

Cancer Care Ontario

Action Cancer Ontario

Symptom Management Pocket Guides:

DYSPNEA



DYSPNEA

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Considerations

- Because dyspnea is subjective, the patient's self report of symptoms should be acknowledged and accepted.
- Identify and treat common exacerbating medical conditions underlying dyspnea or shortness of breath, e.g. COPD, CHF, pneumonia (link to table in guide).
- Evaluate impact of anxiety and fear on dyspnea and treat appropriately.
- Use **Edmonton Symptom Assessment System (ESAS)** and **Oxygen Cost Diagram (OCD)** (See OCD) to measure outcome.

Non-Pharmacological Treatments

- 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.
- A program of **cognitive behavioural interventions** involving the following 6 interventions for a time period of 3 to 8 weeks is recommended:
 - 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 and breathing exercises
 - 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

These suggestions should be taught as preventative strategies, when patients are not dyspneic, and regular practice should be encouraged.

Mild Dyspnea ESAS 1 to 3

- **Supplemental oxygen is recommended for hypoxic patients experiencing dyspnea.**
- **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

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.

between 1 and 7 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.
- **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 (eg. 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.

Properly titrated, systemic opioids do not produce respiratory depression.

Moderate Dyspnea ESAS 4 to 6

For Patients with PPS 100% - 10%:

Non Opioids

- May use benzodiazepines for anxiety.
- There is no evidence for the use of systemic corticosteroids

Systemic Opioids

For opioid-naïve patients:

- Morphine (or equivalent dose of alternate immediate-release opioid) 5mg po q4h regularly and 2.5mg 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.

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 q2 hrs as needed
 - subcutaneous breakthrough doses q1hr as needed, due to more rapid peak effect.
- Do not use nebulized opioids, nebulized furosemide, nebulized lidocaine or benzodiazepines.

For Patients with PPS 100% - 20%

- If 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 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 for appetite stimulation or pain management, may justify a 5-day trial of a corticosteroid
- 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
- Prochlorperazine is not recommended as a therapy for managing dyspnea.
- No comparative trials are available to support or refute the use of other phenothiazines, such as chlorpromazine and methotrimeprazine.

For Patients with PPS 30% - 10%:

- Consider a trial of chlorpromazine or methotrimeprazine, 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
- Anxiety, nausea or agitation, may justify a trial of chlorpromazine or methotrimeprazine

Severe Dyspnea ESAS 7 to 10

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 tolerated, repeat dose every 30 minutes if needed.
 - Consider doubling 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 sc 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 tolerated, repeat dose every 30 minutes if needed.

- Consider doubling 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, 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, 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
- Consider benzodiazepine for co-existing anxiety

Titration Guide

General principles:

1. Calculate the total opioid dose taken by the patient in 24 h (regular q4h dose x 6 **PLUS** the total number of breakthrough doses given x breakthrough dose).
2. Divide this 24 h total by 6 for the equivalent q4h dose.
3. Divide the newly calculated q4h dose by 2 for the breakthrough dose.
4. Use clinical judgment regarding symptom control as to whether to round up or down the obtained result (both breakthrough and regular dosing). Remember to consider available doses (in the case of PO medications especially).
5. If the patient is very symptomatic, a review of how many breakthrough doses have been given in the past few hours might be more representative of his/her needs.

Example:

A patient is ordered morphine 20 mg q4h PO and 10 mg PO q2h prn, and has taken 3 breakthrough doses in the past 24 h.

1. Add up the amount of morphine taken in the past 24 h: 6 x 20 mg of regular dosing, plus 3 x 10 mg prn doses equals a total of 150 mg morphine in 24 h
2. Divide this total by 6 to obtain the new q4h dose:
 $150 \text{ divided by } 6 = 25 \text{ mg q4h}$
3. Divide the newly calculated q4h dose by 2 to obtain the new breakthrough dose: $25 \text{ mg divided by } 2 = 12.5 \text{ mg q1 - 2h prn}$
4. If this dose provided reasonable symptom control, then order 25 mg PO q4h, with 12.5 mg PO q1 - 2h prn. (It would also be reasonable to order 10 mg or 15 mg PO q2h for breakthrough.)

Conversion Guide

(To convert from long-acting preparations to short-acting preparations)

General principles in converting from sustained release to immediate release preparations (for the same drug):

1. Add up the total amount of opioid used in the past 24 h, including breakthrough dosing.
2. Divide this total by 6 to obtain equivalent q4h dosing.
3. Divide the q4h dose by 2 to obtain breakthrough dosing.
4. Use clinical judgment to adjust this dose up or down depending on symptom control.
5. Consider available tablet sizes when calculating doses.

