

Exacerbations of Chronic Obstructive Pulmonary Disease (COPD)

An exacerbation of COPD (ECOPD) is defined as an increase in dyspnea and/or cough and sputum that worsens in less than 14 days and may be accompanied by tachypnea and/or tachycardia. Exacerbations are often associated with increased local and systemic inflammation caused by infection, pollution, or another insult to the airways.¹

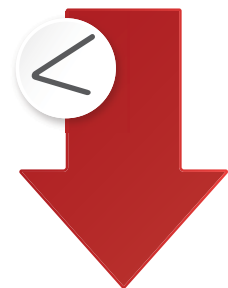
This factsheet will focus on medication management and will not include non-invasive or invasive ventilation techniques for severe exacerbations of COPD.

The most common causes of exacerbations are respiratory tract infections. Long-term prognosis following hospitalization for COPD exacerbation is poor with a 5-year mortality rate of about 50%.²⁻⁵

Patients presenting with symptoms consistent with COPD should be evaluated to rule out other causes.¹

Most Frequent	
Pneumonia	Chest radiograph
Pulmonary Embolism	Clinical probability assessment*
	D-dimer
	CT angiography for pulmonary embolism
Heart Failure	Chest radiograph
	NT-pro-BNP and BNP
	Echocardiography
Less Frequent	
Pneumothorax, pleural effusion	Chest radiograph
	Thoracic ultrasound
Myocardial infarction and/or cardiac arrhythmias**	Electrocardiography
	Troponin

*Hemoptysis, surgery, fracture, history of cancer, deep vein thrombosis. **Atrial fibrillation or atrial flutter. BNP = brain natriuretic peptide; CT = computed tomography scan; NT-proBNP = N-terminal pro b-type natriuretic peptide.



Classification of COPD exacerbations^{1,6,7}




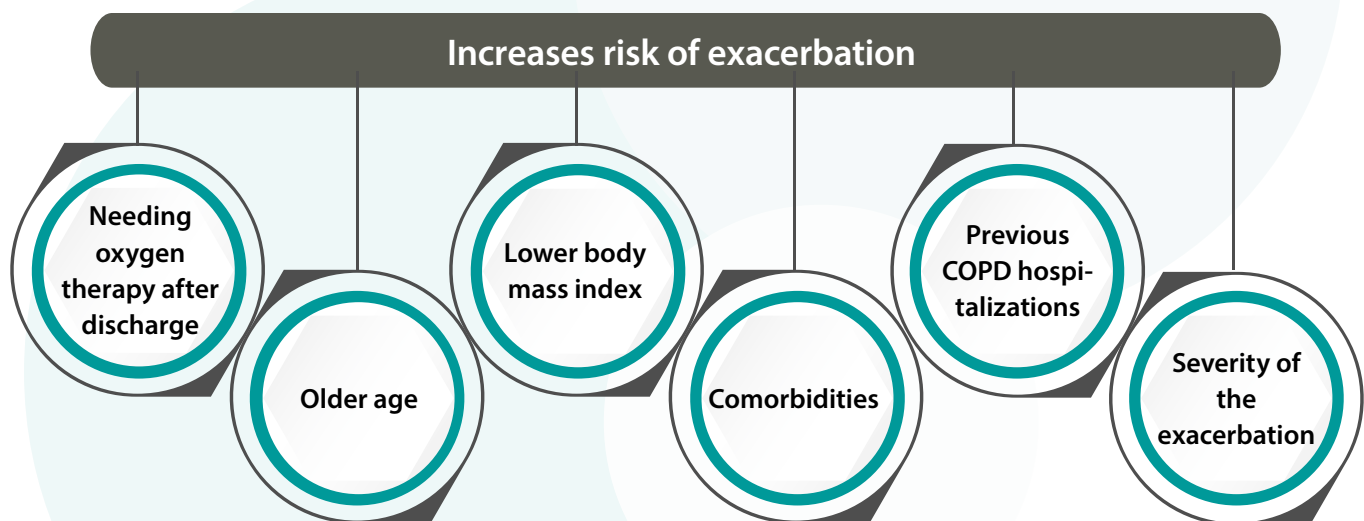
Classification	Characteristics	Location for assessment/treatment
 Mild	Treated with short-acting bronchodilators	Managed at home
 Moderate	Treat with short-acting bronchodilators plus corticosteroids. Add antibiotic if indicated.	Typically requires visit to emergency department or urgent care
 Severe	Treatment based on presentation.	Typically requires hospitalization

Figure 1.

