Priyanshu Verma D Report

by Priyanshu Verma

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Assessment of mortality among identified Weak Newborn at Public Health Facilities in Sheikhpura District of Bihar

by

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PG/17/042

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DISSERTATION PROJECT

Introduction

1. Introduction

Bihar is amongst the third highest populated state in India after UP & Maharashtra and population is increasing with 25% growth rate which exceeds the national average of about 17%. As the population is increasing at highest pace and the healthcare needs are at its threshold. Neonatal Mortality Rate in Bihar has decreased to 28 per 1000 live births, Neonatal mortality is major contributor to Infant Mortality Rate (42 per 1000 live births) and Under Five mortality Rate (54 per 1000 live births). There are usually three main reasons for neonatal mortality: 1. Asphyxia 2. Sepsis and 3. Complication of Preterm Birth. In which preterm births is very important because preterm birth children are more vulnerable to death from infection than mature children, apart from this, preterm birth children are more at risk of death from respiratory distress syndrome and metabolic complications then mature children. As per WHO about 10 – 15% of all births are Immature birth. If we calculate this number, then about 3,80,000 children will preterm birth out of 28.65 lakh births in Bihar every year. Therefore, Neonatal Mortality is one of the major contributor towards U5MR (Under 5 mortality rate), To control the neonatal mortality new born care is very essential component to work upon. Government of Bihar has taken one important step to cater neonatal mortality by implementing the concept of **Weak Newborn** by identifying High Risk Newborn children. As per guidelines of Weak Newborn, all the identified children must be tracked 5 times by respective MO/ANMs (1st, 3rd, 7th, 15th & 30th Day) telephonically.

About Week Newborn:

Government of Bihar has taken one important step to cater neonatal mortality under CARE interventional area in the year 2016 by implementing the concept of **Weak Newborn** by identifying High Risk Newborns under three categories:

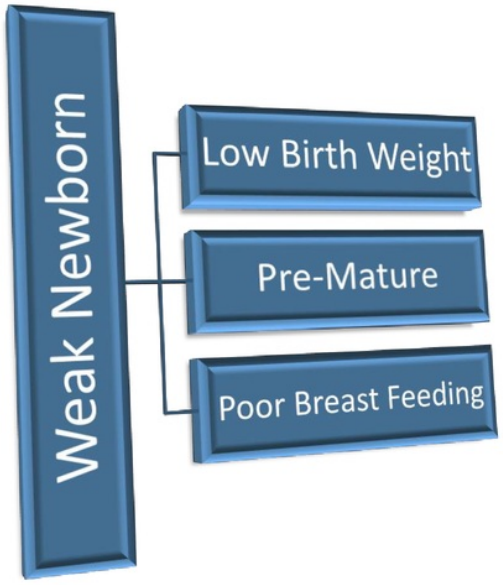

Fig: 1 Showing the categories of Weak Newborn under which neonates identified.

Fig: 2 Diagrammatically showing the 3 criterions of Weak Newborn.

For every baby that is identified as Weak Newborn:

FLWs need to give Home Based Newborn Care under these special instructions:

Fig: 3 Showing the counselling instruction to be given by FLWs.

PROBLEM STATEMENT

Trends has shown that Early neonatal & Neonatal mortality are the major contributor to the Infant and Under five mortality rates.

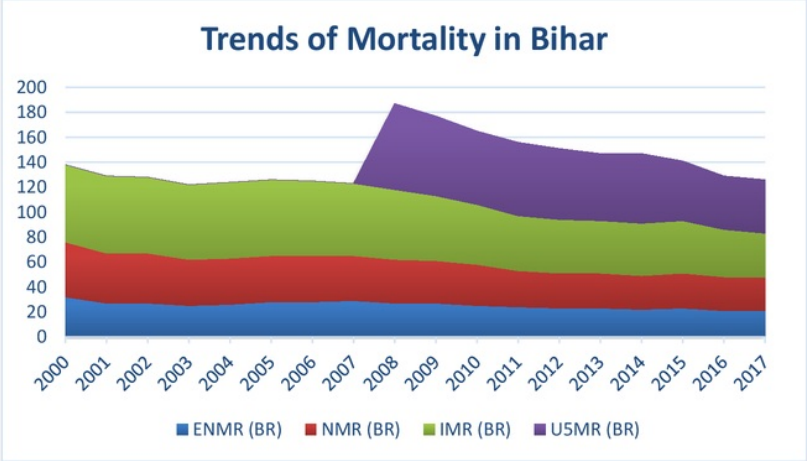

Fig: 4 Graph showing the trends of mortality. (*Source SRS)

It is observed from the graph that trends of mortality decreasing but neonatal mortality is not reduced up to the mark and therefore it is the major contributor to Infant & Under five mortality rates.

Children mortality is the major burden and challenge for Public Health to resolve it, From the trends it also observed that mortality has decreased with 2 to 3 points in past 5 to 10 years but it is decreasing from 1 or 2 points in recent years which conclude that we have to go extra miles to decrease the mortality burden and therefore making India Healthy.

OBJECTIVE

To assess the mortality among identified Weak Newborn at Public Health Facilities in Sheikhpura District of Bihar

Literature Review

2. Literature Review

Literature 1:

India Newborn Action Plan (INAP)

The India Newborn Action Plan (INAP) is India's committed response to the Global Every Newborn Action Plan (ENAP), launched in June 2014 at the 67th World Health Assembly, to advance the Global Strategy for Women's and Children's Health. The ENAP sets forth a vision of a world that has eliminated preventable newborn deaths and stillbirths. INAP lays out a vision and a plan for India to end preventable newborn deaths, accelerate progress, and scale up high-impact yet cost-effective interventions. INAP has a clear vision supported by goals, strategic intervention packages, priority actions, and a monitoring framework. For the first time, INAP also articulates the Government of India's specific attention on preventing stillbirths. INAP is guided by the principles of Integration, Equity, Gender, Quality of Care, Convergence, Accountability, and Partnerships. It includes six pillars of intervention packages across various stages with specific actions to impact stillbirths and newborn health. The six pillars are: Preconception and antenatal care; Care during labour and child birth; Immediate newborn care; Care of healthy newborn; Care of small and sick newborn; and Care beyond newborn survival. The India Newborn Action Plan is a concerted effort towards translating commitments into meaningful change for newborns. It will serve as a framework for the States to develop their area-specific action plans.

