

**Beyond comfort: oral hygiene as a critical nursing activity in the intensive care unit.**

**Berry AM, Davidson PM.**  
*Intensive Crit Care Nurs.* 2006 Dez;22(6):318-28.

**Background**

The role of oral hygiene in maintaining the health and well being of patients in the intensive care unit (ICU) is indisputable. This importance is not reflected in the body of research related to ICU practice. While a number of studies have examined oral hygiene practices in oncological patients there is significantly less attention devoted to these practices in the critically ill.

**Objective**

This paper has two discrete yet interrelated aims. Firstly, in relation to current available evidence and based on a sound knowledge of oral physiology, identify barriers to effective oral hygiene and subsequent effectiveness of the most commonly used and recommended methods of providing oral hygiene in the critically ill population. Secondly, informed by the critical review, identify recommendations for practice and future intervention studies.

**Findings**

To date, there is no definitive evidence to determine the most appropriate method of oral hygiene including the use of beneficial mouth rinses. Barriers identified in this review to providing optimal hygiene include: (1) mechanical barriers and equipment issues, (2) perceptions of the importance of mouth care and empathy with patient discomfort by nurses, (3) altered patient sensory perception and discomfort and (4) difficulties in patient communication. In spite of these challenges opportunities for collaborative research and increasing expertise in nurse researchers creates a climate to derive solutions to these factors.

**Conclusions**

It is clearly evident from this review of oral hygiene practices in intensive care that the need for ongoing research is of paramount importance. ICU nurses undeniably require rigorous research studies in order to inform their practice in the provision of oral hygiene for critically ill patients.

**PubMed ID**

16806933

**Oral decontamination with chlorhexidine reduces the incidence of ventilator-associated pneumonia.**

Koeman M, van der Ven AJ, Hak E, Joore HC, Kaasjager K, de Smet AG, Ramsay G, Dormans TP, Aarts LP, de Bel EE, Hustinx WN, van der Tweel I, Hoepelman AM, Bonten MJ.

*Am J Respir Crit Care Med.* 2006 Jun 15;173(12):1348-55.

**Rationale**

Ventilator-associated pneumonia (VAP) is the most frequently occurring nosocomial infection associated with increased morbidity and mortality. Although oral decontamination with antibiotics reduces incidences of VAP, it is not recommended because of potential selection of antibiotic-resistant pathogens. We hypothesized that oral decontamination with either chlorhexidine (CHX, 2%) or CHX/colistin (CHX/COL, 2%/2%) would reduce and postpone development of VAP, and oral and endotracheal colonization. **OBJECTIVES:** To determine the effect of oral decontamination with CHX or CHX/COL on VAP incidence and time to development of VAP.

**Methods**

Consecutive patients needing mechanical ventilation for 48 h or more were enrolled in a randomized, double-blind, placebo-controlled trial with three arms: CHX, CHX/COL, and placebo (PLAC). Trial medication was applied every 6 h into the buccal cavity. Oropharyngeal swabs were obtained daily and quantitatively analyzed for gram-positive and gram-negative microorganisms. Endotracheal colonization was monitored twice weekly.

**Results**

Of 385 patients included, 130 received PLAC, 127 CHX and 128 CHX/COL. Baseline characteristics were comparable. The daily risk of VAP was reduced in both treatment groups compared with PLAC: 65% (hazard ratio [HR]=0.352; 95% confidence interval [CI], 0.160, 0.791; p=0.012) for CHX and 55% (HR=0.454; 95% CI, 0.224, 0.925; p=0.030) for CHX/COL. CHX/COL provided significant reduction in oropharyngeal colonization with both gram-negative and gram-positive microorganisms, whereas CHX mostly affected gram-positive microorganisms. Endotracheal colonization was reduced for CHX/COL patients and to a lesser extent for CHX patients. No differences in duration of mechanical ventilation, intensive care unit stay, or intensive care unit survival could be demonstrated.

**Conclusions**

Topical oral decontamination with CHX or CHX/COL reduces the incidence of VAP.

**PubMed ID**

16603609

**Oral care practices in intensive care units: a survey of 59 European ICUs.**

Rello J, Koulenti D, Blot S, Sierra R, Diaz E, De Waele JJ, Macor A, Agbaht K, Rodriguez A.  
*Intensive Care Med.* 2007 Jun;33(6):1066-70.

**Objective**

To explore the type and frequency of oral care practices in European ICUs and the attitudes, beliefs, and knowledge of health care workers.

**Design**

An anonymous questionnaire was distributed to representatives of European ICUs. Results were obtained from 59 ICUs (one questionnaire per ICU) in seven countries 91% of respondents were registered nurses.

