



Admission Orders Acute Exacerbation of COPD (AECOPD)

Admit to Dr. _____ Hospitalist Family Physician Respirologist/I.M.
Notify Family Doctor _____ re admission
Allergy & Type of Reaction _____ (full name)

Date YYYY/MM/DD	Time	Action By	Physician's Orders
			<p>Directions</p> <ul style="list-style-type: none"> Indicate order by <input checked="" type="checkbox"/> the appropriate box Omit an order by placing a single line or n/a (not applicable) through the entry Enter additional orders in space provided or on a blank order sheet <p>* See back page for further guideline information</p> <p>Resuscitation Status:</p> <p><input type="checkbox"/> Code level 1 – All care including CPR <input type="checkbox"/> Code level 2 – <input type="checkbox"/> No CPR - Patient requests intubation and mechanical ventilation if indicated <input type="checkbox"/> No CPR - No intubation or mechanical ventilation. <input type="checkbox"/> Code level 3 – Comfort measures only <input type="checkbox"/> Not known or documented/level 1 until changed.</p> <p>Additional _____ Directives _____</p> <p>Diet <input type="checkbox"/> regular <input type="checkbox"/> ↑protein, ↑calorie <input type="checkbox"/> diabetic <input type="checkbox"/> cardiac <input type="checkbox"/> other _____</p> <p>Activity <input type="checkbox"/> mobilize T.I.D. plus B.R. privileges <input type="checkbox"/> other _____ <input type="checkbox"/> walk in hall as tolerated</p> <p>Vitals: SpO₂ TPR B.P. <input type="checkbox"/> T.I.D. <input type="checkbox"/> q4h x 24h then reassess <input type="checkbox"/> other _____</p> <p>Weight Height <input type="checkbox"/> on admission <input type="checkbox"/> daily am <input type="checkbox"/> on admission</p> <p>Investigations</p> <p>ABGs* <input type="checkbox"/> done in ER <input type="checkbox"/> required on room air @ _____ hr. <input type="checkbox"/> not required <input type="checkbox"/> required on current O₂ @ _____ hr.</p> <p>CXR PA/lat <input type="checkbox"/> done in ER <input type="checkbox"/> required <input type="checkbox"/> not required</p> <p>ECG <input type="checkbox"/> done in ER <input type="checkbox"/> required <input type="checkbox"/> with chest pain <input type="checkbox"/> not required</p> <p>Echo <input type="checkbox"/> not required <input type="checkbox"/> required/indications _____</p> <p>Blood Studies <input type="checkbox"/> CBC & diff <input type="checkbox"/> Electrolytes, glucose <input type="checkbox"/> Creatinine <input type="checkbox"/> Theophylline level <input type="checkbox"/> Magnesium, phosphate (Indicated if under nourished) <input type="checkbox"/> Alpha 1 Antitrypsin level if emphysema and age < 40 or no smoking history <input type="checkbox"/> Blood culture x 2 if temp > 38.5 <input type="checkbox"/> Other _____</p> <p>Sputum studies <input type="checkbox"/> not required <input type="checkbox"/> C&S and gram stain</p> <p>Urine Studies <input type="checkbox"/> not required <input type="checkbox"/> routine <input type="checkbox"/> routine and microscopic</p> <p>Other Studies _____ _____</p>

Proof

* Practice Points For Exacerbation in COPD

Prognosis

- Baseline FEV₁ correlates with survival.
- **2 Year Survival rates:** With a post bronchodilator
 - FEV₁ 20 – 29% → 65%
 - FEV₁ 30 – 39% → 83%
- **Mortality Rate:** Exacerbation and pCO₂ > 50 6 - 12 months rate is → 33% and 43% respectively
Mechanical Ventilation → 20 – 60 %

ABGs

- A pH of < 7.25 will most likely require BIPAP and/or ICU care. A respirologist or intensivist should be contacted immediately.
- Usually in acute respiratory acidosis the pH decreases by 0.08 for every 10mm Hg increase in pCO₂.
- Chronic respiratory acidosis the HCO₃ usually increases 3 – 4 mmol/L for every 10 mm Hg increase in pCO₂.

