Definitions and Techniques for Oral Care with Chlorhexidine (CHG) Protocol

Our protocol for performing oral care states that:

1. Oral care should be provided a total of 6 times a day at a Q4H interval.
2. Two of the 6 oral care instances need to include the use of CHG (every 12 hours).

Considering the vast amount differences in the techniques, process, and local culture of the intervention we have decided to highlight several as example for oral care from the literature with Examples 1-7, as listed below.

Our Recommended Protocol:

MHA Keystone: ICU Oral Care Checklist

Oral Care with CHG includes ALL of the following four interventions;

1. Perform subglottic suctioning
2. Ensure proper ETT cuff inflation
3. Brush teeth > 2 minutes
   a. Use of toothpaste is optional
   b. Use soft toothbrush making small circular movements
   c. Remove all visible plaque and soft debris
   d. Clean tongue, gums and palate
4. Chlorhexidine
   a. Use alcohol free CHG
   b. 10cc – squirt 5cc on right side of mouth between cheek and gum, being sure to get upper and lower teeth, front to back, pharynx and tongue
   c. Swab with toothette if needed to reach tongue/gums
   d. Suction out pools in mouth
   e. Repeat on left side with remaining 5cc
   f. If patient requires nystatin, give CHG and nystatin 12 hours apart

Oral Care Proposed Timeline:

Figure 1: Timeline of 24 Hour Shift

= Oral Care  = Oral Care +CHG
Example 1

Scannapieco et al., 2009 - *A randomized trial of Chlorhexidine gluconate oral bacterial pathogens in mechanically ventilated patients.*

➢ This protocol does use CHG but it only requires oral care two times per day as opposed to our recommended six. While it doesn’t meet our recommendations, we have included it as it does describe the specific steps this group uses to provide oral care to their patients.

1. CHG was applied using a rinse-saturated oral foam applicator twice each day (in the morning at about 8 AM and in the evening at about 8 PM).
2. Applications were for one minute with about 1 oz of 0.12% CHX.
3. The ICU staff nurses performed CHG application to all teeth, the oral soft tissues including buccal mucosa, vestibule, gingival, and the floor of the mouth and tongue dorsum by swabbing.
4. Excess rinse was suctioned out of the subject’s mouth after one minute.
5. Briefly, routine oral care included use of a suction toothbrush twice a day and as needed to brush teeth and the surface of the tongue, for approximately one to two minutes, and applying suction at completion and as needed during the brushing.
6. Also, deep suctioning was performed to assist in removing oropharyngeal secretions pooled on top of the cuff of the endotracheal tube every 12 hours and following position changes.

Example 2

Mori et al., 2006 - *Oral Care Reduces Incidence of Ventilator Associated Pneumonia in ICU Population*

Oral care was provided three times daily or once in every nursing shift, according to the protocol shown below by a set of two members of the medical staff including a dentist and nurses who were trained to provide oral care.

➢ This protocol does not use CHG and requires oral care only three times per day as opposed to our recommended six. While it doesn’t meet our recommendations, we have included it as it does describe the specific steps this group uses to provide oral care to their patients.

Oral Care Protocol:

1. Check vital signs, then increase cuff pressure of the tracheal tube to 100 mmHg, and provide suction to remove oropharyngeal secretions in the oral cavity and portion of the trachea above the cuff.
2. Position the patient’s head to the side and have the patient open his/her mouth; observe inside the oral cavity and assess the condition of soft and hard tissues.
3. Cleanse the oral cavity using a swab soaked in 20-fold diluted povidone-iodine gargle
4. Cleanse the oral cavity using a tooth brush carefully and rinse with 300 ml weakly acidic water (rinsing alone is performed for patients without teeth on those with bleeding tendency).
5. Repeat cleansing of the oral cavity using a swab soaked in 20-fold diluted povidone-iodine gargle
6. Provide suction of the oral cavity and portion of the trachea above the cuff and restore the cuff pressure.
7. Perform the entire procedure 3 times daily or once in every nursing shift.
Example 3

**Mercy Medical Center, Springfield, MA**
Hutchins et al. 2007 - *Comprehensive Oral Care Program Reduces Rates of VAP in ICU*

- This protocol uses CHG during with every oral care (6 times per day). While it doesn’t specifically meet our recommendations, we have included it as it does describe how this group uses CHG in their oral care for their patients.

