

Type: Assignments
Subject: WGU C361
Subject area: Nursing
Education Level: Undergraduate/College
Length: 10 pages
Referencing style: APA
Preferred English: US English
Spacing Option: Double
School: Chamberlain University

Title: Stephenie Sunkel WGU C361 Task 2

Instructions: please see attached for article references and the needed template (that i started).
please also see rubric for assignment.

Focus: apa format with references

Structure: apa double spaced

Important notes: use attached references and rubric. keep the last reference (in blue) as the research article and choose between the other two for the non-research article. please call me if you have any questions. i am hoping you are familiar with this assignment.

C361 - MLM1 – Performance Assessment 1

College of Health Professions, Western Governors University

C361: Evidence-Based Practice and Applied Nursing Research

April 4, 2022

C361 - MLM1 – Performance Assessment 1

Impact of the Problem on the Patient

Ventilator-associated pneumonia (VAP) is one of the most threatening hospital-acquired pneumonia infections in the intensive care unit. The condition occurs 48 hours following intubation in patients subjected to invasive mechanical ventilation. VAP results in significant impacts on the patient and the organization. For the patient, VAP results in prolonged hospital stays, increased complications, reduced life quality, increased antibiotic use, healthcare costs, morbidity and mortality rates in the intensive care unit (ICU)(Aysegul, Oznur, & Asiye r, 2020). However, healthcare providers can prevent VAP through effective oral care.

Impact of the Problem on the Organization

The impact of the problem on the organization includes the increased length of hospital stay, decreased return on investments, decreasing availability of beds, and increased use of resources, including staff, lab, and radiology. Additionally, VAP prevalence can undermine an organization's reputation, further undermining its financial health.

Identify the PICO components

P – Ventilated adult patients in the ICU

I – Implement best practice for oral hygiene

C – Current Practice

O – Decreased rates of VAP

Evidence-Based Practice Question

Can oral care prevent Ventilator Associated pneumonia?

Research Article: Effect of 0.12% Chlorhexidine Use for Oral Care on Ventilator-Associated Respiratory Infections: A Randomized Controlled Trial

Background Introduction

According to Kes et al.(2021), changes in the microorganism and oropharyngeal flora occur within 24hrs following an individual's admission to the intensive care unit. The authors note that the intubation's mechanical process breaks natural barriers and boosts bacterial colonization in the lower respiratory tract. The lower respiratory tract gets infected by microorganisms from the oropharynx, endotracheal tube leakage or biofilm from this tube. As a result, mechanically ventilated patients are at risk of VAP. Nonetheless, Kes et al.(2021) note that Chlorhexidine(CHX) is widely utilized in oral care because it effectively reduces microbial accumulation . The most widely utilized CHX concentrations are 2%, 0.2%, and 0.12%. However, CHX application varies across clinical settings, with some applying once a day while others applying four times a day in individuals receiving mechanical ventilation.

However, insufficient evidence exists regarding the superiority of the various CHX concentrations in VAP prevention. Therefore, further research is necessary to determine the most effective CHX concentration level in preventing VAP in mechanically ventilated patients. Although some meta-analysis researches have concluded that 0.12% CHX concentrations are effective in VAP prevention, these studies had some level of bias, thus undermining the reliability of the study findings. Thus, the article contributes to the study area by providing

details about VAT (Ventilator-associated trache bronchitis) development in oral care utilizing 0.12 CHX.

Methodology

“Prospective, single-blinded, randomized controlled trial performed in 2 intensive care units at a hospital. The sample comprised 57 mechanically ventilated adults randomly allocated to the 0.12% CHX and the placebo groups. Barnason’s oral assessment guide was used to evaluate the oral health of both groups before oral care during the first 24 hrs of tracheal intubation (Day 0) and on Day 2 and Day 3. Oropharyngeal secretion, endotracheal tube aspirate, and nonbronchoscopic bronchoalveolar lavage samples were collected on Day 0 and Day 3”.

Level of Evidence

Level 1

Data Analysis

“All statistical analyses were conducted using SPSS Version 25.0 (IBM, Armonk, NY). The skewness and kurtosis were used for testing normality. All statistical tests were one-tailed, and statistical significance was considered as $p < .05$. Differences between groups were assessed using Fisher’s exact test or the chi-square test for nominal data. Numerical variables were evaluated using the Mann–Whitney U test or Student’s t test. A two-way repeated-measures analysis of variance was used to compare the BOAG values based on the groups and time, whereas Duncan’s test was used in multiple comparisons. Bonferroni correction was utilized to compare the main effects”.

