

**Safer Healthcare Now!
interventions**

- AMI - Acute Myocardial Infarction
- CLI - Central-line associated Bloodstream Infections
- Falls - Falls Collaborative in Long-term care
- MedRec - Medication Reconciliation (Acute care and Long-term care)
- MRSA - Antibiotic-resistant organisms (AROs)/Methicillin-resistant *Staphylococcus aureus*
- RRT - Rapid Response Teams
- SSI - Surgical Site Infections
- VAP - Ventilator-associated Pneumonia
- VTE - Venous thromboembolism

Pilot Projects:

- Medication reconciliation in home care
- Prevent adverse drug events related to high-risk medications in paediatrics

Goal

Prevent ventilator-associated pneumonia (VAP) by implementing the four components of care called the "VAP Bundle"

**Background**

- Ventilator-associated pneumonia (VAP) is the leading cause of death among hospital-acquired infections. Hospital mortality of ventilated patients who develop VAP is 46% compared to 32% for ventilated patients who do not develop VAP¹
- VAP prolongs time spent on the ventilator, length of ICU stay and length of hospital stay after discharge from the ICU^{2,3}
- VAP adds an estimated US \$40,000 to a typical hospital admission⁴
- The incentive to reduce VAP is perhaps more on its ability to help decrease ICU and hospital LOS, and therefore, improve access to the system. Prevention of one VAP in the current Canadian Healthcare System could result in a minimum cost saving of \$14,000 per patient⁵

Intervention**Four key components for the VAP Bundle**

1. Elevate the head of the bed to between 30 and 45 degrees
2. Daily "sedation vacation" and assessment of readiness to extubate by performing a spontaneous breathing trial
3. Use oral versus nasal tubes to access the trachea or stomach
4. Use EVAC tubes to drain subglottic secretions

Additional Evidence Based Components of Care

- Hand Hygiene
- Oral Decontamination
- Nutrition

Additional components of quality ventilator care

- Peptic ulcer disease prophylaxis
- Deep venous thrombosis prophylaxis

Compliance with the VAP bundle has been most successful when all elements are executed together as an "all or none" strategy⁵.

¹ Ibrahim EH, et al. Chest 2001; 20(2):555-561.

² Rello J, Ollendorf DA, Oster G, et al. Chest 2002; 22(6): 2115-2121.

³ Heyland D, et al.. Am. J. Respir. Crit. Care Med. 1999; 159: 1249- 1256.

⁴ Tablan OC, et al. Guidelines for preventing health-care-associated pneumonia, 2003: recommendations of CDC and the Healthcare Infection Control Practices Advisory Committee. MMWR Recomm Rep. 2004; 53(RR-3):1-36.

⁵ Canadian Collaborative to Improve Patient Care and Safety in the ICU



Intervention Measures

1. **VAP rate in ICU per 1000 ventilator days**
Goal: Decrease the VAP rate by 50% in one year
2. **VAP bundle compliance rate**
Goal: 95% of all patients on the mechanical ventilation in the intensive care unit(s) receive all four elements of the VAP bundle

Other Resources

Please consult the *Getting Started Kit: Prevention of Ventilator-Associated Pneumonia in Adults. Safer Healthcare Now!* May 2007. <https://communities.saferhealthcarenow.ca/vap>

Success Stories

- The Calgary Health Region, with the support of the Canadian ICU Collaborative, has charged a multidisciplinary critical care team with the responsibility of reducing the incidence of VAP. Several interventions, including a VAP bundle, were utilized and applied across an entire health region. VAP rates have steadily decline over the last 15 months and have been largely under our goal of 9.8 cases/1000 ventilator days. The team's success in lowering VAP has not only provided the momentum for sustained improvement and spread to other areas, but has also resulted in overall improvements in health outcomes and resource utilization within the critical care units.
- Kelowna General Hospital (KGH), participating in the Canadian ICU Collaborative, has implemented a variety of evidence-based prevention strategies to reduce ventilator associated pneumonia (VAP) rates. Over an 18-month period, KGH has achieved more than 80% overall compliance with each VAP prevention strategy and has reduced VAP rates by 25%. This has improved patient care, increased access to ICU critical care beds, and resulted in significant cost savings to the organization.