

**Patients: please give this
booklet to your dentist**

Cancer Treatment & Dental Health



A Resource For Dental Health Professionals

Simcoe Muskoka
Regional Cancer Program



Royal Victoria
Regional Health Centre

Cancer Care Ontario
Action Cancer Ontario

In this booklet you will learn about:

- Importance and Objectives of Dental Evaluation for Cancer Patients
- Oral Side Effects of Cancer Treatment
- Oral Care Products and Resources

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Introduction

People with cancer have different oral health needs than your typical patients. As an oral health professional, it is important to understand each patient's unique and changing oral health needs when facing cancer treatment.

This booklet is meant to help you understand some basic information about the oral effects of cancer treatment, including prevention, symptoms, treatment and resources. For further support and information, Cancer Care Ontario has established oral care guidelines that are accessible at www.cancercare.on.ca/toolbox/symptools/

Objectives of dental evaluation for cancer patients

1. Improve and maintain oral hygiene in order to reduce the risk and severity of oral complications.
2. Eliminate oral infection and prevent potentially fatal systemic infections of dental origin.
3. Control pain in the oral cavity.
4. Maintain or improve oral status and prevent destruction of the dentition.
5. Assist with maintaining adequate nutrition.
6. Provide reconstruction and/or rehabilitation following surgical procedures.
7. Prevent or reduce the incidence of bone necrosis of jawbones due to radiation or medications.
8. Improve quality of life.

Oral side effects of cancer treatment

Oral mucosa is made up of epithelial cells that regenerate every 7-14 days, making them easily damaged by chemotherapy and radiation therapy.

The incidence of oral mucositis varies across oncology patient populations and is related to individual patient factors as well as the type of therapy being received.

- Standard-dose chemotherapy – 40%
- Hematopoietic stem cell transplantation – 80%
- Radiation therapy for head and neck cancers – 100%

For patients receiving chemotherapy for any malignancy:

- 40% will experience oral complications.
- The majority of patients with leukemia and bone marrow transplant will develop oral complications.
- When cancer is eliminated, fewer problems develop.

For patients receiving radiation therapy to oral cavity and/or salivary glands, these acute and chronic issues may arise:

- Radiation to the head and neck may lead to loss of taste, mucositis, infection and decreased salivary flow.
- Permanent side effects include xerostomia (dry mouth), salivary hypofunction, trismus (difficulty opening the mouth), soft tissue breakdown and failure to heal and osteoradionecrosis, which can lead to rapid decay.

For patients receiving anti-resorbative therapy for cancer treatment:

- Some cancers (multiple myeloma, bone metastases secondary to breast, prostate and other solid tumors) can cause the bones to weaken.
- Anti-resorbative medications, (Pamidronate, Zoledronic Acid, Denosumab) are given to reduce the risk of bones breaking, reduce the level of calcium in the body, and reduce pain.
- These drugs can cause Osteonecrosis of the Jaw (ONJ).
- If your patient is receiving medications to protect their bones, they should be screened by you prior to commencement of therapy. Screen them regularly for pain, swelling, gum infections, loosening of teeth, poor healing of the gums (especially after dental work), and numbness or a feeling of heaviness in the jaw.

Oral infection

Treatment of oral infection includes the removal of, or endodontic treatment of any offending teeth and deep scaling for those with uncontrolled periodontal disease. These procedures have a far less malaise associated with them if performed prior to initiation of therapy, rather than during therapy. Patients with uncontrolled periodontal disease should maintain their recall schedule during their cancer treatments. Communication with the oncology team to review treatment timing is essential.

Oral mucositis

Oral mucositis manifests as inflammation and ulceration involving the mucous membranes of the oral cavity and/or throat. The process of mucosal damage may begin after administration of chemotherapy and/or radiation therapy. Many patients do not experience any symptoms indicative of mucosal damage until the ulceration phase. The importance of maintaining good periodontal health is related to the incidence of oral mucositis and the risk of secondary infection by way of the periodontal pocket. Eventual healing of the oral mucosa does occur, but it is possible that it may take some time and may be slowed by additional administrations of chemotherapy and/or radiation therapy.

