# Symptom Management Guidelines: DYSPNEA

## Definition

**Dyspnea:** A disorder characterized by difficulty breathing

## Contributing Factors

### Cancer Related
- Lung cancer primary or metastatic
- Superior vena cava syndrome (SVCS)
- Malignant pleural effusion, atelectasis
- Pericardial effusion
- Pulmonary embolus
- Ascites
- Pathologic chest wall fractures
- Tracheal esophageal fistula
- Electrolyte imbalance
- Low hemaglobin

### Cancer Treatment Related
- Surgery (e.g. lobectomy, pneumonectomy)
- Radiation therapy to lung or chest (e.g. radiation-induced pneumonitis, pulmonary fibrosis, pericardial disease)
- Chemotherapy (e.g. chemotherapy induced pneumonitis, pulmonary toxicity, cardiomyopathy, anemia)
- Immunosuppression with respiratory infection
- Immunotherapy - Checkpoint inhibitors

### Psychosocial
- Anxiety, fear

### Relevant Medical History
- Airway obstruction, aspiration
- Chronic obstructive pulmonary disease (COPD), asthma, chronic bronchitis, emphysema
- Cardiac disease (e.g. congestive heart failure, cardiac ischemia, atrial fibrillation)
- Neuromuscular disorders
- Chest wall deformity
- Atelectasis
- Pneumonia, bronchitis
- Pneumothorax
- Systemic infection

### Other
- Deconditioning – overall decline in functional status resulting in exercise intolerance
- Environmental factors (e.g. exposure to second hand smoke or other irritants, air pollution)
- Obesity, malnutrition
- Smoking history
- Fatigue
- Pain

## Consequences

- Respiratory distress
- Risk for decreased quality of life – physical and psychological distress, impaired nutrition, social isolation, physical deconditioning
- Reduced ability to cough – increased risk of infection
- Exacerbation of other symptoms such as pain, fatigue, loss of appetite, loss of concentration, sleep – wake disturbance

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### Focused Health Assessment

