Mouth and nose hygiene in ICU

SOMAYE JAFRASTE

PEDIATRIC INTENSIVIST.DUMS

People with good oral hygiene have a simple flora dominated by gram-positive cocci and rods, with some gram-negative cocci, whereas those with poor oral hygiene have a more diverse and complex flora dominated by anaerobic gram-negative organisms.

Intubation of the mouth causes xerostomia, mucositis, and a shift in the bacterial flora from Gram-positive to Gram negative bacteria.

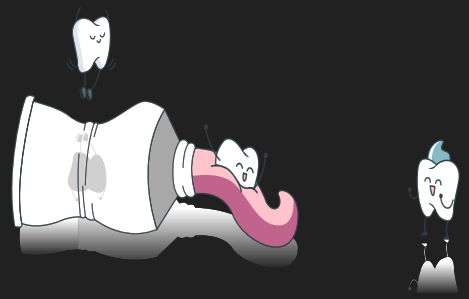
the use of endotracheal tubes and tape, mouth props, and suctioning devices increases the risk of oral injuries.

The endotracheal tube might impede the oral cavity's view and limit access to oral care.

Some antihypertensive, sympathomimetic, and anticholinergic medicines can cause xerostomia,

and antibiotics which can lead to the colonization of the oral cavity with opportunistic infections such as Candida albicans.

many ICU patients are immunocompromised, they have a predisposition to oral infections, such as candidiasis or herpes simplex and some medical conditions, chronic anaemia, diabetes, Crohn’s disease, and leukaemia shows oral manifestations.

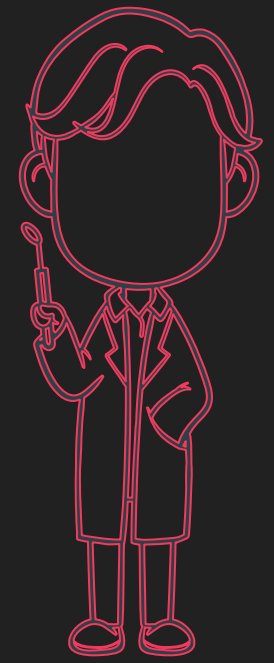


Ventilation-associated pneumonia is the most common nosocomial infection in intensive care units (ICUs), with the risk of developing pneumonia increasing at a rate of 1-3 percent per day of intubation, indicating a 6-20-fold increased risk of developing pneumonia compared to non ventilated ICU patients .

Transfer of oral infection due to poor oral hygiene is the most common cause of ventilation-associated pneumonia in the ICU.

When an (ET) is inserted, the majority of the body's defenses against pneumonia are weakened . there is no humidification or nasal warming.

The ETtube inhibits mucociliary defense mechanisms and disrupts normal mucosa clearance, resulting in secretions being collected above the cuff and contaminating the subglottic pool.



This ET tube can also stop coughing.
Within 48 hours of intubation,fibronectin levels drop, causing Gram-negative bacteria toutnumber Gram-positive bacteria.
Dental plaque can form within 72 hours if good oral hygiene is not practiced. Bacterial growth is inhibited by lysozyme, a key enzyme found in saliva.

Mechanical communication, and nursing perceptions are barriers that exist.Mechanical barriers are those that obstruct the patient's mouth while he or she is being ventilated. Endotracheal tube, oral airway, oral stomach tube, and temperature probe are the instruments in question. It's also difficult for an experienced critical care nurse to provide good oral hygiene in this small inhabited space. Oral care was ranked as a low
priority by 13.5 percent of nurses in a poll.

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Review Article

Oral care for patients in intensive care units- A narrative review

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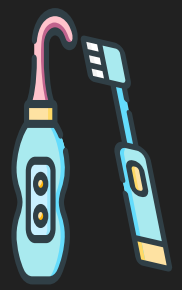
ABSTRACT

Due to the patient's presenting condition and medical care, maintaining a healthy upper airway in an ICU patient might be difficult. Ventilation-associated pneumonia (VAP) is the most common nosocomial infection in intensive care units (ICUs). The majority of these individuals are unable to execute even the most basic tasks, such as maintaining their own oral hygiene. Oral difficulties may arise as a result of the medical treatment delivered in an Intensive care unit (ICU). Oral care can have an impact on a patient's clinical outcome as well as their overall health. Oral and systemic health, mechanically ventilated patients, barriers to oral health care, published recommendations, and oral care procedure in ventilated patients are all discussed in this article.

Periodontitis and gingivitis are two types of periodontal disease that range from bleeding, erythematous, and inflamed gingival tissue to attachment loss and alveolar bone loss.



poor dentalhygiene, both of which trigger the host inflammatoryresponse. Multiple proinflammatory cytokines,such as Creactive protein, tumour necrosis factor, interleukin 1 and interleukin 6, can be triggered by this chronic inflammatory state, which, when combined with bacteremia, appear to stimulate atherogenesis and increase the susceptibility of the vascular endothelium to injury. Streptococci of the viridans group can also cause platelet aggregation and thrombus formation during bouts of oral bacteremia.

