ACC/AHA Chest Pain Guideline — Key Recommendations

Defining Chest Pain

Initial Triage (COR 1, LOE B-NR)

- Use early assessment of chest pain to triage patients based on likelihood of myocardial ischemia[1-7]

Terminology (COR 1, LOE C-LD)

- Avoid the term *"atypical chest pain"*
- Describe symptoms as:
    - **Cardiac**
    - **Possibly cardiac**
    - **Noncardiac** These terms are more specific and reduce misclassification[1-7]

Initial Evaluation

History (COR 1, LOE C-LD)

- Obtain a **focused history** that includes:
    - Symptom characteristics
    - Symptom duration
    - Associated features
    - Cardiovascular risk factor

Focus on the Uniqueness of Chest Pain in Women (COR 1, LOE B-NR)

- Women presenting with chest pain are at risk for **underdiagnosis**; cardiac causes should **always be considered**[1–7]

- History in women should emphasize **accompanying symptoms** more common in ACS (e.g., dyspnea, fatigue, nausea)[1–7] **(COR 1, LOE B-NR)**

Considerations for Older Patients With Chest Pain (COR 1, LOE C-LD)

- In patients **>75 years**, consider ACS when chest pain is accompanied by:
    - Shortness of breath

- o Syncope
- o Acute delirium
- o Unexplained fall

Considerations for Diverse Patient Populations (COR 1, LOE C-LD)

- Use **cultural competency training** to improve outcomes in patients from diverse racial and ethnic backgrounds

- When English is not a patient's primary language, use **formal medical translation services** to address language barriers

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Patient-Centric Considerations **(COR 1, LOE C-LD)**

- For **acute chest pain**, patients or bystanders should activate **9-1-1** to initiate EMS transport to the nearest ED

Physical Examination (COR 1, LOE C-EO)

- Perform an **initial focused cardiovascular examination** to:
  - o Aid in diagnosis of ACS
  - o Identify other life-threatening causes (e.g., aortic dissection, PE, esophageal rupture)
  - o Detect complications

Diagnostic Testing

Setting Considerations

- If no clear noncardiac cause is evident, obtain an **ECG** for patients with stable chest pain seen in office settings; refer to the ED if ECG is unavailable[1-5] **(COR 1, LOE B-NR)**

- Patients with suspected ACS or other life-threatening causes in the office setting should be **urgently transported to the ED**, ideally by EMS[1-9] **(COR 1, LOE C-LD)**

- In **all settings**, obtain and review an ECG within **10 minutes** of arrival for patients with acute chest pain[1,3,6,7,10] **(COR 1, LOE C-LD)**

- Measure **cardiac troponin (cTn)** as soon as possible after ED presentation in suspected ACS[8,9] **(COR 1, LOE C-LD)**

- **Avoid delayed ED transfer** for patients with suspected ACS initially evaluated in outpatient settings when diagnostic testing (e.g., cTn) is required **(COR 3: Harm, LOE C-LD)**

Electrocardiogram

- If the initial ECG is nondiagnostic, perform **serial ECGs** to detect ischemic changes, especially when **(COR 1, LOE C-EO)** [1]:

  - Clinical suspicion for ACS is high
  - Symptoms persist
  - Clinical status worsens

- Treat patients with ECG findings consistent with ACS according to **STEMI or NSTE-ACS guidelines**[1],[2] **(COR 1, LOE C-EO)**

- In patients with intermediate-to-high suspicion for ACS and a nondiagnostic ECG, **posterior leads (V7–V9)** are reasonable to evaluate for posterior MI[3]–[5] **(COR 2a, LOE B-NR)**

Chest Radiography (COR 1, LOE C-EO)

- Obtain a **chest radiograph** in acute chest pain to evaluate for alternative cardiac, pulmonary, or thoracic causes

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Biomarkers

- Serial **cardiac troponin (cTn)** measurements are useful to identify abnormal values and **rising or falling patterns** consistent with acute myocardial injury[1]-[21] **(COR 1, LOE B-NR)**

