

Symptom Management Guidelines: XEROSTOMIA

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• **Xerostomia:** abnormal dryness in the mouth characterized by a marked decrease and/or thickening of saliva, may be acute or chronic in nature.

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Contributing Factors	
Cancer Treatment Related	 Chemotherapy Agents Many chemotherapy agents have the potential to cause or contribute to xerostomia. Condition most often reverses post treatment. For specific chemotherapy information See Cancer Drug Manual in Resource Section Radiation Therapy Radiation to head and neck/salivary glands. Severity of saliva reduction is dependent upon total dose of radiation received, degree of salivary gland radiated, and individual patient variables Total body irradiation Surgical excision of salivary glands Graft versus host disease
Medication(s)	 Anticholinergics (e.g. atropine, transdermal scopolamine) Antipsychotics ((e.g. chlorpromazine, prochlorpromazine, risperidone) Antihistamines (e.g. diphenhyrdamine, chlorpheniramine) Opioids Antispasmodics Antihypertensives Diuretics Antidepressants (Tricyclic-TCAs & Selective Serotonin Reuptake Inhibitors-SSRIs) Antiparkinsonians Bronchodilators
Other	 Dehydration Immune disorders (e.g. Sjogren's syndrome, HIV/AIDs) Alcohol or tobacco use Oxygen therapy Infection (mumps) Anxiety

Consequences

Increased risk of:

- Local infection/systemic infection (sepsis) fungal, bacterial, viral
- Altered nutrition dehydration, malnutrition, weight loss
- Dental disease increased rate of dental caries, gingivitis, osteoradionecrosis (ORN)
- Cancer treatment delay, reductions, or discontinuation
- Change to quality of life psychological distress, difficulty eating dry foods and drinking, altered speech and taste

	Focused Health Assessment	
GENERAL ASSESSMENT	SYMPTOM ASSESSMENT	PHYSICAL ASSESSMENT
Contact and General Information • Physician name – oncologist, family physician	Normal Refer to pretreatment nursing assessment or dental evaluation Onset	 Vital Signs Frequency – as clinically indicated Assess any change in body weight
 Nurse Practitioner Dentist Pharmacy Home health care Other health care providers Allergies 	 When did symptoms begin? Provoking / Palliating What makes it better? Worse? Quality (in last 24 hours) Do you have a dry mouth? (e.g. decrease in amount or consistency of saliva) 	Oral Assessment Assess lips, tongue and oral mucosa: Color– note degree of pallor/erythema, presence of white patches, or discolored lesions/ulcers
Consider Contributing Factors Cancer diagnosis and treatment(s) – note type and date of last treatment Medical history, including pretreatment oral and dental evaluation Medications Recent lab or diagnostic reports	 Do you have any redness, blisters, ulcers, cracks, or white patchy areas? If so, are they isolated, generalized, clustered or patchy? Region / Radiation – NA Severity / Other Symptoms How bothersome is this symptom to you? (0-10 scale, with 0 not at all – 10 being worst imaginable) Have you been experiencing any other symptoms: Fever? - possible infection Difficulty breathing? – possible respiratory distress Difficulty swallowing? – nutritional deficiency Excessive thirst, weakness, dizziness, dark urine?	- Moisture— note altered texture, shininess, decrease in amount of saliva, increased thickness of saliva - Cleanliness— accumulation of debris or coating, discoloration of teeth, bad odour - Integrity— note presence of cracks/ fissures/ulcers/blisters - Note ability to swallow, changes in voice tone
	 Treatment Using any oral rinses? If so, what type? Effective? Using any salivary substitutes or stimulants? If so, what type? Effective? Using any pain medications? If so, what type (topical, systemic)? Effective? Any other medications or treatments? If so, what type (topical, systemic)? Effective? Understanding / Impact on You Functional Alterations? Ability to eat or drink? How much? Swallow? Taste changes (dysgeusia)? Difficulty with speech? Able to wear dentures? Interfering with other normal daily activity? 	Hydration Status and Weight Assess: Daily fluid intake/output Mucous membranes, skin turgor, and capillary refill Amount/character of urine Weight if daily fluid intake inadequate
	 What is your comfort goal or acceptable level for this symptom (0 – 10 scale)? 	

