

DYSPNEA

Rationale

This guideline is adapted for inter-professional primary care providers working in various settings in VIHA and any other clinical practice settings in which a user may see the guidelines as applicable.

Up to 95% of COPD patients, 78.6% of advanced cancer patients and 75% of patients with advanced disease of any cause experience dyspnea.⁽¹⁻¹⁰⁾

Scope

This guideline provides recommendations for the assessment and symptom management of adult patients (age 19 years and older) living with advanced life threatening illness and experiencing the symptom of dyspnea. This guideline does not address disease specific approaches in the management of dyspnea.

Definition of Terms

Dyspnea (shortness of breath) is a term used to characterize a subjective experience of breathing discomfort that consists of qualitative distinct sensations that vary in intensity. The experience derives from interactions among multiple physiological, psychological, social and environmental factors, and may induce secondary behavioural responses.^{(10), (1-20)} Dyspnea may or may not be associated with hypoxemia, tachypnea or orthopnea.

Standard of Care

1. Assessment
2. Diagnosis
3. Education
4. Treatment: Non-pharmacological
5. Treatment: Pharmacological
6. Crisis Intervention

Recommendation 1

Assessment of Dyspnea

Ongoing comprehensive assessment is the foundation of effective dyspnea management, including interview (*see Table 1*), physical assessment, appropriate diagnostics, medication review, medical and surgical review, psychosocial review and review of physical environment. Assessment must determine the cause, effectiveness and impact on quality of life for the patient and their family.^(1-3, 9, 10, 12, 14, 19, 21-25)

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Because dyspnea is subjective, the patient's self report of symptoms should be acknowledged and accepted. Use a numeric rating scale (NRS) or visual analog scale (VAS) for dyspnea to rate shortness of breath from 0 to 10, with 0 being no shortness of breath and 10 being shortness of breath as bad as can be.^(1-4, 8, 10, 12, 15, 17, 19, 20, 23, 24, 26-28)

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

O Onset	When did it begin? How long does it last? How often does it occur? What time of day does it occur?
P Provoking / Palliating	What brings it on? What makes it better? What makes it worse? What positions are worse?
Q Quality	What does it feel like? Can you describe it?
R Region / Radiation	Where is it ? Does your throat or chest feel tight?
S 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?
T Treatment	What medications and treatments are you currently using? How effective are these? Do you have any side effects from the medications and treatments? What medications and treatments have you used in the past?
U Understanding/ Impact on You	What do you believe is causing this symptom? How is this symptom affecting you?
V 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?

*** also include a Physical Assessment (as appropriate for symptom)**

Recommendation 2

Diagnosis

Management should include treating reversible causes where possible and desirable according to the goals of care. The most significant intervention in the management of dyspnea is identifying underlying cause(s) and treating as appropriate (see Table 2). While underlying cause(s) may be evident, treatment may not be indicated, depending on the stage of the disease. (1-5, 7-14, 16, 17, 21-25, 29, 30)

Whether or not the underlying cause(s) can be relieved or treated, **all** patients will benefit from management of the symptom using education, energy conservation and breath control, airflow and medications.

