



Effect of Training on The Outcome at A Special Newborn Care Unit (Sncu) in A Civil Hospital Nagpur

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ABSTRACT

The State of Maharashtra has successfully brought down its infant mortality to 24 per 1000 live births . This has happened largely due to improved newborn care. Neonatal mortality constitutes to more than half of infant deaths^{1,2}. The results of establishment of SNCU in a Civil Hospital, Nagpur which involved training of staff with special emphasis on hand washing, asepsis, mentoring, continuous supportive supervision and motivation; have been promising.

It was seen that the mortality over 4 years in the SNCU has decreased from 8.65% to 3.46%. The numbers of cases of septicemia have come down from 53 to 2.

KEYWORDS

Introduction

Newborn, or neonatal, deaths account for more than half of all deaths among infants. The majority of all neonatal deaths (75%) occur during the first week of life, and between 25% to 45% occur within the first 24 hours .The main causes of newborn deaths are prematurity and low-birth-weight, infections, asphyxia and birth trauma. These causes account for nearly 80% of deaths in this age group. Up to two thirds of newborn deaths could be prevented if skilled health workers perform effective health measures at birth and during the first week of life.Care can be delivered in the home and community, as well as health clinics and hospitals.

Promotion of Institutional Delivery through Janani Suraksha Yojna Promoting Institutional delivery by skilled birth attendant is the key to reducing both maternal and neonatal mortality. The judicious use of neonatal intensive care measures can result in a reduction of morbidity and mortality.

The aim of the present paper was to assess the effect of provision of trained staff at the SNCU in a Medical College in Maharashtra through the public health department.

Material and Methods –

The study was conducted at the special newborn care unit at the Indira Gandhi Medical College and Daga Hospital, Nagpur. Daga SNCU is a 42-bedded, level II facility, which admits in-born and out-born infants up to 28 days. Around 15000 deliveries take place at the Daga Hospital, Nagpur every year. It is a specialized unit.

In the year 2013-2014, the staff at the SNCU comprising of Pediatricians and nurses were given training by mentors from 12 specialized neonatal and pediatric units in Maharashtra. The training was a 3 weeks exhaustive learning and skill en-

hancement right up to the correct use of equipment .Staff was trained elaborately on hand washing, management of sepsis following Govt. of India guidelines .They were taught management of asphyxia, use of ventilators and jaundice protocols . It was followed by supportive supervision and monitoring which comprised of visit by trainers and consultants to the unit every 3 months .Videoconferencing was done once a week and mobile call services were available whenever required. This was mainly to solve logistic problems as well as problems faced in management of the baby. The staff was thus continuously supervised, monitored and motivated.

Following facilities were made available at the center :

Medical and Paramedical staff required for routine and emergency care made available round the clock, including the qualified Pediatricians.

Facilities for respiratory support are available.

Laboratory and Radio Diagnosis Facilities like USG, X-ray , are available

Blood Transfusion, FFP, and Platelet Facilities are made available

1. Immunization Services.
2. Neonatal Transport Services.
3. 24 hrs Electricity Backup.
4. 24 hrs Water Supply.
5. Demarcated Functional Areas :-
6. Breast feeding areas.
7. Isolation room
8. Step down room.

All the staff was taught in details about strict and meticulous

hand wash before touching a baby or in between babies ,before changing probes/ linen / blood pressure measurement, after touching equipments, attending phone calls, etc .hands are washed before & after touching any infected baby.

Hand washing Protocols have been displayed and all the staff are instructed to implement the protocols strictly. For-skin breach procedures- like canulation/ sampling etc, hands are dried using sterile paper napkins and common towel avoided. Separate Stethoscope is used for every baby.

Washed and Autoclaved Bed sheets of separate colour are used on each day of the week. Color coding of Bed sheets ensure that washed and autoclaved sheets are changed and used every day.

Mothers feed babies in feeding unit **after taking Bath, we aring hospital gown with their respective names and washing hands as per protocol & use of sterilium. Ozo-nator** has been placed in outborn cubicle. Wolfs bottles as well as oxygen tubings are cleaned every day. Emergency Oxygen cylinders are kept inside SNCU

after washing and wiping. A **separate Autoclavedl. V. tray** is prepared and used for **everybaby**. Minimal Handling of babies.

Neonates wear diapers , which are changed at regular intervals as required & orogastric tubes are kept in-situ. **All health personnel** enter SNCU cubicle after wearing cap, mask and gown. **Separate Mops and Buckets** used for each cubicle .

Daga SNCU has a house keeping schedule. Once a week, in addition to routine mopping of floors and walls with disinfectant, thorough washing and cleaning of the unit is done if possible.

Equipment asepsis is very essential, and we have equipment disinfection / sterilization protocols which is strictly adhered to.

All surfaces of warmers cleaned every day. Every warmer is cleaned by separate autoclaved mop which is autoclaved in the SNCU flash autoclave. Sensitization of all class IV employees regarding Aseptic measures is emphasized upon. This is done as per Govt. of India guidelines.

Qualified paediatricians are available round the clock in SNCU and calls are attended to immediately. Expert consultation is available round the clock.

Dedicated, motivated health personnel and adequately trained adequate staff is available. Treatment is given as per SOPs ensuring no interpersonal variation .Isolation Room is available for babies where indicated so as to avoid cross- infection. Visitors entry to SNCU is strictly restricted to prevent infection.

Kangaroo Mother Care is practiced in SNCU and involvement of father is encouraged .With parental participation and care by mother or father or relatives in the form of kangaroo mother care, providing non-nutritive sucking or direct breast feeding, chance of infection and duration of hospital stay are all decreased.

