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Original Research Article

Organization and management of nursing services in NICU, levels of transport

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ABSTRACT

Neonatal Intensive Care is defined as, "care for medically unstable and critically ill newborns requiring constant nursing, complicated surgical procedures, continual respiratory support, or other intensive interventions." A NICU is a unit that provides high quality skilled care to critically ill neonates by offering facilities for continuous clinical, biochemical and radio logical monitoring and use of life support systems with the aim of improving survival of these babies. Intermediate care includes care of ill infants requiring less constant nursing care, but does not exclude respiratory support. Care of ill infants requiring less constant nursing care, but does not exclude respiratory support. When an intensive care nursery is available, the intermediate nursery serves as a "step down unit" from the intensive care area.

1. Introduction

1. Neonatal intensive care is also considered synonymous with providing advanced life support (ALS) to critically sick babies with multisystem organ dysfunction.[1]
2. Those who weigh < 1500 gms or <32 wks of gestation
3. 3 – 5 % of newborns would need these services depending upon conditions.

1.1. Goals

1. To improve the clinical care of the critically ill neonate
2. To reduce the neonatal morbidity & mortality
3. To provide continuing in- service training of medical & nursing personnel in the care of newborn.

1.2. Grade of neonatal care

1. Level — I
   Level I: Normal Neonatal Care.
2. Level — ll
   Level II: Special care, Nursary.
3. Level — lll
   Level III: Intensive Neonatal Care unit.

1.3. Neonatal care

The management of complex life threatening diseases, provision of intensive monitoring and institution of life sustaining therapies in an organized manner to critically ill children in a separate pediatric intensive care unit.

1.4. Space

1. Serve as a referral unit for the infants born outside the hospital

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2. Each infant should be provided with a minimum area of 100 sq. ft. or 10 m2
3. Space for promotion of breast feeding

1.5. Location

1. Located as close possible to the labor rooms and obstetric operation theatre
2. Should not be located on the top floor
3. Brightness and provide ultra violate rays to augment asepsis

1.6. Baby care area

1. Areas and rooms for inborn or intramural babies,
2. Examination area
3. Mother's area for breast feeding and expression of breast milk[2]
4. Nurses station and charting area

1.7. Hand washing and gowning room

1. Should be located at the entrance
2. Self closing doors

1.8. Examination area

1.8.1. Mother area

1.8.1.1. Nurses stations.

1. Central area
2. Newborn charts, hospital forms, computer terminals, telephone lines should be located in this area

1.9. Clean utility and soiled utility holding rooms

- Stocking clean utility items and sterile disposables, and for disposal of dirty linen and contaminated disposables.

1.10. Staff rooms

1.10.1. Ventilation

1. Effective air ventilation of nursery
2. Provision of exhaust fan
3. Do not use chemical air disinfection and ultraviolet lamps

1.11. Lighting

1. Well illuminated and painted while or slightly off
2. Cool white fluorescent tubes
3. The number and exact location of fixtures can be worked out taking into account size of the nursery, height of ceiling, and availability or otherwise of sunlight.

1.12. Environmental temperature and humidity

1. 26-28°C in order to minimize effect of thermal stress on the babies
2. The external windows of nursery should be glazed to minimize heat gain and heat loss and baby beds should be located at least 2 feet away from the wall and windows.

1.13. Personnel

1. Availability of sufficient number of adequately trained personnel
2. Nurse patient ratio in special care and NICU[3]

1.14. Medical personnel

1. Neonatal physician for each 6 to 10 admissions
2. 1:5 ratio of neonatal physician to patient
3. Resident doctor available for 24hrs

1.15. Nursing staff

The nurse to patients ratio should be 1:4 -5 per shift in SICU. While in more intensive care area providing mechanical ventilation support, nurse: baby ratio should be 1:1-2 per shift.[4]

1.16. Para medical personnel

1. 1 Respiratory therapist
2. Nurse: patient ratio: 1:1 in special care units and in PICU, the ratio is 1:3 and Nurse should have specialized degree in neonatal care.[5]

1.17. Other Staff

1. Maintenance staff: 1 sweeper should be there for 24 hrs and 1 laundry boy
2. 1 Lab technician
3. 1 Social worker attached to NICU care[6]

1.18. Equipment's

1. Thermometer
2. Stethoscope
3. Electronic Baby weighing scale
4. Incubator
5. Over head radiant warmers
6. Resuscitation equipment
7. Heart rate monitor
8. Respiratory support equipment
9. Suction facilities
10. Suction facilities and needles[7]

1.19. Management of nursing care

1. Assessment

2. Monitoring physiological data
3. Safety measures
4. Respiratory support
5. Thermoregulation
6. Protection from infection
7. Hydration
8. Nutrition
9. Feeding resistance
10. Skin care
11. Administration of medication
12. Developmental outcome
13. Facilitating parent-infant relationship
14. Discharge planning and home care [8]
15. Neonatal loss

1.20. Transport of sick neonates

1. The goal of every transport is to bring a sick neonate to specialized neonatal center in a stable condition.
2. To avoid complications during transport, the infant should be as stable as possible before leaving the referring hospital and warm chain should be maintained. [9]

The transport service gives high — risk patients timely access to the appropriate services without interrupting their care. [10]

1.21. Transfer patterns in regional system

1. Level I [Basic Care] — Relatively minor problems
2. Level II [Speciality Care] — Low birth weight babies (1500 to 2500 gm, 32 to 36 weeks of gestation)
3. Level III [Subspeciality Care] — Maternal and Neonatal those at high risk (less than 1500 gm birth weight or less than 32 weeks gestation)

- Level I to Level II: Complicated cases not requiring intensive care.
- Level II to Level III: Complicated cases requiring intensive care. Labor less than 34 weeks gestation. [11]

1.22. Reasons for transport

Commonest reason is transport for advanced level of care such a situation may arise due to non availability of:

1. Pediatric subspecialty (Neurology, nephrology
2. Specific investigation (MRI, 24 hours EEG etc), specific facility (Advanced ventilation, plasmapheresis or it may be due to non availability of continuous monitoring in the referring hospital). [12]

1.23. Preparation for transport

1. Each hospital should be ready with plan for transport of critical child long before such need arises.
2. Each institute should have list of hospitals in the surrounding area which offer specialized facility. [13]

2. Source of Funding

None.

3. Conflict of Interest

None.

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