<table>
<thead>
<tr>
<th>GENERAL ASSESSMENT</th>
<th>SYMPTOM ASSESSMENT</th>
<th>PHYSICAL ASSESSMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Contact &amp; General Information</strong></td>
<td><strong>Normal</strong></td>
<td><strong>Vital Signs</strong></td>
</tr>
<tr>
<td>- Physician name – oncologist, family physician</td>
<td>- Have you had any previous breathing difficulties?</td>
<td>- Note whether patient’s respirations are rapid, shallow, congested, or has periods of apnea</td>
</tr>
<tr>
<td>- Dentist</td>
<td>- Onset</td>
<td>- Frequency – as clinically indicated</td>
</tr>
<tr>
<td>- Pharmacy</td>
<td>- When did your difficulty in breathing start? Did it start suddenly or gradually over the last few days? How long does it last? How often does it occur? Has it changed your activity level?</td>
<td></td>
</tr>
<tr>
<td>- Home health care</td>
<td>- Provoking / Palliating</td>
<td>- Observe General Appearance</td>
</tr>
<tr>
<td>- Other health care providers (e.g. home oxygen program)</td>
<td>- What brings it on? Makes it worse? (e.g. short of breath upon waking, walking hills, climbing stairs, carrying heavy items, getting dressed, emotions)</td>
<td>- Ability to speak in full sentences?</td>
</tr>
<tr>
<td>- Allergies</td>
<td>- What makes it better (e.g. positioning)?</td>
<td>- Pallor, cyanosis, clubbing, diaphoresis</td>
</tr>
<tr>
<td><strong>Consider Contributing Factors</strong></td>
<td><strong>Quality (in last 24 hours)</strong></td>
<td>- Cough or sputum</td>
</tr>
<tr>
<td>- Cancer diagnosis and treatment(s) – note type and date of last treatment</td>
<td>- How does it feel when you are breathless? (e.g. hurts to breathe, inability to get enough air, tired, gasping, panting, panic, fear, claustrophobic)</td>
<td>- Peripheral edema – bilateral or unilateral</td>
</tr>
<tr>
<td>- Medical history</td>
<td><strong>Region/Radiation-N/A</strong></td>
<td>- Generalized edema</td>
</tr>
<tr>
<td>- Medication profile</td>
<td><strong>Severity / Other Symptoms</strong></td>
<td>- Abdominal ascites</td>
</tr>
<tr>
<td>- Recent lab or diagnostic reports (e.g. CBC, chest X-ray)</td>
<td>- How bothersome is this symptom to you? (on a scale of 0 – 10, with 0 not at all and 10 being the worst imaginable)</td>
<td>- Jugular venous distention</td>
</tr>
<tr>
<td><strong>Vital Signs</strong></td>
<td>- Do you have other symptoms such as pain, fatigue, anxiety, worry, or depressed mood? Cough, sputum, fever, chills, hemoptysis, chest tightness, palpitations, light-headedness?</td>
<td><strong>Chest Assessment</strong></td>
</tr>
<tr>
<td>- Note whether patient’s respirations are rapid, shallow, congested, or has periods of apnea</td>
<td><strong>Treatment</strong></td>
<td>- Auscultate breath sounds – normal, decreased, or absent</td>
</tr>
<tr>
<td>- Frequency – as clinically indicated</td>
<td>- What medications or treatments are you using or have used in the past? How effective are they? Any side effects?</td>
<td>- Adventitious sounds (e.g. crackles, wheezes)</td>
</tr>
<tr>
<td><strong>Observe General Appearance</strong></td>
<td><strong>Understanding / Impact on You</strong></td>
<td>- Chest shape abnormalities</td>
</tr>
<tr>
<td>- Ability to speak in full sentences?</td>
<td>- Is shortness of breath affecting your mood?</td>
<td>- Use of accessory muscles</td>
</tr>
<tr>
<td>- Pallor, cyanosis, clubbing, diaphoresis</td>
<td>- What activities are you unable to do because of it?</td>
<td>- Chest wall movement</td>
</tr>
<tr>
<td>- Cough or sputum</td>
<td>- Are you able to sleep at night? Do you have to prop up on pillows to sleep?</td>
<td>- Paradoxical breathing</td>
</tr>
<tr>
<td>- Peripheral edema – bilateral or unilateral</td>
<td>- How does this affect your family?</td>
<td><strong>Assess Mental Status</strong></td>
</tr>
<tr>
<td>- Generalized edema</td>
<td><strong>Value</strong></td>
<td>- Monitor level of consciousness</td>
</tr>
<tr>
<td>- Abdominal ascites</td>
<td>- Why do you believe you are short of breath?</td>
<td>- Alterations in mental status</td>
</tr>
<tr>
<td>- Jugular venous distention</td>
<td>- What is your comfort goal or acceptable level for this symptom (0 – 10 scale)?</td>
<td><strong>Weight, Fluid balance</strong></td>
</tr>
<tr>
<td><strong>Chest Assessment</strong></td>
<td>- How are you hoping we can help you?</td>
<td>- Take current weight and compare to pre – treatment or last recorded weight</td>
</tr>
<tr>
<td>- Auscultate breath sounds – normal, decreased, or absent</td>
<td>- Why do you believe you are short of breath?</td>
<td>- Assess daily intake and output</td>
</tr>
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<td>- Adventitious sounds (e.g. crackles, wheezes)</td>
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DYSPNEA GRADING SCALE*

