

ICP *report*TM

Infection Control and Prevention Across the Continuum of Care

New Oral Care Routine Eliminates VAP at Florida Hospital

In October 2002, hospital epidemiologist **Ava Dobin**, CIC, noticed a disturbing trend among patients in the intensive care unit at Coral Springs Medical Center in Coral Springs, FL. Almost twice as many cases of developed ventilator-associated pneumonia (VAP) had been reported in the first 10 months of that year as were reported in 2001.

To many ICPs, 22 cases of VAP over a 10-month period might not be alarming. Many facilities don't perform surveillance for the condition, though estimates from the Centers for Disease Control and Prevention put the incidence of VAP among ventilator patients between 10 and 65 percent.¹ However, Coral Springs had only had 13 cases of VAP in its 16-bed ICU in the entire previous year.

"I have always followed VAP. It is part of my surveillance and it was one of the things my infection control committee wanted me to report on," Dobin explains. "We have data going back to the opening of the hospital in 1987. We looked from 2001 and we knew we were seeing an alarming increase in 2002. We had pretty much doubled the cases and the patient population had not changed."

Ventilator-associated pneumonia is defined as nosocomial pneumonia in patients who have been receiving mechanical ventilation for at least 48 hours. VAP is most accurately diagnosed by quantitative culture and microscopic examination of lower respiratory tract secretions.²

According to the CDC, patients receiving mechanical ventilation have 6-21 times the risk of developing nosocomial pneumonia compared to patients not receiving ventilation. The occurrence of VAP increases mortality rates in ventilator patients by as much as 20-50 percent.¹ Data published in the journal *Chest* indicate that VAP increases costs by more than \$40,000 per patient.³

The increase in cases prompted the hospital to convene an interdisciplinary team composed of representatives from critical care nursing, infection control, quality control, the chair of infectious diseases, and the respiratory therapists.

The team began researching the literature for strategies to combat development of VAP. The respiratory therapists changed their endotracheal tube suctioning techniques and implemented a closed-system suction device, which the unit's nurses change every 24 hours. Physicians also reviewed the antibiotic regimen and nurses became more proactive about obtaining physician orders for sputum cultures in ventilated patients. But, all of these efforts seemed to have little effect. Then, the critical care nurses proposed implementing a new oral care regimen.

Mouth care is key

Previously, there was no standard protocol for oral care for ventilator patients, explains **Janette Moss**, RN, MSN, regional nurse manager for critical care at Coral Springs.

Critical care nurses frequently have their own procedure for performing oral care, she says. "I can remember doing care over the last 20 years and I would usually take some peroxide or water and a swab and brush the inside of the patient's mouth and then suction it out with tonsil suction." The tonsil suction, she adds, was usually kept under the patient's pillow and hooked to tubing that was connected to the suction regulator, she adds. "That is the way I used to do care, but many nurses would do things different ways."

Almost no one was in the habit of brushing ventilator patients' teeth, she says, until the literature review performed by the nurses on the intervention team indicated that they needed to be doing this. "Brushing teeth was never normal practice," she explains. "Access to the teeth is difficult, patients have a tube in their mouth and tape around the mouth, so access to the oral cavity is very difficult. But, once we read the articles we learned that plaque buildup can be a problem, even though the patients aren't eating anything."

Choosing a system

After trialing different products, the nurses chose to universally implement Sage Products' Toothette® Oral Care program. The nurses liked that product because it featured a sodium bicarbonate-impregnated soft toothbrush. The soft brush was easier to use on patients' mouths. The tonsil suction device used with that program also featured a cover that is placed over the tip of the suction device when it

is not in use—this prevents contamination of the tip.

The packaging of the product was also important, she adds. "They package it so that you get everything you need for one patient for 24 hours in one package. It tells you to brush the teeth in the morning, do a swab cleaning at lunchtime, and brush the teeth again before dinner," she explains. "The packaging lends itself to compliance because the nurse can pick up one packet, bring it into the room, and she/he's set. No need to keep going back and forth to get things needed at different times of the day."

Cases drop to zero

Once the system was implemented, the hospital saw immediate results, says Dobin. "By December we were at zero cases and we remained that way through January and February," she says. "We did have one outlier in March because we had one long-term ventilated patient that we could not take off the vent. By April, we were back to zero and we have continued to remain at zero cases through November 30 of this year."