Ethical Considerations

The ethical committee (No. 77192459-050.99-E.30983) and the institution (No. 98024045-604.01.02) approved the research. The researchers obtained written informed consent from guardians or first-degree relatives for unconscious or intubated patients.

Quality Rating

High Quality

Analysis of the Results / Conclusions

Results: The VAT development rate was not statistically different between the groups ($p = .318$). However, a significant distinction in VAP development rate was evident ($p = .043$). The oropharyngeal colonization frequency declined significantly in the 0.12% CHX group than in the placebo group at Day 3 ($p = .001$).

Conclusion: 0.12% CHX use for oral care in mechanically ventilated patients effectively prevents VAP and reduces microbial colonization.

Non-Research Article: Can oral care prevent ventilator-associated pneumonia in mechanically ventilated patients? A literature review

Background Introduction

According to the article, people do not present with nosocomial infection during admission. However, the condition is acquired when patients are receiving healthcare. An example of nosocomial infection is VAP, which occurs two days or more after tracheal intubation in mechanically ventilated patients (Hale, 2022). The author notes that about 100,000 people in the United Kingdom are admitted for ventilation annually. Out of this patient population, 10-20% will develop VAP (Hale, 2022). The condition results in increased hospital stays and increased intensive care unit use. Ventilator-associated pneumonia (VAP) is the most frequent

nosocomial infection in mechanically ventilated patients, especially in the intensive care units (ICUs). The main causative factor of VAP is the aspiration of microbial pathogens present in the oral cavity. Improvements in oral care could reduce VAP incidences in mechanically ventilated patients.

Hale (2022) identifies multiple risk factors for VAP development. For instance, Oropharyngeal secretions' aspiration and aspiration of biofilm fragments from the endotracheal tube are significant risk factors for VAP development. Hale (2022) further notes that various causative pathogens contribute to VAP development. They include *Pseudomonas aeruginosa* and *Staphylococcus aureus*. These pathogens are evident in the oral cavity, while the dental plaque acts as a reservoir for their accumulation and growth. The lack of a golden standard for VAP diagnosis makes it challenging to control and prevent the condition. However, microbial findings, clinical examination or a combination of radiology, clinical examination, and scoring system can help diagnose VAP.

Hale (2022) also notes that healthcare facilities have implemented VAP intervention bundles for VAP prevention. Nonetheless, the bundles do not consider the process for oral care. Regardless, Hale (2022) confirms that between 2004 and 2007, the combination of the ventilator bundle and oral care protocol led to a 90% VAP reduction rate in mechanically ventilated patients. The findings underscored the significance of including oral care protocol in ventilator bundle and its effectiveness in VAP prevention..

Type of Evidence

Clinical practice guidelines

Level of Evidence

Level IV

Quality Rating

High Quality

Author's Recommendations: Oral care prevents VAP development in mechanically ventilated patients. However, the oral care intervention adopted by the nursing staff should reduce the bacterial load and plaque biofilm within the oral cavity.

The conclusions from this review confirm that "oral care can prevent VAP in mechanically ventilated patients". However, there lacks a gold standard oral care intervention to prevent VAP development in mechanically ventilated patients. Any oral care intervention that decreases bacterial load and plaque biofilm within the oral cavity should be implemented to prevent VAP in mechanically ventilated patients. Future randomized control trials should consider larger sample sizes, VAP diagnosis criteria, and a standard set of subjects' exclusion/inclusion criteria to determine the most effective oral care intervention in VAP prevention. The intervention should permit the implementation of best practice guidelines in clinical settings. The nursing staff should be aware of the significance of oral care to minimize VAP incidence amongst mechanically ventilated patients. Adequate training and calibration in the future should solidify this.

Recommended Practice Change

According to the article, oral care in mechanically ventilated patients prevents VAP because it limits bacterial load and plaque biofilm within the oral cavity. Oral care is vital in critical care nursing because inadequate oral care undermines nutritional intake and communication. It may also trigger respiratory and oral infections and pain in intensive care unit patients. Despite considering oral care to be of great significance, nurses do not administer oral

hygiene. Therefore, the recommended practice change ensures nurses adopt oral care to prevent VAP.

Key Stakeholders

The key stakeholders in implementing the recommended practice change are patients, nurses, and the hospital administration. The hospital administration will provide the necessary resources to facilitate practice change implementation. Additionally, the administration will provide nurses with the necessary education and training to implement the recommended change practice. The nursing staff will implement oral care protocols in the intensive care unit to prevent VAP. The patients will provide feedback regarding the effectiveness of the recommended practice change.

