



**Ontario Health**  
Cancer Care Ontario

**Symptom Management Algorithm**

**Oropharyngeal**

**Dysphagia**

**In Adults with Cancer**

## About the Dysphagia Algorithm

This algorithm covers the prevention, screening, triage, and general management strategies for oropharyngeal dysphagia, with a focus on head and neck cancer. Patient care and management will differ depending on the patient's circumstances, such as the type of cancer and treatment.

## About Dysphagia

### Types of Dysphagia

|                    | Oropharyngeal  | Esophageal  |
|--------------------|--|---|
| Signs and Symptoms | Difficulty controlling food or saliva in the mouth, difficulty initiating a swallow, coughing, choking, frequent pneumonia, unexplained weight loss, gurgly or wet voice after swallowing, nasal regurgitation, dietary changes and habits, changes in food texture, and patient complaint of food sticking in the throat. | Sensation of food sticking in the chest, excessive burping, regurgitation, food sticking in the throat (referred sensation), sensation of residue at the sternal notch, globus sensation, unexplained weight loss, changes in dietary habits, changes in food texture, recurrent pneumonia. |

| Dysphagia High-Risk Cancer Sites       |   | Referrals   |
|--|---|---|
| Head and Neck                          | <b>Patient is at risk for developing oropharyngeal dysphagia</b><br>Patients diagnosed with head and neck cancer may experience dysphagia at different time points during their cancer trajectory. Dysphagia may be reported pre-treatment due to presence of the tumour and associated pain and discomfort when swallowing. Dysphagia may be detected or reported due to treatment side effects (surgery, radiation, chemotherapy or other systemic therapies). Dysphagia may be acute, chronic or as a result of late side effects of treatment.  | Refer to a Speech Language Pathologist (SLP) for assessment and management, if possible. See next page for more details.  |
| Central Nervous System (CNS)           | <b>Patient is at risk for developing oropharyngeal dysphagia</b><br>CNS (i.e. brain and spinal cord) dysphagia risk depends on tumour location, size and treatment modality. In addition to signs and symptoms of oropharyngeal dysphagia, patients may present with a cognitive dysphagia related to altered, reduced or fluctuating levels of consciousness or levels of alertness that can have a direct negative impact on the safety and efficiency of the swallow.  | Refer to a SLP for assessment and management, if possible.  |
| Lung                                   | <b>Patient is at risk for developing oropharyngeal dysphagia and/or esophageal dysphagia</b><br>Patients are at risk for oropharyngeal and esophageal dysphagia and should be screened appropriately. Swallowing safety may be compromised with increased oxygen requirements and elevated respiratory rate. This can result in breathing-swallowing discoordination.   | Refer to a SLP for assessment and management of oropharyngeal, if possible. Refer to a Gastroenterologist and/or a thoracic surgeon for a comprehensive evaluation. |
| Esophageal                             | <b>Patient is at risk for developing esophageal dysphagia</b><br>Dysphagia may be structural in nature depending on tumour size, location and extent of obstruction within the esophagus. In other cases, it may be a mechanical issue related to dysmotility or reduced opening of the lower esophageal sphincter. Patient's with cervical esophageal cancer are risk for oropharyngeal dysphagia and should be referred to SLP for assessment and management.   | Refer to a Gastroenterologist and/or a thoracic surgeon for a comprehensive evaluation, if possible.  |
| Metastatic disease: Brain and/or Lungs | <b>Patient is at risk for developing oropharyngeal dysphagia</b><br>These patients should be screened for swallowing difficulty and may require a comprehensive swallowing assessment.  | Refer to a SLP for assessment and management, if possible.  |
| Endocrine                              | <b>Patient is at risk for developing oropharyngeal dysphagia</b><br>Patients with thyroid cancer may develop dysphagia as a result of direct compression of the swallowing structures by the presence of tumour, or invasion, or nerve involvement, or as a consequence of cancer treatment such as surgery, or radiation. For example intraoperative complication after partial or total thyroidectomy may result in sacrifice or damage of recurrent laryngeal nerve resulting in unilateral vocal cord paralysis and increased risk for dysphagia. Some patients may also present with globus sensation post-surgery and may experience some signs and symptoms of esophageal dysphagia. Swallowing difficulties are less common after radioactive iodine treatment; however these patients may still experience dry mouth, sore throat. | Refer to a SLP for assessment and management, if possible.  |