<table>
<thead>
<tr>
<th>GRADE 1 (Mild)</th>
<th>GRADE 2 (Moderate)</th>
<th>GRADE 3 (Severe)</th>
<th>GRADE 4 (Life-threatening)</th>
<th>GRADE 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shortness of breath with moderate exertion</td>
<td>Shortness of breath with minimal exertion; limiting instrumental ADLs (e.g., preparing meals, shopping, managing money)</td>
<td>Shortness of breath at rest; limiting self-care ADLs (e.g., bathing, dressing, feeding self, using the toilet, taking medication)</td>
<td>Life-threatening consequences; urgent intervention required</td>
<td>Death</td>
</tr>
</tbody>
</table>

*Step-Up Approach to Symptom Management: Interventions Should Be Based On Current Grade Level and Include Lower Level Grade Interventions As Appropriate

GENERAL CONSIDERATIONS IN DYSPNEA MANAGEMENT

- Selection of interventions for dyspnea will be significantly influenced by estimations of patient’s life expectancy, symptom clustering, acuity and grading
- Oxygen therapy might be effective for patients with advanced disease who are hypoxic (saturation ≤90%)
- There is limited evidence that oxygen is effective for resolving dyspnea in patients who are not hypoxic (saturation >90%)
- Opioids are the first line of drugs for treatment of breathlessness in cancer patients
- Opioids are noted to be well tolerated in several populations including opioid naive and hypoxic patients.
- Dyspnea may be managed by increasing dose of existing opioid, adding new opioids, or changing route of administration
- Nebulized opioids have not been shown to be effective in managing dyspnea
- Corticosteroids are indicated in patients with pulmonary obstruction (e.g., due to endotracheal and bronchial tumors)
- Anxiolytics are not shown to improve shortness of breath but may be useful in reducing anxiety associated with dyspnea
- Carefully combined anxiolytics with opioids does not increase the risk of respiratory depression
- Special consideration of dyspnea required with patients on Immunotherapy, e.g., Nivolumab

GRADE 1

NON – URGENT: Prevention, support, teaching & follow-up care as required

**Patient Care and Assessment**
- Assessment and management of underlying causes of dyspnea
- For patients receiving Immunotherapy, collaborate with physician

**Appendix A: Treatment Recommendations for Underlying Causes of Dyspnea below**

**General Supportive Measures**
- Assess emotional response to shortness of breath
- Reassure that shortness of breath can be managed
- Environmental considerations:
  - Maintain calm atmosphere
  - Promote cooler temperatures
  - Promote ambient air flow directed at nose or mouth (e.g., fresh air from open window or electrical fan on low speed, cool cloth on face)- stimulates trigeminal nerve, providing sense of relief from dyspnea
  - Use of hand fan
  - Humidify air
  - Avoid smoke/smoking
- Stress management and relaxation techniques (e.g., controlled breathing, visualization, music therapy, complete muscle relaxation, massage, therapeutic touch, yoga or Tai Chi)
- Consider assistive devices (e.g., wheelchair) to decrease physical activity that may

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### Energy Conservation

- **Pacing**
  - Balance activities with rest
  - Slow and steady pace uses less energy
- **Planning**
  - Organize your time, methods, and space
  - Encourage activities which are most enjoyed on days when feeling best
  - Develop a routine for rest and activity
- **Priority setting**
  - Eliminate unnecessary tasks, delegate responsibilities and ask for help
- **Posture**
  - Change positions frequently
  - Keep activities/work within easy range using correct body alignment
  - Avoid bending and lifting
- **Proficiency**
  - Use labour saving devices (e.g. elevator) to maximize efficiency and minimize workload

### Positioning

Goal: Avoid compression of chest and abdomen when positioning

- Positions that allow for optimal lung expansion and gas exchange are:
  - **Sitting**: Sit upright with back against chair, with feet wide apart, leaning forward with arms on bedside table or on knees – allows more space for lung expansion
  - **Standing**: Lean back against wall with feet slightly apart and head and shoulders relaxed
  - **In Bed**: Elevate head of the bed, support and elevate arms with pillows
  - **Other**: Lean forward on banister when climbing stairs or shopping cart when shopping

