

# Knowledge of Nurses Regarding Essential Newborn Care in Special Care Neonatal Units (SCANU) of Different Hospitals of Chattogram, Bangladesh

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## Abstract:

**Background:** The advancements in intensive care in recent decades have enabled better survival of newborn. Knowledge of essential newborn care is important for the survival, growth, and development of a newborn. In spite of its essentiality, most health-care professionals do not know and follow the World Health Organization recommendation.

**Aim and objectives:** The aim of this study was to assess the knowledge of nurses regarding essential newborn Care in Special Care Neonatal Units (SCANU).

**Materials and methods:** This observational study was conducted among the nurses working in SCANU of Chattogram Medical College and Hospital, Chattogram Maa-O-Shishu Hospital and Bangabandhu memorial hospital of University of Science and Technology, Chattogram (USTC) for 6 months. Purposive sampling technique were applied for selecting the sample. A structured data sheet was pre-designed to collect data. Knowledge regarding Essential Newborn Care among the nurses graded as satisfactory or not satisfactory.

**Results:** In this study it was observed that 69.0% nurses had completed diploma in nursing and midwife education, B.

Sc in nursing 11.0%, diploma in nursing 7.0%. 56.0% nurses attended special courses/training in neonatology. 94.75% of the nurses had satisfactory knowledge regarding essential newborn care. 58.0% of nurses washed their hands with disinfectant solution before handling the baby, 99.0% mentioned that the baby must be breast feeding within 1<sup>st</sup> hour of delivery, 92.0% mentioned that baby must be fed 6 months of exclusive breast feed, 91.0% knew how to stabilize body temperature of low birth weight newborn. The knowledge regarding essential newborn care were almost similar with age, gender, religion, marital status, educational level, working place and attending special courses/training in neonatology.

**Conclusion:** Most of the nurses working in SCANU of both Government and non-government hospitals of Chattogram have good knowledge regarding ENC. This knowledge appeared irrespective of their age, gender, religion, marital status, working place and special courses/training in neonatology.

**Key words:** Knowledge, Essential newborn care, SCANU

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## Introduction:

New born care is of immense importance for healthy life and proper development of a baby. Globally, 2.4 million

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children died in the first month of life in 2019 – approximately 6,700 neonatal death everyday –with about a third of all neonatal death occurring within the first day after birth and close to three-quarters occurring within the first week of life.<sup>1</sup> Ninety percent of these deaths are take place in developing countries.<sup>2</sup>The neonatal mortality rate is 30 deaths per 1,000 live births; it accounts for 67% of all under-5 deaths.<sup>3</sup> Infections, birth asphyxia, prematurity and low birth wt are major causes of death within this period.<sup>4</sup> New born complications resulting from hypothermia, infection and birth asphyxia that occur within the first seven days, following birth contribute to the highest burden of morbidity and mortality.<sup>5</sup>

Essential newborn care is a set of recommendations outlined by World Health Organization (WHO) which includes thermoregulation, clean delivery, cord care,

initiation of breastfeeding, immunization, eye care, recognition of danger signs, care of the preterm/ low birth weight infant and management of newborn illnesses. Essential newborn care (ENC) is designed to improve health of newborns through a minimum set of interaction that should be made available for all births.<sup>6,7</sup> Essential newborn care is based on simple principles of prevention of infection, thermal protection, resuscitation of newborn with asphyxia, early and exclusive breast feeding, care of low birthweight babies and identification and appropriate referral of sick neonates.<sup>(8,9)</sup> The care health professionals provide at time of birth is critical in helping to prevent complications and ensuring survival.<sup>10</sup>

Nursing is the profession in the health service that mostly dependent on communication skills. They interact with patients when they are most vulnerable and have to perform intimate procedures. ENC also requires professional skills along with communication related to theoretical and practical knowledge. Being the primary contact personnel, knowledge regarding ENC could have direct impact on neonatal morbidity and mortality. Nurses are the key health workers in newborn healthcare system. Few study about knowledge regarding Essential Newborn Care were done in Bangladesh and neighboring countries. Most of the study was done on mothers knowledge about ENC and very few on health care providers. Training in resuscitation and in essential newborn care reduces perinatal and neonatal mortality.<sup>11,12</sup> The Helping Babies Breathe and the Essential Care for Every Baby training pro-grams are available, but have not been assessed as needed. The purpose of this study is to assess the knowledge of neonatal care practices among nurses for the development of strategies to improve further. Therefore, essential newborn care should be emphasized in pre-service and in-service nursing and midwifery education. Policy makers thus need to consider these initiatives.

