Acute Coronary Syndromes Algorithm

Symptoms suggestive of ischemia or infarction

- EMS assessment and care and hospital preparation
  - Monitor, support ABCs. Be prepared to provide CPR and defibrillation
  - Administer aspirin and consider oxygen, nitroglycerin, and morphine if needed
  - Obtain 12-lead ECG; if ST elevation:
    - Notify receiving hospital with transmission or interpretation; note time of onset and first medical contact
    - Notified hospital should mobilize hospital resources to respond to STEMI
  - If considering prehospital fibrinolysis, use fibrinolytic checklist

Concurrent ED assessment (<10 minutes)
- Check vital signs; evaluate oxygen saturation
- Establish IV access
- 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
- If O₂ sat <94%, start oxygen at 4 L/min, titrate
- Aspirin 160 to 325 mg (if not given by EMS)
- Nitroglycerin sublingual or spray
- Morphine IV if discomfort not relieved by nitroglycerin

Symptoms (ST elevation or new or presumably new LBBB; strongly suspicious for injury ST-elevation MI (STEMI))
- Start adjunctive therapies as indicated
- Do not delay reperfusion

Time from onset of symptoms ≤12 hours

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

ST depression or dynamic T-wave inversion; strongly suspicious for ischemia
- High-risk unstable angina/non-ST-elevation MI (UA/NSTEMI)
- Troponin elevated or high-risk patient
  - Consider early invasive strategy if:
    - Refractory ischemic chest discomfort
    - Recurrent/persistent ST deviation
    - Ventricular tachycardia
    - Hemodynamic instability
    - Signs of heart failure

Troponin elevated or high-risk patient
- Consider early invasive strategy if:
  - Refractory ischemic chest discomfort
  - Recurrent/persistent ST deviation
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  - Hemodynamic instability
  - Signs of heart failure

Start adjunctive treatments as indicated
- Nitroglycerin
- Heparin (UFH or LMWH)
- Consider: PCI p-blockers
- Consider: Clopidogrel
- Consider: Glycoprotein IIb/IIIa inhibitor

Admit to monitored bed
- Assess risk status
- 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

Reperfusion goals:
- Therapy defined by patient and center criteria
  - Door-to-balloon inflation (PCI) goal of 90 minutes
  - Door-to-needle (fibrinolysis) goal of 30 minutes

Yes
- Clinical high-risk features
- Dynamic ECG changes consistent with ischemia

No
- Troponin elevated

Consider admission to ED chest pain unit or to appropriate bed and follow:
- Serial cardiac markers (including troponin)
- Repeat ECG/continuous ST-segment monitoring
- Consider noninvasive diagnostic test

Develops 1 or more:
- Abnormal diagnostic noninvasive imaging or physiologic testing?

Yes
- If no evidence of ischemia or infarction by testing, can discharge with follow-up

No
- Normal or nondiagnostic changes in ST segment or T wave
- Low-/Intermediate-risk ACS

Low-/Intermediate-risk ACS

Heart Association