Table 2: Underlying Causes of Dyspnea & Treatment of Choice

Underlying Causes	Treatment of Choice
Airway obstruction	Radiotherapy/steroids/stenting/tracheostomy
Anemia – severe	Transfusion may be indicated
Anxiety	Benzodiazepines and Nonpharmacological interventions
Chronic obstructive pulmonary disease (COPD)/Asthma	Conventional inhalers/nebulizers/steroids/anticholinergic. Many smokers live with undiagnosed and untreated COPD, which exacerbates malignancy-related dyspnea ⁽²⁹⁾ ⁽³¹⁾ , BiPaP
Congestive Heart Failure (CHF) /Coronary Artery Disease (CAD) Arrhythmias	Treat with conventional medications ⁽³²⁾ ie). diuretics, ACE inhibitors, vasodilators, opioids
Effusions – pleural, pericardial, peritoneal	Drain –if clinically significant with respect to the patient’s dyspnea; pleurodesis or indwelling pleural catheter for recurrent pleural effusion; pericardial window i.e.). pericentesis
Fatigue/deconditioning, weakness	Activity to tolerance, pulmonary rehabilitation exercises may be helpful
Infection: Pneumonia, pericarditis	Antibiotics, antifungal, antiviral if appropriate
Lung damage from chemotherapy, radiation or surgery	Consult oncologist (full dose may not yet have been given), steroids for radiation pneumonitis
Lymphangitic carcinomatosis	Corticosteroids, diuretics
Neuromuscular (ALS, CVA, poliomyelitis, myasthenia gravis)	No specific therapy; apply the Nonpharmacological and pharmacological suggestions outlined below. For Amyotrophic Lateral Sclerosis (ALS) patients – BiPap if appropriate
Pulmonary emboli	Anti-coagulation, filter if appropriate
Pain	Often exacerbates dyspnea – appropriate analgesia
Primary or metastatic tumour (hepatomegaly, phrenic nerve lesion)	Chemotherapy may be indicated – reduces the incidence of ascites/ pleural effusions in ovarian cancer and ascites in intra-abdominal cancer. As above, radiotherapy may relieve airway obstruction
Pulmonary fibrosis	Steroids; reassessment of oxygen requirements with disease progression
Superior vena cava (SVC) obstruction	Steroids; consult oncologist for treatment of underlying tumour, radiotherapy

Recommendation 3

Education

Dyspnea is a distressing symptom to experience and to witness. Providing information and education is foundational to enhance the patient and family's ability to cope^(2, 4-6, 8, 10,12, 14, 19, 25, 29)

- Explain to the patient and family what is understood about the multiple triggers of dyspnea (i.e., restriction of respiratory movement, obstructions, and muscle weakness). It is not simply related to oxygenation and therefore many different strategies together can make a difference. **Reinforce that this is a symptom that can be managed.**^(2, 10)
- Develop a clear plan for the patient and family to address the pattern of shortness of breath and the patient's way of coping.^(2, 3, 10)
- Teach the purpose of each medication, particularly opioids, as families often do not understand the role of these medications. Ensure an understanding of using regular and breakthrough medications. This is a key to effective management.⁽³⁾
- Known COPD patients often use inhalers incorrectly. Consider the use of nebulizers and spacers. Ensure patient's compliance.⁽¹⁾
- Review Shortness of Breath teaching pamphlet with patient and family (*see Appendix B*).

Recommendation 4

Treatment: Non-pharmacological

Energy conservation and breath control

- Explain how to incorporate pacing and planning.^(1, 2, 4, 12)
- Teach relaxation training and breath control.^(1-6, 8-10, 14, 15, 18, 20, 24)
- Encourage activity to tolerance and assist with energy conservation. Refer to Occupational Therapy (OT) – for energy conservation, Physiotherapy (PT) – for breath control, and to Hospice palliative care team (if available) or call the BC Palliative Care Consultation Phone Line 1-877-711-5757 – for consultation when patient situations are highly complex.^(1, 2, 5, 13, 24, 33)

Air flow

- Open windows and air movement, such as a fan, can be very helpful. Cool air blowing on the face likely triggers reflexes in trigeminal nerve, providing a sense of relief from dyspnea.^(1-7, 9-14, 16, 18, 19, 25)

Environment

- Cool and humidify dry air, eliminate irritants in air.^(2, 4, 7, 12, 18, 19, 25, 34). Maintain loose sheets over the patients and ensure visitors are not “crowding” the patient.⁽⁴⁰⁾

Positioning

- Avoid compression of abdomen or chest when positioning.^(2, 3, 5-7, 10-13, 19)
- Try placing in semi-Fowlers position (raising head and upper torso). ⁽⁴⁰⁾

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- Patient may direct optimal position for him/her self

Support

- Offer psychosocial support and/or counseling.^(1, 3, 4, 8, 13, 19, 20)
- Alternative therapies for relaxation include: massage, therapeutic touch, visualization, music therapies.^(1-3, 6, 9, 10, 14, 19)
- Acupuncture or acupressure.^(2, 4, 9, 13, 15, 28)