SALIVARY GLAND CHANGES / XEROSTOMIA GRADING SCALE Adapted NCI CTCATE (Version 4.03)				
Normal	GRADE 1 (Mild)	GRADE 2 (Moderate)	GRADE 3 (Severe)	GRADE 4 (Life - threatening)
Asymptomatic	Symptomatic changes without significant dietary alterations (e.g., dry or thick saliva) Unstimulated saliva flow >0.2 ml/min	Moderate symptoms Oral intake alterations (e.g., copious water or other lubricants needed, diet limited to purees and/or soft, moist foods) Unstimulated saliva 0.1 to 0.2 ml/min	 Inability to adequately aliment orally Tube feeding or TPN indicated Unstimulated saliva <0.1 ml/min 	not used

*Step-Up Approach to Symptom Management: Interventions Should Be Based On Current Grade Level and Include Lower Level Grade Interventions As Appropriate

Management of Xerostomia

NORMAL



G	ENERAL RECOMMENDATIONS FOR PREVENTION
Salivary Gland Sparing Radiation Therapy	Intensity– modulated radiation therapy (IMRT) allows selective delivery of radiation to the head and neck sparing salivary gland tissue; thereby decreasing the severity of xerostomia
Dental Assessment and Care	 A dental exam and interventions should be performed as early as possible before starting cancer treatment Maintaining optimal oral health during and after treatment will facilitate adequate hydration and nutrition, reduce severity of xerostomia and prevent/minimize oral complications Daily Fluoride Treatments: Essential to prevent/minimize development of dental caries and demineralization of teeth Initiated prior to cancer treatment and should be continued throughout life For long term/permanent xerostomia, use of a custom gel applicator tray is recommended for daily application For transient xerostomia fluoride gel may be brushed on teeth daily Types of Fluoride Gels: 1.1% neutral pH sodium fluoride gel 0.004% stannous fluoride gel Remineralizing gel Fluoride gel with additional calcium NOTE: Phosphate may be prescribed for severe xerostomia and early enamel breakdown Acidulated fluorides should not be used Patients with porcelain crowns should use a neutral pH fluoride
Pharmacological Management	 Avoid/discontinue any medications that may cause or exacerbate xerostomia in collaboration with physician/nurse practitioner and pharmacist Amifostine A cytoprotectant agent that reduces the incidence/severity of chronic/acute xerostomia in patients receiving radiation therapy for head and neck cancer.



NON – URGENT:

Support, teaching & follow-up care as required

Patient Assessment

- Nurses to screen for xerostomia and associated oral complications
- Once detected, assess at each patient visit
- Assess and treat underlying causes where possible:
 - Anxiety
 - Candidiasis
 - Smoking cessation
 - Alcohol and caffeine consumption
 - Discontinue contributing medications if possible

Oral Hygiene

Encourage patient to begin oral hygiene recommendations two weeks before start of cancer treatment or as early as possible.

Flossing

- Floss once daily, at bedtime, before brushing
- Do not floss if:
 - Not part of normal oral care routine (unless recommended by dentist)
 - Causes pain or bleeding gums which does not stop after 2 minutes
 - Platelet count below 50, 000 mm³ or unless otherwise advised by physician

Brushing

- Use small, extra soft nylon bristled brush
- Use non-abrasive, fluoride toothpaste with a neutral taste- flavoring agents may irritate gums
- Brush two-four times daily
 - Brush all tooth surfaces using a short circular motion or horizontal strokes
 - Brush tongue back to front
- · Rinse toothbrush well after each use; allow to air dry
- Replace toothbrush when bristles are no longer standing up straight
- Use swab sticks (foam brush) to help scoop out copious and thick secretions

Oral Rinses

- Oral rinses help keep mouth moist and clean by removing debris
- Frequency and Use:
 - After brushing, rinse mouth minimum four times daily
 - Use 1 tablespoon (15ml) of oral rinse, swish in oral cavity for at 30 seconds, then spit out
 - Prepare mouth rinse solution daily to avoid risk of contamination

Recommended Bland Oral Rinses:

- Normal saline (NS) ½ teaspoon (2.5 ml) of salt in 8 oz (240 ml) of water
- NS/sodium bicarbonate mixture ¼ teaspoon (1.25 ml) of salt and ¼ teaspoon (1.25 ml) baking soda in 8 oz (240 ml) of water
- Sodium bicarbonate ¼ to ½ teaspoon (1.25-2.5 ml) baking soda in 8 oz (240 ml) of water
- Multi-agent rinses "magic mouthwash" may be prescribed to reduce inflammation prevent fungus and help palliate pain; however, limited evidence to suggest superior to bland rinses

• Oral Rinses Not Recommended:

- Commercial mouthwashes which contain alcohol- due to drying effect
- Chlorhexidine
- Povidone iodine
- Hydrogen peroxide
- Sucralfate