#### **Materials & Methods:**

This was an observational study conducted at the special Care Neonatal Unit (SCANU) of Chattogram Medical College and two Non-Government Medical

College Hospitals of Chattogram city named Chattogram Maa- O- Shishu Hospital and Bangabandhu Memorial Hospital, University of Science & Technology Chattogram (USTC) from 1<sup>st</sup> December 2015 to 31<sup>st</sup> May 2016. Nurses who were working in the SCANU of the above mentioned study places for at least one month or who had special courses/ training on neonatology were included in the study with their consent. Purposive sampling technique were applied for selecting the sample. Sample size were 100.

A structured data sheet (questionnaire – set on the basis of ENC component) containing 18 multiple choice questions based on knowledge regarding component of ENC was predesigned to collect data. The questionnaire was organized in two parts; socio-demographic characteristics, knowledge of nurses regarding essential newborn care. Knowledge regarding ENC among the nurses graded as satisfactory or not satisfactory. When participant gave right answer it graded as satisfactory if wrong then not satisfactory. Researchers collected data using a structured questionnaire through face-to-face interview.

Data were entered using statistical Package for the Social Sciences (SPSS) version 20.0 for windows. Thereafter data were edited and analyzed. Descriptive statistics computed for demographic variables. ANOVA and Unpaired t test were carried out to find out the association of qualitative and quantitative data of important key variables with adequacy of knowledge as outcome variables respectively. P value <0.05 was considered as significant. For quality assurance professional assistance from a statistician was taken. The study was ethically reviewed and approved by the ethical review committee of Chittagong Medical College Hospital, Chittagong. Institutional clearance was obtained from the Hospital Directors of Chittagong Medical College Hospital and other centers. Singed informed consent was obtained from all participants.

#### **Results:**

This study observed that among 100 nurses more than half (52.0%) nurses were belonged to age 21-30 years. Majority 97(97.0%) were female, 50(50.0%) were Muslim, 66(66.0%) were married, 69(69.0%) had completed

diploma in nursing and midwife education, 56(56.0%) worked in non-government hospital and 56(56.0%) had completed special courses/training in neonatology (Table 3.1). Table 3.2 shows the knowledge of nurses about essential newborn care. Table 3.3 shows mean distribution of knowledge regarding essential newborn care according to nurse's demographic profile. Result

shows the knowledge regarding essential newborn care were almost similar with age, gender, religion, marital status, educational level, working place and attending special courses/training in neonatology Table 3.4 shows response, mean and SD score of level of knowledge. 94.75(94.75%) of the nurses had satisfactory knowledge regarding essential newborn care.

**Table-I***Demographic characteristics studied nurses (n=100)*

Demographic characteristic	Numberof nurses	Percentage
<b>Age (years)</b>		
≤20	6	6.0
21-30	52	52.0
31-40	30	30.0
>40	12	12.0
<b>Gender</b>		
Male	3	3.0
Female	97	97.0
<b>Religion</b>		
Islam	50	50.0
Hinduism	33	33.0
Buddhism	13	13.0
Others	4	4.0
<b>Marital status</b>		
Married	66	66.0
Unmarried	34	34.0
<b>Educational status</b>		
Diploma in nursing	7	7.0
Diploma in nursing and midwife	69	69.0
B. Sc in nursing	11	11.0
Others	13	13.0
<b>Work in</b>		
Govt. Hospital	44	44.0
Non Govt. Hospital	56	56.0
<b>Attending special courses/training in neonatology</b>		
Yes	56	56.0
No	44	44.0

**Table-II***Knowledge of nurses about essential newborn care (n=100)*

Variables	Frequency	Percentage
What do you mean by essential newborn care		
Immediate proper newborn care	98	98.0
Nurse can't do	2	2.0
Delivery room should be		
Well lighted, well ventilated and clean	98	98.0
Any where	2	2.0
What type of aseptic techniques you should maintain before handling the baby		
Wash with soap water	42	42.0
Wash with other disinfectant solution	58	58.0
When should a baby start spontaneous breathing		
Immediately after birth	98	98.0
Few minutes after birth	2	2.0
If baby is well (cry and breath spontaneously), then what you do		
Put the baby with his/her mother	98	98.0
Put baby in the incubator	2	2.0
What should you do if a baby does not breathe spontaneously		
Resuscitate the baby	92	92.0
Slapping the back	5	5.0
Hanging upside down	3	3.0
How resuscitation can be done		
Mouth to mouth breathing and flickering on sole	20	20.0
Suction, Rubbing over the back, use bag and mask ventilation	80	80.0
After establishing breathing what should you do to keep the baby warm		
Dry & warm the baby with dry cloth	100	100.0
Bath the baby	0	0.0
Care of umbilical cord after delivery		
Use Chlorhexidine (7.1%) for once and keep it Dry	90	90.0
Daily clean the umbilical cord by antiseptic wash	9	9.0
Give antibiotic ointment and bandage over it	1	1.0
Initiation of breast feeding		
Within 1 <sup>st</sup> hour of delivery	99	99.0
More than 6 hour	1	1.0
Any advise if breast milk not come		
Give formula milk	1	1.0
Pre- lacteal feed (honey, water)	1	1.0
Continue with breast feeding even when milk is not coming	98	98.0
Duration of exclusive breast feed		
6 months	92	92.0
More than 6 months	8	8.0
How will you give eye care		
Clean eye with normal saline	91	91.0
Apply nothing	9	9.0
In EPI schedule when should immunization started		
At birth	18	18.0
6 Weeks	82	82.0