Augmenting investments under the National Health Mission is essential to reduce preventable neonatal deaths and stillbirths. Investments shall help strengthen the health system to address critical gaps in infrastructure; streamline procurement and supply chain mechanisms (to ensure essential commodity security); and supplement availability of skilled human resource (especially in difficult and hard-to-reach areas). To improve quality of services in public health facilities, the state and district programme management capacity shall be enhanced to deliver evidence-based interventions in an integrated manner across the continuum of care and quality assurance mechanisms. In addition, steps towards good governance—responsiveness, transparency and accountability of health system—shall be invigorated. Concerted efforts shall be made at national and state level to ensure intradepartmental and interdepartmental convergence and multi-stakeholder partnerships. This would be vital for addressing critical social determinants of maternal and neonatal health, such as child marriage, early/adolescent pregnancy, and frequent and multiple pregnancies. It would also address the gender discrimination (e.g., female foeticide) that affects care-seeking for girl children and women.

For successful implementation of INAP, it is crucial to focus on the urban poor newborns and harness the potential of the private sector. Eff orts would be geared towards harmonization of knowledge and competencies of different professional bodies, such as NNF, IAP, FOGSI, at the national and state level to enhance access to quality integrated care for women and neonates. Today, there are unprecedented opportunities, as much more is known about effective interventions, service delivery

channels, and approaches to accelerate coverage and quality of care. Research into delivery, development, and discovery needs to be placed at the forefront of eff orts to reduce neonatal mortality and stillbirths. Stillbirths so far have not received due attention in India. INAP for the first time articulates the Government of India's focused attention on preventing stillbirths by constituting a Stillbirth Task Force to provide strategic oversight and technical guidance. Selected research priorities include: Scaling up simplified newborn resuscitation; Identifying barriers to exclusive breastfeeding; Evaluating use of chlorhexidine for cord care; Improving and simplifying intrapartum monitoring; Operationalizing KMC at both the facility and community level; and Simplified antibiotic regimen for management of neonatal sepsis. The most urgent requirement is to establish a strong institutional mechanism for knowledge management, research, and documentation that feeds into guiding policies and strategies. Successful implementation of INAP will thus rely on a strong, secure continuum-of-care to dramatically reduce preventable maternal, newborn, and child deaths, through quality implementation of high impact interventions to the scale, keeping the equity in the center stage of the planning process. INAP has potential to contribute towards more equitable societies and transform human development.

Literature 2:

Born Too Soon: Born Too Soon: The Global Action Report on Preterm Birth

More than 1 in 10 of the world's babies born in 2010 were born prematurely, making an estimated 15 million preterm births (defined as before 37 weeks of gestation), of which more than 1 million died as a result of their prematurity (Blencowe et al., 2012). Prematurity is now the second-leading cause of death in children under 5 years and the single most important cause of death in the critical first month of life.

The implications of being born too soon extend beyond the neonatal period and throughout the life cycle. Babies who are born before they are physically ready to face the world often require special care and face greater risks of serious health problems, including cerebral palsy, intellectual impairment, chronic lung disease, and vision and hearing loss. This added dimension of lifelong disability exacts a high toll on individuals born preterm, their families and the communities in which they live. (Institute of Medicine, 2007)

Premature babies, in turn, are at greater risk of developing NCDs, like hypertension and diabetes, and other significant health conditions later in life, creating an intergenerational cycle of risk (Hovi et al., 2007).

There exists a range of low-cost interventions such as Kangaroo Mother Care and antenatal corticosteroids that, if fully implemented, could immediately and substantially reduce prematurity-related death and disability in high-burden countries. High-income countries such as the United States and the United Kingdom experienced significant reductions in neonatal mortality before the introduction of neonatal intensive care units,

through a combination of public health campaigns, dissemination of antimicrobials, and basic thermal care and respiratory support. In low-resource settings, therefore, immediate and significant progress can be made in preventing deaths related to complications from preterm birth with similar cost-effective interventions and improved public health services.

Preterm birth is a major cause of death and a significant cause of long-term loss of human potential amongst survivors all around the world. Complications of preterm birth are the single largest direct cause of neonatal deaths, responsible for 35% of the world's 3.1 million deaths a year, and the second most common cause of under-5 deaths after pneumonia.

Preterm birth is a syndrome with a variety of causes which can be classified into two broad subtypes: (1) spontaneous preterm birth (spontaneous onset of labor or following prelabor premature rupture of membranes (pPROM)) and (2) provider-initiated preterm birth (defined as induction of labor or elective caesarian birth before 37 completed weeks of gestation for maternal or fetal indications (both urgent or discretionary), or other non-medical reasons) (Table 2.2) (Goldenberg et al., 2012).

This report initiates a process towards goals for preterm birth prevention and presents a new goal for the reduction of deaths due to complications of preterm birth (Box 6.2). This goal was set through consultation by a group of technical experts. Several analyses were undertaken, notably (1) projections by country of the deaths due to preterm birth from now until 2025, assuming no change in trends and assuming expected changes in Gross National Income (GNI) (2) reduction in preterm-specific neonatal mortality if the historical trends from the United Kingdom or the United States (Box 6.1) were applied or if more rapid recent reductions in middle-income countries were applied (3) preterm-specific neonatal mortality reductions predicted based on coverage changes according to Lives Saved Tool Modeling.

Literature 3:

Study of Factors Affecting and Causing Low Birth Weight

Low birth weight in new born is major reason of neonatal deaths resulting in severe short term and long-term effect on babies. Descriptive study conducted with the help of questionnaires to study factors contributing to deliver low birth weight babies, investigating interrelationships among different factors effecting LBW and increasing awareness of LBW among expecting mothers. Outcomes of the study included that maternal BMI, maternal education, mal-nutrition, and infections and diseases during pregnancy had positive impact on delivering LBW babies. Mothers with familial vertical history of LBW, inter-pregnancy interval of less than one year and those having previous LBW babies were more likely to deliver LBW baby. Mothers belonging to higher socioeconomic class, those using multivitamins and folic acid during pregnancy had less chances of having LBW.

Literature 4:

Bihar Innovation Series

Babies born too early or too small may not breastfeed well, have trouble staying warm, and are more at risk of infection.1 These issues often lead to serious illness and death even though simple evidence-based practices exist to address them. In Bihar, India, these babies make up 35% of all neonatal mortality. Most of these deaths happen during the first week of life. For small and weak newborns to survive and thrive in any context, trained medical personnel and other caregivers must be ready to properly respond to their needs beginning immediately after birth.

