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Provincial Drugs & Therapeutics
Antimicrobial Stewardship Subcommittee

To:	Health PEI Physicians, Nurse Practitioners, Pharmacists, Nurses
From:	PD&T Antimicrobial Stewardship Subcommittee
Date:	May 12th, 2025
Re:	**Guideline UPDATE: Empiric Antimicrobial Management of AECOPD**

The Antimicrobial Stewardship Subcommittee (ASSC) has developed the enclosed guideline for antimicrobial management of Acute Exacerbations of Chronic Obstructive Pulmonary Disease (AECOPD). This is an update from the previous 2021 Health PEI guideline. Associated order sets have also been updated (MED COPD admit and COPD management Hospitalist Subphase).

Key Highlights:

- **Patient Classification:** The previous guideline categorized patients into simple (low risk), complicated (high risk), and those at risk for pseudomonas. The updated guideline simplifies this by classifying patients based on the number of exacerbations per year. It excludes pseudomonas coverage, as patients at risk (e.g., those with bronchiectasis) are not typically addressed by this general guideline.
- **Use antibiotics ONLY in patients with at least TWO of the following cardinal signs:**
  - Increased sputum purulence
  - Increased sputum volume
  - Worsening dyspnea
- **Antibiotic selection:**
  - Amoxicillin 1000 mg PO TID is the preferred therapy for patients with less than 4 exacerbations per year.
  - Macrolides are not first choice due to concerns with resistance.
  - Fluoroquinolones should be reserved for severe cases or failure with first line options due to concerns regarding resistance and *C. difficile*.
- **The usual duration of therapy is 5 days** as per the GOLD guidelines
- This guideline does not comment on non-antimicrobial management of AECOPD (i.e. puffers, steroids, etc).
- If radiographic and clinical evidence of pneumonia, choose antibiotic based on Health PEI Pneumonia Guidelines
- Remember to review patient vaccine record in provincial all immunizations registry (AIR) to ensure they are up to date with all eligible vaccinations.

You can find these guidelines, along with other Health PEI empiric treatment guidelines, on the Health PEI Microbiology website: www.healthpei.ca/src/microbiology, or on the Firstline App.
For questions please contact Fiona Mitchell (Provincial Antimicrobial Stewardship Pharmacist; 894-2587; fcmitchell@ihis.org or Dr. Emily MacAdam (Infectious Disease Physician) emimacadam@ihis.org

Health PEI

ANTIMICROBIAL STEWARDSHIP SUBCOMMITTEE

Acute Exacerbation of Chronic Obstructive Pulmonary Disease: Antimicrobial Management

Definitions

- **Acute Exacerbation of Chronic Obstructive Pulmonary Disease (AECOPD):** An acute worsening of respiratory symptoms that is sustained (48 hours or more) and results in additional therapy.
- May be triggered by infections, airway irritants, non-adherence to COPD treatments, pulmonary embolism, pulmonary edema, pneumothorax, etc.

Most Common Organisms

- **Respiratory viral infections:** Most commonly human rhinovirus ("common cold"), Influenza, COVID-19
- **Respiratory bacterial infections:** *Haemophilus influenzae, Moraxella catarrhalis, Streptococcus pneumoniae*

Diagnostic Considerations

- Although viral and bacterial infections may cause AECOPD, it is important to rule out non-infectious precipitants including pulmonary embolism, pneumothorax, heart failure or pleural effusion.
- Viral causes
  - Influenza testing during periods of increased influenza activity
  - COVID-19
- If radiographic and clinical evidence of pneumonia, choose antibiotic based on Health PEI Pneumonia Guidelines

Empiric Antibiotic Therapy

- Use antibiotics ONLY in patients with at least TWO of the following cardinal signs:
  - **increased sputum purulence**
  - **Increased sputum volume**
  - **Worsening dyspnea**
- If a patient has received an antibiotic in the last three months, it is recommended to switch to an alternative class.
- Macrolides are not recommended as first line empiric therapy due to poor Haemophilus coverage and high rates of *Streptococcus pneumoniae* resistance.
- Fluoroquinolones should be reserved for severe cases or failure with first line options due to concerns regarding resistance and *C. difficile*.
- Treatment failure is defined as clinical deterioration after 72 hours or no improvement after completion of first line treatment.

Empiric Antimicrobial Therapy for AECOPD

Risk Factors	Preferred Empiric Regimen	Alternate Empiric Regimen
Acute Bronchitis ○ Patients presenting with only 1 of the 3 cardinal signs	No antimicrobial therapy recommended	
Less than 4 exacerbations in the past year and at least 2 of the following cardinal signs: 1. Increased sputum purulence 2. Increased sputum volume 3. Worsening dyspnea	amoxicillin 1000 mg PO TID* **OR** doxycycline 100 mg PO BID	cefuroxime 500 mg PO BID* **OR** sulfamethoxazole-trimethoprim 1 DS tablet (160/800 mg) PO BID* **OR** **when above options cannot be used:** azithromycin 500 mg PO daily[§] x 3 days **OR** clarithromycin 500 mg po BID*
4 or more exacerbations in the past year and at least 2 of the following cardinal signs: 1. Increased sputum purulence 2. Increased sputum volume 3. Worsening dyspnea **OR** Treatment failure[α] **OR** Antibiotics in the past 3 months	amoxicillin/clavulanate 875/125mg PO BID* **OR** cefuroxime 500 mg po BID*	levofloxacin 750 mg PO/IV daily* **OR** ceftriaxone 1g IV q24h
Other Considerations:		
If radiographic and clinical evidence of **pneumonia**, choose antibiotic based on Health PEI Pneumonia Guidelines		

*Requires dose adjustment in renal dysfunction

§Special authorization required from PEI Pharmacare

αTreatment failure is defined as clinical deterioration after 72 hours or no improvement after completion of first line treatment

Duration

- Usual duration of therapy: **5 days** (some exceptions may apply)

IV-to-PO Conversion

- Evaluate for IV-to-PO conversion within 48 hours of initiating treatment.
- Consider oral antibiotics when patient is clinically improving (i.e. tolerating oral intake, hemodynamically stable, afebrile for at least 24 hours) – see Health PEI IV-to-PO Guideline for more details.

Prevention

- Review patient vaccine record in provincial all immunizations registry (AIR) to ensure they are up to date with all eligible vaccinations.

These guidelines are an adaptation of Nova Scotia Health Authority's "Acute Exacerbation of Chronic Obstructive Pulmonary Disease" 2023 guideline.

References

1. Province of British Columbia. (2025). *Chronic Obstructive Pulmonary Disease (COPD): Diagnosis and Management*. Retrieved from https://www2.gov.bc.ca/gov/content/health/practitioner-professional-resources/bc-guidelines/copd
2. Global Strategy for the Diagnosis, Management and Prevention of COPD, Global Initiative for Chronic Obstructive Lung Disease (GOLD) 2023. [Internet]. Available from: Available from: http://goldcopd.org/.
3. RA McIvor, ER McIvor. Chronic Obstructive Pulmonary disease (COPD). E-CPS. 2025. Available from: https://cps.pharmacists.ca/search
4. Nova Scotia Health Authority. "Acute Exacerbation of Chronic Obstructive Pulmonary Disease." *NS Health Library*. 2025. Available at: https://library.nshealth.ca/ld.php?content_id=36906350