

Cancer Care Ontario's Symptom Management Guide-to-Practice: Dyspnea

Preamble

Ontario Cancer Symptom Management Collaborative

An initiative of Cancer Care Ontario, the [Ontario Cancer Symptom Management Collaborative](#) (OCSMC) was undertaken as a joint initiative of the Palliative Care, Psychosocial Oncology and Nursing Oncology Programs. The overall goal of the OCSMC is to promote a model of care enabling earlier identification, communication and documentation of symptoms, optimal symptom management and coordinated palliative care.

The OCSMC employs common assessment and care management tools, including the Edmonton Symptom Assessment System ([ESAS](#)) screening tool to allow patients to routinely report on any symptoms they are experiencing. Symptom Management Guides-to-Practice were developed to assist health care professionals in the assessment and appropriate management of a patient's cancer-related symptoms. In addition to the symptom specific Guides-to-Practice, quick-reference [Pocket Guides](#) and [Algorithms](#) were created. Additionally, for a comprehensive management plan for patients with advanced disease, please refer to the [Palliative Care Collaborative Care Plans](#).

Objective

The objective of this initiative was to produce Guides-to-Practice for the management of patients with cancer-related symptoms. These documents are clinical tools designed to assist health care practitioners in providing appropriate patient care and are not intended to serve as standards of care.

Target Population

The target population consists of adult patients who require symptom management related to cancer. It is outside the scope of these Guides-to-Practice to address in detail the management of patients experiencing acute adverse effects secondary to systemic or radiation therapy. Please visit the [Program in Evidence-Based Care](#) for guidelines related to these topics.

Target Users

The Guides-to-Practice will be of interest to health professionals who provide care to patients with cancer-related symptom management needs at various stages of the disease pathway.

Methodology

The Guides-to-Practice were developed by the interdisciplinary Symptom Management Group (SMG) which included regional representation from across the province (refer to [Post-amble](#) for details). As an alternative to de novo development, the Guides-to-Practice were developed using the ADAPTE guideline adaptation approach that includes identifying existing guidelines, appraising their quality, selecting recommendations for inclusion and obtaining expert feedback (refer to [Appendix A](#) and [B](#) for details).

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Considerations

The following guidelines were used as the basis for the development of this Guide: [Fraser Health’s Hospice Palliative Care Program Symptom Guidelines: Dyspnea’](#) (1), [Oncology Nursing Society’s](#) (ONS) [Putting Evidence Into Practice: Evidence-Based Interventions for Cancer-Related Dyspnea](#) (2), and the [Program in Evidence Based Care’s](#) (PEBC) [Management of Dyspnea in Cancer Patients: A Clinical Practice Guideline](#) (3).

Key recommendations are highlighted in shaded boxes. Source documents for each recommendation are denoted according to the symbols shown in Table 1. For example, if a recommendation is derived verbatim from the ONS guideline, it is indicated by the symbol ONS. Recommendations that are derived from the ONS guideline but have been modified are designated as ONS Modified.

Table 1. Symbol Legend

Symbol	Definition
Fraser Health ONS PEBC	Verbatim extract from the: - Fraser Health’s Hospice Palliative Care Program Symptom Guidelines: Dyspnea - Oncology Nursing Society’s (ONS) Putting Evidence Into Practice - Program in Evidence Based Care’s (PEBC) Management of Dyspnea in Cancer Patients
Fraser Health Modified ONS Modified PEBC Modified	Sections extracted from the guidelines have been altered and are indicated by the word modified

While some references to specific articles are provided, this Guide is not intended to be a comprehensive overview of the primary evidence, for a more in depth review the reader is encouraged to seek out the original guidelines. For a quick reference tool on dyspnea management, please refer to the Dyspnea [Pocket Guide](#) and [Algorithm](#). For a comprehensive management plan for patients with advanced disease, please refer to the Cancer Care Ontario [Collaborative Care Plans](#). The Guide is designed to be used in addition to the appropriate assessment and management of reversible underlying causes of dyspnea. **If dyspnea remains unrelieved despite the approached outlined below, request the assistance of a palliative care consultation team.**

Definition of Terms

Dyspnea is “a subjective experience of breathing discomfort that consists of qualitatively distinct sensations that vary in intensity. The experience derives from interactions among multiple physiological, psychological, social, and environmental factors, and may induce secondary physiological and behavioral responses” (4).

Assessment

Because dyspnea is subjective, it is recommended that the patient’s self report of symptoms should be acknowledged and accepted.

Ongoing comprehensive assessment is the foundation of effective dyspnea management. While assessing dyspnea, consider causes that may be specifically treatable (see section below). The OPRSTUV Acronym (Table 2) suggests some assessment questions; however these may need to be tailored to each patient. Where a patient is not able to complete an assessment by self-reporting, then the health professional and/or the caregiver may act as a surrogate.

Table 2: Dyspnea Assessment using Acronym O, P, Q, R, S, T, U and V (1)

Onset	When did it begin? How long does it last? How often does it occur?
Provoking / Palliating	What brings it on? What makes it better? What makes it worse?
Quality	What does it feel like? Can you describe it?
Region / Radiation	Are there any other 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? How bothered are you by this symptom? Are there any other symptom(s) that accompany this symptom?
Treatment	What medications or treatments are you currently using? How effective are these? Do you have any side effects from the medications/treatments? What medications/treatments have you used in the past?
Understanding / Impact on You	What do you believe is causing this symptom? How is this symptom affecting you and/or your family?
Values	What is your goal for this symptom? What is your comfort goal or acceptable level for this symptom (On a scale of 0 to 10 with 0 being none and 10 being worst possible)? Are there any other views or feelings about this symptom that are important to you or your family?

