Ontario Health
Cancer Care Ontario

Symptom Management Algorithm

Oral Stomatitis

In Adults with Cancer

Screening

Adapted Stomatitis Assessment Acronym: OPQRSTUV (Adapted from Fraser Health[1])	
Onset	• When did the symptoms begin? How often do they occur? How long do they last?
Provoking/ Palliating	• What makes it better? What makes it worse? What do you think may be causing the symptom? What are the aggravating or alleviating factors (e.g. medications, active treatment, dietary changes)?
Quality	• Do you have a dry mouth? (e.g. decrease in amount or consistency of saliva). Do you have any redness, blisters, ulcers, cracks, or white patchy areas? If so, are they isolated, generalized, clustered or patchy?
Region/Radiation	• Where are your symptoms? (e.g. on lips, tongue, mouth). Does your pain radiate anywhere? Do you have any other related or associated symptoms?
Severity	• What is the intensity of this symptom (on a scale of 0 to 10 with 0 being none and 10 being worst possible)? Right Now? At Best? At Worst? On Average?
Treatment	• *If dry mouth:* Fluid intake? Are you using any oral rinses? What type? Are they effective? Are you using any saliva substitutes or stimulants? What type? Are they effective? • *If pain in mouth:* Are you using any pain medications? What type–topical/local, oral/injection? Are they effective? Are there any other treatments that you are using to help with pain? Alteration in diet texture? • *If bleeding from mouth*: Does it occur spontaneously? Where is it located? What aggravates it? What treatments have been recommended and have been used? • *What is your current oral care routine?* How effective is it? Have you had oral infections? What treatments have you used? How effective have they been? • Do you have any side effects from the medications/treatments you have used for any of the above? What tests have you had for your oral symptoms, if any?
Understanding/ Impact on you	• How bothered are you by this symptom? • Is your ability to eat or drink affected? By how much? Are you having difficulty swallowing or chewing? Is it for solids and/or liquids? • Do you have any weight loss? How much? Over what time frame? Do you have taste changes (dysgeusia)? • Do you have difficulty speaking? Are you able to wear dentures? • Do any of your symptoms interfere with other normal daily activities? How does this symptom affect your day to day life?
Values	• What is an acceptable level of severity for this symptom (on a scale of 0 to 10, with 0 being none and 10 being most severe)? What does this symptom mean to you? How has it affected you and your family and/or caregiver?

Consideration for All Patients

- Good oral care is important to prevent and decrease oral complications, to maintain normal function of the oral tissues, to maintain comfort, and to reduce the risk of local and systemic infection. See the basic oral care tables (pages 5 and 6)
- Significant risk factors for the development of oral complications include the type of cancer, type of cancer treatments, cumulative doses of chemotherapy or radiation treatment (current or prior), method of delivery, and duration of treatment
- Predisposing medical, dental, and lifestyle factors such as uncontrolled diabetes, pre-existing autoimmune conditions, polypharmacy, tobacco and alcohol use, and non-compliance with oral care may increase severity of oral complications
- Oral complications can significantly affect the patient's morbidity, ability to tolerate treatment, and overall quality of life
- Rigorous assessment, diagnosis and early intervention are important in preventing and decreasing oral complications; this includes the assessment of nutritional status and adequacy of oral intake
- A large variety of medications may cause oral complications. Consultation with the prescriber, dental provider, and/or pharmacist is strongly recommended
- Some pharmaceuticals may be unaffordable, and alternatives should be offered where possible
- If odontogenic or periodontal infection infections suspected, consultation with a oncology team is strongly recommended

Risk Factors

- Patient's and healthcare providers should advise on modifiable risk factors: smoking, alcohol consumption, xerostomia, diet consistency, malnutrition, and poor oral health
- Mechanistic target of rapamycin (mTOR) inhibitors: temsirolimus, everolimus; frequency/severity of adverse effect is dose-dependent
- Tyrosine kinase inhibitors (TKIs) - sunitinib, sorafenib, pazopanib, axitinib, erlotinib, gefitinib, lapatinib
- Targeted therapies
- Impaired wound healing by anti-angiogenic properties
- Propensity to induce high glucose levels that reduce healing and increase severity