Barrier to Implementation

Various challenges may thwart the successful implementation of the recommended practice change. For instance, nurses understand the significance of oral care in enhancing patients' health and well-being during hospitalization. Additionally, nurses should offer oral care to patients in the intensive care unit. However, inadequate resources, ineffective education and training, time shortage, and an absence of standard protocol undermine nurses' provision of oral healthcare in mechanically ventilated patients.

Strategy to Overcome the Implementation Barrier

Healthcare facilities can overcome the above barriers by providing the nursing staff education and training on the significance of oral care in preventing VAP among patients in the intensive care unit. Additionally, the hospital administration should enhance nurses' access to adequate resources to facilitate satisfactory implementation of the recommended practice change. Also, nurses and allied healthcare providers should design a standard protocol to guide oral care

provision. Healthcare providers should improve nurses' attitude and knowledge through continuous education programs to facilitate oral care provision.

Indicator to Measure the Outcome

The indicator to measure the effectiveness of the recommended practice change includes improved oral diseases control and prevention, improved oral health, reduced hospital stays, and a strengthened healthcare system. Other indicators are increased patients satisfaction, reduced incidents of VAP, and nurses' implementation of oral care based on the designed standard guidelines.

Non-Research Article (Title of Article): Evidence-Based Practices for Preventing

Ventilator-Associated Pneumonia in Intensive Care Nursing: Knowledge and Practice

Background Introduction

According to the article, the hospital environment contributes to hospital-acquired pneumonia (HAP). Despite HAP being preventable, it is a significant healthcare challenge globally. Aysegul, Oznur, and Asiye(2020) note that approximately 1.7 million patients administered in healthcare facilities develop hospital-acquired infections. Data from CDC (Centers for Disease Prevention and Control) notes that approximately 98,000 of the 1.7 million patients that acquire hospital infections succumb to their illness. Patients at risk of hospital-acquired pneumonia are those in the intensive care unit.

The authors note that ventilator-associated pneumonia (VAP) is the most life-threatening hospital-acquired pneumonia in the intensive care unit. The condition develops in patients who have undergone invasive mechanical ventilation because of intubation. The condition results in prolonged hospital stay and exerts a financial burden on healthcare facilities and patients. Also, the disease mortality rate is approximately 8.1 to 31.9% (Aysegul, Oznur, & Asiye, 2020).

According to Aysegul, Oznur, & Asiye (2020), intubated patients, especially for more than 24 hours are 6 to 21 times more likely to develop VAP than their peers. The risk increases with prolonged mechanical ventilation.

Multiple risk factors contribute to VAP development. They include internal nutrition, supine position, and insufficient subglottic aspiration (preventable factors). Non-preventable risk factors include underlying diseases, gender, and age (Aysegul, Oznur, & Asiye, 2020). The authors note that VAP prevention can be achieved by managing preventable risk factors because it is more cost-effective than disease treatment. The article notes that adhering to precautions outlined in VAP prevention guidelines reduces VAP incidences. For instance, inappropriate aspiration, oral care, and hand hygiene contribute to nosocomial infections that cause VAP. Additionally, inadequate adherence to recommendations and a lack of knowledge about VAP prevention among ICU nurses contribute to VAP development (Aysegul, Oznur, & Asiye, 2020). Thus, intensive care unit nurses play a vital role in implementing evidence-based practice recommended for preventing and controlling VAP development

Type of Evidence: Clinical Practice Guidelines

Method: “The data of this descriptive study was collected between February 28 and June 30, 2017, in the departments of internal medicine ICU, anesthesia ICU, pulmonary ICU of one university and two training and research hospitals in Izmir, Turkey. The study included 102 nurses with at least six months or more work experience in the ICU and full responsibility in patient care. Three data sheets were used to collect data: Identification Form for ICU Nurses, Questionnaire for Evidence-Based Practices in Preventing VAP, and Questionnaire for Nursing Practices. Data were collected by face-to-face interview method”.

Level of Evidence

Level V

Quality Rating

High Quality

Author's Recommendations: According to Aysegul, Oznur, & Asiye(2020), ICU nurses have insufficient knowledge about guidelines for VAP prevention. Therefore, training and educating healthcare workers will help healthcare institutions maintain robust infection control policies. The authors also recommend that nurses be vaccinated against seasonal influenza, including patients above 65 years, those with chronic conditions, immunosuppressed patients, and those with prolonged hospital stays.

