



Chronic obstructive pulmonary disease (COPD) exacerbations: Treatment and diagnosis

Chronic obstructive pulmonary disease (COPD) exacerbations (i.e., lung attacks) are serious and potentially preventable events that significantly increase morbidity and mortality.¹ Proper assessment, diagnosis and management in accordance with [practice guidelines](#) are essential to improving patient outcomes and reducing the risks associated with exacerbations. Collaboration with care teams is vital to effectively managing COPD.

Definition and diagnosis of exacerbation²

A COPD exacerbation is defined as an increase in symptoms over baseline levels that do not clear with rescue therapy and last 24-48 hours or continue or progress rapidly. These include symptoms such as:

- Increased dyspnea or breathlessness
- Increased cough frequency/severity
- Increased sputum production
- Sometimes fever

Is it COPD?³

Treating a COPD exacerbation requires an accurate COPD diagnosis based on risk factors, such as smoking, vaping, airborne exposures, as well as symptoms (e.g., persistent cough, shortness of breath, wheezing, post-bronchodilator spirometry results). Non-obstructive pre-bronchodilator spirometry can rule out COPD, and when bronchodilator administration is difficult, obstructive pre-bronchodilator results are very suggestive of COPD.

An exacerbation is diagnosed using both clinical assessment and diagnostic testing. Physicians should evaluate for other causes of dyspnea due to the frequency of cardiovascular comorbidities in individuals with COPD, including heart failure, acute cardiac events, pulmonary embolism and infections (e.g., pneumonia, RSV, COVID-19) that may cause symptoms or often co-occur with a COPD exacerbation.⁴ Below are tests that may be used even in the outpatient setting and their intended purpose.

Test ^{5,6}	Result/purpose
Pulse oximetry (pulse ox)	Lower than usual blood oxygen saturation to assess hypoxia
Peak flow	Lower than usual, suggesting increased airflow limitation
Spirometry*	Evaluates decreases in lung function
Chest imaging	Useful to evaluate for pneumonia, heart failure or other chest abnormalities
Brain natriuretic peptide (BNP) or Pro-BNP	Assesses for heart failure as the primary etiology or co-occurring
Troponin	Identifies possible myocardial injury (e.g., myocardial infarction)
Electrocardiogram	Evaluates cardiac rhythm and ST changes
D-dimer	Screens for blood clots, such as pulmonary embolism

*Spirometry can be done during an exacerbation, but patients may be unable to do so.

Treatment of exacerbations⁷

Treatment of a COPD exacerbation is added to the person's usual COPD treatment and usually includes short-acting bronchodilators and systemic corticosteroids with antibiotics in select cases.

- Short-acting bronchodilators, such as short-acting beta-agonists/short-acting muscarinic antagonists (SABA/SAMA): For mild symptom increases
- Systemic corticosteroids: Recommended by the AAFP for moderate-to-severe exacerbations
- Antibiotics: Use is based on local resistance patterns and patient signs and symptoms

Most mild exacerbations go unreported unless patients are specifically asked about them. Early detection and exacerbation treatment may prevent further progression of the disease.

Why the emphasis on exacerbations?^{1,8}

- Studies have shown the mortality following hospitalization for an acute exacerbation of COPD is 33-43% at one year, 39-49% at two years and >70% at five years.
- Exacerbation is often followed by irreversible loss of lung function.
- Increased risk for next exacerbation
- Requires days to weeks to return to baseline function—if ever
- Often associated with the destabilization of comorbid conditions
- For most people, exacerbations are preventable.

Follow-up care for a COPD exacerbation^{7,9}

- Schedule a visit within 5-7 days post-discharge or after starting outpatient systemic steroids
- Identify and address any identifiable exacerbation triggers (e.g., smoking, pollution, incomplete immunizations)
- Review inhaler technique and adherence to assess barriers to current care
- Consider escalation to inhaled corticosteroid if eosinophil count is >300 cells/mL (levels of >100 to 300 are still based on physician choice)

- Consider pulmonary rehabilitation, including telerehabilitation
- Engage the care team and consider referral to pulmonary specialists for further evaluation and possible initiation of additional therapies, such as azithromycin, roflumilast or biologics (e.g., dupilumab, mepolizumab) and referral to cardiovascular specialists for evaluation

References

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