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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.

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1. Introduction

Due to the relative patient's presenting condition and the medical treatment provided, maintaining a good upper airway in an ICU patient could be challenging.¹ Patients in hospitals, especially those in Intensive Care Units (ICUs), need specialist care, and their critical health conditions make them even more reliant on a multidisciplinary team capable of delivering ethical, humane, and clinical assistance, especially in their daily tasks.^{1,2} The majority of those people are unable to perform even the most simple functions, such as maintaining their own oral hygiene. Since many ICU patients are immunocompromised, they have a predisposition to oral infections, such as candidiasis or herpes simplex and some medical conditions, e.g., chronic anaemia, diabetes, Crohn's disease, and leukaemia shows oral manifestations.¹ Oral complications may arise as a result of the medical treatment delivered in an ICU.

Intubation of the mouth causes xerostomia, mucositis, and a shift in the bacterial flora from Gram-positive to Gram-negative bacteria.³

In ventilated patients, 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.⁴ 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*.⁵ Poor oral care may put ICU people at risk of infection. As a result, giving oral care to these individuals is critical. Oral care can have an impact on a patient's clinical outcome as well as their overall health.² Oral care is an intervention that can be conducted by nurses during their patient care routines to reduce VAP rates and should thus be included in the plan of care for intubated patients.⁶

This article describes oral and systemic health link, mechanically ventilated patients, Barriers to oral health

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care, published recommendations and oral care protocol in ventilated patients.

2. Literature Review

For this review article, bibliographic search was performed using PubMed, google scholar. The key words used were oral hygiene, ventilated patients, oral care protocol, oral care barriers, and systemic diseases.

3. Oral and Systemic Health Link

The mouth and oral cavity serve as points of entry for the body's communication with its environment. Speech, chewing, swallowing, and the first stages of digestion are all critical physiological tasks involving the oral cavity and mouth, which play a key role in psychological identity.⁷

In the oral cavity, there are several different surface types, each of which is colonized by a different population of 500-700 bacteria, viruses, fungi, and protozoa, many of which are naturally pathogenic and have not been cultured.⁸ The oral micro biome is primarily influenced by oral hygiene. 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.⁹

The oral cavity is also occupied with a complex mixture of fluids, primarily saliva and gingival crevicular fluid, which is essential for maintaining a healthy oral environment.⁹ Saliva production has an appropriate range, just like many other biological processes; underproduction (xerostomia), overproduction (sialorrhea), and changes in chemical accumulation can all have negative health impacts.¹⁰

Caries and the periodontal diseases of gingivitis and periodontitis are two oral conditions that are commonly linked to systemic health.¹¹ Dental caries is the most common infectious illness on the world. Dental caries is a polymicrobial disease that results from the breakdown of dental enamel by lactic acid that is created when cariogenic bacteria in the biofilm digest dietary fermentable carbohydrates.⁹

Periodontal diseases are a set of chronic immunological inflammatory diseases mostly affecting tooth-supporting tissues that are caused by bacteria in the biofilm.⁷ 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.¹²

Local erythema, swelling, and easy bleeding define gingivitis, a milder form of periodontal disease. Because it is normally painless, patients may go years without being diagnosed, but once diagnosed, it is readily treated.^{9,13}

The benefits of good oral health include economic, social, psychological, and physical health.¹⁴ The number of missing teeth was found to correlate with a lower quality of life.¹⁵ Low-quality dentition also makes chewing difficult, which might have a detrimental impact on nutritional intake. These links are evident, but the remarkable impact and interrelationships between oral and major systemic illnesses are areas where further collaboration is needed.¹¹ Periodontal disease can be halted with routine dental care, but it can also aid to distinguish patients who are at high risk for more serious systemic diseases. It's anticipated that 75% of baby boomers would enter long-term care facilities with the majority of their natural teeth, and it's common knowledge that patients who receive adequate oral care use fewer healthcare dollars.¹⁶

3.1. Atherosclerotic disease

Atherosclerosis, the pathologic narrowing of arteries due to the deposition of cholesterol and cholesterol products in vessel walls, is the primary cause of most cases of coronary heart disease and cerebrovascular disease.¹⁷ Patients with a history of myocardial infarction or cerebrovascular strokes had poorer dental health than healthy people, according to studies conducted many years ago.^{17,18} The most common risk factors for cardiovascular disease include high blood cholesterol, hypertension, diabetes, and smoking. Chronic inflammation, metastatic infection, and endotoxin-induced vascular injury are all possible etiologies of cardiovascular disease based on the oral cavity, according to literature.¹⁹

