

# Ventilator-Associated Pneumonia Prevention

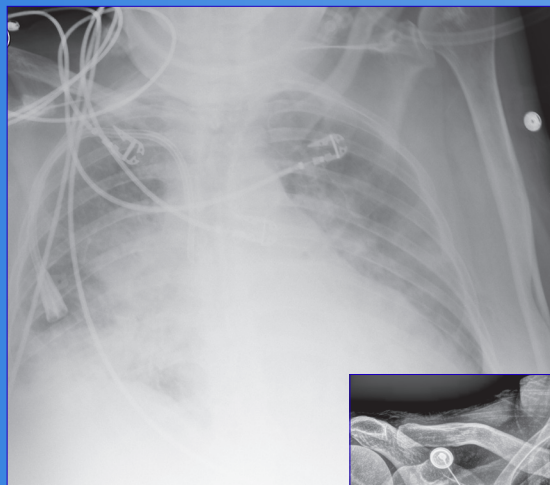
## How Oral Care Helps Reduce VAP Rates

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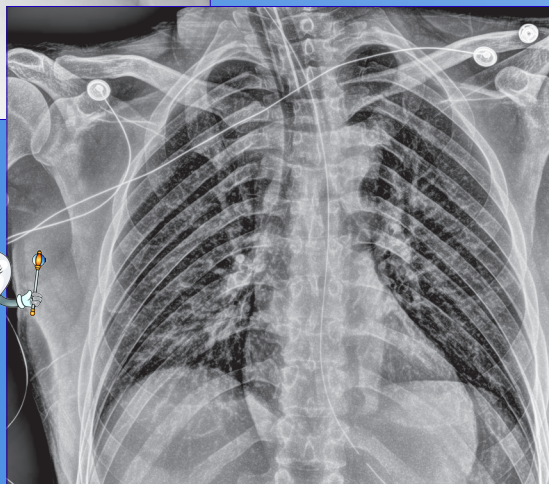
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### Purpose

- Ventilator-associated pneumonia (VAP) is a nosocomial infection defined as a pneumonia arising more than 48 hours after endotracheal intubation and the initiation of mechanical ventilation.<sup>1</sup>
- VAP has an in-hospital mortality rate as high as 50%<sup>2</sup> and increases hospital length of stay by as much 13 days per patient, with an estimated cost of up to \$40,000 per case.<sup>3</sup>
- After an increase in our VAP rates, the ICU Practice Council initiated a new VAP prevention protocol in an effort to achieve best practice.



X-ray of VAP



VAP prevented with oral care



### Sage Products Kit

- Non-Invasive Positive Pressure Ventilation (NIPPV) before intubation, so we extended our Q2H oral care regimen to the NIPPV patients.
- Staff was educated on the new policy with a bulletin board on VAP prevention, laminated cards attached to all ventilators, and the addition of Q2H oral care to our existing ventilator pathways.



### Oral care equipment in use

### Description

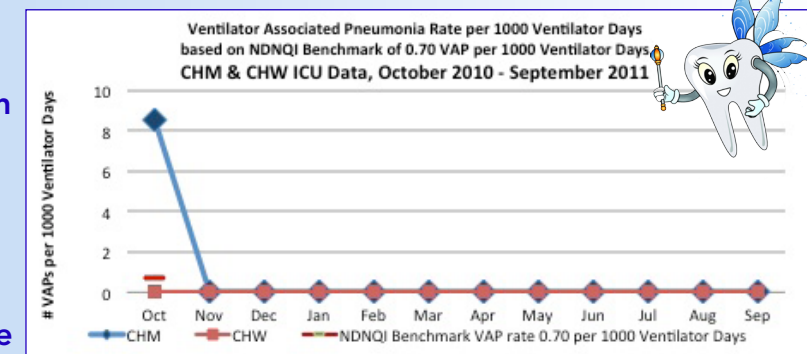
- Best practice shows a strong correlation between oral care and VAP. Our new VAP prevention protocol increased oral care from Q4H to Q2H.
- We collaborated with Sage Products who designed a kit with 24 hours of oral care equipment including 2 suction brushes & 10 suction swabs, 4 deep-oral suction catheters and a Yankauer suction. The kits were hung on the wall daily at midnight and the Yankauer suction was replaced.
- Each swab is labeled with the time to be used, so that it is visible to staff who enter the room that the scheduled oral care has been completed. During bedside report nurses were able to see the number of oral care swabs remaining and hold each other accountable to maintain best practice. Tracking of remaining swabs was done to ensure compliance.

- Several months into the new program, we had two incidents of VAP. A pulmonologist, Dr. Firas Dairi, noted that both of the affected patients had been on



### Evaluation and outcomes

- In the year before the initiation of our protocol (FY 2009), we had 9 incidents of VAP with a rate of 3.48%. We started the new procedures in January 2010, the second quarter of the year. In that first year, we experienced a modest drop in our VAP rates, to a total of 7 cases or 3.12%.
- It was during this time that the association between NIPPV and VAP was observed leading to a second change in protocol. In the first full year since the initiation of the protocol, our unit had only 2 cases of VAP, or 1.14%.
- This represents a dramatic decrease in the incidents of VAP on our unit, demonstrating a successful change in our best practice. We continue to monitor to reach a goal of zero VAPs.



**References:** 1. Centers for Disease Control. Ventilator-associated Pneumonia (VAP) Event. Available at: <http://www.cdc.gov/nhsn/PDFs/pscManual/6pscVAPcurrent.pdf>. Accessibility verified April 18, 2012. 2. Tamayo E, Álvarez F, Gómez-Herreras J, et al. Ventilator-associated pneumonia is an important risk factor for mortality after major cardiac surgery. Journal Of Critical Care [serial online]. February 2012;27(1):18-25. Available from: CINAHL Plus with Full Text, Ipswich, MA. Accessed April 18, 2012. 3. Kollef M, Hamilton C, Ernst F. Economic impact of ventilator-associated pneumonia in a large matched cohort. Infection Control & Hospital Epidemiology [serial online]. March 2012;33(3):250-256. Available from: CINAHL Plus with Full Text, Ipswich, MA. Accessed April 18, 2012.