O₂

Goal: to correct life threatening hypoxemia without causing a fall in the pH (<7.26)

- Use smallest amount of supplemental O₂ required to achieve goal. **Aim for oxygen saturations of 87-92%.**
- Initial ABGs showing hypercapnia or acidosis give O₂ by Venturi mask or Cold Nebulizer delivers a more predictable O₂ concentration than nasal prongs.
- **ABGs should be repeated x 1 20-30 min. after any change** in the O₂ when patient is unstable, then as per physician order.
- If the inspired O₂ causes a worsening of the pH (< 7.26) and the SaO₂ remains unacceptably low then this patient requires alternate therapies (BIPAP, ICU). Consult respirologist or intensivist immediately.

Antimicrobial Therapy

- If patient has recently been on antibiotics, consider a different class of antibiotic.
- These guidelines reflect local susceptibility data and may differ from Alberta Med. Assoc. Guidelines.

Corticosteroids

Rationale: Oral corticosteroids for acute exacerbations of COPD have been shown to reduce treatment failures, decrease length of stays.

Duration: 2 week course of corticosteroids is as effective as an 8 week tapering course. Tapering schedule is not required for a 2 week course of prednisone.

Dosage: Optimal dose not determined. SCOPE trial used high dose initial therapy (methylprednisone 125 mg IV Q6h x 72 hours). Usually exacerbations can be safely treated with Prednisone 50 mg daily x 10-14 days, d/c without taper.

Long-Term Supplemental O₂

Benefits:

- Supplemental O₂ is the **only drug shown** to confer a survival benefit. Benefit is seen in patients with a PaO₂ < 55 (or < 60 in the setting of pulmonary hypertension, cor pulmonale or secondary polycythemia)
- The patient must wear the O₂ a **minimum of 15 hours/day.**
- There is no survival benefit of supplemental O₂ in patients with adequate PaO₂

Sedatives

- Avoid sedatives, hypnotics and narcotics if at all possible, especially if respiratory acidosis exists.

Key References/Resources:

- Aaron S.D., Vandemheen K.L., Hebert P., Dales R., Stiell I.G., Ahuja J., Dickenson G., Brison R., Rowe B.H., Dreyer J., Yetisir E., Cass D., Wells G., Outpatient Oral Prednisone after Emergency Treatment of Chronic Obstructive Pulmonary Disease, N Engl J Med 2003; 348:2618-2625, June 26, 2003
- Alberta Medical Assoc., The Management of Acute Bronchitis, Dec. 2000
- Alberta Medical Assoc., The Management of Acute Exacerbation of Chronic Bronchitis, Dec. 2000
- Canadian Respiratory Review Panel, Guidelines for the Treatment of Chronic Obstructive Pulmonary Disease, 1998
- Canadian Thoracic Society and Canadian Infectious Disease Society Guidelines for Acute Exacerbation of Chronic Bronchitis - Draft, 2003
- Dr. C. Chan, Dr. J. Conly, Dr. M. Miller, Dr. K. Slayter and Dr. G. Stiver, Editors and Peer Review Panel, An Evidence-based Appraisal of the New Respiratory Fluoroquinolones in Lower Respiratory Tract Infections, University of Manitoba, Summer 2002. [Funded by Janssen - Ortho Inc. with statement against bias].
- R.A. Pauwels, A.S. Buist, P.M. Calverly, C.R. Jenkins, and S.S. Hurd, Global Strategy for the Diagnosis, Management and Prevention of Chronic Obstructive Pulmonary Disease, Am J Resp Critical Care Med. Vol. 163, pp. 1256-1276, 2001
- Local expert opinion and consensus between CHR Respiratory Medicine, Internal Medicine, Family Medicine, and Emergency Medicine, 2002
- Division of Respiratory Medicine accepts accountability for annual review and update with change in evidence.

