Chest Pain

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1. **Definition:** ACS = STEMI + NSTEMI + Unstable Angina
2. **History**: SOCRATES questions and risk factors (demographics, behavioral factors, family history)
    - Red flags:
        - Onset:
            - Sudden onset (aortic syndromes, PE, pneumothorax [PTX])
            - Gradual onset (ACS)
        - Character:
            - Dull pain (ACS)
            - Sharp, reproducible with palpation (less likely ACS)
        - Relieving/exacerbating factors:
            - Positional, pleuritic (less likely ACS)
            - Exertional (precursor to ACS)
    - Possible atypical symptoms in women, DM, elderly, and/or heart transplant recipients
3. **Physical Exam:**
    - Sick vs. not sick: what is the acuity, in distress?
    - Vitals: BP in both arms and radial pulse bilaterally: if discrepant (≥20 mmHg) consider aortic dissection; if bradycardia consider RCA occlusion
    - Murmurs: acute MR, VSD, free wall rupture (muffled heart sounds); JVD
    - Lung exam: decreased breath sounds (PTX)
    - Is the pain reproducible (costochondritis)?
4. **DDx (Can't Miss Diagnoses) –** similar to CPSolvers schema
5. **Diagnostic Tests:** *depends on DDx and pre-test probability*
    - ACS:
        - EKG (*compare to prior).* Often missed: RV infarct (right sided ECG), posterior MI (posterior ECG)
        - Troponin and CK-MB (use if considering reinfarction i.e., chest pain after PCI)
        - TTE (look for complication - MR, VSD, tamponade)
    - PE:
        - CT-PE
        - CXR (also helpful for PTX—air around lung, and esophageal rupture—air around mediastinum)
    - Aortic syndrome: CT-Aortogram
    - Other Labs: kidney function and coags (to determine contraindications to therapies)
6. **Treatment**
    - Risk stratification of NSTEMI and UA: TIMI score and/or GRACE score
    - Medical treatment:
        - 1st line: ASA 300mg chewable, heparin drip, nitroglycerin drip (*if bradycardic or potential RCA occlusion, may not be a good idea).*
        - *THROMBINS-A*
            - *Thienopyridines* – anti-platelets: ($P2Y_{12}$ inhibitors, e.g., clopidogrel)
            - *Heparin*
            - *RAAS inhibitors* – prevent remodeling (especially in reduced low LV)
            - *Oxygen:* if hypoxic. Several trials suggest harm in non-hypoxic pt
            - *Morphine:* for symptomatic benefit—not up-front, can mask ischemic symptoms
            - *Beta blockers:* first 24h, not in shock, HF, or bradycardic
            - *Invasive intervention (catheterization)*
                i. STEMI: cath→90 minutes (door to balloon time), fibrinolytics→30 minutes (door to needle time)
                ii. Consider more urgent cath in NSTEMI/UA if unstable, refractory chest pain, or high-risk score
            - *Nitroglycerin:* venodilator, coronary vasodilator
            - *Statins:* high potency (exp: atorvastatin)
            - *Aspirin*