

# GETTING COMPLIANCE: A RESPIRATORY THERAPY INITIATIVE TO TAKE OWNERSHIP OF ORAL CARE IN CRITICAL CARE SETTINGS

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## ABSTRACT

### BACKGROUND

Ventilator-associated pneumonia (VAP) contributes to increased ventilator days, critical care length of stay, hospital length of stay, costs and mortality. Methodist Dallas Medical Center's (MDMC's) VAP rates were higher than the National Nosocomial Infections Surveillance (NNIS) System mean for the adult ICU (Med/Surg), CCU (Cardiac) and NCCU (Neuro). Although a q2 oral care protocol was in place, compliance was a challenge for nursing staff due to product packaging options and competing staff priorities. Methodist Health System recognized an opportunity for improvement and asked respiratory therapy (RT) to assume ownership of the oral care protocol to improve patient outcomes.

### METHODS

Respiratory therapy adopted a new product packaging configuration along with the oral care protocol in September 2004. Beginning in October 2004, RT monitored compliance with the oral care protocol by reviewing charts and documentation. VAP rates were monitored by infection control staff and NNIS System definitions.

### RESULTS

- For the first two quarters of 2004, VAP rates were above the NNIS System mean for all adult critical care areas.
- RT implemented the oral care protocol during quarter 3, 2004. VAP rates dropped dramatically in quarter 4, 2004, resulting in all unit VAP rates falling significantly below NNIS System mean.
- Data from 2005 continues to demonstrate VAP rates well below the NNIS System mean.
- Respiratory therapists have consistently achieved between 82% to 98% compliance to oral care protocol for 7 consecutive months.

### CONCLUSIONS

- Strict compliance to oral care protocols reduce VAP rates.
- The respiratory therapist's ownership of oral care protocols is beneficial.
- Measured success gives recognition to RT services, validates the importance and necessity of the RT role, and when expanded, ensures enhanced quality outcomes.
- Ease of packaging and accessibility of required equipment enhances compliance.

Presented at the AARC 51st International Respiratory Congress  
San Antonio, Texas • December 3 - 6, 2005

## INTRODUCTION

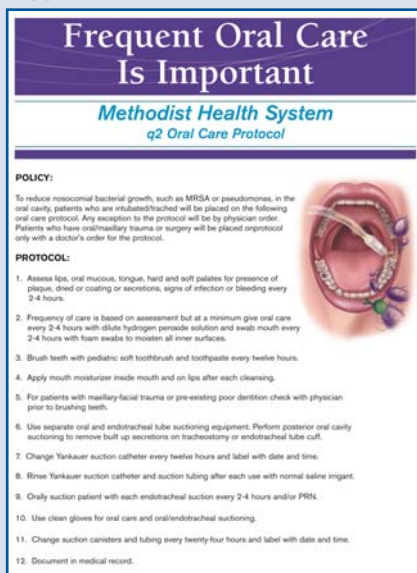
Infections associated with the high tech care patients receive in today's ICU are the focus of many quality improvement and patient safety initiatives. The infection rate for critically ill patients approaches 40% and may be as high as 60% for those who remain in the ICU for more than 5 days.<sup>1</sup> Infections of the respiratory tract account for 30% to 60% of these infections, with ventilator-associated pneumonia (VAP) affecting almost 10% of the patients placed on mechanical ventilation for >24 hours.<sup>1,2</sup> VAP results in an average of 9.6 excess days on mechanical ventilation and 6.1 days longer in the ICU. It can also cost hospitals in excess of \$57,000.<sup>2,3</sup> Therefore, strategies to decrease the risk of VAP can improve patient safety and decrease healthcare costs.

Challenges exist, however, in adopting evidence-based practices. One study demonstrates that although multiple interventions were in place to decrease the VAP rate, significant reductions were not realized until a process was adopted that measured compliance to those interventions.<sup>3</sup>

MDMC is one of the leading teaching and referral centers in Texas with 478 beds and a staff of 75 Respiratory Therapists. The three adult critical care units include ICU (25-bed, Medical/Surgical), CCU (18-bed, Cardiac) and NCCU (17-bed, Neurological Critical Care and Step Down) which care for an average of 39 patients daily. All adult critical care units implemented a VAP prevention bundle in 2003. However, in 2004 benchmarking revealed that MDMC's VAP rates still exceeded NNIS System pooled means for the respective critical care units. Oral care was identified as an area with potential for improvement. Although a comprehensive q2 oral care protocol was in place, compliance was a challenge for nursing staff. RT was asked to assume leadership for this initiative.

## METHODS AND MATERIALS

FIGURE 1



VAP rates are monitored by infection control staff using the CDC's NNIS System definitions and benchmarked against the appropriate ICU type pooled mean. The comprehensive oral care protocol was adopted in March 2004 (Figure 1), with RT accepting ownership in September 2004. RT continued to utilize the same products for oral care, but adopted a new packaging system which contained all tools needed for 24 hours of care and hung on unique bedside compliance brackets for increased accessibility and visibility (Figure 2).

Compliance to the oral care protocol has been monitored since October 2004 utilizing a random sample chart documentation audit of patients each month. While the first variable measured was a minimum of q4 cleansing, monitoring progressed to look at each shift separately (Dec 2004). Finally, compliance audits of q12-hour brushing for each shift was added in March 2005.