### Techniques to Retrain and Control Breathing

Goal: Decrease dyspnea and help patient regain control over their breathing. May help patient remain calm when short of breath

- Techniques below prevent/reduce trapped air in lungs and help to inhale more fresh air

#### Pursed Lip Breathing

- Breathe in slowly through your nose for 1 count
- Purse your lips as if you are about to whistle
- Breathe out through pursed lips for 2 slow counts – let air escape naturally, do not force
- Continue pursed lip breathing until feeling of breathlessness resolves

#### Help for Shortness of Breath

- Stop and rest in a comfortable position
- Lower head and shoulders
- Breathe in through nose and out through mouth (as fast as necessary)
- Breathe out slowly and for longer time (may use pursed lip breathing)
- Slow breathing down
- Breathe through nose
- Begin diaphragmatic breathing
- Stay in position for at least 5 minutes

#### Diaphragmatic Breathing

- Put one hand on upper chest, and other on abdomen just above waist
- Breathe in slowly through nose – should feel hand on abdomen move out
- Breathe out slowly through pursed lips – should feel hand on abdomen move in

### Physical Activity

- Encourage activity to tolerance, increasing intensity to prevent deconditioning
- Upper and lower extremity exercises help improve endurance
- Upper – extremity exercise improves respiratory muscle strength

### Pharmacological Management

- **Opioids**
- **Bronchodilators**
- **Corticosteroids** (Refer to protocol specific algorithm if patient is on Immunotherapy)

*Review correct dosing, timing and use of medications, including inhalers and analgesics
*Distinguish vaccination against respiratory illness if patient has chronic underlying lung disease

**Appendix A: Treatment Recommendations for Underlying Causes of Dyspnea below**
### Patient Education and Follow-Up
- If indicated, discuss smoking cessation strategies.
- Reinforce with patients when to seek immediate medical attention:
  - Temperature greater than or equal to 38°C
  - Acute onset of respiratory distress and/or chest pain
- If breathing does not improve or begins to deteriorate:
  - Instruct patient/family to call back
  - If indicated, arrange for nurse initiated or physician follow-up for further assessment
  - If patient on Immunotherapy, follow up should be within 2–3 days

*See Resources & Referrals Section below*

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### GRADE 2 – GRADE 3

#### URGENT:
Requires medical attention within 24 hours

### Patient Care and Assessment
- Collaborate with physician re: need for further patient assessment at clinic or with GP.
- Assessment and management of underlying causes of dyspnea.
  *If breathing does not improve or worsens, consider urgency of symptom and calling 911*

*Appendix A: Treatment Recommendations for Underlying Causes of Dyspnea below*
- Lab tests that may be ordered:
  - Complete blood count (CBC), serum electrolytes, pulse oximetry, arterial blood gases, Chest X-Ray. If above not adequate, further evaluation might include: Pulmonary function tests, CT scan, ventilation – perfusion scans.

### Pharmacological Management
- Oxygen therapy
- Smooth muscle relaxants
- Bronchodilators
- Anti-inflammatories
- Diuretics
- Corticosteroids (Refer to protocol specific algorithm if patient is on Immunotherapy
- Opioids
- Anxiolytics/sedatives
- Antibiotics, antifungals, antivirals

*Appendix A: Treatment Recommendations for Underlying Causes of Dyspnea below*

### Patient Education and Follow-Up
- Develop plan to address patterns of shortness of breath and patients way of coping
- Explain concept of multiple triggers of dyspnea
- If patient on Immunotherapy, follow up should be daily
GRADE 4
Or the presence of the following: Temperature greater than or equal to 38°C, acute respiratory distress (sudden onset of dyspnea, unable to speak, lie flat, air hunger), new acute onset of chest pain