# Acute and Chronic Oropharyngeal Dysphagia for Head and Neck Cancer

| Timing   | Description   |
|--|---|
| <b>Acute Dysphagia (Onset 0-3 Months)</b>        | <p><b>Primary Surgery:</b><br/>The nature and severity of post-operative dysphagia is related to tumour location, staging, extent of resection, and type of reconstruction. Altered structures impact function. This can affect both movement and sensation of the oral motor structures. With primary surgery for tumours of the oral cavity, postoperative swelling, pain, presence of tracheostomy tube, limited range of motion, and altered sensation can increase risk for oral and pharyngeal dysphagia. In cases of extended resections and composite reconstructions, i.e. total glossectomy and extended pharyngectomy, consider a referral to Speech Language Pathologist (SLP) for preoperative education and counselling, and postoperative follow-up for support.</p> <p><b>Primary Radiation Therapy:</b><br/>Acute risk factors for dysphagia arising from primary radiation include extent of the tumour and presence of lymph nodes, as well as early radiation-induced treatment effects (i.e. inflammation, odynophagia, dysgeusia, xerostomia and increase mucous production) can lead to mucositis, desquamation and dysphagia, which will usually resolve within months of treatment. Some side effects can persist and cause chronic, persistent symptoms that can impact the safety and efficiency of the swallow.</p> |
| <b>Chronic Dysphagia (Onset 3 Months–1 Year)</b> | <p>Post-radiation dysphagia has been linked to early inflammatory damage to the mucosa, radiation dose, and muscle disuse. The RTOG/EORTC<sup>†</sup> late morbidity scoring scheme of the mucous membrane notes marked atrophy with complete dryness/severe telangiectasia (grade 3). Persistent side effects of radiation such as locoregional lymphedema, ulcerative changes, and inflammation contribute to post-radiation dysphagia. To date, there is no clear correlation in the literature between the severity of acute and chronic radiation-induced injuries.</p>  |
| <b>Late Effects Onset &gt;1 Year</b>             | <p>Late effects of treatment such as fibrosis, atrophy, and cranial nerve damage that could develop years after treatment can contribute to the development of dysphagia in the absence of early symptoms. An individualized approach to the treatment and management of late dysphagia is strongly recommended, as late effects of radiation can affect both the sensory and motor function of the swallow. A focus on respiratory coordination, strength training, and compensatory strategies determined by the SLP, have been shown to be effective therapies.</p>  |

## Prevention

### Self-Care

- Basic oral care should be done before and after eating foods or drinking liquids
- It is important to keep the muscles working well. The patient should be encouraged to:
  - Continue eating and drinking, if it is safe to do so
  - Do swallowing exercises, if it is safe to do so during and after treatment has finished

### Swallowing Exercises

#### How to do swallowing exercises:

- Patients should do these exercises when it is best for them (e.g. before meals, in the waiting room, after they brush their teeth, etc.)
- Do not have any food or drink in the mouth while doing the exercises, except for the effortful swallow (see exercises below)
- Rest and rinse between exercises if needed; Repeat each exercise 5 to 10 times
- **Before treatment:** exercises should start 2 weeks prior to treatment
- **During treatment:** do all exercises at least 3 times a day
- **After treatment:** continue to do all exercises 1 time a day to keep the swallowing muscles working
- [Click this link for a video of swallowing exercises by the Princess Margaret Cancer Centre<sup>1</sup>](#)

#### 1. The Effortful Swallow

- Sit comfortably with mouth relaxed
- Press tongue against roof of mouth as hard as possible
- With tongue in position, press lips together and swallow as hard as possible

#### 2. The Masako Technique

- Sit comfortably with mouth relaxed
- Stick out tongue slightly
- Hold the tip of tongue between teeth
- While holding tongue between teeth, try to swallow
- To make exercise a bit easier, lower head slightly while swallowing

#### 3. Jaw Range of Motion Exercise\*\*

- Sit comfortably with mouth relaxed
- Open mouth as wide as possible; hold for 5 seconds then relax and rest
- Move jaw to the left; hold for 5 seconds then relax and rest
- Move jaw to the right; hold for 5 seconds then relax and rest

#### 4. Tongue Range of Motion Exercise

- Sit comfortably with mouth relaxed
- Hold each of these maneuvers for 5 seconds, then relax and rest in between
  - Stick out tongue as far as possible
  - Move tongue up towards nose
  - Move tongue down towards chin
  - Move tongue to left side of mouth
  - Move tongue to right side of mouth

#### 5. The Supraglottic Swallow

- Sit comfortably with mouth relaxed
- Take deep breath in and swallow immediately, then cough during exhalation
  - Do not pause between each step

\*Toxicity criteria of the Radiation Therapy Oncology Group (RTOG) and the European Organization for Research and Treatment of Cancer (EORTC)

\*\*Consult the Trismus Algorithm for at risk patients

# Oropharyngeal Dysphagia Risk Factor Score for Head and Neck Cancer (Adapted from Total Dysphagia Risk Score<sup>2</sup>)

## 1. Identify Risk Factors:

### Tumour Locations

- Nasopharynx (9 points)
- Oropharynx e.g. tonsil, base of tongue (7 points)
- Oral Cavity; e.g. floor of mouth, tongue etc. (0 points)
- Larynx (0 points)
- Other: \_\_\_\_\_ (0 points)

