

CHF / Pulmonary Edema

History

- Congestive heart failure
- Past medical history
- Medications (digoxin, Lasix, Viagra / sildenafil, Levitra / vardenafil, Cialis / tadalafil)
- Cardiac history --past myocardial infarction

Signs and Symptoms

- Respiratory distress, bilateral rales
- Apprehension, orthopnea
- Jugular vein distention
- Pink, frothy sputum
- Peripheral edema, diaphoresis
- Hypotension, shock
- Chest pain

Differential

- Myocardial infarction
- Congestive heart failure
- Asthma
- Anaphylaxis
- Aspiration
- COPD
- Pleural effusion
- Pneumonia
- Pulmonary embolus
- Pericardial tamponade
- Toxic Exposure

	Airway Protocol(s) AR 1, 2, 3 as indicated
	Chest Pain and STEMI Protocol AC 4 if indicated
B	12 Lead ECG Procedure
	Nitroglycerin 0.3 / 0.4 mg Sublingual Repeat every 5 minutes x 3 if prescribed to patient and (BP >100)
P	Cardiac Monitor
A	IV / IO Procedure

Assess Symptom Severity

MILD
Normal Heart Rate
Elevated or Normal BP

MODERATE / SEVERE
Elevated Heart Rate
Elevated BP

CARDIOGENIC SHOCK
Tachycardia followed by bradycardia
Hypertension followed by hypotension

A	Nitroglycerin 0.3 / 0.4 mg SL Repeat every 5 minutes

B	Airway CPAP Procedure
A	Nitroglycerin 0.3 / 0.4 mg SL Repeat every 5 minutes
P	Consider Furosemide 40 mg IV ONLY IE <i>Transport time > 30 minutes Known CHF / Daily Lasix Afebrile</i>

B	Remove CPAP if in place
	Adult Hypotension / Shock Protocol AM 5 if indicated

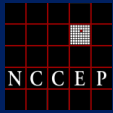
Improving

YES

NO

Notify Destination or Contact Medical Control

Adult Cardiac Protocol Section



CHF / Pulmonary Edema

Pearls

- **Recommended Exam: Mental Status, Skin, Neck, Lung, Heart, Abdomen, Back, Extremities, Neuro**
- **Items in Red Text are key performance measures used to evaluate protocol compliance and care**
- **Furosemide and Opioids have NOT been shown to improve the outcomes of EMS patients with pulmonary edema. Even though this historically has been a mainstay of EMS treatment, it is no longer routinely recommended.**
- **Avoid Nitroglycerin in any patient who has used Viagra (sildenafil) or Levitra (vardenafil) in the past 24 hours or Cialis (tadalafil) in the past 36 hours due to potential severe hypotension.**
- **Carefully monitor the level of consciousness, BP, and respiratory status with the above interventions.**
- **If CHF / Cardiogenic shock resulting from inferior MI (II, III, aVF), consider Right Sided ECG (V3 or V4). If ST elevation noted Nitroglycerin and / or opioids may cause hypotension requiring normal saline boluses.**
- If patient has taken nitroglycerin without relief, consider potency of the medication.
- Contraindications to opioids include severe COPD and respiratory distress. Monitor the patient closely.
- Consider myocardial infarction in all these patients. Diabetics, geriatric and female patients often have atypical pain, or only generalized complaints.
- Allow the patient to be in their position of comfort to maximize their breathing effort.
- Document CPAP application using the CPAP procedure in the PCR. Document 12 Lead ECG using the 12 Lead ECG procedure.
- **EMT may administer Nitroglycerin to patients already prescribed medication. May give from EMS supply.**
- Agency medical director may require Contact of Medical Control.