Oral Hygiene: Performing

What is Involved in Performing Oral Hygiene?
› Oral hygiene (also known as dental hygiene) is an umbrella term that is used to refer to several activities that are performed to maintain cleanliness of the oral cavity, reduce the risk of disease in the oral cavity, and prevent the development of aspiration pneumonia and ventilator-associated pneumonia (VAP), which is a highly lethal healthcare-associated type of pneumonia that can develop in patients who are receiving mechanical ventilation. (For general information regarding oral care, see Evidence-Based Care Sheet: Oral Care of the Hospitalized Patient. For specific information about performing oral care for an intubated patient, see Nursing Practice & Skill ... Oral Hygiene: Performing for an Intubated Patient)

• What: Oral hygiene typically includes the following components:
  – Basic preventive care, which consists of twice daily brushing and daily flossing the teeth (dentures once per day) and semi-annual dental check-ups for dental cleaning and evaluation
  – Strategies for the prevention of oral candidiasis (also known as thrush; i.e., an opportunistic infection of the fungus Candida albicans that develops on the mucous membranes of the mouth) in at-risk patients
  – Strategies for the prevention of aspiration pneumonia and VAP by reducing the presence of bacterial species that can proliferate in the oral cavity and be aspirated into the lungs
  – Strategies for the prevention and treatment of oral mucositis in patients at increased risk for poor oral hygiene (e.g., older adults, the mentally impaired), patients who have recently had major surgery (e.g., cardiothoracic surgery), and patients who are immunocompromised (e.g., due to HIV/AIDS)
  – Strategies for the prevention and treatment of dry mouth in patients who are receiving oxygen therapy, radiation therapy, or chemotherapy
  – Screening for oral cancer

• How: Depending upon the patient’s individualized needs, oral hygiene involves various strategies and tools for assessing and cleaning the mouth, tongue, and teeth. Most patients require basic oral care (e.g., minimum of twice daily brushing and daily flossing). Immunocompromised patients might require antiseptic mouth rinses, gels, and mouth moisturizers and patients receiving mechanical ventilation might require antimicrobial mouth rinses to reduce the risk of developing VAP

• Where: Oral hygiene can be performed in all patient care settings (e.g., inpatient, outpatient, home), including in the offices of dentists and physicians

• Who: Nurses, nurses’ aides, and respiratory therapists who are trained in oral hygiene perform routine oral hygiene for patients who cannot perform this task independently. Medicated oral solutions and applications are administered only by licensed personnel or according to facility protocol. Generally, it is appropriate for family members to be present while oral hygiene is being performed

What is the Desired Outcome of Performing Oral Hygiene?
› The desired outcome of assisting with or performing oral hygiene is improved oral health, overall health, and comfort in patients who
  • require education on how to properly perform oral hygiene
• cannot perform routine oral hygiene activities independently
• show signs of dental or periodontal disease such as plaque or inflamed gums
• require treatment for conditions that affect the oral cavity (e.g., oral mucositis) that have developed as a result of their illness or treatment (e.g., chemotherapy, radiation, supplemental oxygen)
• are receiving oxygen via a ventilator and require oral hygiene to decrease the risk for VAP

