Chest Pain/STEMI Administrative Guideline

History	Signs and Symptoms	Differential
• Age • Medications (Viagra / sildenafil, • Levitra / vardenafil, Cialis / tadalafil) • Past medical history (MI, Angina, • Diabetes, post menopausal) • Recent physical exertion	• CP (pain, pressure, aching, vice-like • tightness) • Location (substernal, epigastric, arm, • jaw, neck, shoulder) • Radiation of pain • Pale, diaphoresis • Shortness of breath • Nausea, vomiting, dizziness • Time of onset	• Angina vs. Myocardial infarction • Pericarditis • Pulmonary embolism • Asthma / COPD • Pneumothorax • Aortic dissection or aneurysm • GE reflux • Chest wall injury or pain • Pleural pain

Nontraumatic chest pain or anginal equivalent in patient 45 years or older or high risk patient (see pearls)

Age <45

Obtain 12 Lead ECG

For pediatric patients consider transport per **SAEMS Critical Pediatric Triage Protocol**

If high risk and under 45 years, consider continuous cardiac monitoring

B

If dyspneic or hypoxemic administer oxygen and titrate to maintain SpO_2 of 94%
May obtain 12 lead ECG for paramedic interpretation
IV access (if authorized)

Administer **aspirin 324 mg** PO (chewed)

Administer **250 mL NS/LR fluid bolus** for SBP < 110
May repeat as needed

P

IV access
Obtain 12 lead ECG and transmit, when available

Administer **250 mL NS/LR fluid bolus** for SBP < 110
May repeat as needed

Administer **ondansetron 4 mg** IV, as needed for nausea

Consider **morphine 0.1 mg/kg** IV/IO
2-5 mg increments every 5 minutes, to a max total dose 20 mg
Hold for hypotension

Consider **nitroglycerin 0.4 mg** SL tablets
if SBP > 110 mm Hg
May repeat every 5 minutes until pain relieved or to a max of 3 doses

STEMI ALERT
(STEMI = 1 mm ST segment elevation in ≥ 2 contiguous limb leads or 2 mm elevation in precordial leads (v leads)

Obtain second IV

Transport patient to **Cardiac Receiving Center** or **Certified Chest Pain Center** with 24/7 cath lab capabilities

Patients without STEMI can be transported to the nearest receiving facility

CHF exacerbation/ pulmonary edema on exam

Consider CHF/Fluid Overload AG if indicated

Education /Pearls

Acute Coronary Syndrome (ACS) is a common cause of chest pain and occurs when the blood supply of the heart cannot meet the demand, leading to ischemia or even infarct (permanent damage). Myocardial ischemia can present in a number of ways, including:

- **Chest pain or discomfort**: The most common symptom is chest pain or pressure, usually on the left side of the body, but can be the right side.
- **Pain in other areas**: Pain can radiate to the neck, jaw, shoulder, arm, back, or stomach.
- **Shortness of breath**: This can occur when you're physically active or at rest.
- **Other symptoms**: Other symptoms include nausea, vomiting, sweating, fatigue, feeling lightheaded or dizzy, and a fast or irregular heartbea

Risk factors for ACS include diabetes, smoking, hypertension, hyperlipidemia, family history of cardiac disease, and atherosclerotic disease (prior stroke, heart attack, or peripheral vascular disease).

- Consider ACS as the cause of chest pain in patients >45 y with multiple risk factors or in younger patients with recent cocaine/methamphetamine use.
- If presentation is severe or delayed, patients may present with acute heart failure, syncope and/or shock; consider fluid or pressors, as appropriate.
- Performance of serial ECGs is recommended if the first is not diagnostic and your suspicion for a cardiac event is high, or if you note a change in the patient's condition

ST Elevation Myocardial Infarction (STEMI):

- Diagnostic criteria: Anginal symptoms plus one of the following:
  - 1 mm ST elevation in 2 or more contiguous limb leads (I, II, III, avF, aVR, aVL)
  - 2 mm ST elevation in 2 or more select precordial leads (V1-V6)
- Reciprocal changes on the ECG make myocardial infarction more likely, but is not required for diagnosis of MI.
- Treatment timing goals:
  - Obtain and transmit ECG within 5 minutes
  - Provide STEMI alert within 10 minutes
  - Time at scene less than 15 minutes

Aspirin: Apart from timely transport and recognition of ACS, aspirin is the only primary pre-hospital intervention in ACS that **improves survival.**

- Do not withhold aspirin while obtaining IV access.

Morphine: Morphine provides analgesia but offers no survival benefit.

- Monitor for hypotension after administration.
- Opioids may be repeated per dosing guidelines.

Nitroglycerin: Nitroglycerin dilates vasculature and may ease pain caused by myocardial ischemia.

- The use of **nitroglycerine is contraindicated** within 24-48 hours of the use of erectile dysfunction medication (e.g. sildenafil, tadalafil).
- Remember when providing nitroglycerin to patients with inferior STEMI patterns (II, III, aVF), that this may represent a right-sided MI, that could lead the patient to be more dependent on preload. These adverse events can by managed, as long as you are prepared to administer fluids if hypotension occurs. Monitor closely for hypotension after administration..
- The use of nitroglycerin offers no survival benefit in chest pain.
- Nitroglycerin may be repeated per guidelines