

Bureau of Emergency Preparedness, EMS

Initial Date: 11/15/2012 Revised Date: 06/03/2023

Pulmonary Edema/Cardiogenic Shock

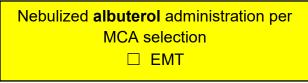
This protocol is to be followed for patients in respiratory distress due to pulmonary edema with or without hypotension (i.e., CHF/fluid overload or Cardiogenic Shock). Pulmonary edema usually presents with crackles which should be continuously evaluated as they may evolve with treatments.

Michigan

ADULT CARDIAC

PULMONARY EDEMA/CARDIOGENIC SHOCK

- 1. Follow General Pre-Hospital Care-Treatment Protocol.
- 2. Initiate supplemental oxygen by non-rebreather mask.
- 3. Position patient upright with legs dependent, if possible.
- 4. Consider CPAP per CPAP-Procedure Protocol
- 5. Establish IV access without delaying treatment per Vascular Access & IV Fluid Therapy-Procedure Protocol.
- (S) 6. If wheezing, administer albuterol 2.5 mg/3ml NS nebulized (Per MCA selection may be EMT skill) per Medication Administration-Medication Protocol



- (S) 7. If crackles (with or without wheezing) administer **nitroglycerin** as outlined below.
 - a. Inquire of all patients regardless of identified gender if they have taken an erectile dysfunction medication or medications used to treat pulmonary hypertension in the last 48 hours.
 - i. If yes, DO NOT ADMINISTER NITROGLYCERIN AND CONTACT MEDICAL CONTROL.
 - b. Prior to IV administration if no erectile dysfunction medication and systolic BP is above 120 mmHG, nitroglycerin 0.4mg sublingual may be administered up to a maximum of 3 doses.
 - c. If SBP above 100 mmHg (with IV/IO in place), administer nitroglycerin 0.4 mg SL, repeat every 3-5 minutes if SBP remains above 100 mmHg.
 - d. If wheezing continues, continue **nitroglycerin** 0.4 mg SL and consider: albuterol/ipratropium bromide per Respiratory Distress-Treatment Protocol
- ↔ 8. If SBP is below 100 mmHG treat for cardiogenic shock.
 - a. Prepare (epinephrine 10 mcg/mL) by combining 1mL of 1mg/10mL epinephrine in 9mL NS
 - i. Administer 20 mcg (2 mL epinephrine 10 mcg/mL) IV/IO
 - ii. Repeat every 3-5 minutes
 - iii. Titrate SBP greater than 90 mm/Hg.
 - 9. If indicated, consider an advanced airway see Airway Management-Procedure Protocol.
- 🕪 10. Obtain 12-lead ECG (May be a BLS or Specialist skill, per MCA selection, see **12** Lead ECG-Procedure Protocol). Follow MCA transport protocol if ECG is positive for ST segment elevation myocardial infarction (STEMI) and alert hospital as soon as possible.



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Medication Protocols Albuterol Epinephrine Nitroglycerin Section 5-4