facilities and greater awareness the IMR in urban areas started reducing although the value in rural areas remained high. As a result, the disparity was high from 2004-2008. Greater endeavour of medical sector to reach out to the rural population and better immunisation and RCH performance under National Rural Health Mission led to narrowing down of the disparity after 2008 (Table - 3).

Neonatal Mortality

Accourding to WHO neonatal mortality is the death occuring in first four weeks (28 days) from birth. It indicates the initial health condition of the child. Neonatal survival is a very sensitive indicator as it reflects the population growth and socio-economic condition of a region.Female infant survival rate is related to the replacement ratio of population hence it is extremely important to arrest the neonatal mortality. Moreover one of the stategies to arrest it is to monitor and improve the reproductive health of mothers (Kumar et.al,2007).Accourding to Sample Registration System in West Bengal the neonatal mortality rate was 34.0 in 1998 which has reduced to 24.0 in 2010 in rural areas.Although neonatal mortality has reduced over the years but it could not achieve the national target of 20/1000 live births till 2008(Table-4).Neonatal mortality indicates the rural urban differences in West Bengal.

In rural areas the neonatal mortality was above 30/1000 live births upto 2007 and in 2008 it showed a slight decline by 2 points. In urban areas it was 21 in 1998 that reduced to 16 in 2003.However the number again rose to 20 in 2006 and till 2008 it dropped marginally to 19/1000 livebirths. It is interesting to note that urban West Bengal had already achieved the goal of neo-natal mortality of 20/1000 live births by 2000.

The main reason for greater neonatal mortality in rural areas is the lack of institutional deliveries and births attended by untrained personel. The institutional deliveries has been confined to private sector and is very inequitable with a significant bias towards urban areas and rich population (Rana and Mishra, 2012). Traditional methods of delivery and manhandling of child and mother during the first critical hour of birth also determines the rate of child survival.Other reasons of greater neonatal mortality in rural areas are the poor nutritional status of women during conception, low age of pregnency, reduced child spacing, lack of maternal care ,inability of health workers at primary level to handle delivery and various superstitions of rural population about new borns (WHO, 2006).

Perinatal Mortality

Perinatal mortality includes death in the first week after birth and foetal deaths.For last 50 years the early 'neo-natal'deaths i.e at very first week after birth has been a matter of concern for the doctors and policy makers. It is the most fundamental indicator because it hints at the obstetric health. Greater perinatal mortality might be due to increased vulnerability of pregnant mothers, new mothers and new borns.(WHO, 2006).In West Bengal the rural urban differences also exists in perinatal mortality. In urban areas perinatal mortality rate was 17 in 2001 which sharply reduced to 9 in 2003.However this decline was short lived as perinatal mortality again increased to 21 in 2005,a marginal reduction of 19 in 2006, 21 in 2007 and 18 in 2008(Table-5).In rural West Bengal the value of peri-natal mortality was consistently higher with average value more than 32 from 2001 to 2008.The greater values in rural areas is attributed to large number of still births.Foetus death in rural areas persists due to very strong preferences for son.Detection of sex of foetus in early years of pregnency by ultrasound imaging leads to killing of the foetus.

Under-5 Mortality

According to Human development report 2011, U5MR refers to the probability of children born in a specific period and dying before reaching the age of five years per thousand of live births. It indicates the health status of children. The NFHS estimates that there is a rural-urban gap in U5MR although it decreased gradually.U5MR has declined for both males and females over the period of 1998-9 to 2005-9 in all the states (National Family Health Survey). An exception here is Nagaland which showed a marginal increase. Kerala, Tamil Nadu, Maharashtra and West Bengal has achieved the Under 5 Mortality target of 42 by 2015 as per the Millennium Development Goals (Table - 6).

Child Nutrition

The ability to be well nourished or be freed from malnutrition is one among a small number of important human freedoms (Sen 1992). Stunting, wasting and underweight are well accepted anthropometric measures for child health. Stunting is defined as having a height (or length) for age below two standard deviation below the median height of the WHO reference population. Wasting refers to having a weight for height below two standard deviations below the median weight of WHO reference population. Achievements in these indicators during NFHS-II and NFHS-III for West Bengal has registered significant improvement from the previous survey (Table - 7). Stunting has improved upto 8.6% and underweight among children has improved by 7.7% but there has been a decline in achievements of wasting by two points in NFHS-III.