Recommendation 5

Treatment: Pharmacological

Opioids

- Opioids are the drug of first choice in the palliation of dyspnea in advanced disease of any cause.^(1-6, 8-14, 16, 18, 19, 21, 22, 24, 25, 27, 29, 30, 34, 35)
- When dyspnea occurs with most/any activity or for dyspnea at rest, initiate opioids while continuing with Non-pharmacological strategies.^(1, 3, 25)
- Dose is individualized and titrated until patient states they are comfortable or until restlessness, agitation or apparent breathlessness are controlled in non-verbal/confused patients.^(1-4, 8, 12, 19, 22, 27, 30, 36) Continued titration may be necessary as tolerance develops.
- Nebulized opioids have NOT been shown to be superior to oral opioids and are therefore not recommended.^(1-4, 6, 10-13, 21, 22, 24, 30, 34)
- Relief occurs in the absence of significant changes in blood gases or oxygen saturation.^(1, 3)
- Respiratory depression from opioids is rare^(1-4, 9, 11, 12, 14, 22, 34, 36) and they do not hasten death if appropriately titrated.^(1, 3, 4, 9, 12, 13)
- Provide access to prophylactic anti-emetic and introduce palliative care bowel protocol to avoid iatrogenic symptoms when initiating opioids.^(1, 6, 11, 18, 22)
- If using parenteral route remember S.C. and I.V. = ½ PO dose (for example 10 mg I.V. or S.C. = 20 mg PO) for morphine and hydromorphone.
- Opioid naïve protocol^(2, 4, 6, 11, 12)
 - Morphine 2.5 to 5 mg PO q4h.⁽¹⁻³⁾ Use lower dose in the elderly.
 - Hydromorphone 0.5 to 1 mg PO q4h.⁽²⁾ Use lower dose in the elderly.
 - Oxycodone 5mg PO. Titrate dose q4h.
 - Consider hydromorphone in the elderly and if there is decreased renal function.
 - Breakthrough ½ of q4h dose (or 10% of TDD) ordered q1h p.r.n.⁽²⁷⁾
- Opioid tolerant – increase current dose by 25% to 50%.^(2-4, 9, 22, 27)

Corticosteroids

- Corticosteroids are particularly indicated in the presence of bronchial obstruction, SVC or lymphangitic carcinomatosis. They may also be useful in pulmonary fibrosis for brief periods.^(5, 7, 13, 16, 29) Taper and avoid long-term

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use if possible (increased risk of proximal myopathy which can be very debilitating).^(1, 3, 10, 13, 16, 29)

- Initiate dexamethasone at 8 to 24 mg PO or S.C. or I.V. daily depending on severity of dyspnea.^(2, 3) Doses may be divided b.i.d.

Neuroleptics

- Neuroleptics can be a useful adjuvant in chronic dyspnea.⁽⁴⁾
- Methotrimeprazine: starting dose 2.5 to 5 mg q8h and titrate to effect. Start low to test tolerance as wide variation in patient response; may require much higher doses to 25 mg q4h PO or SC or IV depending on severity of dyspnea.⁽²⁾

Benzodiazepines

- Try to use on a p.r.n. rather than regular dosing schedule, for severe anxiety and respiratory “panic attacks”.^(1-7, 10, 13, 14, 16, 17, 19, 25, 29, 34)
- Lorazepam 0.5 to 2 mg SL q2-4h p.r.n.^(2, 4, 6)

Oxygen

- There are multiple triggers contributing to the sensation of dyspnea. Hypoxemia is only one. Measure oxygen saturation to determine if hypoxemia is a factor in the patient’s experience of dyspnea.
- Careful selection is necessary to identify those people who will benefit from oxygen therapy. Individualized care is paramount.^(1-4, 6, 7, 16, 19, 21, 24, 25, 37)

Hypoxic patients:

- There is low-grade scientific evidence that both oxygen and airflow improve dyspnea in hypoxic patients with advanced disease at rest.^(2-6, 9, 11-14, 16, 25, 27, 29, 37)
- Provide supplemental oxygen therapy for hypoxic patients according to the Home Oxygen Program guidelines (*see Appendix A*).

