

STANDARDS FOR COPD DIAGNOSIS AND MANAGEMENT

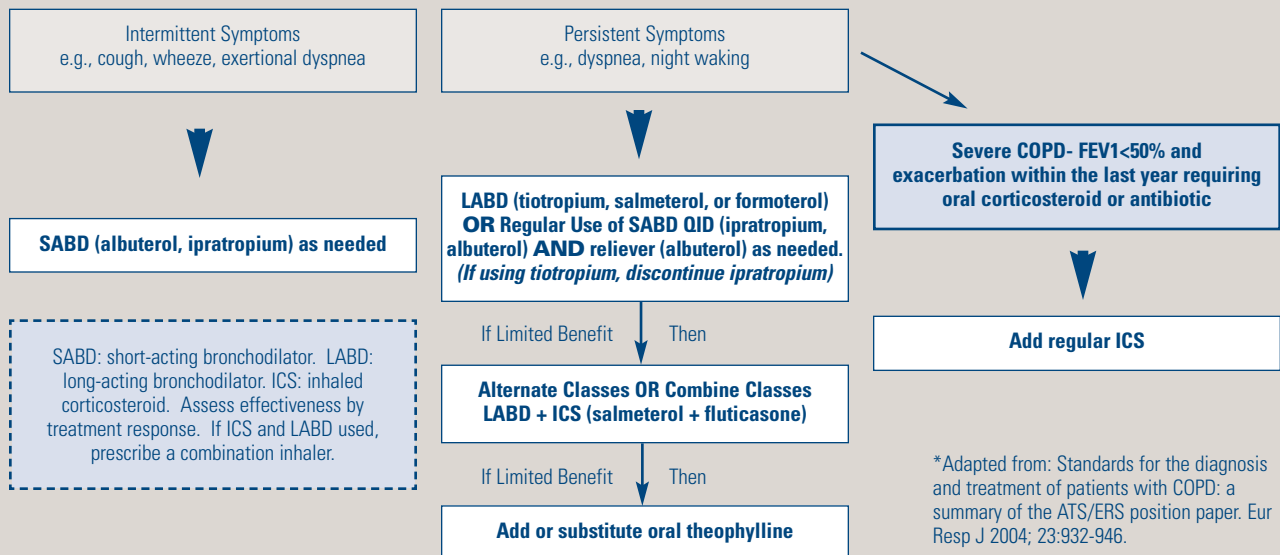
American Thoracic Society / European Respiratory Society (updated 2004)*

Dx of COPD should be considered in anyone who has symptoms of **Chronic Cough, Chronic Sputum Production, Dyspnea**, or who has history of exposure to risk factors, i.e., **Tobacco Use, Pollutants.**

Spirometric Classification:

Severity	FEV1/FVC	FEV1 % predicted
At Risk	0	> 0.7
Mild COPD	I	<= 0.7
Moderate COPD	II	<= 0.7
Severe COPD	III	<= 0.7
Very Severe COPD	IV	<= 0.7

Pharmacologic Algorithm for COPD



Global Initiative for Chronic Obstructive Lung Disease (GOLD) (updated 2003)**

Spirometric Classification and Therapy at Each Stage of COPD

Old	0: At Risk	I: Mild	II: Moderate		III: Severe
			IIA	IIB	
New	0: At Risk	I: Mild	II: Moderate	III: Severe	IV: Very Severe
Characteristics	*Normal Spirometry	*FEV1/FVC<70%	*FEV1/FVC<70%	*FEV1/FVC<70%	*FEV1/FVC<70%
	*Chronic symptoms	*FEV1>80%	*50%<FEV1<80%	*30%<FEV1<50%	*FEV1<30% or
	*Exposure to risk factors	*With or without symptoms	*With or without symptoms	*With or without symptoms	FEV1<50% + chronic respiratory failure
	Avoidance of risk factor(s); Influenza Vaccination				
	Add short-acting bronchodilator as needed. Pneumococcal Vaccination#				
	Add regular treatment with one or more long-acting bronchodilators. Enroll in Pulmonary Rehabilitation.				
	Add inhaled glucocorticosteroids if repeated exacerbations.				
	Add long-term oxygen if chronic respiratory failure. Consider surgical treatments.				

**Adapted from *Global Initiative for Chronic Obstructive Lung Disease (GOLD) Guidelines- Global Strategy for the Diagnosis, Management, and Prevention of Chronic Obstructive Pulmonary Disease*, updated July 2003.

#CDC's Advisory Committee on Immunization Practices recommends pneumococcal vaccination to all persons with COPD.

Management Guide

COMMONLY USED FORMULATIONS AND DOSAGES OF DRUGS FOR COPD

Adapted from: *Global Initiative for Chronic Obstructive Lung Disease (GOLD) Guidelines - Global Strategy for the Diagnosis, Management, and Prevention of Chronic Obstructive Pulmonary Disease*, updated July 2003, and *Tarascon Pharmacopeia Deluxe Edition*, 2004.

