

# An Overview of Neonatal Admissions at College of Medical Sciences (COMS)

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## Abstract

**Objective:** To know the profile of newborn admissions and its outcome and the factors associated with neonatal mortality. **Methods:** The study included both intramural and extramural cases of 180 newborn babies admitted in nursery over a period of 6 months from 01/08/06 to 31/01/07. The relevant data were recorded on a pre-designed proforma meticulously. **Results:** There were 180 newborn babies during the study period. The mean birth was 2.7 kg.. Majority, 77.8 %( 140) of the babies weighed equal to or more than 2.5 kg. Low birth weight (LBW) was seen in 22.2 %( 40) babies. There were 80 %( 144) full term babies and 20 %( 36) preterm babies. Majority of the mothers in the age group between 20-30 years had incomplete antenatal check- ups. There were 86 %( 155) normal vaginal deliveries, 4.5 %( 8) forceps deliveries and 9.5 %( 17) caesarean sections. Birth/perinatal asphyxia 39(22%), prematurity 36(20%) and neonatal septicemia 30(17%) comprised of leading admissions. There were 27deaths (15%) in total.13 (7%), 8(5%) and 6(3%) babies died of severe perinatal asphyxia, neonatal septicemia and prematurity respectively. Most of the deaths occurred during the first 72 hours. **Conclusions:** The mean birth weight is good. The major causes of neonatal death are birth/perinatal asphyxia, prematurity and neonatal septicemia. The factors influencing neonatal mortality are low and poor antenatal care, meconium stained liquor, delay in coming to the hospital, PROM, eclampsia. The study emphasises the importance of regular antenatal care, timely referral of pregnant women with complications to appropriate centers and conducting delivery in a clean environment for lowering neonatal mortality.

**Key words:** newborn, admission, neonatal outcome, asphyxia

## Introduction

College of medical sciences is a tertiary level referral hospital for different specialities located in Chitwan, Bharatpur, Nepal. It receives cases from different parts of the region around the Chitwan and the country also. It operates neonatal services at level II and receives both intramural and extramural cases. Nepal is one of the countries having highest infant and neonatal mortality. There has been a remarkable decline in infant mortality rate in Nepal over the past fifteen years from 113 in 1987 to 64 in 2001<sup>1,2</sup>. However this has not been matched by a similar fall in neonatal mortality, which has decreased from 45.2 in 1987 to 38.6 in 2001. Consequently neonatal mortality has risen from 40% to 60% as a proportion of infant mortality<sup>1,2</sup>. Therefore, further significant reductions in infant and child mortality rates will largely be dependent on reducing neonatal mortality. In Nepal, approximately 80%-90% of births take place at home often conducted by family members, sometimes assisted by a traditional birth attendant (TBA) but many without any attendant at all<sup>2,3</sup>. Currently 9.6% of births take place in an institution<sup>3</sup>. The Perinatal mortality rate (PMR) of Nepal is 47.4 per 1000 live births<sup>1</sup>. It is estimated that in Nepal, approximately 2/3 of all deaths in first year of life occur in the first month of life. Of these deaths, approximately 2/3 occurs in the first week of life. Of these deaths, approximately 2/3 occurs in the first day of life. Therefore, as things stand, this means that three to four newborns are dying every hour in Nepal<sup>4</sup>.

In view of above facts and figures, the study was undertaken to know the leading causes of neonatal death and factors associated with it in the teaching hospital outside Kathmandu.

## Materials and Methods

The study included both intramural and extramural cases of 180 newborn babies admitted in nursery over a period of 6 months from 01/08/06 to 31/01/07. The relevant data including various maternal and neonatal factors affecting the outcome were recorded on a pre-designed proforma meticulously. The babies who expired were selected for the analytical work. The important causes of death were noted.

## Results

The study consisted of 180 newborn babies. Males and females were 65 %( 117) and 35 %( 63) respectively. Majority, 77.8 %( 140) of the babies weighed equal to or more than 2500gms. Low birth weight (LBW) was seen in 22.2 %( 40) babies. There were 80 %( 144) full term babies and 20 %( 36) preterm babies. The mean birth weight was 2.7 kg. Majority of the mothers in the age group between 20-30 years had incomplete antenatal check-ups. There were 86 %( 155) normal vaginal deliveries, 4.5 %( 8) forceps deliveries and 9.5 %( 17) caesarean sections.Table1.gives the leading admissions and neonatal death (as shown in brackets) pattern of the babies at the hospital according to their birth weight.