West Bengal has shown a faster pace of improvement than all India average which is evident from greater decline of selected indicator from national average. However, what is disturbing is the rural urban differences in the above indicators at the state level. In

rural West Bengal, percentage of children who are wasted, stunted and underweight has registered higher value than in urban areas (Table - 8). About 71.9% of rural children are aneamic due to deficiency of iron in mother's diet. Deficiency in proper feeding practices and health care can be the reason for deplorable situation of child nutrition in rural areas. In urban areas improved nutritional level of mothers, higher education, low incidence of child morbidity, higher percentage of deworming of children are probably the main reasons of better nutritional status. These factors have an indirect bearing on child health.

Integrated Child Development Scheme is a centrally sponsored flagship programme which aims at the all-round development of children up to 6 years of age. Annual Report of 2010-11 of Department of Women and Children Development and Social Welfare, GoWB shows that whereas in 1975 only two ICDS projects was operational in the state but in March 2011, the state has 414 operational ICDS projects covering a total of 111556 Anganwadi centres. Total coverage of children in the AWCs is about 7 million children. Nevertheless, the sharp increases in the number of projects, centres and beneficiaries have not yet reached the desired level to meet the actual requirement for universal coverage.

Child Immunization

Immunization is a form of intervention that might prevent the occurrence of a number of diseases such as tuberculosis, poliomyelitis, measles, diphtheria, pertusis and tetanus. Although it is essential to immune every children to minimize the rate of infant mortality and morbidity yet a large number of children do not receive a full course of immunization. Though National Population Policy aims to immunize all children against six diseases by 2010, the district-level Household Survey has shown district level differences in immunization coverage. Full immunization coverage in India is currently at 45.8%. The DLHS-III shows West Bengal has full immunization coverage of 75.8% whereas in DLHS-II it was only 50.3%.All the antigen coverage has improved over DLHS II to DLHS III.

Since independence, expanded program on immunization was launched by World Health Organization. Along with it, the United Nations Children's Fund is some of the measures taken to immunize children. However, it has been found that wide disparity exists in different states and within the states. West Bengal is no exception. The full immunization coverage has been low in minority concentration districts of Birbhum. Bardhaman has also shown poor performance in full immunization coverage. Major reason of low immunization coverage in these districts is inaccessibility to health centers, higher incidence of child birth and post birth care at home due to absence of female doctors in the hospitals. In Murshidabad vaccination process faced refusal by religious leaders due to fear of adverse effects and mistrust in government officials. Hooghly and Bankura are the best performing districts in child immunization. High literacy level in Bankura and Hooghly are the underlying cause (Map 1).

Conclusion and Recommendations

It is imperative for the policy makers to address the bottleneck that has led to a serious mismatch between the objectives and outcomes in child health and immunization. Health sector needs to be at the priority of any endeavor to improve the quality of life. Ailing health condition of children enhances poverty to a huge extent since they are the future work-force of a country. Moreover children are unaware of the importance of healthy lifestyle and have less accessibility of health care facilities.

West Bengal is no more a passive provider of health facilities to its population. Rather, it has been actively engaged in providing health care to all sections of society. Private sector also has immense potential of providing improved health care delivery system. However the achievements of these sectors are blurred due to concentration of medical institutions and services in urban rich areas. Health indicators of children along with nutrition and immunization are at stake in the rural areas. Rural health infrastructure is deficient including medical staffs, medicines and infrastructure. Consequently mortality is very high among children in rural areas .A combined strategy of effective health care delivery to the expected mothers and new-borns as well as educational attainment of the parents can ensure safe birth and minimized risk of death of the infants.

There is an urgent need to strengthen the Health Care Programmes in rural and urban areas. Practice of family planning is one of the essential requirements which lead to birth spacing to ensure a reduction in mortality of children. To be effective, immunization must be backed by proper institutional services. Community participation can help in educating people about safe-delivery in medical institutions. Child health care in pieces will not work. A continuum of child care moving from government to skilled medical sector to community participation is the need of the hour.

