

**1**  
Chest discomfort suggestive of ischemia

**2**  
**EMS assessment and care and hospital preparation:**

- Monitor, support ABCs. Be prepared to provide CPR and defibrillation
- Administer **oxygen, aspirin, nitroglycerin, and morphine** if needed
- If available, obtain 12-lead ECG; if ST-elevation:
  - Notify receiving hospital with transmission or interpretation
  - Begin fibrinolytic checklist
- Notified hospital should mobilize hospital resources to respond to STEMI

**3**

**Immediate ED assessment (<10 min)**

- Check vital signs; evaluate oxygen saturation
- Establish IV access
- Obtain/review 12-lead ECG
- Perform brief, targeted history, physical exam
- Review/complete fibrinolytic checklist check contraindications
- Obtain initial cardiac marker levels, initial electrolyte and coagulation studies
- Obtain portable chest x-ray (<30 min)

**Immediate ED general treatment**

- Start **oxygen** at 4 L/min; maintain O2 sat >90%
- **Aspirin** 160 to 324 mg (if not given by EMS)
- **Nitroglycerin** sublingual, spray or IV
- **Morphine** IV if pain not relieved by nitroglycerin

**4**  
Review initial 12-lead ECG

**5**  
ST elevation or new or presumably new LBBB; strongly suspicious for injury ST-Elevation MI (STEMI)

**6**  
Start adjunctive treatments as Indicated (see text for contraindications) Do not delay reperfusion

- **β-Adrenergic receptor blockers**
- **Clopidogrel**
- **Heparin** (UFH or LMWH)

**7**  
Time from onset of Symptoms ≤12 hours?

> 12 hours → 11

≤ 12 hours → 8

**8**  
**Reperfusion strategy:**  
Therapy defined by patient and center criteria

- **Be aware of reperfusion goals:**
  - **Door-to-balloon inflation (PCI)** goal of 90 min
  - **Door-to-needle (fibrinolysis)** goal of 30 min
- **Continue adjunctive therapies** and:
  - **Ace inhibitors/angiotensin receptor blocker (ARB)** within 24 hours of symptom onset
  - **HMG CoA reductase inhibitor** (statin therapy)

**9**  
ST depression or dynamic T-wave inversion; strongly suspicious for ischemia High-Risk Unstable Angina/ Non-ST-Elevation MI (UA/NSTEMI)

**10**  
Start adjunctive treatments as Indicated (see text for contraindications)

- **Nitroglycerin**
- **β-Adrenergic receptor blockers**
- **Clopidogrel**
- **Heparin** (UFH or LMWH)
- **Glycoprotein IIb/IIIa inhibitor**

**11**  
Admit to monitored bed Assess risk status

**12**  
**High-risk patient:**

- Refractory ischemic chest pain
- Recurrent/persistent ST deviation
- Ventricular tachycardia
- Hemodynamic instability
- Signs of pump failure
- **Early invasive strategy**, including catheterization and revascularization for shock within 48 hours of an AMI
- **Continue ASA, heparin and other therapies as indicated.**
- **ACE inhibitor/ARB**
- **HMG CoA reductase inhibitor** (statin therapy)

Not at high risk: cardiology to risk-stratify

**13**  
Normal or nondiagnostic changes in ST segment or T wave Intermediate/Low-Risk UA

**14**  
Develops high or intermediate risk criteria OR troponin-positive?

Yes → 10

No → 15

**15**  
Consider admission to ED chest pain unit or to monitored bed in ED

**Follow:**

- Serial cardiac markers (including troponin)
- Repeat ECG/continuous ST segment monitoring
- Consider stress test

**16**  
Develops high or intermediate risk criteria OR troponin-positive?

Yes → 12

No → 17

**17**  
If no evidence of ischemia of infarction, can discharge with follow-up

**Acute Coronary Syndromes Algorithm**