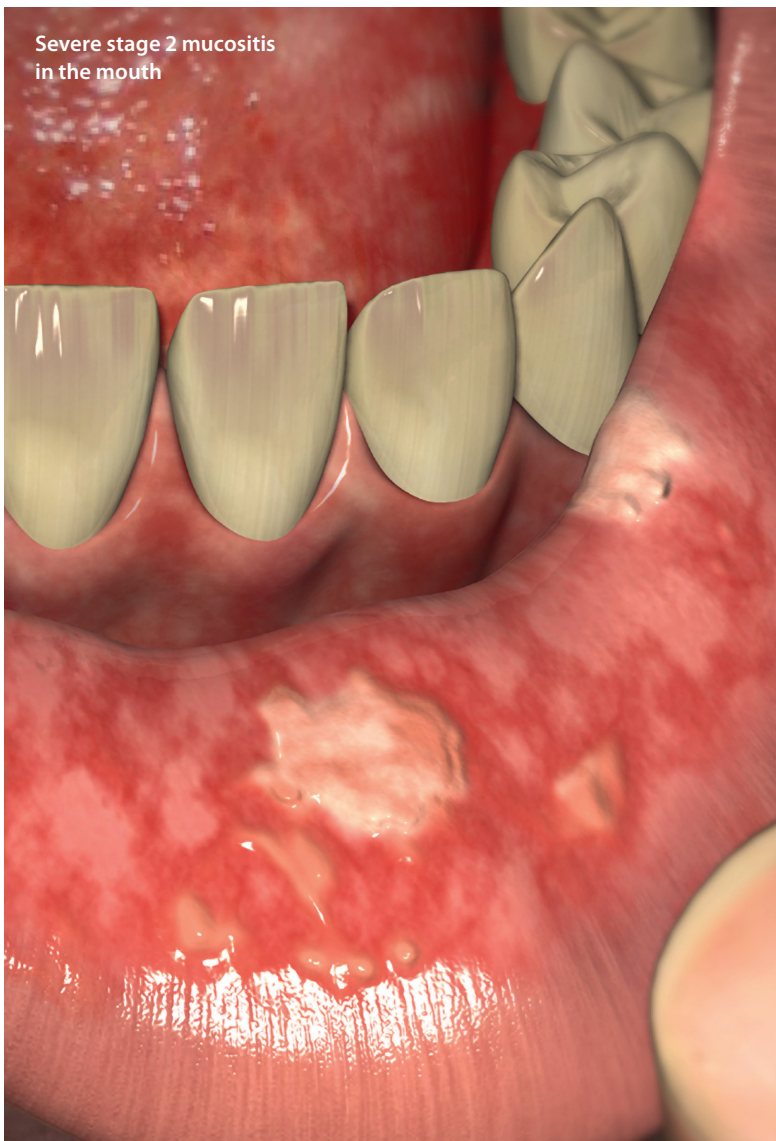


Oral care considerations during the patient's cancer treatment

Developing an evidence-based oral care policy may help to prevent or to more effectively manage oral mucositis in oncology patients.



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Each year, 132,000 oncology patients in the United States (2003 data)¹ develop oral mucositis, one of the most frequent and distressing side effects of cancer treatment.¹⁻⁵ *Oral mucositis* refers to inflammation of the oral mucosa that in severe cases may lead to ulceration and causes a disruption in the function and integrity of the mouth resulting from cancer therapy.⁶⁻⁸ Forty percent of all patients undergoing chemotherapy and/or radiation therapy will experience this side effect.^{2,3,9-11} Oral mucositis poses great danger to patients and also negatively impacts the health care delivery system. Besides increasing the patient's risk of local or systemic infections,^{8,11,12} oral mucositis can raise the cost of health care by at least \$1,700 per patient, depending on severity.^{9,13-15}

What are effective strategies to prevent oral mucositis? What type of education do patients and families need to avoid this troublesome side effect or to at least make it more manageable? Existing evidence demonstrates that clinicians have limited knowledge of evidence-based oral care¹⁶⁻¹⁸ and that nurses' skill with oral care needs improvement.¹⁸ The development of a specific policy regarding oral care for oncology patients may help, as one evidence-based practice team found.

DEVELOPING AN EVIDENCE-BASED POLICY
The Oral Mucositis Committee, a multidisciplinary team formed at a large academic medical

center (the University of Iowa Hospitals and Clinics and the University of Iowa Children's Hospital), sought to develop an evidence-based oral care policy to address oral mucositis and promote oral health for oncology patients. Team members represented adult and pediatric areas, inpatient and ambulatory care settings, oncology and bone marrow transplant, nursing, medicine, dietary, speech and swallowing services, dentistry, and pharmacy.