Result Shows that Improved weighing, tracking and evidence-based care of babies have contributed to a dramatic decrease in death and suffering among weak newborns in Bihar.

Serious illness among very low birth weight babies during the first month in life decreased from 57% in 2015 to 39% in 2017. Among the lowest birth weight categories (newborns weighing less than 1500 kg/ ~3lbs), mortality reduced from 63% in 2015 to 30% in 2017. Most strikingly, mortality among very low birth weight babies declined from 22% in 2015 to 12% in 2017. From its inception to 2017, the collective action of this innovation is estimated to have prevented 16,700 newborn deaths. The district resource units of CARE are continuously working to address challenges and systemic issues such as improving the availability of digital weighing machines in delivery points, strengthening newborn registers and reporting formats at facilities, and supporting recording and reporting of birth weights by nurses and ANMs.

Literature 5:

SOIN Printed

About 0.76 million neonates die every year in India, the highest for any country in the world. The neonatal mortality rate (NMR) of the country did decline from 52 per 1000 live births in 1990 to 29 per 1000 live births in 2012 (SRS 2012) but the rate of decline has been slow, and lags that of infant and under-five child mortality rates. The slower decline has led to increasing contribution of neonatal mortality to infant mortality. With the current infant and under-five child mortality rates of 42 and 52 per 1000 live births respectively (SRS 2012), about 70% of infant deaths and more than half of under-five child deaths occur in the neonatal period, the first 4 weeks of life. Among neonatal deaths, the rate of decline in early neonatal mortality rate (ENMR) is much lower than that of late NMR. Indeed, of all the components of the under-five mortality, early neonatal mortality has been the slowest to decline. Given that the current ENMR is 23 per 1000 live births (SRS 2012), the first week of life alone accounts for about 45% of total under-five child deaths that happen in the country. The slow decline of neonatal mortality, and that of early NMR, is a major stumbling block that could derail India's otherwise steady march towards reaching the Millennium Development Goal-4. The

high level and slow decline in early neonatal deaths are also reflected in a high and stagnant perinatal mortality rate in India.

The rate of decline in NMR, and to an extent ENMR, has accelerated with the introduction of National Rural Health Mission (NRHM) in mid-2005. The AARR for NMR was zero, just before introduction of NRHM (between 2003 and 2005) but has increased to 4.6% per year in the period between 2009 and 2011. This is true for almost all states but there is still a huge disparity in NMR between and even within the states because of the different baseline rates. The disparity is further compounded by rural-urban, poor-rich, and gender differentials. There is an interplay of different demographic, educational, socio economic, biological and care seeking factors, which are responsible for the differentials and the high burden of neonatal mortality. Equity is one of the cross-cutting issues that requires immediate attention.

The three major causes of neonatal deaths are preterm birth complications, infections, and intrapartum related complications; together, they contribute to nearly 90% of total neonatal deaths. While almost all intrapartum-related deaths and majority of prematurity-related deaths occur in the first week of life, more than half of infection related deaths occur after the first week of life. This has implications for the home/community-based postnatal care of neonates. The stillbirth rate (SBR) for 2012 is estimated to be 22 per 1,000 births. The country lacks reliable system of estimating the stillbirth burden and epidemiologic correlates thereof. About 47,000 maternal deaths occur in India each year. The maternal mortality ratio (MMR) has declined from 560 per 100,000 live births in 1990 to 178 per 100,000 live births in 2010-2012. This translates into an annual reduction of 5.7%. With this rate of decline, India is on track to attain its MDG 5.

Literature 6

State of newborn health in India

About 0.75 million neonates die every year in India, the highest for any country in the world. The neonatal mortality rate (NMR) declined from 52 per 1000 live births in 1990 to 28 per 1000 live births in 2013, but the rate of decline has been slow and lags behind that of infant and under-five child mortality rates. The slower decline has led to increasing contribution of neonatal mortality to infant and under-five mortality. Among neonatal deaths, the rate of decline in early neonatal mortality rate (ENMR) is much lower than that of late NMR. The high level and slow decline in early NMR are also reflected in a high and stagnant perinatal mortality rate. The rate of decline in NMR, and to an extent ENMR, has accelerated with the introduction of National Rural Health Mission in mid-2005. Almost all states have witnessed this phenomenon, but there is still a huge disparity in NMR between and even within the states. The disparity is further compounded by rural–urban, poor–rich and gender differentials. There is an interplay of different demographic, educational, socioeconomic, biological and care-seeking factors, which are responsible for the differentials and the high burden of neonatal mortality. Addressing inequity in India is an important cross-cutting action that will reduce newborn mortality.

Methodology

3. Methodology

Study Settings

A cross sectional study was conducted in Sheikhpura district of Bihar. The study was conducted from 4th February to 3rd May 2019.

Study Design

A Cross Sectional descriptive study

Study Population

Died Weak Newborn

Data Collection

Secondary data was collected from line list of Weak Newborn from WNB registers from all the government maternity facilities (August 2018 to January 2019) and Primary data is collected by interviewing the mothers of dead Weak Newborn.

Tools & Techniques

The data collection technique was survey-based using the Questionnaire developed.

Data Analysis

The collected data was compiled and analyzed using Microsoft Office Excel.

Results

4. Results

The findings of the study are described using different graphs for the visual illustrations with interpretation of each findings.

The result is derived from the study of Weak Newborn in Sheikhpura district of Bihar based on interviewed mothers.

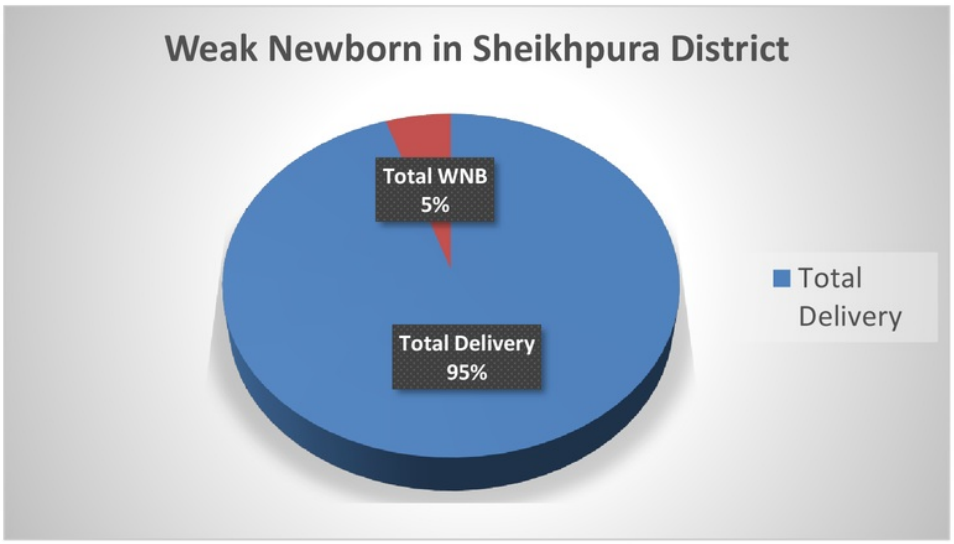

Fig 5 Graph showing the Weak Newborn identification distribution among Neonates born in Public Health facilities.

