



**Clinical Guidelines
For the
Management of COPD**

Management of Chronic Obstructive Pulmonary Disease

Global Strategy for the Diagnosis, Management, and Prevention of Chronic Obstructive Pulmonary Disease (First workshop NHLBI/WHO April 1998, published 2001 and updated 2004.) Schaller Anderson has adapted the above for its use in treating chronic obstructive pulmonary disease.

The complete Standards of Care are available on the Web:

<http://www.goldcopd.org>

These guidelines are distributed under a quality improvement/utilization management program in order to identify criteria for appropriate and effective use of health care services and consistency in the care provided to plan enrollees. The guidelines are not intended to: (i) supplant the duty of a qualified health professional to provide treatment based on the individual needs of a patient; (ii) constitute procedures for or the practice of medicine by the party distributing the guidelines; or (iii) guarantee coverage or payment for the type or level of care proposed or provided.

1. Establish the Diagnosis and Severity:

Table 2 – Classification of Severity*	
Stage	Characteristics
0: At Risk	<ul style="list-style-type: none"> • Normal spirometry • Chronic symptoms (cough, sputum production)
I: Mild COPD	<ul style="list-style-type: none"> • $FEV_1/FVC < 70\%$ • $FEV_1 \geq 80\%$ predicted • With or without chronic symptoms (cough, sputum production)
II: Moderate COPD	<ul style="list-style-type: none"> • $FEV_1/FVC < 70\%$ • $50\% \leq FEV_1 < 80\%$ predicted • With or without chronic symptoms (cough, sputum production)
III: Severe COPD	<ul style="list-style-type: none"> • $FEV_1/FVC < 70\%$ • $30\% \leq FEV_1 < 50\%$ predicted • With or without chronic symptoms (cough, sputum production)
IV: Very Severe COPD	<ul style="list-style-type: none"> • $FEV_1/FVC < 70\%$ • $FEV_1 < 30\%$ predicted or $FEV_1 < 50\%$ predicted plus chronic respiratory failure

* Classification based on postbronchodilator FEV1

FEV1: forced expiratory volume in one second; FVC: forced vital capacity; respiratory failure; arterial partial pressure of oxygen (PaO2) less than 8.0 kPa (60 mm Hg) with or without arterial partial pressure of CO2 (PaCO2) greater than 6.7 kPa (50 mm Hg) while breathing air at sea level.

2. Therapy by Stage of Severity

Table 8 – Therapy at Each Stage of COPD					
Old	0: At Risk	I: Mild	II: Moderate		III: Severe
New	0: At Risk	I: Mild	IIA	IIB	IV: Very Severe
Characteristics	- Chronic Symptoms - Exposure to risk factors - Normal spirometry	- FEV ₁ /FVC <70% - FEV ₁ ≥ 80% - With or without symptoms	- FEV ₁ /FVC < 70% - 50% ≥ FEV ₁ <80% - With or without symptoms	- FEV ₁ /FEC <70% - 30% ≥ FEV ₁ <50% - With or without symptoms	- FEV ₁ /FEV <70% - FEV ₁ < 30% or FEV ₁ <50% predicted plus chronic respiratory failure
Avoidance of risk factor(s); influenza vaccination					
Add short-acting beta agonist, anticholinergics ¹ and methylxanthines when needed					
			Add regular treatment with one or more long-acting bronchodilators Add rehabilitation		
				Add inhaled glucocorticosteroids of repeated exacerbations	
					Consider these interventions prior to surgical evaluation: - Long-term oxygen - Pulmonary consult - CPAP evaluation

Source: GOLD update 2004

¹ Lanes SF Chest ¼ (2):365. '98. (while 3rd-line, they may help.)
Barnes. Am J Med 117-supple (12A):245. '04
Middleton's Allergy [6th Ed.] '03

