EFFECTIVENESS OF EDUCATIONAL PROGRAMME ON KNOWLEDGE REGARDING CARE AND PREVENTION OF PRETERM BABIES WITH VENTILATOR ASSOCIATED PNEUMONIA AMONG STAFF NURSES IN NICU, PBMH, BHUBANESWAR, ODISHA

Mrs. Niyati Das* & Dr. Amarjit Kaur Sandhu**
*Research Scholar in Himalayan University, Arunachal Pradesh, India.
**Research Supervisor in Himalayan University, Arunachal Pradesh, India.
DOI: http://doi.org/10.47211/tg.2021.v08i01.01

ABSTRACT
A pre-experimental research design was conducted on NICU staff nurses to assess the knowledge & effectiveness of Educational programme on knowledge regarding care and prevention of Ventilator Associated Pneumonia. An evaluative approach with one group pre-test and post-test design was used for the study. 30 samples were selected through purposive sampling technique method by use of structured questionnaires. The present study was conducted in NICU of selected hospital BBSR, ODISHA. In pre-test 3.33% were having adequate knowledge, 63.33% were having moderately adequate, 33.33% were having inadequate knowledge whereas in post-test 40% adequate, 46.66% moderately adequate and 10% inadequate knowledge. Pre-test the mean knowledge score obtain by the staff nurses were 11.8 and S.D 2.9 whereas in Post-test score the mean knowledge score were obtained by the staff nurses were 18.5 and S.D. is 2.2. Paired t-test is calculated in order to find the significance of difference between pre-test and post-test knowledge score. The calculated t value (6.51) is greater than the tabulated value (2.04). It suggests that this has been effective in increasing knowledge of staff nurses in NICU about prevention of VAP.

Keywords: Mechanical ventilation, Ventilator-associated pneumonia; VAP Prevention.

ABOUT AUTHORS:

Author Mrs. Niyati Das is Ph.D. Scholar at Himalayan University, Itanagar, Arunachal Pradesh, India.

Author Dr. Amarjit Kaur Sandhu is Research Supervisor in Himalayan University, Arunachal Pradesh, India. She has attended and organized Workshops, Seminars and Conferences. She has published various research articles in National and International Journals.
INTRODUCTION
Ventilator associated pneumonia (VAP) is a subset of hospital acquired pneumonia. VAP refers to bacterial pneumonia developed in neonates who have been mechanically ventilated for duration of more than 48 hours. It is the pneumonia after 48 hours or more after admission, which did not appear to be incubating at the time of admission, VAP is a type of lung infection that occurs in neonate who is on mechanical ventilation breathing machines in hospitals. Such as, VAP typically affects critically ill neonates that are in an intensive care unit. VAP is a major source of increased illness and death. VAP is the most common nosocomial infection in critically ill patients, affecting 27% of all critically ill patients. 86% of nosocomial pneumonias are associated with mechanical ventilation and are termed VAP. VAP results from the invasion of the lower respiratory tract and lung parenchyma by micro-organisms. VAP continues to complicate the course of 8-28% of patients receiving mechanical ventilation. In contrast to infection of more frequently involved organs (e.g., urinary tract and skin) for which mortality rate is low, ranging from 1 to 4%, the mortality rate for VAP ranges from 24-50% and can reach 76% in some specific setting or when lung infection is caused by high risk pathogens.

Lack of knowledge of infection prevention and proper Nursing care among Nurses may become a barrier in adhering to evidence-based guidelines for preventing ventilator-associated pneumonia. This study will help Nurses to know about VAP and its prevention in detail so that they can apply the knowledge in clinical practice. Understanding pathophysiology of VAP, its risk factors, and care bundle is vital for the proper prevention and treatment of VAP. There must be specific protocols, strategies and active surveillance in every NICU regarding the care bundle.

OBJECTIVES
1. To assess the baseline knowledge level on prevention of ventilator associated pneumonia among staff nurses.
2. To evaluate the effectiveness of teaching programme on prevention of VAP

METHODOLOGY
An Evaluative approach and pre experimental research design was conducted among NICU staff Nurses, Bhubaneswar. 30 samples were collected by purposive sampling technique and teaching intervention given on Prevention of ventilated associated pneumonia. Based on these areas lesson plan and Flash card were prepared and it delivered through lecturer method by using flash card . Data collected by using self structured questionnaires.