It is observed that the identification of Weak Newborn is quite less if we compare with the ELA of WNB identification as per Government of Bihar WNB guidelines to reduce the mortality among early neonates, neonates and infants.

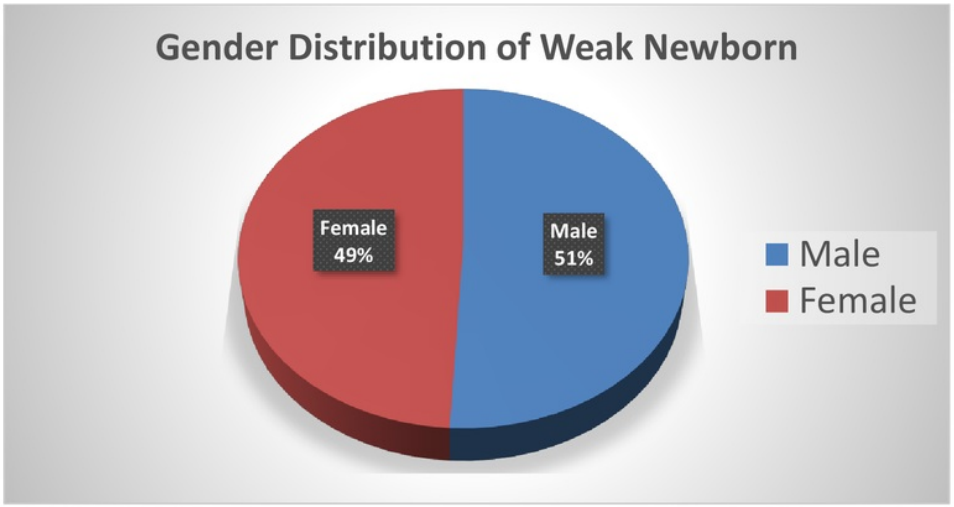

Fig: 6 Graph showing the gender distribution of weak newborn.

Distribution of identified Weak Newborn under the specified criteria

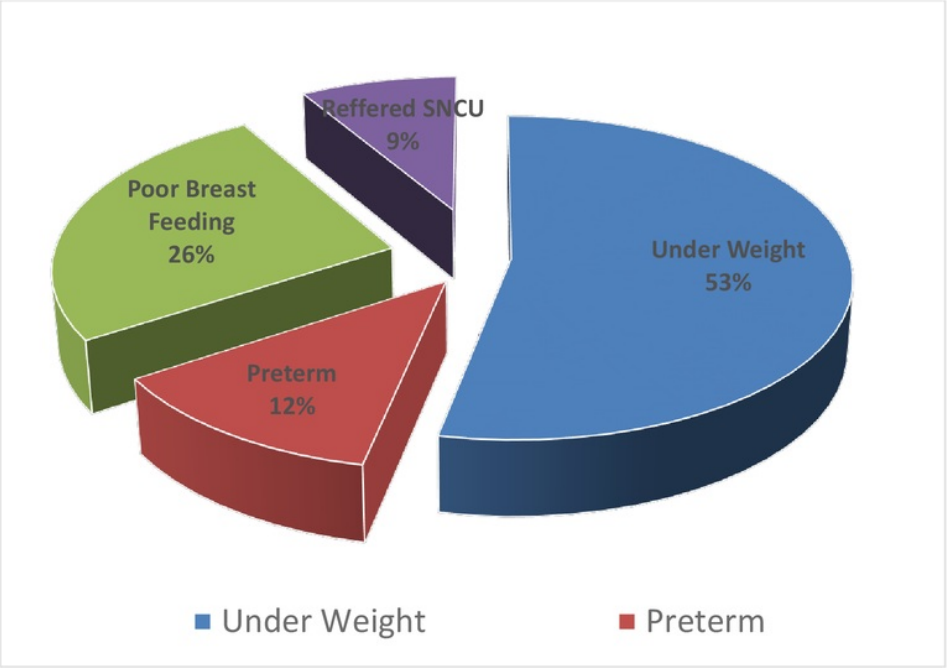

Fig: 7 Graph showing the distribution on Weak Newborn identified under different criteria.

As per the findings from WNB line list it has been observed that out of all WNB more than 50% are falls under the Low Birth Weight or Under Weight category.

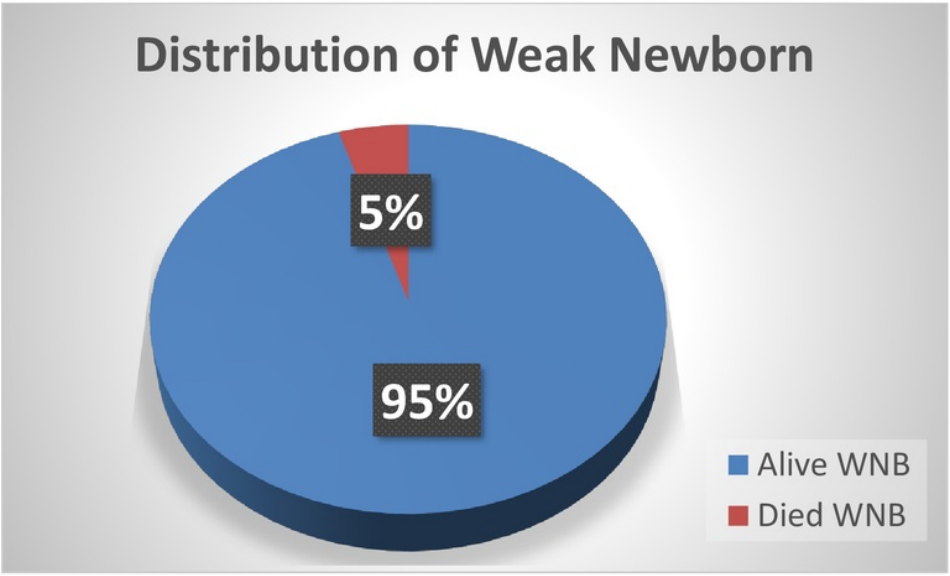

Fig: 8 Graph showing the distribution of WNB on their current live or dead status.

