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

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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
Bundle time*	45	30-62
DVT Prevention	20	10-34
Stomach Ulcer Prevention	30	20-60
Total IHI Bundle Time	95	60-156
Oral Care		
Chlorhexidine Oral Washes	115	74-182
Toothbrushing	20	10-30
Total BIDMC Bundle Time**	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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