References

1. Agnihotri, B. S. (2001): Declining Infant and Child Mortality in India-How Do Girl Children Fare, *Economic and Political Weekly*, Vol XXXVI (3).
2. Das, R. K and Dasgupta, P (2000): Child Health and Immunisation A Macro-Perspective, *Economic and Political Weekly*, Vol XXXV (8-9)
3. Ghosh, D. K. (2009): Millennium Development Goals and the Role of Panchayats: Exploring through West Bengal Case, *Journal of Rural Development*, Vol - 28, No. 3, pp223-232
4. Kumar, D et al (2007): Neonatal Mortality in India', *Journal of Remote and Rural Health* (available in http://www.rrh.org.au.)
5. World Health Organization (2006): Neonatal and Perinatal Mortality: Country, Region and Global Estimates, accessed from http://apps.who.int/iris/handle/10665/43444
6. Patra, N (2008): Exploring the Determinants of Childhood Immunisation, *Economic and Political Weekly*, Vol XLIII (12-13)
7. Rana, P.K and Mishra, B.P, 'Ailing Health Status of

West Bengal Critical Analysis', *Journal of Law, Policy and Globalization*, Vol - 2, pp1 6.
8. Raychaudhuri, A and Halder, K.S. (2009): An investigation into the Inter-District Disparity in West Bengal,1991-2005, *Economic and Political Weekly*, Vol 51, No. 5, pp245-259
9. Srinivasan, K, Skekhar, C and Arkiasamy. P(2007): Reviewing Reproductive and Child Health Programme in India, *Economic and Political Weekly*, Vol XLIII, pp27-28
10. Soman, K (2002): Rural Health Care in West Bengal, *Economic and Political Weekly*, Vol XXXVII, p26
11. Som, S and Pal, M (2010): Socio-Economic Impact on Child Immunisation in the District of West Bengla, India, Singapore Medical Journal, Vol 51 (5), pp 406-412.
12. Sathyamala, C and Kurian, N. J. (2008): Health Sector Issues and Challenges, India Social Development Report 2008, Oxford University Press.

Table – 1: IMR, Neonatal Mortality, Under-5 Mortality and Maternal Mortality in the 1st 4 States and India

Indicators	IMR (%)	Neo-natal Mortality Rate (%)	Under 5 Mortality Rate (%)	Maternal Mortality Ratio /100,000 population
Kerela	12	7	14	95
Tamil Nadu	28	21	36	111
Maharashtra	31	24	41	130
West Bengal	33	26	42	141
India	50	35	69	254

Source: SRS, 2009

Table - 2: Infant Mortality Rate of West Bengal (1982-2011)

Year	Rural	Urban	Year	Rural	Urban	Year	Rural	Urban
1982	93	52	1992	71	38	2002	52	36
1983	93	48	1993	64	33	2003	48	34
1984	88	55	1994	64	52	2004	42	32
1985	80	46	1995	61	45	2005	40	31
1986	75	55	1996	58	44	2006	40	29
1987	77	43	1997	58	43	2007	39	29
1988	76	43	1998	56	41	2008	37	29
1989	83	53	1999	55	40	2009	34	27
1990	68	41	2000	54	37	2010	32	25
1991	76	47	2001	54	37	2011	33	26

Source: Health on the March, 2009-10

Table – 3: Disparity Ratio of Infant Mortality Rate in Rural and Urban West Bengal

Year	Rural	Change over the Previous Year*	Urban	Change over the Previous Year*	Rural-Urban Disparity Ratio = (Rural Rate /Urban Rate)
1999	55	-	40		
2000	54	-1.82	37	-7.50	0.24
2001	54	0	37	0	0.24
2002	52	-3.70	36	-2.70	1.37
2003	48	-7.69	34	-5.55	1.38
2004	42	-12.50	32	-5.88	2.12
2005	40	-4.76	31	-3.13	1.52
2006	40	0	29	-6.45	1.52
2007	39	-2.50	29	0	1.52
2008	37	-5.12	29	0	1.52
2009	34	-8.11	27	-6.89	1.18
2010	32	-5.88	25	-7.41	0.79
2011	33	3.13	26	4.00	0.78

