

Effective Date: December 30, 2009

## Chronic Obstructive Pulmonary Disease (COPD)

For full Guideline please go to website: [www.BCGuidelines.ca](http://www.BCGuidelines.ca)

**Diagnosis:** COPD is under-diagnosed; definitive diagnosis requires spirometry. Chest X-ray is useful if co-morbidities need to be excluded.

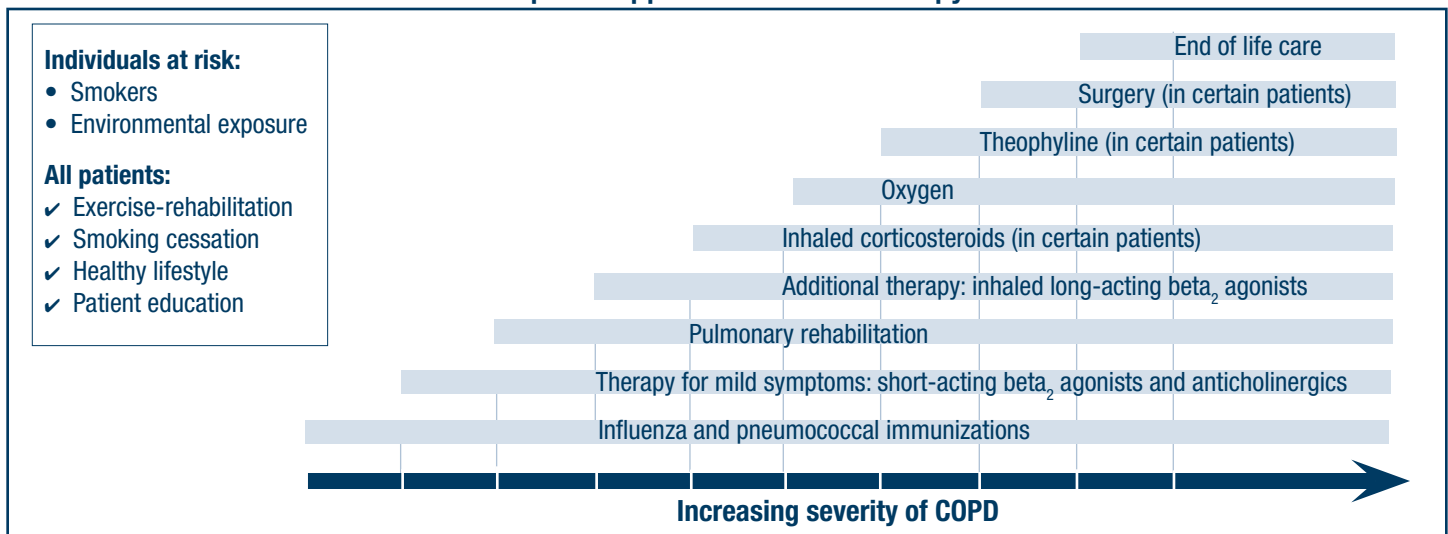
- Indications for spirometry (*Note: In office spirometry requires approval by the College of Physicians and Surgeons Diagnostic Accreditation Program*):
  - Smokers/ex-smokers  $\geq 40$  yrs of age.
  - Risk factors in non-smokers are occupational exposures,  $\alpha$ -1 antitrypsin deficiency, early childhood lung infections, and exposure to air pollutants, e.g. wood smoke.
  - Persistent cough or sputum production.
  - Frequent respiratory infections.
  - Unexplained dyspnea.
  
- COPD stages by symptoms & spirometry:

COPD Stage	Symptoms	Spirometry	
		FEV <sub>1</sub> (% predicted)	FEV <sub>1</sub> / FVC
At Risk	Asymptomatic smoker or ex-smoker or chronic cough/sputum	$\geq 80$	$\geq 0.7$
Mild	Dyspnea with strenuous exercise, hurrying on the level, or walking up a slight hill	60 - 79	$< 0.7$
Moderate	Dyspnea causing patient to walk slower on the level than most others the same age, or stop after walking about 100 m on the level	40 - 59	$< 0.7$
Severe	Dyspnea resulting in patient too breathless to leave the house, breathless after dressing or undressing, or the presence of chronic respiratory failure or clinical signs of right heart failure	30 - 39	$< 0.7$
Very Severe		$< 30$	$< 0.7$

*Adapted from the Canadian Thoracic Society recommendations for management of chronic obstructive pulmonary disease - 2007 update.*

**Management:** Drug and non-drug strategies can improve symptoms, activity levels, and quality of life, even in patients with severe COPD. Goals are to prevent progression, alleviate symptoms, improve exercise tolerance, reduce exacerbations, treat complications, improve health status, and reduce mortality.

