Part 2: Pain and Symptom Management

**Dyspnea**

Effective Date: February 22, 2017

**Key Recommendations**

- Use opioids first line for pharmacological management of dyspnea for patients with incurable cancer.
- Use of opioids in the non-cancer population for breathlessness, especially those with chronic obstructive pulmonary disease (COPD), needs extreme caution and probable consultation with a Palliative Care Physician.

**Definition**

Dyspnea is breathing discomfort that varies in intensity but may not be associated with hypoxemia, tachypnea, or orthopnea. It occurs in up to 80% of patients with advanced cancer.¹

**Assessment**

Investigations and imaging should be guided by stage, prognosis, and whether results will change management.
1. Ask the patient to describe dyspnea severity using a 1–10 scale.
2. Identify underlying cause(s) and treat as appropriate.²
3. History and physical exam lead to accurate diagnosis in two-thirds of cases.³
4. Investigations: CBC/diff, electrolytes, creatinine, oximetry +/- ABGs and pulmonary function, ECG, BNP when indicated.
5. Imaging: Chest x-ray and CT scan chest, when indicated.

**Management**

1. Proven therapy includes opioids for relief of dyspnea. For non-cancer patients with breathlessness, especially those with COPD, use of opioids requires extreme caution and consultation with a Palliative Care Physician should be considered.⁴
2. Oxygen is only beneficial for relief of hypoxemia.⁵
3. Adequate control of dyspnea relieves suffering and improves a patient’s quality of life.⁶
4. Treat reversible causes where possible and desirable, according to goals of care.
5. Always utilize non-pharmacological treatment: education and comfort measures.
Pharmacological Treatment

Opioids, +/- benzodiazepines or neuroleptics, +/- steroids.

<table>
<thead>
<tr>
<th>Drug</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Opioids</strong></td>
<td>• If opioid naïve, start with morphine 2.5-5 mg PO (SC dose is half the PO dose) q4h or equianalgesic dose of hydromorphone or oxycodone.</td>
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<td>(drugs of first choice)</td>
<td>• Breakthrough should be half of the q4h dose ordered q1h prn.</td>
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<td>• If opioid tolerant, increase current dose by 25–50%</td>
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<td>• When initiating, start an antiemetic (metoclopramide) and bowel protocol.</td>
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<td></td>
<td>• Therapeutic doses used to treat dyspnea do not decrease oxygen saturation or cause differences in respiratory rate or CO₂ levels.³</td>
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<tr>
<td></td>
<td>• Nebulized forms have NOT been shown to be superior to oral opioids and are not recommended.⁷</td>
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<tr>
<td><strong>2. Benzodiazepines</strong></td>
<td>• Prescribe prn for anxiety and respiratory “panic attacks”.</td>
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<tr>
<td></td>
<td>• Lorazepam 0.5-2 mg SL q2-4h prn.</td>
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<td></td>
<td>• Consider SC midazolam in rare cases.</td>
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<tr>
<td><strong>3. Neuroleptics</strong></td>
<td>• Methotrimeprazine 2.5-5 mg PO/SC q8h, then titrate to effect.</td>
</tr>
<tr>
<td><strong>4. Corticosteroids</strong></td>
<td>• Dexamethasone 8-24 mg PO/SC/IV qam depending on severity and cause of dyspnea.</td>
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<td></td>
<td>• Particularly for bronchial obstruction, lymphangitic, carcinomatosis, and SVC syndrome; also for bronchospasm, radiation pneumonitis and idiopathic interstitial pulmonary fibrosis.</td>
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<tr>
<td><strong>5. Supplemental Oxygen</strong></td>
<td>• Indicated only for hypoxia (insufficient evidence of benefit otherwise).⁶</td>
</tr>
</tbody>
</table>
Dyspnea Management Algorithm

Hyperlinks indicate additional information available in guideline sections above:
A = Assessment
M = Management
P = Pharmacological Treatment

Dyspnea screen
(0–10 scale)

Assessment
• History
• Physical assessment
• Laboratory investigation (A4)
• Imaging (A5)

Identify and treat reversible causes

Treat hypoxemia with supplemental oxygen (M2)
(if present)

Treat symptoms of dyspnea

Comfort measures (M5)
1. Air flow (fan) / environment
2. Positioning
3. Loose clothing
4. Relaxation
5. Modify lifestyle

