

I. General Considerations

- A. The causes of chest pain are many. They range from very benign conditions to life threatening problems and are often difficult to differentiate in the field in all age groups.
 - B. All chest pain should be considered a serious problem until a physician has assessed it to be otherwise.
 - C. Most deaths from heart attack occur within a few hours of the onset of symptoms and are usually caused by acute arrhythmias. Be prepared for the patient to arrest.
 - D. Time to definitive care for many chest pain related problems is critical; don't delay transport.
 - E. Constant monitoring of the patient's condition is essential. Ventricular fibrillation frequently occurs without warning.
 - F. Abnormal ECG strips (particularly ST and T changes) can be due to technical factors or non-acute cardiac disease.
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II. History

Perform a focused history and physical exam with particular attention to:

- A. Are there any associated symptoms?
 - 1. Sweating (diaphoresis)
 - 2. Nausea
 - 3. Vomiting
 - 4. Shortness of breath or trouble breathing?
 - 5. Dizziness
 - 6. Loss of consciousness
 - 7. Palpitations
 - 8. Cough
 - 9. Fever
 - 10. Sputum production
 - 11. Wheezing
 - 12. Trouble lying flat
 - 13. Ankle swelling
 - B. Is there a history of trauma?
 - C. Obtain the past medical history:
 - 1. Has the patient had high blood pressure, diabetes, elevated cholesterol, a stroke, angina, a pacemaker, an implanted defibrillator, or an irregular pulse?
 - 2. Does the patient have respiratory diseases such as chronic bronchitis, pneumonia, COPD, asthma?
 - 3. Has the patient had any surgeries in the past, especially coronary bypass surgery, surgery of the blood vessels?
 - 4. Is the patient a smoker?
 - D. What medications has the patient been, or is the patient supposed to be, taking (including over the counter medications)? Use of Sildenafil (Viagra®) or other erectile dysfunction medications (GMP-specific phosphodiesterase Type 5 inhibitors) within 48 hours is a contraindication to nitroglycerine administration.
 - E. Does the pain change with position, movement or breathing?
 - F. Has patient taken aspirin within the preceding 24 hours?
 - G. Has the patient taken nitroglycerin for this event?
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III. Physical Exam

- A. Perform an initial assessment.
- B. Perform a focused history and physical exam with particular attention to:
 - 1. Is there evidence of chest trauma or paradoxical chest movement?
 - 2. Palpate (feel) the chest to see if there is tenderness.
 - 3. Assess the neck:
 - (a) is the trachea midline?
 - (b) is there subcutaneous emphysema?
 - (c) Are the neck veins distended?
 - 4. Are the ankles swollen?
- C. Assess the breath sounds if you are trained to do so:
 - 1. Are they present and equal right and left?
 - 2. Are there rales, rhonchi (crackles), or wheezes?
- D. Assess the skin:
 - 1. Is it warm, hot or cool?
 - 2. Is it dry or moist?
 - 3. Note any color changes (e.g., pale, cyanotic, red).
 - 4. Is there bruising or evidence of injury?
 - 5. Is there a rash?

Paramedic

- E. Assess the cardiac rhythm and, if authorized by medical direction, obtain a 12-lead EKG.
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IV. Treatment**Basic**

- A. Establish an airway, maintain as indicated, suction as needed.
- B. Administer high concentration oxygen.
- C. Reassure the patient.
- D. Place the patient in a position of comfort.
- E. Monitor vital signs frequently.
- F. **EMT-Bs-** *If the patient has their own prescribed nitroglycerin tablets or sublingual nitroglycerin spray, contact on-line medical direction for orders to administer one tablet or one puff of spray. Complete an on-going assessment, including a full set of vital signs. On-line medical direction may order additional doses every 5 minutes, up to three total doses. Do not give additional nitroglycerin if hypotension (systolic BP less than 100mm Hg) develops.*

Intermediate

- G. Establish IV access. If it seems highly probable that a patient is suffering from an acute coronary syndrome, limit the number of IV attempts as subsequent bleeding after thrombolysis may be difficult to control.
- H. ▲ *If ordered by on-line medical direction, administer 0.4 mg nitroglycerin tablet or spray sublingually every 5 minutes as long as needed for pain while closely monitoring vital signs. Do not give additional nitroglycerin if hypotension (systolic BP less than 100mm Hg) develops.*
- I. ▲ *Administer 81-325 mg aspirin PO (chewable is acceptable) if the patient has no known hypersensitivity to NSAIDs (non-steroidal anti-inflammatory drugs), bleeding ulcers or anticoagulant history (Standing order for paramedics).*

Paramedic

- J. Assess and monitor the cardiac rhythm; treat arrhythmias/dysrhythmias per applicable protocols.
- K. If the chest pain is felt to be cardiac in origin by the paramedic, administer 0.4 mg nitroglycerin sublingually every 5 minutes as long as pain persists and systolic blood pressure remains over 100 mm Hg. If pain persists after 3 nitroglycerin doses and systolic blood pressure remains above 100, apply 1 to 2 inches of nitroglycerin paste topically. If in the opinion of the paramedic the patient appears to be in congestive heart failure or pulmonary edema, refer to the difficulty breathing protocol subsection.
- L. Consider use of nitrous oxide or narcotic pain management of medical direction's choice.