Initial Therapy for Patients with ACS

- Aspirin 162 mg to 325 mg, if not already given
- Clopidogrel 75 mg if hypersensitivity to aspirin or major GI intolerance
- IV Unfractionated Heparin (UFH) or Subcutaneous Low Molecular Weight Heparin (LMWH)
- Beta-blocker if not contraindicated
- IV nitroglycerin for persistent or recurrent symptoms
- IV morphine as needed

Fibrinolytic therapy should not be given to patient with UA/NSTEMI unless ST-segment elevation/LBBB MI or a true posterior MI develops

Sidebar A - Antiplatelet and Anticoagulant Therapy

<table>
<thead>
<tr>
<th>DEFINITE ACS High Risk</th>
<th>LIKELY DEFINITE ACS Moderate Risk</th>
<th>POSSIBLE ACS Low Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspirin</td>
<td>Aspirin</td>
<td>Aspirin</td>
</tr>
<tr>
<td>IV heparin SQ LMWH</td>
<td>SQ LMWH or IV heparin</td>
<td></td>
</tr>
<tr>
<td>IV platelet GP IIb/IIIa receptor antagonist</td>
<td>Clopidogrel</td>
<td>Clopidogrel</td>
</tr>
</tbody>
</table>

Sidebar B - Indications for IIb/IIIa and Early Invasive Therapy in High Risk Patients

a. Recurrent angina/ischemia despite therapy
b. Elevated troponin (TnT or Tnl)
c. New or presumably new ST-segment depression

d. New/recurrent angina/ischemia

e. High risk findings on non-invasive testing
f. Depressed left ventricular LV systolic function (e.g., ejection fraction (EF) <0.40)
g. Hemodynamic instability (e.g., hypotension)
h. Sustained ventricular tachycardia
i. Previous PCI within 6 months
j. Prior CABG

Sidebar C - Indications for Angiography in Intermediate Risk Patients

- Severe resting LV dysfunction (LVEF <0.35)
- High-risk Duke treadmill score (score ≤11)
- Severe exercise LV dysfunction (exercise LVEF <0.35)
- Stress-induced large perfusion defect (particularly if anterior)
- Stress-induced moderate-size multiple perfusion defects
- Large fixed perfusion defect with LV dilation or increased lung uptake (thallium-201)
- Stress-induced moderate-size perfusion defect with LV dilation or increased lung uptake (thallium-201)
- Echocardiographic wall motion abnormality (involving >2 segments) developing at low dose of dobutamine (≤10 mg/kg/min) or at a low heart rate (<120 bpm)
- Stress echocardiographic evidence of extensive ischemia

Intermediate-Risk (1% - 3% annual mortality rate)

- Mild/moderate reducing left ventricular dysfunction (LVEF = 0.35 to 0.49)
- Intermediate-risk Duke treadmill score (>11 and < 5)
- Stress-induced moderate perfusion defect without LV dilation or increased lung uptake (thallium-201)
- Limited stress echocardiographic ischemia with wall motion abnormality only at higher doses of dobutamine involving ≤ two segments

Sidebar D: Results of Non-Invasive Testing

High-Risk (greater than 3% annual mortality rate)

1. Patient with definite/probable non-ST-segment elevation Acute Coronary Syndrome (ACS) (Unstable angina or non-ST-segment elevation MI)
2. Ensure emergency intervention
3. Admit to monitored bed, at appropriate level of care
4. Assess serial ECGs, and cardiac specific markers and lipid profile
5. ACEI for patients with diabetes or LV dysfunction
6. Treat exacerbating non-cardiac causes of unstable angina
7. Provide appropriate antiplatelet and anticoagulant therapy:
   a. Aspirin if not already done, clopidogrel if unable to take aspirin
   b. IV Heparin - low molecular weight or unfractionated
   c. Beta-blocker if not contraindicated
   d. IV nitroglycerin for persistent or recurrent symptoms
   e. IV morphine as needed

VA/DoD Clinical Practice Guideline
Management of Ischemic Heart Disease (IHD)
Module B Pocket Guide

