

“Emergency Disaster Preparedness and Response: Role and challenges of Neonatal Nurse in Indian Hospitals”

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Abstract:

There is the proverb as ‘Serving for the people is serving to the God.’ This service is provided by medical concern people first. In the medical sectors, nurses are the first who provides the direct service to the mankind in their illness. Most nursing programs offer various electives within nursing fields allowing students to focus their knowledge in a particular area. Disaster with several community spreading diseases like diaries, malaria, cold, cough, viral infection etc. are major emergencies that occur in the health issues of students. When, such community transfer diseases are spreads in the children and new born babies, the challenges occurs in the neonatal area of medical science. Neonatal nursing is an important branch in the nursing field. Therefore, it is very important to understand the best newborn nursing which means neonatal nursing. There are several problems with new born baby and their health issues. The neonatal nursing sector has to face lots of problem in this area. Hence, it is very essential to study on the disaster management, challenges and remedies in neonatal nursing sector in India.

Key Words: Disaster, health issues, medical, preparedness, neonatal, challenges and remedies etc.

Introduction:

Nurses who want to specialize in a particular environment, such as: as newborn care, are looking at the school for additional opportunities. This may include volunteering, applying after starting a summer internship clinical rotation or applying for a faculty job during the graduate clinic before graduating.

All the medical care needs of new born baby can be managed by a pediatrician. But when there are high risks and critical clinical conditions find in new born baby, the interference of a neonatologist is necessary. The medical care unit of the hospital where such critical cases of new born baby are deal with a special medical team treated with gentle care appropriate skill and knowledge and special care areas usually provided, that medical care unit is called as Neonatal intensive care units or NICUs.

New nurses starting in the intensive care unit receive a broad orientation with continuing education and on-the-job training.

Neonatal care is a branch of healthcare that focuses on childbearing, having premature births or having health problems such as birth defects, infections, or heart defects.

Nurses for newborns are a registered nurse who specializes in working with these young, vulnerable patients. Many neonatal nurses work in neonatal intensive care units (NICUs) and provide highly specialized medical care for vulnerable newborns.



Image of Neonatal Nursing (Source: Internet)

Literature Review:

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2. **Shrestha S, Petrini M, Turale S.** (Int Nurs Rev. 2013 Jun;60(2):205-11. doi: 10.1111/inr.12017. Epub 2013 Apr 21.), worked and published their work with the title as, “Newborn care in Nepal: the effects of an educational intervention on nurses' knowledge and practice.” PMID: 23692004
3. **Campbell-Yeo M, Deorari A, McMillan DD, Singhal N, Vatsa M, Aylward D, Scotland J, Kumar P, Joshi M, Kalyan G, Dol J.** (Int Nurs Rev. 2014 Sep;61(3):398-405. doi: 10.1111/inr.12121. Epub 2014 Aug 8.) Published their work on “Educational barriers of nurses caring for sick and at-risk infants in India.” PMID: 25131708
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5. **DeLuca J, Zanni KL, Bonhomme N, Kemper AR.**(J Nurs Scholarsh. 2013 Mar;45(1):25-33. doi: 10.1111/jnu.12005. Epub 2013 Jan 31.) Published research on neonatal nursing area with the title, “Implications of newborn screening for nurses.” PMID: 23368429.

Objectives of the Study:

1. To understand the concept of disaster management in the hospital.
2. To find out the remedial preparedness and responses in the neonatal nursing.
3. To analyze the connection between the role of neonatal nursing and disaster management.
4. To find out the challenges of neonatal nursing and disaster management.

Hypothesis:

1. It is hard to face the problems of disaster management in neonatal nursing sectors.
2. The preparedness and responses in neonatal nursing health care center.

Method of the Study:

The current study is totally based on secondary data. The data which is available on the topmost neonatal hospitals of India is selected randomly and studied with few defined parameters as the common diseases that new born baby suffers, how neonatal hospitals are prepared for it and what are the challenges they are facing for it etc. Online data available on the hospital website is studied as the source of study. Three hospitals are selected for the current study i.e. Apollo Hospital, Surya Hospital and Narayana Health Care of India. The selection is random. Few neonatal nurses are asked their opinion with prepared questions about the health issues of new born baby with defined parameters and given in the table number one and graph number one of this paper.

India's Topmost Neonatal Hospitals:

- a. **Apollo Specialty Hospitals Private Limited:** The Apollo hospital has special neonatal care unit which works for those new born babies who are born with a defect by birth. This neonatal care unit further works on or illness of new born baby who requires special care. There are many cases in which the babies are born before due date who is called as premature baby. Such babies didn't get adequate

time to develop in their mother' womb such as the baby's heart, lungs, stomach or their metabolism may not be developed enough to function without special health care. In these cases the Neonatal doctors and nurses take care of these babies with special training to handle the most complex and high-risk situations to solve most health problems of newborns. Nurses play an important role in neonatal care unit.