### Treatment Modality

- Bilateral Neck radiation (9 points)
- Accelerated Radiation; HARDWINS, DAHANCA (6 points)
- Concurrent chemotherapy (5 points)
- Primary Surgery with adjuvant radiation (0 points)
- Other: \_\_\_\_\_ (0 points)

### Tumour Size

- T4 (4 points)
- T3 (4 points)
- T2 (0 points)
- T1 (0 points)

### Weight Loss

- Weight: \_\_\_\_\_ (today) vs Weight: \_\_\_\_\_ (Date: \_\_/\_\_/\_\_)
- >10% (7 points)
  - 1-10% (5 points)

## 2. Calculate Total Dysphagia Risk Score (TDRS):

Add the points above for the total score: \_\_\_\_\_

## 3. Assign Level of Risk:

- Low (0-9 points)
- Intermediate (10-18 points)
- High (>18 points)

# Oropharyngeal Dysphagia Screening and Triage for Head and Neck Cancer Patients

## Symptom Screening (Adapted Based on the Template from © Stacey et al using the COSTaRS Framework<sup>3</sup>)

### 1. READ ME FIRST: About this screening and assessment tool

- The scale of the MDASI-HN<sup>4</sup> patient reported outcome measure are from 0 – 10; 0 = No difficulty/concern, 10 = Worst possible difficulty/concern
- For information on the other validated patient reported outcome measures, please see references 14 to 18

### 2. Determine level of severity

|   | Mild                          | Moderate                    | Severe   |
|---|-------------------------------|-----------------------------|--|
| Patient rating of difficulty swallowing (MDASI-HN) <sup>4</sup>                                     | 0-3                           | 4-6                         | 7-10   |
| Patient rating of concern, difficulty swallowing (MDASI-HN) <sup>4</sup>                            | 0-3                           | 4-6                         | 7-10   |
| How much have you had to eat or drink in the last 24hr  | Close to my normal amount     | About half my normal amount | Minimal to none                                  |
| How much difficulty do you have swallowing at present? (SSQ) <sup>5</sup>                           | No difficulty at all          | Some difficulty             | Unable to swallow at all                         |
| How long does it take you to eat an average meal? (SSQ) <sup>5</sup>                                | Less than 30 minutes          | About 30 minutes            | More than 60 minutes or unable to swallow at all |
| Swallowing takes great effort (MDADI) <sup>6</sup>  | Strongly disagree<br>Disagree | Agree                       | Strongly agree                                   |
| Do you feel fatigued during and after meals? (EAT-10) <sup>7</sup>                                  | Never/hardly ever             | Sometimes - Often           | Almost always                                    |
| Swallowing pills takes extra effort (EAT-10) <sup>7</sup>   | No problem 0-1                | 2-3                         | Severe problem 4                                 |
| When I swallow food sticks in my throat   | No problem 0-1                | 2-3                         | Severe problem 4                                 |
| I cough when I try to drink liquids (MDADI) <sup>6</sup>  | Strongly disagree<br>Disagree | Agree                       | Strongly Agree                                   |
| I cough when I eat (EAT-10) <sup>7</sup>  | No problem                    | Some problem                | Severe problem                                   |
| How often have you experienced choking when you eat food? (SWAL-QOL and SWAL-CARE) <sup>8</sup>     | Never/hardly ever             | Sometimes<br>Often          | Almost always                                    |
| How often you have experienced choking when you take liquids? (SWAL-QOL and SWAL-CARE) <sup>8</sup> | Never/hardly ever             | Sometimes<br>Often          | Almost always                                    |
| Your choking/coughing (food/liquid going down the wrong pipe) at its WORST (MDASI-HN) <sup>8</sup>  | Not present                   | 4-7                         | As bad as you can imagine                        |
| Were you recently diagnosed with aspiration pneumonia?  | No                            |                             | Yes  |
| Do you have any of the following? (signs and/or symptoms of Aspiration Pneumonia):                  | No                            |                             | Yes  |
| • Fever   |                               |                             |  |
| • Shortness of breath   |                               |                             |  |
| • Generally feeling unwell  |                               |                             |  |
| • Changes in mucous production:   |                               |                             |  |
| o Colour (clear to yellowish/green)   |                               |                             |  |
| o Amount (small to large amount)  |                               |                             |  |
| o Consistency (runny to thick)  |                               |                             |  |
| How often have you experienced gagging? (SWAL-QOL and SWAL-CARE) <sup>8</sup>                       | Never/Hardly ever 5-4         | Sometimes 3-2               | Often 1  |
| How often you have experienced drooling? (SWAL-QOL and SWAL-CARE) <sup>8</sup>                      | Never/Hardly ever 5-4         | Sometimes 3-2               | Often 1  |
| I cannot maintain my weight because of my swallowing problem  | Strongly disagree<br>Disagree | Agree                       | Strongly Agree                                   |

