Antibiotic Guidance for Treatment of Acute Exacerbations of COPD (AECOPD) in Adults

Antibiotics are **not** recommended for most patients with AECOPD. Procalcitonin (PCT) may be helpful in determining if antibiotics are necessary or the duration of treatment. All antibiotic dosages listed below are based on normal renal and hepatic function. The typical duration of therapy for AECOPD is 5 days.

Antibiotics should only be started or continued in patients with signs and symptoms of a bacterial infection that include:

1) Increased dyspnea, increased purulence of sputum, and increased volume of sputum OR

2) Ventilator support (invasive or non-invasive) for AECOPD

Patients with a PCT <0.1 ng/mL are unlikely to benefit from antibiotic administration

- **Mild exacerbation (no respiratory failure[+], FEV_1 >50% predicted, < 3 exacerbations/year)**
  - 1st line: Doxycycline 100 mg PO BID **OR** Cefuroxime 500 mg PO BID
  - 2nd line: Azithromycin 500 mg PO daily*
- **Moderate exacerbation (non-life-threatening respiratory failure[+], FEV_1 36-50%, ≥ 3 exacerbations/year, ≥65 years of age)**
  - 1st line: Amoxicillin-clavulanate 875-125 mg PO BID **OR** Doxycycline 100 mg PO BID
  - 2nd line: Azithromycin 500 mg PO daily*
- **Severe exacerbation (life-threatening respiratory failure[+], baseline FEV_1 ≤35%) OR Requires ventilator support:**
  - No risk factors for *Pseudomonas aeruginosa*:
    - Ceftriaxone 1 gram IV every 24 hours (>80 kg: Ceftriaxone 2 grams IV every 24 hours)
    - Severe beta-lactam allergy: Levofloxacin 750 mg PO or IV every 24 hours**
  - Risk factors for *Pseudomonas aeruginosa* (see Table 1):
    - 1st line: Cefepime 1 gram IV every 6 hours
    - 2nd line: Piperacillin-tazobactam 4.5 grams IV every 8 hours
    - Severe beta-lactam allergy: Aztreonam 2 grams IV every 8 hours + levofloxacin 750 mg po or IV every 24 hours**

Patient Characteristics*	Respiratory Failure Signs[1]	Potential Resistant Pathogens Encountered[10-12]
Mild • FEV_1 >50% predicted • <3 exacerbations/year • No AECOPD hospitalizations (past year)	• None	• None significant
Moderate • FEV_1 36-50% predicted • ≥ 3 exacerbations/year • 1 AECOPD hospitalization/year • ≥65 years of age	**Non-life-threatening:** • Accessory muscle use • RR >30 breaths/minute • Hypoxemia improved with nasal cannula or Venturi mask ≤35% • Hypercarbia with PaCO2<60 mmHg	• *Haemophilus influenzae, Moraxella catarrhalis (*beta-lactamases) • Resistant pneumococci
Severe • FEV_1 ≤35% predicted • ≥ 3 exacerbations/year • ≥ 2 AECOPD hospitalizations/year • ≥ 65 years of age	**Life threatening (above signs + any of the following):** • Altered mental status • Acute hypercapnia (pH ≤7.25 or PaCO2 >60mmHg) • Hypoxemia not improved with nasal cannula or requiring >40% Venturi mask • Mechanical ventilation (including non-invasive)	As above + evaluate risk factors for *Pseudomonas aeruginosa:* • Presence of bronchiectasis • Antibiotics in past 90 days • Prior *Pseudomonas* respiratory culture • History of intubation • Chronic steroids • Frequent exacerbations • Residence in a skilled nursing or long-term care facility

- \+ Respiratory status adapted from the 2018 GOLD guidelines. See Table 1. For patients with re-admission within 30 days or recurrent AECOPD, consider expert consultation with a pulmonologist.

- * Consider ECG prior to initiating, especially if other QTc-prolonging medications are present. Alternate therapy may need to be considered in patients at high risk of cardiovascular events.

- ** **As of July 2016,** the FDA no longer recommends fluoroquinolones for the treatment of acute exacerbations of bronchitis. This therapy should be reserved for severe beta-lactam allergy where no other treatment options are available. Current labeling includes a black box warning for CNS effects, tendonitis or tendon rupture, and peripheral neuropathy that may be irreversible. Consider ECG prior to initiating, especially in patients with other QTc-prolonging medications.

This is an abbreviated summary. For full version see: https://www.nebraskamed.com/for-providers/asp/plans

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Developed: January 2017, Updated: December 2018