Gingival inflammation and bacteremia are common and severe in patients with periodontal disease and poor dental hygiene, both of which trigger the host inflammatory response.²⁰ Multiple proinflammatory cytokines, such as C-reactive 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.^{20,21} Although it has been established that periodontal disease and poor dental hygiene are strongly linked to the risk of coronary heart disease and acute myocardial infarction, other studies have not found this link; as a result, there is insufficient evidence to establish a causative relationship.^{15,21} Improving oral health would lower the risk of serious illnesses with high morbidity and death.²¹

3.2. Pulmonary disease

The aspiration of microorganisms from the oropharynx to the lower respiratory tract is involved in pulmonary disorders such as chronic obstructive pulmonary disease (including emphysema), pneumonia, and exacerbations

of chronic bronchitis.²² Patients with endotracheal and orogastric tubes, swallowing problems, and diminished consciousness were thought to be the only ones at risk of aspiration at first. According to research, up to 50% of healthy people aspirate their oropharyngeal secretions while sleeping.¹⁵

Ventilator-associated pneumonia (VAP), for example, is a life-threatening nosocomial infection and is associated with aspiration of bacteria from the oropharynx and leakage of contaminated secretions around the endotracheal tube.²³ The bacteria responsible for VAP colonize the oral mucosa and the dental plaques of intubated patients.²⁴

The oral apparatus, which includes teeth, periodontium, and biofilm, can house and serve as reservoirs for pathologic bacteria, and the presence of periodontal disease alters the environment, making attachment and proliferation easier for pathogens.²¹ The body has numerous layers of protection to prevent microorganisms from entering the lower respiratory system, so the progression of an infection is complicated and depends on more than just the presence of bacteria. These defenses are impaired in critically ill and intubated patients, and several intervention trials have demonstrated that improved oral hygiene reduces the risk of ventilator-associated pneumonia in ventilated critical care patients.^{15,17} The evidence on the causality and relationship between lung infections and oral health is equivocal, however it appears to be heading in the direction of a positive unidirectional link. Boosting the oral hygiene of institutionalized and ventilated patients has been shown in high-quality research to have a positive impact on their systemic health.²⁰

3.3. Diabetes mellitus

Diabetes is a disease of disrupted glycemic control resulting from a lack of insulin production (type 1) or systemic insulin resistance (type 2). Diabetes affects 34.2 million individuals, according to the National Diabetes Statistics Report 2020.²⁵ Diabetes presents a number of obstacles to the patient, with chronic hyperglycemia being the primary cause of the diabetes's long list of complications. Continuous hyperglycemia has negative consequences for the heart, eyes, kidneys, and peripheral nerves, and periodontal disease is regarded as a primary diabetic complication.^{12,26}

The link between diabetes and periodontitis is clearly bidirectional, as hyperglycemia has been shown to have a poor impact on dental health, and severe periodontitis can have a deleterious impact on glycemic control.²¹ Diabetics are at least three times more likely than non-diabetics to develop periodontitis. According to research, Patients with well-controlled diabetes, on the other hand, have no higher risk of periodontitis than those who do not have diabetes.^{13,20}

Diabetes has a lot of consequences, including increased alveolar bone loss, abscess formation, and poor healing.¹⁷ Diabetics suffer from all of these oral issues as a result of long-term hyperglycemia, which causes the formation of advanced glycation end products.²¹ Their end products have a variety of systemic effects, including increased cytokine excretion, which causes local inflammation and connective tissue loss. Local inflammation in the oral cavity causes systemic repercussions such as glycemic control difficulties and an increased risk of infection, explaining the condition's bidirectional relationship.²² Although it is evident that periodontal disease has a deleterious impact on diabetes, its effects are adjustable, and therapies can significantly improve patient health.²¹

3.4. Other conditions

In osteoporosis, there is an imbalance between bone loss and creation, resulting in lower bone mineral density. Reduced bone density in the jawbone causes more alveolar bone resorption, which increases the depth and number of periodontal pockets, allowing bacteria to invade.²¹ This persistent infection can cause an increase in interleukin 6, which is a known predictor of bone loss both locally and systemically. Although there is insufficient evidence to conclude that periodontal disease causes osteoporosis, certain research have found a link between the two illnesses.^{21,22}

Periodontal disease and other oral problems are common in persons with chronic renal disease. These oral disorders can cause infection, protein depletion, systemic inflammation, and the formation of atherosclerotic plaques, all of which can increase mortality and morbidity in people with chronic kidney disease. Although treating periodontal disease is unlikely to have a significant favorable influence on patients with chronic renal disease, enhancing the patient's overall health cannot be detrimental.²⁷

3.5. Mechanically ventilated patients

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.² These patients spend more time in the ICU and spend an average of an extra 7-9 days in the hospital.^{28,29} Transfer of oral infection due to poor oral hygiene is the most common cause of ventilation-associated pneumonia in the ICU.³³ When an endotracheal tube (ET) is inserted, the majority of the body's defenses against pneumonia are weakened. Because there is no humidification or nasal warming, this ET tube avoids the regular filtration and physical trapping functions. The ET tube inhibits mucociliary defense mechanisms and disrupts

normal mucosa clearance, resulting in secretions being collected above the cuff and contaminating the subglottic pool.