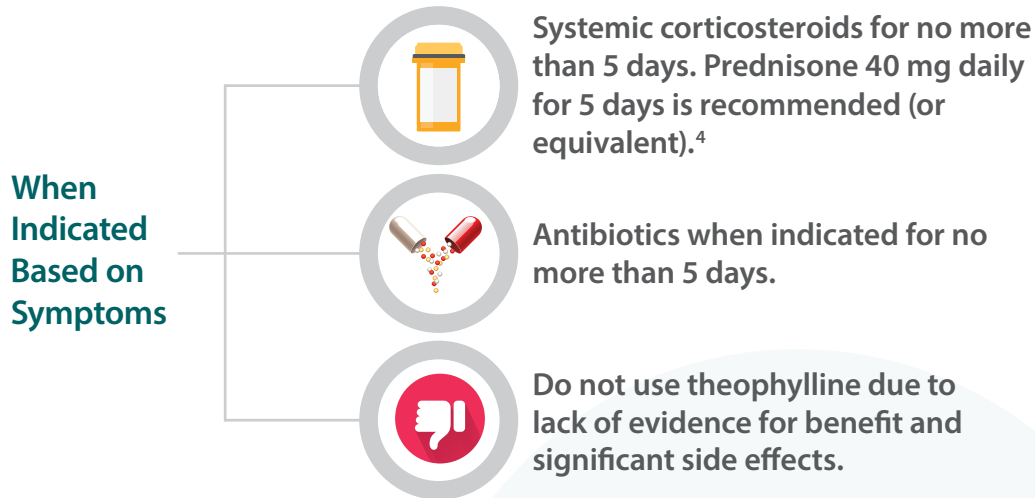
Factors associated with poor outcome after an exacerbation^{2-5,8,9}



Did You Know

Patients with these factors are at a higher risk for another exacerbation and should have close follow up.

Figure 2.
Recommended approach to managing COPD exacerbations¹⁻⁶



Note

All Patients:

Use inhaled short-acting beta-2 agonist (SABA) with or without short-acting muscarinic antagonist (SAMA) for symptom relief. If already using a long-acting muscarinic antagonist (LAMA), then use a SABA alone for immediate relief.

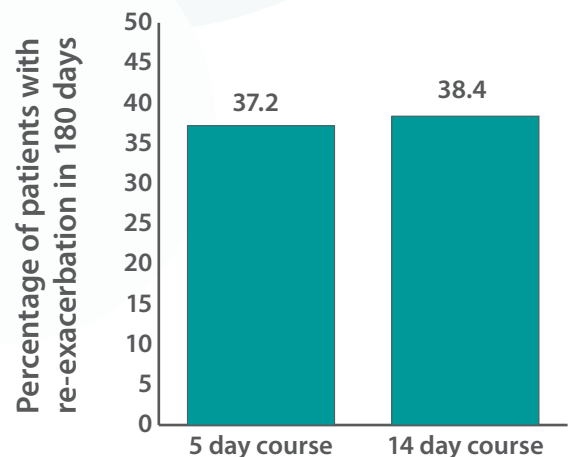
Continue inhaled maintenance medications including long-acting bronchodilators and inhaled corticosteroids. Consider stepping up regimen to prevent future exacerbation.

Follow up after exacerbation: within 1 month and 3–4 months after exacerbation.

When to use oral steroids³⁻⁷

- Use for patients with a poor response to bronchodilators.
- Steroid use > 5 days was not shown to improve outcomes and can increase side effects and the risk of pneumonia and mortality.
- Typical oral steroid regimen is prednisone 40 mg orally daily for 5 days.
 - Steroid use for 5 days can improve lung function (FEV1), oxygenation, and shorten recovery time and hospital duration.
 - Prednisone does not need to be tapered when using a 5-day course.

Re-exacerbation rates are similar using prednisone for 5 days compared to 14 days



Leuppi JD, Schuetz P, Bingisser R, et.al. Short-term vs conventional glucocorticoid therapy in acute exacerbations of chronic obstructive pulmonary disease: the REDUCE randomized clinical trial. JAMA. 2013 June 5, 309(21):2223-31.

When to use antibiotics^{1,7,8}

- Antibiotics are indicated when:
 - Increased sputum purulence + increased dyspnea + increased sputum volume
- Choice of antibiotic should be based on local resistance patterns, but empirical therapy is usually one of the following:
 - Amoxicillin
 - Amoxicillin + clavulanic acid
 - Azithromycin
 - Doxycycline
 - Second generation cephalosporin
 - Trimethoprim/ sulfamethoxazole (TMP-SMX)
 - Reserve broader spectrum antibiotics for severe exacerbations or specific risk



KEY MESSAGE

Treat an exacerbation with short-acting beta-2 agonist (SABA) and give five-day courses of oral corticosteroids and antibiotics when indicated. Continue maintenance therapy and consider stepping up regimen after an exacerbation.

Did You Know

Implementation of the VA COPD CARE team-based service led by Clinical Pharmacist Practitioners (CPP) improves Veteran access to primary care post COPD exacerbation and significantly decreases hospital and Emergency Department re-admissions.¹⁰

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