Hospital Management of COPD Exacerbations
Summary Pathway and Recommended Practices

Patient presents to hospital with suspected COPD

ED investigations:
- Pulse oximetry
- Obtain vital signs & physical exam
- Patient history & known allergies
- Document & reconcile medications
- Examine sputum
- Blood work: baseline CBC, BUN, creatinine, electrolytes, arterial blood gases; blood cultures for suspected pneumonia or sepsis

Potential indications for hospital admission:
- Severe breathlessness
- Cyanosis
- Impaired consciousness
- Rapid onset or sudden increase in severity of symptoms
- Arterial pH < 7.35
- \( \text{SaO}_2 \) < 90%

If patient goes into respiratory failure

Standard care in the ED or inpatient setting:
- Use short-acting bronchodilators (Beta-2 agonists preferred)
  - If patient is on long-acting anticholinergics, continue to administer in combination with Beta-2 agonists
  - Deliver using metered dose inhalers with spacers
  - Nebulizers are 2nd line treatment due to infection risk
- Theophylline is not recommended, unless already receiving
- Use antibiotics if indications of infection (purulent or high volume of sputum)
  - Refer to Canadian Thoracic Society antibiotic guidelines
    - Refer to hospital antimicrobial stewardship policies
    - Oral antibiotics preferred; if contraindicated, use IV
  - Use corticosteroids except for very mild exacerbations, or if contraindicated (e.g. chronic use / dependence, diabetes, osteoporosis, avascular necrosis)
    - 30–50 mg/day Prednisone or equivalent for 10-14 days
    - IV methylprednisolone 40mg if oral route unavailable
    - Manage corticosteroid-induced side effects
  - If necessary, deliver oxygen to maintain 88-92% saturation; monitor \( \text{CO}_2 \) level
  - Initiate lung hygiene physical therapy to clear mucus and secretion from the airway
  - If patient is admitted, use early ambulation therapy
  - Begin discharge planning as soon as possible

CTS antibiotic guidelines for COPD exacerbations

<table>
<thead>
<tr>
<th>Risk group</th>
<th>Symptoms and risk factors</th>
<th>First line antibiotics</th>
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<tbody>
<tr>
<td>Lower risk</td>
<td>Increased cough and sputum, Sputum purulence, Increased dyspnea</td>
<td>Amoxicillin, Doxycycline, Trimethoprime / sulfamethoxazole, 2nd / 3rd generation cephalosporins, Extended spectrum macrolides</td>
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<tr>
<td>Higher risk</td>
<td>As above plus 1 or more of the following: FEV1 &lt;50% predicted, &gt; 4 exacerbations / year, Ischemic heart disease, Chronic corticosteroid use or dependency, Antibiotic use in past 3 months</td>
<td>Beta-lactam / beta-lactamase inhibitor, Fluoroquinolones (antibiotics for lower risk patients when combined with oral steroids may suffice)</td>
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</table>

Source: Canadian Thoracic Society 2007

Go to 3: Patients in acute respiratory failure
Go to 4: Recovery & discharge planning
Patients in acute respiratory failure

Seek patient’s preferences with respect to intubation

Administer NPPV

Is the patient responding?

YES → Go to Standard inpatient care

NO → Has the patient expressed preferences against intubation?

YES → Initiate palliative care

NO → Intubate and administer IMV

Use NPPV to wean patient from IMV; once patient stabilizes go to Standard inpatient care

Decision on ventilation:

• If possible, seek patient’s preferences before proceeding to ventilation interventions
• If ventilation is not desired, proceed to palliative care
• NPPV should be considered 1st line treatment for acute respiratory failure and pH < 7.35

Try NPPV before invasive ventilation for all patients with indications for ventilation, including severe patients (pH < 7.20), unless contraindicated

Where patients have expressed preferences against intubation, NPPV can still be considered but ensure therapy does not progress to IV if failure to respond to NPPV

Noninvasive positive pressure ventilation (NPPV):

• Ensure continuous monitoring of patients receiving NPPV
• NPPV should be administered by professionals appropriately trained in its use

Invasive mechanical ventilation (IMV):

• Seek patients’ preferences for intubation (including through substitute decision makers or advance directives) before initiating IMV
• Use NPPV to help wean patients from IMV when they fail spontaneous breathing tests

Prior to discharge:

• Conduct full clinical assessment using validated accepted assessment COPD tools such as MRC, CAT and/or BODE
• Establish individualized discharge / treatment plan with patient
• (Re-)establish patients on long-term bronchodilator therapy before discharge, including resuming use of handheld inhalers

Assess patient’s inhaler technique before discharge; provide education on use of inhaler if needed

Review and reconcile all patients’ medications and ensure they understand their medications, including when to stop corticosteroids if prescribed

Consider developing an action plan with patients including responsibilities for their ongoing care, warning signs and instructions for seeking help for exacerbations (e.g. phone number for PCP)

Provide all patients who still smoke with cessation counselling while in hospital and provide them with contact information for a smoking cessation program

If patients do not have up-to-date influenza or pneumococcal vaccinations, either administer vaccinations or arrange a follow-up appointment with their PCP for vaccination following discharge

Arrange for patients with functional disabilities (e.g. shortness of breath when walking) to begin pulmonary rehabilitation within 1 month of discharge, as close to home as possible

All patients should have a follow-up appointment booked with their PCP, a respirologist or internist within 1 week of discharge

Patients without a regular PCP should be connected through Health Care Connects or other resource

All patients that qualify should be discharged on home oxygen; ensure that the patient is assessed by the CCAC for potential home care services before discharge

Ensure that the patient’s PCP and CCAC receive a discharge summary from the hospital, including full clinical assessment, within 48 hours of discharge