Date YYYY/MM/DD	Time	Action By	Physician's Orders
			<p>Management:</p> <p>Bronchodilators:</p> <p>MDI with Spacer or Powder</p> <p><input type="checkbox"/> Salbutamol 100 mcg/puff MDI 2 puffs <input type="checkbox"/> qid <input type="checkbox"/> q4h while awake & <input type="checkbox"/> q1h prn</p> <p><input type="checkbox"/> Ipratropium 20 mcg/puff MDI <input type="checkbox"/> 2 puffs <input type="checkbox"/> qid <input type="checkbox"/> q4h while awake</p> <p style="padding-left: 150px;"><input type="checkbox"/> 4 puffs</p> <p><input type="checkbox"/> Combivent <input type="checkbox"/> 2 puffs <input type="checkbox"/> 4 puffs <input type="checkbox"/> qid <input type="checkbox"/> or <input type="checkbox"/> q4h while awake</p> <p><input type="checkbox"/> Salmeterol (Serevent) 25 mcg/puff 2 bid</p> <p><input type="checkbox"/> Formoterol (Oxeze) 12 mcg 1 bid</p> <p><input type="checkbox"/> Tiotropium (Spiriva) 18 mcg daily</p> <p style="padding-left: 150px;">- May continue to use own</p> <p><input type="checkbox"/> Other _____</p> <p>_____</p> <p><input type="checkbox"/> RTs to review inhaler technique</p> <p>Wet nebulizers: regular dosing <input type="checkbox"/> Ipratropium 0.5 mg/salbutamol 2.5 mg q4h</p> <p style="padding-left: 150px;"><input type="checkbox"/> Ipratropium 0.25 mg q4h <input type="checkbox"/> Ipratropium 0.5 mg q4h</p> <p style="padding-left: 150px;">and <input type="checkbox"/> Salbutamol 2.5 mg q4h <input type="checkbox"/> Salbutamol 5 mg q4h</p> <p style="padding-left: 100px;">Treat x 48 hours then contact Respiratory Therapy to reassess</p> <p>Wet nebulizers: <input type="checkbox"/> Salbutamol q 1 h prn <input type="checkbox"/> 2.5 mg <input type="checkbox"/> 5 mg</p> <p style="padding-left: 150px;"><input type="checkbox"/> Other _____</p> <p>Oxygen*</p> <p>Titrate to: <input type="checkbox"/> SpO₂ sat > 90% (not a CO₂ retainer) <input type="checkbox"/> or</p> <p style="padding-left: 150px;"><input type="checkbox"/> CO₂ retainer - Aim for SpO₂ 87-92%</p> <p>Delivery Options: <input type="checkbox"/> Nasal prongs <input type="checkbox"/> or</p> <p style="padding-left: 150px;"><input type="checkbox"/> Venturi Mask or Cold Neb. controlled FIO₂ recommended for acute hypercapnia.</p> <p>Antimicrobial Therapy:*</p> <p>If chest x-ray indicates pneumonia treat for pneumonia. These antibiotic suggestions apply to AECOPD and do not apply to community acquired pneumonia.</p> <p>If two or more of the following use antimicrobials: <input type="checkbox"/> Increased dyspnea <input type="checkbox"/> Increased sputum volume</p> <p style="padding-left: 150px;"><input type="checkbox"/> Increased purulent sputum</p> <p>Antibiotics</p> <p><input type="checkbox"/> Azithromycin 500 mg first dose, then 250 mg po daily x 4 days</p> <p><input type="checkbox"/> Cefuroxime axetil 250 mg po BID x 7 days</p> <p><input type="checkbox"/> Clarithromycin 500 mg po BID x 7 days</p> <p><input type="checkbox"/> Doxycycline 200 mg po first dose, then 100 mg po daily x 5 days</p> <p><input type="checkbox"/> Septra DS 1 po BID x 7 days</p> <p>Other _____</p> <p style="padding-left: 150px;">Recommended for Severe Stage</p> <p style="padding-left: 150px;"><input type="checkbox"/> Clavulin 500 mg po TID x 7 days</p> <p style="padding-left: 150px;"><input type="checkbox"/> Levofloxacin 500 mg po Daily x 7 days</p> <p style="padding-left: 150px;"><input type="checkbox"/> Other fluoroquinolones _____</p> <p>_____</p> <p>Corticosteroids*</p> <p style="padding-left: 150px;"><input type="checkbox"/> Prednisone 50 mg po daily x 10 days Discontinue with no taper.</p> <p style="padding-left: 150px;"><input type="checkbox"/> Other: _____</p> <p>Consider Nicotine Replacement Therapy if appropriate and follow-up plan can be initiated.</p> <p>_____</p> <p>IV fluids: <input type="checkbox"/> Saline lock _____</p> <p style="padding-left: 150px;"><input type="checkbox"/> Other: _____</p> <p>_____</p> <p>Consultation:</p> <p style="padding-left: 150px;"><input type="checkbox"/> Cardiology <input type="checkbox"/> Internal medicine <input type="checkbox"/> Respiratory medicine <input type="checkbox"/> Other _____</p> <p style="padding-left: 150px;"><input type="checkbox"/> O.T. <input type="checkbox"/> P.T. <input type="checkbox"/> Assess and treat <input type="checkbox"/> Respiratory Therapy (teaching)</p> <p>Discharge Planning:</p> <p style="padding-left: 150px;"><input type="checkbox"/> Transition Services (Home care, Continuing care, Transition unit)</p> <p style="padding-left: 150px;"><input type="checkbox"/> Social Work</p> <p style="padding-left: 150px;"><input type="checkbox"/> COPD Next Steps - 934-3602</p> <p style="padding-left: 150px;"><input type="checkbox"/> Spirometry on day of discharge</p> <p style="padding-left: 150px;"><input type="checkbox"/> ABGs on room air on day of discharge (for home O₂)*</p> <p style="padding-left: 150px;"><input type="checkbox"/> Refer to outpatient dietitian if BMI [kg/H(m²)] < 18.5 or > 27</p> <p>Smoker: <input type="checkbox"/> Provide Stop Smoking Information "Thinking about quitting" (Fax 215-4630)</p> <p style="padding-left: 150px;"><input type="checkbox"/> Nicotine Replacement Therapy (See Family Physician within 1 week)</p> <p>Annual Flu vaccine: <input type="checkbox"/> up to date <input type="checkbox"/> give 0.5ml IM during flu season (Oct.-Mar.)</p> <p>Pneumococcal vaccine: <input type="checkbox"/> up to date <input type="checkbox"/> give 0.5ml IM on day of discharge</p> <p style="padding-left: 150px;">(revaccination @ 5 yrs. considered for those at highest risk for invasive infection)</p> <p><input type="checkbox"/> 'Short' Discharge Summary to family physician (Form # 00970) (see back p.2)</p> <p><input type="checkbox"/> Complete Patient Discharge and Prescription [Form # 101651]</p>
Physician's Signature			