Published recommendations:

Institute for healthcare improvement (IHI) recommendation

1. Include daily oral care with chlorhexidine as part of your ICU order admission set and ventilator order set.
2. Include daily oral care with chlorhexidine as an item for discussion on daily multidisciplinary rounds.
3. Post compliance with the intervention in a prominent place in ICU to encourage change and motivate staff.
4. Education of the staff about the rationale supporting adequate oral hygiene and its possible benefit in reducing ventilator-associated pneumonia.
5. Develop a extensive oral care process that includes the use of 0.12% chlorhexidine oral rinse.
6. Schedule chlorhexidine as a medication, which then provides a reminder for the staff and triggers the oral care process delivery.

critical-care nurses(AACN) recommendation:

The American Association of Critical-Care Nurses recommend :

1. Brushing teeth, gums and tongue at least twice a day using a soft pediatric or adult toothbrush.

2. Providing oral moisturizing gels to oral mucosa and lips every 2 to 4 hours Use of an oral chlorhexidinegluconate (0.12%) rinse twice a day during the perioperative period for adult patients who undergo cardiac surgery.

3. The routine use of oral chlorhexidinegluconate (0 12% in other populations is not recommended by AACN.

4.Oral Care for Intubated Patients

Oral assement be done casing Modified Beck Oral Assessment Scale and Mucosal Plaque Score.

Table 1: Beck oral assessment scale (BOAS), modified[a]

	Score			
Area	1	2	3	4
Lips	Smooth, pink, moist and intact	Slightly dry, red	Dry, swollen isolated blisters	Edematous, inflamed blisters
Gingival and oral mucosa	Smooth, pink, moist and intact	Pale, dry,isolated lesions	Swollen red	Very dry and edematous
Tongue	Smooth, pink, moist and intact	Dry, prominent papillae	Dry, swollen, tip and papillae are red with lesions	Very dry, edematous, engorged coating
Teeth	Clean, no debris	Minimal debris	Moderate debris	Covered with debris
Saliva	Thin, watery plentiful	Increase in amount	Scanty and somewhat thicker	Thick and ropy, viscid or mucid
Total score[b]	5 =No dysfunction Minimum care every 12 h 6=10 Mild dysfunction Minimum care every 8-12 h 11-15 =Moderate dysfunction Minimum care every 8 h 16-20 Severe dysfunction Minimum care every 4 h			
Note: provide moisture more than oral care				

[a] Modified from beck.
[b] Interpretation of total score.
BOAS 0-5: Perform an oral assessment once a day. Follow oral care as outlined in the systematic oral care procedure twice per day.
BOAS 6-10: Perform oral assessments twice a day. Moisten mouth/lips every 4 hours. Follow oral care as outlined in the systematic oral care procedure twice per day.
BOAS 11-15: Perform an oral assessment every shift (every 8-12h). Follow oral care as outlined in the systematic oral care every shift. Use an ultra-soft toothbrush Moisten lips and mouth every 2 h.
BOAS 16-20: Perform an oral assessment every 4 hours. Follow oral care as outlined. If rushing not possible, use soft gauze-wrapped finger. Moisten lips and mouth every 1-2 h.

[a] Modified from beck.
[b] Interpretation of total score.
BOAS 0-5: Perform an oral assessment once a day. Follow oral care as outlined in the systematic oral care procedure twice per day.
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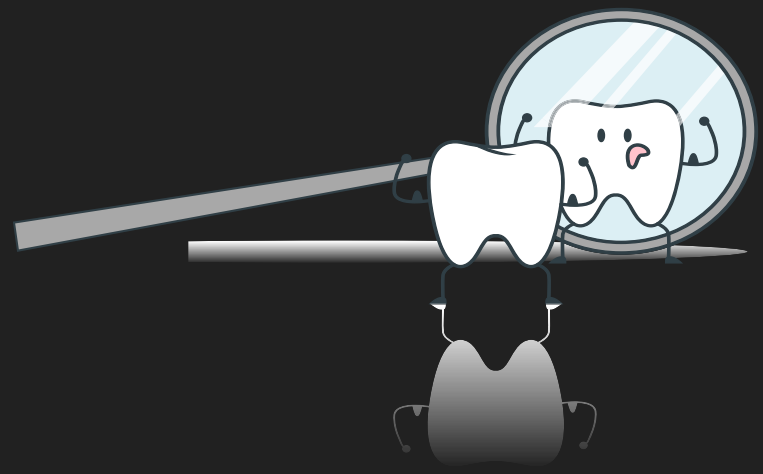
BOAS 11-15: Perform an oral assessment every shift (every 8-12h). Follow oral care as outlined in the systematic oral care every shift. Use an ultra-soft toothbrush Moisten lips and mouth every 2 h.
BOAS 16-20: Perform an oral assessment every 4 hours. Follow oral care as outlined. If rushing not possible, use soft gauze-wrapped finger. Moisten lips and mouth every 1-2 h.