*(table continued)*

Variables	Frequency	Percentage
How can you identify sick baby		
Baby is unable to take breast feed, lethargic Respiratory distress, convulsion, deep jaundice, and red foul smelling umbilicus	98	98.0
Does not know	2	2.0
LBW baby means birth weight less than 2500 grams, is it -		
Right	99	99.0
Wrong	01	1.0
How stabilizing the temperature of LBW baby		
Bath baby in water of appropriate temperature	1	1.0
Put on cloths and cover head and put the baby to mother, skin to skin care (kangaroo mother care)	91	91.0
Room temperature of 28-30 degrees Celsius	8	8.0
How will you give extra care to low birthweight baby		
Skin to skin contact (Kangaroo mother care)	13	13.0
Breast feed early & frequently	3	3.0
Care for infection prevention	0	0.0
All the above (Skin to skin contact, breast feed early & frequently and care for infection prevention)	84	84.0

Table-III

*Distribution of nurses knowledge regarding essential newborn care according to number of adequate response to questionnaire by their demographic profile (n=100)*

Age (in years)	N	Adequate response		P value
		Mean±SD	min Max	
≤20	6	15.83±2.14	13 18	0.761 <sup>ns</sup>
21-30	52	15.85±1.51	12 18	
31-40	30	16.2±1.33	14 18	
>40	12	15.92±1.08	14 17	
Gender				
Male	3	15.67±2.52	13 18	0.675 <sup>ns</sup>
Female	97	16.03±1.43	12 18	
Religion				
Islam	50	15.82±1.71	12 18	
Hinduism	33	16.24±1.23	14 18	0.568 <sup>ns</sup>
Buddhism	13	16.23±1.01	14 18	
Others	4	16.0±0.82	15 17	
Marital status				
Married	66	16.03±1.38	13 18	0.922 <sup>ns</sup>
Unmarried	34	16.0±1.61	12 18	
Educational status				
Diploma in nursing	7	16.14±1.07	14 17	
Diploma in nursing and midwife	69	16.13 ±1.35	13 18	0.435 <sup>ns</sup>
B. Sc in nursing	11	15.3±1.91	12 18	
Others	13	15.9±1.75	13 18	
Working place				
Govt. Hospital	44	15.82±1.39	12 18	0.140 <sup>ns</sup>
Non Govt. Hospital	56	16.24±1.41	13 18	
Attending special courses/training in neonatology				
Yes	56	16.16±1.5	12 18	0.311 <sup>ns</sup>
No	44	15.86±1.41	13 18	

**Table-IV***Distribution of Level of Knowledge among nurses about Essential Newborn Care (n=100)*

Variables	Response		Mean	±SD
	Satis-factory	Not Satis-factory		
Meaning of Essential Newborn Care	98	2	95.25	2.54
Delivery room environment	98	2	95.25	2.54
Asepsis before handling the baby	100	0	98.22	1.75
Onset of spontaneous breathing	98	2	95.25	2.54
About resuscitation	80	20	78.3	1.68
Measure for warming the baby	100	0	95.25	2.54
Umbilical cord care	90	10	88.2	1.66
Initiation of breast feeding	99	1	98	1
Advice if breast milk not come	98	2	95.25	2.54
Duration of exclusive breast feeding	92	8	91.14	0.83
Eye care	91	9	89.63	1.41
Time of Vaccination	100	0	98.22	1.75
Identification of sick baby	98	2	95.25	2.54
Low birthweight baby	99	1	98	1
Stabilizing temperature of low birthweight baby	91	9	89.63	1.41
Extra care to low birthweight baby	84	16	82.45	1.42

**Discussion:**

Knowledge is one of the crucial aspects of health systems for ENC practices and lack of knowledge may impede provision of ENC. In this study it was observed that more than half (52.0%) nurses were belonged to age 21-30 years. Sayed et al.<sup>13</sup> observed that, nearly two third (60%) of the nurses were 30 to less than 40 years old, with mean age were  $31 \pm 6$  years. In this present study it was observed that majority (97.0%) nurses were female, 50.0% nurses were Muslim, and 66.0% nurses were married. Sayed et al.<sup>13</sup> observed that most of the nurses (85.7%) were married. In our country Ayiasi<sup>14</sup> found that Muslims made up 92.0 percent of the sample.