### 3. Assign level of dysphagia severity:

Add the number of mild responses \_\_\_\_\_  
 Add the number of moderate responses \_\_\_\_\_  
 Add the number of severe responses \_\_\_\_\_

| Mild   | Moderate   | Severe                     |
|--|--|----------------------------|
| Mostly mild responses with some moderate responses | Mostly moderate responses with some mild responses | 1 or more severe responses |

## Referrals for Mild, Moderate, and Severe

- Refer to Speech Language Pathologist (SLP) for full comprehensive assessment and management
- Refer to Registered Dietitian for nutritional assessment, if available. Community and family practice Dietitians should be considered

## Oropharyngeal Dysphagia Management for Head and Neck Patients

| Mild  | Moderate  |
|---|---|
| <p>If SLPs and Dietitians are unavailable, follow the management strategies outlined here</p> <p><b>Non-Pharmacological Management</b></p> <ul style="list-style-type: none"> <li>• Review self-care. See the self-care table (page 3), and basic oral care tables (pages 7 and 8)</li> <li>• Verify medication use, if appropriate</li> <li>• Review strategies to manage taste changes. See the nutritional screening and management of dysphagia section (page 6), and the dysgeusia algorithm</li> <li>• Oral nutritional supplements may be required</li> </ul> <p><b>Pharmacological Management for Head and Neck Patients</b></p> <ul style="list-style-type: none"> <li>• Take general pain medication 30 to 40 minutes before mealtime. Use local anesthetic 5 to 10 minutes before mealtime</li> <li>• Practice safe swallowing of medications. See swallowing precautions and strategies below</li> <li>• Manage xerostomia. See the xerostomia algorithm</li> <li>• Xerostomia products: <ul style="list-style-type: none"> <li>◦ Xylitol containing lozenges, gum, and popsicles.</li> <li>◦ Biotène toothpaste, dry mouth rinse, and moisturizing spray</li> </ul> </li> <li>• Use oral rinses: bland rinse (1 teaspoon salt, 1 teaspoon baking soda, 4 cups of water), mouthwash, chlorohexidine, etc.</li> <li>• Use protein pump inhibitors and/or antireflux medications, e.g. Pantoloc, over the counter antacids, etc.</li> </ul> | <p><b>Non-Pharmacological</b></p> <ul style="list-style-type: none"> <li>• Review self-care. See self-care table (page 3), and the basic oral care tables (pages 7 and 8)</li> <li>• Verify medication use, if appropriate</li> <li>• Advise to call back if symptom worsens, new symptoms occur, or no improvement in 12-24 hours</li> </ul> |
|   | <p style="text-align: center;"><b>Severe</b></p> <p style="text-align: center;"><b>Refer for medical attention immediately</b></p>  |

## Swallowing Precautions and Strategies (Adapted Based on the Template from © Stacey et al using the COSTaRS Framework<sup>3</sup>)

If patient has had an SLP swallowing assessment, review the following with the patient:

|                                     |                                |   |
|-------------------------------------|--------------------------------|---|
| Diet texture for solids and liquids | Feeding strategies             | Swallowing strategies                     |
| Swallowing techniques and exercises | Tips for Swallowing Medication | Remind patient to do swallowing exercises |

If patient has not had an SLP swallowing assessment:

| Before Meals  | During Meals  | After Meals  | Safe Swallowing of Medication  |
|---|---|--|--|
| <ol style="list-style-type: none"> <li>1. Prepare foods that are easier to swallow, e.g. cook foods extra soft, add extra sauces and gravies to food, and avoid: dry solids, nuts, skins, and leafy vegetables</li> <li>2. Take general pain medication 30 to 40 minutes before mealtime, and use a local anesthetic just 5 to 10 minutes before eating</li> <li>3. Ensure upright positioning (90 degrees) for all oral intake</li> <li>4. Complete mouth care: <ul style="list-style-type: none"> <li>• Clean all surfaces of your mouth well (Brush teeth and clean tongue well)</li> <li>• Use an oral rinse solution to rinse, gargle and gently expectorate phlegm and mucous from the back of the mouth and throat</li> <li>• See basic oral care tables for more care strategies (pages 7 and 8)</li> </ul> </li> </ol> | <ol style="list-style-type: none"> <li>1. Limit distractions and talking at mealtime</li> <li>2. Take single, small sips of liquid and bites of foods</li> <li>3. Eat slowly, important to pause between mouthfuls</li> <li>4. Swallow HARD with effort</li> <li>5. Swallow 2 times with each mouthful</li> <li>6. Take a sip of liquid to help clear any food sticking in your throat</li> </ol> | <ol style="list-style-type: none"> <li>1. Clean mouth well (brush teeth and tongue, rinse and clear out any food residue from mouth and throat)</li> <li>2. Sit upright for 30 minutes. Do some light physical activity for 10 to 15 minutes to help keep your lungs clear, if possible</li> </ol> | <p><b>Safe Swallowing of Medication</b></p> <p>Assess the patient for dysphagia-related impact on medication administration:</p> <ul style="list-style-type: none"> <li>• Are they taking all prescribed medications orally? How long does it take to swallow? How many attempts?</li> <li>• Have they missed any doses due to difficulties swallowing?</li> <li>• Do they feel medication is stuck in the throat after taking it?</li> </ul> <p>If patient is able to swallow at least pureed foods and thin liquids then check with pharmacy to ensure medication format can be altered before making the following recommendations:</p> <ul style="list-style-type: none"> <li>• Open capsules and mix into pudding or yogurt</li> <li>• Crush pills and mix into pudding or yogurt</li> </ul> <p><b>Tips for Swallowing Fatigue</b></p> <ul style="list-style-type: none"> <li>• Eat small frequent snack size meals</li> <li>• Have foods and liquids that are calorie dense</li> <li>• Consultation with Registered Dietitian</li> </ul> |

