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OVERVIEW OF NEWBORN HEALTH IN INDIA
A Literature Review

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ABSTRACT

One of the key determinants of a country's development is status of child survival which is indicated by the number of deaths that occur each year in terms of under-5 mortality and infant mortality (babies dying < 1year after birth). In India, a major fraction of these deaths occurs during the newborn period i.e within 28 days after birth. It is the most vulnerable period which, to a large extent, determines the chances of child to survive beyond infancy upto adulthood if proper care is provided.

This paper presents the status of Newborn Health in India in terms of number of deaths and their causes. It concludes by presenting simple, cost effective, evidence based interventions which can be adopted at level of government health system through hospitals and community. Effective implementation and delivery of these interventions can lead to drastic reduction in newborn deaths thereby improving the state of India's children.

KEYWORDS: Newborn Health, Neonatal Mortality, Newborn Survival

Introduction:

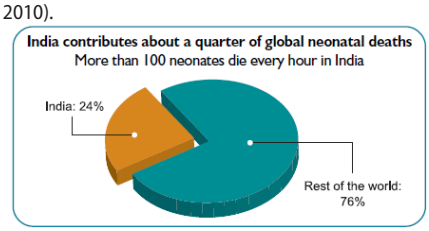
Newborn and Child Mortality indicate the state of well being of a country's children. Every year, 4 million newborns die globally in the first four weeks of life (neonatal period) with more than 10,000 deaths a day of which, virtually all deaths (99%) occur in low and middle income countries like South East Asia and Africa. (Lawn et al., 2005)

The newborn health challenge faced by India is bigger than any other country. According to the World Health Organization's (WHO) classification, India falls within the South East Asian region – D, which is a 'high mortality' region (NIMS, 2012). India has the largest number of births and newborn deaths in the world (Graph 1) with a neonatal mortality rate of 32 (2010) (CHERG,2012). We have not been successful to reduce our newborn mortality substantially in alignment with the United Nations 'Millenium Development Goal-4' (MDG-4) which calls for a two thirds reduction in death rates for children under the age of five by 2015. Almost 40% of these death rates occur in neonatal period and efforts are needed to reduce this mortality by cost effective and scalable interventions.

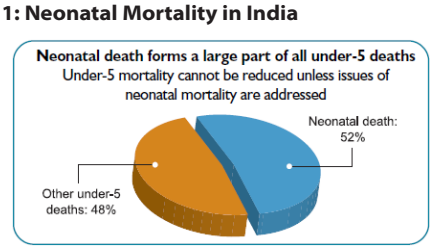
This paper captures the status of newborn health in India by figuring out causes of newborn deaths with possible measures to improve newborn survival in the Indian context that will be useful for national level policy makers, health care providers and community.

Magnitude of the Problem – Status of Newborns in India

India accounts for over a quarter of newborn deaths in the world. Neonatal mortality contributes to 52% of under-5 child mortality out of which most newborns die in first seven days (Graph 2). With total births of 26 million in the country, about 0.94 million newborns died in 2008 (UNICEF, 2010).



Graph 1: Neonatal Mortality in India



Graph 2: Neonatal deaths in under-5 Age Group

The rate of neonatal mortality varies widely among different states, ranging from 10 per 1000 live births in Kerala to around 60 in Orissa and Madhya Pradesh. The state of Uttar Pradesh has maximum number of deaths in India (UNICEF,2010). These differences are attributed to various factors including literacy rate, geographical conditions affecting access to health care, community perceptions and socioeconomic development.

Concepts

(State of India's Newborns 2005, Save the Children)

Neonatal Death: Death of live born baby during the period that commences at birth and ends 28 completed days after birth.

Neonatal Mortality Rate (NMR): Number of deaths among live births during first 28 completed days of life per 1000 live births.

Still Birth: Death of fetus weighing at least 500 gram (or after 22 completed weeks of gestation) before complete expulsion from mother.

Perinatal Mortality Rate (PNMR): Number of deaths of foetuses weighing at least 500 grams (or after 22 completed weeks of gestation) plus number of neonatal deaths within 7 days per 1000 total births.

Term Baby: born after 37 upto 42 completed weeks of gestation

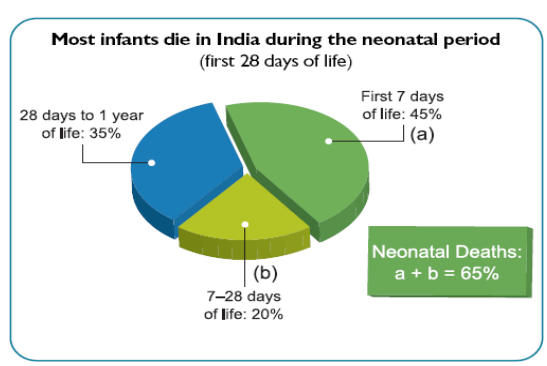
Pre term baby: born before 37 completed weeks of gestation

