



## Effect of planned audit process on nurse's performance based on neonatal care standard

### Abstract:

**Introduction:** Though India accounts for highest burden of under-5 deaths, it has shown faster decline in under-5 mortality reduction compared with the global fall. Worldwide, the under-5 mortality rate reduced by 49 per cent from 90 per 1000 live births in 1990 to 46 per 1000 live births in 2013, while India achieved a reduction of 59 per cent in under-5 mortality from 126 in 1990 to 52 in 2012. The major causes of neonatal deaths worldwide are infections (36%, which includes sepsis/pneumonia, tetanus and diarrhea), pre-term (28%), and birth asphyxia (23%). For prevention of birth asphyxia newborn resuscitation is important.

**Objectives:** This study was conducted to assess the effect of planned audit process according to neonatal care standard on Newborn resuscitation on nurses performance( knowledge & practice) among staff nurses.

**Methods and Materials:** A pre-experimental design was adopted in this study. A non probability purposive sampling technique was used to select 222 staff nurses as study subject from 5 teaching & 5 non teaching hospitals in West Bengal. A valid & reliable Structured knowledge questionnaire and observation checklist ( $r=0.961, 0.98$ ) was used to collect data after obtaining ethical permission & taking informed consent. Data was collected from April 2012 to November 2013. Frequency, percentage & t-test, coefficient correlation, chi-square was used for data analysis.

**Results:** The findings showed that there was a significant difference ( $t_{221}=14.392$ ) between pre-test and post-test knowledge and practice score ( $t_{221}=9.963$ ) in newborn resuscitation area at 0.05 level of significance. There was also a significant relationship between knowledge and practice score in both pre-test and post-test ( $p<0.05$ ). But there was no significance ( $\chi^2=1.78$ ) of association of post knowledge score among staffs between teaching & non teaching hospitals ( $p<0.05$ ). So, from the study result it showed that the planned audit process regarding neonatal care standard on newborn resuscitation was effective for enhancing the knowledge and practice of the staff nurses.

**Conclusion:** The study concluded that, implementation of neonatal care standard is essential to acquire necessary knowledge and practice to keep update with latest trends and developments in the field of newborn resuscitation area.

**Key Words:** Planned Audit process, practice standard, newborn resuscitation, nurses performance, knowledge, practice.

Prof. Smritikana Mani

R.N.R.M, M Phil Nursing, M.Sc. Nursing (Obstetrics and gynecological nursing) Principal, College of Nursing, Medical College and Hospital, Kolkata-73. The West Bengal University of Health Sciences.

**Corresponding Author:**  
**Prof. Smritikana Mani**  
Email: [smriti\\_mani@yahoo.com](mailto:smriti_mani@yahoo.com)

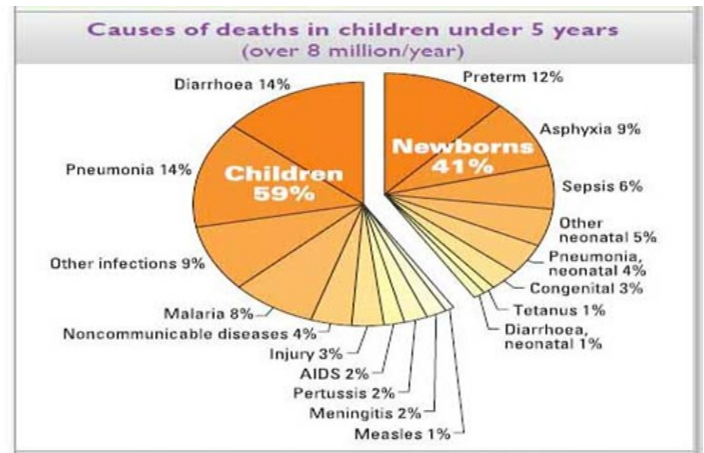
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## Introduction

Birth is a beautiful, miraculous and very personal event for all involved. It is an intimate and emotional time for a new mother and father when the baby they created together makes that initial cry and establishes the first eye contact with the new parents. Neonatal Mortality is the number of deaths of the neonates per 1000 live births within 0 – 28 days of birth.<sup>1</sup>

