

# Early Neonatal Death (END) - Incidence, Causes and Predisposing Maternal Factors

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**Abstract:** To study incidence, causes and predisposing maternal factors for early neonatal deaths at civil hospital Ahmedabad. Retrospective analytical study carried over one year at civil hospital Ahmedabad. Details of each early neonatal death were elaborately filed. Out of 5553 total births, there were 118 early neonatal deaths which is nearly 21.24 per 1000 live births. The important causes of early neonatal deaths were birth asphyxia, respiratory distress syndrome, septicaemia. Low birth weight babies and preterms. Also we discuss multiple maternal factors associated with early neonatal deaths.

**Keywords:** birth asphyxia, END, RDS, Preterm, low birth weight, hypertension

## 1. Introduction

Early neonatal mortality rate is defined as deaths of babies during first 7 days per 1000 live births. Nearly 25% of neonatal death occur within first 24 hours of life. During recent years there is downward trend in early neonatal deaths. Information on pregnancy complications or events prior to delivery that may have influenced the risk of death for the fetus or the newborn child. From an obstetrics and neonatal care perspective, such information is crucial if the primary events that started the pathological process leading to the death of the fetus or new born child are to be understood. The purpose of this study to find out the causes of early neonatal deaths and predisposing maternal factors associated with early neonatal deaths in babies born in civil hospital Ahmedabad as it is one of the important and sensitive indicators of the availability, utilization and effectiveness of health services in community. The objectives of this study were to Identify primary causes or early neonatal deaths in correlation with clinical details of mother, to ascertain the early neonatal mortality relation to various gestation ages, birth weight and to evaluate neonatal mortality.

## 2. Method

**Study Setting:** Obstetrics and GynaeDept, B. J Medical college, civil hospital, Ahmedabad.

**Study Design:** Retrospective study

**Study Period:** January 2020 to December 2020

### Inclusion criteria

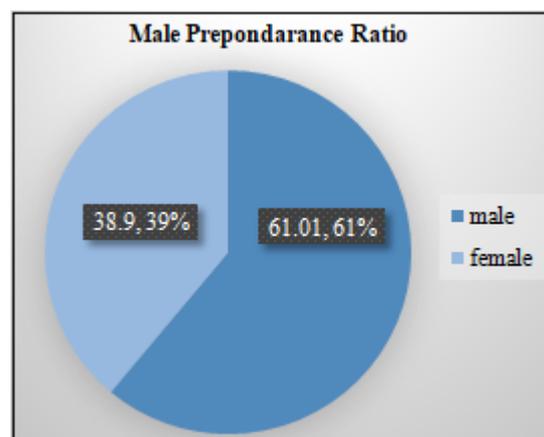
Neonates born in civil hospital Ahmedabad who expired within 7 days of life.

### Exclusion criteria

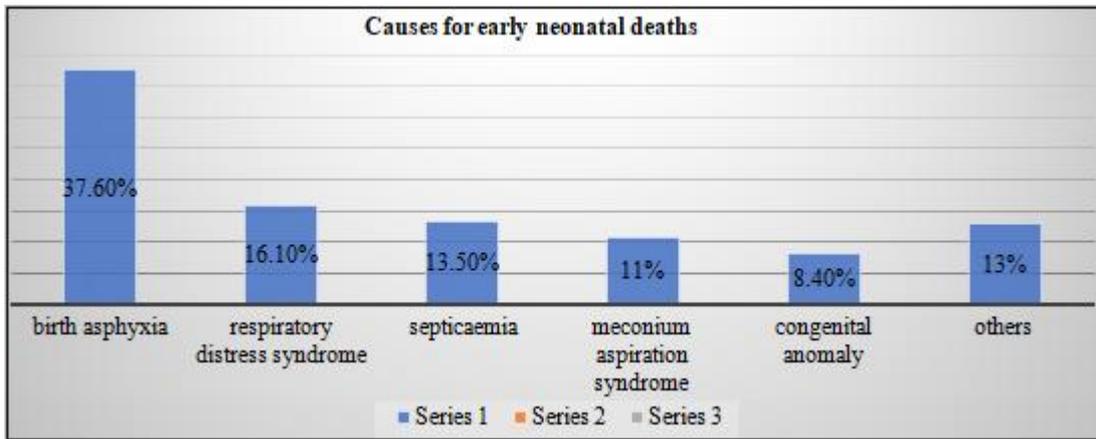
Babies not born in civil hospital Ahmedabad.

## 3. Observation and Result

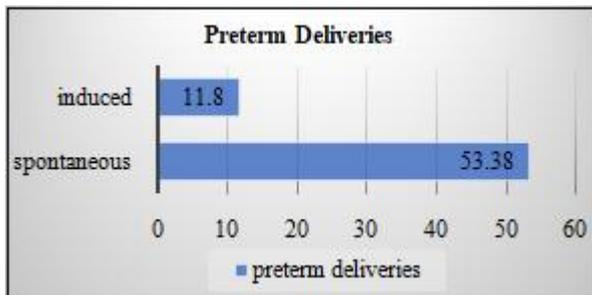
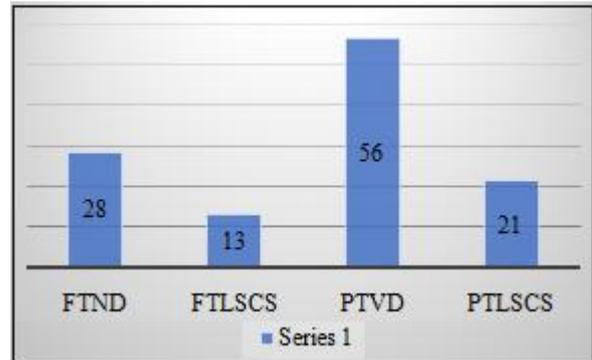
- During the study period, there were 5553 live births out of which 118 early neonatal deaths. Out of 118 early neonatal deaths 61.01% were males and 38.9% were female. There was a male preponderance ratio is 1.56: 1.