Eligibility Criteria for Influenza and Pneumococcal Vaccines

Influenza

Pneumococcal

<ol style="list-style-type: none"> 1. 65 years and over 2. 2 years to 64 years with any of the following: 	<ol style="list-style-type: none"> 1. 65 years and over 2. 2 years to 64 years with any of the following:
<ul style="list-style-type: none"> • Chronic Anemia/hemoglobinopathy • Children (6 mo. - 18 years) on long term ASA • Health Care Workers, students and volunteers in a health care facility • Household contacts with high-risk people who cannot be vaccinated • Other Target Groups: (Cups, PCDC, drop in center, Safeworks) • Chronic Pulmonary Disorders • (Bronchopulmonary dysplasia (BPD)), Cystic Fibrosis (CF), Asthma • Cancer 	<ul style="list-style-type: none"> • Functional or anatomic asplenia (includes sickle cell disease). When possible vaccine should be given at least 10-14 days before splenectomy • Chronic Cerebrospinal fluid leak • Chronic Liver Disease (eg. Cirrhosis) Alcoholism • Pulmonary (COPD, Emphysema), - Asthma alone is not an indication for this vaccine

Common Indications for **both** Influenza and Pneumococcal Vaccines Include:

- Chronic Cardiac Disorders (**Not** Hypertension alone)
- Diabetes Mellitus and other chronic metabolic diseases
- Chronic Kidney Disease (eg., chronic renal disease)
- Immunodeficiency, Immunosuppression (due to underlying disease and/or therapy), antimetabolites or systemic corticosteroids
- Residents of Continuing Care facilities
- Pregnant Women **only if** in high risk eligible category
- May be given during breastfeeding

Do not give influenza or pneumococcal vaccines if:

- Patient has had previous anaphylactic reaction to vaccine
- Patient has developed Guillian-Barre Syndrome (GBS) within six to eight weeks of a previous influenza vaccine
- Known allergy to eggs (influenza vaccine), manifested as hives, mouth and throat swelling, breathing difficulty, hypotension, shock.

Revaccination:

“At present, routine revaccination is not recommended but revaccination should be considered for those of any age at highest risk of invasive infection (functional or anatomic asplenia or sickle-cell disease; debilitating cardiorespiratory disease; hepatic cirrhosis; chronic renal failure or nephrotic syndrome; HIV infection; and immunosuppression related to disease therapy)”.

Canadian Immunization Guide (6th Edition, 2002)