Why is Oral Hygiene Important?
› Consistent oral hygiene prevents the proliferation and spread of oral microbes (e.g., *Streptococcus mutans* [i.e., a gram-positive bacterium that is commonly found in the mouth and is associated with dental caries]) that are responsible for causing oral disease such as
  • plaque (i.e., a film largely comprised of microbes that produce acid, which erodes the tooth surface and gums)
    – Periodontal disease worsens when plaque builds up to form calculus, which is difficult to remove; bacteria proliferate beneath the calculi and cause advanced oral disease
    – Plaque build-up and microbial colonization of the oropharynx by *Streptococcus pneumoniae*, *Staphylococcus aureus*, *Haemophilus influenzae*, and *Pseudomonas* are major risk factors for the development of VAP and are associated with aspiration pneumonia
  • gingivitis (i.e., gum disease)
  • dental caries (i.e., cavities)
  • tooth abscess or loss
  • edentulism (i.e., total tooth loss)
  • tongue coating (i.e., buildup of bacteria on the surface of the dorsum of the tongue)
  • halitosis (i.e., bad breath)
  • systemic illness (e.g., pneumonia, sepsis)
› Oral acids are normally buffered by saliva, but saliva is reduced in patients with dry mouth and/or mucositis, which often occur as a side effect of medication or oxygen therapy
› Poor oral health can result in painful, difficult speech, spontaneously bleeding gums, painful swallowing, refusal to eat or wear dentures, weight loss and malnutrition, aspiration pneumonia, and systemic infection. Poor oral health more than doubles the risk for head, neck, and esophageal cancer

Facts and Figures
› Authors of a systematic literature review found that oral care diminishes the risk of developing aspiration pneumonia in frail older persons and recommended a protocol consisting of brushing teeth after meals, daily denture cleaning, and professional oral health care (e.g., clinician-directed tooth brushing, gargling, and denture cleaning) once per week for residents of long-term care facilities (van der Maarel-Wierink et al., 2013)
› The authors of a systematic review and meta-analysis of five randomized controlled trials found that tooth brushing plus tongue cleaning significantly reduced tongue coating and halitosis compared with tooth brushing alone (Kuo et al., 2013)
› Investigators who observed the oral hygiene care practices of 25 nurses on hospitalized older adults found that nurses typically accepted ‘no’ for an answer when the patient declined oral care, that oral care practices varied and were not always evidence-based, and that oral care was not given high priority in the evening routine (Coker et al., 2017)
› Researchers in a study of 60 older adults requiring nursing care concluded that oral care using a combination of mouthwash and a mouth moisturizing gel was more effective in reducing the number of bacteria and increasing the moisture level of the tongue surface compared to mouthwash alone, water and moisturizing gel, or water alone (Kobayashi et al., 2017)

What You Need to Know Before Performing Oral Hygiene
› Prior to performing oral hygiene, the nurse clinician should be knowledgeable about the following:
  • Anatomy and physiology of the oral cavity
    – The role of the oral cavity is to initiate the digestive process through the chewing of food, salivation, and movement of foods and fluids to the pharynx. It also provides a conduit for breathing, modification of speech sounds, and sensation (e.g., taste)
    – The oral cavity includes the lips, gingivae (i.e., gums), teeth, hard palate, cheek mucosa, tongue, and floor of the mouth, which can be visualized by lifting the tongue. All areas of the oral cavity are susceptible to disease but the teeth, tongue, and gingivae are most frequently the site of oral disease resulting from poor hygiene (Figure 1)
Figure 1: The oral cavity includes the lips, gingivae (gums), teeth, hard palate, cheek mucosa, tongue, and floor of the mouth. Copyright© Duncan Kenneth Winter, 2009. Licensed under Creative Commons Attribution 2.0 Generic License

Each tooth is comprised of the crown, which is the exposed portion, and the root, which is embedded in the jawbone (Figure 2). Deciduous baby teeth are replaced by permanent teeth. A normal adult mouth has 32 teeth: 12 molars, 8 premolars (also called bicuspids), 4 canines, and 8 incisors. Dental decay (Figure 3) and gingival disease (Figure 4) are largely caused by build-up of plaque and tartar (i.e., plaque that combines with the minerals in saliva to form hard deposits or calculus) on tooth surfaces.

Figure 2: Each tooth is comprised of the crown and root. Copyright© Indolences, 2007. Licensed under Creative Commons Attribution-Share Alike 2.0 Generic License
- Flossing is important because the surfaces between teeth are at highest risk for periodontal disease. If flossing is not possible or desirable, water flossing (i.e., irrigating between the teeth using an oral irrigator) is an effective means of removing plaque biofilm.

