

# A Study of outcome in neonatal patients admitted to NICU of tertiary health care center

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## Abstract

**Introduction:** Neonatal morbidity and mortality rates reflect a nation's socioeconomic status, as well as the efficiency and effectiveness of their healthcare services. **Aims and Objectives:** To Study Outcome in Neonatal Patients admitted to NICU of tertiary health care center. **Methodology:** This was a cross-sectional study carried out in the Department of Pediatrics at the tertiary health care center during the period of one year from January 2104 to January 2015 in all the Patients admitted in NICU with all causes. There were total 148 neonates were admitted to the Department for various reasons. The detail clinical history taken from the Parents of child and all necessary investigations were carried out for the Correct Diagnosis. **Result:** The Reason for NICU Admission were Neonatal jaundice -37.16% followed by Birth asphyxia-; 15.54%; Prematurity (Low Birth Weight) -14.86%; Septicemia-10.13%; Meconium aspiration syndrome (MAS) -6.75%; Respiratory distress syndrome (RDS)-6.08%; Hypoglycaemia-5.40%; Multiple congenital malformations-1.35%; Imperforate anus -1.35%; Hypothermia-0.67%; Intrauterine growth retardation - 0.67% The major causes of deaths in our study were Prematurity (LBW) -29.62% Followed by Neonatal septicemia-25.92%; Birth asphyxia - 18.51%; RDS-7.40%; MAS-7.40%; MAS + birth asphyxia-3.70%; Multiple congenital anomalies-7.40%. Majority of the NICU admitted patients Recovered -66.89% and Death Occurred in 18.24%; 8.10%-Referred to Higher Centre; 6.75% were Discharged against Medical Advice. **Conclusion:** In our study the Reasons for NICU Admission were Neonatal jaundice followed by Birth Asphyxia. The major causes of deaths in our study were Prematurity (LBW) Followed by Neonatal septicemia Majority of the NICU admitted patients Recovered

**Keywords:** Meconium aspiration syndrome (MAS), Respiratory distress syndrome (RDS) Multiple congenital malformations, Imperforate anus, Intrauterine growth retardation, Hypothermia.

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## INTRODUCTION

Neonatal morbidity and mortality rates reflect a nation's socioeconomic status, as well as the efficiency and effectiveness of their healthcare services.<sup>1</sup> These important indicators are useful in planning for improved healthcare delivery.<sup>1</sup> In this era of increasing healthcare costs, the role of economic evaluations of health-care interventions has become increasingly important.

Economic evaluations can be of many types: cost-benefit studies where each outcome is equated in monetary terms, cost minimization studies where two different methods of achieving the same goal are compared for their costs-utility analysis in which the healthy years of life are taken as the outcome and cost-effectiveness analysis in which natural units like life years gained are used as outcomes<sup>2,3</sup>. Neonatal intensive care stays are among the most expensive types of hospitalizations<sup>4</sup> The prognosis for these neonates depends upon their underlying condition, its severity and the subsequent management. In view of this situation, a neonatal audit is periodically carried out in the AKMCC in order to raise awareness of neonatal problems and their management. Neonatal period (0 to 28 days of life) is the most high risk period of life for morbidity and mortality. Almost half of the infant deaths in our country occur within first 28 days of life. Within the first month, one quarter to one half of all deaths occurs within the first 24 hours of life, and 75%

occur in the first week. The 48 hours immediately following birth is the most crucial period for newborn survival.<sup>4</sup> It has been estimated that about 4 million babies die worldwide during the neonatal period annually.<sup>5</sup> Only 2% of these neonatal deaths occur in the developed countries while remaining 98% of the neonatal deaths occur in less developed countries in south Asia and Sub-Saharan Africa.<sup>6</sup> The global burden of neonatal death is primarily concentrated in developing countries, where care of neonates is practically non-existent.<sup>7</sup> In India alone, of the 25 million babies who are born every year, one million die, accounting for 25% of the mortality around the world.<sup>8</sup> According to the National Family Health Survey - 3 (NFHS- 3) report, the current neonatal mortality rate (NMR) in India of 39 per 1,000 live births, accounts for nearly 77% of all the infant deaths (57/1000) and nearly half of the under-five child deaths (74/1000).<sup>9</sup>

### MATERIAL AND METHODS

This was a cross-sectional study carried out in the Department of Pediatrics at the tertiary health care center during the period of one year from January 2104 to January 2015 in all the Patients admitted in NICU with all causes. There were total 148 neonates were admitted to the Department for various reasons. The detail clinical history taken from the Parents of child and all necessary investigations were carried out for the Correct Diagnosis.