### Stepwise Approach to COPD Therapy



*Adapted from the Canadian Thoracic Society recommendations for management of chronic obstructive pulmonary disease - 2007 update.*

## Management of COPD (continued)

### (a) Lifestyle management/smoking cessation

- Smoking is the most important cause of and contributing factor for COPD progression.
- Smoking cessation is effective in preventing disease progression, even in long-term smokers.
- Effective strategies include long-term nicotine replacement therapy and several medications.
- Offer help (e.g. BC Smokers Helpline) to all smokers/families and reinforce at every contact.

### (b) Education and self-management: Focus on improving coping skills and quality of life:

- Encourage exercise; if activities are limited by symptoms, refer to an exercise training program.
- Help the patient to identify resources and a support team (e.g. physician, pharmacist, nurse).
- Refer to a pulmonary rehabilitation program/community respiratory services.

### (c) Drug management

- Evaluate the patient's inhaler technique regularly; consider a spacer.
- For mild COPD: short-acting beta<sub>2</sub> agonist prn + regular inhaled anticholinergics for symptom control. Use of inhaled corticosteroids (alone or in combination therapy) is controversial.
- Add long-acting beta<sub>2</sub> agonist if symptoms persist. Add inhaled corticosteroid if asthma coexists, or if COPD with  $\geq 1$  exacerbation/year, or  $FEV_1 < 50\%$ . Consider a combination product if using a long-acting beta<sub>2</sub> agonist + inhaled corticosteroid.
- Theophylline may be useful with persistent symptoms despite optimal inhaled therapy.

### (d) Ongoing care

- Influenza vaccination annually; pneumococcal vaccination at least once and repeated in 5-10 years.
- O<sub>2</sub> may be a useful addition to exercise therapy.

### (e) Acute exacerbations of COPD (AECOPD):

- Most common cause is a viral or bacterial infection.
- Characterized by  $\geq 48$  hrs of worsening dyspnea and coughing, with or without sputum.
- Severe AECOPD can be a medical emergency; develop an exacerbation plan (refer to COPD Flare-up Action Plan at [BCGuidelines.ca](http://BCGuidelines.ca)) with the patient.
- Therapies: short-acting beta<sub>2</sub> agonists and anticholinergic bronchodilators.
- Oral corticosteroids (e.g. prednisone 25-50 mg/day) for  $< 2$  weeks in moderate to severe COPD.
- Choose antibiotics based on risk factors.

Antibiotic Treatment Recommendations for AECOPD		
COPD Category	Symptoms & Risk Factors	Antibiotic
<ul style="list-style-type: none"> <li>• Simple COPD; no risk factors</li> </ul>	Increased dyspnea, increased cough & sputum, sputum purulence and: <ul style="list-style-type: none"> <li>• <math>FEV_1 \geq 50\%</math> of predicted</li> <li>• <math>&lt; 4</math> exacerbations/year</li> </ul>	<ul style="list-style-type: none"> <li>• First choice: amoxicillin, doxycycline, or trimethoprim / sulfamethoxazole</li> <li>• Alternates: beta-lactam / beta-lactamase inhibitor, extended spectrum macrolides, 2nd or 3rd generation cephalosporins</li> </ul>
<ul style="list-style-type: none"> <li>• Complicated COPD; risk factors for treatment failure and/or virulent or resistant pathogens</li> </ul>	Increased dyspnea, increased cough & sputum, sputum purulence plus $\geq 1$ of: <ul style="list-style-type: none"> <li>• <math>FEV_1 &lt; 50\%</math> of predicted</li> <li>• <math>\geq 4</math> exacerbations/year</li> <li>• ischemic heart disease</li> <li>• use of home oxygen</li> <li>• chronic oral steroid use</li> <li>• antibiotics (past 3 months)</li> </ul>	<ul style="list-style-type: none"> <li>• First choice: antibiotics as above combined with oral steroids may suffice, beta-lactam/ beta-lactamase inhibitor, fluoroquinolones (avoid if used within past 3 months due to potential resistance)</li> <li>• Alternates: May require parental therapy. Consider specialist referral or hospitalization.</li> </ul>

Adapted from CTS COPD Recommendations - highlights for primary care. *Can Respir J* 2008;15(Suppl A):1A-8A.

### (f) Indications for specialist referral

- Diagnostic uncertainty.
- Young patient with limited smoking history, or those with severe symptoms/disability, disproportionate to their lung function decline.
- Signs and symptoms of hypoxemic or hypercarbic respiratory failure.
- Severe or recurrent exacerbations and treatment failure.
- Severe COPD and disability requiring more intensive interventions including surgical therapies.
- When intensive co-morbidity assessment and management are required.
- Difficulty in assessing home O<sub>2</sub> or sleep disorders.