Signs and Symptoms

Signs and Symptoms
• Single or multiple ulcerations resembling aphthous stomatitis
• Distinct ovoid ulcers with a central white/grey area surrounded by an erythematous margin or halo
• Small in size in comparison to other types of mucosal trauma that are secondary to chemotherapy and radiotherapy
• Necrosis of the jaw associated with angiogenesis inhibitors
• Altered taste/taste loss
• Thick ropey secretions
• Xerostomia
• Oral sensitivity and pain without the presence of oral lesions
• Oral pain
• Painful inflammation of the oral mucosa (including burning mouth, discomfort induced by hot or spicy foods)
• Pain on swallowing (odynophagia)
• mTOR inhibitor-associated stomatitis (mIAS) is not associated with other gastrointestinal trauma

Figure 1: Targeted Therapy

Figure 2: Targeted Therapy Stomatitis

Clinical Assessment

Investigations and Diagnosis
Patients should be assessed using a scale that incorporates the measurement of oral symptoms, clinical signs, and functional disturbances

• Each patient should be assessed for:
  ○ Oral pain and/or pain on swallowing (odynophagia), including response to any analgesia administered
  ○ Dysgeusia (altered taste/loss of taste)
  ○ Dysphagia (swallowing difficulties)
  ○ Dysphonia (hoarse voice)
  ○ Erythema and/or ulceration of the oral cavity
  ○ Xerostomia (dry mouth)
  ○ Thick ropey saliva
  ○ Signs and symptoms of oral candidiasis, viral or bacterial infection
  ○ Nutritional intake, including changes in appetite and/or weight
  ○ Hydration status and changes in fluid intake
  ○ Presence of ill-fitting dentures or jewelry (mouth piercings)
  ○ Patient compliance with mouth care

mIAS Scale of Boers-Lalla Grading of Stomatitis	
0	No oropharyngeal pain attributed to mIAS
I	Oropharyngeal pain attributed to mIAS, with average pain score (over the last 24 hours) reported as 2 or less on a 0-10 scale
II	Oropharyngeal pain attributed to mIAS, with average pain score (over the last 24 hours) reported as 5 or less on a 0-10 scale
III	Oropharyngeal pain attributed to mIAS, with average pain score (over the last 24 hours) reported as 6 or more on a 0-10 scale

Prevention of Targeted Therapies Stomatitis

Prevention
Non-Pharmacological
• Elevated risk of bacterial infection in patients receiving targeted agents, use saline mouthwashes instead of plain water
Pharmacological
• Steroid-based mouthwash can reduce the incidence and severity

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Management of Targeted Therapies Stomatitis

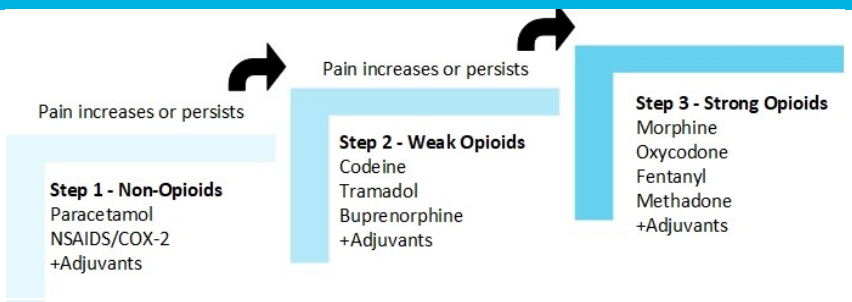
Pharmacological Management

Amlexanox 5% oral paste	
Budesonide 0.5%	• If several sites of oral cavity are involved or difficult to access
Anaesthetic mouthwashes (e.g. viscous lidocaine 2%) or coating agents	• To treat mild to moderate pain
Systemic or topical analgesics (acetaminophen with transdermal fentanyl and short-acting opiates)	• For breakthrough pain
Clobetasol gel or ointment 0.05%	• 1-2 times a day; with or without adhesive bases such as carboximethyl or hydroxyethyl-cellulose
Clobetasol propionate 0.05% in aqueous solution	• Swish 3 times a day
Topical steroids: dexamethasone rinse (0.1-0.4mg/mL)	• Swish 10 –15cc, hold in mouth for 60 seconds and spit
High-dose pulse of 30-60 mg oral prednisone, or 1 mg per kg prednisolone	• Use for 1 week followed by dose tapering
Intralesional triamcinolone	• Use with topical clobetasol gel or ointment (0.05%); weekly total dose is 28g

Opioid Use

- The opioid crisis has devastating consequences for individuals, families, and communities across Canada. Choosing Wisely Canada has launched Opioid Wisely, a campaign that encourages thoughtful conversation between clinicians and patients to reduce harms associated with opioids
- Visit Choosing Wisely Canada for more information and best practices on administering opioids

