



# CHEST PAIN: CARDIAC AND STEMI

## History

- Age
- Medications (Viagra / sildenafil, Levitra / vardenafil, Cialis / tadalafil)
- Past medical history (MI, Angina, Diabetes, post menopausal)
- Allergies
- Recent physical exertion
- Onset / Palliation / Provocation
- Quality (crampy, constant, sharp, dull, etc.)
- Region / Radiation / Referred
- Severity (1-10)
- Time (onset /duration / repetition)

## Signs and Symptoms

- 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**
- Women:
  - More likely to have dyspnea, N/V, weakness, back or jaw pain

## Differential

- Trauma vs. Medical
- Angina vs. Myocardial infarction
- Pericarditis
- Pulmonary embolism
- Asthma / COPD
- Pneumothorax
- Aortic dissection or aneurysm
- GE reflux or Hiatal hernia
- Esophageal spasm
- Chest wall injury or pain
- Pleural pain
- Overdose: Cocaine or Methamphetamine

	<b>12 Lead ECG Procedure</b>
B	<b>ASPIRIN 81 mg x 4 PO (chewed) Or 325 mg PO</b>
	<b>NITROGLYCERIN 0.3 / 0.4 mg Sublingual</b> Repeat every 5 minutes x 3 <i>if prescribed to patient and (BP ≥ 100)</i>
P	Cardiac Monitor

**Acute MI / STEMI**  
*See box to right*

**Transport based on:**  
**STEMI**  
**EMS Triage and Destination Plan**  
**Immediate Notification of Facility**  
**Immediate Transmission of ECG**  
*if capable*  
**Keep Scene Time to ≤ 15 Minutes**

**Acute MI / STEMI**

**STEMI Definition:**

- ≥ 1 mm ST Segment elevation in ≥ 2 contiguous leads
- ≥ 2 mm ST/J point elevation in V2-V3 for men
- ≥ 1.5 mm ST/J point elevation in V2-V3 for women
- ECG software diagnoses Acute MI (symptomatic)

	IV / IO Protocol UP 6
A	<b>NITROGLYCERIN 0.3 / 0.4 mg SL</b> Repeat every 5 minutes as needed
	<b>NITROGLYCERIN PASTE 1 inch (if SBP &gt; 100 mmHg)</b>
P	<b>MORPHINE 2 – 4 mg IV / IO</b> Repeat <b>2 mg</b> every 5 minutes as needed <b>(Maximum 10 mg)</b> Or <b>FENTANYL 50 – 100 mcg IV / IO</b> Repeat <b>50 mcg</b> every 20 minutes as needed <b>(Maximum 3 mcg/kg)</b>
	Hypotension / Shock Protocol AM 5 <b>if indicated</b>
	CHF / Pulmonary Edema Protocol AC 5 <b>if indicated</b>

B	<i>If transporting to Non PCI Center</i> <b>Reperfusion Checklist</b>
A	<b>NORMAL SALINE or LACTATED RINGERS</b> Consider <b>250-500 ml bolus IV / IO</b> for pre-cath hydration (see Pearls)

**Notify Destination or Contact Medical Control**

Adult Cardiac Protocol Section



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Withhold Aspirin therapy after verifying patient has taken correct dose of non-coated Aspirin.

Only administer Aspirin to patients age 21 or greater.

12-lead ECG criteria:

- > 30 years old with non-traumatic chest pain
- > 45 years old with:
  - Syncope
  - Significant weakness
  - Rapid heart rate/palpitations
  - Difficulty breathing/shortness of breath

Any patient requiring an ALS assessment that includes utilizing the cardiac monitor or obtaining a 12-lead ECG should be attended by a PARAMEDIC.

Any deviation from the established guidelines or dosing requires orders from Medical Control.

## Pearls

- **Recommended Exam: Mental Status, Skin, Neck, Lung, Heart, Abdomen, Back, Extremities, Neuro**
- **Items in Red Text are the key performance indicators for the EMS Acute Cardiac (STEMI) Care Toolkit**
- **Nitroglycerin:**
  - 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.
  - Nitroglycerin may cause hypotension during any type myocardial infarction. It is NOT more likely to cause hypotension in an inferior MI and should NOT be avoided unless already hypotensive.
- **STEMI (ST-Elevation Myocardial Infarction)**
  - Positive Reperfusion Checklist should be transported to the appropriate facility based on STEMI EMS Triage and Destination Plan.
  - Consider placing 2 IV sites in the left arm: Many PCI centers use the right radial artery for intervention.
  - Consider placing defibrillator pads on patient as a precaution.
  - **CONSIDER NORMAL SALINE OR LACTATED RINGERS BOLUS OF 250 – 500 ML AS PRE-CATH HYDRATION.**
  - Scene time goal is < 15 minutes.
  - Document and time-stamp facility STEMI notification and make notification as soon as possible.
  - Document the time of the 12-Lead ECG in the PCR as a Procedure along with the interpretation (Paramedic).
- **Cardiac related symptoms in men and women:**
  - Pressure, squeezing, fullness, or pain in the chest.
  - Pain or discomfort in one or both arms, the back, neck, jaw, or stomach.
  - Shortness of breath with or without chest pain.
  - Sweating, nausea, weakness, and/or lightheadedness.
  - **Women, diabetic patients, and the elderly often experience only weakness, shortness of breath, nausea/vomiting, and back or jaw pain.**
- If patient has taken nitroglycerin without relief, consider potency of the medication.
- Monitor for hypotension after administration of nitroglycerin and opioids.
- **EMT may administer Nitroglycerin to patients already prescribed medication. May give from EMS supply.**
- Agency medical director may require Contact of Medical Control prior to administration.