Though India accounts for highest burden of under-5 deaths, it has shown faster decline in under-5 mortality reduction compared with the global fall. Worldwide, the under-5 mortality rate reduced by 49 per cent from 90 per 1000 live births in 1990 to 46 per 1000 live births in 2013, while India achieved a reduction of 59 per cent in under-5 mortality from 126 in 1990 to 52 in 2012. Each year in India there are 1.34 million deaths of children aged under five ; 1.05 million infant deaths ; and 0.748 million newborn deaths . The country accounts for more than a quarter (26 per cent) of the world's neo-natal deaths. More than half (56 per cent of under-five deaths happen in the first 28 days of life and nearly three-quarters of these newborn deaths occur in the first week of life. Most newborn deaths are preventable by improving quality of care during delivery and care at birth. Simple interventions like skilled birth attendance and access to emergency obstetric care can reduce NMR by 41 per cent while early initiation of breast feeding can reduce NMR by per cent. The three major causes of neonatal deaths worldwide are infections (36%, which includes sepsis/pneumonia, tetanus and diarrhea), pre-term (28%), and birth asphyxia (23%). Most of these deaths can be prevented by early identification, initiation of breast feeding, prevention of hypothermia for pre-matures and initiation of effective measurements, early newborn resuscitation, effective infection control measurements in these areas.<sup>2</sup>

Figure 1: Countdown report 2015 to 2010 report



Birth Asphyxia is the non establishment of satisfactory pulmonary respiration at birth .It is failure of initiation and maintenance of spontaneous respiration with hypoventilation, anaerobic glycolysis and lactic acidosis.<sup>3</sup>

A study conducted in Uttar Pradesh, India, to assess the rates, timings and causes of neonatal deaths in rural India and its implications for neonatal health programmes by using verbal autopsy interviews to investigate 1048 neonatal deaths and still births in rural Uttar Pradesh, India. The study revealed that there were 430 stillbirths reported, comprising 41% of all deaths in the sample. Of the 618 sill births, 32% deaths were on the day of birth, 50% occurred during the first 3 days of life and 71% during the first week. The primary causes of death on the first day of life (i.e. day 0) were birth asphyxia or injury (31%) and preterm birth (26%). During days 1 – 6, the most frequent causes of death were preterm birth (30%) and sepsis or pneumonia (25%). Half of all deaths caused by sepsis or pneumonia occurred during the first week of life. The proportion of deaths attributed to sepsis or pneumonia increased to 45% and 36% during days 7-13 and 14-27 respectively.<sup>4</sup>

A retrospective record based study was conducted on Infant Mortality in Amdanga block of West Bengal, India, to find out the infant mortality rate and to determine the various causes associated with infant mortality. Data on infant death were

collected from government health records maintained at Amdanga Block Primary Health Centre, North 24 Parganas, West Bengal for the period of 5 years (2008-2012). The infant mortality rate over this period was 17.8 per 1000 live births. Majority of death occurred in the neonatal period(83.6%).The main causes of neonatal deaths were low birth weight including prematurity(30.9%), birth asphyxia(19.3%),whereas the most common cause of post-neonatal death was acute respiratory tract infection(34.7%). Most of the infant deaths are preventable through improved antenatal and perinatal care and strengthening of referral system.<sup>5</sup>