Non-hypoxic patients:

- A systematic review showed that there is insufficient evidence that supplemental oxygen is beneficial for non-hypoxic patients.^(37, 38)
- Use other interventions as first line to manage dyspnea with non-hypoxic patients.
- The Home Oxygen Program guidelines will not fund supplemental oxygen at home for non-hypoxic patients.⁽³⁹⁾
- If dyspnea is not managed with maximum treatment and medications, refer for a Hospice Palliative consultation, if available.

Recommendation 6

Diagnosis of acute severe dyspnea during the last hours of life

Diagnosis of acute severe dyspnea or respiratory distress occurring during the last hours of life requires crisis intervention:

- Treat aggressively with opioids as well as sedatives until comfort is achieved.^(2, 4)
- Opioid naïve – use morphine 5 mg I.V. or S.C. bolus q5 to 10 min. Double dose if no effect every three doses.⁽²⁾
- Opioid tolerant – give full regular PO Q4h dose as S.C. or I.V. q5 to 10 min (for I.V.) or q10 to 15 min (for S.C.) If ineffective double dose as above.
- Use one of the following with opioid: midazolam 5 mg S.C. or I.V. q5 to 15 min. p.r.n., lorazepam 4 mg I.V. or S.C. q5 to 15 min. p.r.n., methotrimeprazine 25 mg q5 to 15 min. p.r.n., phenobarbital 90 to 120 mg q5 to 15 min. p.r.n. or diazepam 5 to 10 mg I.V. q5 to 15 min. p.r.n.
- Use incremental titration until patient comfortable, determined by subjective as well as objective means.⁽⁴⁾
- For consultation contact your local End of Life Physician lead, pharmacist lead, or nurse consultant. If unavailable call the BC Palliative Care Consultation Phone Line 1-877-711-5757.

References

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Approved by: VIHA Quality Council July 2008

Appendix A

VIHA Home Oxygen Program (HOP) Application:⁽³⁹⁾

Palliative patients must meet the British Columbia HOP medical eligibility criteria to receive HOP subsidization. The criteria and the HOP application form can be found at the following WEB site or by calling the RJH HOP office at:

250-370-8840 or 1-866-370-8840

http://www.viha.ca/respiratory_health/home_oxygen_program.htm

After assessment for home oxygen has been completed and the HOP criteria met, **MedPro Respiratory Care**, the VIHA home oxygen supplier should be contacted to arrange for the set-up of the home oxygen system in the home. The application form, complete with documentation of hypoxemia, physician signature and prescription should also be faxed to **MedPro Respiratory Care**.

MedPro Respiratory Care **Phone: 1-888-310-1444**
Fax: 1-888-310-1441

Medical Criteria Summary

1.0 Resting Oxygen:

Patients must be rested on room air for a minimum of 10 minutes prior to obtaining an arterial blood gas sample.

- A. An arterial blood gas with a partial pressure of arterial oxygen (PaO₂) less than or equal to 55 mmHg on room air.

Note: In exceptional circumstances an arterial oxygen saturation measured by pulse oximetry (SpO₂) less than 88% sustained continuously for 6 minutes may be accepted.

-OR-

- B. An arterial blood gas with a PaO₂ of 60 mmHg or less, with evidence of one of the following conditions:

- 1) Clinically significant CHF
- 2) Cor pulmonale
- 3) Pulmonary hypertension
- 4) Polycythemia

2.0 Nocturnal Oxygen:

Obstructive Sleep Apnea (OSA) must be ruled out or maximally treated.

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A. SpO₂ less than 88% for greater than 30% of a minimum 4 hour nocturnal oximetry study.

-OR-

B. SpO₂ less than 88% for greater than 20% of a minimum 4 hour nocturnal oximetry study, with evidence of one of the following conditions:

- 1) Clinically significant CHF
- 2) Cor pulmonale
- 3) Pulmonary hypertension
- 4) Polycythemia

1.0 Short Term Oxygen Therapy for Ambulation:

A SpO₂ of less than 88% sustained continuously for a minimum of one minute during the patient's usual type of ambulation on a level surface.

Note: a) The maximum test time shall be 6 minutes.

b) Tests shall not include post-ambulation oxygen saturation

dips.

