OUTPATIENT MANAGEMENT OF ACUTE COPD EXACERBATIONS

1. Suspect respiratory infection.
   • Consider antibiotic therapy for patients with recent increase in symptoms, change in
     sputum color or amount and/or worsening cough
   • Antibiotics of choice include:

<table>
<thead>
<tr>
<th>Antibiotic</th>
<th>Dose</th>
<th>Approximate Retail Cost for Therapy</th>
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</thead>
<tbody>
<tr>
<td><strong>FIRST-LINE ANTIBIOTICS</strong></td>
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<tr>
<td>Doxycycline</td>
<td>100 mg po BID x 5-7 days</td>
<td>$6.00</td>
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<tr>
<td>Bactrim DS (TMP/SMX)</td>
<td>1 DS tab po BID x 5-7 days</td>
<td>$9.00</td>
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<tr>
<td>Amoxicillin</td>
<td>250-500 mg po TID x 5-7 days</td>
<td>$10.50</td>
</tr>
<tr>
<td>Cephalexin</td>
<td>250 mg po TID x 5-7 days</td>
<td>$10.00</td>
</tr>
<tr>
<td><strong>SECOND-LINE ANTIBIOTICS</strong></td>
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<tr>
<td>Levaquin (levofloxacin)</td>
<td>500 mg po daily x 5-7 days</td>
<td>$89.00 (5) $125.00 (7)</td>
</tr>
<tr>
<td>Avelox (moxifloxacin) (NF)**</td>
<td>400 mg po daily x 5-7 days</td>
<td>$114.00</td>
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<tr>
<td>Ceftin (cefuroxime axetil)</td>
<td>250 or 500 mg po BID x 5-7 days</td>
<td>$68.00</td>
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<tr>
<td>Augmentin (amoxicillin/clav)</td>
<td>500/125 mg po BID x 5-7 days</td>
<td>$32.00</td>
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<tr>
<td>Augmentin (amoxicillin/clav)</td>
<td>875/125 mg po BID x 5-7 days</td>
<td>$22.00</td>
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<tr>
<td>Biaxin (clarithromycin)</td>
<td>500 mg po BID x 5-7 days</td>
<td>$52.00</td>
</tr>
<tr>
<td>Biaxin XL (clarithromycin-ER)</td>
<td>1000 mg po once daily x 5-7 days</td>
<td>$68.00</td>
</tr>
<tr>
<td>Zithromax (azithromycin)³</td>
<td>500 mg po daily x 3 days</td>
<td>$44.00</td>
</tr>
</tbody>
</table>

1. Products available generically are bolded. Avelox is non-formulary for Mercy Health Plans members.
3. 2 Consider first if patient has been recently hospitalized, resided in a nursing home, or has infiltrates noted on chest x-ray.
4. 3 Azithromycin is FDA approved for a 3-day course of treatment for AECB.

2. Start or increase short-acting inhaled beta2-agonist and inhaled anticholinergic agent:
   • The need for this high frequency of every 1-2 hours of short acting bronchodilators should be considered high risk
     of progression to severe exacerbation if no improvement achieved within hours
   • Don't hesitate to add steroid therapy and antibiotics per physician judgment
   • Use of spacers with MDI is strongly encouraged.
   • Remind patients NOT to discontinue other medications. The above regimens should be added to existing therapy.

<table>
<thead>
<tr>
<th></th>
<th>Albuterol</th>
<th>Ipratropium bromide</th>
</tr>
</thead>
</table>
| Mild to Moderate Exacerbation | Begin with 3-4 puffs q4h
If 3 to 4 puffs q4h not effective, then 3
to 4 puffs q1-2h, if tolerated, until clinical
improvement occurs | 3-4 puffs q3-4h                                 |
| Severe Exacerbation   | 6-8 puffs q2h
(ATS Consensus Statement, 1995)               | 6-8 puffs q3-4h                       |
3. If patient is unable to use an MDI, start or increase nebulizer treatment to maximum doses.
   • Albuterol 2.5 mg
   • Ipratropium inhalation solution 0.5 mg

4. The addition of a combination long acting beta2-agonist with inhaled steroid is an individual decision
   but may be associated with increased pneumonia. Inhaled anticholinergics should be considered in
   moderate to severe disease. It is often effective, but if the patient fails or side effects like urinary reten-
   tion or blurred vision develop then it should be discontinued.

5. Is patient on maximal dose of 40 to 60 mg per day of prednisone equivalent dose?
   • If yes, patient should be referred on an emergent basis for specialist consultation or consider admission
     to hospital.

6. Indications for systemic corticosteroid therapy include:
   • Patients who recently stopped taking steroids for recent acute exacerbation (physician judgment)
   • Physician judgment
   • Patients who are experiencing a 5% decrease in O2 saturation from baseline
     and have associated symptoms.
   • PEF <30% of predicted or significant decrease from baseline
   • Patients not responding to initial bronchodilator therapy

7. Steroid dosing
   • Recommended dose of 0.6 to 1mg/kg/day orally
   • Once the patient is stable, taper dose over a 2 week period monitoring for relapse of the exacerbation.
     Goal is to wean the patient, and if not possible, then treat with the smallest effective dose.

8. If patient is on theophylline, measure plasma theophylline concentration and adjust doses to obtain
   concentration of 5 to 12 mcg/ml.
   • No evidence to support introduction of theophylline in acute COPD exacerbation. Consider initiating
     low dose theophylline when patient is stable.

9. If no improvement within 24 to 48 hours consider an alternate diagnosis or resistant disease, as well as a
   pulmonary consultation and/or hospitalization.

10. Taper treatment to maintenance regimen with careful follow-up:
   • As patient’s level of function improves, reduce the intensity of bronchodilator therapy down to the
     usual level of treatment over the course of a few days.
   • Office visit two weeks post exacerbation as indicated.

11. Patients who are stabilized after aggressive drug therapy but continues to have hypoxemia may require
    home oxygen therapy on a temporary basis. Need to have an oxygen therapy assessment and appropri-
    ate follow-up.

12. Review patient’s maintenance medications.

13. Consider referral for pulmonary rehab and smoking cessation.

14. Check pneumococcal and influenza vaccination status.

15. Consider care management referral for psychosocial assessment and/or telephonic monitoring.