An evidence-based practice model was used to guide implementation of the recommended changes, which included developing a policy, educating nursing and medical staff, creating outreach strategies, modifying the computerized documentation system, and providing audit and feedback after implementation.¹⁹

Evaluating the patient One of the first and often overlooked things to evaluate is the current oral care practices of the patient, family, and/or caregiver and any associated barriers to good oral health that may exist. For some patients, oral care may only include brushing their teeth once a day or every other day, whereas for others, oral care might mean brushing twice a day and flossing once a day. Variability among patients' baseline oral care practices means that nurses need to critically think about how to best individualize patient education while highlighting the same educational concepts for each patient. Education must include the importance of good oral care, frequency of oral care, correct technique, and the appropriate use of certain oral care products in order to remove food debris and plaque. Education should also focus on encouraging patients to stop smoking and/or using chewing tobacco, if applicable and age-appropriate. Good oral care decreases the risk of oral mucositis and systemic infection.²⁰⁻²²

Contraindications Nurses must also consider any contraindications to routine oral care. For example, oral care may be inappropriate or require special considerations for patients recovering from oral surgery to avoid trauma to the surgical site. Additionally, patients at risk to aspirate should be carefully considered, as they have an elevated risk of aspiration pneumonia if oral care is poor.²³ The policy developed by the Oral Mucositis Committee did not address mechanically ventilated patients or those with tracheotomies but did provide nurses with a link to the appropriate policy for these patient populations.

ORAL CARE PRODUCTS AND PROCEDURES

Table 1 includes the oral care products and procedures along with the evidence-based recommendations set forth by the multidisciplinary team. According to work previously published through the Oncology Nursing Society, the basic

components of an oral care protocol should include assessment, patient education, tooth brushing, flossing, and oral rinses.⁶ Evidence-based oral assessment was developed using the Eilers' Oral Assessment Guide.²⁴⁻²⁶ Tooth brushing is essential to good oral health as it helps to prevent tooth decay, prevent gum disease (one of the leading causes of tooth loss in adults), remove tooth stains, and eliminate bad breath. Oral rinses help to decrease erythema and improve oral health by cleansing and lubricating tissues, preventing crusting, treating mucosal wounds, hydrating and irrigating mucosal tissues, soothing sore gingiva and mucosa, removing debris, and preventing accumulation of bacteria.

PUTTING POLICY INTO PRACTICE

The recommendations listed in Table 1 were included in the policy approved by the University of Iowa Hospitals and Clinics' Professional Nursing Practice Committee in the spring of 2009. The evidence-based practice changes were implemented house-wide after working through several committees, including Staff Education and Pharmacy and Therapeutics. The policy was placed on the hospital intranet site for nurses to use as a reference after education and training were completed.

New oral care products The oral care practice changes included a change in the selection of oral care products used based on some of the recommendations. New soft toothbrushes were approved through the Products Committee, as the previous toothbrushes used for adult and pediatric patients were of poor quality, had caps, and were substituted with the use of toothettes by oncology patients. The Oral Mucositis Committee was also able to articulate the need for waxed floss for oncology patients, which had been unavailable previously, as well as the need to stock Biotene toothpaste. New toothbrushes, waxed floss, and decreased use of toothettes provided an annual cost savings of approximately \$900 or 4.4%.

Evaluation Before the practice change was implemented, staff were surveyed regarding their knowledge of oral care frequency, oral care product use, and the nutritional needs of oncology patients. Chart audits are currently being done to collect data regarding documentation compliance based on the evidence-based oral care policy, and additional education and auditing will be determined by the Oral Mucositis Committee based on these results.

CONCLUSION

Many oncology patients develop oral mucositis as a result of the chemotherapy and/or radiation therapy they receive as part of their treatment regimen. Some of the adverse effects