Potential signs and symptoms of oral mucositis:

- Oral pain
- Erythema
- Xerostomia (dry mouth)
- Ulcerative lesions
- Difficulty swallowing or speaking
- Compromised airway (if very severe)

Consequences of mucosal breakdown:

- Bleeding
- Infection from pathogens crossing breaks in mucosa
- Treatment delays
- Dehydration
- Nutritional deficits
- Decreased quality of life

The five phases of mucositis

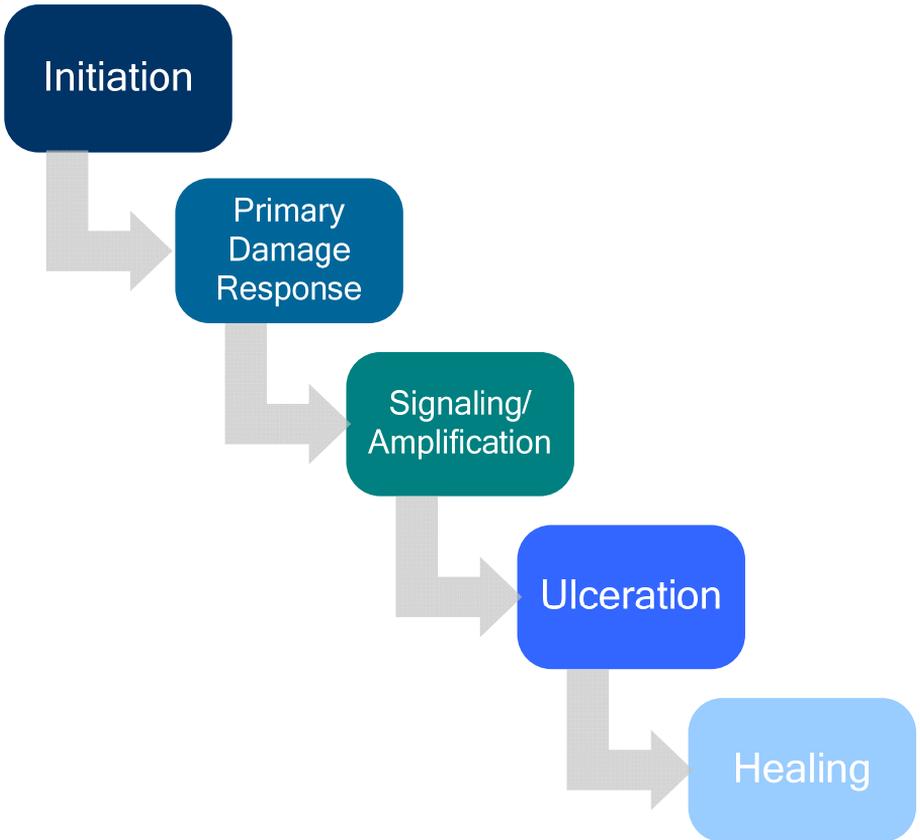


Table adapted from Sonis et al. Cancer. (2004).

When is mucositis likely to occur?

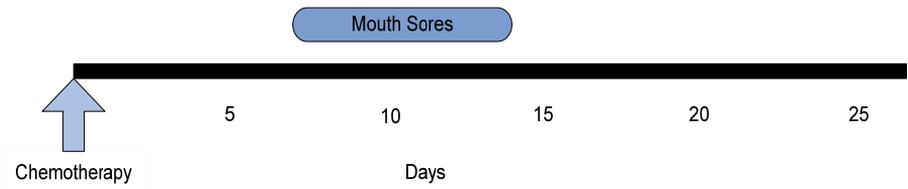


Table adapted from Wong H. Scientific World Journal. (2014).