ROP by qualified ophthalmologist, and LASER done in babies where indicated. OAE and BERA done , 2- D ECHO by qualified cardiologist carried out. Video of babies is shown to relatives every day, helps in reassuring relatives.

Unit used indigenously made CPAP where indicated in pre-term LBW babies with respiratory distress and complications of CPAP if any are easily treated.

At the end of the year an analysis was done to assess the mortality in the unit, disease pattern and general morbidity. It was then compared with similar data from previous years. The

study was thus retrospective.

Results –

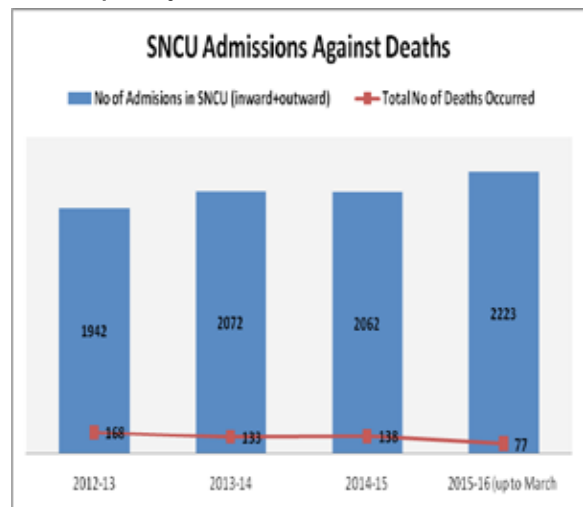
Table 1 shows the total number of babies admitted to the SNCU in various years.

Year	No of babies admitted.
2012-2013	1942
2013-2014	2072
2014-2015	2062
2015-2016	2223

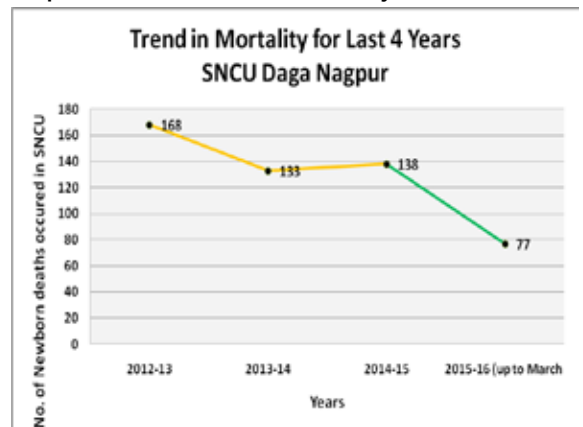
Table 2 shows the SNCU Mortality Status.

Year	Admitted	Died	Case Fatality Rate
2012-13	1942	168	8.65%
2013-14	2072	133	6.42%
2014-15	2062	138	6.70%
2015-16	2223	77	3.45%

Graph 1 shows the number of admissions against deaths over the past 4 years.



Graph 2 shows the trends in mortality at the SNCU



The establishment of SNCU has resulted in improved survival of infants.

Table 3 shows the disease wise pattern of mortality

SNCU Nagpur				
Causes of death	2012-13	2013-14	2014-15	2015-16
BA	56	24	21	10

Asp. Pneu	9	2	2	2
Septicemia	26	9	5	3
Pre maturity	53	58	67	35
Cong. An	3	7	13	12
RDS	0	24	0	6
Other	21	9	30	9
Total	168	133	138	77
SNCU Nagpur				
Causes of death in %	2012-13	2013-14	2014-15	2015-16
BA	33	18	15	13
Asp. Pneu	5	2	1	3
Septicemia	15	7	4	4
Pre maturity	32	44	49	45
Cong. An	2	5	9	16
RDS	0	18	0	8
Other	13	7	22	12
Total	100	100	100	100

Asp Pneu = Aspiration Pneumonia

Cong. An = Congenital anomaly

Discussion-

As it can be seen from Tables 1 and 2 and graphs 1 and 2, the mortality rate in the SNCU has steadily fallen from 8.65 % to 3.46% over the past 4 years.

Number of babies developing septicemia and mortality due to it has decreased from 26 babies to 3 babies in the past 4 years i.e. from 15% to around 4%. This shows the importance of hand washing, following of all aseptic precautions at all levels as delineated in methodology.

Neonates are a special population who are at risk of acquiring infections because of their immature immune system compounded by admission in SNCU . Infection control measures are possible and are effective in reducing healthcare-associated infections, In India it is more than 38% with mortality ranging up to 30%. Since the symptoms, signs and laboratory investigations are most often non-specific, either the diagnosis is missed with direct consequences or the baby is over-treated unnecessarily with antibiotics. Hence infection prevention strategies are of paramount importance in the SNCU.

Nosocomial infection, in SNCU are a major cause of morbidity and mortality. The number of neonates who develop nosocomial infection varies from 6.2% to 33%. Patients who develop nosocomial infections have longer stays in hospitals and have higher mortality. According to the World Health Organisation (WHO), 1 million deaths per year are due to neonatal bloodstream infections (BSI) and 42% of these occur in the first week of life. The incidence of neonatal BSI is approximately 1-10/1000 live-births in developed countries, but in India it is more common.

Implementation of infection control measures is complex .However, it is possible to decrease rate of infections with the use of control measures that do not require use of advanced technology .Many decisions taken at Daga SNCU are as per well formulated guidelines and clear-cut strict use of protocols as prescribed. It was observed that with the implementation of simple, practical measures, motivation, training and dedication, the rate of infection and mortality can be reduced.

References:

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