# Nutritional Screening and Management of Oropharyngeal Dysphagia\*

## Identify Patients Who Are At Risk For Malnutrition - Two "YES" Answers Indicate Nutrition Risk

- Have you lost weight in the past 6 months without trying to lose this weight? (CNST)<sup>9</sup>
- Have you been eating less than usual for more than a week? (CNST)<sup>9</sup>

## Managing Malnutrition and Hydration Changes and Outcomes

- Evaluation of nutritional status by a Registered Dietitian, if possible
- Early nutritional intervention and frequent monitoring is recommended
- Nutrition needs should be adapted and individualized to each patient
- Small, frequent meals with foods high in calories and protein
  - [Optimize intake through nourishing liquids such as smoothies and blended drinks](#)<sup>10</sup>
  - [Select foods that are easy to chew and swallow](#)<sup>11</sup>
- If thickened fluids are required, encourage intake through sources such as thickened soups, liquids or pureed foods
  - [Consult the International Dysphagia Diet Standardization Initiative \(IDDSI\) framework for the standardized terminology and definitions for texture-modified foods and liquids](#)<sup>12</sup>
- A protein supplement may be required
- A multivitamin may be required
- Other oral nutritional supplements may be needed
- Complete or supplemental nutrition may be required through enteral or parenteral routes
- Avoid large meals close to bedtime
- Minimize distraction or speaking during eating

## 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 for aspiration pneumonia

\*Refer to dysgeusia algorithm for more details

## Basic Oral Care Tables

### Flossing

|                    |  |
|--------------------|--|
| <b>Basic</b>       | <ul style="list-style-type: none"> <li>Patients who have not flossed routinely before cancer treatment should not begin flossing at this time</li> <li>Patients with mouth cancers, trismus, dysphagia, and/or dysgeusia may not be able to floss; use of interproximal brushes can replace flossing</li> <li>Floss at least once daily</li> <li>Waxed floss may be easier to use and minimize trauma to the gums</li> </ul> |
| <b>Intensified</b> | <ul style="list-style-type: none"> <li>Continue with basic plan until discomfort becomes too great</li> </ul>  |
| <b>End of Life</b> | <ul style="list-style-type: none"> <li>Discontinue flossing if patient chooses</li> </ul>  |

#### Discontinue flossing if:

- Gums bleed for longer than two minutes

#### Restart flossing if:

- Platelet count is  $>20 \times 10^9$  cells/L, or as instructed by cancer care team

### Brushing

|                    |  |
|--------------------|--|
| <b>Basic</b>       | <ul style="list-style-type: none"> <li>Use a small, ultra-soft-headed, rounded-end, bristle toothbrush (an ultrasonic toothbrush, may be acceptable)</li> <li>Rinse toothbrush in hot water to soften the brush before using</li> <li>Use a prescription strength fluoride toothpaste. Spit out the foam but do not rinse mouth</li> <li>Use a fluoridated toothpaste and re-mineralizing toothpaste containing calcium and phosphate</li> <li>Brush tongue gently from back to front, using a sweeping motion</li> <li>Rinse brush after use in hot water and allow to air dry</li> <li>Change toothbrush when bristles are not standing up straight</li> <li>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</li> <li>Consider topical anesthetics (e.g. viscous lidocaine 2% or viscous xylocaine 2%, 2-5 mL) before brushing and eating to minimize pain</li> <li>With continuous pain, a regularly prescribed oral analgesic allows for more thorough tooth brushing</li> </ul> |
| <b>Intensified</b> | <ul style="list-style-type: none"> <li>Encourage patient to continue brushing through treatment phase even when it causes discomfort</li> <li>If bleeding occurs, encourage gentler brushing</li> <li>Use a non-flavoured, non-alcoholic chlorhexidine gluconate (CHX) 0.12% rinse to aid in plaque control, 2 times a day after meals</li> <li>If unable to continue brushing with a toothbrush, use a moist gauze or foam swab</li> <li>Discontinue use of toothpaste if it is too astringent and dip toothbrush in bland rinse</li> <li>If there has been an oral infection, use a new toothbrush after infection has resolved</li> <li>If unable to tolerate brushing, seek assistance from nursing or dental staff</li> </ul>   |
| <b>End of Life</b> | <ul style="list-style-type: none"> <li>Continue with basic and intensified mouth care plan, if possible</li> <li>Instead of moist gauze may use a foam brush soaked in CHX</li> </ul>  |

