

AACN Practice Alert

Oral Care for Acutely and Critically Ill Patients

Scope and Impact of the Problem

Nurse-administered oral hygiene is considered to be an important intervention in acutely ill hospitalized patients who cannot provide their own oral care. Oral care provides patients' comfort, reduces dental plaque and mucosal inflammation, and promotes oral health. The prevalence of hospital-acquired infection is a significant concern in acutely and critically ill patients; in combination with other strategies, oral hygiene can contribute to the prevention of ventilator-associated pneumonia (VAP) in intubated patients.

Expected Nursing Practice

1. Develop and implement a comprehensive oral hygiene program for patients in critical care and acute care settings, including both intubated patients who are at high risk for ventilator-associated complications, including VAP, and nonintubated patients.
 - a. Brush teeth, gums, and tongue at least twice a day using a soft, compact head (pediatric or adult) toothbrush. [level E]
 - b. Provide oral moisturizing to oral mucosa and lips every 2 to 4 hours. [level E]
 - c. Use an oral chlorhexidine gluconate (0.12%) rinse twice a day in intubated patients to reduce risk of VAP. [level A]

AACN Levels of Evidence

- Level A** Meta-analysis of quantitative studies or metasynthesis of qualitative studies with results that consistently support a specific action, intervention, or treatment (including systematic review of randomized controlled trials)
- Level B** Well-designed, controlled studies with results that consistently support a specific action, intervention, or treatment
- Level C** Qualitative studies, descriptive or correlational studies, integrative reviews, systematic reviews, or randomized controlled trials with inconsistent results
- Level D** Peer-reviewed professional and organizational standards with the support of clinical study recommendations
- Level E** Multiple case reports, theory-based evidence from expert opinions, or peer-reviewed professional organizational standards without clinical studies to support recommendations
- Level M** Manufacturer's recommendations only

- d. There is no recommendation for routine use of oral chlorhexidine gluconate (0.12%) in nonintubated patients at this time.

Supporting Evidence

1. Colonization of the oropharynx is a critical factor in the development of nosocomial pneumonia.¹ Growth of potentially pathogenic bacteria in dental plaque provides a nidus of infection for microorganisms that are responsible for the development of VAP.²⁻⁵ Dental plaque provides a microhabitat for organisms and provides opportunity for adherence either to the tooth surface or to other microorganisms. These microorganisms in the mouth translocate and colonize the lung, which can result in VAP.^{4,6}



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2. The use of an oral care protocol (including brushing with a soft compact head toothbrush, mouthwash, and moisturizing gel) reduces oral inflammation and improves oral health.⁷⁻⁹
 - a. In addition to brushing with a soft, compact head (pediatric or adult) toothbrush, providing oral moisturizing to oral mucosa and lips every 2 to 4 hours is often a component of oral care protocols.
 - b. No data are available to support an optimal frequency of toothbrushing in critically ill patients; however, the American Dental Association recommends that healthy people brush teeth twice daily to remove plaque from all tooth surfaces.¹⁰
 3. Toothbrushing controls dental plaque accumulation, maintains oral mucosal integrity, and reduces oral inflammation and gingivitis. These benefits may further promote patients' comfort and satisfaction. Toothbrushing alone has failed to prevent VAP in several randomized clinical trials,^{1,11-14} and meta-analyses have not shown toothbrushing to be effective in preventing VAP.¹⁵⁻¹⁷
 - a. Many studies of oral care protocols have combined toothbrushing with chlorhexidine or as part of a care bundle, making the contribution of the toothbrushing component difficult to determine.
 - b. Power toothbrushes also have not been effective in preventing VAP.^{13,18}
 - c. No data are available to support an optimal frequency of toothbrushing in intubated patients; studies are in process.
 4. Chlorhexidine oral rinse is recommended to reduce risk of VAP in intubated patients.
 - a. Chlorhexidine is a prescription product that reduces microbial colonization and is used in healthy adults to treat gum disease (gingivitis and periodontitis).
 - b. Chlorhexidine gluconate 0.12% oral rinse is the only oral formulation approved by the Food and Drug Administration (FDA) for use in the United States; stronger formulations (0.2%) are available elsewhere. Twice-daily administration is the only administration frequency approved by the FDA.
 - c. Research showed that chlorhexidine reduced respiratory infections in cardiac surgery patients who rinsed with chlorhexidine before intubation and continued to receive it post-operatively.¹⁹ Other studies showed reduction of VAP in other critically ill, intubated adult patients.^{1,14,20,21} Several meta-analyses concluded that oral application of chlorhexidine in intubated adult patients reduced incidence of VAP,^{11,22,23} although chlorhexidine had no effect on length of stay, duration of mechanical ventilation, or mortality rates. A recent meta-analysis reported that the benefit was most apparent in cardiac surgery patients.²⁴
 - d. The Institute for Healthcare Improvement added a recommendation for daily oral care with chlorhexidine to its ventilator bundle in May 2010, and a 2013 Cochrane review concluded that use of chlorhexidine resulted in a 40% reduction in risk for VAP.²³
 - e. Data are not available about the effect of chlorhexidine on ventilator-associated complications, or on its use in nonintubated critically ill patients.
5. Additional large, well-controlled clinical trials of oral care in acute and critically ill patients are needed, particularly in nonintubated patients and pediatric patients. Additional evidence is needed in the following areas:
 - a. Optimal frequency of toothbrushing in patients receiving mechanical ventilation
 - b. Effects of chlorhexidine on ventilator-associated complications
 - c. Oral care for nonintubated patients
 - d. Neonatal and pediatric oral care

Implementation/Organizational Support for Practice

Ensure that your unit has written practice documents such as a policy, procedure, or standard of care that describes the oral care procedure.

Include oral application of chlorhexidine gluconate (0.12%) twice a day in standard order sets for patients receiving mechanical ventilation.

Audit documentation of oral care, including frequency and differentiating among application of chlorhexidine gluconate (0.12%), comprehensive oral care (including toothbrushing), and oral comfort care (oral cavity moisturizing).

Include the oral care procedure as part of the unit's orientation to ensure consistency of care.

Need More Information or Help?

1. Go to www.aacn.org, click Clinical Resources, and scroll down to select AACN Practice Resource Network.
2. General information about oral health and oral care is available from the American Dental Association at www.healthymouth.org.
3. Information about the role of oral care in reducing VAP (including lists of frequently asked questions for patients and their families) is available from the Centers for Disease Control and Prevention at <http://www.cdc.gov/HAI/vap/vap.html>.

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Approved by the Clinical Resources Task Force, June 2016.

Financial Disclosures
None reported.

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