It has been observed that around 5% of identified Weak New Born died because of their criticality.

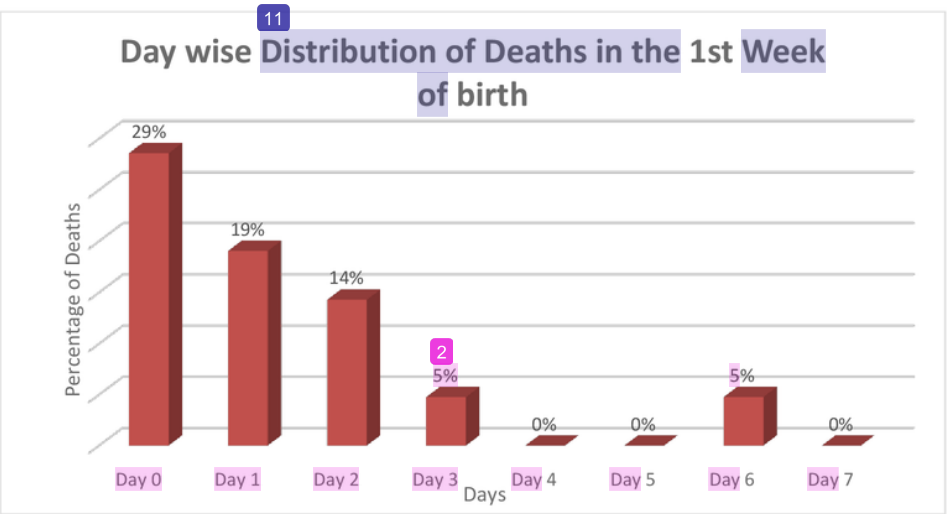

Fig: 9 Graph showing the distribution of deaths occurring within the 1st week after birth of Weak Newborn Child.

Analytical observation and past trends say that almost 70% of the deaths occurs in the 1st week after the birth but more interesting is that out of all deaths in 1st week around 30% is unable to complete even 24 hours from the birth and most of them died.

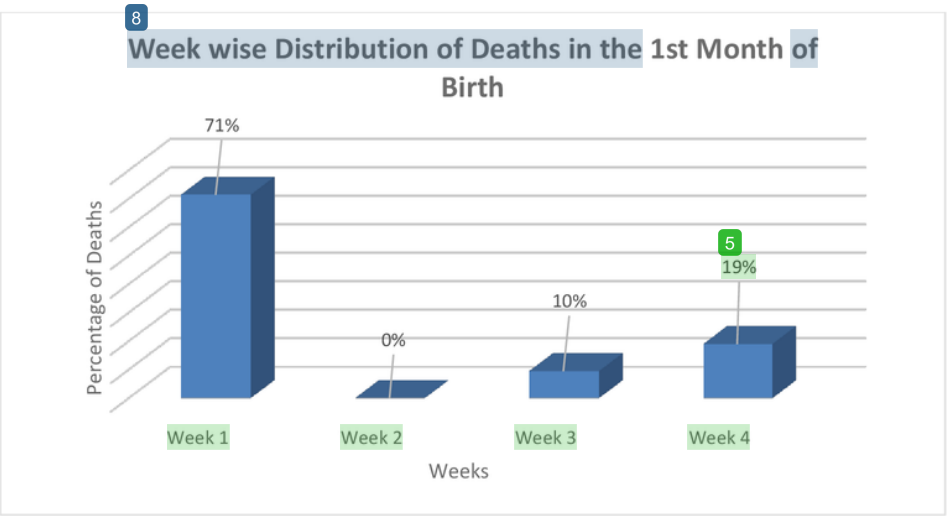

Fig: 10 Graph showing the distribution of deaths in the 1st month after the birth.

1st week contributes major part if we compare it with other weeks in the first month after the birth of Weak Newborn.

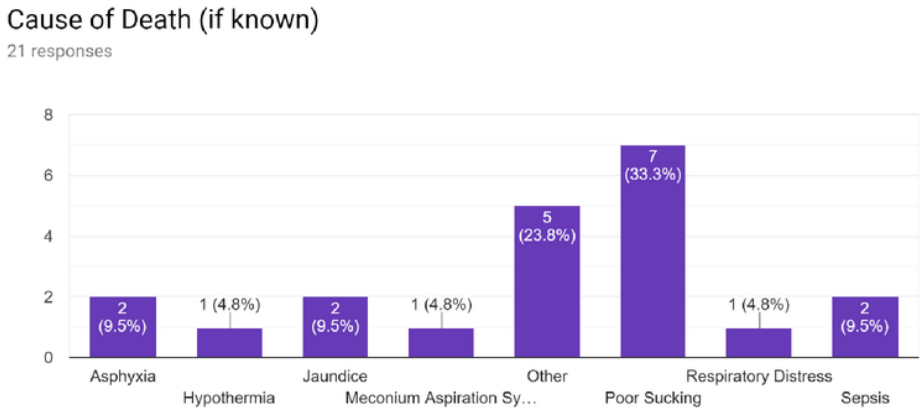

Fig: 11 Graph showing the different causes contributing to the deaths of Weak Newborn.

Causes of Deaths of Weak Newborn:

- Asphyxia
- Hypothermia
- Jaundice
- MAS (Meonium Aspiration Syndrome)
- Poor Sucking
- Respiratory Distress
- Sepsis
- Others

As per the findings, major causes were Poor Sucking along with sepsis jaundice and asphyxia are the major early neonatal killers.