* Physical Assessment (as appropriate for symptom), pertinent History (risk factors).

Use the following questions and tools to explore the symptom in depth:

- Complete the [ESAS tool](#).
- If shortness of breath exists, rate it at its worst and at its best.
- When did the shortness of breath begin? When does it occur?
- How long does it last? How often does it occur?
- What does the shortness of breath feel like? Can you describe it?
- What brings it on? What makes it better? What makes it worse?

- What medications and treatments are you currently using for the shortness of breath? How effective are they? Do you have any side effects from the medications and treatments? What have you used in the past?
- How bothered are you by the shortness of breath? How is it affecting the things that you do or want to do? Are there other symptoms?
- What do you believe is causing the shortness of breath?
- What is your goal for this symptom? What is your comfort goal or acceptable level for the shortness of breath, on a scale from 0 to 10? Are there any other views or feelings about this symptom that are important to you or your family?
- Use the [Palliative Performance Scale \(PPS\)](#) or Eastern Cooperative Oncology Group (ECOG) tool to report the patient's overall functional status.

Carry out a relevant physical examination and relevant investigations, if tolerated by, and acceptable to the patient.

Diagnosis

Fraser
Health

Management should include treating reversible causes where possible and desirable according to the goals of care.

Consider the following potentially treatable causes of dyspnea and their treatment options:

Table 3. Potentially Treatable Underlying Causes of Dyspnea

Fraser
Health
Modified

Potentially Treatable Causes	Treatment Options
RESPIRATORY SYSTEM	
Chronic obstructive pulmonary disease (COPD)	Inhaled bronchodilators; inhaled or systemic corticosteroids
Large airway obstruction	Radiotherapy; systemic corticosteroids; stenting; heliox; nebulized epinephrine
Pleural effusion	Drain; if recurrent - sclerosing agents; indwelling catheter
Pneumonia	Antibiotics
Pulmonary emboli	Anti-coagulation; inferior vena cava filter
CARDIOVASCULAR SYSTEM	
Angina pectoris	Optimize conventional medications
Atrial fibrillation	Medications for ventricular rate control
Congestive Heart Failure	Optimize conventional medications
Pericardial effusion	Drain; if recurrent - sclerosing agents; pericardial window; indwelling catheter
Superior vena cava obstruction	Corticosteroids; radiotherapy; stenting
OTHER SYSTEMS	
Anemia	Red blood cell transfusion
Severe Ascites	Drain; if recurrent- indwelling catheter

Non-Pharmacological Treatments

Dyspnea can be a very frightening experience for patients and their families. Many of the suggestions here should be taught as preventative strategies, when patients are not dyspneic, and regular practice should be encouraged.

ONS
Modified

Sufficient evidence (2,5-10) exists to recommend a program of cognitive behavioural interventions involving the following 6 interventions for a time period of 3 to 8 weeks:

- 1. Assessment of breathlessness – what improves and what worsens it**
- 2. Provision of information and support for patients and families in the management of breathlessness**
- 3. Exploration of the significance of breathlessness with patients, their disease, and their future**
- 4. Instruction on breathing control, relaxation and distraction techniques**
- 5. Goal setting to enhance breathing and relaxation techniques as well as to enhance function, enable participation in social activities and develop coping skills**
- 6. Identification of early signs of problems that need medical or pharmacotherapy intervention**

Adapted with permission from the Oncology Nursing Society

ONS
Modified

Additional stand alone recommendations for managing dyspnea based on expert opinion (11,12):

- **Upright positioning**
- **Breathing exercises**
- **Assisting patients to recognize precipitants of dyspnea**
- **Access assistive mobility devices**
- **Increase ambient air flow directed at the face or nose such as generated by a fan**
- **Providing cooler temperatures**

Refer to the instructions and diagrams below for additional details.

Adapted with permission from the Oncology Nursing Society

1. Positioning

For patients with PPS 100% - 50%:

Suggest positions that maximize respiratory function while reducing physical effort.

- a. If patient experiences dyspnea during periods of ambulation, suggest stopping and leaning against the wall or sit leaning slightly forward resting arms on a table.
- b. For patients experiencing dyspnea lying down:
 - Semi to high fowlers position is often most comfortable.

ONS
Modified

- For positioning on the side, promote positioning on affected side to maximize lung expansion; ensure pillows are supporting small of the back.

For patients with reduced functional status PPS \leq 40%:

- a. During periods of standing, encourage positioning that allows for good lung expansion such as leaning against a wall.
- b. Promote a sitting position that is comfortable and maximizes air expansion (arm chair or edge of bed) slightly leaning forward securing arms on arm rest or pillows.

For patients with reduced functional status PPS \leq 30%:

- a. Semi to high fowlers position is often most comfortable. For positioning on the side, promote positioning on affected side to maximize lung expansion; ensure pillows are supporting small of the back.
- b. Minimize frequency of position changes.

2. Breathing Exercises

For patients with PPS 100% - 50% (if able):

- Increasing chest expansion can make the most of one's lung capacity and increase oxygen delivery.
- Consider referral to a respiratory therapist, physiotherapist or nurse with expertise in managing dyspnea.
- Refer patients to the [Lung Cancer Alliance Website](#), which demonstrates managing shortness of breath on stairs and during acute episodes and regular breathing techniques.