Pharmacological Treatments

Baseline dyspnea
Opioid (P1)
+/- Neuroleptic (P3)
+/- Steroid (P4)
+/- Benzodiazepine (P2) (for anxiety)

Incident dyspnea
Timed opioid (PO/SC/SL) (P1)
Neuroleptic (SC) (P3)

Crisis dyspnea
Opioid (IV/SC) (P1) and Benzodiazepine (IV/SC) (P2)

Refractory dyspnea

Palliative Care Consult

Unremitting dyspnea

Palliative Sedation

Reversible Causes of Dyspnea
Cardiovascular
• Anemia
• Arrhythmia
• Heart failure
• Deconditioning
• Myocardial ischemia
• Pericardial effusion
• Pulmonary emboli

Respiratory
• Bronchial obstruction
• Bronchospasm/asthma
• COPD/emphysema
• Infection
• Interstitial Fibrosis
• Lymphangitic carcinomatosis
• Pleural effusion
• Radiation pneumonitis

Other
• Anxiety/panic disorder
• Ascites
• Cachexia
• Neuromuscular disease

Education (patient and caregiver)
• Breath control
• Energy conservation
• Use of breakthrough medications
• Proper inhaler technique

Incident dyspnea
Timed opioid (PO/SC/SL) (P1)

Neuroleptic (SC) (P3)

Crisis dyspnea
Opioid (IV/SC) (P1) and
Benzodiazepine (IV/SC) (P2)
Resources

References

Abbreviations
- ABG arterial blood gas
- BNP brain natriuretic peptide
- CBC/diff complete blood count and differential count
- CT computed tomography
- ECG electrocardiogram
- IV intravenous
- PO by mouth
- SC subcutaneous
- SL sublingual
- SVC superior vena cava

Appendices
Appendix A – Medications Used in Palliative Care for Dyspnea and Respiratory Secretions

For additional guidance on dyspnea, see also the BC Inter-professional Palliative Symptom Management Guidelines produced by the BC Centre for Palliative Care, available at: www.bc-cpc.ca/cpc/symptom-management-guidelines/
Appendix A: Medications Used in Palliative Care for Dyspnea and Respiratory Secretions

Tailor dose to each patient; those who are elderly, cachectic, debilitated or with renal or hepatic dysfunction may require reduced dosages; consult most current product monograph for this information: http://www.hc-sc.gc.ca/dhp-mps/prodpharma/databasdon/index-eng.php

<table>
<thead>
<tr>
<th><strong>OPIOIDS</strong>&lt;sup&gt;A&lt;/sup&gt;</th>
<th>Generic Name</th>
<th>Trade Name</th>
<th>Available Dosage Forms</th>
<th>Standard Adult Dose (opioid-naïve)&lt;sup&gt;B&lt;/sup&gt;</th>
<th>Drug Plan Coverage&lt;sup&gt;C&lt;/sup&gt;</th>
<th>Approx. cost per 30 days&lt;sup&gt;D&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(opioid-naïve)&lt;sup&gt;B&lt;/sup&gt;</td>
<td>Palliative Care</td>
<td>Fair PharmaCare</td>
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<tr>
<td>hydrocodone</td>
<td>Dilaudid®, G</td>
<td>IR tabs: 1, 2, 4, 8 mg</td>
<td>0.5-1 mg PO q4h</td>
<td>Yes, LCA</td>
<td>Yes, LCA</td>
<td>$9–18 (G) $9–18</td>
</tr>
<tr>
<td>morphine</td>
<td>MS-IR®, Statex®</td>
<td>IR tabs: 5, 10, 20, 25, 30, 50 mg</td>
<td>2.5-5 mg PO q4h</td>
<td>Yes, LCA</td>
<td>Yes, LCA</td>
<td>$11–21</td>
</tr>
<tr>
<td>morphine</td>
<td></td>
<td>Inj: 2 mg/mL</td>
<td>0.25-0.5 mg SC q4h</td>
<td>Yes, LCA</td>
<td>Yes, LCA</td>
<td>$2 per amp (10 mg/mL)</td>
</tr>
<tr>
<td>oxycodone</td>
<td>Oxy IR®, Supeudol®, G</td>
<td>IR tabs: 5, 10, 20 mg</td>
<td>2.5-5 mg PO. Titrate to q4h</td>
<td>Yes, LCA</td>
<td>Yes, LCA</td>
<td>$13–25 (G) $26–53</td>
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</tbody>
</table>