Post term baby: born after 42 completed weeks of gestation

Normal birth weight: 2.5 kgs

Low birth weight: < 2.5 kgs

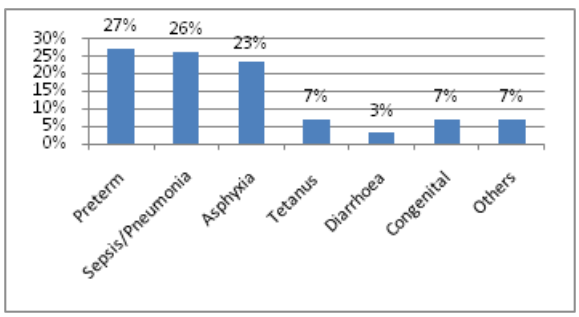
The greatest risk of newborn deaths is during the critical first week of life when 3/4th of all deaths occur. At least 1 million babies die on first day (Graph4), which demands for careful attention during that period.



Graph 3: Age wise Distribution of Deaths

Why are newborns dying?

In order to improve newborn health, it is imperative to understand the causes responsible for neonatal deaths as they can assist in designing and delivering targeted interventions to have maximum impact on a wider level (Graph5). Research studies have identified three major causes contributing to almost 85% of all neonatal deaths viz. prematurity and low birth weight, Infections and inability to breathe after birth (Asphyxia) (State of World's, 2009).



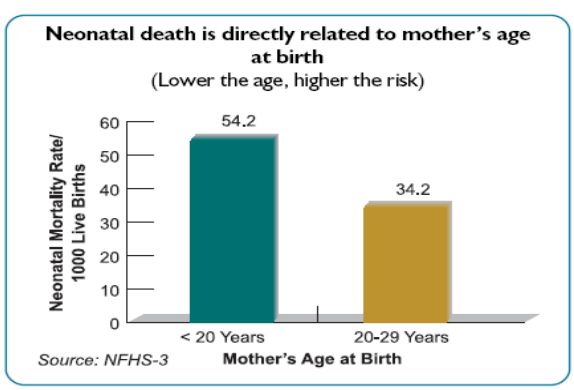
Graph 4: Causes of Neonatal Deaths (CHERG, 2012)

1. Prematurity and Low Birth Weight (LBW):

More than 8.1 million newborns in India have low birth weight which attributes to about 27% of newborn deaths. More than one fourth of deaths occur in LBW babies who are at 11-13% higher risk of mortality compared to normal birth weight babies.

LBW babies are also likely to suffer high morbidity and mortality beyond neonatal period and those who survive are likely to have more medical and developmental problems than the ones with normal birth weight. They also are at a higher risk of developing asphyxia, hypothermia, sepsis and feeding problems.

Maternal malnutrition and ill health, high fertility rate, teenage pregnancy (Graph 6) and maternal infections are possible risk factors for LBW babies.



Graph 5: Effect of Maternal Age

2. Asphyxia

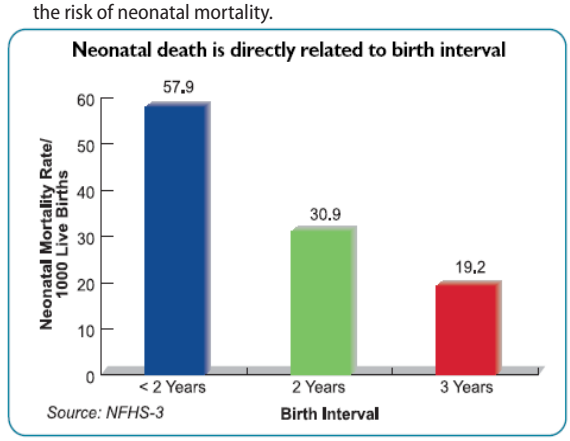
Nearly 1 million babies die each year because they do not breathe normally at birth and about 5-10 % of all newborns need resuscitation at birth which can be life saving for them. Babies born with asphyxia are more likely to suffer from disabilities when they grow up. Risk factors for asphyxia include low birth weight of neonate, primi gravida status (first delivery), use of oxytocin to induce labor without monitoring and lack of Antenatal Care (ANC). (Kumar, 1995)

3. Infections

Infections like pneumonia, meningitis, septicaemia and diarrhoea account for almost one fourth of neonatal deaths. Sepsis is the major cause of deaths and morbidity in neonates in community as well as hospital settings. Timely detection of danger signs for infections (fever, inability to breastfeed, pitting of chest, fast breathing and appearence of red rashes/boils on skin), prompt referral of the baby to nearby hospital and proper medical attention is highly essential in order to reduce mortality due to infections.