Definite/Probable Non-ST-Segment Elevation Acute Coronary Syndrome (NSTE-ACS)

- Patient with definite/probable non-ST-segment elevation Acute Coronary Syndrome (ACS) (Unstable angina or non-ST-segment elevation MI)
- Ensure emergency intervention
- Admit to monitored bed, at appropriate level of care
- Assess serial ECGs, and cardiac specific markers and lipid profile
- ACEI for patients with diabetes or LV dysfunction
- Treat exacerbating non-cardiac causes of unstable angina
- Provide appropriate antiplatelet and anticoagulant therapy:
  - Aspirin if not already done, clopidogrel if unable to take aspirin
  - IV Heparin - low molecular weight or unfractionated
  - Beta-blocker if not contraindicated
  - IV nitroglycerin for persistent or recurrent symptoms
  - IV morphine as needed

VA access to full guideline: http://www.opp.med.va.gov/cpg/cpg.htm
DoD access to full guideline: http://www.QMO.amedd.army.mil

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High Risk

- Accelerating tempo of ischemic symptoms in the preceding 48 hours
- No high-risk feature, but one of the following features must be present:
  - Prior MI, peripheral or cerebrovascular disease, or coronary artery bypass graft (CABG)
  - Prior aspirin use

Intermediate Risk

- No high- or intermediate-risk feature, but any of the following features may be present:
  - Pulmonary edema, most likely related to ischemia
  - New or worsening mitral regurgitation (MR) murmur
  - S3 or new/worsening rales
  - Hypotension, bradycardia, or tachycardia
  - Age >75 years

Low Risk

- Normal or unchanged ECG during an episode of chest discomfort

**Feature**

- At least 1 of the following features must be present.
- No high-risk feature, but one of the following features must be present.
- No high- or intermediate-risk feature, but any of the following features may be present.

**History**

- Accelerating tempo of ischemic symptoms in the preceding 48 hours
- Prior MI, peripheral or cerebrovascular disease, or coronary artery bypass graft (CABG)
- Prior aspirin use

**Character of Pain**

- Prolonged ongoing rest pain (>20 minutes)
- Prolonged rest angina (>20 minutes), now resolved, with moderate or high likelihood of coronary artery disease (CAD) (see Table 6, Core Module)
- Rest angina (<20 minutes or relieved with rest or sublingual NTG)
- New-onset CCS Class III or IV angina in the past 2 weeks without prolonged rest pain (>20 minutes), but with moderate or high likelihood of CAD (see Table 6, Core Module)

**Clinical Findings**

- Pulmonary edema, most likely related to ischemia
- New or worsening mitral regurgitation (MR) murmur
- S3 or new/worsening rales
- Hypotension, bradycardia, or tachycardia
- Age >75 years

**ECG Findings**

- Dynamic ST-segment changes >0.05 mV
- BBB, new or presumed new
- Sustained ventricular tachycardia
- T-wave inversions >0.2 mV
- Pathological Q-waves
- Normal or unchanged ECG during an episode of chest discomfort

**Cardiac Markers**

- Elevated (e.g., TnT or TnI >0.1 ng/mL)
- Slightly elevated (e.g., TnT >0.01, but <0.1 ng/mL)
- Normal

**CARDIAC MARKERS IN BLOOD VS. TIME AFTER ONSET OF SYMPTOMS***

- Peak A, early release of myoglobin or CK-MB isoforms after AMI.
- Peak B, cardiac troponin after AMI.
- Peak C, CK-MB after AMI.
- Peak D, cardiac troponin after UA.

*Cardiac Troponins*

- Powerful tool for risk stratification.
- Greater sensitivity and specificity than CK-MB.
- Useful for the selection of therapy.
- Best single test to efficiently diagnose NSTEMI.
- Low sensitivity in very early phase of MI (i.e., <6 hours after onset of symptoms) and requires a repeat measurement at 8-12 hours, if negative.
- Limited ability to detect the late minor reinfarction.

*Data are plotted on a relative scale, where 1.0 is set at the AMI cutoff concentration. (Adapted from ACC/AHA 2002)*