Drug	Inhaler	Inhaler Dosage	Solution for Nebulizer	Nebulizer Dosage	Oral	Oral Dosage	Duration of Action (hours)
B2-AGONISTS							
Short-Acting							
Levalbuterol (Xopenex)			0.31, 0.63, 1.25 mg/3 ml unit vials	0.63-1.25mg Q6-8h			4-8
Pirbuterol (Maxair)	MDI:200 mcg/puff	1-2 puffs Q4-6h					4-6
Albuterol	MDI:90mcg/puff; DPI:200mcg/cap	2 puffs Q4-6h PRN; 200-400mcg inhaled Q4-6h via Rotahaler	0.5% (5mg/ml); Nebules:3ml unit dose 0.083%	2.5mg TID-QID; 3ml unit dose TID-QID	2-8mg (tab); 2mg/5ml (syrup)	2-4mg TID-QID; 4-8mg ER Q12h	4-6
Long-Acting							
Formoterol (Foradil)	DPI:12 mcg/puff	1 puff BID					12+
Salmeterol (Serevent Diskus)	DPI:50 mcg/puff	1 puff BID					12+
ANTICHOLINERGICS							
Short-Acting							
Ipratropium Bromide (Atrovent)	MDI: 18 mcg/puff	2 puffs QID	0.02%/2.5ml (0.5 mg/vial)	1 vial TID-QID			6-8
Long-Acting							
Tiotropium (Spiriva)	18 mcg/cap (DPI)	1 capsule inhaled q24h via Handhaler					24+
COMBINATION SHORT-ACTING B2-AGONISTS PLUS ANTICHOLINERGIC IN ONE INHALER							
Albuterol/Ipratropium (Combivent, Duoneb)	MDI:90/18 mcg/puff	2 puffs QID	2.5/0.5 mg per 3 ml vial	1 dose vial QID			6-8
METHYLANTHINES							
Theophylline (SR)					100-600 mg (tab)	10 mg/kg/day in divided doses	Variable, up to 24
INHALED GLUCOCORTICOSTEROIDS							
Beclomethasone (QVAR)	MDI: 40, 80 mcg/puff	40mcg:1-4 puffs BID; 80mcg:1-2 puffs BID					
Budesonide (Pulmicort Turbuhaler, Respules)	DPI: 200 mcg/inh	1-2 inhalations QD-BID up to 4 inhalations BID	Respules: 0.25mg/2ml 0.5mg/2ml unit dose	0.5mg-1mg QD or divided BID			
Flunisolide (Aerobid)	MDI: 250mcg/puff	2 puffs BID up to 4 puffs BID					
Fluticasone (Flovent)	MDI: 44, 110, 220 mcg/puff; DPI: 50, 100, 250 mcg/puff	2 puffs BID					
Triamcinolone (Azmacort)	MDI: 100 mcg/puff	2 puffs TID-QID or 4 puffs BID					
COMBINATION LONG-ACTING B2-AGONISTS PLUS GLUCOCORTICOSTEROIDS IN ONE INHALER							
Salmeterol/Fluticasone (Advair Diskus)	DPI: 50/250, mcg/puff	1 puff BID					
SYSTEMIC CORTICOSTEROIDS							
Prednisone					1, 5, 10, 20, 50 mg (tab), 5mg/5ml & 5mg/ml (sol), taper pack avail	5-60 mg/day po QD or divided BID - QID	
Methylprednisolone (Medrol)					2, 4, 8, 16, 24, 32 mg (tab), 5mg/5ml & 5mg/ml (sol), taper packs avail, IM/IV avail	4-48mg po QD, 10-250mg IM/IV Q4h	

MDI=Metered Dose Inhaler; DPI=Dry Powder Inhaler

MANAGEMENT OF COPD EXACERBATIONS AT HOME

Adapted from: *Global Initiative for Chronic Obstructive Lung Disease (GOLD) Guidelines - Global Strategy for the Diagnosis, Management, and Prevention of Chronic Obstructive Pulmonary Disease*, updated July 2003.

- Initiate or increase short-acting bronchodilators.
- Consider oral antibiotics when signs of bacterial infection.
- Add prednisone to shorten recovery time and restore lung function more quickly.

MANAGEMENT OF COPD EXACERBATIONS IN ED OR HOSPITAL (NON-ICU)

Adapted from: *Global Initiative for Chronic Obstructive Lung Disease (GOLD) Guidelines - Global Strategy for the Diagnosis, Management, and Prevention of Chronic Obstructive Pulmonary Disease*, updated July 2003.

- Assess severity of symptoms, blood gasses, chest X-ray.
- Administer controlled oxygen therapy to maintain sats 88-92% (avoid over-oxygenation in CO2 retainers).
- Bronchodilators - Increase doses or frequency; combine B2-agonists and anticholinergics; use spacers or nebulizers.
- Add glucocorticosteroids (oral or intravenous).
- Consider antibiotics when signs of bacterial infection (oral or intravenous).
- Consider noninvasive mechanical ventilation if moderate-severe dyspnea with use of accessory muscles and paradoxical abdominal movement, moderate-severe acidosis (pH<7.35) and hypercapnea (pCO2>45), respiratory frequency >25 breaths/minute. Noninvasive ventilation not recommended with respiratory arrest, CV instability, impaired mental status, high aspiration risk.
- At all times - monitor fluid balance and nutrition; consider subcutaneous heparin; identify and treat associated conditions (e.g., heart failure, arrhythmias); closely monitor condition of patient.