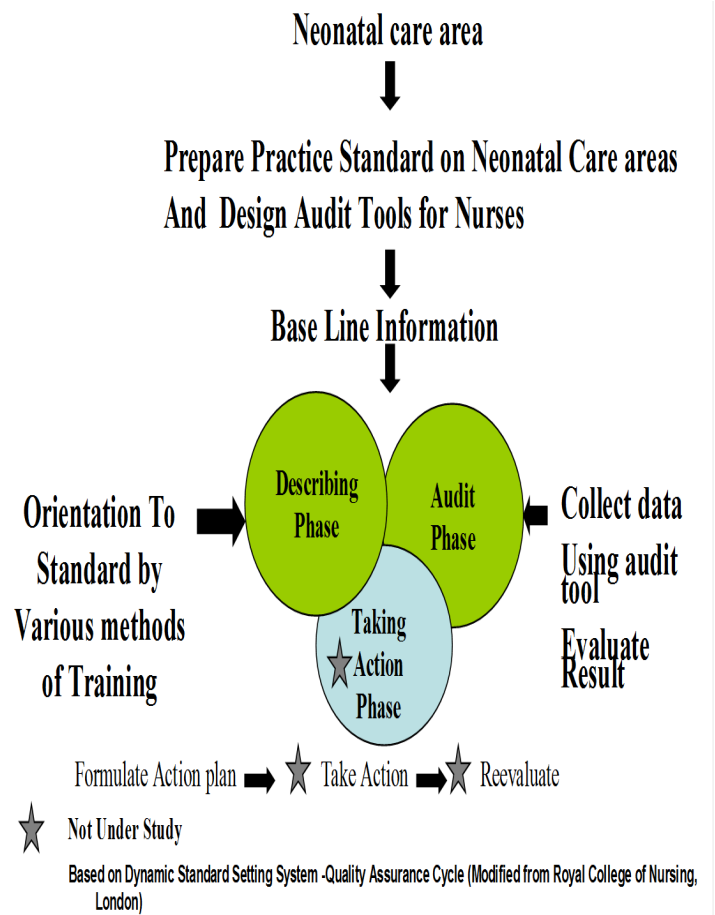
With the advancement of technology into Health Care area, the issue of quality assurance and standards of care have affected the entire health care system including nursing. As a part of its commitment to improve the quality care to newborns and reduce neonatal mortality, standards in neonatal areas of nursing is to be developed. Standards are professionally developed expressions of the range of acceptable variations from a norm or criterion. The audit tool is an instrument to measure competence. Audit process can take the form of observation, review of records and interviewing staff. Repeated audit will improve the nursing care according to standards. If the nursing personnel are worked with the standard criteria during providing care to the newborn babies, it not only reduce the neonatal death but also it provides a quality nursing care in the nursing service .<sup>6</sup>

As, the researcher are worked in the nursing field as a administrator, educator and service provider for many years, found that it is important to develop neonatal care standard in the newborn resuscitation areas because these are the most common causes for the neonatal death. So the investigator felt need to prepare a set of standards and to find out the effectiveness of the planned audit process on neonatal standards on resuscitation to prevent deaths due to birth asphyxia specially premature babies by assessing the knowledge

and observing the practice of the staff nurses with the available pre- requisites.

## Conceptual Framework

Fig 2: Dyessy's quality assurance model



## Methodology

A Pre experimental approach and One group pre-test post-test design was adopted for conducting the study. The present study was conducted in new born care area in Labour Room, SNCU and Post natal ward of the hospitals (5 Teaching Hospitals: Medical college and Hospital, Kolkata, Nil Ratan Sirkar Medical College and Hospital, Kolkata, RG Kar Medical College and Hospital, Kolkata, Calcutta National Medical College and Hospital, Kolkata, Medinipur Medical College and Hospital, Paschim Medinipur and 5 Non-teaching Hospitals : MR Bangur Hospital, Kolkata, Uluberia Hospital, Howrah District Hospital,