Table 2: Mucosal plaque score

Criteria	Score
1. Mucosa	
a. Normal appearance of gingival and oral mucosa	1
b. Mild inflammation = slight redness and or hypertrophy/hyperplasia Slight redness in some areas of the palatal mucosa; red spots indicating inflamed salivary duct orifices	2
c. Moderate inflammation = marked redness and hypertrophy/ hyperplasia of the gingival, which bleeds easily when pressure is applied and/or any of the following. Marked redness in large areas (≥2/3) of palate Marked inflammatory redness of the oral mucosa in sites other than the palate Presence of ulcerations Red and inflamed fibro epithelial hyperplasia.	3
d. Severe inflammation = severe redness and hypertrophy/ hyperplasia of the gingival Spontaneous gingival bleeding Marked palatal granulations Inflamed oral mucosal areas that 'break" easily and bleed under pressure	4
2. Plague	
a. No easily visible plaque	1
b. Small amounts of hardly visible plaque	2
c. Moderate amounts of plaque	3
d. Abundant amounts of confluent plaque	4

critical care nurses work together
to produce evidence-based recommendations to guide best practices in the critical care unit.The usage of toothbrushes instead of foam swabs for removing dental plaque was found to have a significant benefit.



Intubated adult patient’s mouth, a soft-bristled ’baby’ toothbrush is recommended.allows for easier access to all areas of the mouth and can be used to clean the tongue and gums in edentulous patient.
Brushing teeth using a child-size brush removes more dental plaque and bacteria than foam swabs.

using a toothbrush is superior to foam swabbing. Studies show that swabbing is still the favored method of dental care in critical care units confirming this experience. Swabbing procedures are said to be ineffective at removing plaque.

Non-foaming toothpaste is preferable because it can be washed out of the mouth more easily.

1. Chlorhexidine, at concentrations of 0.1 to 0.2 percent, inhibits Gram-positive and Gram-negative bacteria as well as yeast. Chlorhexidine is a slow-release agent with antibacterial activity lasting up to 12 hours.

One study evaluated the effectiveness of chlorhexidine used in reducing incidences of VAP compared to placebo or standard care for its prevention. Although there was a reduction in incidence of VAP, it was recommended that a strongerconcentration, 2% rather than 0.12%, would be more effective in reducing VAP.

2. Sodium bicarbonate mouthwash 1 percent - is a cleansing agent that has been shown to lower the viscosity of oral mucus, allowing for better oral debris removal. Because it can induce mucosal irritation, it's critical to use it at the prescribed concentration. However, there have been no documented randomized controlled studies in the critical care population to support its use above any other mouth rinse.

3. Hydrogen peroxide is an acidic solution, it must be diluted properly before use to avoid mucosal irritation. Subjective complaints of soreness and mucosal injury have been reported in groups of healthy people who used hydrogen peroxide mouthwashes. With the benefits of toothbrushes established, the use of hydrogen peroxide-impregnated foam sticks in critically ill patients is not recommended.

4. Sodium chloride can promote healing of oral mucosal lesions , but routine use as a mouth rinse is limited in the critical care setting.

5. Water can be used to clean teeth and gums in combination with a small, soft-bristled toothbrush or as a solo agent to rinse and remoisten the oral cavity. Tap water in hospitals has been identified as a major source of waterborne nosocomial infections, particularly those caused by Pseudomonas. The use of tiny bottles of sterile water as a mouth rinse in intensive care patients could be cost-effective.

6. Povidone-iodine:
may be effective in the treatment of mucosal ulcers following surgery, it is of uncertain benefit as a daily mouth rinse for intensive care patients because it has little anti-plaque action and extended use may result in a large amount being absorbed.

7. Swabs of lemon and glycerol: Although the first action may stimulate salivary flow, excessive use may exhaust this mechanism, resulting in xerostomia. These swabs are no longer commonly utilised for providing dental care in intensive care patients due to an acidic and decalcifying effect on tooth enamel.

Intubated patient’s inability to naturally remoisten the lips by passing the tongue around the surface. To prevent lip dehydration, petroleum jelly and lanolin are utilized because they have an occlusive effect that inhibits transepidermal water loss.

Intubated patients can benefit from dental syringes with a curved nozzle for mouth rinses. A flexible suction catheter is recommended for eliminating secretions accumulated above the endotracheal tube cuff because it can reach the subglottic area.