FIGURE 2



### HAP & VAP RISK FACTORS, CDC 2004<sup>4</sup>

#### Factors that enhance colonization of oropharynx and/or stomach by microorganisms

- Administration of antimicrobial agents
- Admission to ICU
- Presence of underlying lung disease

#### Conditions requiring prolonged use of mechanical ventilatory support with potential exposure to contaminated devices and/or contact with contaminated/colonized hands, mainly of healthcare workers

#### Conditions favoring aspiration into the respiratory tract or reflux from gastrointestinal tract

- Initial/repeat ET intubation
- Nasogastric (NG) tube
- Supine position
- Coma
- Surgery (head, neck, thorax or upper abdomen)
- Immobilization due to trauma or illness

#### Host factors

- Extremes of age
- Malnutrition
- Severe underlying conditions (ARDS, COPD, immunosuppression)

### MDMC VENTILATOR BUNDLE

- Oral care protocol
- Continuous Spo2 monitoring
- Do not secure nasogastric tube to ET tube
- Lacrilube every 2 hrs. prn if on paralytic medication
- Artificial tears prn if on paralytic medication
- Positioning and mobility: HOB at 30 degrees, turn Q2, OOB to stretcher every \_\_\_\_\_, OOB with weight-bearing transfer to chair every \_\_\_\_\_, other activity \_\_\_\_\_
- VTE prophylaxis
- PUD prophylaxis-famotidine\_\_\_\_\_, sucralfate\_\_\_\_\_. PPI: or proton pump inhibitor
- Sedation hold and weaning-hold sedation early AM per unit routine daily. Assess neuro status, wean assessment by RT in AM daily. If paralytic medication ordered, assess need for paralytic in AM daily; peripheral nerve stimulator train-of-four Q30 min. if on paralytics.
- ARDS protocol

# RESULTS

For January through June 2004, VAP rates for all adult critical care units were above the NNIS System pooled mean for the respective ICU type.

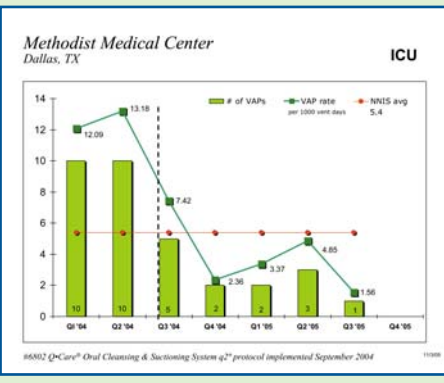
After RT adopted responsibility for the oral care protocol with the compliance-based product packaging, VAP rates dropped dramatically for all the units.

Data from 2005 continues to demonstrate the success and sustainability of the decrease in the VAP infection rate.

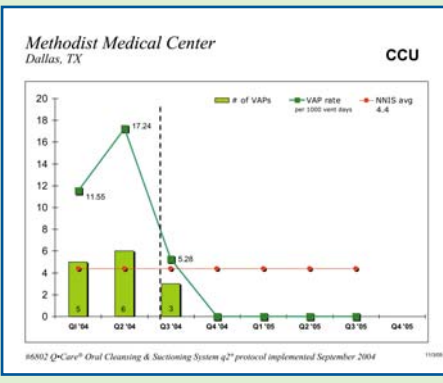
To date, RT continues to maintain compliance to the oral care protocol by more than 90% with progress being demonstrated for individual component of tooth brushing.

## VAP INCIDENCE AND RATE

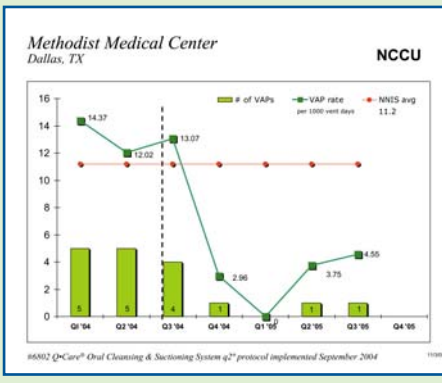
GRAPH 1



GRAPH 2



GRAPH 3



## CONCLUSION

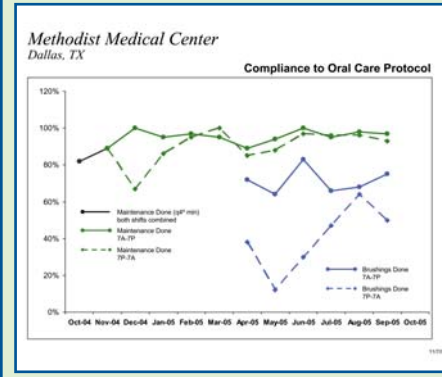
Strict compliance with a comprehensive oral care protocol resulted in a reduction of VAP rates for all adult critical care units. Monitoring this compliance and sharing this information with the staff was integral in generating awareness and maintaining the high level of care patients received.

The logical layout of the product packaging and the ability to hang the product bedside on the compliance brackets facilitated convenience for use of the oral care tools.

RT was able to lead this critical care intervention and achieve improved patient safety for the benefit of our patients and institution. This was not accomplished, however, without some resistance initially from the staff. The therapists were concerned about the impact of an increased workload, the work atmosphere that would be created by the compliance monitoring, and appropriate recognition for their hard work. In actuality, administration has publicly recognized the efforts and success of this initiative in employee forums and leadership meetings. The staff are very proud that they have been able to make such a difference for their patients with something that has been relatively easy to achieve.

## COMPLIANCE

GRAPH 4



## REFERENCES

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## ACKNOWLEDGEMENTS

The authors would like to acknowledge the RT staff of Methodist Dallas Medical Center for their dedication to patient care outcomes and Sage Products Inc. for assistance in the preparation of this poster.