In this study it was observed that nearly two third (69.0%) nurses had completed diploma in nursing and midwife education, B. Sc in nursing 11.0%, diploma in nursing 7.0%, 13.0% others, 56.0% nurses were attending special courses/training in neonatology and 56.0% nurses were work in non government hospital. Sayed et al.<sup>13</sup> found the education level 67.1% of nurses are secondary nursing school graduates while 24.3 % of them have completed their university nursing education and only 8.6 % of them have a technical nursing institute certification. Shinde et al.<sup>15</sup> found the

professional education of study subjects were 45 (90%), Graduate nursing and Midwifery (GNM), 02 (04%) were B.Sc. (NSG) and 03 (06%) were post B.Sc. (NSG).

In this study, 58(58.0%) washed their hands with disinfectant solution before handling the baby, 99(99.0%) mentioned that the baby must be breast feeding within 1<sup>st</sup> hour of delivery, 92(92.0%) mentioned that baby must be fed 6 months of exclusive breast feed, 91(91.0%) said about stabilizing the temperature of LBW baby put on cloths, cover head and put the baby to mother. On the other hand a study conducted in Ethiopia where 13.6% washed their hand before all deliveries they conducted but 48.9% did not washed at all ,86.0% of participants were aware the time of breast feeding initiation, 77.2% knew duration exclusive breast feeding and greater than 62.1% kept the baby skin to skin contact with the mother.<sup>16</sup> In this study all the nurses (100.0%) mentioned that the baby should be cleaned and warmed with dry cloth. Other study in India revealed that, 89% of the providers demonstrated wiping of newborn with dry cloth, 63% showed putting neonate on warm surface.<sup>17</sup>

Louis et al.<sup>18</sup> observed that the initial steps of resuscitation, which comprise of drying the baby, suctioning and then stimulating, were also evaluated.

All the 3 steps were known to only 9 (16%), while 41 (71%) knew at least 1 of the 3 steps and 8 (13%) did not know any of these initial steps. Among initial steps, 15 (26%) did not know how to stimulate the baby if he/she does not cry. All had the practice of tying the cord immediately after delivery. All the 5 C.s required for delivery that means clean hands, clean delivery surface, clean blade, clean cord and clean cord tie were known to only 33 (57%), while 21 (36%) did not know any of them. All of them did hand washing prior to conducting the delivery and used sterile scissors for cutting the cord. Kajale et al.<sup>19</sup> observed that all the nurses known about early initiation of breast feeding and burping, 80% knew about breast feeding, 64% about KMC, 60% about prevention of sepsis and danger signs. In this study, the mean knowledge regarding essential newborn care was almost alike in difference age group, no significant ( $p>0.05$ ) association observed with different age group. Similarly, the mean accurate knowledge regarding essential newborn care was not significantly ( $p>0.05$ ) associated with gender and religion in this study. Shinde<sup>15</sup> study found that majority (60.0%) of study subject's staff nurses had medium knowledge and 40.0% of them had adequate knowledge regarding newborn care. The mean accurate knowledge regarding essential newborn care was not significantly ( $p>0.05$ ) associated with attending special courses/training in neonatology in this study. Shinde<sup>15</sup> found that most of study subjects staff nurse had medium knowledge. Regarding the association between attending special courses/training in neonatology with knowledge about essential newborn care, the average correct knowledge was  $16.16 \pm 1.5$  in attending special courses/training in neonatology and  $15.86 \pm 1.41$  in without attending special courses/training in neonatology. Louis et al.<sup>18</sup> found that majority of healthcare personnel had good awareness about breastfeeding and clean practices while conducting delivery. In contrast, knowledge about neonatal resuscitation and some aspects of essential newborn care was poor. Sayed et al.<sup>13</sup> mentioned that education and training are potential means for implementing effective nursing care at Neonatal Intensive Care Unit (NICU), as they alter perception, increase knowledge, and in turn change work practice. Their study revealed that about two third of nurses' knowledge was incompetent about neonates in intensive care unit.

## Conclusion

The study reflects the basic knowledge of nurses working in the SCANU of different hospitals of the second largest city of Bangladesh. Most of the nurses know their job. Though the results appear satisfactory there are lot of areas of improvement and hospital authorities and policy makers should work on it.

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Conflicts of interest: There is nothing to declare

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