Features of the Apollo Neonatal Hospitals:

- i. The availability of expert consultant in Neonatology including nursing staff.
- ii. Babies are kept under the expert, trained and qualified neonatologists doctors and nurses.
- iii. The management of 24 hours cares and consults on round the clock for the babies.
- iv. Advance techniques are used in the Modern neonatal intensive care of Apollo Cradle & Children's Hospital.
- v. The advanced techniques are used in the Modern neonatal intensive care of Apollo Cradle & Children's Hospital for the measurement of temperature, respiration, cardiac function, oxygenation, and brain activity which are the major remedial activities to take care of new born babies.
- vi. Availability of experienced technicians and blood gas analyzers which are used to assist in ventilator management of babies care unit. It needs to assist their breath.
- vii. In the Modern neonatal intensive care of Apollo Cradle & Children's Hospital, Bbaby warmers and phototherapy units are state of the art with inbuilt safety features.
- viii. In the Modern neonatal intensive care of Apollo Cradle & Children's Hospital Qualified trained nurses and other professional staff care for the babies at all times.
- ix. In the Modern neonatal intensive care of Apollo Cradle & Children's Hospital mothers are encouraged to continue the process of bonding with the babies even if in NICU and babies continue to be fed if possible with breast milk that has been expressed.
- x. In the Modern neonatal intensive care of Apollo Cradle & Children's Hospital the care giving process continues even after the mother and baby are discharged from Apollo Cradle & Children's Hospital.
- xi. In the Modern neonatal intensive care of Apollo Cradle & Children's Hospital, there are equipment with specifically designed for infants and medical staff specially those who trained in newborn care.
- xii. The main objective of The Neonatal Intensive Care Unit (NICU) is to create all the required and possible medical treatment for the sick newborns that need specialized treatment.
- xiii. In general ratio, babies who need to go to this unit are admitted within the first 24 hours after birth.
- xiv. as the team is willing and available to address the questions and concerns of the new parents. An isolation NICU is also in place to handle potentially infected cases and transfer cases. At Apollo Cradle & Children's Hospital, we are driven to ensure that you and your baby receive the highest standard of healthcare. For us, nothing is as important as the safety of your baby. In cases where your baby may be born preterm, or be faced with illness, The

Level III NICU at Apollo Cradle & Children's Hospital is an ultramodern facility, fully equipped to handle a baby needing extra care.

a. Surya Hospital:

Second hospital selected for the current study is Surya Hospital. The special features of Surya Hospital in Neonatal Technology Care unit are as:

- I. It provides the best medical care for neonatal.
 - II. The expert and well qualified pediatric super-specialists as well as support from the best of technology is available in Surya Hospital.
 - III. The Surya hospital monitors 24x7 by experienced neonatologists as doctors, consultant and nursing staff.
 - IV. The Surya hospital monitors 24x7 by intensive care specialists.
 - V. The Surya hospital sets a benchmark in ensuring survival of extremely premature babies.
 - VI. Surya hospital has established the credentials of saving the smallest and sickest babies in India.
 - VII. Surya's NICU unit of Surya Hospital is equipped with latest advancement in biomedical and healthcare technology,
 - VIII. Combining the best of experts and technology, Surya's NICU Unit has been largely successful in achieving higher survival rates and lowest complication rates that are comparable with the best in the world. Our unit has successfully looked after premature baby as premature as 23 weeks and as small as 460 grams. The survival rate for extremely premature infant at Surya is one of the best in country.
 - IX. Surya hospital is dedicated 24x7 dedicated "Neonatal Lifeline Ambulance" with well equipped facilities and Globe Trotter transport ventilator and attended by Neonatologists / Pediatricians and support staff.
 - X. In the Surya Hospital, State of the art recently built tertiary care NICU with Hepa-filters, Central AC, Central Oxygen/Air/Suction
 - XI. The special features of Surya Hospital is round the clock in house qualified Neonatologists with expertise and experience
 - XII. There are several types of ventilators with conventional an advanced modes such as, High Frequency Oscillatory Ventilation (HFOV), CPAP and HHHFNC respiratory support system, Surfactant Therapy, Total parenteral nutrition and Exchange transfusion
- b. Narayana Health Care: There are many required facilities are available in the Neonatology department at Narayana Health such as:
- i. Narayana Health Care provides specialist care to infants who are ill or require care for a wide range of issues such as premature birth, congenital defects, and sepsis.
 - ii. There is availability of extensive training for the Neonatologists at Narayana Health.
 - iii. The availability of experienced and qualified medical staff and modern medical facilities including Neonatal Intensive Care Units (NICU) at Narayana Health
 - iv. Neonatal Intensive Care Units (NICU) at Narayana Health helps the new born baby to provide comprehensive care for infants.

