

# RESPIRATORY INFECTION PREVENTION FOR VENTILATED AND TRACHEOTOMY RESIDENTS OF A LONG-TERM CARE FACILITY



Martha Harris, BS, M(ASCP), CIC  
Maryellen Coale, RN

Inova Cameron Glen (Inova Health Systems)

## BACKGROUND

Each of the residents on the Inova Transitional Care (ITC<sup>1</sup>) unit of this 173-bed, long-term care (LTC) facility in Virginia has an unique, tragic story: car accident, gunshot wounds, or medical mistakes that necessitated the need for intubation. Most had prolonged hospital stays with multiple life saving procedures. As a result, many residents come to this facility with a long history of healthcare-associated infections (HAIs). In 2008, as part of a facility-wide infection reduction program, attention was focused on the Ventilator-Associated Pneumonia (VAP) and Respiratory Infection (RI) rate on the ITC unit. Many of the residents had been admitted with pre-existing recurrent infections.

The cost associated with each episode of either VAP or RI is difficult to capture because it must include data on the cost of antibiotics, transferring the resident to a higher level of care for medical intervention, etc. It has been reported that the cost associated with VAP ranges from \$10,000 - \$40,000.<sup>2</sup>

The 2009 APIC Guide to the Elimination of Ventilator-Associated Pneumonia discusses the importance of mouth care as a way to reduce respiratory infections in this population:

*"HICPAC recommends the development and implementation of a comprehensive oral hygiene program, potentially with the inclusion of an antiseptic agent, for settings where patients are at risk for HAP...Oral suctioning prevents oral secretions from pooling, and tooth brushing removes the plaque that promotes bacterial growth. ...Strong studies have demonstrated VAP reduction when institutions have added a comprehensive oral-dental care program as components to their bundle..."*

## OBJECTIVES

The facility did not have a routine oral care program for its residents, and it was decided that the development of such a program would improve the clinical outcomes of the facility's residents. In an effort to reduce the incidence of VAP and RI, the clinicians set out to review the available infection prevention literature. Realizing that nothing in infection control can happen in a vacuum, all of the data regarding possible interventions (e.g. infection rates, estimated cost, medical evidence) were presented to facility administration and the medical director.

*As a group, Infection Prevention and Control investigated comprehensive oral care as a method to reduce infections on the ITC unit. The goal was to decrease the overall RI rate by 50%.*

## COMPREHENSIVE ORAL CARE BUNDLE PILOT PREVENTION PROGRAM

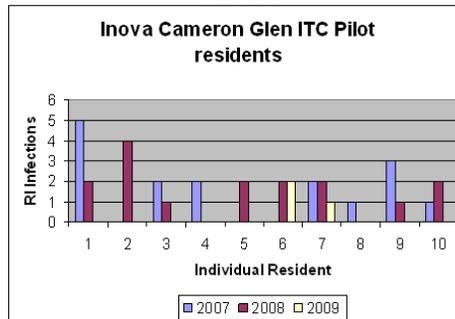
A comprehensive oral care bundle intervention pilot program was initiated based on the IHI VAP bundle oral care system. This bundle included suctioning and cleansing every four hours on all tracheotomy and ventilated patients.

A multidisciplinary focus group, including nursing leadership, respiratory therapy and educators, was organized and goals were set. It was very important that from the very beginning the planning process included all areas of the staff that would be involved in implementation of the new program. Many of the insights voiced during the initial meeting helped alleviate pit falls once the pilot program began.

Each of the different leaders set measurable goals and an implementation time table for their department. Infection Prevention and Control set a goal of 50% reduction in RI. Respiratory Therapists and Nursing set a goal of 100% resident compliance with the oral care bundle.

Staff, residents and family members were educated on the importance of oral care and the oral care bundle that was to be implemented. Before and after in-servicing, staff were given tests to measure their knowledge of the importance of oral care. Each staff member had to demonstrate competency in the use of the bundle components and knowledge of basic oral care for: 1) the mechanically-ventilated resident; 2) the unconscious and high-risk resident; and, 3) the unconscious resident. Competency assessment included demonstrations of: 1) standard infection control precautions; 2) inspection of the oral cavity; 3) correct positioning of the resident's head; and, 4) correct use of the oral care product.

FIGURE 1



## RESULTS

*The effort of time and additional care resulted in greatly improved resident outcomes.*

The comprehensive oral care bundle intervention program was piloted in October 2008. Many residents immediately noted improvements in terms of cleanliness and comfort. Oral care data was distributed to the entire team on a monthly basis. Both resident and staff compliance data were reported, as well as RI infections. Compliance data was kept on a daily basis, ensuring that the residents received their oral care on time.

Since implementation, with few exceptions, the compliance rate has been 85% or higher. The original group of 13 residents included in this program had 16 documented RI infections in years 2007 and 2008. In 2009, these same residents had 3 RI infections. Overall, a **61% reduction** in RI was seen for the entire ITC unit, exceeding the original goal of 50%. (Figure 1 shows the change in number of respiratory infections for years 2007-2009.)

## DISCUSSION

In the long-term care system, successes are usually small while challenges are great. The implementation and success of the oral care program is a result of the collaborative efforts of nursing, respiratory therapists, infection prevention and control, administration, and the residents and their families. The team faced several challenges to the overall success of the program. One major challenge is that many residents do not have access to dental care, and may have damaged or missing teeth. Another challenge is that some of the residents objected to being woken in the middle of the night for their q4 oral care regimen. Out of respect for their rights and comfort, schedules were reduced to morning, noon, and night.

Implementation of the oral care bundle resulted in improved clinical outcomes. Further, the facility realized cost savings, especially with regard to the reduction in antibiotics and fewer hospital transfers. A standardized oral care program has since been instituted throughout the facility in the hopes of continued success in reducing infections.

### COMPREHENSIVE ORAL CARE BUNDLE

- q4 oral care cleansing & suctioning<sup>3</sup>
- All tracheotomy & ventilated patients
- Multidisciplinary clinical group of educators, staff, family, & patients



### REFERENCES

1. May be referred to as ITC, IT, or TC
2. The new APIC Guide to the Elimination of Ventilator-Associated Pneumonia (page 9) found that in hospital, "Increased costs associated with VAP were dependent on the length of stay, with a range of approximately \$10,000 to \$40,000."
3. Sage q4<sup>®</sup> Oral Cleansing and Suctioning System with Thumb Port Tools, #6414