"MOANBATHS"
— what it means in real time —

Using the Acute Coronary Syndromes Algorithm for Managing the Patient

The Acute Coronary Syndromes Algorithm outlines the steps for assessment and management of a patient with ACS. The algorithm begins with the assessment of chest pain and whether it is indicative of ischemia. The assessment and management begin with the EMS responder outside of the hospital who can, initiate care. An initial 12-lead ECG can also be obtained early in the assessment of the patient which will help to determine the appropriate destination facility. Treatment and assessment continues when the patient arrives at the hospital, following the time sequences suggested in the algorithm.

Out-of-Hospital Care

Decision 1: Does the patient have chest discomfort suggestive of ischemia?

An affirmative answer starts the algorithm.

Assess and care for the patient using the primary and secondary surveys.

Early on in the care of the patient, facility destination should be considered. In the patient who is infarcting it is imperative that they be transported to a facility capable of percutaneous transluminal coronary intervention if within 90 minutes and the patient's condition permits transport to that facility.

1. Monitor and support ABCs (airway, breathing, and circulation).
    - Take vital signs.
    - Monitor rhythm.
    - Be prepared to administer CPR if the need arises. Watch for it.
    - Use a defibrillator if necessary.
2. If the patient's pulse oximetry is less than 94% administer oxygen at a level that increases the saturation to between 94 and 99%. If the patient has a history of COPD administer oxygen if their pulse ox falls below 90% on room air
3. If the patient is short of breath, administer oxygen no what the oxygen saturation reveals.
4. Obtain a 12-lead ECG.
5. Interpret or request an interpretation of the ECG. If ST elevation is present, transmit the results to the receiving hospital. Hospital personnel gather resources to respond to STEMI. If unable to transmit the

trained prehospital provider should interpret the ECG and the cardiac catheterization laboratory should be notified based upon that interpretation.

In-Hospital Care

Within the first 10 minutes that the patient is in the Emergency Department (ED), work through the following:

1. Check vital signs.
2. Evaluate oxygen saturation. If less than 94% or the patient is short of breath, administer oxygen as needed to increase oxygen saturation to between 94 and 99%.
3. Establish IV access.
4. Obtain or review a 12-lead ECG (if not established in the field).
5. Look for risk factors for ACS, cardiac history, signs and symptoms of heart failure by taking a brief, targeted history.
6. Perform a physical exam.
7. Obtain a portable x-ray (less than 30 minutes)

Begin general treatment in the ED:

1. If the patient did not receive aspirin from the EMS provider, give aspirin (160 to 325 mg).
2. Administer nitroglycerin 0.4mg q 5 minutes, either sublingual, spray. Withhold Nitroglycerin on the patient who is experiencing Right Ventricular Infarction. (Inferior Inf with hypotension and (+) Right Sided EKG.)
3. Give the patient a narcotic pain reliever such as Fentanyl, Morphine or Dilaudid if pain is not relieved by nitroglycerin. Morphine is the drug of choice for infarction, but should be used with caution in the unstable angina patient.

Decision 2: Classify the patient according to presentation of ST-segment.

The 12-lead ECG is at the heart of the decision pathway in the management of ischemic chest pain and is the only means of identifying STEMI.

Note: The ECG classification of ischemic syndromes is not meant to be exclusive.

STEMI (ST-segment elevation myocardial infarction)	High-risk unstable angina (UA) or NSTEMI (non-ST-segment	Intermediate or low risk UA

elevation myocardial infarction)

Definition: ST segment elevation greater than 1 mm (0.1 mV) in 2 or more contiguous precordial leads or 2 or more adjacent limb leads **-OR-** New or presumed new left bundle branch block	**Definition:** Ischemic ST-segment depression of 0.5 mm (0.5 mV) or greater **-OR-** Dynamic T wave inversion with pain or discomfort / Transient ST elevation of 0.5 mm or greater for less than 20 minutes	**Definition:** Normal or non-diagnostic changes in ST segment or T wave that are inconclusive and require further risk stratification / Includes people with normal ECGs and those who have ST-segment deviation in either direction that is less than 0.5 mm or T wave inversion of 2 mm or 0.2 mV or less
Classification: INFARCTION	Classification: ISCHEMIA	Classification: NORMAL?

Management is based on the results of the ECG.

ECG shows ST-segment elevation.

Confirm how much time has passed since the onset of symptoms.

If less than 12 hours has elapsed, do the following:

- Develop a reperfusion strategy based on the patient's and the hospital's criteria. Unless impossible, the patient should be taken to the cardiac catheterization laboratory for PCI
- Continue adjunctive therapies.
- If indicated, add the following treatments:
    - ACE inhibitors/angiotensin receptor blocker (ARB) within 24 hours of symptom onset
    - HMG-CoA reductase inhibitor (statin therapy)

Results of cardiac markers, chest x-ray, and laboratory studies should not delay reperfusion therapy unless there is a clinical reason.

Start adjunctive treatments for STEMI, as indicated:

- Beta-adrenergic receptor blocker
- Clopidogrel
- Heparin (unfractionated heparin or low-molecular-weight heparin / UFH or LMWH)

If the patient is classified with NSTEMI or high-risk unstable angina, follow this section of the algorithm.

Decision 2: Classify the patient according to presentation of ST-segment.

ECG shows ST depression or dynamic T-wave inversion

Start adjunctive treatments for NSTEMI, as indicated:

- Nitroglycerin
- Beta-adrenergic receptor blocker
- Clopidogrel
- Heparin (UFH or LMWH)
- Glycoprotein IIb/IIIa inhibitor

If more than 12 hours has passed since the patient's onset of symptoms, do the following:

1. Admit patient to the hospital
2. Assess risk status

Continue ASA, heparin, and other therapies as indicated (ACE inhibitors, statins) for the high-risk patient characterized by:

- Refractory ischemic chest pain
- Recurrent or persistent ST deviation
- Ventricular tachycardia
- Hemodynamic instability
- Signs of pump failure

Decision 2: Classify the patient according to presentation of ST-segment.

ECG shows normal ECG or nonspecific ST-T wave changes

Consider admitting the patient to hospital or to a monitored bed in ED