

# Nursing Time Required for VAP Prevention

## The Problem

- Ventilator associated pneumonia (VAP) is a common healthcare-associated infection, with high attributable morbidity and mortality.
- The Institute for Healthcare Improvement (IHI) Bundle is a widely used prevention strategy introduced in 2005. Elements of the 2005 IHI Bundle include: daily assessment of readiness to wean, daily sedation holiday, elevation of head of the bed, stomach ulcer prevention, and deep vein thrombosis prevention.
- In 2006, to improve patient care, BIDMC implemented its own VAP prevention bundle, which includes all aspects of the IHI Bundle, plus oral care with chlorhexidine.
- Although these strategies are widely in use, no work has established the cost of these bundles in terms of health services utilization or nursing time required.

## Aim/Goal

To determine the nursing resources required for successful implementation of VAP prevention, in order to inform further decision making regarding the most cost-effective strategy.

## The Team

- Westyn Branch-Elliman, MD, Infection Control/Hospital Epidemiology
- Sharon Wright, MD, MPH, Infection Control/Hospital Epidemiology
- Jean Gillis, RN, MS, Critical Care Nursing
- Michael Howell, MD, MPH, Critical Care Quality
- Critical Care Nursing

## The Intervention

We conducted an anonymous, online survey of all critical care nursing staff at BIDMC.

- 119/291 critical care nurses (41%) responded to our survey.
- Critical care nurses from all critical care units responded.
- More than half of the respondents had over 10 years of critical care nursing experience.

## The Results/Progress to Date

Reported Nursing time required for VAP prevention (Minutes per Day)		
	Median	Intraquartile Range
<b>Bundle time*</b>	45	30-62
<b>DVT Prevention</b>	20	10-34
<b>Stomach Ulcer Prevention</b>	30	20-60
<b>Total IHI Bundle Time</b>	95	60-156
<b>Oral Care</b>		
<b>Chlorhexidine Oral Washes</b>	115	74-182
<b>Toothbrushing</b>	20	10-30
<b>Total BIDMC Bundle Time**</b>	210	134-338

\* Bundle time includes assessment of readiness to wean, daily sedation holiday, and elevation of head of the bed.

\*\* BIDMC bundle time includes assessment of readiness to wean, daily sedation holiday, elevation of head of the bed, and chlorhexidine oral care.

- VAP prevention utilized high levels of critical care nursing time.
- 23.5% (28/119) survey respondents reported that time spent on VAP prevention competed with other patient-care tasks, requiring prioritization of other activities, such as: Turning the patient, medication administration, cleaning the patient, and patient and family teaching and support.

## Lessons Learned

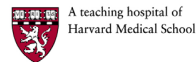
Current strategies of VAP prevention require high levels of critical care nursing resources, and the optimal prevention strategy remains unknown.

## Next Steps/What Should Happen Next

- Our study is a single center study; further investigation is needed to determine how VAP prevention impacts all aspects of intensive care unit care.
- These results provide a critical piece of information regarding ongoing investigation into future VAP prevention strategies, which will include an assessment of approaches not currently in use, such as specialty endotracheal tubes and probiotics.



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