Regular Abdominal Breathing (repeat 3 times/day):

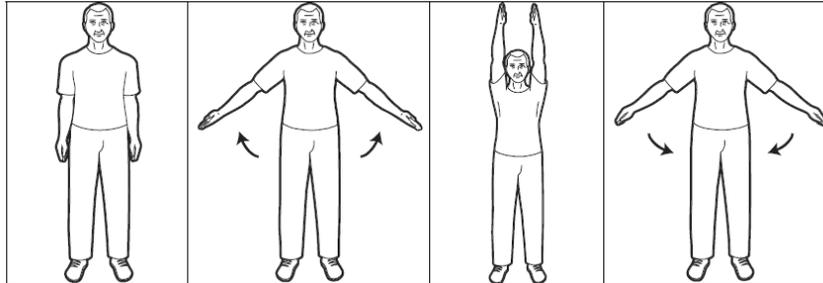
1. Sitting in a comfortable position with back well supported, the hands should be placed palms facing up on one's lap. If standing, turn palms outwards. This rotates the shoulders out and increases the space for the lungs to expand.
2. Breathe in through the nose to the count of **4** while pushing out the diaphragm and abdominal muscles giving a sense of breathing around the waist.
3. Breathe out through pursed lips, making the breath out twice as long as the breath in to the count of **8**.
4. Alternate breathing in through the nose to the count of 4, hold the breath to the count of 7 (.5..6..7), breath out through pursed lips slowly for a full count of 8.
5. Repeat 4 times.

Respiratory Muscle Strengthening:

These gentle exercises will not make one dyspneic, especially if done slowly using abdominal breathing as much as possible. All 7 exercises should be done, but if the patient is unable to do them all, then it is best if they do as many as they can.

Stretching the Muscles of the chest wall

1. Breathe in through the nose to the count of 4 while raising arms straight overhead.
2. Turn palms out and extend arms out and down the sides of the body while breathing out using pursed lips.
3. Repeat 4 times.



Opening the Chest



1. Place arms straight out in front of body, palms facing each other.
2. Breathe in through the nose as the straight arms move out to the sides and push arms back as far as possible.
3. Move arms from back to front of body while breathing through pursed lips.
4. Repeat 4 times.



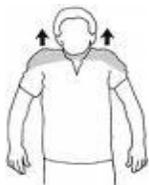
Working the Diaphragm (Sniffing)

1. With mouth closed, breathe in and out of nose quickly.
2. Work towards doing this for 60 seconds.



Elbow Circles

1. With hands on shoulders, make a circle with the elbows.
2. Breathe IN as the elbows go up, breathe OUT as the elbows return.
3. Make circles forward 10 times and backward 10 times.



Shoulder Shrug

1. Place arms along side of body with palms forward and fingers spread apart.
2. Breathe IN as shoulders rotate up and back.
3. Breathe OUT as shoulders push down.
4. Repeat 10 times.



Chest Fly (Chicken Wings)

1. Sit with feet shoulders width apart, hands on ears, palms facing forwards.
2. Exhale while slowly bringing palms together.
3. Inhale as bringing arms back out.
4. Repeat 20 times.



Working all the Muscles (Churn the Butter)

1. Sitting up straight, place hands in prayer position.
2. Make large circles like churning the butter.
3. Repeat 10 times, REST, repeat 10 times in the other direction.

For patients with reduced functional status PPS \leq 40%:

- a. Regular abdominal breathing techniques may be used for patients in transitional and even end of life if patient is conscious.
- b. Family members should be encouraged to learn controlled breathing techniques as they may become the natural teachers towards the end of life.

3. Education

For patients with PPS 100% - 10% (as appropriate):

- a. Recognizing Precipitants and Relieving Factors:
 - Ask what things make the patient breathless?
 - Ask what the patient does to improve breathlessness?
- b. During Practical Activities:
 - Always set up the environment to minimize bending and reaching
 - When bending, do not lean over; instead bend at the knees and hold an object to assist getting back up
 - Always exhale when exerting during a movement
 - On stairs inhale and exhale for every step climbed
 - Do not carry heavy bags with arms at sides
 - Remember to breathe
- c. Relaxation Techniques:
 - Learning a relaxation technique can reduce muscle tension and anxiety, which will help manage dyspnea
 - Instruct using the following exercise:
 1. In a quiet place get in a comfortable position and begin abdominal breathing gently.
 2. Consider playing music or sit in silence
 3. Focus on an object or a picture, consider using visualization
 4. Aim to maintain the steady gentle breathing throughout the relaxation period

- Then begin progressive muscle relaxation:
 1. Slowly draw shoulders up to ears. Hold them there for as long as is comfortable
 2. Once tension in the shoulders is felt, they should be lowered feeling the release in tension
 3. Repeat for as many muscle groups as desired.

- d. Managing Acute, Incident Dyspnea (dyspnea brought on/worsened by inciting activity):
 - See techniques in 3.b. above
 - Regaining control of breathing quickly
 1. See positions to consider in 1. above.
 2. Immediately tilt chin down towards chest and breathe out through lips in short bursts 10 times.
 3. When neck muscles feel relaxed, breathe in through the nose and out through pursed lips 3 times.
 4. Next breathe in through the nose and out through an open mouth making an “AH” sound.
 5. Repeat until relaxed. Once breathing has slowed return to abdominal breathing until settled.

Consider pharmacological treatments (see Pharmacological Treatments section below), in anticipation of the activity or if the dyspnea is not relieved with non-pharmacological approaches.

- e. Managing Acute, Unexpected dyspnea (dyspnea occurring or becoming worse unexpectedly, without an inciting activity):

If there is acute, unexpected dyspnea with any of the following:

- Breathing becoming more difficult over time
- Accompanying chest pain
- Struggling to breathe and feeling nervous
- Accompanying fever (38 or higher)
- Breathing becoming noisy, rattly or congested
- Accompanying dizziness
- Tachycardia

Then further assessment may be required, if appropriate, to identify potentially treatable, reversible causes (see [Table 3](#)).

