CARILION CLINIC
Antimicrobial Stewardship

COPD Exacerbation Antibiotic Guidelines

Disclaimer: These guidelines are not intended to replace clinical judgment. An Infectious Diseases consultation is always available for complex patients and should be strongly considered for patients with multi-drug resistant organisms.

Should the patient receive antibiotics?

Answers to the following questions regarding the current COPD exacerbation		
Increase in dyspnea? Yes = 1 point	Increase in sputum volume? Yes = 1 point	Increase in sputum purulence? Yes = 2 points
• **1 – 2 points:** No antibiotics indicated • **≥ 3 points:** Antibiotics indicated (see below)*		

*Clinical trials demonstrate benefit with antibiotic treatment when the above criteria are met. However, trials have failed to demonstrate superiority of any antibiotic over another; therefore, it is recommended to **select a narrow spectrum antibiotic in order to preserve the patient's normal flora.**

Antibiotic Selection

Exacerbation Type	Drug	Dose	Duration
Uncomplicated as defined by: • Age < 65 • No history of cardiac disease • < 3 exacerbations/year	Azithromycin	500 mg daily for 3 days **(Preferred)** 500 mg x1 day; 250 mg daily x4 days	
	Doxycycline*	100 mg Q 12 hours	5-7 days
Complicated as defined by > 1 risk factor: • Age > 65 • FEV1 < 50% • ≥3 exacerbations/year • Cardiac disease	Amoxicillin/ Clavulanate **(Preferred)**	875/125 mg Q 12 hours OR 500/125 mg Q 8 hours	5-7 days
	For true penicillin hypersensitivity reactions:		
	Moxifloxacin** (Outpatient only) OR Levofloxacin**	400 mg daily 750 mg daily	5 days
Risk factors for pseudomonas (h/o pseudomonas in the sputum, frequent use of antibiotics, recent hospitalization >48 hrs within 90 days)	Cefepime	2 g IV q 8 hours	7 days

*Doxycycline is preferred in patients with a prolonged QTc at baseline.
**Moxifloxacin and levofloxacin are associated with many adverse effects: QTc prolongation, aortic aneurysm, tendon rupture, peripheral neuropathy, CNS effects, etc. and is not the preferred agent for most patients.

Exacerbation Prophylaxis

Antibiotic for Patients Prone to Exacerbations	Dose	Duration
Azithromycin (Preferred)	250 mg/day or 500 mg three times weekly	1 year
Erythromycin	500 mg BID	1 year

* There may be less benefit in active smokers.
** There is no data demonstrating the efficacy or safety of chronic azithromycin to prevent COPD exacerbations beyond one year of treatment.

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References:

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3. Uzun S, Djamin RS, Kluytmans JA, et al. Azithromycin maintenance treatment in patients with frequent exacerbations of chronic obstructive pulmonary disease (COLUMBUS): a randomized, double-blind, placebo-controlled trial. *Lancet Respir Med* 2014; 2(5): 361-8.
4. Han MK, Tayob N, Murray S, et al. Predictors of chronic obstructive pulmonary disease exacerbation reduction in response to daily azithromycin therapy. *Am J Respir Crit Care Med 2014*; 189(12): 1503-8.
5. Siddiqi A, Sethi S. Optimizing antibiotic selection in treating COPD exacerbations. Int J Chron Obstruct Pulmon Dis. 2008;3(1):31-44. doi:10.2147/copd.s1089