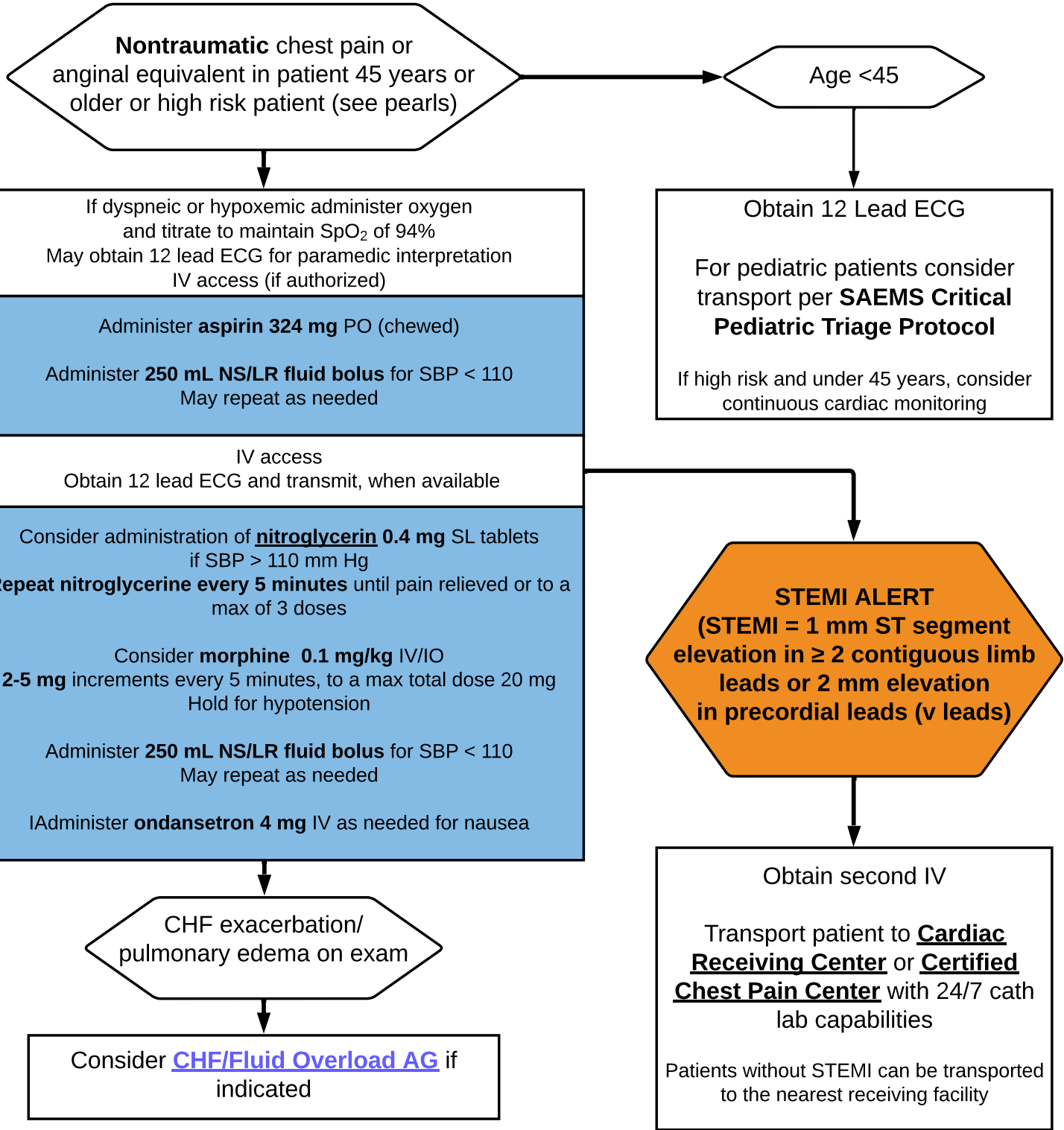


# Chest Pain/STEMI Administrative Guideline



History	Signs and Symptoms	Differential
<ul style="list-style-type: none"> <li>• Age</li> <li>• Medications (Viagra / sildenafil, Levitra / vardenafil, Cialis / tadalafil)</li> <li>• Past medical history (MI, Angina, Diabetes, post menopausal)</li> <li>• Recent physical exertion</li> </ul>	<ul style="list-style-type: none"> <li>• CP (pain, pressure, aching, vice-like tightness)</li> <li>• Location (substernal, epigastric, arm, jaw, neck, shoulder)</li> <li>• Radiation of pain</li> <li>• Pale, diaphoresis</li> <li>• Shortness of breath</li> <li>• Nausea, vomiting, dizziness</li> <li>• Time of onset</li> </ul>	<ul style="list-style-type: none"> <li>• Angina vs. Myocardial infarction</li> <li>• Pericarditis</li> <li>• Pulmonary embolism</li> <li>• Asthma / COPD</li> <li>• Pneumothorax</li> <li>• Aortic dissection or aneurysm</li> <li>• GE reflux</li> <li>• Chest wall injury or pain</li> <li>• Pleural pain</li> </ul>





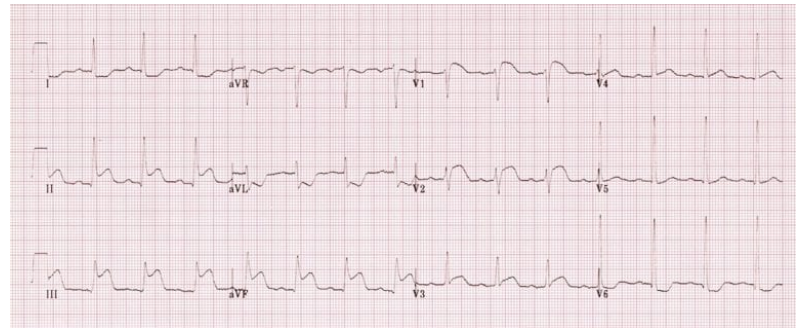
## Education /Pearls

Acute Coronary Syndrome (ACS) is a common cause of chest pain. ACS occurs when the blood supply of the heart cannot meet the demand of the heart, leading to cardiac ischemia or even infarct (permanent damage); causes of ACS include sudden blockages of coronary arteries or conditions that (1) increase demand on the heart or (2) decrease the ability of the heart to meet that demand. Myocardial ischemia and infarct may present as angina, which is typically described as chest pain radiating