Source: Computed by the author

Table - 4: Neonatal Mortality Rate for West Bengal: 1998-2008

Year	Rural	Urban	Year	Rural	Urban
2001	34.0	19.0	2007	30.0	10.0
2003	33.0	17.0	2008	28.0	9.0
2005	32.0	11.0	2009	27.0	8.0
2006	30.0	9.0	2010	24.0	7.0

Source: Health on the March, 2009-10

Table – 5: Perinatal Mortality Rate of West Bengal from 1998-2010

Year	Rural	Urban	Year	Rural	Urban
2001	32	17	2007	33	21
2003	33	9	2008	31	18
2005	34	21	2009	8	8
2006	31	19	2010	8	7

Source: Health on The March, 2010

Table -6: Under - 5 Mortality Rate of 1st Four States of India in 2011

State	Under - 5 Mortality (%)
Kerala	12
Tamil Nadu	33
Maharashtra	36
West Bengal	40

Source: SRS Report, 2011

Table - 7: Nutritional Achievement during NFHS-III, NFHS-II, NFHS-I

Indicators	West Bengal NFHS-III (2005-06)	West Bengal NFHS-II (1998-99)	West Bengal NFHS-I (1992-93)	India NFHS-III (2005-06)
Children below 3 years who are stunted (%)	33.0	41.5	NA	44.9
Children below 3 years who are wasted (%)	19.0	21.0	NA	22.9
Children below3 years who are underweight (%)	43.5	48.7	54.8	40.4
Children age 6-35 months who are aneamic (%)	69.4	78.3	NA	78.9

Source: Fact Sheet of National Family Health Survey I, II, III.

Table - 8: Health Status of Children in West Bengal during NFHS – III (2005-06)

Indicators	Urban	Rural	Kolkata	Total
Stunted Children below 3 years (%)	22.7	35.4	21.0	33.0
Wasted Children below 3 years (%)	14.2	20.2	12.8	19.0
Underweight Children below 3 years (%)	30.0	46.7	24.9	43.5
Aneamic Children age 6-35 months (%)	58.2	71.9	64.0	69.4

Source: Factsheet of National Family Health Survey I, II, III.

Table – 8: Child Immunization in West Bengal during DLHS-3 and DLHS-2

Indicators Child Immunization	DLHS-2 (2002-04)	DLHS-3 (2007-08)	% Change
Children 12-23 months fully immunized	50.3	75.8	+25.5
Children 12-23 months not received any vaccination.	7.0	3.2	- 3.8
Children 12-23 months who received BCG vaccination	87.2	96.2	+9.0
Children 12-23 months who received 3 doses of DPT vaccination	68.8	83.6	+14.8
Children 12-23 months who received 3 doses of Polio vaccination	65.7	83.8	+18.1
Children 12-23 months who received measles vaccination	65.0	82.8	+17.8
Children (age 9 months and above) who received at least one dose of vitamin A	55.0	78.3	+23.3

Source: DLHS REPORT of 2002-04 and 2007-08,

Table - 9: Full Immunization Coverage in Districts of West Bengal (2007-2008)

District	Coverage (%)	District	Coverage (%)	District	Coverage (%)
Darjeeling	86.2	Dakshin Dinajpur	88.9	Howrah	76.4
Jalpaiguri	78.4	Murshidabud	62.5	Hooghly	92.9
Kooch Bihar	78.0	Nadia	86.0	Bardhman	63.8
Maldah	69.7	N 24 Parganas	81.7	Birbhum	65.8
Uttar Dinajpur	54.5	S 24 Parganas	73.8	Bankura	91.7
Purulia	84.3	West Midnapur	80.5	East Midnapur	89.4