**Measurements/  
Results**

MEASUREMENTS AND RESULTS: Of the respondents 77% reported that they had received adequate training on providing oral care; most (93%) also expressed the desire to learn more about oral care. Oral care was perceived to be high priority in mechanically ventilated patients (88%). Cleaning the oral cavity was considered difficult by 68%, and unpleasant as well as difficult by 32%. In 37% of cases respondents felt that despite their efforts oral health worsens over time in intubated patients. Oral care practices are carried out once daily (20%), twice (31%) or three times (37%). Oral care consists principally of mouth washes (88%), mostly performed with chlorhexidine (61%). Foam swabs (22%) and moisture agents (42%) are used less frequently as well as manual toothbrushes (41%) although the literature indicates that these are more effective for thorough cleaning of the oral cavity. Electric toothbrushes were never used.

**Conclusions**

In European ICUs oral care is considered very important. It is experienced as a task that is difficult to perform, and that does not necessarily succeed in ensuring oral health in patients with prolonged intubation. Oral care consists primarily of mouth washes. The use of toothbrushes should be given more attention.

**PubMed ID**

17384927

**Oral decontamination is cost-saving in the prevention of ventilator-associated pneumonia in intensive care units.**

van Nieuwenhoven CA, Buskens E, Bergmans DC, van Tiel FH, Ramsay G, Bonten MJ.  
*Crit Care Med.* 2004 Jan;32(1):126-30. Links

**Objective**

Although the development of ventilator-associated pneumonia (VAP) is assumed to increase costs of intensive care unit stay, it is unknown whether prevention of VAP by means of oropharyngeal decontamination is cost-effective. Because of wide ranges of individual patient costs, crude cost comparisons did not show significant cost reductions.

**Design**

Based on actual cost data of 181 individual patients included in a former randomized clinical trial, cost-effectiveness of prevention of VAP was determined using a decision model and univariate sensitivity analyses, and bootstrapping was used to assess the impact of variability in the various outcomes.

**Data Source**

Published data on prevention of VAP by oropharyngeal decontamination, which resulted in a relative risk for VAP of 0.45, with a baseline rate of VAP of 29% among control patients. The mean costs of the intervention were 351 dollars per patient (32 dollars per patient per day). All other costs were derived from the hospital administrative database for all individual patients.

**Results of Base-Case Analysis**

Prevention of VAP led to mean total costs of 16,119 dollars and 18,268 dollars for patients without preventive measures administered. Thus, costs were saved and instances of VAP were prevented. Similar results were observed in terms of overall survival.

**Results of Sensitivity Analysis**

Prevention of VAP remains cost-saving if the relative risk for VAP because of intervention is  $<0.923$ , the costs of the intervention are less than 2,500 dollars, and the prevalence of VAP without intervention is  $>4\%$ . Bootstrapping confirmed that, with about 80% certainty, oropharyngeal decontamination results in prevention of VAP and simultaneously saves costs. In terms of a survival benefit, the results are less evident; the results indicate that with only about 60% certainty can we confirm that oropharyngeal decontamination would result in a survival benefit and simultaneously save costs.

**Conclusions**

This study provides strong evidence that prevention of VAP by means of oropharyngeal decontamination is cost-effective.

**PubMed ID**

14707570

**ORAL CARE IS CRITICAL CARE: The Role of Comprehensive Oral Care in the Prevention of Hospital Hospital-Acquired Pneumonia**

**Suzanne Pear, RN, PhD, CIC**

*Infection Control Today 11(10):44-48+. Online: [www.iceinstitute.com](http://www.iceinstitute.com).*

**Background**

Hospital-acquired pneumonia (HAP) is the second most frequent healthcare-associated infection occurring to patients hospitalized in acute-care facilities. Being on a mechanical ventilator places patients at greatest risk for developing this lung infection (ventilator-associated pneumonia-VAP) as well as doubling their likelihood of death while in the hospital. Comprehensive oral care, along with other patient care interventions in the VAP prevention bundle, has been identified as significantly protecting patients from developing this lethal complication.

**Methods**

This educational program reviews the risk factors and consequences of HAP and VAP; identifies the Pathway to Pneumonia in the hospitalized patient; describes the role of the oral environment in the development of HAP/VAP and reviews recommended oral care interventions and studies which examine the current state of oral care practice in an effort to make clinicians aware of the importance of oral care/oral hygiene in the prevention of HAP/VAP.

**Conclusions**

Although not all of the evidence-based HAP/VAP prevention guidelines recommend the same strategies, one intervention that has been recognized as a core or adjunct component of a pneumonia prevention program is comprehensive oral care/oral hygiene. This direct connection between the reliable provision of comprehensive oral care and HAP/VAP prevention is evident.

**PubMed ID**

Not Available.