- **High-sensitivity cTn (hs-cTn)** is the **preferred biomarker** for acute chest pain because it improves detection and exclusion of myocardial injury and increases diagnostic accuracy[1],[7],[21]-[26] **(COR 1, LOE B-NR)**

- Clinicians should be familiar with the **99th percentile upper reference limit** for the specific cTn assay used at their institution[23],[26] **(COR 1, LOE C-EO)**

- With availability of cTn, **CK-MB and myoglobin are not useful** for diagnosing acute myocardial injury[27]-[32] **(COR 3, LOE B-NR)**

Patients With Acute Chest Pain and Suspected ACS (Not Including STEMI)

General Approach

- Clinical decision pathways (CDPs) should be used to **stratify patients into low-, intermediate-, or high-risk groups** to guide disposition and diagnostic evaluation[1-14] **(COR 1, LOE B-NR)**

- When serial troponins are used to exclude myocardial injury, recommended repeat intervals are **(COR 1, LOE B-NR)**:

    - **1–3 hours** for hs-cTn
    - **3–6 hours** for conventional cTn assays[16-17]

- Institutions should implement **standardized CDPs** with troponin sampling protocols tailored to the specific assay in use[18,19] **(COR 1, LOE C-LD)**

- Prior cardiac testing results should be **reviewed and incorporated** into CDPs when available[20-24] **(COR 1, LOE C-LD)**

- In patients with:

    - Normal ECG
    - Symptoms suggestive of ACS beginning ≥3 hours before ED arrival

    A **single hs-cTn below the limit of detection** at time zero is reasonable to exclude myocardial injury[1,3,25-29] **(COR 2a, LOE B-NR)**

Low-Risk Patients With Acute Chest Pain

- Patients with a **30-day risk of death or MACE <1%** should be designated as **low risk**[11] **(COR 1, LOE B-NR)**

- For low-risk patients with suspected ACS (<1% 30-day risk), it is reasonable to **discharge home** without admission or urgent cardiac testing[12-16] **(COR 2a, LOE B-R)**

Intermediate-Risk Patients With Acute Chest Pain

General Intermediate-Risk

- **Transthoracic echocardiography (TTE)** is recommended as a rapid bedside test to **(COR 1, LOE C-EO)**:

    - Establish ventricular and valvular function

- o Evaluate for wall motion abnormalities
- o Assess for pericardial effusion
- Management in an **observation unit** is reasonable to reduce length of stay and cost compared with inpatient admission[1-7] **(COR 2a, LOE A)**

Intermediate-Risk Patients With Acute Chest Pain and No Known CAD

Index Diagnostic Testing

Anatomic Testing

- **CCTA** is useful after a negative or inconclusive ACS evaluation to exclude atherosclerotic plaque and obstructive CAD[1-11] **(COR 1, LOE A)**

- **Invasive coronary angiography (ICA)** is recommended when **(COR 1, LOE C-EO)**:

  - o Moderate–severe ischemia is present, or
  - o There is recent (<1 year) abnormal stress testing, and
  - o No known CAD by prior anatomic testing
- CCTA is reasonable in patients with **previous mildly abnormal stress testing (<1 year)** to diagnose obstructive CAD[12,13] **(COR 2a, LOE C-LD)**

Stress Testing

- Exercise ECG, stress echocardiography, stress PET/SPECT MPI, or stress CMR are useful to diagnose myocardial ischemia[1,4,10,14-36] **(COR 1, LOE B-NR)**

Sequential or Add-On Testing

- **FFR-CT** is useful for stenoses of **40%–90%** on CCTA to diagnose vessel-specific ischemia and guide revascularization decisions[37-43] **(COR 2a, LOE B-NR)**

- After inconclusive stress testing, **CCTA** is useful to exclude atherosclerotic plaque and obstructive CAD **(COR 2a, LOE C-EO)**

- After inconclusive CCTA, **stress imaging** (echo, PET/SPECT MPI, or CMR) can be useful to diagnose ischemia **(COR 2a, LOE C-EO)**