#### Discontinue brushing if:

- Gums bleed for longer than two minutes

#### Restart brushing if:

- Platelet count is  $>20 \times 10^9$  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 trauma to the

## Rinsing

|                    |   |
|--------------------|---|
| <b>Basic</b>       | <ul style="list-style-type: none"> <li>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</li> <li>Use a bland rinse to increase oral clearance for oral hygiene maintenance and improved patient comfort.</li> <li>Following emesis, rinse with bland rinse immediately to neutralize the mouth</li> <li>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</li> </ul> |
| <b>Intensified</b> | <ul style="list-style-type: none"> <li>Rinse in place of brushing if patient is unable to brush</li> <li>Seek dental care where possible for removing plaque</li> <li>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</li> <li>If unable to clean using moist gauze, or foam swab, consider rinsing via syringe if platelet count <math>&gt;20 \times 10^9</math> cells/L</li> </ul>   |
| <b>End of Life</b> | <ul style="list-style-type: none"> <li>Continue with basic and intensified mouth care plan</li> <li>Consider sialagogues in instances of dry mouth for pharmacotherapy relief (pilocarpine, and anethole trithione)</li> </ul>  |

### 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

|                    |  |
|--------------------|--|
| <b>Basic</b>       | <ul style="list-style-type: none"> <li>Moisturize the mouth with water, artificial saliva products, or other water soluble lubricants</li> <li>Apply lubricant after each cleaning, at bedtime, and as needed. Water-based lubricant needs to be applied more frequently</li> <li>Frequent rinsing as needed with basic mouth rinse</li> <li>Patients may suck on xylitol lozenges (up to 6 grams a day), xylitol containing popsicles, or xylitol containing gum</li> </ul> |
| <b>Intensified</b> | <ul style="list-style-type: none"> <li>Continue with basic mouth care plan with increased frequency and intensity</li> <li>Increase frequency of bland mouth rinse to every hour</li> </ul>  |
| <b>End of Life</b> | <ul style="list-style-type: none"> <li>Continue with basic mouth care plan with increased frequency and intensity, as needed</li> <li>Use a steam vaporizer at night</li> <li>May use a cool mist humidifier at night, but use should be weighed against the risk for fungal infection</li> </ul>  |

### Avoid:

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

## Lip Care

|                    |   |
|--------------------|---|
| <b>Basic</b>       | <ul style="list-style-type: none"> <li>To keep lips moist and avoid chapping and cracking, use water soluble lubricants, lanolin (wax-based), or oil based lubricants (mineral oil, cocoa butter)</li> <li>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)</li> <li>Apply lubricant after each cleaning, at bedtime, and as needed. Water-based lubricants need to be applied more frequently</li> </ul> |
| <b>Intensified</b> | <ul style="list-style-type: none"> <li>Continue with basic mouth care plan with increased frequency and intensity</li> </ul>  |
| <b>End of Life</b> | <ul style="list-style-type: none"> <li>Continue with basic mouth care plan with increased frequency and intensity, as needed</li> <li>May use a cool mist humidifier at night, but use should be weighed against the risk for fungal infection</li> </ul>   |

### Avoid:

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

## Miscellaneous

|                    |   |
|--------------------|---|
| <b>Basic</b>       | <ul style="list-style-type: none"> <li>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</li> </ul> |
| <b>Intensified</b> | <ul style="list-style-type: none"> <li>Continue with basic mouth care plan with increased frequency and intensity</li> </ul>  |
| <b>End of Life</b> | <ul style="list-style-type: none"> <li>Continue with basic mouth care plan with increased frequency and intensity, as needed</li> </ul>   |