Contaminated secretions leak into the trachea, where they might be inhaled. This ET tube can also stop coughing. Normal healthy adults' oral flora differs from critically ill adult patient's oral flora. Within 48 hours of intubation, fibronectin levels drop, causing Gram-negative bacteria to outnumber Gram-positive bacteria.² Dental plaque can form on the teeth within 72 hours if good oral hygiene is not practised, acting as reservoirs for possible respiratory diseases. Alongside mastication and swallowing, saliva also plays an important part in oral clearance. Bacterial growth is inhibited by lysozyme, a key enzyme found in saliva. External factors in the ICU might contribute to increased mucosa dryness, increasing the likelihood of cavities, periodontal disease, and other issues. The amount of biofilm adhered to the patient's teeth increases as the number of oral bacteria rises.³⁰

4. Barriers to Oral Care

One of the most significant factors affecting a critically sick patient's oral hygiene is their incapacity to perform this necessary care for oneself. Patients who are very ill are frequently completely reliant on nursing staff for personal and oral care. Because of the complexities of the patient's other treatment and care demands in a fast-paced environment, dental care may be given less emphasis by nurses than other areas of care.³⁴ Nurse scarcity in critical care units can lead to a reprioritization of patient care versus tasks to be completed, with activities deemed more urgent taking precedence over activities deemed basic nursing (such as oral care), and it has been reported that when nurses' time is rationed, oral care is frequently the first practice to be deferred.³¹

There are a few major obstacles to achieving excellent oral hygiene that have been identified. Mechanical, communication, and nursing perceptions are the three types of barriers that exist.³² 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.³²

The oral care equipment available to nurses is insufficient.³² Even though mouthwash and foam swabs are offered instead of toothbrushes, the toothbrushes given are of low quality, are difficult to access, and are huge.³² Language and treatment both have a role in communication barriers. Nursing staff have found that if the patient is told about and understands the purpose of oral hygiene treatment, it can be made easier; for example, the patient can comply with orders to open the mouth. Patient noncompliance could be owing to a linguistic barrier, but

it could also be due to the effects of anaesthesia or other treatments. When a patient is unable to talk after receiving an endotracheal tube, it can create anger and frustration, as well as a lack of compliance. In addition, a patient who is in agony may be unwilling to cooperate.³²

Since there are no comprehensive guidelines that define the procedures, frequency, and duration of oral care, there is a lot of variation among nurses. As a result, there is a discrepancy between oral measures and the actual treatment given to the patient.³³ The nurses' perceptions of these activities appear to be influenced by poor oral hygiene. Oral hygiene is a low emphasis in many undergraduate nursing programmes, according to studies.^{32,34} Only 41% of nurses received dental care instruction during their first nursing training, 48.5 percent received 'on the job' training, and a minority (14.5%) had attended a subsequent oral care training course, according to Jones et al.³⁵ 59 percent of nurses said they have no recollection of obtaining any oral care training. 58 percent of the nurses who took part in the survey wanted to learn about oral care. Studies has reported that the duration of critical care nursing experience had no influence on the quality of oral care provided.³² However, adequate time for procedures and the perception that oral hygiene is an unpleasant job were identified as variables in providing quality oral hygiene.³⁴ Oral hygiene is at risk of being relegated to a low priority when caring for a complex critically sick patient, according to a study conducted by Berry and Davidson⁴ despite the fact that it is regarded a basic nursing practice.³² Oral care was ranked as a low priority by 13.5 percent of nurses in a poll.³⁵

In the challenging sophisticated critical care setting, registered nurses' lack of oral health knowledge or comprehension of its value caused a decline in the prioritization of mouth hygiene.³²

4.1. Published recommendations

4.1.1. Institute for healthcare improvement (IHI) recommendation³⁶

Hospital teams across the United States have developed and tested process and system changes that allowed them to improve performance on daily oral care with chlorhexidine. These measures, taken together, support the implementation of the Ventilator Bundle. Some of these changes are

1. Include daily oral care with chlorhexidine as part of your ICU order admission set and ventilator order set. Make application of prophylaxis the default value on the form.
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.

4.1.2. American association of critical-care nurses (AACN) recommendation³⁷

The American Association of Critical-Care Nurses recommend a complete oral hygiene program for critical care patients and acute care settings who are at high risk for ventilation associated pneumonia to include

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.