- The gums consist of dense connective tissue covered by a mucous membrane that is attached to the stem of the tooth at the gum line and attached to the root of the tooth below the gum line by way of the cementum. Healthy gums anchor the teeth and protect the root from oral acid and bacteria. The gums are normally pink, brown, or speckled in color depending upon the individual’s pigmentation; firm; and firmly attached to the teeth. In gingivitis, the gums become red, inflamed, and soft, recede and pull away from teeth, and bleed when probed (Figure 4).

- The tongue is a large muscle that is covered with mucous membrane, the body of which takes up the majority of the space in the oral cavity. Compared with adults, the tongue in younger pediatric patients is larger in proportion to the oral cavity. The dorsal surface of the tongue is covered in papillae (i.e., taste buds). Hyperplasia (i.e., excess cellular proliferation) of papillae can trap bacteria, fungi, tongue cells that have been shed, and decaying food particles, which contributes to oral disease (Figure 4). Although tongue cleaning is not often included in protocols for nurse-directed oral care, dentists recommend brushing the tongue during the oral care routine to lower bacterial counts and reduce halitosis.

- Although the salivary glands (e.g., the parotid, submandibular, and sublingual glands) are not part of the oral cavity, they play a significant role in oral health by emptying saliva in the oral cavity. Saliva is necessary for buffering oral acids, which limits the damage caused by acids on the teeth, gums, and oral mucosa. Special toothpastes (e.g., Biotene) and lozenges (e.g., Salese) have been developed to reduce dry mouth.
• Proficiency in physical assessment skills (for more information, see Nursing Practice & Skill ... Physical Assessment: Head-to-Toe -- Performing)
  – Assessment of the oral cavity involves
    - examining the gingiva for signs of disease (e.g., gums that are enlarged, red, spongy, or shiny)
    - examining the tongue, oral mucosa, and lips for ulcerations and assessing the level of moisture
    - examining the teeth for plaque, calculi, and caries
    - observing odor; halitosis can indicate oral disease
• Risk factors for poor oral hygiene and issues that affect oral care, including
  – mechanical ventilation
  – chemotherapy
  – dysphagia (i.e., difficulty swallowing)
  – inability to perform oral care independently (e.g., due to stroke, arthritis, arm injury, head injury, dementia, or surgery)
  – lack of understanding of oral health practices or having dental phobia
  – orthodontia or dentures
  – older age
  – current smoking
  – chronic alcohol use
  – systemic disease (e.g., cardiovascular disease, diabetes mellitus, rheumatoid disease
  – polypharmacy, which can cause reduced salivation
  – pregnancy; hormonal changes in pregnancy can cause gum tenderness, swelling, and benign bumps on gums (called pregnancy tumors)

› Preliminary steps that should be performed before initiating oral hygiene include the following:
  • Review the facility/unit-specific protocol for oral hygiene, if one is available
  • Review the treating clinician’s order for oral hygiene
    – Although oral hygiene is typically part of routine patient care, in some circumstances physician’s orders are necessary, especially when medicated agents are required
  • Verify completion of facility informed consent documents, if appropriate
    – Typically, the general consent for treatment that is executed by patients at admission to a healthcare facility includes standard provisions that encompass providing oral hygiene
  • Review the patient’s medical history/medical record for
    – allergies (e.g., to latex, medications, or other substances); use alternative materials, as appropriate
    – medical condition that can affect the delivery of oral hygiene