- See the above techniques in 3.d. for regaining control of breathing quickly.
- Consider pharmacological treatments (see [Pharmacological Treatments](#) section) if the dyspnea is not relieved by non-pharmacological approaches.

4. Supportive Counseling

For patients with PPS 100% - 10% (as appropriate):

The meaning of symptoms cannot be separated from the symptom experience. In order to relieve suffering and provide good symptom support, the health care professional must explore the meaning of the symptom to the patient.

- a. Breathlessness can be a very frightening experience for patients and their families and may result in increased anxiety and fear. Many patients may relate breathlessness to advanced illness and suffering.
- b. Assessing emotional response is not only a critical element of the assessment, but it also reassures the patient that attention is being paid to their psychological well-being.
- c. Strategies such as active listening, talking calmly and provision of empathy help relieve emotional distress.
- d. Recognize fears and acknowledge their significance by assuring patient and family dyspnea will be managed.
- e. End of life: Approaching end of life care can be very difficult on families and loved ones. Families will vary in how much support they require and how involved they wish to be during end of life care. Provision of psycho-education regarding the care plan can provide families and loved ones with practical and emotional strategies to cope with loss.

5. Ambient Air Flow and Cooler Temperatures

For patients with PPS 100% - 10%:

Ambient air flow on the face & cool facial temperatures both work by stimulating the trigeminal (5th cranial) nerve, relieving the sensation of dyspnea.

- Ambient air flow can be achieved by opening a window, using a fan, or administering air through nasal prongs.
- Cool temperatures can be applied to the brow or upper cheek bones by applying a cool cloth or opening a window to let cooler air in.

Pharmacological Treatments

MILD DYSPNEA (ESAS score of 1-3)

Supplemental oxygen is recommended for hypoxic patients experiencing dyspnea.

ONS
Modified

Supplemental oxygen is not recommended for non-hypoxic, dyspneic patients.

Non-hypoxic Patients (>90% O₂ saturation)ⁱ

For patients with PPS 100% - 10%:

Use a fan or humidified ambient air via nasal prongs (as per patient preference and availability). This is not covered by the Ontario Ministry of Health and Long-Term Care (MOHLTC).

- If effective and tolerated, then utilize one or the other.
- If not effective or not tolerated, consider a trial of humidified, supplemental oxygen via nasal prongs – assess benefits over a few days and discontinue if no benefit reported for dyspnea (covered by MOHLTC on the Home Oxygen program for up to 3 months if the “palliative care” indication is used).

Hypoxic Patients (≤90% O₂ saturation at rest or on exertion)

For Patients with PPS 100% - 10%:

Use humidified, supplemental oxygen via nasal prongs, continuously or as-needed, at flow rates between 1 and 6 litres per minute, aiming for oxygen saturations over 90% or improvement in dyspnea at tolerated flow rates.

- Continue this therapy if it is effective at improving dyspnea and is tolerated.
- If dyspnea and low oxygen saturation persist despite maximum-tolerated flow of humidified, oxygen by nasal prongs, consider offering a trial of supplemental oxygen by oxymizer (nasal cannulae with reservoir), ventimask or non-rebreathing mask to deliver a more predictable fraction of inspired oxygen to the lungs. If this is not tolerated, the patient can return to the best-tolerated flow of humidified oxygen by nasal prongs or discontinue supplemental oxygen altogether.

ⁱ ≤88% oxygen saturation at rest or on exertion is the threshold for MOHLTC approval of funding for home oxygen for palliative care patients beyond 3 months; for some patients ≤90% oxygen saturation may be a more appropriate threshold for introducing home oxygen therapy.

Systemic Opioids

PEBC

Systemic opioids, by the oral or parenteral routes, can be used to manage dyspnea in advanced cancer patients.

For patients with PPS 100-10%:

Other pharmacological treatments are not generally needed for patients with mild dyspnea, regardless of their PPS; however, systemic opioids (oral or parenteral) may be considered if non-pharmacological approaches result in inadequate relief of dyspnea. Consider systemic opioids for mild, continuous dyspnea, not for dyspnea that is mild and intermittent (e.g., on exertion) since any benefit is limited by the time to onset of effect. If systemic opioids are considered, weigh their potential risks and benefits and reassess the severity of the dyspnea and the effect the dyspnea has on the patient's function.

- If the patient is already taking a systemic opioid for another indication, such as pain
 - titrate the dose of the same opioid, if it is well-tolerated, to improve the dyspnea
 - switch to an alternate opioid, if the current opioid is not tolerated, and titrate it to improve the dyspnea
- If the patient is opioid naïve, introduce an opioid to treat the dyspnea

For dosing details, see Systemic Opioids section under Moderate Dyspnea below.

Properly titrated, systemic opioids do not produce respiratory depression.

MODERATE DYSPNEA (ESAS score of 4-6)

For patients with PPS 100% - 10%:

See Mild Dyspnea section above for pharmacological treatments to use for treating moderate dyspnea, along with the following.

Systemic Opioids

For opioid-naïve patients:

- Morphine (or equivalent dose of alternate immediate-release opioid) 5 mg po q4h regularly and 2.5 mg po q2h PRN for breakthrough dyspnea.
- If the oral route is not available or reliable, morphine 3 mg subcut q4h regularly and 1.5 mg subcut q1h PRN for breakthrough dyspnea
 - These subcut doses facilitate using the 15 mg/ml injectable morphine formulation available in the Ontario Drug Benefit (ODB) General Formulary.