Fluoride Treatments

Reinforce use of prescribed fluoride treatments to prevent oral complications

Lip Care

- Use water or aloe based lubricant to protect and moisten lips
- Apply after oral care, at bedtime, and as often as required
- Water based lubricants may be used with oxygen and can be applied inside the mouth

NOTE: Oil based lubricants (e.g. petroleum jelly) are **not recommended** due to increased risk of aspiration and their occlusive nature may promote bacterial growth **Dentures** Remove dentures, plates, and/or prostheses before oral hygiene performed Brush and rinse dentures after every meal and at bedtime Soak dentures in oral rinse solution. Rinse before placing in mouth Do not wear tight or loose fitting dentures Allow long periods without wearing dentures, at least 8 hours daily If mouth sensitive, wear only during mealtime Humidity Moisture and Cool humidifier or bedside vaporizer Lubrication Saliva Substitutes Use water as a saliva substitute- keep water bottle present at all times; encourage frequent If water not effective, over the counter saliva substitutes may be purchased in a variety of forms (e.g. spray, lozenges, gels, and swab sticks, Oral Balance®) NOTE: these products are often short acting and can be costly Milk, butter, or vegetable oil may be helpful Saliva Stimulants Mastication/Gustative Stimulants - can help stimulate residual salivary flow Chew sugar-free gum or candies NOTE: Patients with head and neck cancer may find chewing difficult from the residual effects of treatment Over the counter oral lubricants may be helpful (e.g.: Moistir, Salivard) **Dietary Management** Encourage soft diet to make swallowing easier Changes to food texture, consistency and temperature according to individual tolerance may help to minimize discomfort and facilitate swallowing Moisten foods by adding extra sauce, dressing, gravy, broth, or butter/margarine Cook food until tender, cut into small pieces Alternate food with sips of fluid to facilitate chewing and swallowing Stimulate saliva and keep oral mucosa moist Daily fluid intake of 8-12 cups- 2-21/2 litres (unless contraindicated), including water, sugarfree popsicles, non-acidic juices, ice cubes, sports drinks, clear broth, nutrition supplements Suck on ice cubes, frozen grapes, sugar-free popsicles, or sugar-free hard candy Papaya may help reduce the thickness of saliva Discourage foods and fluids that may not be well tolerated or promote dental caries Dry or coarse foods (e.g. toast, crackers, chips) Highly acidic fluids and foods (e.g. lemon glycerin swabs, orange juice vitamin C lozenges) Fluid or foods high in sugar or that may stick to teeth (e.g. dried fruit, chocolate, honey) Foods that have an extremely hot temperature Caffeine, tea, alcohol, tobacco **Patient Education** Prior to cancer treatment, review oral care and hygiene recommendations with patient/ family. Reinforce importance of self-care and compliance with recommendations to help and Follow-Up prevent the development of oral complications Demonstrate/assess understanding of how to perform daily oral assessment at home Provide contact information and reinforce with patient/family when to seek immediate medical attention if the following develops; Temperature greater than or equal to 38° C Presence of white patches, redness, foul odour possible infection Difficulty breathing/respiratory distress Unable to eat or drink fluids for more than 24 hours—risk for dehydration Increased difficulty swallowing-reflective of severity of symptoms Uncontrolled pain- reflective of deteriorating patient status and severity of symptoms Follow up: Instruct patient/family to call back if xerostomia worsening or no improvement Arrange for nurse initiated telephone follow-up as indicated Arrange for physician follow-up in ambulatory care setting if indicated

GRADE 2 OR Oral Intake Alterations



URGENT:		
Requires medical attention within 24 hours		
Patient Assessment and Care	 Collaborate with Physician/Nurse Practitioner if patient requires: Further evaluation and assessment of oral mucosa, hydration status in an ambulatory care setting. Facilitate arrangements as necessary A new/change in prescription (e.g. pain medication, saliva stimulant, or anti–infective agent). Lab and diagnostic testing that may be ordered: Bacterial, fungal, or viral culture of oral mucosa Complete blood count and electrolyte profile 	
Oral Hygiene	 Continue with general oral hygiene recommendations as tolerated Increase frequency of oral hygiene recommendations according to symptom severity 	
Moisture and Lubrication	 Cool humidifier or bedside vaporizer Saliva Substitutes Continue to use water as a saliva substitute. Keep a bottle of water present at all times. Encourage frequent sips If water not effective, consider over the counter oral lubricants and saliva substitutes (e.g. spray, lozenges, gels, and swab sticks, Oral Balance®, Moistir, Salivard) Milk, butter or vegetable oil may be helpful. Saliva Stimulants Mastication/Gustative Stimulants – continue to chew sugar-free gum or candies as tolerated (e.g. Sialor®). Pilocarpine (Salagen®) – may be prescribed for symptomatic patients receiving radiation therapy for head and neck cancer with residual salivary flow. Acupuncture – Stimulation of salivary flow unclear, but may be helpful for some patients. 	
Dietary Management	 Change food texture, consistency, and temperature according to individual tolerance (e.g. soft diet, puree diet). Depending on symptom severity or if patient unable to tolerate adequate daily fluid intake, oral fluid supplementation or IV hydration may be indicated. 	