› Gather the following supplies to perform basic oral care:
  • Nonsterile gloves; additional personal protective equipment (PPE; e.g., gown, mask, eye protection) can be necessary if exposure to body fluids is anticipated
  • Facility-approved pain assessment tool
  • Analgesic medication, if prescribed, and means for its administration (e.g., a cup of water for oral analgesics)
  • Soft-bristle toothbrush and/or oral swabs
    – Consider using single-use toothbrushes or confirm with the treating clinician the advisability of disinfecting toothbrushes every day with triclosan, sodium hypochlorite, or chlorhexidine to reduce the prevalence of S. mutans in toothbrush bristles
  • Dental floss, dental tape, or oral irrigator for interdental cleaning
  • Mouthwash that is alcohol-free is preferred because alcohol has a drying effect
  • Fluoridated toothpaste, water, rinse cup, and basin
  • Flexible suction catheter, if indicated
  • Protective barrier for the patient (e.g., drape, waterproof sheet)
  • Facial tissues or a towel
  • Supplies that can be necessary for patients with additional oral care needs include
    – antiseptic mouth rinse or gel
    – 0.12% chlorhexidine or other antimicrobial agent to prevent VAP for patients receiving ventilation, for patients at increased risk for poor oral hygiene, for patients who have recently had major surgery, and for patients who are immunocompromised
    – denture supplies (e.g., denture cleaner, denture-soaking solution, denture cup, gauze)
How to Perform Oral Hygiene

› Perform hand hygiene and don PPE as appropriate
› Identify the patient according to facility protocol
› Establish privacy by closing the door to the patient’s room and/or drawing the curtain surrounding the patient’s bed
› Introduce yourself to the patient and family member(s), if present; explain your clinical role; assess the coping ability of the patient and family and for knowledge deficits and anxiety regarding oral care
  • Determine if the patient/family requires special considerations regarding communication (e.g., due to illiteracy, language barriers, or deafness); make arrangements to meet these needs if they are present
  – Use professional certified medical interpreters, either in person or via phone, when language barriers exist
  • Explain the procedure and its purpose; answer any questions and provide emotional support as needed
› Assess the patient’s general health status, including his/her level of pain using a facility-approved pain assessment tool
  • Administer analgesic medication, if prescribed and as appropriate for patients who report having pain, and allow sufficient time for a therapeutic level to be reached before proceeding with performing oral hygiene
› Observe standard precautions throughout the procedure
› Position the patient for privacy and accessibility. Cover the patient’s chest with a drape or waterproof sheet to protect gown/clothing
› Evaluate the oral cavity using a tongue blade and/or penlight to better visualize the oral cavity and aid examination, as appropriate
  • Perform a manual assessment for food that may remain pocketed after meals
  • Assess for indications of disease (e.g., ulcerations, cracks, gingival bleeding; for details, see Red Flags, below)
› Brush the patient’s teeth at least twice per day for at least 2 minutes. Use a soft-bristled toothbrush or an oral swab instead of a toothbrush if oral tissues are tender or inflamed or if gums bleed due to thrombocytopenia
  • Moisten the toothbrush with a small amount of water and place a small amount of toothpaste on the toothbrush bristles
  • Place the toothbrush at a 45°-angle against the teeth and gums
  • Brush all tooth surfaces, brushing 2–3 teeth at a time
  • Brush outer tooth surfaces, including the gum line
  • Gently brush biting teeth surfaces
  • Make sure to brush the mandibular linguals behind the lower front teeth, which is a prime site for the development of tartar. Include brushing the gum line of the inner tooth surfaces
  • Brush all other accessible surfaces, including both sides of the tongue and the roof and sides of the mouth
› Floss the patient’s teeth once daily
  • Break off approximately 18 inches of dental floss or dental tape
  • Wind most of the floss around a middle finger and the remaining floss around the middle finger of the other hand
  • Pinch approximately 1 inch of floss between the thumbs and forefingers of each hand
  • Slide the floss gently between the teeth in a back-and-forth sliding motion
  • At the gum line, angle the floss such that it curves against the tooth in a “C” shape
  • Avoid using excessive force to push the floss between the teeth because doing so can cause trauma to oral tissue
  • Gently slide the floss against the tooth, making sure it goes slightly below the gum line
  • Rub the side of each tooth with the floss and direct the floss away from the gum
  • Repeat for the tooth in the opposite direction and for all interdental surfaces
  • Floss behind the back teeth
› Rinse after brushing and flossing
  • Rinse with water or an antimicrobial mouthwash by directing the patient to swish the rinse around in the mouth and spit it in a basin or the sink
  • Use a flexible suction catheter for patients who cannot perform this activity independently (Figure 5)
• Administer medicated rinses (e.g., chlorhexidine) or applications, as prescribed
  › For patients with removable partial or full dentures, clean the oral cavity twice per day and clean the dentures at least once per day (e.g., each evening). (For detailed information, see Nursing Practice & Skill … Dentures: Caring for)
• Remove dentures and rinse to remove debris
• Clean dentures using a soft bristle toothbrush and denture cleaner or mild soap and water
• Rinse dentures thoroughly and soak overnight in a denture cup containing denture-soaking solution or clean water
• Brush natural teeth if present using a soft-bristle toothbrush as described above. Either a soft-bristle toothbrush or gauze can be used to clean the gums, tongue, and soft palate
• Prior to returning dentures to the mouth, again clean the oral cavity and rinse dentures with clean water
  › Wipe the patient’s mouth with a towel or facial tissue
  › Assess the patient’s status and comfort level; reposition as necessary
  › Dispose of used materials in proper receptacles and perform hand hygiene
  › Update the patient’s plan of care, as appropriate, and document provision of oral hygiene in the patient’s medical record, including the following information:
    • Date and time oral hygiene was performed
    • Description of the oral hygiene performed
    • Patient assessment information including
      – level of pain, prescribed analgesic administered, and treatment efficacy as appropriate
      – condition of the oral cavity, including signs of oral disease or other problems (e.g., pocketed food)
    • Patient’s tolerance of the procedure
    • Any unexpected patient events and outcomes, interventions performed, whether or not the treating clinician was notified
    • Patient/family member education, including topics presented, response to education provided, need for follow-up education, and details regarding any barriers to communication and/or techniques that promoted successful communication