Medications for the Management of Pain—WHO Analgesic Ladder (Adapted from Christoforou et al. 2019[2])



Rx Step 1	Dispense	Dose and Route
Viscous lidocaine 2%	100mL	• Swish and spit as needed for pain, can be swallowed. Maximum of 4.5 mg/kg (or 300mg per dose) and no more than eight doses per 24-hour period
Dyclonine 1.5 or 1% rinse	250mL	• Swish and swallow 5mL every 6-8 hours. Can be used in patients with allergy to amides (lidocaine)
0.15% Benzydamine Rinse	250mL	• Rinse and gargle the mouth and throat with 15mL (1 Tbsp) 3 to 4 times a day, beginning the day prior to starting therapy • Continue use during and after discontinuing therapy until symptoms disappear • Maintain mouthwash in contact with the inflamed mucosa for at least 30 seconds. Spit the solution from mouth after use. Mouthwash should be used undiluted, but if stinging occurs it may be diluted with an equal volume of lukewarm water

Rx Step 2	Dispense	Dose and Route
Codeine Phosphate 5mg/mL Syrup	168mL	• 30mg/6mL four times a day for 7 days as needed for pain
Tramacet (tramadol-acetominophen) 37.5mg/325mg tablets	60 tablets	• Take 1 to 2 tablets every 6 hours as needed
Doxepin suspension 5mg/mL containing 0.1% alcohol and sorbitol	200 mL	• Rinse 5mL for 1 minute and then spit out. Repeat up to 6 times a day

Rx Step 3	Dispense	Dose and Route
Hydromorphone 1mg/mL liquid	60mL	• Take 1mL every 2 hours as needed for pain
0.2% topical morphine rinse	100mL	• 15mL, hold in mouth for 2 minutes, then spit, every 3 hours as needed for pain
Percocet Oxycodone 5mg-Acetaminophen 325mg	20 tablets	• Take 1 tablet 4 times a day as needed for pain
Fentanyl Transderm Patch 12mcg/hour, 25mcg/hour, 50mcg/hour, 75mcg/hour	10 patches	• Apply new patch every 3 days. LU Code – 201

Basic Oral Care Tables

Flossing

Basic	• Patients who have not flossed routinely before cancer treatment should not begin flossing at this time • Patients with mouth cancers, trismus, dysphagia, and/or dysgeusia may not be able to floss; use of interproximal brushes can replace flossing • Floss at least once daily • Waxed floss may be easier to use and minimize trauma to the gums
Intensified	• Continue with basic plan until discomfort becomes too great
End of Life	• Discontinue flossing if patient chooses

Discontinue flossing if:
- Gums bleed for longer than two minutes

Restart flossing if:
- Platelet count is >20x10^9 cells/L, or as instructed by cancer care team

Brushing

Basic	• Use a small, ultra-soft-headed, rounded-end, bristle toothbrush (an ultrasonic toothbrush, may be acceptable) • Rinse toothbrush in hot water to soften the brush before using • Use a prescription strength fluoride toothpaste. Spit out the foam but do not rinse mouth • Use a fluoridated toothpaste and re-mineralizing toothpaste containing calcium and phosphate • Brush tongue gently from back to front, using a sweeping motion • Rinse brush after use in hot water and allow to air dry • Change toothbrush when bristles are not standing up straight • Brush within 30 minutes after eating and before bed. Ensure the gingival portion of the tooth and periodontal sulcus (where the tooth and gums meet) are included • Consider topical anesthetics (e.g. viscous lidocaine 2% or viscous xylocaine 2%, 2-5 mL) before brushing and eating to minimize pain • With continuous pain, a regularly prescribed oral analgesic allows for more thorough tooth brushing
Intensified	• Encourage patient to continue brushing through treatment phase even when it causes discomfort • If bleeding occurs, encourage gentler brushing • Use a non-flavoured, non-alcoholic chlorhexidine gluconate (CHX) 0.12% rinse to aid in plaque control, 2 times a day after meals • If unable to continue brushing with a toothbrush, use a moist gauze or foam swab • Discontinue use of toothpaste if it is too astringent and dip toothbrush in bland rinse • If there has been an oral infection, use a new toothbrush after infection has resolved • If unable to tolerate brushing, seek assistance from nursing or dental staff
End of Life	• Continue with basic and intensified mouth care plan, if possible • Instead of moist gauze may use a foam brush soaked in CHX

Discontinue brushing if:
- Gums bleed for longer than two minutes

Restart brushing if:
- Platelet count is >20x10^9 cells/L, or as instructed by cancer care team