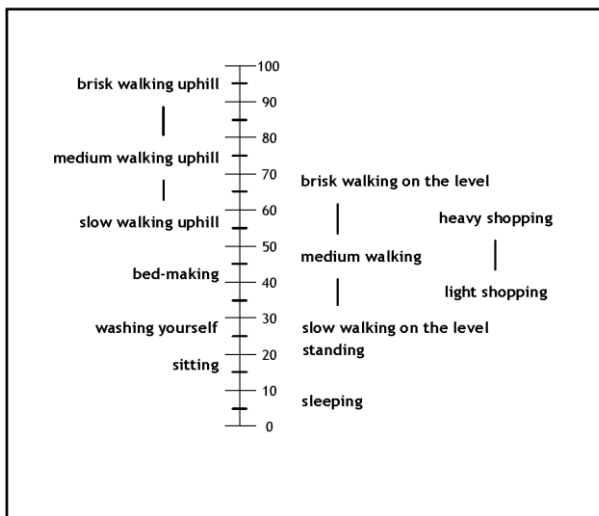
Example:

A patient is ordered a sustained release morphine preparation at a dose of 60 mg PO q12h, with 20 mg PO q4h for breakthrough, and has taken 4 breakthrough doses in 24 h.

1. Add up the amount of opioid taken in 24 h: 2 x 60 mg of sustained release morphine plus 4 x 20 mg of breakthrough is 200 mg of morphine in 24 h
2. Divide this total by 6 to obtain the equivalent q4h dosing: 200 divided by 6 is approximately 33 mg PO q4h
3. Divide this q4h dose by 2 for the breakthrough dose 33 mg divided by 2 is 16.5 mg

If the patient had reasonable symptom control with the previous regimen, then a reasonable order would be: 30 mg PO q4h and 15 mg q1 - 2h PO prn

Oxygen-Cost Diagram



EQUIANALGESIC CONVERSION TABLE

| DRUG | SC | PO | Ratio |
|---------------|--------|------------|---------------------------------------|
| Morphine | 10 mg | 20 mg | |
| Codeine | 120 mg | 200 mg | 12:1 (PO codeine to PO morphine) |
| Oxycodone | N/A | 10 - 15 mg | 1:2 (PO oxycodone to PO morphine) |
| Hydromorphone | 2 mg | 4 mg | 1:5 (PO hydromorphone to PO morphine) |

Edmonton Symptom Assessment System (ESAS)

Edmonton Symptom Assessment System (ESAS)

Please circle the number that best describes:

| | | | | | | | | | | | | |
|------------------------------|---|---|---|---|---|---|---|---|---|---|----|--|
| No pain | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Worst possible pain |
| Not tired | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Worst possible tiredness |
| Not nauseated | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Worst possible nausea |
| Not depressed | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Worst possible depression |
| Not anxious | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Worst possible anxiety |
| Not drowsy | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Worst possible drowsiness |
| Best appetite | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Worst possible appetite |
| Best feeling of wellbeing | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Worst possible feeling of wellbeing |
| No shortness of breath | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Worst possible shortness of breath |
| Other problem | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |

Patient's Name _____

Date _____ Time _____

Complete by (check one)

Patient

Caregiver

Caregiver assisted

BODY DIAGRAM ON REVERSE SIDE

August, 2006

Used with permission from the Regional Palliative Care Program, Capital Health, Edmonton, Alberta, 2006

Selected References:

- 1) Fraser Health (2009) 'Hospice Palliative Care Program Symptom Guidelines: Dyspnea' Fraser Health Website [Internet]. Available from: <http://www.fraserhealth.ca/Services/HomeandCommunityCare/HospicePalliativeCare/Documents/Dyspnea.pdf> (Accessed: 23 July 2009).
- 2) Oncology Nursing Society (2008) 'Putting Evidence Into Practice: Evidence-Based Interventions for Cancer-Related Dyspnea' Oncology Nursing Society Website [Internet]. Available from: <http://ons.metapress.com/content/c21324512r838824/>.
- 3) Viola, R., Kiteley, C., Lloyd, N., Mackay, J. A., Wilson, J., Wong, R. and the Supportive Care Guidelines Group (2006) 'The Management of Dyspnea in Cancer Patients: A Clinical Practice Guideline' Program in Evidence Based Care Series 13-5, Cancer Care Ontario.

For full references and more information please refer to [CCO's Symptom Management Guide-to-Practice: Dyspnea](#) document.

Disclaimer:

Care has been taken by Cancer Care Ontario's Symptom Management Group in the preparation of the information contained in this pocket guide.

Nonetheless, any person seeking to apply or consult the pocket guide is expected to use independent clinical judgment and skills in the context of individual clinical circumstances or seek out the supervision of a qualified specialist clinician.

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