to the jaw or arm(s) and accompanied by diaphoresis, nausea/vomiting, and shortness of breath. Additional atypical symptoms may include epigastric/retrosternal pain or dizziness, and are commonly seen in the elderly, diabetics, and women; have a low threshold to perform a 12-lead EKG in these patients.

- 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

**Nitroglycerin:** Nitroglycerin dilates vasculature and may ease pain caused by myocardial ischemia. It offers no survival benefit.

- Do not withhold nitroglycerine while obtaining IV access.
- The use of **nitroglycerine is contraindicated** within 24-48 hours of the use of erectile dysfunction medication (e.g. sildenafil, tadalafil).
- Use caution when providing nitroglycerin to patients that demonstrate inferior STEMI patterns (II, III, aVF), as this may represent a right-sided MI that is preload dependent (see EKG). These inferior STEMIs are frequently associated with arrhythmias.
- Nitroglycerin may be repeated per guidelines.
- Monitor for hypotension after administration.



**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. Morphine should be used with caution in unstable angina/non-STEMI due to an association with increased mortality.

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

### 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 MI very likely to be cause of the ST elevation and may indicate worse/larger MI
- Treatment timing goals:
  - Obtain and transmit ECG within 5 minutes
  - Provide STEMI alert within 10 minutes
  - Time at scene less than 15 minutes