## References

1. Princess Margaret Cancer Centre. (2020, Oct. 2). Swallowing Exercises | For Patients with Head and Neck Cancer Starting Radiation Treatment. YouTube. [www.youtube.com/watch?v=aZTXHwmOK6Q&ab\\_channel=PrincessMargaretCancerCentre](http://www.youtube.com/watch?v=aZTXHwmOK6Q&ab_channel=PrincessMargaretCancerCentre)
2. Nevens D, Deschuymer S, Langendijk JA, Daisne JF, Duprez F, De Neve W, Nuyts S. Validation of the total dysphagia risk score (TDRS) in head and neck cancer patients in a conventional and a partially accelerated radiotherapy scheme. *Radiother Oncol*. 2016 Feb;*118*(2):293-7. doi: 10.1016/j.radonc.2015.10.008. Epub 2015 Oct 20. PMID: 26477396.
3. Princess Margaret Head and Neck Working Group. (2018) *Dysphagia Practice Guide using the COSTaRS Framework*. Unpublished
4. Rosenthal DI, Mendoza TR, Chambers MS, Asper JA, Gning I, Kies MS, Weber RS, Lewin JS, Garden AS, Ang KK, S Wang X, Cleeland CS. Measuring head and neck cancer symptom burden: the development and validation of the M. D. Anderson symptom inventory, head and neck module. *Head Neck*. 2007 Oct;*29*(10):923-31. doi: 10.1002/hed.20602. PMID: 17358040.
5. Wallace KL, Middleton S, Cook IJ. Development and validation of a self-report symptom inventory to assess the severity of oral-pharyngeal dysphagia. *Gastroenterology*. 2000 Apr;*118*(4):678-87. doi: 10.1016/s0016-5085(00)70137-5. PMID: 10734019.
6. Chen AY, Frankowski R, Bishop-Leone J, Hebert T, Leyk S, Lewin J, Goepfert H. The development and validation of a dysphagia-specific quality-of-life questionnaire for patients with head and neck cancer: the M. D. Anderson dysphagia inventory. *Arch Otolaryngol Head Neck Surg*. 2001 Jul;*127*(7):870-6. PMID: 11448365.
7. Belafsky PC, Mouadeb DA, Rees CJ, et al. Validity and Reliability of the Eating Assessment Tool (EAT-10). *Annals of Otolaryngology & Laryngology*. 2008;*117*(12):919-924. doi:10.1177/000348940811701210
8. McHorney CA, Robbins J, Lomax K, Rosenbek JC, Chignell K, Kramer AE, Bricker DE. The SWAL-QOL and SWAL-CARE outcomes tool for oropharyngeal dysphagia in adults: III. Documentation of reliability and validity. *Dysphagia*. 2002 Spring;*17*(2):97-114. doi: 10.1007/s00455-001-0109-1. PMID: 11956835.
9. Canadian Malnutrition Task Force. (2014). *Canadian Nutrition Screening Tool*. Canadian Nutrition Society. <http://nutritioncareinCanada.ca/sites/default/uploads/files/CNST.pdf>
10. BC Cancer Agency. Nourishing Liquids: smoothies and blended drinks. Retrieved from the BC Cancer Agency website: <http://www.bccancer.bc.ca/nutrition-site/Documents/Patient%20Education/Nourishing-liquids.pdf>
11. BC Cancer Agency. Easy to Chew Easy to Swallow Food Ideas. Retrieved from the BC Cancer Agency website: [http://www.bccancer.bc.ca/nutrition-site/Documents/Patient%20Education/Easy\\_To\\_Chew\\_Easy\\_To\\_Swallow\\_Food\\_Ideas.pdf](http://www.bccancer.bc.ca/nutrition-site/Documents/Patient%20Education/Easy_To_Chew_Easy_To_Swallow_Food_Ideas.pdf)
12. Cichero, J.A.Y., Lam, P., Steele, C.M. et al. Development of International Terminology and Definitions for Texture-Modified Foods and Thickened Fluids Used in Dysphagia Management: The IDDSI Framework. *Dysphagia* 32, 293–314 (2017). <https://doi.org/10.1007/s00455-016-9758-y>
13. Sambunjak D, Nickerson JW, Poklepovic T, Johnson TM, Imai P, Tugwell P, Worthington HV (2011) Flossing for the management of periodontal diseases and dental caries in adults. *Cochrane Database Syst Rev* 12, CD008829. doi:10.1002/14651858.CD008829.pub2
14. de Souza RF, de Freitas Oliveira Paranhos H, Lovato da Silva CH, Abu-Naba'a L, Fedorowicz Z, Gurgan CA (2009) Interventions for cleaning dentures in adults. *Cochrane Database Syst Rev* 4, CD007395. doi:10.1002/14651858.CD007395.pub2
15. Glenny AM, Gibson F, Auld E, Coulson S, Clarkson JE, Craig JV, Eden OB, Khalid T, Worthington HV, Pizer B (2010) The development of evidence-based guidelines on mouth care for children, teenagers and young adults treated for cancer. *Eur J Cancer* 46(8):1399–1412. doi:10.1016/j.ejca.2010.01.023
16. Elad S, Cheng KKF, Lalla RV, et al. MASCC/ISOO clinical practice guidelines for the management of mucositis secondary to cancer therapy. *Cancer*. 2020 Oct;*126*(19):4423-4431. DOI: 10.1002/cncr.33100.
17. Funk CS, Warmling CM, Baldisserotto J. A randomized clinical trial to evaluate the impact of a dental care program in the quality of life of head and neck cancer patients. *Clin Oral Investig*. 2014 May;*18*(4):1213-1219. doi: 10.1007/s00784-013-1068-2. Epub 2013 Aug 30. PMID: 23989505
18. Goldsmith, Tessaa; Jacobson, Marlene C.b,c,d Managing the late effects of chemoradiation on swallowing: bolstering the beginning, minding the middle, and cocreating the end, *Current Opinion in Otolaryngology & Head and Neck Surgery*: June 2018 - Volume 26 - Issue 3 - p 180-187 doi: 10.1097/MOO.0000000000000455
19. King, S.N., Dunlap, N.E., Tennant, P.A. et al. Pathophysiology of Radiation-Induced Dysphagia in Head and Neck Cancer. *Dysphagia* 31, 339–351 (2016). <https://doi.org/10.1007/s00455-016-9710-1>
20. Ortega Fernández, O., Clavé, P. Oral Hygiene, Aspiration, and Aspiration Pneumonia: From Pathophysiology to Therapeutic Strategies. *Curr Phys Med Rehabil Rep* 1, 292–295 (2013). <https://doi.org/10.1007/s40141-013-0032-z>
21. Arends, J., Bachmann, P., Baracos, V., Barthelemy, N., Bertz, H., Bozzetti, F., Fearon, K., Hütterer, E., Isenring, E., Kaasa, S., Krznaric, Z., Laird, B., Larsson, M., Laviano, A., Mühlebach, S., Muscaritoli, M., Oldervoll, L., Ravasco, P., Solheim, T., Preiser, J. C. (2017). ESPEN guidelines on nutrition in cancer patients. *Clinical Nutrition*, 36(1), 11-48. <https://doi.org/10.1016/j.clnu.2016.07.015>
22. Murphy, B. A., & Gilbert, J. (2009, January). Dysphagia in head and neck cancer patients treated with radiation: assessment, sequelae, and rehabilitation. In *Seminars in radiation oncology* (Vol. 19, No. 1, pp. 35-42). WB Saunders.

