

## Knowledge Regarding Incubator Care Among Nurses Working at CMCTH



### Medical Science

**KEYWORDS :** Incubator, Nurses and Knowledge

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### ABSTRACT

*Rapid growth and advancement in the field of technology has made the survival of sick newborn a reality. Incubators provide special environment for high-risk babies to maintain thermal stability. Descriptive study design was used to find out knowledge regarding incubator care among nurses. Out of 196, 50 samples were selected using probability simple random sampling technique. Data was collected through semi-structured questionnaire and analyzed using SPSS. The study revealed that 82% of the respondents were of age group 20-25 years, 70% had passed PCL Nursing and 56% had  $\leq 12$  months of experience. The mean knowledge score was 19.38 with value of standard deviation 3.63. Majority 48% of the respondents had low level of knowledge, 42% had high level of knowledge and 10% had average level of knowledge. Statistically, there was significant association between educational qualification and the knowledge scores regarding incubator care ( $p=0.005$ ). The finding of the study indicates that the nurses require opportunities to upgrade their knowledge on modern equipment.*

### Introduction or Background:

The survival of Low Birth Weight and sick newborn is greater when they are cared for at or near their neutral thermal environment, provided by an incubator. A neonatal incubator is a device consisting of a rigid box-like enclosure in which an infant may be kept in a controlled environment for medical care. Each year 15 million babies are born preterm and their survival chances vary dramatically around the world. Globally three causes account for three quarters of neonatal deaths: infections (36%), pre-term (28%), and birth asphyxia (23%). In Nepal, the neonatal mortality rate in past five year was 33 deaths per 1,000 live births and the infant mortality rate was 46 deaths per 1,000 live births. In order to improve neonatal health in Nepal, it is imperative to focus on biomedical, nursing, and social interventions, in addition to family centered care. More than 20 million infants worldwide, 15.5% of all births are born with low birth-weight (LBW), 95.6% of them in developing countries. Half of all low birth-weight babies are born in South-central Asia, where more than a quarter of all infants weigh less than 2,500 gram at birth. In Nepal, 21% and 14% of low birth-weight babies was reported in National Demographic and Health survey 2001 and 2006 respectively. Incubators afford the baby a comfortable and carefully controlled environment.

### Need for the study:

A large number of monitoring devices for diagnostic and therapeutic application for the high-risk infants have developed to improve infant survival. The incubator is design to provide a closely controlled environment for the nursing of sick and pre-term infants. The neonatal nurse should have a thorough knowledge of the equipment available to maintain thermal stability, which will help the neonatal nurse make their right choices. Nurses need adequate information in giving care to the newborn that are with problems. However, the introduction into routine care with these technologies and approaches requires the upgrading of the skills, knowledge and practice of nurses in charge of newborn care. Liability issues such as keeping up with new technology and advances must be a concern for each. Nurses are responsible for any injuries or errors that result from equipment failure. The nurse's responsibility is not only to be familiar with the equipment but also to use the equipment correctly.

### Material and Methods:

Descriptive research design was used to identify the nurses' knowledge regarding incubator care. A total of 50 samples were selected using probability simple random sampling lottery meth-

od. The research instrument was a questionnaire consisting of two parts. Part I questions were related to socio-demographic data and Part II questions were related to knowledge regarding incubator care. The reliability of the research instrument was checked using split half correlations in which reliability score was 0.82. A written informed consent was obtained from each respondent and the anonymity of the subjects was maintained by coding serial number. Data was collected by distributing the self-administered questionnaire and was analyzed by using Statistical Package for Social Science (SPSS) in terms of descriptive and inferential statistics. The level of knowledge was categorized based on the median of knowledge score as cut-off point.

### Results:

The analyses of the demographic variables revealed that majority (82%) of the respondents were in the age group of 20-24 years. Maximum (70%) of the samples had passed PCL Nursing and more than half (56%) had  $\leq 12$  months of experience. The findings of the study revealed that majority of the respondents (48%) had low level of knowledge, less than half (42%) had high level of knowledge and least (10%) had average level of knowledge regarding incubator care. The study also revealed that there was a significant association between educational qualification and the level of knowledge of the respondents regarding incubator care.

The respondents' level of knowledge regarding incubator care and its association with different variables is shown in table 1 and table 2 below. Table 1 reveals the level of knowledge of the respondents regarding incubator care. Average and low level of knowledge was merged together as low level of knowledge to see the significance of the study. Table 2 reveals the association between the selected demographic variables and the level of knowledge of the respondents regarding incubator care.

### Discussion/ Conclusion

In the present study highest (80%) of the respondents had knowledge that incubator is an instrument for thermoregulation, which is supported by a study of Sreenath, Kumar, & Lohit (2012) which referred incubator as an housing with controlled temperature. Eighty-six percent of the respondents had knowledge that less than 35.5°C indicates hypothermia, which is supported by the study of Choudary, Bajaj & Gupta (2000) which revealed 47.8% of the respondents defined neonatal hypothermia correctly.

Twenty-four percent of the respondents had knowledge that ra-

diation is the common route of heat loss in neonates in incubator, which is supported by the study of Wheldon & Rutter (1982), which showed that radiation is the major source of heat loss in incubator.

Fourty-eight percent of the respondents had knowledge that the complication of excess oxygen administration to newborn is retrolental fibroplasias and 22% had knowledge that the concentration of oxygen for premature and low birth weight babies should be  $\leq 40\%$ . The finding is supported by the study of Behrman & Kleegman (2000), which showed that care must be taken in case of premature and low birth weight babies, not to exceed an oxygen concentration of 40% otherwise permanent blindness may result from retrolental fibroplasias.

Regarding the precaution to take before touching the baby in the incubator, 90% had knowledge as to wash the hands and warm before touching the baby, which is inconsistent to the study of Scheithauer et al. (2011) which showed that the observed compliance rates of hand hygiene were found to be higher in nurses (66%).

Based on findings and discussions of the study, this study reveals that the knowledge regarding incubator care is not satisfactory among nurses. The mean knowledge is 19.38 with value of standard deviation 3.63. The level of knowledge below median is found to be 48%. Statistically, there is significant association with educational qualification ( $p=0.005$ ). From this study, it can be concluded, that nurses are having low level of knowledge regarding incubator care and they require special training courses to satisfy the need of highly specialized care.

**Table 1: Respondents' Level of Knowledge regarding Incubator care n=50**

Level of Knowledge	Frequency	Percentage
Low knowledge	24	48
Average knowledge	5	10
High knowledge	21	42

**Table 2: Association between Respondents' Level of Knowledge and Selected Variables n=50**

Variables	Level of Knowledge		p-value
	Low (%)	High (%)	
Educational qualification <sup>f</sup>			0.005*
PCL Nursing	25 (71.4)	10 (28.6)	
Bachelor Nursing	4 (26.7)	11 (73.3)	
Work experience			0.661
$\leq 12$ months	17 (60.7)	11 (39.3)	
$> 12$ months	12 (54.5)	10 (45.5)	

\*Significance level at 0.05 f=Fisher's exact test  $\chi^2$  is computed for p-value

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