

Unity Health System Saves \$360,000, Reduces VAP Rates Through Oral Care

At A Glance

Nurses at Unity Health System, a community teaching hospital, were conducting basic oral care on patients in the hospital's intensive care and medical/surgical units; however, the hospital had a ventilator-associated pneumonia (VAP) rate above the Centers for Disease Control and Prevention's National Nosocomial Infection Surveillance (NNIS) System VAP benchmark and nurses knew there was room for improvement.

Since joining the hospital in 1997, Ruth Curchoe, RN, MSN, CIC, director of infection control at Unity, had been following the hospital's VAP rates. In 2001, Curchoe began investigating ways to reduce the hospital's rates.

By addressing risk factors for VAP through increased education and implementation of a comprehensive oral care program, the hospital's VAP rate dropped from 18.1 cases per 1000 vent days to an average of 7.5 cases, representing a savings of \$360,000.

The Story

Unity Health System, located in Rochester, N.Y., is a 240-bed community teaching hospital that offers specialty services in AIDS & HIV care, cancer care, dialysis, mental health and weight management services. The hospital has a 20-bed medical/surgical intensive care unit.

In Q4 2001, Curchoe began investigating ways to reduce the VAP rates in the intensive care unit. At the time, the hospital's VAP rate was 18.1 cases per 1000 ventilator days.

"Because I had been following VAP rates since 1997, I had a good idea of what our rates should be," said Curchoe. "We were over the NNIS benchmark and I knew we could change that. We just needed to determine where to start."

A multidisciplinary group of physicians, nurses and respiratory therapists was assembled to conduct a literature review and identify the risk factors for VAP. Once the review was complete, Curchoe compared the group's findings with Unity's formal and informal processes and procedures. The comparison revealed that Unity needed to improve the elevation of the patient's head and oral care.

Getting the Head Up

Curchoe first addressed the issue of keeping the patient's head elevated at 30 degrees. She surveyed ICU staff to determine pre-existing knowledge about head-of-bed elevation levels and found that while the staff was aware that keeping a patient's head above 30 degrees could reduce the risk of VAP, they were unsure of how to identify if the bed was at the proper height.

Unity added a protractor-like device to all beds that alerts staff when the head of the bed reaches 30 degrees. In addition, each patient room includes a laminated poster to remind the nurses and physicians to keep the head-of-bed in the proper position.

"Once we made it easy for the staff to tell how high the head-of-bed was, it was like a light bulb went on," said Curchoe. "I had no problem getting the staff to comply."

Keeping the Mouth Clean

After Curchoe saw that each patient's head-of-bed was consistently at 30 degrees, she addressed oral care. Curchoe first reviewed the hospital's existing oral care protocol. At the time, Unity was

using Sage's Toothette® Suction Swabs and Covered Yankauer products to clean patients' mouths; however, the hospital wanted to expand the oral care products they were using to encompass all aspects of oral care.

Unity's value analysis team reviewed Sage's Toothette® Q-Care® Oral Cleansing and Suctioning System for implementation. In Q4 2002, the hospital conducted a one-month trial and saw an improvement in the condition of patients' mouths. The value analysis team approved the products for permanent use.

"Our value analysis team saw that the products were working," said Curchoe. "During the trial, our rate dropped from 12 VAP cases to 6.8 cases per 1000 ventilator days."

Once the products were approved for implementation, in-service trainings were conducted to educate staff about proper oral care. Oral care educational posters were posted in each patient room, and all staff was shown how to correctly use Sage's system and tools.

Compliance

Through her daily rounds in the intensive care unit, Curchoe and the unit's clinicians were able to monitor staff compliance and found that the staff was using the new oral care products.

"I am able to keep tabs on what the staff is doing through my data entry," said Curchoe. "The database keeps track of when the patient went on and off the ventilator, what products were used and if VAP was identified. Looking back, since implementation, staff has consistently used the new oral care system and product use has really made a difference."

Seeing Steady Results

Once Unity addressed the two risk factors for VAP it identified for improvement, head-of-bed elevation and oral care, results were forthcoming. Elevating the head-of-bed reduced VAP rates from 18.1 cases to 12.0 cases per 1000 ventilator days and implementing a comprehensive oral care program reduced VAP rates even further. Since Q3 2003, Unity's VAP rate has averaged 7.5 cases per 1000 ventilator days.

Through the literature review, Curchoe found that each case of VAP can cost a hospital as much as \$40,000 to treat. Using that figure, Curchoe estimates that by raising the head-of-bed to 30 degrees and by implementing a comprehensive oral care program, Unity saved approximately \$360,000 from June 2002 through Q3 2003.

Unity Health System includes the following steps in its comprehensive oral care protocol:

- Examine oral cavity and identify condition of:
 - Teeth and presence of plaque
 - Denture plate when removed from the mouth
 - Gums
 - Tongue - hard and soft palate (check for dried coating or secretions)
- Examine lips and identify integrity of their condition.
- Frequency of care is based on initial assessments:
 - High risk - brush teeth routinely q12 hrs./PRN; initiate mouth care q2-4 hrs./PRN
 - Low risk - brush teeth routinely q12 hrs. /PRN; swab mouth routinely q4-8 hrs.
- For trached or intubated patients, care provided by staff q4 hrs.
 - Change Y-Connector, tubing, Suction Handle and Covered Yankauer every 24 hrs.
 - Oral care, including oropharyngeal suctioning (deep in back of throat) is performed q4

hrs. /PRN.

- Brush teeth AM and PM with Perox-A-Mint[®] solution.
- Apply mouth moisturizer as directed to soothe and hydrate lips and oral tissue.
- Oral care between brushing with swab and Perox-A-Mint solution.
 - Clean mouth for approximately one minute.