## Disclaimer

Any person seeking to apply or consult the guide for practice document, is expected to use independent clinical judgement in the context of individual clinical circumstances, or seek out the supervision of a qualified specialist clinician. Ontario Health makes no representation or warranties of any kind whatsoever regarding their content, use, or application, and disclaims responsibility for their application or use in any way.

## Acknowledgements

A wide variety of health professionals were invited to participate in the development of this algorithm, as well as in the external review. Every effort was made to ensure as broad a professional and regional representation as possible.

**Dr. Saunders BSc, DMD**

Health Sciences North Sudbury  
(Oral Care Group Lead)

**Andrea Gomes, BSc, MCISc, S-LP (C), Reg. CASLPO**

University Health Network  
(Dysphagia Working Group Lead)

**Colleen Bedford, BSc**

Ontario Health

**Alaa El-Danab, MSc.A, RD**

Princess Margaret Cancer Centre

**Alexandra Fleury-Catterall, M.Sc.S, Speech-Language Pathologist, Reg. CASLPO**

Health Sciences North Sudbury

**Anahita Djalilvand, RD, MScFN**

Lakeridge Health

**Callie Gross, RD**

Health Sciences North Sudbury

**Casey Kouvelas, MN, RN**

Clinical Practice Manager, Windsor Regional Cancer Centre  
Regional Oncology Nursing Lead, Erie St. Clair Regional Cancer Program

**Dr. Erin Watson, DMD, MHSc**

Deputy Chief of Dentistry  
Princess Margaret Cancer Centre

**Karen Biggs, RD**

Juravinski Hospital and Cancer Centre

**Lia Kutzscher, NP**

London Health Sciences Centre

**Linda Hamelin NP-Adult, MN**

The Ottawa Hospital

**Melissa Touw, Clinical Nurse Specialist**

Kingston General Hospital

**Dr. Mireille Kaprilian, HBSc, DDS**

Clinical Associate Dentist  
Princess Margaret Cancer Centre

**Nicole Chenier-Hogan RN(EC), BA, BNSc, MSc, CNN(c)**

Nurse Practitioner; Radiation Oncology  
Cancer Centre Southeastern Ontario/Kingston Health Sciences Centre

**Olivia Lemenchick, RN**

London Health Sciences Centre

**Rita Valvasori, Registered Dental Hygienist**

**Rosemary Rivera, Professional Practice Leader**

Markham Stouffville Hospital

**Wilf Steer BScPhm MBA**

Outpatient Oncology Pharmacist  
Health Sciences North Sudbury