Oral care products and resources

The following pages present a number of products that are recommended for the prevention, treatment or palliation of many of the oral problems associated with cancer therapies.

Note: Use of all products should be evaluated for individual patient benefit and should be closely monitored for efficacy. Products that prove to be ineffective or result in additional morbidity should be discontinued and alternative methods sought.

Compliance will be largely impacted by the patient's perception of need and by the cost and availability of the product.

1. Frequent Rinsing

Frequent rinsing with a bland rinse comprised of baking soda and salt is essential to maintain oral pH as well as moisturizing the oral cavity. This is an essential component of the patient's mouth care and should not be replaced with OTC rinses.

2. Bacterial Plaque Control

Ideally, patients should use an extra-soft nylon bristle toothbrush and dental floss for mechanical removal of plaque. Sponge toothettes/foam sticks available to hospitalized patients may not adequately remove bacterial plaque and should be used as a last resort. Patients who suffer from severe oral pain may rinse with viscous xylocaine before brushing. These brushes should be disinfected in chlorhexidine and air dried before reuse.

Chlorhexidine rinses (non-flavored, non-alcohol) may be used to assist with bacterial plaque control when mechanical methods are inadequate but does not prevent oral mucositis. Good oral hygiene is essential in preventing secondary infection.

3. Fluoride Gels

A 1.1% neutral pH sodium fluoride gel is recommended for the prevention of caries and/or demineralization of the tooth structure secondary to salivary hypofunction. For long-term patients, daily application is accomplished using custom gel-applicator trays. Patients with a transient salivary hypofunction may brush with fluoride gel daily. **Acidulated fluorides should not be used.**

4. Remineralizing Toothpaste

A toothpaste with calcium and phosphate can be used in addition to fluoride to remineralize early enamel breakdown in severely xerostomic patients. Remineralizing toothpaste should be used in the morning, and the fluoride in the evening.

5. Saliva Substitutes/Oral Lubricants

A variety of OTC sprays and lozenges are available for temporary relief from xerostomia and dry lips. Lubricating products with animal based oil, lanolin and beeswax are recommended for lip care. Also try a bland rinse made of 1 tsp salt and 1 tsp baking soda in 4 cups of water. Products containing petrolatum should not be used as they may promote microbial growth. Patients on active radiation therapy should follow advice of the Radiation Oncologist.

6. Saliva Stimulants

A prescription for pilocarpine (Salagen) may benefit patients with residual salivary gland hypo-function.

7. Tobacco Cessation

- *Smokers Helpline, Canadian Cancer Society*
www.smokershelpline.ca
- *Clearing the Air – How to Quit Smoking and Quit for Keeps* (a patient publication)
www.quitsmoking.com/content/clearing-the-air-how-to-quit-smoking...and-quit-for-keeps
- *Tobacco use, Oral changes associated with Tobacco Use, Quitting smoking factsheets*
www.youroralhealth.ca

8. Palliation of Pain

All palliative pain preparations should be closely monitored for efficacy and re-evaluated if pain persists. Topical anesthetic and protective preparations may be used for isolated ulcerations. The patient should be cautioned that some preparations can anesthetize the gag reflex and may increase the risk of aspiration. Lack of sensation may result in damage to intact mucosa.

Oral pain in a palliative patient can be enhanced due to undiagnosed oral candidiasis. Evaluate and assess etiology of pain which can be viral, bacterial, fungal or neutropenic in nature.