For patients already taking systemic opioids:

- Increase the patient's regular dose by 25%, guided by the total breakthrough doses used in the previous 24 hours

- The breakthrough dose is 10% of the total 24-hour regular opioid dose, using the same opioid by the same route
 - oral breakthrough doses are offered every 2 hours as needed
 - subcutaneous breakthrough doses are offered every one hour as needed, due to their more rapid peak effect.

Dose adjustments for opioid-naïve patients and patients already taking systemic opioids:

- If the dyspnea remains inadequately controlled, increases to the regular opioid dose can be considered after 24 hours when using immediate-release opioids and after 48 hours when using sustained-release opioids.
 - Increase the regular dose by 25%, guided by the total breakthrough doses used in the previous 24 hours.
- If the breakthrough dose provides inadequate relief of breakthrough dyspnea, it can be increased by increments of 5% of the total 24-hour regular opioid dose.
- Once the effective regular dose is determined, consider converting to an oral, sustained-release opioid formulation, for the patient's convenience.

Managing Side Effects:

- Treat expected side effects prophylactically - prescribe regular laxatives when an opioid is started and an anti-emetic as needed or regularly depending on the patient's experience with opioids in the past.
- Sedation is expected with the introduction of an opioid and with dose increases, but usually improves within a few days.
- If side effects are intolerable and unmanageable, either decrease the opioid dose or switch to an alternate opioid.
- **Properly titrated systemic opioids do not produce respiratory depression.**

In some patients, opioid metabolites can accumulate and cause neuroexcitatory toxicity, presenting with one or more of myoclonus, hyperalgesia, delirium and seizures.

- This is most common when a patient has renal insufficiency, but can occur when renal function is normal.
- All opioids should be used with caution and at reduced doses in patients with renal insufficiency. Consider seeking the advice of a palliative care consultation team.
- Fentanyl and methadone may be the safest opioids to use when a patient is at risk of or has experienced opioid neuroexcitatory toxicity, but they pose pharmacokinetic challenges. Consult a palliative care consultation team to help with using these opioids.
- For further information on opioid toxicity refer to the Pain Guide-to-Practice.

Nebulized Opioids

PEBC
Modified

Nebulized opioids should not be used to treat dyspnea.

Other Nebulized Formulations

ONS

Evidence is insufficient to support the use of nebulized furosemide in the treatment of dyspnea.

ONS
Modified

Nebulized lidocaine is not recommended for managing dyspnea in advanced cancer patients.

Benzodiazepines

Benzodiazepines are not recommended for managing dyspnea.

However, benzodiazepines can be used to treat associated anxiety.

Systemic corticosteroids

PEBC
Modified

No comparative trials are available to recommend or not recommend the use of systemic corticosteroids for managing dyspnea in advanced cancer patients.

For Patients with PPS 100% - 20%:

- If the patient has or may have COPD, consider a 5-day trial of a corticosteroid.
 - Dexamethasone 8 mg/day po or subcut or IV.
 - Prednisone 50 mg/day po.
 - Discontinue the corticosteroid if there is no obvious benefit after 5 days.
- If the patient does not have COPD, but has known or suspected lung involvement by the cancer, weigh the risks before commencing a 5-day trial.
 - Other potential benefits, such as appetite stimulation or pain management, may justify a 5-day trial of a corticosteroid for treating dyspnea.
- Do not start prophylactic gastric mucosal protection therapy during a 5-day trial of a corticosteroid, but consider such therapy if the corticosteroid is continued past the trial.

Phenothiazines

PEBC

Prochlorperazine is not recommended as a therapy for managing dyspnea.

PEBC
Modified

No comparative trials are available to recommend or not recommend the use of chlorpromazine and methotrimeprazine for managing dyspnea.

For Patients with PPS 30% - 10%:

- Consider a trial of chlorpromazine or methotrimeprazine for a few days, if dyspnea persists despite other therapies.
 - Methotrimeprazine 2.5-10 mg po or subcut q6-8h regularly or as needed.
 - Chlorpromazine 7.5-25 mg po q6-8h regularly or as needed.
- Other potential benefits, such as treatment of anxiety, nausea or agitation, may justify a trial of chlorpromazine or methotrimeprazine for treating dyspnea.

SEVERE DYSPNEA (ESAS score of 7-10)

See [Moderate Dyspnea](#) section for pharmacological treatments to use for treating severe dyspnea, along with the following additional options.

For Patients with PPS 100% - 10%:

Systemic Opioids

For opioid-naïve patients:

- Give a subcut bolus of morphine 2.5 mg (or an equivalent dose of an alternate opioid).
 - If this is tolerated, repeat this dose every 30 minutes if needed.
 - Consider doubling this dose if 2 doses fail to produce an adequate reduction in dyspnea and are tolerated.
 - Monitor the patient's respiratory rate closely, since the time to peak effect of a subcut dose of morphine may be longer than 30 minutes.
- If intravenous access is available, consider giving an IV bolus of morphine 2.5 mg (or an equivalent dose of an alternate opioid) to achieve a more rapid effect.
 - If this is tolerated, repeat this dose every 30 minutes if needed.
 - Consider doubling this dose if 2 doses fail to produce an adequate reduction in dyspnea and are tolerated.
 - Monitor the patient's respiratory rate closely, since IV boluses of morphine result in faster and higher peak effects.

- Start a regular dose of an immediate-release opioid, as outlined in the Moderate Dyspnea section, guided by the bolus doses used.
 - For the breakthrough opioid dose, consider using the subcut route initially for severe dyspnea until the symptom comes under control.