A complete dental care programme is one essential preventative technique. There is a need for a standardized oral care routine that involves teeth brushing and the use of chlorhexidine mouthwash, based on the prevalence of varied oral care practices. The perspective of nurses about these activities is the most major impediment. Plaque reduction and salivary flow stimulation should be part of any comprehensive oral care regimen.

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Original article

Prevention of ventilator-associated pneumonia by a nose care program combining with oral care among patients hospitalized in intensive care units: a single-blind randomized controlled trial

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ABSTRACT

Objective: Ventilator-associated pneumonia (VAP) is one of the most common ICU-acquired infections. Preventing nasal canal colonization through an effective nasal cavity care, along with oral care seem to be an important issue.

Methods: This single-blind randomized controlled trial was conducted on 31 patients in each intervention and control group in Alzahra and Kashani hospitals, Iran. The interventional program was considered every 8 h for 5 days. It included cleaning the nasal cavities with cotton swabs soaked in sterile normal saline, then 2 puffs of 65% sodium chloride nasal spray were used for each nostril, and finally the nasal canal was moistened with a swab dipped in Veramin gel (0.5 ml into each nostril). For the control group, routine nasal care including cleaning the outer nostrils was offered. Oral care in 2 groups was performed according to the standard protocol. Data collected through demographic and clinical questionnaire as well as modified pulmonary infection clinical scale. The chi-square and independent tests were used to determine the homogeneity of basic characteristics. Also, we estimated and compared the incidence of VAP between 2 groups by chi-square test.

Results: The incidence of VAP was not statistically different in the intervention and control groups on the third day after intervention (29.1% vs. 32.3%, respectively, $P = .915$), while this rate on the sixth day was significantly lesser in the intervention than control (32.3 vs. 58%, $P = .041$).

Conclusion: The present nasal care program along with oral care is an effective strategy to prevent VAP.

Ventilator-associated pneumonia (VAP) is one of the most critical nosocomial infections among patients undergoing mechanical ventilation that can develops 48–96 h after intubation (early-onset) or after 96 h (late-onset).

A prevalence rate of 4.8–12.6 per 1000 has been reported for VAP in different parts of Asia, and Iranian studies estimated rates of 19% and 32.2%,

Preventive strategies included: hand sanitation, bed head elevation up to 30°–45° while the patient has been placed in the supine position, oral hygiene with chlorhexidine oral solution, avoidance of gastric distention and peptic ulcer prophylaxis, prevention of deep vein thrombosis, daily assessment for sedation breaks, and daily examination of the patient's readiness to remove the endotracheal tube.

In these critically ill patients, rhinosinusitis
occurs after invasive procedures like nasotracheal intubation or
nasoenteric feeding tube placement.
stress-induced proteolysis can separate nectin from the epithelial receptors in the nasopharynx,and by creating a suitable environment for the colonization of bacteria.
weakening of cough and swallowing reflexes and impaired ciliary movement in the respiratory system, prepares the ground for the development of
pneumonia.

Researchers stated that usage of saline nasal spray may clean the nasopharynx, have antiseptic properties, moisten the nasal cavity, and liquefy secretions. On the other hand, Veramin moisturizing gel has been effective to relieve mucus dryness and improve oral health among ICU patients.Compared to the placebo group, this gel had 2 components, one was 100% Aloe vera jelly, which improved oral hygiene more effective than chlorhexidine, also reduced the formation of dental plaques like chlorhexidine.

Another component was peppermint essential oil which showed antiseptic properties to the extent that reduced the rate of chemotherapyinduced oral mucositis.

cleaning the nasal cavit ywith cotton swabs soaked in sterile normal saline, using 65% sodium chloride nasal spray, 2 puffs for each nostril separately, smearing the inside of the nose with a swab dipped in Veramin gel (0.5 ml into each nostril) every 8 h for 5 days.For the control group, staff cleaned the outer nostrils by tap water as routine nasal care.

Oral care in test and control groups was performed according to the standard protocol as follows: opening the patient's mouth, deep mouth and throat suctioning, brushing the internal and external surfaces of teeth and gums with circular movements for 2 min with an electric toothbrush and antibacterial solution (2% chlorhexidine) each 8 h. using moisturizing gel to care for the oral mucosa, using mouth moisturizer to mucous membranes, debris separation, moistening the entire surface of the tongue, lubricate the lips with vaseline. The patients in the intervention and control groups were examined for VAP by the researcher at 8 am on the third day and the sixth day after the intervention.

we used the modified clinical pulmonary infection scale(MCPIS).

This scale includes 5 measures of body temperature, lungsecretions, white blood cell count, the ratio of po2 to fio2 in milliliters
of mercury, and chest radiography; and a score of 0–2 has been consideredfor each criterion.While the maximum score is 10, a score of 5 or more than 5 indicates VAP.