- v. The Neonatologists' team of Neonatal Intensive Care Units (NICU) of Narayana Health works to identify diseases and disorders before birth so that the family can be better prepared to care for the child.

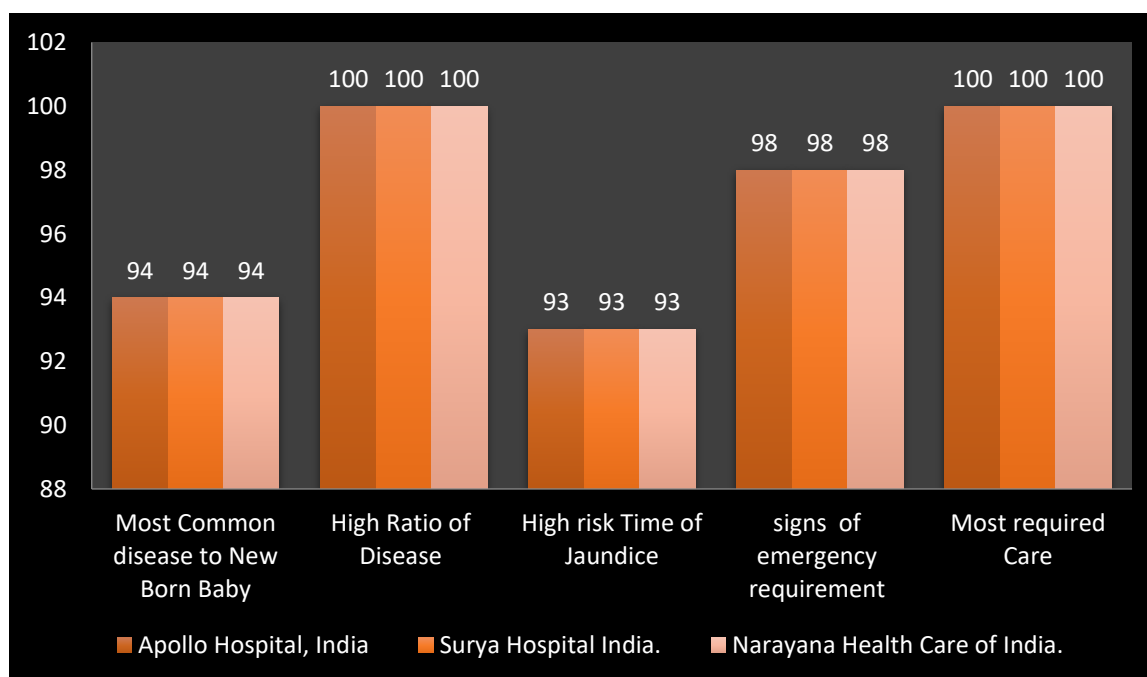
Thus, there are many such units in India which are established for the new born babies and their caring of health. Some questions based on the common symptoms of neonatal patients are asked to neonatal nurses and the most common symptoms and the ratio was challenges to recover these diseases are given in the following table as parameters, the findings current study:

Sr. Number	Parameters	Apollo Hospital, India	Surya Hospital India.	Narayana Health Care of India.
01	Most Common disease to New Born Baby	Anemia, Apnea, Bradycardia, Bronchopulmonary Dysplasia(BPD), Hydrocephalus, Intraventricular hemorrhage (IVH), Jaundice, Necrotizing Enterocolitis (NEC) and Patent Ductus Arteriosus (PDA)	Anemia, Apnea, Bradycardia, Bronchopulmonary Dysplasia(BPD), Hydrocephalus, Intraventricular hemorrhage (IVH), Jaundice, Necrotizing Enterocolitis (NEC) and Patent Ductus Arteriosus (PDA)	Anemia, Apnea, Bradycardia, Bronchopulmonary Dysplasia(BPD), Hydrocephalus, Intraventricular hemorrhage (IVH), Jaundice, Necrotizing Enterocolitis (NEC) and Patent Ductus Arteriosus (PDA)
02	High Ratio of Disease	Jaundice	Jaundice	Jaundice
03	High risk Time of Jaundice	First few days after birth	First few days after birth	First few days after birth
04	signs of emergency requirement	Jerky breathing, excessive sleep, not passing urine for longer periods and low or very high body temperature	Jerky breathing, excessive sleep, not passing urine for longer periods and low or very high body temperature	Jerky breathing, excessive sleep, not passing urine for longer periods and low or very high body temperature

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05	Most required Care	Diagnosis and coordinate the care for newborns with conditions such as breathing conditions, birth defects, and infections	Diagnosis and coordinate the care for newborns with conditions such as breathing conditions, birth defects, and infections	Diagnosis and coordinate the care for newborns with conditions such as breathing conditions, birth defects, and infections

