Asthma/COPD/ Pneumonia/Pulmonary Embolism

Nursing Orders
- If patient has pneumonia, please calculate PORT score Source
- If patient has pneumonia, please calculate CURB-65. Source

Laboratory
- Lactate, serum
- Complete blood cell count with automated white blood cell differential
- Basic metabolic panel
- Comprehensive metabolic panel
- D-dimer (increased false positives in pt. > 65; hypercoagulable states; inflammatory processes; recent trauma; recent surgery)
- Pregnancy test, urine, point-of-care measurement
- Blood cultures times 2 (from 2 separate sites. Recommended for all patients with pneumonia going to ICU)

Diagnostic Tests
- T wave inversion in leads III and V1 are associated with pulmonary embolism.
- Consider PERC rule and Wells criteria to help risk stratify for pulmonary embolism. Source Source
- For patients without obvious cause for exacerbation of COPD, consider PE Source
- 12-lead ECG
- Radiograph, chest, 1 view
- Radiograph, chest, 2 views
- CT Chest
- CTA Chest
- V/Q Scan

Respiratory
- Administer oxygen to maintain O2 sat at greater to or equal to 90%.
- Oxygen administration 2 L/min via NC titrate to 4 L/min to maintain sat of 90% or greater
- Oxygen administration NRB
- Oxygen administration venturi mask
- Biphasic positive airway pressure (BIPAP) FIO@ _______% Bleed in Oxygen ___ LPM
- Inspiratory Pressure ______ Expiratory Pressure_____
- Heliox through closed system (BiPap or NRB) and O2 bleed in to maintain sat at 90% or > prn Source
- Initiate ventilator management protocol.
- Ventilator settings Mode ______
  Inspiratory Pressure ______
  PEEP ______
  FIO2 ______%
  Rate____
  Vt _____
  Pressure Support ___
  - ABG
  - VBG

IV Fluids
- Saline lock
- Sodium Chloride 0.9%
- Lactated Ringers Solution
- Bolus

Medications Source
  Antipyretics

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acetaminophen /TYLENOL 650 milligram orally or rectally now
acetaminophen /TYLENOL 1000 milligram orally

**Steroids**  [Source]
- There is no evidence that high dose parenteral steroids offer any advantage over oral steroids in COPD exacerbation.  [Source]
- 2 days of oral decadron is as efficacious for adults as 5 days of prednisone for asthma exacerbations.  [Source]
  - predniSONE /DELTASONE 60 mg orally [Source]
  - dexamethasone /DECADRON 10 mg IVP
  - dexamethasone /DECADRON 16 mg orally
  - methylPREDNISolone /SOLUMEDROL 125 mg IVP

**Bronchodilators/Anticholinergics**
- albuterol sulfate 2.5 mg/0.5 ml neb solution /VENTOLIN 2.5 mg/0.5 mL neb solutions times __ 1,__,2__,__3
- albuterol sulfate/VENTOLIN  5 mg/0.5 ml neb solution times 1,2,3
- albuterol /VENTOLIN nebulizer continuous 10 mg/hr
- albuterol-ipratropium/DUO-NEB 2.5mg-0.5mg/3mL solution for inhalation times 1, 2, 3
- albuterol-ipratropium/DUNE 5 mg-0.5 mg/3 ml soln for inhalation times 1, 2, 3
- ipratropium/ATROVENT 0.02% inhalation solution times 1,2,3
- magnesium sulfate 2 G IVPB over 10 minutes [Source]

**Adrenergics**
- epinephrine 0.3 mg (1:1,000) SC (IM if patient is vasoconstricted)
- Epinephrine bolus of 1 mL (0.1 mg) of 1:10,000 in 100 mL of normal saline over 10 minutes [Source]
- Epinephrine IV infusion: 1-4 mcg/min (adult dose)

**Antibiotics**
- Currently the requirement is that antibiotics be given within 6 hours of arrival for patients with CAP.
  - levofloxacin /LEVAQUIN 750 milligram orally
  - levofloxacin /LEVAQUIN in D5W 750mg/150ml intravenously piggy back
  - azithromycin /ZITHROMAX 500 milligram orally
  - azithromycin /ZITHROMAX 500 milligram intravenously
  - ceftriaxone/ROCEPHIN 1 g IV piggy back
  - piperocillin-tazobactam/ ZOSYN 3.375 G IV SOLUTION
  - tobramycin/NEBCIN 5 mg/kg IPV per pharmacy
  - vancomycin/VANCOCIN 1,000 mg IV solution
  - trimethaprim-sulfamethoxazole/BACTRIM DS (for pneumocystis jiroveci) 2 tabs orally

**Pulmonary Embolism**

**Anticoagulants**
- Strong RCT evidence does not currently exist to guide management of PE. Once the diagnosis of PE is made, one can risk stratify to Massive PE (shock, SBP < 90 mm Hg, or arrest) to Sub-Massive (normotensive but ECHO or CT shows RV dysfunction and or positive biomarkers) and non-Massive (normotensive and no RV dysfunction). Massive PE thrombolitics vs embolectomy are indicated. Non-massive PE anticoagulation alone. Sub-Massive PE ([positive troponin and BNP and Right heart strain on US (loss of IVC inspiratory collapse or on CT RV/LV dimension > 0.9) very close monitoring is warranted and the patient may benefit from lytics. Risks and benefits of giving and not giving thrombolytic therapy for each individual patient must be carefully considered.

**Low-Molecular-Weight Heparin**
- enoxaparin /LOVENOX 1 milligram/kilogram subcutaneously now

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Unfractionated Heparin
Heparin (for PE/DVT)
  □ heparin 80 unit/kilogram intravenously once maximum 10,000 units; initial dose
  □ heparin 18 unit/kilogram per hour intravenously maximum 40,000 units/day maintenance dose

TPA for PE
  □ alteplase/ACTIVASE 100 mg IV over 2 hours. Towards end of infusion or immediately when the PTT is less than 2 times normal bolus with heparin and initiate infusion.

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