Bland rinse:
- 1 teaspoon salt, 1 teaspoon baking soda, 4 cups of water

Lidocaine alternative:
- Dyclonine 0.5 or 1% rinse (5 mL every 6 to 8 hours, swish and swallow) as needed for pain

Patients with head and neck cancers:
- Brushing may not be appropriate in the area of tumour involvement
- Consult with a dentist
- Patients should be assessed for the use of daily fluoride tray

Patients with dentures:
- Remove dentures, plates and prostheses before brushing
- Brush and rinse dentures after meals and at bedtime
- Remove from mouth nightly (at least 8 hours per 24 hours) and soak in bland rinse
- Leave dentures out as much as possible during radiation therapy
- Patients who have had head and neck surgery should not wear dentures post-surgery unless assessed by a dental specialist or head and neck surgeon, to prevent

Rinsing

Basic	• Rinse the oral cavity with a bland rinse vigorously, at least twice a day to maintain mouth moisture, remove the remaining debris and toothpaste, and reduce the accumulation of plaque and infection • Use a bland rinse to increase oral clearance for oral hygiene maintenance and improved patient comfort. • Following emesis, rinse with bland rinse immediately to neutralize the mouth • If allergic to lidocaine, dyclonine 0.5 or 1% rinse (5 mL every 6 to 8 hours, swish and swallow) may be used as needed for pain
Intensified	• Rinse in place of brushing if patient is unable to brush • Seek dental care where possible for removing plaque • In addition to rinsing twice a day, encourage rinsing every 1 to 2 hours while awake and every 4 hours through the night if awake, to minimize complications of decreased saliva • If unable to clean using moist gauze, or foam swab, consider rinsing via syringe if platelet count >$20x10^9$ cells/L
End of Life	• Continue with basic and intensified mouth care plan • Consider sialagogues in instances of dry mouth for pharmacotherapy relief (pilocarpine, and anethole trithione)

Patients with dentures:
- After removing dentures, rinse mouth thoroughly with rinse solution
- Brush and rinse dentures after meals and at bedtime
- Rinse with rinsing solution before placing in mouth
- Remove from mouth nightly (at least 8 hours per 24 hours) and soak in rinsing solution

Bland rinse:
- 1 teaspoon salt, 1 teaspoon baking soda, 4 cups of water

Avoid:
- Club soda due to the presence of carbonic acids
- Commercial mouthwashes with hydroalcoholic base or astringent properties

Moisturizing the Oral Cavity

Basic	• Moisturize the mouth with water, artificial saliva products, or other water soluble lubricants • Apply lubricant after each cleaning, at bedtime, and as needed. Water-based lubricant needs to be applied more frequently • Frequent rinsing as needed with basic mouth rinse • Patients may suck on xylitol lozenges (up to 6 grams a day), xylitol containing popsicles, or xylitol containing gum
Intensified	• Continue with basic mouth care plan with increased frequency and intensity • Increase frequency of bland mouth rinse to every hour
End of Life	• Continue with basic mouth care plan with increased frequency and intensity, as needed • Use a steam vaporizer at night • May use a cool mist humidifier at night, but use should be weighed against the risk for fungal infection

Avoid:
- Glycerin or lemon-glycerin swabs as they dry the mouth
- Acidic or minty mouth products, if they burn

Lip Care

Basic	• To keep lips moist and avoid chapping and cracking, use water soluble lubricants, lanolin (wax-based), or oil based lubricants (mineral oil, cocoa butter) • Water soluble lubricants should be used inside and outside the mouth, and may also be used with oxygen (e.g. products compounded with Glaxal base or Derma base) • Apply lubricant after each cleaning, at bedtime, and as needed. Water-based lubricants need to be applied more frequently
Intensified	• Continue with basic mouth care plan with increased frequency and intensity
End of Life	• Continue with basic mouth care plan with increased frequency and intensity, as needed • May use a cool mist humidifier at night, but use should be weighed against the risk for fungal infection

Avoid:
- Touching any lip lesions
- Oil based lubricants on the inside of the mouth
- Petroleum based products

Miscellaneous

Basic	• Dental evaluation and treatment as indicated prior to cancer therapy is desirable to reduce risk for local and systemic infections from odontogenic sources for hematologic, solid or head and neck cancers
Intensified	• Continue with basic mouth care plan with increased frequency and intensity
End of Life	• Continue with basic mouth care plan with increased frequency and intensity, as needed

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