Table no. 01 Parameters of the Current Study and Result

As shown above, the conditions of new born baby and their treatment in neonatal center is itself a challenge for medical science and neonatal nurses. The graphical representation of the above parameter is given below:



Graph no. 1 The Challenges in the Neonatal Nursing Centers

Challenges in Neonatal Centers of the hospital Treatment:

As shown in the above graph and table, there are several issues and challenges at the neonatal nursing center as:

In the Neonatal nursing during the monitoring of various diseases a such as-

- i. Prematurity
- ii. Early term infants
- iii. Birth weight less than 5.5 pounds
- iv. Lack of oxygen leading to seizures, kidney or heart failure called perinatal asphyxia
- v. Developmental anomalies, brain malformations, and other congenital defects

- vi. Hereditary or genetic disorders of any kind
- vii. Heart problems
- viii. Respiratory Distress Syndrome or respiratory failure
- ix. Injuries during the birth process or shortly after
- x. Trauma
- xi. Seizures
- xii. Neonatal jaundice (hyperbilirubinemia)
 - i. Infant respiratory distress syndrome
 - ii. Neonatal sepsis
 - iii. Neonatal bowel obstruction
 - iv. Benign neonatal seizures
 - v. Neonatal hepatitis
 - vi. Neonatal hypoglycemia
 - vii. Perinatal asphyxia
- xiii. **Challenge of Accurate Diagnosis:** The new born baby itself is challenge when it has to take care by other than mother. The baby is not able to say and express the pain he/she suffers; hence it is very hard to identify accurate and precise disease and its diagnosis of new-born baby. To identify congenital defects, infections, breathing disorders and other issues are one of the major challenges in neonatal nursing.
- xiv. **Ensure the Parent of Baby:** The new born baby is very sensitive and to assist them with coordinating care is a critical as far as it is concern with emotions of the parents of baby. The nursing person has to ensure them that they will manage very carefully to their premature or critically ill new-born baby. There are several things that need to be ensured to the parents of new born baby patients as to Ensure about the proper nutrition of the new born baby, to ensure for faster growth and recovery of the new-born baby, to ensure the proper care for babies who were delivered with medical problems in the mother, to ensure about the stabilizing any life-threatening conditions of the new born baby.
- xv. **Challenge of Nurse preparedness for handling disaster**

The Neonatal Intensive Care Unit (NICU) caters to the special needs of new-born and critically ill babies. With advanced technology equipment and trained healthcare personnel, NICUs offer a safe area for babies who may not be ill but need some kind of specialized nursing care. Incase of major causality Neonatal Intensive care unit , the nurse preparedness and response plays a vital role in saving the life of new born babies.

During emergencies, or major casualty crisis standards of care by the neonatal care givers is vital. This include changes in the routine operations system of the hospital and delivering the continuity of care during disaster. In this event when the available resources (eg, medications, ventilators, and staff) become scarce, the neonatal nurse need to be trained in disaster management to handle emergency situation by adapting in the changed environment , resource substitution and relocation for continuity of emergency care. The nurse need to be evaluate the ways in , whether the initiation of life-saving procedures can be maintained during casualt and by changing delivery of care as needed by the nature of the disaster. The state facilities should be flexible to continuum the neonatal care by steps taken to limit or eliminate legal obligations and liabilities during such times.

What to expect at a NICU Unit

The Neonatal Intensive Care Unit can be a frightening and difficult place for parents. But if they are aware of what to expect, they can be less afraid and understand that the procedures and methods are for the benefit of the baby as well as the family.

During their time in the NICU, the babies will be placed in enclosed and transparent plastic cribs called incubators or in open warmer units. The incubators or warmers help to maintain the temperature of the baby. As they are heated, the baby doesn't have to be in blankets. The caps may, however, be kept on the baby to keep their heads warm. Incubators eliminate the risks of any possible infection or illness that could harm premature babies. Besides, they also have a feature to control the moisture levels so that the babies are not dehydrated.

Inside the incubators, wires attached to the babies help to constantly monitor the baby's vital signs, such as heart rate, breathing temperature and blood pressure. To provide them with oxygen, medicines and fluids, tubes may also be attached. Additionally, a respirator machine may be provided to ensure that premature and critically ill babies don't develop respiratory complications.

Conclusion:

Thus, in the neonatal sector of medical science and hospital, it is very hard to manage the new born babies who are suffering from several kinds of diseases. They need to tackle properly and though special doctors and excerpts are available in the hospital, it is the nursing staff that has to deal with all kinds of services that a baby needs. Take care of viral infections, take care of proper feeding of baby, take care of all kinds of medical treatment and services etc. are many challenges to the neonatal nursing sector in India. These new born babies have to stay in the NICU for the long time under which they can take several months if the baby is born very premature depending on the condition and treatment for the medical care of neonatal experts, doctors and nurses. Here the role of nurses is very important.

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