Educational intervention
All staff Nurses in the NICU attended an educational programme consisting of 2-h formal lectures, an educational Flash card, and an evaluation test before the lectures. Notices were periodically posted in the unit encouraging staff to continue applying the measures and giving feedback on the ventilator associated infection rates. Surveys evaluating NICU staff knowledge of evidence-based guidelines for the prevention of VAP were administered twice during the study.

RESULTS
Findings related to demographic characteristics
Majority of the subjects were 76.66% in the age of 20-30 years and only 3.33% were in age group of 40-50 years.100% of subjects were Female Nurse. Among respondents 40% were having GNM qualification where 26.66% were having B.sc qualification, 33.33% were from Post Basic qualification. Majority of the subjects were from Hindu religion 96.66 % and 3.33% were from Christian. 36.66% were married and 63.33% were unmarried. 76.66% were having less than 5 years of job experience whereas only 20% were having 5-10 years of job experience and only 3.33% were having more than 10yrs of job experience.90% of samples were pre exposure to this type Educational program once and 10% of samples were pre exposure to this type educational program twice.
Table 1 Frequencies and percentage wise distribution on Nurses knowledge of the pre-test and post-test knowledge score regarding VAP

| Level of knowledge | Pre test | Post test |
|-------------------|----------|-----------|
|                   | Frequency | Percentage | Frequency | Percentage |
| Adequate          | 1         | 3.33%      | 12        | 40%        |
| Moderately adequate | 19     | 63.33%     | 14        | 46.66%     |
| Inadequate        | 10        | 33.33%     | 3         | 10%        |

Data presented in this table and figure depicts that in pre-test 3.33% were having adequate knowledge, 63.33% were having moderately adequate and 33.33% were having inadequate knowledge whereas in post-test 40% adequate, 46.66% moderately adequate and 10% inadequate knowledge.

Table 2 Range, mean, standard deviation and mean percentage of pre-test and post-test knowledge score.

| Test     | N (sample no.) | Maximum score | Range | Mean (SD) | Standard deviation | Mean percentage |
|----------|----------------|----------------|-------|-----------|--------------------|-----------------|
| Pre test | 30             | 25             | 8-17  | 11.8 (2.9) | 2.9                | 39.33%          |
| Post test| 30             | 25             | 15-22 | 18.5 (2.2) | 2.2                | 61.66%          |

In table 2 represents that pre-test knowledge score range (8-17), mean (11.8), SD (2.9), mean percentage (39.33) and post-test knowledge score range (15-22), mean (11.8), SD (2.2), mean percentage (61.66).
### Table 3 Comparison of pre-test and post-test knowledge score of mean and standard deviation

| Sample no | Mean | Standard deviation | Difference of pre and post test mean | Difference of pre and post test standard deviation |
|-----------|------|--------------------|--------------------------------------|--------------------------------------------------|
| Pre-test  | 30   | 11.8               | 2.9                                  | 6.7                                              |
| Post test | 30   | 18.5               | 2.2                                  | 0.7                                              |

In Table 3: represents that the post-test mean 18.5 whereas the pre-test mean 11.8. SD of pre-test is 2.9 and SD of post-test is 2.2. Difference of pre-test and post-test mean is 6.7 and difference of pre-test and post-test SD is 0.7.

### Table 4 Comparison of pre-test and post-test knowledge score and testing of Hypothesis

| TEST     | Mean | Standard deviation | 't' value (calculated) | 't' Value (tabulated) | Level of significance | Degree of freedom |
|----------|------|--------------------|------------------------|-----------------------|-----------------------|-------------------|
| PRE TEST | 11.8 | 2.9                | 6.51                   | 2.04                  | 0.05                  | 29                |
| POST TEST| 18.5 | 2.2                |                        |                       |                       |                   |

Data represent in Table no 4 shows that calculated ‘t’ value 6.51 and tabulated ‘t’ value 2.04 which represent the significant gain in knowledge through Educational program.