For more information

Cancer Care Ontario has a number of resources that health care providers can access to help support their practice in meeting patients' oral care needs. The following documents are available free of charge from www.cancercare.on.ca

- Mucositis Algorithm
- Xerostomia Algorithm
- Infections Algorithm
- Dysgeusia Algorithm
- Pocket Guide to Oral Care
- Oral Care—Guide-to-Practice

References

- Al-Dasooqi N et al. Emerging Evidence on the Pathobiology of Mucositis. Supportive Care in Cancer. 21:3233-41, 2013.
- BC Cancer Agency (2003). How Will Radiation Affect My Teeth? Retrieved from www.bccancer.bc.ca/HPI/CancerManagementGuidelines/HeadnNeck/Dentistry/HowWillRadiationAffectMyTeeth.htm
- Bowen J et al. Methodology for the MASCC/ISOO Mucositis Guidelines Update. Supportive Care in Cancer. 21:303-8, 2013.
- Cancer Care Ontario. (2012) Symptom Management Guide-to-Practice: Oral Care (website). Retrieved from www.cancercare.on.ca/toolbox/symptools/
- Elad S, et al. Development of the MASCC/ISOO Mucositis Guidelines: Considerations Underlying the Process. Supportive Care in Cancer. 21:309-12, 2013.
- Gibson R, et al. Systematic Review of Agents for the Management of Gastrointestinal Mucositis in Cancer Patients. Supportive Care in Cancer. 21:313-26, 2013.
- Health Sciences North. (2013). Dental Oncology (website). Retrieved from <http://hsnsudbury.ca/portalen/rcp/ProgramsServices/DentalOncology/tabid/118/Default.aspx>
- Jensen SB, et al. Systematic review of miscellaneous agents for the management of oral mucositis in cancer patients. Supportive Care in Cancer. 21:3223-32, 2013.
- Lalla RV, et al. The MASCC/ISOO Clinical Practice Guidelines for the Management of Mucositis Secondary to Cancer Therapy. Cancer. [Epub ahead of print], 2014.

References

- Lalla RV, Saunders, DP, Peterson DE. Chemotherapy or Radiation-Induced Oral Mucositis. *Dent Clin Noth Am.* 28: 341-49, 2014.
- Lalla RV. The MASCC/ISOO Mucositis Guidelines Update: introduction to the first set of articles. *Supportive Care in Cancer.* 21:301-2, 2013.
- Lalla RV, Ashbury FD. The MASCC/ISOO Mucositis Guidelines: dissemination and clinical impact. *Supportive Care in Cancer.* 21:3161-63, 2013.
- McGuire DB, et al. Systematic review of basic oral care for the management of oral mucositis in cancer patients. *Supportive Care in Cancer.* 21:3167-77, 2013.
- Migliorati CA, et al. Systematic review of laser and other light therapy for the management of oral mucositis in cancer patients. *Supportive Care in Cancer.* 21:333-41, 2013.
- Nicolatou-Galitis O, et al. Systematic Review of Amifostine for the Management of Oral Mucositis in Cancer Patients. *Supportive Care in Cancer.* 21:357-64, 2013.
- Nicolatou-Galitis O, et al. Systematic Review of Anti-inflammatory Agents for the Management of Oral Mucositis in Cancer Patients. *Supportive Care in Cancer.* 21:3179-89, 2013.
- Peterson DE, et al. Systematic Review of Oral Cryotherapy for the Management of Oral Mucositis Caused by Cancer Therapy. *Supportive Care in Cancer.* 21:327-32, 2013.
- Raber-Durlacher J, et al. Systematic Review of Cytokines and Growth Factors for the Management of Oral Mucositis in Cancer Patients. *Supportive Care in Cancer.* 21:343-55, 2013.
- Saunders D, et al. Systematic Review of Antimicrobials, Mucosal Coating Agents, Anesthetics, and Analgesics, for the Management of Oral Mucositis in Cancer Patients. *Supportive Care in Cancer.* 21:3191-207, 2013.
- Yarom N, et al. Systematic review of natural agents for the management of oral mucositis in cancer patients. *Supportive Care in Cancer.* 21:3209-21, 2013.
- Oral Mucositis (2010). In C.G.Brown (Ed.), *A guide to oncology symptom management* (p. 337). Pittsburgh, PA: Oncology Nursing Society.

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