1. Dexamethasone (0.6 mg/kg, maximum dose of 16 mg) PO solution or IV solution given PO, or
2. Prednisolone/prednisone (1 mg/kg, maximum dose 60 mg) PO

ii. IV steroid options for critically ill patients include:
1. Dexamethasone (0.6 mg/kg, maximum dose of 16 mg) IV/IM, or
2. Methylprednisolone (2 mg/kg, maximum dose 125 mg) IV/IM

iii. Other steroids at equivalent doses may be given as alternatives

c. Magnesium sulfate (40 mg/kg IV, maximum dose of 2 g) over 10–15 minutes should be administered for severe bronchoconstriction and concern for impending respiratory failure. Consider decreased dose of 1 g IV for geriatric patients

d. Epinephrine (0.01 mg/kg of 1 mg/mL solution IM, maximum dose of 0.3 mg) should only be administered for impending respiratory failure as adjunctive therapy when there are no clinical signs of improvement with the above treatments

5. Adults with suspected pulmonary edema due to acute heart failure or fluid overload (such as dialysis noncompliance):
   a. Restoration of adequate oxygenation and ventilation should precede or be accomplished simultaneously with other medication therapies below
      i. CPAP/BiPAP: See Airway Management Guideline for goals of care and escalation of interventions
   b. SBP less than 100 mmHg
      i. IV fluid bolus 250–500 mL
      ii. Consider vasopressor: Norepinephrine 0.02–2 mcg/kg/min
   c. SBP less than 160 mmHg
      i. Nitroglycerin
         1. 0.4 mg SL, can repeat every 5 minutes for SBP greater than 100 mmHg
   d. SBP >= 160 mmHg or MAP greater than 120
      i. Nitroglycerin
         1. 0.8 mg SL, can repeat every 5 minutes for SBP greater than 100 mmHg
         2. Consider IV nitroglycerin infusion titrated to blood pressure
6. Suspected pulmonary edema due to other noncardiogenic causes (such as irritant inhalation, abrupt opioid withdrawal). Provide supportive care to promote adequate oxygenation.
   a. Inhaled Medications
      i. While albuterol 2.5 mg nebulized is usually sufficient for mild wheezing without clinical distress, albuterol 5 mg nebulized (or 6 puffs metered dose inhaler) should be administered to patients in respiratory distress with signs of bronchospasm (e.g., known asthmatics, quiet wheezers). Repeat at this dose with unlimited frequency for ongoing respiratory distress
      ii. Ipratropium 0.5 mg nebulized should be given up to 3 doses in conjunction with albuterol

Patient Safety Considerations

1. Normal $EtCO_2$ (35–45 mmHg) with tachypnea and respiratory distress is an indicator of impending respiratory failure
2. The use of nitrates should be avoided in any patient who has used a phosphodiesterase inhibitor within the past 48 hours. Examples are sildenafil, vardenafil and tadalafil, which are used for erectile dysfunction and pulmonary hypertension. Also avoid use in patients receiving intravenous epoprostenol or treporstenil which are used for pulmonary hypertension