For patients already taking systemic opioids:

- Follow the same suggestions as above for opioid naïve patients, with the following changes.
 - Give a subcut bolus of the patient's current opioid using a dose equal to 10% of the regular, 24-hour, parenteral-dose-equivalent of the patient's current opioid
 - a parenteral dose is equivalent to half the oral dose.
 - Consider giving an IV bolus of the patient's current opioid, using a dose equal to 10% of the regular, 24-hour, parenteral-dose-equivalent of the patient's current opioid.
 - Increase the regular opioid dose by 25%, guided by the bolus doses used.

Phenothiazines

Consider a trial of chlorpromazine or methotrimeprazine for a few days, if severe dyspnea persists despite other therapies.

- Methotrimeprazine 2.5-10 mg po or subcut q6-8h regularly or as needed.
- Chlorpromazine 7.5-25 mg po or IV q6-8h regularly or as needed.

If dyspnea remains unrelieved despite the approaches outlined above, request the assistance of a palliative care consultation team.

Appendices

Appendix A: Methodology

The Standards, Guidelines and Indicators Sub-group of the Re-Balance Focus Action Group, established under the Canadian Cancer Control Strategy, performed a literature review and environmental scan.ⁱⁱ This review was used by the SMG as a source from which to identify existing guidelines relative to the four symptoms of interest. Additionally, SMG members reached out to regional cancer programs in Ontario, searched the Cancer Care Ontario Program in Evidence-based Care website and their own personal sources for any relevant guidelines.

The Re-Balanced Focus Action Group used the following search criteria in their review:

Inclusion Criteria

1. Standards focused on care delivered by cancer organizations; and/or processes of care; and/or professional practice standards specific to cancer.
2. Guidelines focused on clinical practice of practitioners relevant to psychosocial, supportive or palliative care provision to cancer patient populations.
3. Guidelines that were more generic in focus but relevant to supportive care aspects of cancer populations in areas such as prevention and screening were also included.

Exclusion Criteria

1. Guidelines that did not base the development of substantive statements/recommendations on a review of evidence from the literature and/or were not based on a source that used evidence to support the guideline development process.
2. Guidelines that were focused on providing direction to patients and families for which it was not clear that the guideline statements or recommendations were based on a review of evidence from the literature and/or were not based on a source that used evidence to support the guideline development process.

Databases Searched

Health Sciences literature databases used in this scan include HealthStar, Medline, CINHALL, Embase and PsycINFO. The internet search engine Google Scholar was utilized for the grey literature search for scientific and non-scientific sources. Databases for the following organizations were also reviewed: a) All oncology professional associations and organizations for Psychosocial Oncology and Palliative Care inclusive of Oncology Social Workers, Clinical Oncology; b) All Canadian Provincial Cancer Care Organizations within provinces; c) International organizations or agencies or associations whose mandate is focused on systematic

ⁱⁱ Re-Balance Focus Action Group. Literature Review and Environmental Scan: Psychosocial, Supportive and Palliative Care Standards and Guidelines. Updated 2009.

reviews or guideline development. The literature search and environmental scan was updated in December 2008 and again in January 2009.

Results

Based on the literature review and environmental scan described above, the Dyspnea SMG identified eight dyspnea related guidelines for inclusion in this Guide-to-Practice. Two guidelines (13,14) were rejected at the onset by the group lead because they fell outside of the scope of the Guide-to-Practice. The remaining six guidelines (1-3, 15-17) were screened and assessed for quality, currency, content, consistency, and acceptability/applicability, using the Appraisal of Guidelines Research and Evaluation (AGREE) instrument (www.agreetrust.com). Taking into consideration the AGREE scores and expert consensus, the working groups chose the most applicable and relevant guidelines to be included in the Guide-to-Practice (Table 4).

Table 4. AGREE Scores

AGREE Scores	Fraser Health(1)	ONS (2)	PEBC (3)	NCCN (15)	ACCC (16)	SIGN 80 (17)
Scope & Purpose	74%	77.8%	96%	85.2%	70.4%	85%
Stakeholder Involvement	43%	36.1%	36%	41.7%	52.8%	75%
Rigour of Development	25%	55.6%	81%	8.1%	65.1%	79%
Clarity & Presentation	61%	91.2%	69%	77.8%	75%	28%
Acceptability	4%	11.1%	0%	22.2%	33.3%	41%
Editorial Independence	22%	44.4%	0%	77.8%	61.1%	50%
Overall Quality Assessment	Strongly Recommended. Method of presentation is worth considering. Good assessment and diagnosis sections.	Strongly Recommended. Current, consistent with the evidence, easily applied, well presented.	Strongly Recommended. Current, backed by consistent evidence, easily applied, well presented.	Recommended with Proviso. A multi-symptom guideline; Lots of medications not used in Ontario; Did not specify when meds should be used. Recommendations are based on lower-level evidence.	Recommended with Proviso. Well developed guideline. But lacked in depth and detail.	Not recommended. Well done guideline for its purposes, i.e., for clinicians working in clinic for management of lung cancer, but not suitable for this group's purposes. Does not contain specific symptom related issues.

The ADAPTE process (<http://www.adapte.org/>) was then used to systematically endorse or modify applicable components of the three guidelines (1-3). The guideline development process, utilizing ADAPTE, proceeds under the assumption that the original recommendations are reasonable and supported by the evidence. Confidence in this assumption is fostered from

satisfactory AGREE scores. In situations where evidence was not available or not applicable to specific clinical situations, systems and contexts recommendations were modified based on the expert consensus of the working group. It is beyond the scope of the Guide-to-Practice development process and this document to make the connection between the recommendations and the original key evidence. For those who wish to do so, please refer to the Fraser Health (1), ONS (2) and PEBC (3) documents.