Criteria	Score
Temperature (°C)	
36.5–38.4	0
38.5–38.9	1
< 36.0 or > 39.0	2
Leukocyte count	
4000–11,000	0
< 4000 or > 11,000	1
< 4000 or > 11,000 + over 500 bands	2
Chest radiography	
No infiltration	0
Diffuse or patchy infiltration	1
Localized infiltration	2
Pulmonary secretions (present in the tracheal tube)	
Absent	0
Present and non-purulent	1
Present and purulent	2
PaO2/FIO2 (mm Hg)	
> 240 or ARDS	0
≤ 240 and no evidence of ARDS	2

Nasal spray :
reduced bacterial colonization and improved the secretion score by moisturizing the nose, dissolving of secretions,and stimulation of mucociliary clearance. Also, it had anti-inflammatory actions by decreasing substances like prostaglandins, leukotriene, and histamine.

The incidence of VAP was not statistically different in the intervention and control groups on the third day after intervention (29.1% vs. 32.3%, respectively, P = .915), while this rate on the sixth day was significantly lesser in the intervention than control (32.3 vs. 58%, P = .041).
Conclusion: The present nasal care program along with oral care is an effective strategy to prevent VAP.

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RESEARCH Open Access

Perceptions, barriers, and challenges of oral care among nursing assistants in the intensive care unit: a qualitative study

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Abstract

Background Although oral hygiene is closely related to various diseases, it is sub-optimal in the Intensive Care Unit (ICU). Oral care in the ICU is challenged by nursing workloads, low staffing, and higher acuity patients, there are few policies and written guidelines for oral care. Nurses often delegate oral care to nursing assistants (NAs) whose role is overlooked. This study is to explore the perspectives, obstacles, and challenges of NAs in the oral care of the ICU.

Methods A qualitative study and semi-structured interviews were conducted with NAs in three ICU units, and Colaizzi's phenomenological method was used to analyze the records.

Results Initially, 13 NAs met the inclusion criteria, and two did not participate in this study as they refused to be recorded. Finally, 11 ICU NAs were interviewed, with three receiving face-to-face interviews and eight receiving telephone interviews. Using Colaizzi's phenomenological method, two themes and eight subthemes emerged from the data, we examined the self-perception, barriers and challenges of NAs regarding oral care and identified the subthemes: (1) The target audience, frequency, and importance; (2) Role; (3) Evaluation; (4) Patient-related factors; (5) Oral care tools; (6) Psychology of NAs; (7) Lack of education and training; (8) Lack of team support.

Conclusion Nursing assistants whose roles are overlooked by the nursing team are important members of the ICU team. Though oral care is closely related to disease prevention, it is rarely considered an essential task. Major barriers to implementing oral care in the ICU environment and patients include the psychological quality of participants, non-standard education and training, and inadequate team support. The expectation is that medical personnel will prioritize oral hygiene and recognize the significance of NAs in nursing work. Furthermore, future ICU oral care should investigate suitable tools and mouthwashes, simplified and standardized processes, standardized training, and multidisciplinary team collaboration.

Keywords Intensive care unit, Nursing assistant, Oral care, Qualitative research, Rehabilitation

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Original article

Nasal care in intensive care unit patients

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ABSTRACT

Purpose: The aim of this study was to investigate nasal hygiene in intensive care patients and improve patient care using isotonic saline nasal spray.
Material and methods: In the study group, over a period of ten days saline nasal spray was administered four times daily. Nasal treatment was not given to the control group. Each patient was examined with a flexible nasopharyngoscope before and after the treatment and a nasal culture was taken.
Results: In the study group, the secretion score (1- absent; 2- serosal; 3- seropurulent and 4- purulent) mean value improved from 1.9 to 1.4. In the control group, the secretion score mean value had risen from 1.7 to 3.1. At the beginning of the study, there was no difference in secretion scores between the groups, but on the tenth day a statistically significant difference was found.
Conclusion: The use of saline nasal spray in this group of intensive care patients was found to be effective in achieving nasal hygiene.

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[Intervention Review]

Oral hygiene care for critically ill patients to prevent ventilator-associated pneumonia

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Background

Ventilator-associated pneumonia (VAP) is defined as pneumonia developing in people who have received mechanical ventilation for at least 48 hours. VAP is a potentially serious complication in these patients who are already critically ill. Oral hygiene care (OHC), using either a mouthrinse, gel, swab, toothbrush, or combination, together with suction of secretions, may reduce the risk of VAP in these patients.

Objectives

To assess the effects of oral hygiene care (OHC) on incidence of ventilator-associated pneumonia in critically ill patients receiving mechanical ventilation in hospital intensive care units (ICUs).

