

Antimicrobial Therapy for Acute Exacerbation of Chronic Obstructive Pulmonary Disease

(NB Provincial Health Authorities Anti-Infective Stewardship Committee, November 2015)

Treatment Criteria					
<ul style="list-style-type: none"> ➤ The use of antibiotics in acute exacerbations of chronic obstructive pulmonary disease (AECOPD) is controversial ➤ Antimicrobial therapy is only recommended when AECOPD are accompanied by all 3 cardinal symptoms or at least 2 of the 3 cardinal symptoms, if increased sputum purulence is one of the 2 symptoms: <ol style="list-style-type: none"> 1. Increased dyspnea 2. Increased sputum volume 3. Increased sputum purulence ➤ Patients receiving invasive or non-invasive ventilation for AECOPD should be initiated on intravenous antimicrobial therapy ➤ Antibiotic selection should be based on patient symptoms and risk factors ➤ If infiltrate on chest x-ray or pneumonia suspected then treat as per pneumonia treatment guidelines 					
Risk Stratification	Probable Organism	Preferred Empiric Regimen	Alternative Empiric Regimens	Duration	Comments
Acute Bronchitis <ul style="list-style-type: none"> • patients presenting with only 1 of the 3 cardinal symptoms 	Viral in most cases	Antimicrobial therapy <u>not</u> recommended Symptomatic therapy only			
Simple (Low-Risk Patients) <ul style="list-style-type: none"> • Less than 4 exacerbations per year 	<i>Streptococcus pneumoniae</i> <i>Haemophilus influenzae</i> <i>Moraxella catarrhalis</i>	doxycycline 100 mg po q12h	amoxicillin/clavulanate 875/125 mg po q12h* OR sulfamethoxazole/trimethoprim 800/160 mg po q12h* OR cefuroxime 500 mg po q12h* OR clarithromycin 500 mg po q12h	5 days	<ul style="list-style-type: none"> • If a patient has received an antibiotic in the last 3 months the therapy chosen should be a regimen based on a different mechanism of action regardless of the clinical success • Tailor antibiotic therapy for sputum culture results if available
Complicated (High Risk Patients) At least one of: <ul style="list-style-type: none"> • Forced expiratory volume in 1 second (FEV₁) less than 50% predicted • Greater than or equal to 4 exacerbations per year • Ischemic heart disease • Use of home oxygen • Chronic steroid use 	As in simple plus: Klebsiella spp and other Gram-negatives, Increased probability of beta-lactam resistance	<u>Oral Therapy:</u> amoxicillin/clavulanate 875/125 mg po q12h* <u>Intravenous Therapy:</u> cefTRIAxone 1-2 g IV q24h	<u>Oral Therapy:</u> cefuroxime 500 mg po q12h* OR clarithromycin 500 mg po q12h* OR levofloxacin 750 mg po q24h* <u>Intravenous Therapy:</u> levofloxacin 750 mg IV q24h*	5 – 10 days 5 days (for levofloxacin)	<ul style="list-style-type: none"> • If a patient has received an antibiotic in the last 3 months the therapy chosen should be a regimen based on a different mechanism of action regardless of the clinical success • Tailor antibiotic therapy for sputum culture results if available
Bronchiectasis/ End-stage Lung Disease	As in simple and complicated plus: <i>Pseudomonas aeruginosa</i> , <i>Staphylococcus aureus</i> , MRSA Other non-fermenting Gram negative bacilli	<u>Oral Therapy:</u> amoxicillin/clavulanate 875/125 mg po q12h* ± ciprofloxacin 500 -750 mg po q12h* (if <i>Pseudomonas aeruginosa</i> is suspected) <u>Intravenous Therapy:</u> cefTRIAxone 1-2 g IV q24h OR piperacillin/tazobactam 4.5 g IV q6h* (if <i>Pseudomonas aeruginosa</i> is suspected)	<u>Oral Therapy:</u> levofloxacin 750 mg po q24h* <u>Intravenous Therapy:</u> levofloxacin 750 mg IV q24h*	7 – 14 days	<ul style="list-style-type: none"> • Tailor antibiotic therapy for sputum culture results (past or current)
Clinical Pearls					
<ul style="list-style-type: none"> • Macrolides are not recommended as first line empiric therapy due to growing resistance rates for <i>Streptococcus pneumoniae</i> and <i>Haemophilus influenzae</i> • Fluoroquinolones should be reserved for only severe cases, failure of first line options or β-lactam allergy in complicated cases due to the potential for increasing resistance, risk of <i>Clostridium difficile</i> infection and their importance in the management of other infections • Empiric therapy for atypical organisms (<i>Mycoplasma pneumoniae</i> & <i>Chlamydia pneumoniae</i>) not recommended • Consider obtaining cultures if not improving after 72 hours of antimicrobial therapy • Consider systemic corticosteroids for moderate to severe exacerbations of COPD (prednisone 40 mg po once daily for 5 days) • Influenza vaccination and pneumococcal vaccination recommended 					

*Dose adjustment required in renal impairment

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