Source: DLHS-III

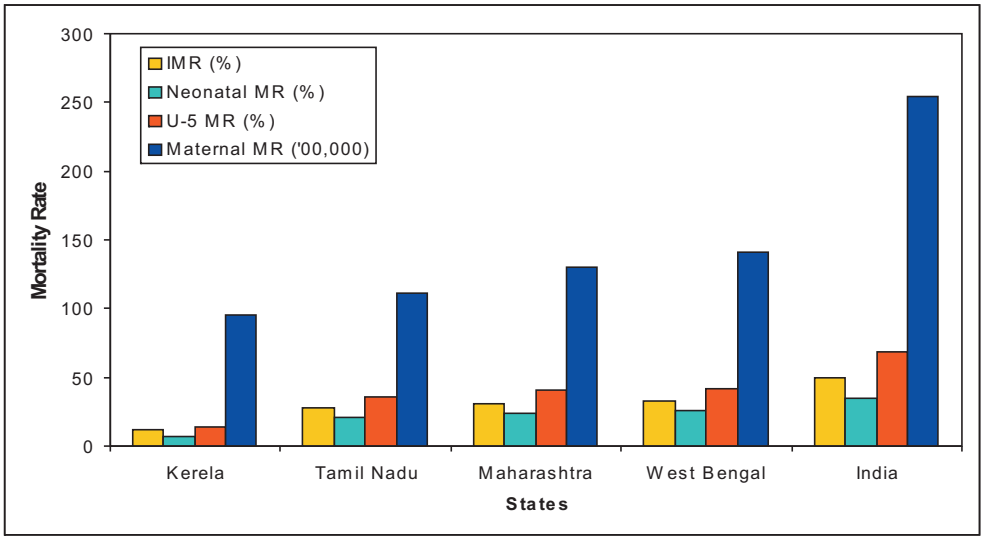

Fig. 1: Infant Mortality Rates for 5 States, India

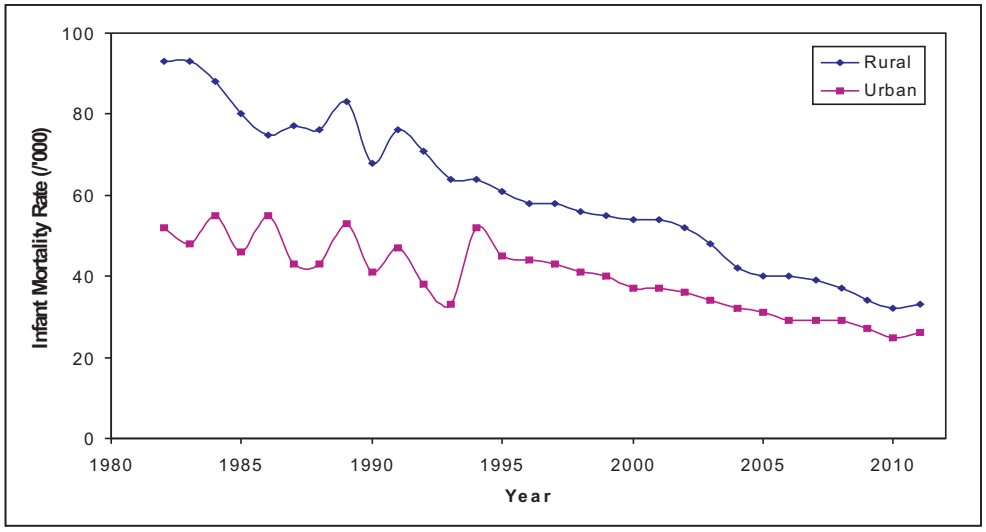

Fig. 2: Trend of Infant Mortality Rates, West Bengal

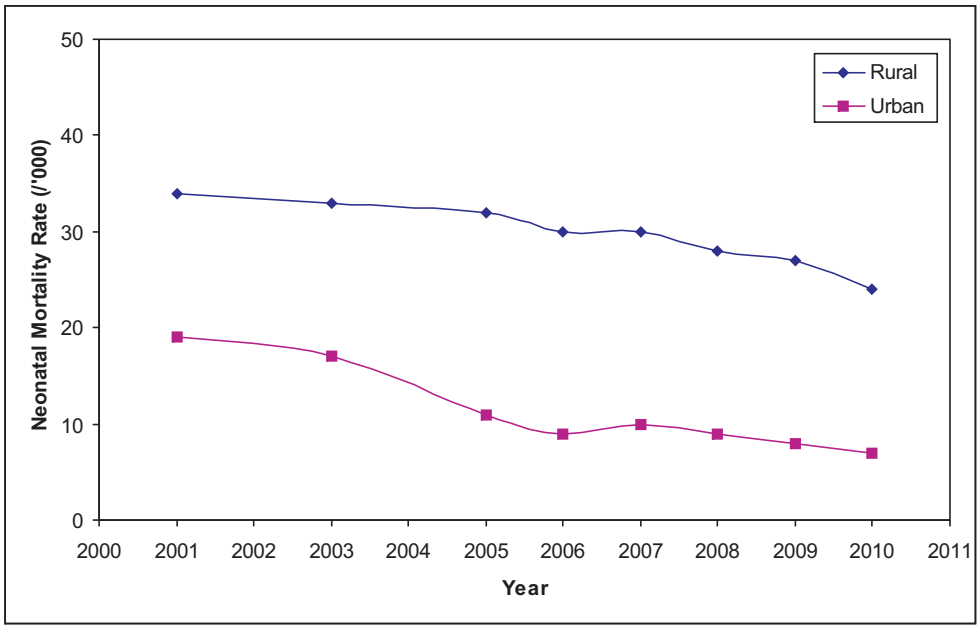

Fig. 3: Trend of Neonatal Mortality Rates, West Bengal

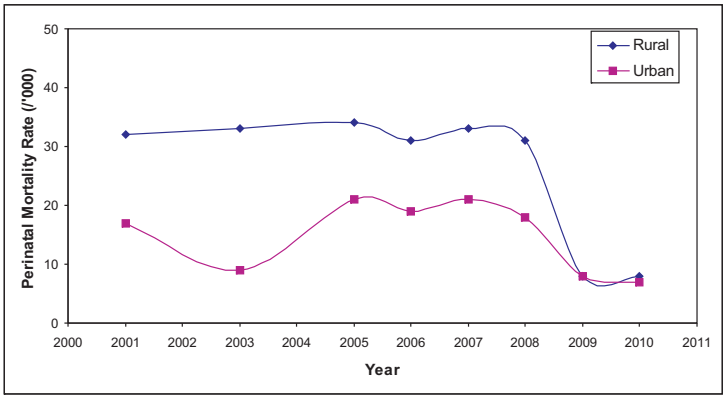