Search methods

Cochrane Oral Health's Information Specialist searched the following databases: Cochrane Oral Health's Trials Register (to 25 February 2020), the Cochrane Central Register of Controlled Trials (CENTRAL) (the Cochrane Library, 2020, Issue 1), MEDLINE Ovid (1946 to 25 February 2020), Embase Ovid (1980 to 25 February 2020), LILACS BIREME Virtual Health Library (1982 to 25 February 2020) and CINAHL EBSCO (1937 to 25 February 2020). We also searched the VIP Database (January 2012 to 8 March 2020). The US National Institutes of Health Trials Registry (ClinicalTrials.gov) and the World Health Organization International Clinical Trials Registry Platform were searched for ongoing trials. No restrictions were placed on the language or date of publication when searching the electronic databases.

Selection criteria

We included randomised controlled trials (RCTs) evaluating the effects of OHC (mouthrinse, gel, swab, toothbrush or combination) in critically ill patients receiving mechanical ventilation for at least 48 hours.

Data collection and analysis

At least two review authors independently assessed search results, extracted data and assessed risk of bias in included studies. We contacted study authors for additional information. We reported risk ratio (RR) for dichotomous outcomes and mean difference (MD) for continuous outcomes, using the random-effects model of meta-analysis when data from four or more trials were combined.

Main results

We included 40 RCTs (5675 participants), which were conducted in various countries including China, USA, Brazil and Iran. We categorised these RCTs into five main comparisons: chlorhexidine (CHX) mouthrinse or gel versus placebo/usual care; CHX mouthrinse versus other oral care agents; toothbrushing (± antiseptics) versus no toothbrushing (± antiseptics); powered versus manual toothbrushing; and comparisons of other oral care agents used in OHC (other oral care agents versus placebo/usual care, or head-to-head comparisons between other oral care agents). We assessed the overall risk of bias as high in 31 trials and low in two, with the rest being unclear.

Moderate-certainty evidence from 13 RCTs (1206 participants, 92% adults) shows that CHX mouthrinse or gel, as part of OHC, probably reduces the incidence of VAP compared to placebo or usual care from 26% to about 18% (RR 0.67, 95% confidence intervals (CI) 0.47 to 0.97; P = 0.03; I^2 = 66%). This is equivalent to a number needed to treat for an additional beneficial outcome (NNTB) of 12 (95% CI 7 to 128), i.e. providing OHC including CHX for 12 ventilated patients in intensive care would prevent one patient developing VAP. There was no evidence of a difference between interventions for the outcomes of mortality (RR 1.03, 95% CI 0.80 to 1.33; P = 0.86, I^2 = 0%; 9 RCTs, 944 participants; moderate-certainty evidence), duration of mechanical ventilation (MD -1.10 days, 95% CI -3.20 to 1.00 days; P = 0.30, I^2 = 74%; 4 RCTs, 594 participants; very low-certainty evidence) or duration of intensive care unit (ICU) stay (MD -0.89 days, 95% CI -3.59 to 1.82 days; P = 0.52, I^2 = 69%; 5 RCTs, 627 participants; low-certainty evidence). Most studies did not mention adverse effects. One study reported adverse effects, which were mild, with similar frequency in CHX and control groups and one study reported there were no adverse effects.

Toothbrushing (± antiseptics) may reduce the incidence of VAP (RR 0.61, 95% CI 0.41 to 0.91; P = 0.01, I^2 = 40%; 5 RCTs, 910 participants; low-certainty evidence) compared to OHC without toothbrushing (± antiseptics). There is also some evidence that toothbrushing may reduce the duration of ICU stay (MD -1.89 days, 95% CI -3.52 to -0.27 days; P = 0.02, I^2 = 0%; 3 RCTs, 749 participants), but this is very low certainty. Low-certainty evidence did not show a reduction in mortality (RR 0.84, 95% CI 0.67 to 1.05; P = 0.12, I^2 = 0%; 5 RCTs, 910 participants) or duration of mechanical ventilation (MD -0.43, 95% CI -1.17 to 0.30; P = 0.25, I^2 = 46%; 4 RCTs, 810 participants).

Authors' conclusions

Chlorhexidine mouthwash or gel, as part of OHC, probably reduces the incidence of developing ventilator-associated pneumonia (VAP) in critically ill patients from 26% to about 18%, when compared to placebo or usual care. We did not find a difference in mortality, duration of mechanical ventilation or duration of stay in the intensive care unit, although the evidence was low certainty. OHC including both antiseptics and toothbrushing may be more effective than OHC with antiseptics alone to reduce the incidence of VAP and the length of ICU stay, but, again, the evidence is low certainty. There is insufficient evidence to determine whether any of the interventions evaluated in the studies are associated with adverse effects.

Implementation of a Nasal Antiseptic Decolonization Program Reduces the Occurrence of Healthcare-Associated Infections in the Adult Intensive Care Unit Setting.