TABLE 1. Evidence-based oral care for oncology patients

Oral care products and procedures	Evidence-based recommendations
BRUSHING	
Brushing or oral care frequency	<ul style="list-style-type: none"> • A minimum of twice a day • May increase to after every meal if signs or symptoms of oral mucositis exist
Toothbrush	<ul style="list-style-type: none"> • Rounded soft, extra soft, or ultra soft bristle tip (may soak in warm water before using to make the bristles even softer) • Needs to be appropriate size to be held comfortably • Use a toothbrush with a small brush head for children younger than 6 y • Sonic or oscillating electric toothbrushes with an extra soft head are acceptable but not required • Do not use rotary electric toothbrushes because they can tear or shear fragile oral mucosa • Do not use toothettes because they do not adequately remove bacterial plaque • Rinse the toothbrush with warm water until the bristles are clean after each use and allow the toothbrush to air dry between uses with the bristles up • Only cap a toothbrush during travel as a covered/capped toothbrush promotes microbial growth • Do not store the toothbrush in the patient's hospital-room bathroom • Replace the toothbrush every 3 mo or when the bristles are worn
Technique	<ul style="list-style-type: none"> • Brush for 2 min using a gentle rotating/circular motion and holding the toothbrush at a 45-degree angle to the tooth surface • Rinsing with water during brushing may help with plaque removal • Brush as soon as the first tooth erupts for infants; use a moistened gauze, washcloth, or paper towel on the gums and oral cavity of infants with no teeth 2-3 times a day but do not use a moistened facial tissue • Children younger than 6 y have not yet developed good technique and should receive assistance with brushing
Toothpaste	<ul style="list-style-type: none"> • Use Biotene toothpaste and explain to patient/family that Biotene does not foam • Begin using Biotene upon diagnosis • Patients unable to spit may use toothpaste with fluoride with supervision as a result of their higher risk of caries or dental problems, such as with cancer treatment • If needed, flavored toothpaste may make brushing more palatable (bubble gum flavor is the easiest, most nonirritating flavor to find) • Avoid flavors that may be irritating (such as cinnamon and strong mint) • Avoid any toothpaste that does not have an American Dental Association seal • Toothpaste ingredients to avoid: any with pyrophosphate, hexametaphosphate, cinnamon flavoring, or sodium lauryl sulfate, and any toothpaste that is labeled as "whitening, brightening, or tartar control" • Only use pea-size amount (or smaller) of toothpaste • More toothpaste is not useful and can be unnecessarily ingested
FLUORIDE	
Fluoride gel	<ul style="list-style-type: none"> • May be encouraged for patients identified by dentistry as being at high risk for dental caries • Products are prescription only
FLOSSING	
Technique	<ul style="list-style-type: none"> • Use waxed floss as it slides more easily than unwaxed floss and is less likely to cause trauma to tissue • Floss aids with handles should be avoided because of an increased risk of mucosal injury • Pediatric patients may begin flossing when teeth are touching • Avoid sore areas • Precautions may be in place for patients with a platelet count <50,000 k/mm³ and/or WBC count <1.0 k/mm³ • Avoid areas with bleeding
Frequency	<ul style="list-style-type: none"> • Once a day
LIP CARE	
Technique	<ul style="list-style-type: none"> • Assess for dry and/or cracked lips twice a day and as needed • Lanolin products (unless patient allergic to lanolin) are encouraged • Patients of all ages may use lanolin products • Lanolin must be removed before radiation • Do not use ChapStick, plain KY jelly, occlusive lip balms, or petrolatum-based products as these fail to moisturize and can potentially promote bacterial growth
Frequency	<ul style="list-style-type: none"> • Twice a day and as needed

Oral care products and procedures	Evidence-based recommendations
ORAL RINSES	
Oral rinses	<ul style="list-style-type: none"> • Salt and soda rinses (mix ¼ teaspoon of table salt, ½ teaspoon of sodium bicarbonate, and ½ cup of warm water) • Salt water rinses • Baking soda rinses (if the salt water rinse is irritating to the oral mucosa) • Plain water rinses • Avoid mouthwashes that contain alcohol (including chlorhexidine rinses with alcohol) which irritate and dry already friable tissue and may interfere with wound healing • Hydrogen peroxide is not recommended as it can interfere with collagen formation and subsequent wound healing
Frequency	<ul style="list-style-type: none"> • Four times a day (rinses should begin when the oral mucosa first starts to become inflamed) • Used in conjunction with oral hygiene regimen and not in place of an oral hygiene regimen
Technique	<ul style="list-style-type: none"> • Rinse for 15-30 sec before spitting out the solution • Encourage patients (who are not at risk for aspiration) to gargle instead of just rinsing as this will help clear the secretions that are stuck at the base of the tongue or oropharynx
DIETARY	
Referrals	<ul style="list-style-type: none"> • Identify patients at risk for malnutrition • Identify ways to safely increase nutritional intake
Special considerations	<ul style="list-style-type: none"> • Choose soft, easy-to-chew foods • Avoid eating foods with sharp edges • Allow hot foods to cool before eating • Avoid eating very spicy, sour, or acidic foods/drinks • Avoid sugary foods/drinks • Avoid foods that will stick to teeth • Avoid alcohol
DENTIST	
Referrals	<ul style="list-style-type: none"> • Identify patients at risk for developing dental caries and/or oral mucositis • Identify patients who need additional dental work prior to or during treatment • All pediatric patients should be examined by a dentist before beginning treatment • All adult head and neck radiation patients should be examined by a dentist before beginning treatment
DENTURES	
Dentures	<ul style="list-style-type: none"> • Wear dentures only when eating foods that need to be chewed if they are irritating the oral mucosa • Avoid wearing dentures if mouth sores are present under dentures • Denture adhesives should not be used • Do not let patients wear loose dentures • Wait 6-12 mo after head and neck radiation before obtaining new dentures because radiation can cause mouth and jaw changes
Care	<ul style="list-style-type: none"> • Clean dentures with a denture brush/toothbrush and regular toothpaste at least once a day or after meals • Store dentures in water while hospitalized • Clean denture storage container with soap and water between uses and dispose of any denture storage container supplied by the hospital at least once a week • Rinse off cleansing agents before inserting dentures in the mouth
HOME CARE	
Self-assessment at home	<ul style="list-style-type: none"> • Instruct patients/families to examine the oral mucosa at least once a day and to notify the health care team of any of the following: <ul style="list-style-type: none"> — Sores — Swelling — Bleeding — Pain — Sticky white film

of oral mucositis include altered treatment plans, elevated risk for infection, pain, and increased health care costs.²⁷ Given these adverse effects, prevention of oral mucositis is particularly important and should start with evidence-based oral assessment and oral care practices. ■

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