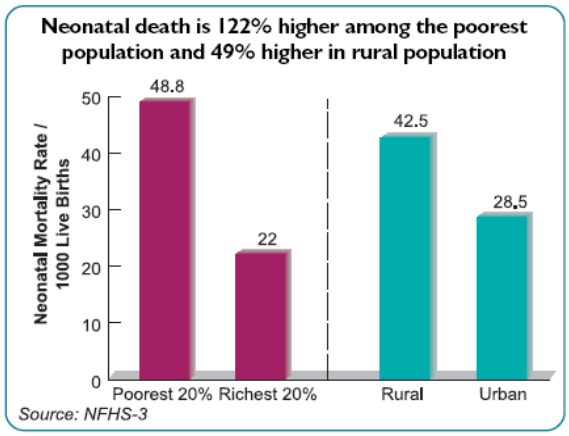
Factors affecting Newborn Mortality in India:

- *Level of health care services:* Lack of access to primary health care is one of the reasons for newborn deaths. Delay in seeking health care for sick newborns is an important cause of newborn deaths. At times, the family stays hours away from a referral facility or there may not be a skilled provider in their community. With regard to health facility, there is deficiency of manpower (trained doctors and nurses) and lack of resources for newborn care including essential care at birth and care of sick newborns.
- *Lack of Focus on Newborn:* Focus on proper implementation of Newborn Health Programmes has been lost due to gap between safe motherhood and child survival efforts. While safe motherhood programmes focus on the maternal survival, on the other hand, child survival strategies address the problem of children over one month (Beck, et al, 2004). Thus, newborn remains a neglected group and severity of the problem is not acknowledged.
- *Perinatal deaths and Labour Monitoring:* The still birth rate in India is estimated at 30-35 per 1000 live births and perinatal mortality rate at 37 per 1000 births. The risk for still births increases if there are no antenatal check ups for mother, untrained birth attendant for abnormal labour, lack of labour monitoring, overuse of oxytocin for labour augmentation, abnormal fetal presentation, maternal age below 20 and above 35 years and maternal problems such as anaemia and pregnancy induced hypertension (Beck, et al.,2004).
- *Maternal health:* In addition to direct causes of death, many newborns die because of their mother's poor health. Newborn outcomes are affected by woman's health throughout the life cycle i.e. from child through adolescence and pregnancy. For a newborn to be healthy, it is imperative that maternal health and nutrition is taken care of, especially during pregnancy, labour and after childbirth. Comprehensive, good quality care for mothers during pregnancy and childbirth (Antenatal care, care during delivery and post natal care) is as important as care for the baby after birth to ensure that every newborn starts out life with best chance of reaching adulthood. Complete antenatal care keeps the mother healthy, helps to prevent problems like low birth weight and newborn infections and have a normal delivery.
- *Birth interval* (Graph 7) National Family and Health Survey (NFHS 3,2007) indicates that repeated pregnancies with a birth interval of less then 2 years is directly leading to higher new born deaths and birth spacing through proper family planning measures reduces the risk of neonatal mortality.



Graph 6: Effect of Birth Interval

- *Socio economic status of population:* The rich - poor and urban - rural differences are significantly affecting neonatal deaths (Graph-8). Urban-rural differences in neonatal mortality exist with the mortality rates higher by 50% in rural (42.5/1000 live births) compared to urban (28.5/1000 live births) areas, as per National Family Health Survey (NFHS3, 2007).



Graph 7: Effect of Socio-Economic Status

How to reduce Newborn Deaths and improve Child Health in India?

Simple, cost effective interventions for mother and newborn taken at various levels from pregnancy till child birth delivered through community and hospital settings can lead to a substantial improvement in newborn survival thereby improving state of India's children**.** These interventions are evidence based and have been proven to improve newborn survival in various parts of the world. Many of them have been adopted in government health programmes in India in past few years and efforts have been initiated to implement them at a nationwide level. (Table1)

Stage	Intervention
Preconception (before pregnancy)	Folic Acid Supplementation
	Family Planning
	Prevention and management of sexually transmitted infections including HIV
Antenatal (during pregnancy)	Syphilis Screening and Treatment
	Pre emlampsia and Eclampsia Prevention
	Tetanus Toxoid Immunization
	Intermittent Preventive Treatment for Malaria
Intrapartum (during child birth)	Antibiotics for Preterm Rupture of Membrane
	Corticosteroids for Preterm Labour
	Detection and Management of breech
	Labour Monitoring for early diagnosis of complications
	Clean Delivery Practices
	Skilled Birth Attendant for conducting delivery
Post natal (after child birth)	Resuscitation of Newborn baby
	Initiation of early and exclusive breastfeeding
	Prevention and Management of Hypothermia
	Kangaroo Mother Care (for Newborns with Low birth Weights)
	To be initiated in hospital and continued at home
	Hygienic cord and skin care
	Prompt detection of danger signs & timely referral of newborn to nearest health facility
	Community Based Detection and Management of Pneumonia

Table 1: Interventions to reduce Neonatal Mortality (Darmstadt, et al., 2005)

Conclusion:

The challenge of Child survival in India can only be met by saving newborn lives in large numbers (NNF,2004). Existing interventions, if they reach universal coverage, would be able to reduce newborn deaths by over 60%, thereby making an important contribution to the ability of India to reach MDG4. Evidence based interventions, at low cost can save millions of newborn lives if translated to action and implemented by the health system. All the above mentioned interventions need to be incorporated in Newborn health policy and measures have to be taken to ensure proper implementation along with robust supervisory and monitoring systems for feedback.

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