Appendix B: Peer Review Summary

Expert feedback was obtained through an internal and external review:

Internal Review

The internal review consisted of an anonymous appraisal of the Guides by members from each of the [working groups](#). The intent of this review was to ensure that the Guide development process was methodologically rigorous; the recommendations were supported by the evidence in a transparent way; and that the guide was clinically relevant and applicable to practice.

A total of 39 online surveys were collected during the internal review (Table 5). Eight participants completed the dyspnea Guide-to-Practice survey; however one respondent only provided written commentary. The survey feedback was thoroughly reviewed by each of the corresponding working groups and, where appropriate, changes were made to the guides.

Table 5. Responses to 14 key questions on the Dyspnea Internal Review survey (7 respondents)

Question	Strongly Agree % (Response count)	Agree % (Response count)	Disagree % (Response count)	Strongly Disagree % (Response count)
The methods for formulating the recommendations are clearly described.	14.5% (1)	71% (5)	14.5% (1)	0%
There is an explicit link between the supporting evidence and the recommendations.	14.5% (1)	71% (5)	14.5% (1)	0%
The recommendations are in agreement with my understanding of the evidence.	28.5% (2)	57% (4)	14.5% (1)	0%
The recommendations are specific and unambiguous.	28.5% (2)	71% (5)	0%	0%
The recommendations are easily identifiable.	28.5% (2)	57% (4)	14.5% (1)	0%
The recommendations are achievable.	43% (3)	57% (4)	0%	0%
The health benefits, side effects, and risks have been considered in formulating the recommendations.	28.5% (2)	71% (5)	0%	0%
When applied, the Guide-to-Practice will produce more benefits for patients than harm.	43% (3)	57% (4)	0%	0%
The different options for management of the condition are clearly presented.	28.5% (2)	71% (5)	0%	0%
The Guide-to-Practice is supported with tools for application.	0%	71% (5)	28.5% (2)	0%
The Guide-to-Practice is user friendly.	43% (3)	43% (3)	14.5% (1)	0%
The Guide-to-Practice presents a series of options that can be implemented.	43% (3)	57% (4)	0%	0%

Question	Yes, Strongly Agree Percent (Response count)	No, Strongly Disagree Percent (Response count)
Do you perceive any barriers or challenges in using this Guide-to-Practice?	28.5 % (2)	71% (5)
Would you be able to apply these recommendations to the clinical care decisions for which you are professionally responsible?	100% (7)	0 %

External Review

The external review process consisted of I) a Targeted Peer Review, intended to obtain direct feedback on the draft guides from a small number of specified content experts and II) a Professional Consultation, that intended to disseminate the draft guide as widely as possible to its intended readership, provide a forum for recipients to explain any disagreement with the recommendations, and to further ensure the quality and relevance of the document.

I) Targeted Review

Twelve reviewers were invited to participate in the external target review for the dyspnea Guide-to-Practice and 8 provided responses (Table 6 and 7). Pharmacists did not complete the online survey but did offer feedback via email, which was incorporated into the Guide.

Table 6. Overview of the Dyspnea targeted peer reviewers

Guide	Sample	Results
Dyspnea	12 Reviewers: 1 Palliative care physician 1 Nurse practitioner 2 Respiriologists 3 Physiotherapists 2 Methodology experts 3 Pharmacists	9 Responses: 1 Palliative care physician 1 Nurse practitioner 2 Respiriologists 2 Physiotherapists 2 Methodology experts 1 Pharmacist

Table 7. Responses to key questions on the Dyspnea target peer review survey (8 respondents)

Question	1 Lowest Quality % (Response count)	2 % (Response count)	3 % (Response count)	4 % (Response count)	5 Highest Quality % (Response count)
Rate the Guide-to-Practice development methods.	0%	0%	12.5% (1)	75% (6)	12.5% (1)
Rate the Guide-to-Practice presentation.	0%	0%	37.5% (3)	37.5% (3)	25% (2)
Rate the Guide-to-Practice recommendations.	0%	0%	12.5% (1)	87.5% (7)	0%
Rate the completeness of the reporting.	0%	12.5% (1)	37.5% (3)	50% (4)	0%
Does this document provide sufficient information to inform your decisions?	0%	0%	0%	37.5% (3)	62.5 % (5)
Rate the overall quality of the Guide-to-practice.	0%	0%	25% (2)	62.5% (5)	12.5% (1)

Question	1 Strongly Disagree % (Response count)	2 % (Response count)	3 % (Response count)	4 % (Response count)	5 Strongly Agree % (Response count)
I would make use of this Guide-to-Practice in my professional decisions.	0%	0%	0%	62.5% (5)	37.5% (3)
I would recommend this Guide-to-Practice for use in practice.	0%	0%	0%	62.5% (5)	37.5% (3)

II) Professional Consultation

The Professional Consultation consisted of a sample of approximately 290 health care practitioners. Participants were contacted by email and asked to read the guides and complete a brief corresponding electronic survey. Forty-nine responses were received (refer to Table 8 and 9 for details). Twelve respondents reviewed the Dyspnea guide.

Table 8. Overview of the Professional Consultation Sample

Profession	Sample	Results
All Guides		
Palliative Care Physicians	49	18
Nurses	32	15
Pharmacists	20	1
Family Physicians	6	4
Medical Oncologists	14	4
Radiation Oncologists	17	1
Surgical Oncologists	11	0
Provincial Palliative Care Committee	9	0
PEBC Supporting Care Group/Administrative/Researchers	9	3
Dietitians	75	2
Psychiatrists	6	1
Neurologists	16	0
Respirologists	26	0
TOTAL:	290*	49 (Response rate 17%)

* Participant were encouraged to forward the electronic survey to interested colleagues, hence the total sample size is only an estimate.