Fig. 4: Trend of Perinatal Mortality Rates, West Bengal

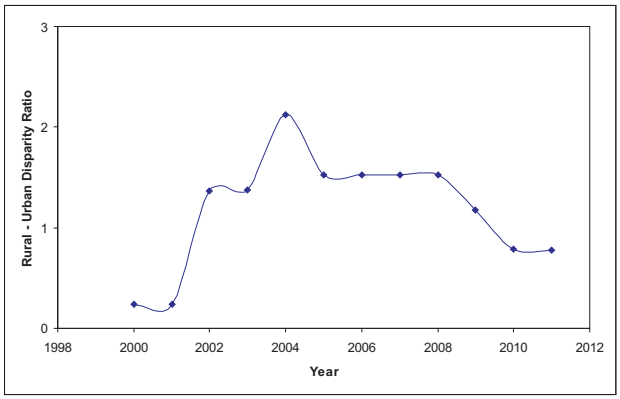

Fig. 5: Trend of Rural - Urban Disparity Ratio of IMR, West Bengal

SPATIAL COVERAGE OF FULL IMMUNIZATION IN DISTRICTS OF WEST BENGAL ACCORDING TO DHLS III

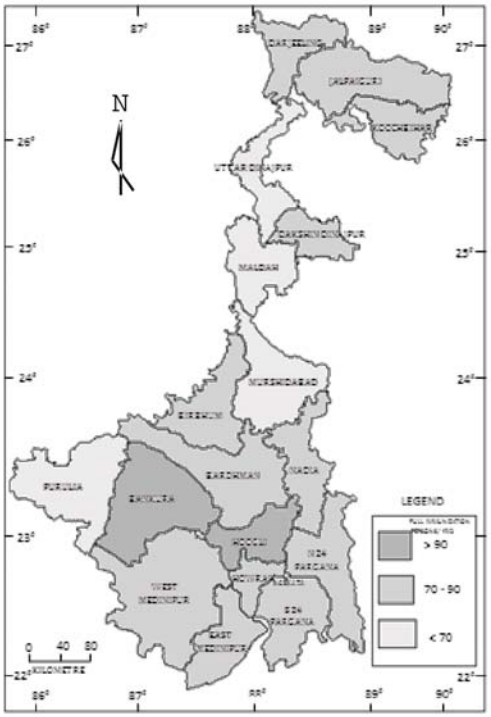

Fig. 6

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