

## A Study on Infant Mortality in a Rural Block of West Bengal, India

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### **Abstract:**

**Background:** Infant mortality is a sensitive indicator of a broad range of factors affecting children's health. **Objectives:** 1) To find out the infant mortality rate in Amdanga block. 2) To determine the various causes associated with infant mortality. **Methodology:** It is a retrospective record based study. Data on infant death were collected from government health records maintained at Amdanga Block Primary Health Centre, North 24 Parganas, West Bengal for the period of 5 years (2008-2012). **Results:** The infant mortality rate over this period was 17.8 per 1000 live births. Majority of death occurred in the neonatal period (83.6%). The main causes of neonatal deaths were low birth weight including prematurity (30.9%), birth asphyxia (19.3%), whereas the most common cause of post-neonatal death was acute respiratory tract infection (34.7%). **Conclusion:** Most of the infant deaths are preventable through improved antenatal and perinatal care and strengthening of referral system.

**Keywords:** infant mortality rate, low birth weight, asphyxia, birth order, preterm

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### **I. Introduction**

Infant mortality is a leading public health problem in developing countries. Of the estimated 130 million infants born each year worldwide, 4 million die in the first 28 days of life. Three quarters of neonatal deaths occur in the first week and more than one-quarter occur in the first 24 hours.<sup>1,2</sup> In India the most common causes of neonatal mortality (0-4 weeks) are low birth weight & prematurity, birth injury, sepsis. The post-neonatal mortality causes are dominated by diarrhoea and respiratory infections. Neonatal health is dependent on health care services whereas post-neonatal health is mainly dependent on environmental factors. A high Infant mortality rate (IMR) thus indicates unmet health needs and unfavourable environment factors.<sup>3,4</sup> That is why UNICEF maintains that IMR is one of the most expressive indices of development concept.<sup>5</sup> IMR varies across India. The neonatal and infant mortality rates for West Bengal are 23 and 31 per 1000 live births.<sup>6</sup> This retrospective record based study was undertaken to find out the infant, neonatal and post-neonatal mortality rates in Amdanga block, North 24 Parganas, West Bengal. We also determined the causes of infant deaths and the various factors associated with infant mortality.

### **II. Materials And Methods**

A retrospective record based descriptive study. Retrospective data were taken from government health records maintained at Amdanga Block Primary Health Centre in North 24 Parganas district of West Bengal for the period of 5 years (2008-2012). This block is the rural field practice area of the Department of Community Medicine, R.G. Kar Medical College, Kolkata, West Bengal, India. Data were entered into SPSS version 20 and analyzed using simple proportions and percentages.

### **III. Results**

Between 2008 and 2012, there were 16,680 live births and 298 infant deaths, giving an average infant mortality rate of 17.8 (range 15.2 to 23.1) per 1000 live births for this period.

The majority of the deaths (83.6%) occurred in the neonatal period whereas 16.4% died in the post-neonatal age. Bulk of the neonatal deaths (n=205, 82.3%) occurred in the first two weeks & 44 (17.7%) died in the next two weeks.

Of the 298 deaths, 57.7% were male and 42.3% were female infants. There were more female deaths in the post-neonatal age group (57.1%). Of all the infant deaths 44.6% were from below poverty level family. In the neonatal age group, low birth weight with prematurity was the most common cause of death (30.9%). The other leading causes were birth asphyxia (19.3%), ARI (10.4%) & diarrhoea (9.6%). Jaundice accounted for 6.4% of deaths, heart disease (4.8%), septicemia 4%, meningitis 3.6% & congenital anomaly (3.6%). In the post-neonatal age group Acute respiratory tract infection (34.7%) was the most common cause of death followed by low birth weight with prematurity (26.5%) and septicemia (10.2%).

The IMR was higher in young mothers(15-20years).45% infant deaths was in this age group followed by 39.9% in the 20-25 years group.The infant mortality was highest among first order birth(45.6%).

#### IV. Discussion

This study was an attempt to find out the infant mortality rates along with the causes of death of all the infants in Amdanga block from 2008 to 2012(5years).Data from the Sample Registration Survey Report 2010 shows that the neonatal,post-neonatal and infant mortality rates for rural West Bengal are 24, 08 and 32 per 1000 live births respectively.In this study the neonatal,post-neonatal and infant mortality rates were observed as 15, 03 and 18 per thousand live births respectively which is lower compared to the values reported.This is possibly due to anupgradation of delivery skills and improvement in essential newborn care.

