

Vanderbilt University Medical Center Improves VAP Rates in SICU through Oral care

Nashville, TN - At a Glance

From 1999 to 2001 ventilator-associated pneumonia (VAP) rates in Vanderbilt University Medical Center's surgical intensive care unit (SICU) were climbing steadily. At that time, the Centers for Disease Control and Prevention's National Nosocomial Infection Surveillance System VAP benchmark for comparable surgical intensive care units was 13.4 cases per 1000 device days. But the leadership of the SICU ultimately wanted to eliminate VAP, and in January 2002, the SICU implemented a comprehensive oral care protocol as part of an overall program.

Within months Vanderbilt began experiencing a drop in VAP rates. In a two-year period, VAP rates were reduced by 46 percent. Comparing 2001 to 2002, the rate decreased by 35 percent and another 18 percent between 2002 and 2003.

"This was a tremendous improvement for us," said Devin Carr, MSN, RN, APRN, BC, CCRN, RRT, assistant manager, SICU. "Our unit had come close to the national benchmark for VAP rates, but we were never able to consistently remain at or below the benchmark."

Vanderbilt attributes their accomplishments to the implementation of an extensive and consistent oral care program.

Working to Reduce VAP

Vanderbilt University Medical Center in Nashville, Tenn., a comprehensive health care facility and major patient referral center for the Mid-South, also is a foremost educational facility for health care professionals. The 658-bed facility offers a Level 1 trauma center and a Level 3 neonatal intensive care unit. The medical center features six adult intensive care units and two pediatric ICUs. In 2003, the surgical intensive care unit (SICU) reported a total of 2,753 vent days.

In October 2001, SICU staff began a review process of its administrative and clinical processes, including a review of its VAP rates, which had traditionally been high. The unit's VAP rates were two to three times the NNIS benchmark, and it did not have a standardized process for oral care. Because studies suggest that reducing bacteria in the oral cavity helps reduce the risk of nosocomial infections, the SICU team decided to start with implementing a standardized oral care program. After reviewing different products, staff in the SICU selected Sage Products' Toothette® Oral Care. The kit contains a covered yankauer, suction toothbrushes suction oral swabs, oropharyngeal catheters, cleansing solutions and mouth moisturizer.

"Because medical and nursing literature on oral care and VAP reduction did not set a best practice at that time, we decided to set a two-hour protocol as a start," said Carr. The protocol was based on a comprehensive review of the literature suggesting a frequency ranging from every two to four hours.

There were financial reasons for implementing a formal oral care program as well. According to the CDC, nosocomial bacterial pneumonia increases mortality rates between 20 percent and 50 percent. The estimated incidence of VAP in intensive care units ranges from 10 percent to 65 percent. Research reported in *Clinical Investigations in Critical Care* says that VAP can increase costs by more than \$40,000 per patient compared to patients without VAP.

"When we presented the data about the high cost of VAP treatment versus the cost of oral care, our Value Analysis Committee was pretty quick to see the cost savings and clinical improvement," said Carr. "It meant increasing the cost per patient day, but when compared to the costs associated with VAP treatment or increased mortality risk, the numbers prove the case."

Implementing Oral Care

Nursing assistants, also called care partners, began routine oral care which included brushing teeth and oral swabbing every two hours. The care partners and nurses documented the care they delivered. Nurses were responsible for oral assessment, hypopharyngeal suctioning, and any other interventions performed including brushing and swabbing in the absence of a care partner. Hypopharyngeal suctioning was performed at least every six hours and prior to deflating the endotracheal tube cuff, repositioning the tube, or major repositioning of the patient. The entire oral care kit was used within a 24-hour period.

By January 2002, the SICU had fully implemented its oral care protocol and was in the midst of educating nursing staff about the necessity and benefits of oral care. From February through August the unit collected data and conducted ongoing education.

Partnership

"Working with Sage has been a positive experience. They are very helpful and consistently provide scientific foundation for everything they offer." said Carr. "When our nursing staff expressed dissatisfaction with certain components of the oral care products, Sage was quick to listen to our comments and redesign certain elements."

In 2002, the CDC announced that it would be changing the NNIS VAP guidelines and diagnostic criteria for VAP, in which data needed to be collected in order to have sufficient data to calculate a new benchmark. Vanderbilt contacted Sage for a complete 24-hour oral care kit to help ensure complete oral care was administered to patients on a daily basis. Sage created a new kit with tear-off packets to hang near each patient's bedside. The kit, Toothette Oral Care, Q-Care® System, was designed to be easy-to-use and clinician-friendly and contained items for a complete 24-hour oral program. The kit is now widely used by Sage customers.

"We use about 100 kits per month," adds Carr. "Our nurses wanted easy access to supplies, and the bedside kit demonstrates that Sage is very receptive."

Sage works with hospitals to provide educational materials, such as in-service posters, and Sage representatives provided in-services to staff. Some resistance came from the nursing staff, who felt they did not have time for oral care.

"The key was to show nursing staff that not performing oral care results in more time if a patient acquires VAP," said Carr. Once nurses understood the benefits of oral care and accepted the products, support for the new protocol was uniform.

The success of the SICU oral care program has prompted other intensive care units at Vanderbilt to implement a comprehensive oral care protocol.

This study was performed independently of Sage Products. Sage Products has reviewed its content and supports its dissemination.