The nurses follow the oral care program religiously after having such good results, she says. "We were floored by what we were seeing," she says. "The more positive the results, the more excited everyone became about this."

The intervention also demonstrates that small facilities can do big things in terms of improving patient care and patient safety, Dobin adds.

Subscriber Information

Customer Service: (800) 249-5770 or (678) 366-7933 Fax: (770) 500-1316

Subscriptions: \$249 for one year (12 issues). In Georgia, please add state sales tax. Canadian orders add \$10 plus GST. All other international orders add \$20. Single issues (when available) \$18. **Bulk Rates:** First subscription at \$249. Two - five additional copies at \$89 each.

ICP Report™ (ISSN 1090-7998) is published monthly by RSJ Communications 305 Windlake Court, Alpharetta, GA 30022. Phone (800) 249-5770 or (678) 366-7933. Publisher: Shirley Williford

Editor: Catherine Harris e-mail: cathiharris@earthlink.net

ICP Report™ is independent and not affiliated with any organization, pharmaceutical firm, or medical device manufacturer. Opinions expressed are not necessarily those of this publication or its Editorial Advisory Board. All comments are for general guidance only: professional counsel should be sought for specific situations.

©2004 by RSJ Communications

Photocopying: RSJ Communications grants each paid subscriber limited copying privileges for educational distribution within your facility or program. Commercial distribution to promote any product or service is strictly prohibited.

Coral Springs is the smallest hospital in the four-hospital, 40-facility North Broward Hospital District and the new oral care program is now being implemented district-wide. In addition, JCAHO has notified the hospital during a recent survey that they intend to recommend its program as a best practice for other hospitals.

“I think we have now proven what a lot of the research has been saying,” Dobin says. “Many hospitals don’t do surveillance on VAP. Like urinary tract infections, people tend to think that if you’re in a hospital and you have a Foley catheter, you are going to get [a UTI]. It’s the same with VAP, just because a person is on a ventilator doesn’t mean pneumonia should be accepted.”

Based on the 22 cases seen by the hospital in 2002, Dobin and Moss estimate the hospital saves \$880,000 per year preventing VAP because prevention lowers costs for patient length-of-stay and additional use of antibiotics and other treatments.

“VAP does increase the cost tremendously, and the administration loves it that this program has worked so well,” Dobin says. “But, the most important thing is that we have improved patient care—the patients are much happier, their stay is shorter in the ICU and the families are happy. And, the staff is happy because they feel so successful.”

References

1. Tablan OC, Anderson LJ, Arden NH, et al. for the Centers for Disease

Control and Prevention. Guideline for the Prevention of Nosocomial Pneumonia, 1994. *Resp Care* 1994;39:1191-1236.

2. Mayhall CG. Ventilator-associated pneumonia or not? Contemporary diagnosis. *Emerg Infect Dis* 2001;7:200-204.

3. Rello J, Ollendorf DA, Oster G, et al. Epidemiology and outcomes of ventilator-associated pneumonia in a large U.S. database. *Chest* 2002;22:2115-2121. ❖

Coral Springs Medical Center – Sage Oral Care Protocol

Protocols

1. The oral cavity is assessed initially and daily by the registered nurse.
2. Unconscious or intubated patients are provided oral care 2 to 3 times a day and more often if necessary.
3. Intubated patients are assessed to determine the need for removal of oropharyngeal secretions as needed as well as prior to repositioning the tube or deflation of the cuff.

Procedure

1. Set up equipment.
2. Position patient’s head to the side or place in semi-fowlers.
3. Provide deep suction, as needed, in intubated patients to remove oropharyngeal secretions that can migrate down the tube and settle on top of the cuff.
4. Brush teeth using suction toothbrush and small amounts of water and alcohol free antiseptic oral rinse.
 - Brush for approximately one to two minutes.
 - Exert gentle pressure while moving in short horizontal or circular strokes.
5. Gently brush the surface of the tongue.
6. Use suction swab to clean the teeth and tongue if brushing causes discomfort or bleeding.
 - Place swab perpendicular to gum line, applying gentle mechanical action for one to two minutes.
 - Turn swab in clockwise rotation to remove mucus and debris. Apply mouth moisturizer inside mouth.
7. Apply lip balm if needed. ❖