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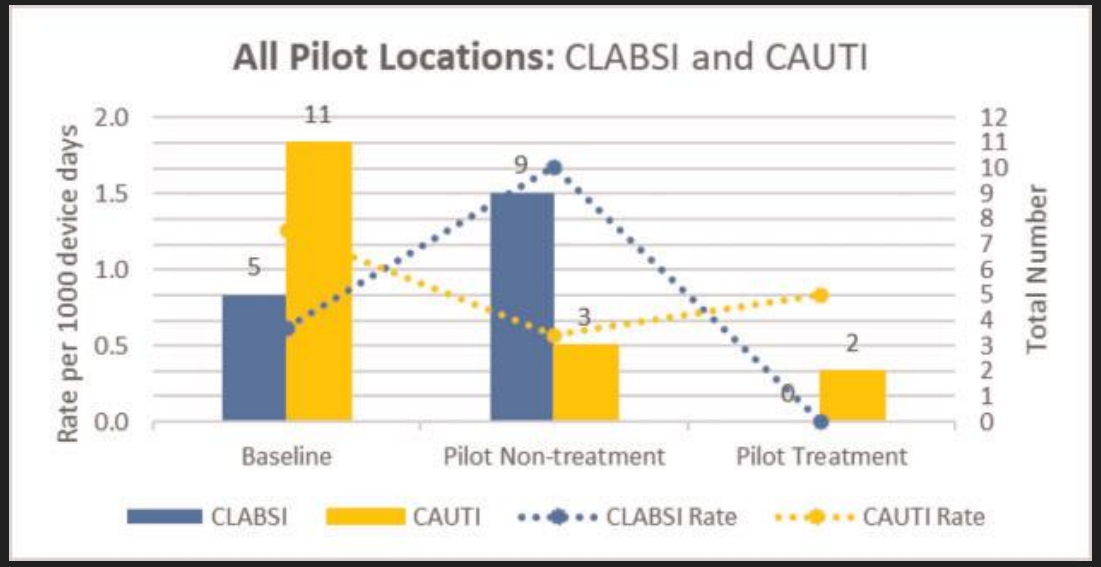
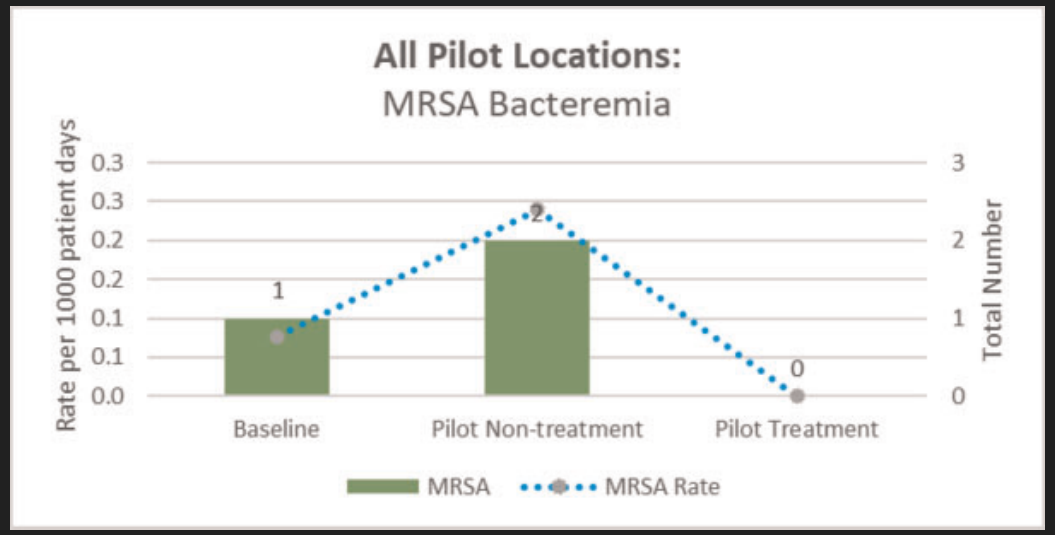
Universal decolonization programs that utilize mupirocin may promote antimicrobial resistance. Non-antibiotic interventions, such as nasal antiseptic decolonization, can contribute to the prevention of healthcare-associated infections (HAIs).

A nasal antisepsis decolonization quality improvement project (QIP) was implemented to reduce ICU HAIs by applying a 62% nasal antiseptic swab with emollients bilaterally to the nares every 12 hours for all adult ICU patients. The program was piloted across nine ICUs at three large hospitals from November 2021 to January 2022 and captured data from 12,404 patient days and 4,058 treatment days. Central line-associated blood stream infection (CLABSI), catheter-associated urinary tract infection (CAUTI), and MRSA bacteremia rates were compared a) between treated and non-treated patients during the QIP period and b) to rates during a three-month period prior to the QIP.