**Inference:**
As the calculated t-value greater than tabulated value so, there is significant difference between pre-test and post-test knowledge score.

### Implication of the Study
The nursing profession exists in response to the need of society and holds idea related to health of the individual throughout his life span. Nurses direct their energies towards the promotion, maintenance and restoration of health, the prevention of illness, to alleviate suffering and the assurance of peaceful death when life can no longer be sustained.

The finding of the study has several implications for nursing education, nursing practice, nursing administration and nursing research. The implications which have made in the present study are of vital concern to the professional nurse practitioners, nursing instructors, nursing administrator and researcher.

**Nursing Education**
- Nursing curriculum should be equipped with knowledge and skills to prepare efficient and skillful nurses to provide quality nursing care.
- Nursing students should be given updated knowledge or recent practices regarding nesting.
- Nurses will be required to provide more in-depth education on VAP to low birth weight and premature babies.

**Nursing Administration**
With the technological advance and ever growing challenges of nursing, the nurse administrators have responsibility to provide the nurses with substantive continual educational opportunities.
- The nurse administrator should look into the need for organizing in-service and continuing nursing education programs for staff nurses in order to update their knowledge regarding VAP.
- Nursing administrator must awaken to the fact that patient education is a necessary and should provide resources in terms of manpower, money and material.

**Nursing Practice**
As Dorothy E Orem has defined nursing care which includes supportive educative system to the client or pubic as an aspect of care. So the nurses have the pivot role to take these issues as challenges and bring awareness by educating the staff nurses regarding knowledge on practice prevention of VAP for preterm babies.

**Nursing Research**
- Use of research findings should become a part of the quality assurance evaluation to evaluate individual performance as a whole.
- The study will motivate initial researchers to conduct the study on VAP.
CONCLUSION
The following conclusions were drawn on the basis of the findings of the study. The findings showed average of the subjects had adequate knowledge on Ventilator associated pneumonia. The mean post-test percentage scores and the modified gain scores in all areas were found to be high, the maximum gain in facts related to the knowledge and Prevention of VAP. The “t” test which was computed between pre-test and post test knowledge scores indicate a true gain in the knowledge. Hence it was concluded that Educational program was effective as method to improve knowledge on Prevention of VAP among the staff Nurse.

ACKNOWLEDGEMENT
We thankful to all staff Nurses of NICU, all health care workers of NICU.

REFERENCES
1. https://www.researchgate.net/publication/322675842_VentilatorAssociated_Pneumonia_and_Role_of_Nurses_in_Its_Prevention.
2. https://www.sciencedirect.com/science/article/pii/S120197121631178X
3. Leone M, Garcin F, Bouvenot J. Ventilator associated pneumonia: breaking the vicious circle of antibiotic overuse. Crit Care Med 2005; 33: 379-85.
4. Chastre J, Fago J. Ventilator associated pneumonia. Am J Respir Crit Care Med 2002; 165: 867-903
5. Foglia E, Meier M, Elward A. Ventilator associated pneumonia in neonatal and pediatric intensive care units. Clin Microbiol J 2007; 20 (3): 409-25.
6. Safdar N, Crnich CJ, Maki DG. The pathogenesis of ventilator associated pneumonia: Its relevance to developing effective strategies for prevention. Respir Care J 2005; 50(60): 725-39.
7. Torres A, Ewing S. Diagnosing ventilator associated pneumonia. New Engl J 2004; 350(5): 433-5.
8. Shaw MJ. Ventilator associated pneumonia in critically ill patients. Am J Respir Crit Care Med 2005; 163:1520-23.
9. Garland JS. Strategies to prevent ventilator associated pneumonia in neonate. Clin Perinatol 2010; 37(3):629-643.
10. Niederman MS. The clinical diagnosis of ventilator associated pneumonia. Respir Care J 2005; 50(6):788-96.
11. Georgieva M, Milanov S, Milanov M, Gyurov E. Clinical pulmonary infection score (CPIS) dynamics in polytrauma patients with ventilator associated pneumonia. Critical care 2004; 8(15): 212.