



MEMORIAL HOSPITAL Belleville, Illinois

Ventilator-Associated Pneumonia: Reduction, Accountability and Commitment Dana Hehmann, BSN, RN



Introduction

- Ventilator Associated Pneumonia (VAP) is defined as pneumonia that develops more than 48 hours after intubation and placement on a ventilator. There is no minimum timeframe the ventilator must be in place for pneumonia to be considered ventilator-associated.
- VAP is a serious threat to mechanically ventilated patients with an incidence as high as 65% with a mortality rate of 71%. Patients with VAP incur an average increase in hospital costs of \$57,000 per occurrence, a longer length of stay (4.3-19 days) and increased ventilator days." (Powers, 2006)
- The VAP rate is calculated by the number of cases per 1,000 ventilator days.

Literature Review

- "Interventions included in the Institute for Healthcare Improvement (IHI) ventilator bundle to reduce risk of complications in patients treated with mechanical ventilation include elevating the head of bed to 30 degrees or more, prophylaxis for peptic ulcer disease and deep vein thrombosis, daily interruption of sedation and assessment of readiness to extubate." (Munro, 2009)
- "The primary goal of oral care is to promote oral hygiene and thereby decrease colonization of the oropharynx and dental plaque by bacteria and aspiration of colonized saliva. Oral care is often neglected in critically ill patients or performed inadequately when a patient's mouth is swabbed only for comfort. Antimicrobial chlorhexidine gluconate has been tested as a potential strategy for preventing VAP in several studies." (Feider, 2010)
- "Other ICU health care providers, particularly respiratory therapists, who are involved in controlling endotracheal cuff pressure, avoiding micro aspiration of subglottic secretions, and controlling contamination of mechanical ventilator equipment can have a significant effect on the prevention of VAP in patients receiving mechanical ventilation in the ICU." (El-Khatib, 2010)

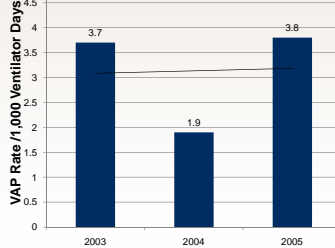
Knowledge/Problem Focused Triggers

- National Database of Nursing Quality Indicators (NDNQI) Magnet™ organization benchmark for VAP is zero
- Centers for Medicare and Medicaid Services (CMS) reports reduced payment for hospital-acquired infections including VAP
- ICU VAP rate trending upward to 12.2/1,000 ventilator days
 - Investigated Nursing and Respiratory Care equipment and practices

Priority for the Organization

- Reducing the VAP rate coincides with Memorial Hospital's mission to *Provide Exceptional Healthcare and Compassionate Service*
- The prevention of VAP aligns with Nursing's mission to *Create a caring environment for patients and families through excellence in the art and science of nursing*
- Meeting stringent quantitative and qualitative standards is our goal as a Magnet™ organization

Incidence of VAP in ICU Baseline Data



Purpose of Study

- The purpose of this study was to reduce and, ultimately prevent, VAP in our 16-bed Medical/Surgical ICU

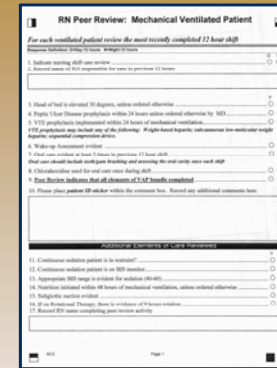


VAP Team Members

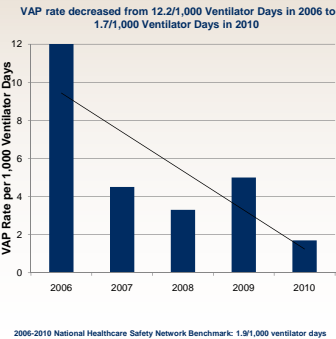
- Barb Jany, MSN, RN, NE-BC, ICU Nursing Director
- Kim Howell, Ph.D., MSN, RN, ICU Nurse Manager
- Sandy Alvarez, MSN, RN, CCRN, ICU Nurse Clinician
- Sheryl Smothers, MSN-NSA, RN, CPHQ, Nursing Quality Coordinator
- Sue Dinkelman, MSN, RN, CIC, Hospital Infection Prevention Coordinator
- Michael Urban, BS, RN, RRT, Respiratory Care Director
- Dana Hehmann, BSN, RN, ICU Quality Council Representative
- RN Representatives from ICU, PACU and ED
- Registered Respiratory Therapist(s)

Practice Change

- Daily rounding on all ICU patients with Care Manager and Charge Nurse addressing VAP prevention interventions
- Rotational therapy utilized for all ventilated patients
- Addition of oral care products targeting VAP prevention
- Formation of ICU VAP Committee resulting from recommendations of VAP Steering Committee
 - Reviewed evidence-based literature
 - Institute for Healthcare Improvement and VHA best practice recommendations
 - Evaluated ICU standards of care for the ventilated patient
 - Studied the charts of previous VAP patients
 - Investigated RN documentation compliance
- Incorporated components of the Ventilator Bundle
 - HOB >30 degrees
 - PUD Prophylaxis
 - VTE Prophylaxis
 - Daily Wake-Up Assessment
 - Oral Care
- Updated ICU Flow Sheet to include ventilator bundle elements
- Developed ICU VAP data collection tool
- Partnered with Respiratory Care to develop a Respiratory Care VAP data collection tool
- Introduced new endotracheal tube with subglottic suction
- Developed online VAP prevention education for all ICU staff
- Collaborated with Information Technology Department to build Access data base for VAP data entry and report retrieval
- Incorporated chlorhexidine mouth rinse in the oral care protocol
- Updated ICU Oral Care Protocol to include chlorhexidine mouth rinse application prior to patient intubation
- ICU Unit Practice Council assumed ownership of VAP prevention from multidisciplinary ICU VAP Committee



Incidence of VAP in ICU



Monitoring the Change

- ICU RNs are accountable for completing two peer review tools per month for the mechanically ventilated patient
- ICU Quality Rep and UPC members conduct random audits of patient care documentation of ventilated patients
- Quarterly VAP data analysis and action plans discussed at staff meetings
- Chart review of patient who develops VAP focuses on opportunities to improve outcomes
- Standards of care for ventilated patient reviewed with RN during daily ICU multidisciplinary rounds

Future Strategies

- Focus on RN accountability by peer review
- Continual review of new evidence-based standards and protocols for VAP prevention for the mechanically ventilated patient

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