Approach to Chest Pain

CARDIOVASCULAR

1.7%

KEY DECISION RULE
HEART score 0–3[5]
6-wk MACE incl. revasc at 0–3; 16.6% at 4–6, 50.1% at 7–10

Acute chest pain or an anginal equivalent (dyspnea, jaw, arm, epigastric) → 12-lead ECG within 10 min vs prior; BP both arms; hs-troponin 0 and 1–3 h; CXR[1,2,12] → **Shock, STEMI or a bedside red flag?**

Yes →

Emergency: cath lab, decompress, echo or CTA[2,6,11]

- New STE ≥1 mm ×2 leads (V2–3: ≥1.5–2.5 mm)[4]
- Posterior STEMI; Sgarbossa+ LBBB/paced[4,12]
- Hypotension, hypoxemia, VT/VF
- Tearing pain + pulse deficit/BP Δ >20 mmHg[6,12]
- Absent breath sounds, tracheal shift, ↓BP
- ↑JVP, muffled sounds, pulsus >10 mmHg[12]

→ **Cath lab: STEMI, unstable ACS; decompress; echo; CTA/TEE aorta**

If not: which system?

	Myocardial ischemia ~10% in ED	Aortic & pericardial	Pulmonary	GI & chest wall
CAUSES	• **STEMI** • **NSTEMI, unstable angina** • Angina, AS, HCM, spasm, Takotsubo	• **Acute aortic syndrome** • **Cardiac tamponade** • Pericarditis, myopericarditis	• **Pulmonary embolism** • **Tension pneumothorax** • Pneumonia, pleuritis	• **Esophageal rupture** • GERD, spasm, PUD, biliary, pancreatitis • Costochondritis, zoster, panic
CLUES	• Radiates to both arms (LR 2.6)[3] • Prior abnormal stress test (LR 3.1)[3] • ST depression on ECG (LR 5.3)[3]	• Abrupt severe or tearing pain to back[6] • Sharp, pleuritic, better sitting forward[10] • Friction rub; diffuse STE, PR depression[10]	• Pleuritic pain, dyspnea, hypoxemia[8] • Leg swelling; cancer, surgery, immobile[8] • Fever, cough, crackles, dullness	• Focal tenderness reproduces the pain[3] • Burning, meal-related, epigastric • Pain after retching; neck crepitus
WORKUP	• hs-Tn >99th %ile + rise/fall at 0, 1–3 h[2,4] • HEART score if not ruled in or out[5] • CCTA or stress test if intermediate[1]	• Out if ADD-RS ≤1 + D-dimer <500 µg/L[7] • Otherwise CT angiography of the aorta[6] • Echo: effusion, tamponade, AR[6,10]	• Wells + PERC, then D-dimer or CTPA[8,9] • CXR: pneumothorax, consolidation • Bedside echo: RV strain[8]	• Only once ACS is reasonably excluded[1] • Lipase, LFTs; RUQ ultrasound if biliary • CT with oral contrast if rupture suspected
MANAGE	• ASA 162–325 mg chewed; DAPT, heparin[2] • STEMI <12 h: PCI ≤120 min, else lytics[2,11] • NSTE-ACS: cath <24 h if GRACE >140[2]	• AAS: IV β-blocker; HR 60–80, SBP <120 mmHg[6] • Type A: emergency surgery; no lytics[6] • Pericarditis: NSAID + colchicine[10]	• PE: anticoagulate; lyse if shock[8] • Tension PTX: needle, then chest tube[12] • Pneumonia: antibiotics by severity	• GERD: PPI trial • Chest wall: NSAID, reassurance • Rupture: NPO, antibiotics, surgery

Stethopedia
stethopedia.ca/approach/chest-pain

Evidence [1] Gulati 2021, Circulation [2] Rao 2025, Circulation [3] Fanaroff 2015, JAMA [4] Thygesen 2018, J Am Coll Cardiol [5] Backus 2013, Int J Cardiol [6] Isselbacher 2022, Circulation [7] Nazerian 2018, Circulation [8] Creager 2026, Circulation [9] Kline 2008, J Thromb Haemost [10] Schulz-Menger 2025, Eur Heart J [11] Wong 2019, Can J Cardiol [12] Manual 2024–25, pp. 13–14, 32, 43