**USING AN EVIDENCE-BASED VENTILATOR-ASSOCIATED PNEUMONIA PREVENTION BUNDLE WITH A COMPLIANCE CHECKLIST TO REDUCE VAP RATES**

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**INTRODUCTION**

**Background**
- VAP is one of the most serious nosocomial infections and accounts for approximately 25% of infections that occur in the intensive care unit (ICU) (Sedwick et al., 2012).
- VAP can increase the length of stay (LOS) in the ICU by 4 to 19 days (Sedwick et al., 2012).
- VAP is the leading cause of death among hospital-acquired infections and has an attributable mortality rate that ranges from 15% to 47% and a crude death rate of 5% to 65% (Crocce et al., 2013; Muscedere et al., 2008).
- The cost of care for a patient with VAP is approximately $40,000 to $75,000 higher per occurrence (Sedwick et al., 2012).
- Review of literature found VAP prevention bundles are not as effective if compliance rates are not high.

**PICOT Question**

In mechanically ventilated adult surgical and trauma patients in the ICU (P), how does implementation of an evidence-based VAP prevention bundle with a daily checklist to ensure compliance (I) compared to the same VAP prevention bundle without a daily checklist (C), affect the incidence of VAP (O) over a 3-month period (T)?

**MATERIALS AND METHODS**

**Demographics**

- **Age**
  - The mean age for the baseline group was 51 years (SD = 21.21), and 54 years (SD = 22.85) for the follow-up group.
  - There was no statistically significant difference in age between the baseline and follow-up groups, $t(118) = -0.625, p = .53, 95\%\ CI [-0.10, 0.94, 0.45]$

- **Gender**
  - The gender of the baseline group was predominately male (55%, $n = 33$), and 45% female ($n = 45$).
  - Gender in the follow-up group included 53% male ($n = 32$) and 47% female ($n = 28$).
  - There was no statistically significant difference between gender in the baseline and follow-up groups, $\chi^2(1) = 0.034, p = .86$.

- **Race**
  - The overall sample race was predominantly White (93%, $n = 112$), with the remaining participants being Black (4.2%, $n = 5$), and Asian (2.5%, $n = 3$).
  - There was no statistically significant difference in race between the baseline and follow-up groups, $\chi^2(2) = 0.533, p = .77$.

- **Type of Admission**
  - The type of admission for patients (ACS or trauma) in the baseline group was predominately trauma (62%, $n = 37$), and 38% ACS (n = 23).
  - Type of admission in the follow-up group included 70% trauma admissions ($n = 42$) and 30% ACS admissions ($n = 18$).
  - There was no statistically significant difference between type of admissions in the baseline and follow-up groups, $\chi^2(1) = 0.926, p = .34$.

**RESULTS**

**Demographics**

- **Age**
  - The mean age for the baseline group was 51 years (SD = 21.21), and 54 years (SD = 22.85) for the follow-up group.
  - There was no statistically significant difference in age between the baseline and follow-up groups, $t(118) = -0.625, p = .53, 95\%\ CI [-0.10, 0.94, 0.45]$

**Objective 1:**
- VAP rates for adult acute care surgery/trauma patients will decrease by 10% three months after the implementation of the VAP bundle daily checklist. **MET.**
  - There was a 43% reduction in VAP in the follow-up group when compared to the baseline group.

**Objective 2:**
- ICU LOS for adult acute care surgery/trauma patients will decrease by an average of three days three months after the implementation of the VAP bundle daily checklist. **MET.**
  - Average ICU LOS decreased from 18.8 to 14.3 (average 4.5 days).

**Approximate cost savings:**
- **ICU LOS:** $1.7 million
- **Hospital LOS:** $379,176 in addition to the cost savings of the shortened ICU LOS
- **Ventilator days:** $402,318

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**REFERENCES**


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Sinclair SON URL: http://nursing.missouri.edu/index.php