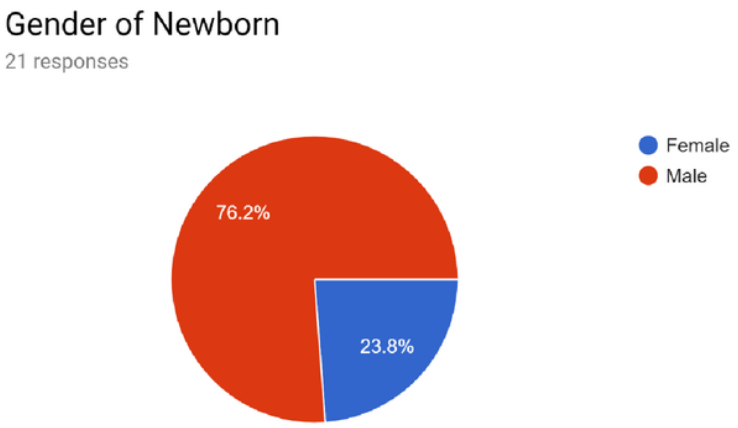

Fig: 12 Graph showing the gender distribution of died Weak Newborn.

It is observed from the above graph that majority of weak newborn died are male by gender. Around one third of total deaths are male and one fourth is female.

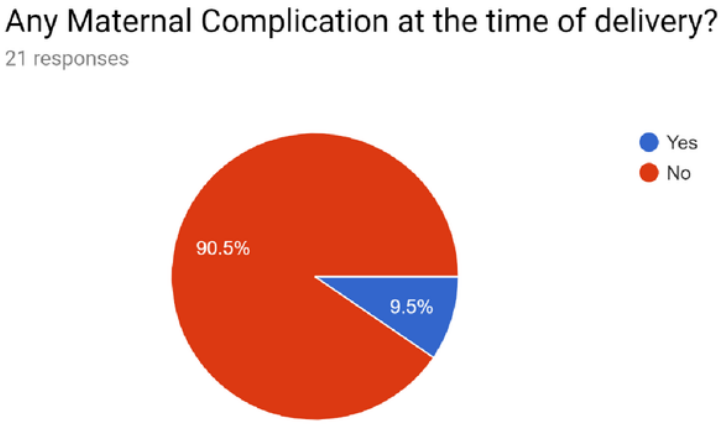

Fig: 13 Graph showing the distribution of maternal complication at time of birth of died weak new born.

It is observed from the graph that maternal complication doesn't contribute to have weak newborn at the time of delivery.

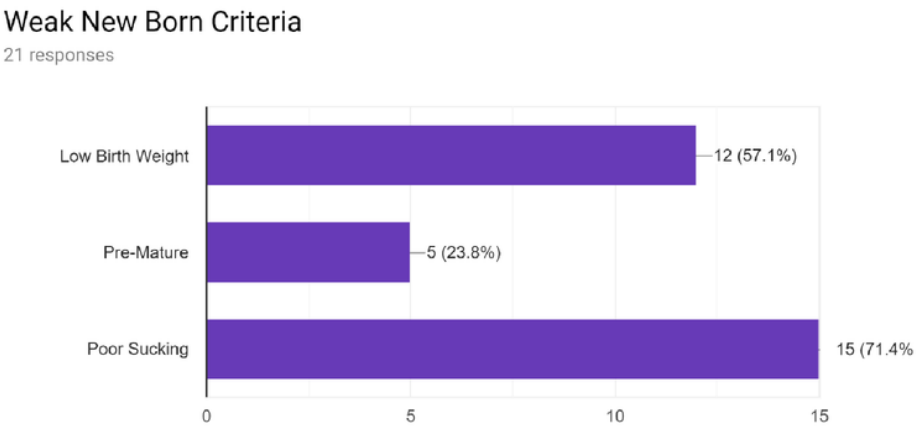

Fig: 14 Graph showing the distribution of different identification criteria under which died newborn falls.

Majority of died weak newborn are either poor sucking or Low birth weight which is major contributor to the deaths of early neonates.

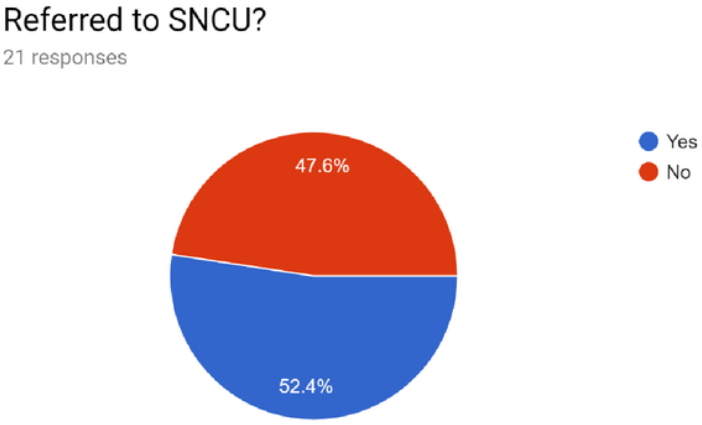

Fig: 15 Graph showing the referral system of Weak new born to SNCU among died Weak newborn.

Half of the died weak newborn has not referred to SNCU, which explains the poor referral system in the district.

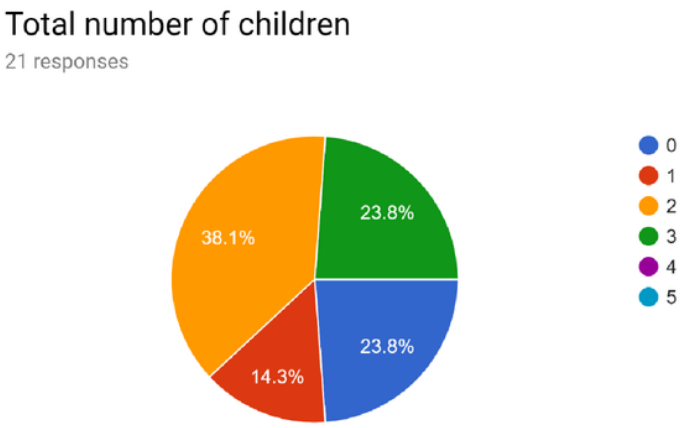

Fig: 16 Graph showing the total number of child of mother of died weak newborn.

It is observed from the above graph is that the mother having 2 or more children contributing to weak newborn baby and their deaths.

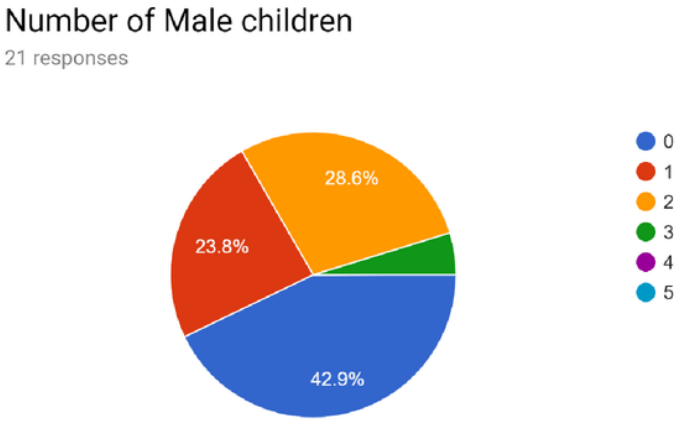

Fig: 17 Graph showing the total number of male child of mother of died weak newborn.