4.2. Oral Care for Intubated Patients

Oral assessment can be done casing Modified Beck Oral Assessment Scale³⁸ and Mucosal Plaque Score.³⁹

A dentist performs a comprehensive oral examination to check the state of the lips and intraoral soft tissues, as well as look for any hard or soft tissue pathology. Nurses are the best people to do the general assessment. Every health-care facility must have a defined oral care protocol and training plan in place to ensure that patients receive consistent, complete oral care.⁴⁰

There is no clear agreement on how often oral hygiene should be performed.³² The recommended frequency for oral cleansing was 2-hourly in a research by Cutler and Davis, where a structured protocol was created to manage oral hygiene care practice, although they noticed that in practice it fluctuated between 2- and 4-hour intervals and suggested more investigation.³³ Other authors agree, recommending that critical care nurses work together to produce evidence-based recommendations to guide best practices in the critical care unit.³² The usage of toothbrushes instead of foam swabs for removing dental plaque was found to have a significant benefit.³²

Since a adult toothbrush is too large to reach the intubated patient's mouth, a soft-bristled 'baby' toothbrush is recommended.³³ It allows for easier access to all areas of the mouth and can be used to clean the tongue and gums in edentulous patient.^{2,32}

Brushing teeth using a child-size brush removes more dental plaque and bacteria than foam swabs(Figure 1). Despite this information, nearly 80% of respondents



Fig. 1: Brushing of teeth in ICU patient⁴¹

reported using toothbrushes and toothpaste only occasionally.³¹ Non-intubated patients used toothpaste and toothbrushes more frequently, but intubated patients used a sponge toothette more frequently.³⁴

In surveys, critical care nurses described using a toothbrush just 38.9% of the time to offer dental care to intubated patients.² Cotton and foam swabs are another frequently applied form of mouth care, despite evidence that 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.^{31,35} Swabbing procedures are said to be ineffective at removing plaque.^{32,35} The foam stick can be used to keep the mouth wet between brushings.³⁵ Although toothpaste isn't necessary for plaque removal, topical fluoride treatments have long been thought to be significant in the prevention of decay. Non-foaming toothpaste is preferable because it can be washed out of the mouth more easily, as toothpaste buildup might dry out the mucosa.³² Intubated (sodium chloride, peroxide mixture, chlorhexidine) and non-intubated (mouthwash, toothbrush, toothpaste) patients used different oral care items, according to Hanneman and Gusick.⁴²

The literature discusses a range of mouth rinses, and the following is a summary:

1. Chlorhexidine(Figure 2), 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.^{32,44}
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.

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

Area	Score			
	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.

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 ($\geq 2/3$) 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. Plaque	
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

**Fig. 2:** Chlorhexidine mouth wash⁴³

However, there have been no documented randomized controlled studies in the critical care population to support its use above any other mouth rinse.³²

- Although 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.³²

4. Sodium chloride can promote healing of oral mucosal lesions because of its tendency to cause drying, but routine use as a mouth rinse is limited in the critical care setting.³²
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*.⁴ The use of tiny bottles of sterile water as a mouth rinse in intensive care patients could be cost-effective.³² Ice chips can be used to relieve oral dryness, make patients more comfortable, and control bacterial overgrowth.⁴⁵
6. Povidone-iodine-Although 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.³²
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.^{2,32}



Fig. 3: Different sizes of syringe⁴⁶

Salivary substitutes are vital in maintaining the xerostomic patient's mouth moist. The salivary enzymes lactoferrin and lysozyme, which are crucial for strengthening the natural immunological process, must be included in the replacement. Intubated patients' lips are at a high risk of drying out and cracking.³² This is due to the 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.³²



Fig. 4: Suctioning of oral fluids⁴⁷

Intubated patients can benefit from dental syringes (Figure 3) with a curved nozzle for mouth rinses. A flexible suction catheter (Figure 4) is recommended for eliminating secretions accumulated above the endotracheal tube cuff because it can reach the subglottic area. To remove junk from the tongue, it is necessary to clean it. A forward-raking motion down the back of the tongue, especially with a small, soft-bristled toothbrush³⁶, is used for this operation.³²

5. Conclusion

In the hospital, oral care is a standard process; nonetheless, the frequency and type of oral care practiced by nurses in different units varies. Patients who are ventilated are more vulnerable because their regular host defense mechanisms are compromised. It is critical that appropriate oral hygiene habits limit the potential pool of organisms in the mouth. 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 to successful oral hygiene care practice. In general, nurses should be thoroughly trained in dental care. Plaque reduction and salivary flow stimulation should be part of any comprehensive oral care regimen. Patients' lives can be

saved and financial resources can be saved when nurses and hospital administration properly appreciate the importance of providing dental care.

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None.

7. Conflict of Interest

None.

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