NB: In the case of palliative patients in their last few months of life when an arterial blood gas is an inappropriately invasive procedure, application for the HOP subsidy without an ABG, requires a resting room air oxygen saturation below 88% for 6 minutes. Home & Community Care nursing staff can document this in the home.

A Hospice Palliative Care Consultant (if available) can provide assessment and recommendations for dyspnea management or call the BC Palliative Care Consultation Phone Line 1-877-711-5757 for guidance.

Appendix B

Shortness of Breath Information for Patients and Families

Shortness of breath, breathlessness, or dyspnea are terms used to describe awareness of difficulty in breathing. Like pain, it is a sensation that can be felt only by the person experiencing it and its causes are many and varied.

You may be short of breath only with activity, and be comfortable at rest. Or you may be aware of the effort of breathing even at rest. When this is the case, demands you may not think of as work can make your breathing worse: eating and digesting food after eating; dealing with discomfort such as constipation, pain, or a fever; even laughing. Simply anticipating some event can increase the work of breathing.

What can you do to keep your breathing at a comfortable level?

- Move slowly and pace your activities within your breathing tolerance. Slight shortness of breath is easier to recover from than extreme shortness of breath from rushing or overexertion.
- Rest before and after an activity (including eating).
- Use relaxation techniques in your daily routine such as visualization, self-hypnosis, and deep slow breathing.
- Be aware of the role anxiety may play in your shortness of breath. Getting ready for an activity that will require effort can make you more short of breath in anticipation. To avoid this, think about your breathing and slow it down to a comfortable level before beginning an activity.
- Take medications prescribed for your shortness of breath before activities that are particularly difficult, e.g., dressing or bathing.
- Plan ahead about what you can do if you become short of breath.
- Use fans to move air in your environment.
- Avoid holding your breath during an activity. When getting out of a chair or bending over to put on your shoes, breathe out as you bend and continue to breathe at your normal pace. Do not hold your breath while climbing the stairs.
- Be aware of your breathing pattern. When first feeling short of breath, slow down your activity, concentrate on your breathing and slow it down. Slow your breath by breathing in through your nose, and out very gently through lips loosely pursed as if you are going to whistle.
- Tell family or friends what helps you manage your breathing. For example, turning a fan on; staying with you but staying quiet; putting their hand gently on your shoulder; reminding you to breathe more slowly.

Are there medications to help?

- Medications such as morphine and hydromorphone are often very effective in decreasing the feeling of shortness of breath. These medications are used in the same way as when treating pain. A regular

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- dose is given for constant relief, with “breakthrough” or “rescue” doses for times of when shortness of breath feels worse.
- People who are short of breath often don’t want to use morphine or hydromorphone medications because of worries about addiction or overdosing. These concerns are common, but these medications are very safe. Addiction is rare and side effects can be easily managed.
 - If you feel a great deal of anxiety due to shortness of breath, anti-anxiety drugs can be used on a regular or as needed basis. Methotrimeprazine may be useful as a regular anti-anxiety drug. For acute, sudden episodes of shortness of breath, lorazepam may be helpful.

Do you need oxygen?

- Not always. Oxygen can help decrease shortness of breath for those people whose lungs cannot move enough oxygen into their bloodstream. But, for many people who are short of breath, the lungs do take in enough oxygen or they may retain too much carbon dioxide. In this case, oxygen may not help. Other strategies such as air blown on the face by fans, medications and other techniques will often be more helpful.

What can you do when your shortness of breath gets worse?

1. Reduce your activity.
2. Get supported in a relaxed position.
3. Concentrate on your breathing, gradually slowing the rate and deepening your breaths. In your mind say “slower breath in, longer breath out” until you feel your breathing responding to your message.
4. Try distraction, such as television, music, or having a friend read.
5. If your shortness of breath does not ease to a tolerable level with these strategies, call your physician and discuss adjusting your medication.

Shortness of breath can be a lonely, frightening and overwhelming experience.

To cope with it, you will likely need to use several of the approaches described above.

Shortness of breath is a symptom that can be managed.

By working with your doctor, nurse, pharmacist and therapists, your shortness of breath can be eased and you can feel more comfortable.

Patient Teaching Handout
Vancouver Island Health Authority

Adapted from Fraser Health Authority / Vancouver Coastal Health Authority