If we see the above graph than it depicts that mothers having no male child is more at the risk of having weak newborn baby.

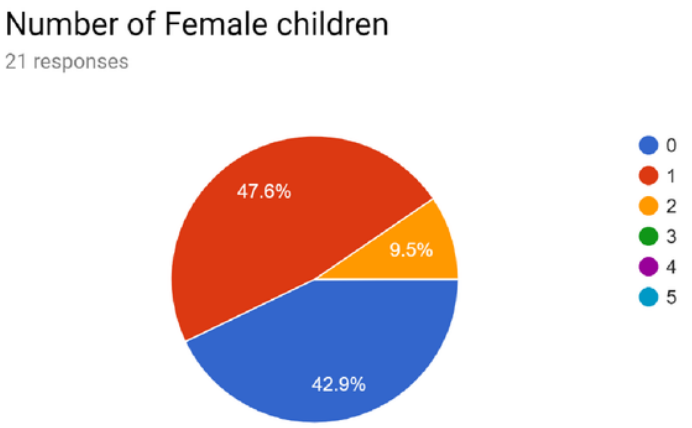

Fig: 18 Graph showing the total number of female child of mother of died weak newborn.

This graph also depicts that not only male child but having no female child also major contributor to weak newborn.

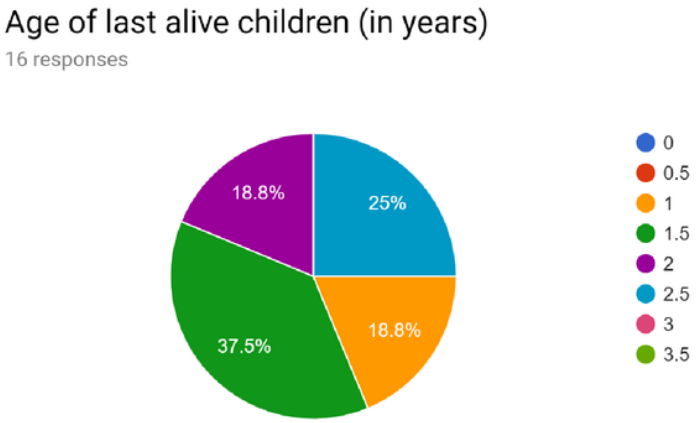

Fig: 19 Graph showing the status of age of just elder child of died weak newborn.

It has been observed that the gap between last alive child and current weak newborn is maximum 2.5 years whereas majority falls between 1 to 1.5 years of gap.

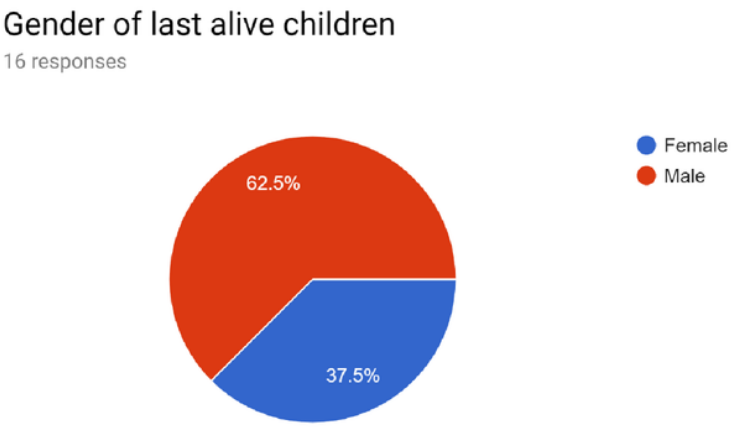

Fig: 20 Graph showing the status of gender of just elder child of died weak newborn.

It is observed that majority of mother have male child as last alive child at the time of delivery of weak newborn who died.

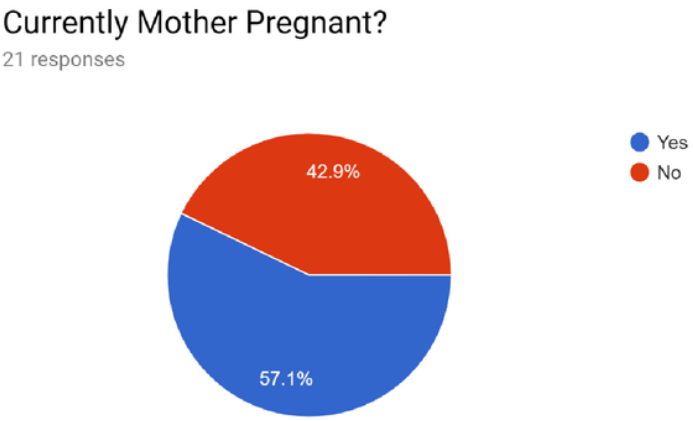

Fig: 21 Graph showing the current (at the time of interview) pregnancy status of mothers of recently died weak newborn.

Interview was conducted with minimum pregnancy time of 3 months and maximum of 9 months, in which, more than half of the mothers were again pregnant at the time of interview which explains the coverage of family planning services in the district that is very poor.

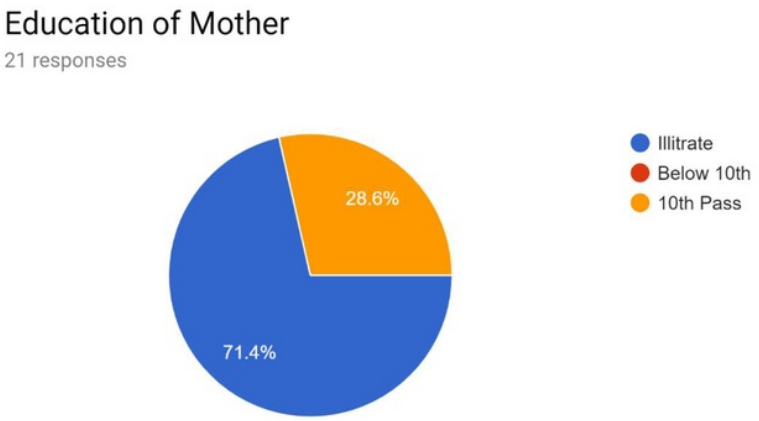

Fig: 22 Graph showing the literacy of died weak newborn mothers.