**Morphine Equivalence Table (for chronic dosing)**

<table>
<thead>
<tr>
<th>DRUG</th>
<th>SC/IV (mg)</th>
<th>PO (mg)</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>morphine</td>
<td>10</td>
<td>30&lt;sup&gt;E&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td>hydromorphone</td>
<td>2</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>oxycodone</td>
<td>not available in Canada</td>
<td>20</td>
<td></td>
</tr>
</tbody>
</table>

<sup>A</sup> Health Canada recommends using a conversion of 10 mg SC/IV morphine = 30 mg PO (1:3) Refer to http://www.healthycanadians.gc.ca/recall-alert-rappel-avis/hc-sc/2010/14603a-eng.php

<sup>B</sup> Health Canada recommends using a conversion of 10 mg SC/IV morphine = 30 mg PO (1:3) Refer to http://www.healthycanadians.gc.ca/recall-alert-rappel-avis/hc-sc/2010/14603a-eng.php
### BENZODIAZEPINES

<table>
<thead>
<tr>
<th>Generic Name</th>
<th>Trade Name</th>
<th>Available Dosage Forms</th>
<th>Standard Adult Dose</th>
<th>Drug Plan Coverage</th>
<th>Approx. cost per 30 days</th>
</tr>
</thead>
<tbody>
<tr>
<td>lorazepam</td>
<td>Ativan®, G</td>
<td>Tabs: 0.5, 1, 2 mg</td>
<td>PO/sublingual q2-4h PRN</td>
<td>Yes, LCA</td>
<td>Yes, LCA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sublingual tabs: 0.5, 1, 2 mg</td>
<td></td>
<td>Yes, LCA</td>
<td>Yes, LCA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Inj: 4 mg per mL</td>
<td>0.5-2 mg SC q2-4h PRN</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>midazolam</td>
<td>G</td>
<td>Inj: 1 mg per mL, 5 mg per mL</td>
<td>2.5-5 mg SC q5-15 min prn</td>
<td>Yes, LCA</td>
<td>No</td>
</tr>
</tbody>
</table>

### NEUROLEPTICS

| methotrimeprazine | Tabs: 2, 5, 25, 50 mg | 2.5-5 mg PO q8h, titrate to effect | Yes, LCA          | Yes, LCA | $5–10 (G) |
| Nozinan®          | Inj: 25 mg/mL         | 6.25 mg SC q8h, titrate to effect | Yes               | Yes       | $3.74/amp (25 mg/amp) |

### CORTICOSTEROIDS

| dexamethasone     | Tabs: 0.5, 0.75, 2, 4 mg | 8-24 mg PO/SC/IV every morning, taper if possible | Yes, LCA          | Yes, LCA | $20–59 (G) |
|                   | Inj: 4, 10 mg per mL     |                                               | Yes, LCA          | Yes, LCA | $54–328 (G) |

### MEDICATIONS FOR RESPIRATORY SECRECTIONS

| atropine         | Inj: 0.4, 0.6 mg per mL   | 0.2-0.8 mg SC q4h and q1h PRN | Yes               | Yes       | $2.50–5 (G) per dose |
| Drops: 1% solution | 1 to 4 drops sublingual q4h PRN |                                | No               | Yes       | $3.75 per 5 mL bottle |
| glycopyrrolate   | Inj: 0.2 mg per mL        | 0.2-0.4 mg SC/sublingual/PO q4h to q8h | Yes               | Yes       | $26–52 (G) per 24 h |

**Abbreviations:** G generics; h hour; inj injection; IR Immediate Release; PO by mouth; PRN as needed; SC subcutaneous; SR slow release; tabs tablets

* A Not an exhaustive list. Other opioids may be appropriate.

* B For opioid-tolerant patients, increase current dose by 25-50%.

* C PharmaCare coverage as of October 2016 (subject to revision). Obtain current coverage, eligibility, and coverage information from the online BC PharmaCare Formulary Search page at pharmacareformularysearch.gov.bc.ca

* D Cost as of October 2016 and does not include retail markups or pharmacy fees. Generic and brand name cost separated as indicated by (G).

* E This route of administration is used in practice, but not approved for marketing for this indication by Health Canada.