**Table 1:** Neonatal Admissions and Death by Weight at the Hospital

Birth Weight (Kg)	Births	Perinatal asphyxia	NNS	Prematurity
<1				
1-<1.5				
1.5-<2	2		2 (1)	2 (1)
2-<2.5	38	9 (3)	20 (5)	34 (5)
≥ 2.5	140	30 (10)	8 (2)	
<b>Total</b>	<b>180</b>	<b>39 (13)</b>	<b>30 (8)</b>	<b>36 (6)</b>

### NNS: Neonatal septicemia

Perinatal asphyxia 39(22%), prematurity 36(20%) and NNS 30(17%) comprised of leading admissions during the study period. There were 27 deaths (15%) in total. 13 (7%), 8(5%) and 6(3%) babies died of severe perinatal asphyxia, NNS and prematurity respectively. There were 111(62%) babies upto 3 days, 34(19%) babies from more than 3 days to 7 days and 35(19%) babies more than 7 days. Most of the deaths occurred during the first 72 hours and factors found to be of significant importance affecting neonatal mortality were low and poor antenatal care, meconium stained liquor, delay in coming to the hospital, PROM and eclampsia. Among neonatal deaths, severe perinatal asphyxia was the main cause of death of babies with a birth weight of more than 2500gms followed by NNS. There were three cases of congenital malformations: cleft lip and palate, exomphalos and anorectal malformation.

### Discussion

The study was undertaken to know the trends in neonatal admissions, mortality and the important factors associated with it in the teaching hospital, which is located outside Kathmandu. Though small sample size was the limitation of the study, certain inferences can be drawn particularly regarding the neonatal and perinatal health services.

There are no population-based studies that describe the pattern of the direct causes of neonatal death available for Nepal. Hospital based data suggest that the major direct causes of neonatal death in Nepal are: birth asphyxia, infection and prematurity<sup>4</sup>, a finding similar in our study. Underlying these direct causes is a constellation of underlying causes, including: poor pre-pregnancy health, inadequate care during pregnancy and delivery, low birth weight and inadequate newborn and postpartum care. Fundamental to these underlying causes is the low status and priority given to women and newborns. Only a half of Nepalese women receive any antenatal care from a trained health worker and only 14% attend four or more times<sup>4</sup>. Nearly ninety percent of women deliver at home. Also mothers come late into the hospital and there is a significant delay in undertaking appropriate measures<sup>3</sup>. Similar is the experience of our study where mothers reach the hospital late due to geographical position and terrain that make the provision of health services to all people very difficult. Therefore, it is important to make mothers aware of the need for antenatal care and

for contacting in time the nearest health-care facilities when required so that timely referral of pregnant women with complications to appropriate centers would prevent neonatal deaths from perinatal asphyxia, the single most important cause of death as seen in our study also.

Deaths are far more likely to occur in the early neonatal period. Of these deaths, most occur during the first 72 hours as happened in our study also. Analysis of data has revealed perinatal asphyxia, prematurity and neonatal septicemia are the main causes of admissions and also common neonatal problems causing significant mortality and morbidity. Of these admissions and deaths, perinatal asphyxia is the most important cause of neonatal death. Therefore, early recognition of intrapartum asphyxia with appropriate timely interventions and timely referral of pregnant women with complications would save a large number of neonatal deaths from asphyxia. Nepal is one of the countries with a high prevalence of LBW ranging from 20% to 32% in hospital based studies with a mean birth weight of 2.8 kg<sup>4</sup>. Similar is the finding of our result which showed 22% LBW with a mean birth weight of 2.7 kg. Gulati et al<sup>5</sup> found significant factors influencing neonatal mortality were meconium stained liquor, PROM and eclampsia, as happened in our study also.

### Conclusion

Hospital based data suggest that the major causes of neonatal death are birth/perinatal asphyxia, prematurity and infection. The factors influencing neonatal mortality are low and poor antenatal care, meconium stained liquor, delay in coming to the hospital, PROM and eclampsia. The present study also emphasises the importance of regular antenatal care, timely referral of pregnant women with complications to appropriate centers and conducting delivery in a clean environment for lowering neonatal mortality.

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### References

1. The Child Health Profile of Nepal 2003. Child Health Division, Department of Health services. Ministry of Health HMG/Nepal.
2. Nepal Demographic and Health Survey, 2001.
3. Newborn and Child Health in Nepal, Fact files on Maternal, World health Organisation Country Office. Nepal, 2005.
4. National Neonatal Health Strategy January 2004 Family Health Division, Department of Health services. Ministry of Health HMG/ Nepal.
5. Gulati R, Malik G K. Factors Influencing Neonatal Mortality A Hospital Based Study. VIth Annual Convention Of National Neonatology Forum U.P Chapter. 2003; Feb1-2, pg 133.