Table 9. Responses to key questions on the Professional Consultation survey (49 respondents)

Question	1 Strongly Disagree % (Response count)	2 Percent (Response count)	3 Percent (Response count)	4 Percent (Response count)	5 Strongly Agree % (Response count)
I would make use of this Guide-to-Practice in my professional decisions.	2.1% (1)	2.1% (1)	14.65% (7)	31.2% (15)	50% (24)
I would recommend this Guide-to-Practice for use in practice.	2.1% (1)	2.1% (1)	10.3% (5)	29.2% (14)	56.3% (27)
Question	1 Lowest Quality % (Response count)	2 Percent (Response count)	3 Percent (Response count)	4 Percent (Response count)	5 Highest Quality % (Response count)
Rate the overall quality of the Guide-to-Practice.	0	2.1% (1)	14.6% (7)	35.4% (17)	47.9% (23)

References

- 1) Fraser Health. Hospice palliative care program symptom guidelines: Dyspnea [Internet]. Fraser Health; 2009 [cited 2009 Jul 23]. Available from: <http://www.fraserhealth.ca/Services/HomeandCommunityCare/HospicePalliativeCare/Documents/Dyspnea.pdf>
- 2) Oncology Nursing Society. Putting evidence into practice: Evidence-based interventions for cancer-related dyspnea [Internet]. Oncology Nursing Society; 2008 [cited 2010 Jul 30]. Available from: <http://ons.metapress.com/content/c21324512r838824/>
- 3) Viola R, Kiteley C, Lloyd N, Mackay JA, Wilson J, Wong R, Supportive Care Guidelines Group. The Management of dyspnea in cancer patients: A clinical practice guideline [Internet]. Program in evidence based care series 13-5, Cancer Care Ontario; 2006 Nov 6 [cited 2010 Jul 30]. Available from: <http://www.cancercare.on.ca/common/pages/UserFile.aspx?serverId=6&path=/File%20Database/CCO%20Files/PEBC/pebc13-5f.pdf>
- 4) American Thoracic Society. Dyspnea, mechanisms, assessment, and management: A Consensus Statement. *Am J Respir Crit Care Med.* 1999; 159:321-340.
- 5) Bredin M, Corner J, Krishnasamy M, Plant H, Bailey C, A'Hern R. Multi-centre randomized controlled trial of nursing interventions for breathlessness in patients with lung cancer. *BMJ.* 1999; 318(7188):901-4.
- 6) Corner J, Plant H, Warner L. Developing a nursing approach to managing dyspnea in lung cancer. *International Journal of Palliative Nursing.* 1995; 1:5-11.
- 7) Corner J, Plant H, A'Hern R, Bailey C. Non-pharmacological intervention for breathlessness in lung cancer. *Palliative Medicine.* 1996;10:299-305.
- 8) Hatley J, Laurence V, Scott A, Baker R, Thomas P. Breathlessness clinics within specialist palliative care settings can improve the quality of life and functional capacity of Patients with lung cancer. *Palliative Medicine.* 2003; 17: 410-417.
- 9) Gallo-Silver L, Pollack B. Behavioral Interventions for Lung Cancer-Related Breathlessness. *Cancer Practice.* 2000; 8(6): 268-273.
- 10) Hoyal C, Grant J, Chamberlain F, Cox R, Campbell T. Improving the management of breathlessness using a clinical effectiveness program. *International Journal of Palliative Nursing.* 2002; 8(2): 78-87.
- 11) Kiteley C, Parkins J, Cox-Arseneault. Evidence based toolkit for breathlessness management. Peel Regional Cancer Program Credit Valley Hospital; 2007 Nov.
- 12) John L. Pilot study of a seated exercise intervention for lung cancer patients: Clinical significance. *Oncology Nursing Forum.* 2007; 34(1):190.
- 13) Feld R, Sridhar SS, Shepherd FA, Mackey JA, Evans WK, the Lung Cancer Disease Site Group. Use of the epidermal growth factor receptor inhibitors, Gefitinib (Iressa®) and Erlotinib (Tarceva®), in the treatment of non-small cell lung cancer: a clinical practice

- guideline [Internet]. Program in Evidence Based Care Series 7-9, Cancer Care Ontario; 2006 Jan 6 [cited 2010 Jul 30]. Available from:
<http://www.cancercare.on.ca/common/pages/UserFile.aspx?serverId=6&path=/File%20Database/CCO%20Files/PEBC/pebc7-9f.pdf>
- 14) Loblaw DA, Laperriere N, Perry J, Chambers A, Neuro-oncology Disease Site Group. Malignant extradural spinal cord compression: Diagnosis and management [Internet]. Program in Evidence Based Care Series 9-9, Cancer Care Ontario; 2004 Jan [cited 2010 Jul 30]. Available from: <http://www.cancercare.on.ca/common/pages/UserFile.aspx?fileId=14250>
 - 15) National Comprehensive Cancer Network (NCCN). Clinical practice guidelines in oncology: Palliative care [Internet]. National Comprehensive Cancer Network; 2008 [cited 2010 Jul 30]. Available from: http://www.nccn.org/professionals/physician_gls/PDF/palliative.pdf
 - 16) Editorial Board Palliative Care: Practice Guidelines. Nausea and vomiting. Utrecht, Netherlands: Association of Comprehensive Cancer Centres (ACCC), National Guideline Clearinghouse; 2006.
 - 17) Scottish Intercollegiate Guidelines Network (SIGN) 80. Management of patients with lung cancer: A national clinical guideline. Scottish Intercollegiate Guidelines Network; 2005 [cited 2010 Jul 30]. Available from: <http://www.sign.ac.uk/pdf/sign80.pdf>

Post-amble

Working Group

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

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