Above graph show that the literacy of the mother of died weak newborn is very low and majority of mothers are illiterate. This is the only indicator which is stopping the progress of maternal and child health in the district because IEC activities are directly or indirectly related to the literacy of the target population.

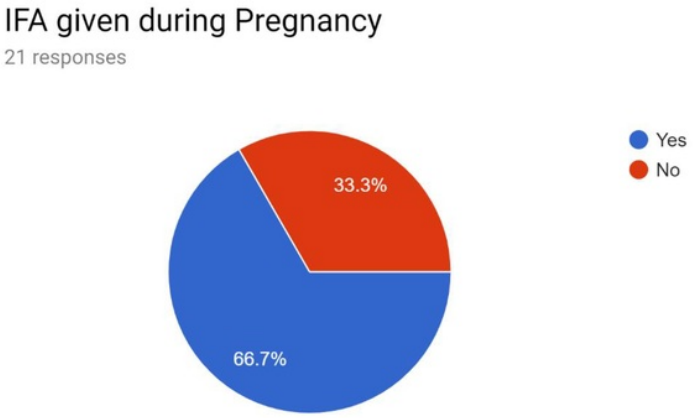

Fig: 23 Graph showing the penetration of IFA distribution to weak new born mothers.

This graph shows the coverage of IFA distribution to the beneficiaries at the time of their pregnancy. Around one third of the mother didn't received IFA tablet at the time of their pregnancy.

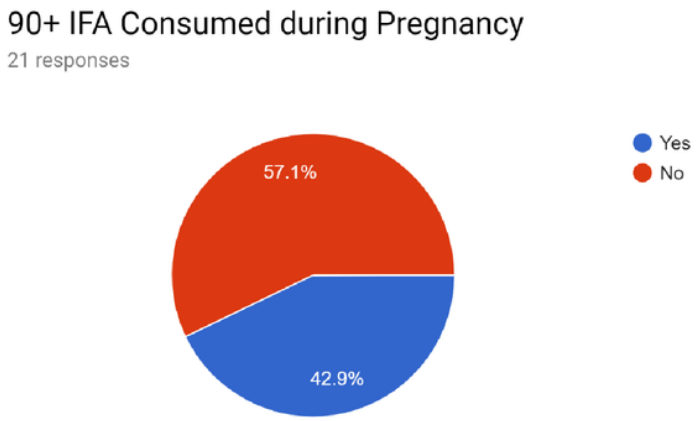

Fig: 24 Graph showing the consumption of Iron folic Acid tablet during pregnancy.

This graph shows the consumption of IFA at the time of pregnancy. It also tells that most of the mothers who gets IFA during their pregnancy didn't consume IFA.

Discussion

5. Discussion

Conclusion

6. Conclusion

Secondary Data Findings:

- Weak New born identification at the facility was poor.
- Around five percent of total deliveries were identified as Weak Newborn

Primary Data Findings:

- Most of the deaths occurs at early neonatal period within first week
- Major causes of deaths identified were Weak Newborn, Asphyxia & Sepsis
- Half of the cases were not referred to the SNCU
- More than half of the mothers were pregnant at the time of interview

Around seventy percent of mothers were illiterate

Recommendation

7. Recommendation

- Capacity building of Medical staff regarding Weak Newborn identification.
- Quality of care during childbirth should be improved at the facilities.
- Need to focus on essential care of the weak new born.
- Counselling should be given to the mother and family regarding care of the weak new born, exclusive breastfeeding, clean cord care, delayed bathing, KMC, cleanliness and hygiene.
- Family planning counselling during postnatal period should be given by every medical staff.
- Strengthening of SNCU referral system.

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9.

Annexure

10. Annexure

1. Consent Form:

सहमति पत्र

नमस्कार!

मेरा नाम प्रियांशु वर्मा है। मैं यहाँ शेखपुरा जिला में केयर इंडिया में डीटीओ - ऑन के पद पर हूँ। यह जानकार बहोत दुःख हुआ कि कुछ महीने पहले आपके नवजात शिशु का निधन हो गया मुझे उसके लिए अत्यंत खेद है। आज मैं आपके पिछले गर्भावस्था एवं आपके नवजात शिशु के देहांत के बारे में आपसे कुछ प्रश्न पूछना चाहता हूँ, जो नवजात शिशु के मृत्यु के कारण ढूंढने के सम्बन्ध में है जिससे भविष्य में किसी अन्य माँ के शिशु की मृत्यु होने से हम उनको बचा सकें। अगर आप मेरे द्वारा बताये गए उद्देश्य से सहमत हैं तो कृपया हाँ बोलें और अगर आप सहमत नहीं हैं तो मैं आपसे कोई भी प्रश्न नहीं पूछूंगा।

आपने अपना बहुमूल्य समय दिया इसके लिए बोहोत बोहोत धन्यवाद्!!!

आपका विश्वासी
प्रियांशु वर्मा

Consent Form

Hello!

My name is Priyanshu Verma. Here I am DTO - ON at CARE India in Sheikhpura district. It was sad to know that your newborn died a few months ago. I am extremely sorry for that. Today, I want to ask you some questions about your last pregnancy and the death of your newborn. we are in the process of finding the cause of the death of the newborn, so that we can save them from the death of another mother in the future. If you agree with the purpose stated by me, please say yes and if you do not agree then I will not ask any questions from you.

Thank you for your valuable time!!!

Yours Sincerely
Priyanshu Verma

Weak New Born Death Questionnaire

Block: | WNB Serial No:

What was the name of child: | Date of Death:

Gender: | Weight at Birth: | Cause of Death:

Name of Mother:

Delivery Location: Public ☐ Private ☐ Home ☐

Maternal Complication: Yes ☐ No ☐

WNB Criteria: LBW ☐ Pre-Mature ☐ Poor Sucking ☐

Referred to SNCU: Yes ☐ No ☐

Total No. of child: | No. of Male Child: | No. of Female Child:

Age of last alive child: | Gender of last alive child: Male ☐ Female ☐

Education of Mother: Illitrate ☐ 10th Pass ☐ 12th Pass ☐

IFA Given during Pregnancy: Yes ☐ No ☐

90+ IFA Consumed: Yes ☐ No ☐

Priyanshu Verma D Report

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