

Interventions in the Prevention of Ventilator Associated Pneumonia
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Problem: Critically ill patients requiring mechanical ventilation are at high risk for developing ventilator-associated pneumonia (VAP). VAP leads to higher rates of mortality and morbidity, increased length of stay, and higher hospital costs. Prevention of VAP was identified as a unit process improvement goal in June 1997 subsequent to a significant increase in the number of VAPs in the Surgical Intensive Care Unit (SICU).

Evidence: Several interventions have been implemented with measurable success, including evaluating practice against guidelines from Centers for Disease Control and Prevention (CDC) and the Healthcare Infection Control Practices Advisory Committee (HICPAC), and applications of evidence-based interventions.

Strategy: Current practice was evaluated and revised based on guidelines and evidenced-based interventions.

Practice Change: Multiple practice changes have been adopted since implementation of the process improvement initiative with measurable success including, (a) switching from non-disposable ambu bags to disposable bags; (b) replacing ventilator circuits within two hours of extubation to prevent re-intubation with old circuit; (c) the use of heat and moisture exchangers (HMEs) on all mechanically ventilated patients; (d) an extubation protocol for cardiac surgery patients; (e) ensuring head of bed elevation at 30 degrees or greater on mechanically ventilated patients; and (f) implementation of an oral care program for mechanically ventilated patients.

Evaluation: Number of VAPs and infection rates were measured and benchmarked using the National Nosocomial Infection Surveillance (NNIS) method.

Results: Total number of VAP cases per calendar year has dropped as follows: 1997-28; 1998-16; 1999-16; 2000-18; 2001-8; 2002-4; 2003-5; 2004-1; and 2005-5.

Recommendations: The results support continuation of the aforementioned interventions that have been effective in reducing VAP cases, continuing to seek out and use evidence-based literature to guide nursing practice, and to continue to monitor patient outcomes to evaluate effectiveness.

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