Grade 3

AND/OR the presence of the following symptoms:

- Temperature greater than or equal to 38°C,
- Severe or uncontrolled pain
- Respiratory distress
- Unable to eat or drink for 24 hours



	EMERGENT: Requires IMMEDIATE medical attention
Patient Assessment and Care	 Collaborate with Physician/Nurse Practitioner to determine if hospital admission required-facilitate arrangements as necessary. Prophylactic intubation may be required if severe respiratory distress or at risk for aspiration. Nursing Support: Oral assessment Monitor vital signs as clinically indicated Assess hydration status Accurate monitoring of daily intake and output, including daily weight Pain and symptom management as appropriate As patient stabilizes, reinforce importance of regular comprehensive dental follow–up and intensive prophylaxis
Oral Hygiene	 Frequent mouth care using oral rinse every 1-2 hours (or as tolerated). Apply water based lubricant to lips every 1-2 hours.
Dietary Management	 NPO IV hydration Use of enteral or parenteral nutrition (TPN) until patient stable and symptoms resolving

	RESOURCES and REFERRALS
Referrals	 Oncology Nutrition Services Home Health Nursing Physician, Oral Oncology Specialist/Dentist Speech Language Pathologist Pain and Symptom Management/Palliative Care (PSMPC) Patient Support Centre, Telephone Care for follow - up Acupuncturist
Healthcare professional Guidelines	 Cancer management guidelines - Oral/Dental Care: http://www.bccancer.bc.ca/HPI/CancerManagementGuidelines/SupportiveCare/Oral/default.htm Use of Parenteral Nutrition in Cancer Patients http://www.bccancer.bc.ca/NR/rdonlyres/06F7A492-887D-402F-9152-A9F2EAE1987A/55954/FinalPNGuidelines.doc
Patient Education	 Chewing and Swallowing: http://www.bccancer.bc.ca/HPI/NutritionalCare/PtEd/Chewing+and+Swallowing.htm Easy to Chew Recipes Blenderized Foods Food Ideas to Try With a Sore Mouth Coping with Dry Mouth Decreased Appetite: http://www.bccancer.bc.ca/HPI/NutritionalCare/PtEd/Decreased+Appetite.htm Food Ideas to Help With Poor Appetite Alternatives to Nutritional Supplements Flavoring Suggestions for Supplements High Energy High Protein Menu and Recipes High Calorie High Protein Smoothie Healthy Eating Using High Energy High Protein Foods

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	 Taste Changes: http://www.bccancer.bc.ca/HPI/NutritionalCare/PtEd/Taste+Changes.htm Coping with Taste Changes Food Ideas to Cope with Taste and Smell Changes Additional Nutrition Resources: http://www.bccancer.bc.ca/HPI/NutritionalCare/PtEd/Additional+Resources.htm Nutrition Guide to Tube Feeding at Home http://www.bccancer.bc.ca/NR/rdonlyres/06F7A492-887D-402F-9152-A9F2EAE1987A/55953/YourNutritionGuidetoTubeFeedingatHomeMayy2003.pdf TPN Patient Brochure http://www.bccancer.bc.ca/NR/rdonlyres/06F7A492-887D-402F-9152-A9F2EAE1987A/55955/ParenteralNutritionBrochure.pdf Resources about managing anxiety, progressive muscle relaxation, positive thinking, etc http://www.bccancer.bc.ca/PPI/copingwithcancer/emotional/dealingemotions/factsheets.htm
Related Online Resources	E.g. Fair Pharmacare; BC Palliative Benefits http://www.bccancer.bc.ca/NR/rdonlyres/AA6B9B8C-C771-4F26-8CC8-47C48F6421BB/66566/SymptomManagementGuidelinesRelatedResources.pdf https://www.bccancer.bc.ca/NR/rdonlyres/AA6B9B8C-C771-4F26-8CC8-47C48F6421BB/66566/SymptomManagementGuidelinesRelatedResources.pdf
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