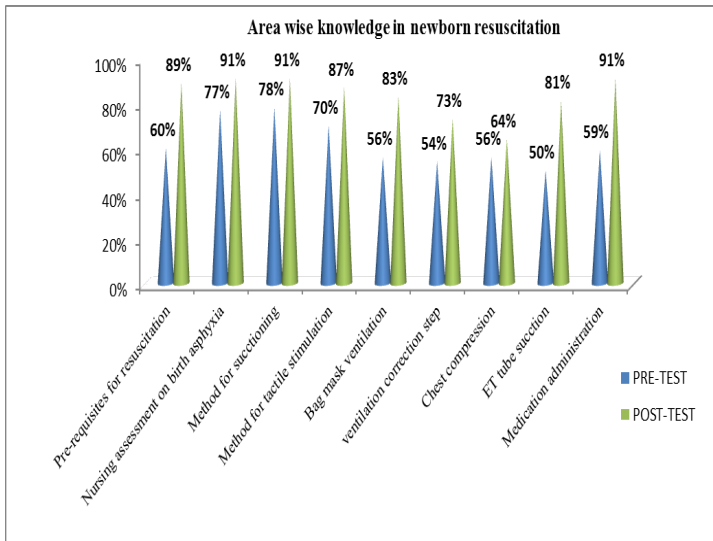
JNM Hospital, Kalyani, Tamluk District Hospital, Purba Medinipur). 222 nursing personnel working in new born care area (labour room, postnatal ward & SNCU) of hospitals of West Bengal were selected as a study subject by adopting the non probability purposive sampling technique. The data was collected by applying structured interview schedule to collect demographic data. Tool 2 consists regarding knowledge questionnaire on new born resuscitation and Tool 3 was observation checklist for assessing the practice on new born resuscitation. The reliability of the tool of the structured knowledge questionnaire and observation checklist for new born resuscitation were 0.96, 0.98. Formal authoritative permission was taken & self-introduction was given and purpose of the study was stated. Informed consent was obtained and confidentiality was assured to each participant to get their co-operation. Pre-test was conducted by using structured knowledge questionnaire and observation check-list. Demonstration of neonatal resuscitation was provided to the staff nurses introducing neonatal resuscitation standard. Post-test was conducted on the eighth day by using same questionnaire and observation check-list. Data was collected from April 2012 to November 2013.

**Result**

The Maximum respondents were in the age group of 30-37 years (40%).Forty percent respondents were having more than 10 years experience in nursing service. Maximum number of the respondents (49%) were having their experience in neonatal care area between 1-3 years.

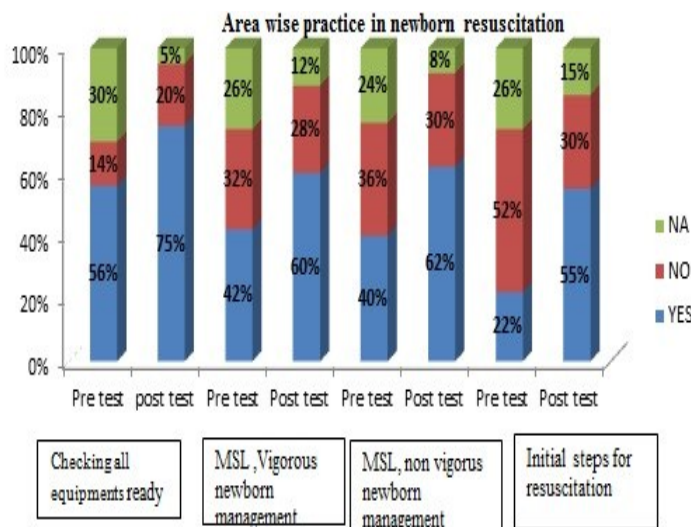
Figure 3 depicts that, more number of staff scored well in post test than the pre test. 'In pre-requisites for resuscitation' it was 60% in pre test & 89% in post test. The most of staffs responded correctly in post test regarding birth asphyxia assessment than the pre test 77%. In 'method for suctioning, tactile stimulation, bag mask ventilation, ET tube suction ' area the staff nurses had

**Figure 3: Bar diagram showing the percentage distribution of staff nurses on area wise knowledge in neonatal resuscitation in pre and post test. n=222**