3. Commonly used Drugs to Manage COPD

Steps	Medication of Choice	Dosing Information
Step 1	Inhaled short-acting bronchodilator	Short-acting beta agonist (albuterol is preferred) 2-4 puffs as needed (every 4-6 hours)
Step 2	Continue PRN inhaled short-acting bronchodilator PLUS scheduled dosing of one of the following: <ul style="list-style-type: none"> • Tiotropium (Spiriva®) • Salmeterol (Serevent® Diskus) • Formoterol (Foradil®) • Ipratropium (Atrovent®) • Albuterol + Ipratropium (Combivent® or DuoNeb®) • Levalbuterol (Xopenex®) 	<p>One capsule (inhaled) daily</p> <p>1 puff twice daily</p> <p>1 puff (12 mcg) twice daily</p> <p>2-4 puffs, 4 times a day</p> <p>2-4 puffs, 4 times a day</p> <p>0.63-1.25 mg every 6-8 hours via nebulizer</p>
Step 3	<ul style="list-style-type: none"> • Continue therapy in Step 2 and add corticosteroid. • Watch for improvement in sputum, cough, and FEV₁. 	<p>Prednisone oral 30-40 mg/day for 2-4 weeks or inhaled corticosteroid at less than 2000 mcg for 6-8 weeks/day or dose equivalent of another inhaled steroid for 6-8 weeks.</p>

4. Commonly used Drugs to Manage COPD

Table 13 – Management of Severe but Not Life-threatening Exacerbations of COPD in the Emergency Department or the Hospital **	
Assess severity of symptoms, blood gases and chest X-ray	
Administer controlled oxygen therapy and repeat arterial blood gas measurement after 30 minutes	
Bronchodilators	<ul style="list-style-type: none"> ▪ <i>Increase doses or frequency</i> ▪ <i>Combine B2-agonists and anticholinergics</i> ▪ <i>Use spacers or air-driven nebulizers</i> ▪ <i>Consider adding intravenous methylxanthine, if needed</i>
Add glucocorticosteroids	<ul style="list-style-type: none"> ▪ <i>Oral or intravenous</i>
Consider Antibiotics	<ul style="list-style-type: none"> ▪ <i>When signs of bacterial infection, oral or occasionally intravenous</i>
Consider noninvasive mechanical ventilation	
At all times	<ul style="list-style-type: none"> ▪ <i>Monitor fluid balance and nutrition</i> ▪ <i>Consider subcutaneous heparin</i> ▪ <i>Identify and treat associated conditions (e.g., heart failure, arrhythmias).</i> ▪ <i>Closely monitor condition of the patient</i>

Table 11 – Indications for Hospital Assessment or Admission for Exacerbations of COPD **
<ul style="list-style-type: none"> • Marked increase in intensity of symptoms such as sudden development of resting dyspnea • Severe background COPD • Onset of new physical signs (e.g., cyanosis, peripheral edema). • Failure of exacerbation to respond to initial medical management • Significant comorbidities • Newly occurring arrhythmias • Diagnostic uncertainty • Older age • Insufficient home support

**Sources: Adapted from GOLD Update 2004

References:

1. Celli BR, MacNee W. Standards for the diagnosis and treatment of patients with COPD: a summary of ATS/ERS position paper. *Eur Respir J* 2004;23(6):932-46.
2. Cazzola M, Noschese P, Centanni S. et al Salmeterol/fluticasone propionate in a single inhaler device versus theophylline + fluticasone propionate in patients with COPD . *Pulm Pharmacol Ther* 2004;17:141-45
3. Donohue JF, vanNoord JA, Bateman ED, et al. A 6 month placebo-controlled study comparing lung function and health status changes in COPD patients treated with Tiotropium and Salmeterol. *Chest* 2002; 122:45-55.
4. Oostenbrink JB, Rutten-vanMolken MJ, van Noord JA, Vincken W. One year cost effectiveness of Tiotropium versus Ipratropium to treat chronic obstructive pulmonary disease. *Eur Respir J* 2004; 23:241-49
5. Global Strategy for Diagnosis, Management, and Prevention of Chronic Obstructive Pulmonary Disease Executive Update 2004 (Based on the NHLBI/ WHO workshop first convened in 1998. Source documents at www.goldcopd.org care for people with diabetes. Available on the worldwide web (<http://www.diabetes.org.uk/hcpreports/carerecs.htm>).
6. Institute for Clinical Systems Improvement (ICSI) 2004. Chronic Obstructive Disease. Healthcare Guideline. <http://www.icsi.org/knowledge/detail.asp?catID=29&itemID=157>.