Grade 4
EMERGENT:
Requires IMMEDIATE medical attention

Patient Care and Assessment

• If patient at home, instruct to call 911
• Notify physician of assessment and need for hospital admission; facilitate arrangements as necessary
• If patient on Immunotherapy, remind patient to present Immunotherapy alert card.
• Lab tests that may be ordered:
  – Complete blood count (CBC), serum electrolytes, pulse oximetry, arterial blood gases, Chest X – Ray. If above not adequate, further evaluation might include: Pulmonary function tests, CT scan, ventilation – perfusion scans.
• Suctioning might be indicated
• If dyspnea severe, may need to open airways (e.g. endobronchial stents, radiation therapy)

Pharmacological Management

• As severity of dyspnea increases, consider higher doses of opioids or switch to another route
• Consider anticholinergics (e.g. scopolamine, atropine) to help control secretion production
• Refer to protocol specific algorithm if patient is on Immunotherapy

Appendix A: Treatment Recommendations for Underlying Causes of Dyspnea below

RESOURCES & REFERALS

Referrals

• Patient Support Centre or Telephone Care Management
• Pain and Symptom Management/Palliative Care (PSMPC)
• Physiotherapist
• Respiratory Therapist (including assessment for home oxygen as necessary)
• Home Oxygen Program (requires physician prescription for oxygen therapy)
• Home Health Nursing

Bleomycin Drug Index


Immunotherapy

• Immunotherapy Alert Card
• Please refer to protocol specific algorithms to guide management of immune mediated side effects.
## Appendix A: Treatment Recommendations for Underlying Causes of Dyspnea

<table>
<thead>
<tr>
<th>Underlying Cause of Dyspnea</th>
<th>Possible Treatments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airway obstruction</td>
<td>Radiation therapy, stents, or corticosteroids</td>
</tr>
<tr>
<td>Anemia (severe)</td>
<td>Blood transfusion for Hgb ≤ 80 gm/l and with symptoms</td>
</tr>
<tr>
<td>Anxiety</td>
<td>Non-pharmacological interventions</td>
</tr>
<tr>
<td>Asthma, Chronic obstructive pulmonary disease (COPD)</td>
<td>Bronchodilators to help open constricted airways (e.g. metered dose inhalers, nebulizers, steroids, anticholinergics)</td>
</tr>
<tr>
<td>Cardiac – congestive heart failure (CHF), coronary artery disease (CAD), arrhythmias</td>
<td>Conventional cardiac medications (e.g. beta-blockers, calcium channel blockers, diuretics)</td>
</tr>
<tr>
<td>Effusions – pericardial, peritoneal, pleural</td>
<td>Drainage if fluid accumulation significant</td>
</tr>
<tr>
<td>Fatigue / Deconditioning / Weakness</td>
<td>Activity to tolerance, pulmonary rehabilitation exercises</td>
</tr>
<tr>
<td>Infection – pneumonia, bronchitis, pericarditis</td>
<td>Antibiotics, antifungals, antivirals as prescribed to treat infections</td>
</tr>
<tr>
<td>Lymphangitic Carcinomatosis</td>
<td>Steroids, diuretics</td>
</tr>
<tr>
<td>Lung damage from cancer treatment: Radiation, Immunotherapy or chemotherapy pneumonitis, pulmonary fibrosis</td>
<td>Corticosteroids (e.g. glucocorticoids)</td>
</tr>
<tr>
<td>Pain (which may exacerbate dyspnea)</td>
<td>Analgesics</td>
</tr>
<tr>
<td>Primary or Metastatic Lung</td>
<td>Chemotherapy, palliative radiation therapy</td>
</tr>
</tbody>
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<tr>
<th>Tumor</th>
<th>Pulmonary Embolus</th>
<th>Anticoagulants (e.g. heparin, warfarin sodium)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pulmonary Secretions</td>
<td>Anticholinergics (e.g. scopolamine, atropine)</td>
</tr>
<tr>
<td></td>
<td>Superior Vena Cava Syndrome (SVCS)</td>
<td>Radiotherapy, steroids, glucocorticoids</td>
</tr>
</tbody>
</table>

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