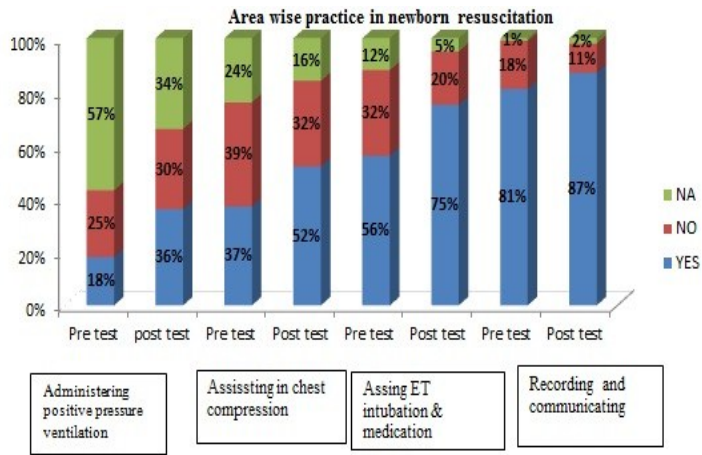
right knowledge in post test 91%, 87%, 83%, 81% respectively than the pre test i.e. 78%, 70%, 56% and 50%.In 'ventilation correction step' the 73% nurses had the knowledge more in posttest than pre test i.e.54%.In 'chest compression area' and 'medication administration area' 81% & 91% nurses had knowledge more in post test than pre test i.e. 50% & 59% respectively.

**Figure 4: Bar diagram showing the percentage distribution of staff nurses on area wise practice in neonatal resuscitation in pre and post test. n=222**



Data presented in Figure 4 depict that, the more number of staffs did correct practice (yes- it means they performed the correct steps during the newborn resuscitation) in post test than the pre test in above all the areas.

Figure 5: Bar diagram showing the percentage distribution of staff nurses on area wise practice in neonatal resuscitation in pre and post test. n=222



Data presented in figure 5, depict that, the more number of staff did their correct practice, it means they performed the correct steps during the newborn resuscitation in post test than the pre test in above all the areas.

Table 1 : Difference between pre-test and post-test knowledge score of staff nurses regarding newborn resuscitation. n=222

Group	Knowledge score	Mean	Mean difference	Median	SD	Paired 't' value
Staff nurses	Pre-test	18.46		17.84	±5.77	14.392*
	Post- test	25.24	6.78	21.75	±4.02	

\* Significant at  $t_{221} = 1.96$ ; at  $p < 0.05$  level of significance.

Data presented in Table 1, depict that there is significant difference between pre– test and post– test knowledge score on new born resuscitation area.

Table 2 : Difference between pre-test and post-test of practice score of staff nurses on newborn resuscitation. n = 222

Group	Practice score	Mean	Mean difference	Median	SD	Paired 't' value
Staff nurses	Pre-test	50.76		55.45	±24.568	9.963*
	Post- test	70.4	19.64	56.97	±16.102	

\* Significant at  $t_{221} = 1.96$ ; at  $p < 0.05$  level of significance.

Data presented in Table 2, depict that there is significant difference between pre– test and post– test practice score on new born resuscitation area.

Table 3 : Relationship between pre-test knowledge and practice score of staff nurses on newborn resuscitation. n = 222

Group	Practice score	Mean	Mean difference	Median	SD	r value
Staff nurses	Knowledge	18.46		17.84	±5.77	0.285*
	Practice	50.76	32.302	55.452	±24.57	

\* Significant at  $p < 0.05$  level of significance.

Data presented in Table 3, depict that there is significant relationship between pre– test knowledge and practice score on new born resuscitation area.

Table 4 : Relationship between post- test knowledge and practice score of staff nurses on newborn resuscitation. n = 222

Group	Practice score	Mean	Mean difference	Median	SD	r value
Staff nurses	Knowledge	25.25		21.75	±4.024	0.320*
	Practice	70.4	45.16	56.97	±16.10	

\* Significant at  $p < 0.05$  level of significance.

Data presented in Table 4, depict that there is significant relationship between post– test knowledge and practice score on new born resuscitation area.

Table 5: Association between post-test knowledge score of staff nurses on Newborn Resuscitation among teaching and non-teaching hospitals. n = 222

Status of the Hospital	Knowledge Score		Chi- square
	Below Median	At and Above Median	
Teaching Hospital	15	113	1.78
Non-teaching Hospital	17	77	

$X^2_{(1)} = 3.84$  at  $p < 0.05$  level of significance.

Data presented in Table 5, depict that there is no significant association between post– test knowledge score between teaching Hospital staff and non-teaching Hospital.