Other Tests, Treatments, or Procedures That May be Necessary Before or After Performing Oral Hygiene
  › Referral to a dentist, oral surgeon, oncologist, or an infectious disease specialist can be indicated if abnormalities of the oral cavity are identified
  › Depending on the condition of the patient’s teeth and gums, referral to a dentist for examination and treatment or to a professional dental hygienist for cleaning can be necessary

What to Expect After Performing Oral Hygiene
  › The patient’s oral cavity will be clean and the risk for dental caries, gingivitis, and the spread of oral microbes will be decreased
  › Treatment for various oral conditions (e.g., oral mucositis) will be provided
The patient, family, and/or other caregivers will be knowledgeable about how to perform the appropriate steps for oral hygiene.

Red Flags

- Monitor for and report any tooth sensitivity; painful, inflamed, or bleeding gums; crusting or scaling of the lips; and ulcerations, white patches, or cheese-like white plaque on the gums or other oral mucosal tissue.
- It is especially important to report white patches that cannot be removed with oral care, because these can be a sign of leukoplakia (i.e., thickened white patches that can be precancerous lesions).
- Notify the treating clinician if the patient has pain in the oral cavity that interferes with eating or swallowing.

What Do I Need to Tell the Patient/Patient’s Family?

- Explain what to expect during and after oral hygiene is performed.
- Provide verbal and written instructions, if available, about the steps of performing proper oral hygiene; provide education to family members and other caregivers if the patient requires assistance with oral care at home.
- Educate about the need for brushing at least twice per day and flossing once per day.
- Instruct to not share toothbrushes, allow brushes to air dry and store them in a clean cabinet away from the toilet, and replace the toothbrush every 3–4 months or when it shows signs of wear (e.g., frayed bristles).
- Emphasize the importance of having dental examinations every 6 months or when a tooth is chipped or broken, a filling is lost, or a mouth sore or toothache develops.

References