The results of the pilot program indicated that patients who receivedtreatment with the 62% nasal swab developed fewer HAIs than patients who didnot receive the treatment. Two HAIs occurred in the treatment group (twoCAUTIs) compared to 14 HAIs in the non-treatment group (three CAUTIs, nineCLABSIs, and two MRSA bacteremia). Figures 1 and 2 below demonstrate HAI rates in the non-treatment and the treatment groups.


All Pilot Locations: CLABSI and CAUTI
Rate per 1000 device days
Total Number
2.0
1.5
1.0
0.5
0.0
12
11
10
9
8
7
6
5
4
3
2
1
0
11
9
5
3
2
0
Baseline
Pilot Non-treatment
Pilot Treatment
CLABSI
CAUTI
CLABSI Rate
CAUTI Rate


All Pilot Locations:
MRSA Bacteremia
Rate per 1000 patient days
0.3
0.3
0.2
0.2
0.1
0.1
0.0
Total Number
3
2
1
0
1
2
0
Baseline
Pilot Non-treatment
Pilot Treatment
MRSA
MRSA Rate

Based on pilot results, the system approved implementation of a universal nasal antisepsis program using the 62% alcohol based nasal swab with emollients for expansion to all adult critical care units. Considerations for the future implementation of the program include broadening patient inclusion and performing ongoing HAI surveillance of treated and untreated patient groups.

1. Set patient up at sink or in bed with all products.
2. Instruct patient to brush teeth for two minutes, spending 30 seconds in each quadrant of the mouth, and finish with brushing the tongue.
3. If the patient is able and supply is available, use floss or interdental cleaners.
4. Rinse with mouthwash, swishing for 20 to 30 seconds.
5. Moisturize the interior of the mouth and lips with saliva substitute products using a disposable oral swab, as needed.
6. Discard disposable items in an appropriate receptacle.
7. Label oral care supplies with patient's name and store in a clean, dry location.

Procedures for patients dependent on staff for oral care (i.e., patients with known difficulty swallowing, not able to spit out, and at risk for aspiration or accidental entry of material into airway and lungs):

1. Obtain additional necessary equipment such as a suction toothbrush.
2. Sit the patient upright or in a side-lying position.
3. Inspect mouth and use suction to

9. Take removable dental appliance(s) out every night and soak in warm water with a denture cleanser to loosen plaque and tartar to prevent gingival irritation and possible candidiasis infections.
10. After soaking removable appliance(s) overnight, rinse the denture(s) as described above prior to patient inserting them into mouth.
11. If patient needs adhesive to hold removable appliance firmly in place, follow manufacturer directions.
12. Assist patient in inserting removable appliances into mouth as needed.
13. Label oral care supplies with patient's name and store in a clean, dry location.

If the patient has redness, inflammation, ulcer(s), bleeding, candidiasis (thrush), or pain, especially where a dental appliance sits:

- Provide medical treatment in consultation with a dental professional.
- If an ulcer is present underneath a removable appliance, if possible, remove the appliance until the ulcer has healed.
- Warm saltwater rinses can be done several times a day.
- If redness and inflammation is present,

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- Warm saltwater rinses can be done several times a day.
- If redness and inflammation is present,

For most patients

Oral care should be provided at least 2 times daily, for example after a meal and before bed. Staff should supply all patients with basic oral care products which should include:

- Toothbrush with soft bristles
- Appropriate toothpaste (e.g., fluoride-containing, desensitizing, non-foaming)
- Alcohol-free antiseptic mouthwash
- Petroleum-free lip moisturizer
- Basin for the patient to spit into if unable to get to sink

Additional supplies may include:

- Suction toothbrush
- Dental floss or interdental cleaners
- Products to assist with dry mouth, as needed
- Prescription oral rinse per

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REVIEW ARTICLE

Oral care practices for patients in intensive care unit: A systematic review

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Abstract

Objectives

To critically analyse and discuss oral hygiene protocols in the hospital environment in patients admitted to the ICU, through a systematic review of the literature.

Methods

The electronic search was performed on Pubmed, Cochrane, Web of Science and Google Scholar databases. The indexing keywords according to the PRISMA protocol were: 'hospital dentistry', 'oral health', 'oral care' and 'intensive care unit'.

Results

The initial search resulted in a total of 2671 articles. Pre-selection based on titles led to the exclusion of 2510 articles and the remaining 36 were selected for abstract reading. After analysing the eligibility of the articles, eight studies were included in the review and submitted to qualitative analysis.

Conclusion

It can be concluded that cleaning with a soft bristle brush, use of chlorhexidine and lip moisturizing are methods commonly used in dental care actions in patients hospitalized in intensive care units.