- This study reveals that severe birth asphyxia, respiratory distress syndrome and septicemia were the major causes of early neonatal deaths. Out of 118 early neonatal deaths, birth asphyxia is the commonest cause of death 37.6% followed by respiratory distress syndrome 16.10%, septicemia 13.5%, meconium aspiration syndrome 11%, congenital anomaly 8.4% and others 13%.



- 18.64% of early neonatal death required bag and mask ventilation and surfactant was given to 11.01% of early neonatal deaths.
- In this study, gestationage had inverse relation with early neonatal mortality. Preterm babies contribute 64.32% and full term babies contribute 35.68% of early neonatal death.
- Most common maternal factor associated with early neonatal death was Preterm deliveries 64.32%. In those 53.38 % were spontaneous preterm deliveries and 11.8% were induce preterm deliveries.



- Other Maternal factors associated were Pre - eclampsia, Eclampsia, hydramnios, antepartum hemorrhage, Doppler changes, chronic disease and abnormal presentation

Factors	Percentage
PREERM DELIVERIES	64.32%
PRE - ECLAMPسيا	16.10%
ECLAMPسيا	6.77%
HYDRAMNIOS	11.86%
ANTEPARTUM HAEMORRHAGE	5.94%
DOPPLER CHANGES	4.20%
CHRONIC DISEASE	6.20%
ABNORMAL PRESENTATION	5.80%

- The Low Birth Weight babies contribute about 48.12% of early neonatal deaths in present study. Out of 118 early neonatal deaths 7.62% were extremely low birth weight, 17.7 % were very low birth weight and 22.8% were low birth weight babies.
- The causes of this higher mortality in premature and low birth weight babies were complicated labor and resuscitation which were more common in this group compared to full term and Average for gestational.
- Below chart showing out of 118 deaths 28 (23.72%), 13 (11.03%), 56 (47.4%) and 21 (17.7%) were delivered by Full term normal delivery, full - term LSCS, Preterm vaginal delivery and Preterm LSCS Respectively.

- Early neonatal deaths were influenced by past history of abortion.30% early neonatal deaths were associated with mothers with previous history of abortion.
- 16% of early neonatal deaths were associated with preterm rupture of membrane
- 3 maternal deaths was also noted.

**4. Discussion**

This retrospective study is carried out at a tertiary hospital of civil hospital Ahmedabad, over a period of one year reveals that there were 5553 live births. In present study there were 118 early neonatal deaths out of total live births 5553 giving early neonatal death rate of 21.4% per 1000 live births. Death rate in this study was comparable with 32 per 1000 live births observed by Verma M in her seven years hospital study. Male Preponderance with ratio of (1.56: 1). Male

preponderance in same ratio I. e.1.79: 1 was observed by Ravikumara M and Bhat BV.

The present study revealed early neonatal death rate of low birth weight babies contribute about 48.12% of early neonatal deaths in present study. The contribution by low birth babies of 75.8% early neonatal deaths was shown by Ravikumara M.

Gestation age had inverse relation with early neonatal mortality in the present study. Preterm babies contribute 64% of early neonatal deaths. Shah U noticed 54% of early neonatal deaths in preterm babies. Results in present study are in concurrence with Pradeep M, And Ravikumara M who observed 78% and 53.5% of early neonatal deaths in preterm babies respectively. All of them observed more than 50% of deaths in preterm babies.

The early neonatal mortality was more I. e.64.32% in preterm babies. Pradeep M proved that preterm and low birth weight babies contribute more to early neonatal mortality. The causes of this higher mortality in premature and low birth weight babies were complicated labour, and resuscitation which were more common in this group compared to full term and average for gestation age babies.

Out of the 118 early neonatal deaths birth asphyxia ranked as the commonest cause of death (37.60%) followed by respiratory distress syndrome (16.10%), septicaemia (13.50%) and congenital anomalies (8.4%) Ravikumara M and Bhat BV observed birth asphyxia in 39.4%, hyaline membrane disease in 14.7%, congenital malformations in 13.8% and sepsis in 10.4% of neonatal deaths. The result of study done by Pradeep M was birth asphyxia as a cause of death in 43%, septicaemia in 16%, hyaline membrane disease in 15% and congenital malformations in 15% of cases.

Major predisposing factors associated with EA neonatal deaths were hypertensive disorder of pregnancy, teenage pregnancy, meconium stained liquor, advanced maternal age, premature rupture of membranes, multifetal pregnancies and antepartum haemorrhage.

## 5. Conclusion

Early neonatal mortality at a tertiary care hospital is fairly high. In present study, early neonatal death rate of 21.4 per 1000 live births is observed which is significantly higher than reported in UNICEF INDIA as 14.6 per 1000 live births. Advancement in the care of premature neonates and prevention of spontaneous preterm Labor and hypertensive disorder of pregnancy could lead to a substantial decrease in early neonatal deaths in tertiary care hospital.

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