## Discussion

In this study the staffs have only 29% receiving the special training in neonatal care areas. They have a formal certification in nursing area. The result of the present study also resembles with the study of Florence Murila, Moses Modadi Obimbo,

Rachel Musoke<sup>7</sup> where the results shown that, participants included 109 females and 83 males all aged above 23 years and at least certificate training. The average duration of work experience was 9 years. Majority of participants did not have an experience with neonatal resuscitation. 163 health care personnel had received some information on neonatal resuscitation. Out of this number only 23 had formal training.

On the basis of findings & objectives of the present a discussion was held. The findings of the present study indicated that the staff nurses had inadequate knowledge & practice regarding newborn resuscitation. Mean post-test knowledge score (25.24) of staff nurses on Newborn Resuscitation is higher than the mean pre test knowledge score(18.46) with a mean difference 6.78 which is found statistically significant as evident from 't' value of 14.392 which is higher than the table value for df (221) at 0.05 level of significance indicating the effectiveness of neonatal care standard in enhancing the knowledge regarding newborn resuscitation. Hence it can be said that the implementation of neonatal care standard on newborn resuscitation was effective in enhancing the knowledge & practice in improving the practice among the staff nurses.

The result of the present study is supported by the study Michael K Hole, Keely Olmsted, Athanase Kiromer, & Lisa Chamberlain<sup>8</sup> where it is seen that the Pre/Post test comparison evaluating all aspects of the module found that training scores improved from & average of 38.6 % To 64.4% attitude scores improved from 45% to 76.3%,knowledge scores improved from 30.4% to 58.7% and skills scores improved from 57.5% to 75.5% (p= 0.02).

## Conclusion

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On the basis of findings of the present study the following conclusion can be drawn. There was deficiency in knowledge and practice among staff nurses regarding newborn resuscitation areas prior to the implementation of neonatal

care standard. And it was effective in enhancing the knowledge and practice of nursing personal regarding above mentioned neonatal care area. There was also a positive significant correlation between post-test knowledge and practice scores. So, it can be said that, implementation of neonatal care standard is essential to acquire necessary knowledge and practice to keep update with latest trends and developments in the field of newborn resuscitation area.

## Recommendation

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On the basis of findings, the following recommendations are :

- A comparative study can be undertaken to evaluate the effectiveness of neonatal care standards.
- Similar study can be conducted either on B.Sc. or GNM students.
- A study can be carried out by using other teaching strategies, workshop self-monitoring to ensure the practice of neonatal care standard.
- A study can be conducted for the two groups, one for treatment & other as control group.

## Acknowledgement

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## Ethical Consideration

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Formal administrative permission was sought from the

Institutional Ethical Committee; Medical Superintendent cum Vice-Principal, Nursing Superintendent and Sisters-in-charge of labour room, SNCU and post natal ward of the teaching and non-teaching hospitals mentioned before.

## References

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1. Park K. Textbook of Preventive and social medicine. 21st ed. M/s Banarsidas Bhanot; India: 2011.
2. Bulletin of the UNICEF Report on Neonatal Health (Newborn Action Plan, RMNCH+A), 2015.
3. Singh Meharban. Essential pediatrics for nurses, 3rd edition; CBS publishers: 2014.
4. Bulletin of the World Health Organization report 2006; 84: 706-713
5. IOSR Journal of Dental and Medical Sciences (IOSR-JDMS) volume 13, Issue 3 Ver. III. (Mar. 2014), PP 24-26.
6. Baser P Shebeer, Khan Yaseen S. A concise Textbook of Advanced Nursing Practice, 1st edition. Emness Medical publishers; Bangalore: 2013.
7. Florence Murila, Moses MadadiObimbo, Rachel Musoke. Assessment of knowledge on neonatal resuscitation amongst health care provider in Kenya. The Pan- African Medical Journal 2012; 11:78.
8. Michael K Hole, Keely Olmsted, Athanase Kiromer, & Lisa Chamberlain curriculum in Malawi, Africa; From: [www.hindawi.com/ijped/2012/](http://www.hindawi.com/ijped/2012/). Available from: "http://www.hindawi.com/ijped/2012/408689%20Received%206/8/2011"408689 Received 6/8/2011, Received 19/9/2011, Accepted 20/9/2011