**Perform Oral Care at Q4h and as needed with the following instructions:**

1. Replace suction liner, tubing, and covered oral suction device Q24
2. Brush teeth using suction toothbrush with CHG; brush 1-2 minutes applying suction at completion and as needed by gently brush surface of tongue.
3. Use suction swabs with hydrogen peroxide solution Q4h on even hours to clean teeth and tongue.
4. Apply mouth moisturizer to mucous membranes, buccal cavity, and lips Q4h after completion of oral care.
5. Perform deep-oral pharyngeal suctioning with disposable oropharyngeal suction catheter Q12.
6. Use suction catheters to assist in controlling secretions prior to major position changes, extubation, cuff deflation, repositioning of tube, and as needed.

Example 4

**American Association of Critical Care Nursing -2010 Practice Alert**

- This protocol does use CHG but it only requires oral care two times per day as opposed to our recommended six. While it doesn’t meet our recommendations, we have included it as it does describe the specific steps this group uses to provide oral care to their patients.

1. Brush teeth, gums and tongue at least twice a day using a soft pediatric or adult toothbrush.
2. Provide oral moisturizing to oral mucosa and lips every 2 to 4 hours
3. Use an oral CHG (0.12%) rinse twice a day.

Example 5

**Segers P, et al. (2007) Decontamination of the nasopharynx and oropharynx with chlorhexidine reduced nosocomial infections in cardiac surgery.**

- This protocol does use CHG but it only requires oral care four times per day as opposed to our recommended six. It is designed to provide oral care for all patients, intubated or not. While it doesn’t meet our recommendations, we have included it as it does describe the specific steps this group uses to provide oral care to their patients.

1. Patients were administered an oropharyngeal rinse (10 mL) containing CHG.
2. The oropharyngeal solution was used as a mouth rinse and applied to buccal, pharyngeal, gingival, and tooth surfaces for 30 seconds 4 times daily.
3. If the patient was unable to follow the protocol independently, the nurse performed the procedures with the aid of a sponge.
4. The protocol was continued until the nasogastric tube was removed, usually the day after surgery.

Example 6

- This protocol does use CHG but it only requires oral care three times per day as opposed to our recommended six. While it doesn’t meet our recommendations, we have included it as it does describe the specific steps this group uses to provide oral care to their patients.

1. Patients received a 0.12% solution of Chlorhexidine gluconate (CHG) 5 mL by oral swab twice daily (at 10 AM and 10 PM)
2. Toothbrushing 3 times a day (at 9 AM, 2 PM, and 8 PM)
   a. Each patient’s mouth was divided into 4 dental quadrants (right upper, right lower, left upper, left lower), and each quadrant was brushed in a defined pattern.
   b. In each quadrant, every tooth was brushed for 5 strokes on lingual, buccal, and biting surfaces with a soft pediatric toothbrush and toothpaste (Biotene toothpaste, Laclede, Inc, Rancho Dominguez, California).
   c. The palate and tongue were also brushed. Each quadrant, the palate, and the tongue were rinsed with mouthwash (Biotene), 2.5 mL per area, by using a transfer pipette.
3. A Yankauer suction catheter was used as needed to suction excess saliva and water from the mouth as the intervention was performed.
4. Finally, a measured amount of moisturizing gel (OralBalance, Laclede, Inc) was applied to all soft surfaces of the oral cavity and lips by using a green Toothette swab (Sage Products, Inc, Cary, Illinois).

Example 7

Tantipong, H et al. (2008) Randomized Controlled Trial and Meta-analysis of Oral Decontamination with 2% Chlorhexidine Solution for the Prevention of Ventilator-Associated Pneumonia

- This protocol does use CHG but it only requires oral care four times per day as opposed to our recommended six. While it doesn’t meet our recommendations, we have included it as it does describe the specific steps this group uses to provide oral care to their patients.

1. Patients received oral care 4 times per day that involved brushing the teeth, suctioning any oral secretions, and rubbing the oropharyngeal mucosa with 15 mL of a 2% chlorhexidine solution.
2. The oropharyngeal cleaning with 2% chlorhexidine solution was continued until the endotracheal tube was removed.
Bibliography