### RESULT

**Table 1:** Distribution as per the Reason for NICU Admission

Reason for NICU Admission	No. of cases	(%)
Neonatal jaundice	55	37.16%
Birth asphyxia	23	15.54%
Prematurity (Low Birth Weight)	22	14.86%
Septicemia	15	10.13%
Meconium aspiration syndrome (MAS)	10	6.75%
Respiratory distress syndrome (RDS)	9	6.08%
Hypoglycaemia	8	5.40%
Multiple congenital malformations	2	1.35%
Imperforate anus	2	1.35%
Hypothermia	1	0.67%
Intrauterine growth retardation	1	0.67%
<b>Total</b>	<b>148</b>	<b>100%</b>

The Reason for NICU Admission were Neonatal jaundice -37.16% followed by Birth asphyxia-; 15.54%; Prematurity (Low Birth Weight) -14.86%; Septicemia-10.13%; Meconium aspiration syndrome (MAS)-6.75%; Respiratory distress syndrome (RDS)-6.08%;Hypoglycaemia-5.40%; Multiple congenital malformations-1.35%; Imperforate anus -1.35%; Hypothermia-0.67%;Intrauterine growth retardation - 0.67%

**Table 2:** Distribution of deaths in NICU

Disorder	No. of deaths	(%)
Prematurity(LBW)	8	29.62%
Neonatal septicemia	7	25.92%
Birth asphyxia	5	18.51%
RDS	2	7.40%
MAS	2	7.40%
MAS + birth asphyxia	1	3.70%
Multiple congenital anomalies	2	7.40%
<b>Total</b>	<b>27</b>	<b>100%</b>

The major causes of deaths in our study were Prematurity(LBW) -29.62% Followed by Neonatal septicemia-25.92%;Birth asphyxia -18.51%;RDS-7.40%; MAS-7.40%; MAS + birth asphyxia-3.70%; Multiple congenital anomalies-7.40%.

**Table 3:** Distribution of the Patients as per out come

Outcome	No.	(%)
Recovered	99	66.89%
Death	27	18.24%
Referred to Higher Centre	12	8.10%
Discharge against Medical Advise	10	6.75%

Majority of the NICU admitted patients Recovered - 66.89% and Death Occurred in 18.24%; 8.10%-Referred to Higher Centre; 6.75% were Discharged against Medical Advise.

### DISCUSSION

In Our Study we found that The Reason for NICU Admission were Neonatal jaundice -37.16% followed by Birth asphyxia-; 15.54%; Prematurity (Low Birth Weight) -14.86%; Septicemia-10.13%; Meconium aspiration syndrome (MAS) -6.75%; Respiratory distress syndrome (RDS)-6.08%;Hypoglycaemia-5.40%; Multiple congenital malformations-1.35%; Imperforate anus - 1.35%; Hypothermia-0.67%;Intrauterine growth retardation - 0.67%. The major causes of deaths in our study were Prematurity (LBW) -29.62% Followed by Neonatal septicemia-25.92%;Birth asphyxia - 18.51%;RDS-7.40%; MAS-7.40%; MAS + birth asphyxia-3.70%;Multiple congenital anomalies-7.40% Majority of the NICU admitted patients Recovered - 66.89% and Death Occurred in 18.24%;8.10%-Referred to Higher Centre; 6.75% were Discharged against Medical Advise. For more than 25 years, LBW has been observed to be one of the major risk factors for neonatal admissions in multiple studies conducted in many developing countries.<sup>9</sup> In this study, LBW was found in 37.7% of patients; this can be compared to 39% in Lahore,<sup>8</sup> 36% in Larkana,<sup>7</sup> 55.4% in Karachi<sup>6</sup> and 41.2% in Peshawar.<sup>10</sup> The incidence of LBW is higher in Pakistan compared to other developing countries; for instance, LBW was 20% in a study done in India,<sup>15,16</sup> 13.25% in a Bangladesh study<sup>12</sup> and 11.02% in an

Ethiopian one.<sup>13</sup> The majority of neonatal infections are due to unhygienic conditions and unsterilised delivery practices.<sup>14</sup> Neonatal sepsis continues to be a major cause of morbidity and mortality in Pakistan. It is also one of the major causes of neonatal mortality in developing countries in general—contributing to 15% of all neonatal deaths.<sup>18</sup> In the study conducted in Peshawar,<sup>10</sup> 18.85% in the Karachi study<sup>11</sup> and 40.66% in Lahore.<sup>13</sup> The important risk factors for birth asphyxia reported from a study conducted in Hyderabad, India, include the lack of antenatal care, poor nutritional status, antepartum haemorrhaging, maternal toxemia and having a home delivery.

## CONCLUSION

In our study the Reasons for NICU Admission were Neonatal jaundice followed by Birth Asphyxia. The major causes of deaths in our study were Prematurity (LBW) Followed by Neonatal septicemia Majority of the NICU admitted patients Recovered

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