Conclusion: “The findings of this study were in line with those from previous studies and indicated that the ICU nurses had inadequate knowledge about the recommendations for VAP prevention. VAP is a preventable condition that significantly impacts mortality and morbidity. Together with other healthcare professionals, nurses play a key role in preventing VAP. Most of the recommended practices to prevent VAP development are a part of routine nursing care. It is necessary to train healthcare workers to maintain effective infection control programs in healthcare institutions. The training programs for the prevention of VAP should include ICU nurses. Training sessions should emphasize the areas where nurses were found to have inadequate knowledge such as the recommendations related to changing the humidifiers and closed aspiration systems or having seasonal influenza vaccination. Training programs should incorporate current research including evidence-based practices and should be repeated at

regular intervals; the effectiveness of training programs and their impact on the implementation of recommendations should also be evaluated”.

Recommended Practice Change

The recommended practice change entails educating and training nurses on best oral hygiene practices in mechanically ventilated patients. The training and education program should create awareness about effective infection control initiatives, standard guidelines related to closed aspirational systems and changing humidifiers. The training programs should incorporate evidence-based practice guidelines. Additionally, mandating healthcare providers to get seasonal influenza vaccine will protect them and prevents nosocomial infections that contribute to VAP development. Nurses should also vaccinate immunosuppressed patients, those with chronic conditions, and those above 65years to prevent their susceptibility to VAP development.

Key Stakeholders

The key stakeholders in implementing the recommended practice change are healthcare professionals, intensive care unit nurses, hospital administration, infection control team, and patients. The healthcare professionals will comply with the infection control programs to prevent VAP. ICU nurses will adhere to the recommended VAP prevention guidelines to enhance the well-being of ICU patients and associated outcomes. The hospital administrator will enhance access to the required resources to prevent VAP development, and the infection control treatment will design guidelines to prevent incidents of hospital-acquired pneumonia. Patients will provide feedback regarding the effectiveness of the recommended practice change.

Barrier to Implementation

The barriers to implementing the necessary practice change include lack of adequate resources to implement the recommended practice change, time shortage, and nurses' negative attitude towards the implemented change. Some nurses and allied healthcare providers may be unwilling to take the seasonal flu vaccine.

Strategy to Overcome the Implementation Barrier

Collaborating with significant stakeholders in the healthcare sector will enhance access to the needed resources to implement the education and training program for nursing staff. For instance, the healthcare facility can seek financial support from the government and non-governmental organizations to help prevent VAP through awareness creation. Adequate training from external experts can address nurses' attitude toward VAP prevention. Training will provide them with significant insights into the consequences of VAP on patients and healthcare organizations and the need to prevent it. Due to staff shortage, the training program will be done in shifts to ensure that healthcare delivery is not compromised. Healthcare workers will also be educated on the effectiveness of seasonal flu vaccine in protecting them and their patients from pneumonia and associated infections.

Indicator to Measure the Outcome

The indicator to measure the outcome include nurses' adherence to recommended VAP prevention guidelines, increased intake of seasonal flu vaccine, and reduced VAP incidents. These outcomes will suggest the successful implementation of the recommended practice change.

In summary, VAP among intensive care unit patients is preventable. The disease prevalence is attributable to nurses' non-adherence to VAP prevention guidelines and lack of adequate knowledge regarding VAP and prevention measures. As a result, healthcare providers' inappropriate oral care, hand hygiene, and aspiration practice contributes to VAP prevalence among mechanically ventilated patients. Therefore, collaboration among healthcare providers, hospital administration, and significant stakeholders is paramount in providing the required resources to train and educate healthcare providers on the importance of oral care, seasonal flu vaccination, VAP prevention guidelines and compliance with those guidelines. Healthcare workers' education will control VAP development and associated consequences like prolonged hospital stays and increased healthcare costs.

References

- Aysegul, C., Oznur, U. Y., & Asiye, A. (2020). Evidence-Based Practices for Preventing Ventilator-Associated Pneumonia in Intensive Care Nursing: Knowledge and Practice. *International Journal of Caring Sciences*, 13(3), 1794–1798.
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- Kes, D., Aydin Yildirim, T., Kuru, C., Pazarlıoglu, F., Ciftci, T., & Ozdemir, M. (2021). Effect of 0.12% Chlorhexidine Use for Oral Care on Ventilator-Associated Respiratory Infections: A Randomized Controlled Trial. *Journal of Trauma Nursing*, 28(4), 228–234.
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