Male death rates are higher than female deaths in the neonatal age group,but after the age of one month female deaths are higher than male deaths.This may be due to unfavourable social structure against girl child in the country.<sup>7</sup>

Of all the infant deaths in these five years, 44.6% were from the below poverty level family.Hence, the improvement of economic structure plays an important role in maintaining optimum child health.

Our study shows that the major causes of deaths during the neonatal period were low birth weight including prematurity,birth asphyxia,acute respiratory tract infection,diarrhea,jaundice,septicemia. Our findings are similar to the study of Vaid et al <sup>8</sup>which showed the main causes of neonatal mortality to be birth asphyxia,prematurity and acute respiratory distress.We didnot find a single case of neonatal tetanus.This may be due to good coverage of tetanus immunization among pregnant women.Previous studies<sup>9,10</sup>showed diarrhoea, pneumonia to be the most common causes of death in the post-neonatal age group.In this study diarrhoeawas not found to be a significant cause.This may be due to improved quality of watersupply ,sanitation and hygiene awareness in the community.Acute respiratory tract infection and other infective causes are predominant among the post-neonatal deaths .So referral system should be strengthened appropriately to manage the complicated cases.

IMR is higher in young mothers(15-20 years) in this present study.It shows that the infants of adolescent mothers are at risks of being born pre-term with low birth weight.<sup>11</sup>IMR was higher among first order births which held similar view with other studies.<sup>12,13</sup>

#### V. Conclusion

The study concludes that the infant, neonatal and post-neonatal mortality rate determined in Amdanga block are lower as compared to other parts of the country.The burden of infant mortality can be further reduced by improving reproductive and child health program, strengthening of referral system and health education.

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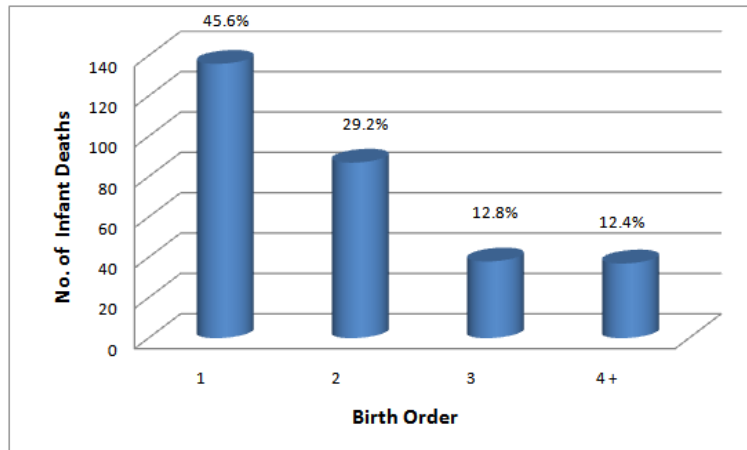
**Table No.1 : Distribution of mortality in infants(calculated as per 1000 live births)**

Year	Total Infant Deaths	IMR
2008	70	23
2009	50	15
2010	60	18
2011	60	17
2012	58	16

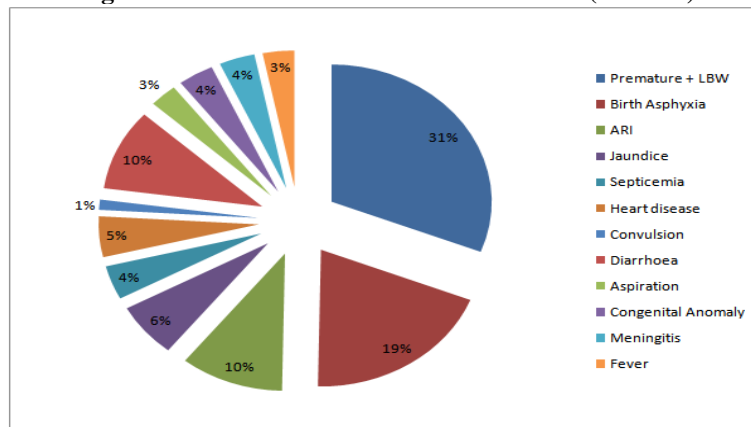
**Table No. 2 : Infant deaths in relation to mother's age at delivery**

Mother's Age (yrs)	Total Deaths (%)
15-20	134(45)
20-25	119(39.9)
25-30	38(12.8)
30-35	6(2)
35+	1(0.3)

**Figure No. 1: Distribution of infant deaths according to birth order**



**Figure No. 2 : Causes of death in neonates ( n = 249)**



**Figure No. 3 : Causes of Death in Post-neonatal Age Group**

