Internal Medicine Shelf Review

Tim Philip

Practice Questions

- A 65-year-old male presents to clinic because of 2-month chronic cough, hemoptysis, and weight loss. His wife reports that he has recently developed concerning progressive weakness. Which of the following is the most likely diagnosis?

A. Squamous cell carcinoma of the lung
B. Small cell carcinoma of the lung
C. Bronchial carcinoid tumor
D. Adenocarcinoma of the lung
E. Large cell carcinoma of the lung

Practice Questions

- A 65-year-old male presents to clinic because of 2-month chronic cough, hemoptysis, and weight loss. His wife reports that he has recently developed concerning progressive weakness. Which of the following is the most likely diagnosis?

A. Squamous cell carcinoma of the lung

B. Small cell carcinoma of the lung

C. Bronchial carcinoid tumor

D. Adenocarcinoma of the lung

E. Large cell carcinoma of the lung

Practice Questions

- A 65-year-old male presents to clinic because of 2-month chronic cough, hemoptysis, and weight loss. His wife reports that he has recently developed concerning progressive weakness. **Which of the following is the most appropriate treatment?**

A. Observation
B. Surgical excision
C. Chemotherapy & radiation
D. Palliative therapy
E. Lung transplant

Practice Questions

- A 65-year-old male presents to clinic because of 2-month chronic cough, hemoptysis, and weight loss. His wife reports that he has recently developed concerning progressive weakness. **Which of the following is the most appropriate treatment?**

A. Observation

B. Surgical excision

C. Chemotherapy & radiation

D. Palliative therapy

E. Lung transplant

Lung Paraneoplastic Syndromes

- Squamous cell carcinoma
  - Produces ectopic **PTHrp** -> hyper**calcemia**
  - Biopsy: **keratin pearls**, intracellular **bridging**, **cavitation**
- Small cell carcinoma
  - **SIADH**, **Lambert-Eaton** myasthenia, **Cushing** syndrome, encephalitis

central

- Adenocarcinoma
  - **Hypertrophic osteoarthropathy**
- Large cell carcinoma

peripheral

- Secretes hCG -> **gynecomastia**
- Bronchial carcinoid tumor
  - Rarely produces **carcinoid syndrome**

can be either

Practice Questions

A 60 year-old patient with a 15 pack-year history of smoking presents with few month history of chronic, progressive dyspnea. However, he states he quit smoking over 10 years ago. Physical exam reveals “fine” inspiratory crackles. PFTs reveal a decreased FEV1, decreased FVC, and normal FEV1/FVC. DLCO is also decreased. Which of the following is the most likely diagnosis?

A. Idiopathic pulmonary fibrosis
B. Chronic bronchitis
C. Emphysema
D. Asthma
E. Sarcoidosis

Practice Questions

A 60 year-old patient with a 15 pack-year history of smoking presents with few month history of chronic, progressive dyspnea. However, he states he **quit smoking over 10 years ago**. Physical exam reveals **“fine” inspiratory crackles**. PFTs reveal a decreased FEV1, decreased FVC, and **normal FEV1/FVC**. **DLCO is also decreased**. Which of the following is the most likely diagnosis?

A. Idiopathic pulmonary fibrosis

B. Chronic bronchitis

C. Emphysema

D. Asthma

E. Sarcoidosis

Obstructive vs. Restrictive Lung Disease

- Obstructive
  - FEV1/FVC **< 70%**
  - Obstruction prevents exhaling rapidly more than it prevents total exhalation
  - DLCO normal: asthma (reversible 12% or more), exclusive chronic bronchitis
  - DLCO decreased: emphysema
- Restrictive
  - FEV1/FVC **> 70%**
  - Restriction affects exhaling rapidly (FEV1) & overall (FVC) at about the same ratio
  - DLCO normal: morbid obesity, Guillain-Barre syndrome, myasthenia
  - DLCO decreased: idiopathic pulmonary fibrosis, sarcoidosis, pneumoconioses

Practice Questions

- A 46-year-old female presents with pleuritic chest pain and shortness of breath over the last few hours. She has no history of similar pain. She recently had surgery in the last few days. Physical exam is notable for tachycardia but is otherwise unrevealing. Which of the following is the best next step in management?

A. Observation
B. D-dimer
C. CT pulmonary angiography
D. Start anticoagulation
E. Emergency surgery

Practice Questions

- A 46-year-old female presents with **pleuritic chest pain and shortness of breath** over the last few hours. She has no history of similar pain. She **recently had surgery** in the last few days. Physical exam is notable for **tachycardia** but is otherwise unrevealing. Which of the following is the best next step in management?

A. Observation
B. D-dimer
C. CT pulmonary angiography
D. Start anticoagulation
E. Emergency surgery

Suspected Pulmonary Embolism

- Score > 4: Anticoagulate **first** -> CTPA
- Score < 4: D-dimer -> if positive, CTPA

What about for suspected DVT?

- Score 2+: compression ultrasound -> anticoagulate
- Score < 2: D-dimer -> if positive, compression ultrasound

Key point:

Likely PE gets **empiric anticoagulation**

Likely DVT still gets confirmatory U/S first

Modified Wells Criteria for pre-test probability of pulmonary embolism	
• Clinical signs of DVT • Alternative diagnosis less likely than PE	+ 3 points
• Previous PE or DVT • Heart rate > 100 • Recent surgery or immobilization	+ 1.5 points
• Hemoptysis • Cancer	+ 1 point
Total score	**>4 = PE likely** **4 or less = PE unlikely**

Modified Wells Criteria for pre-test probability of deep vein thrombosis	
• Previous DVT • Active cancer • Recent immobilization • Recently bedridden > 3 days • Localized tenderness along vein distribution • Swollen leg • Calf swelling >3 cm vs. other leg • Pitting edema • Collateral superficial veins	+1 point
Alternative diagnosis more likely **(-2 points)**	
Total score	**2+ = DVT likely** **1 or less = DVT unlikely**

Practice Questions

- A 30-year-old female with history of Marfan syndrome presents for sharp chest pain radiating to the back. She is in pain but currently stable. Which of the following is the best next step in management?

A. Chest X-ray
B. Surgery
C. Reassurance
D. ECG
E. Sedation & intubation

Practice Questions

- A 30-year-old female with history of **Marfan** syndrome presents for **sharp** chest pain **radiating** to the back. She is in pain but currently stable. Which of the following is the best next step in management?

A. Chest X-ray

B. Surgery

C. Reassurance

D. ECG

E. Sedation & intubation

Practice Questions

- A 30-year-old female with history of Marfan syndrome presents for sharp chest pain radiating to the back. She is in pain but currently stable. Chest X-ray reveals a **widened mediastinum**. Which of the following is the best next step in management?

A. Transesophageal echocardiogram

B. Surgery

C. Reassurance

D. CT angiography

E. ECG

Practice Questions

- A 30-year-old female with history of Marfan syndrome presents for sharp chest pain radiating to the back. She is in pain but currently stable. Chest X-ray reveals a **widened mediastinum**. Which of the following is the best next step in management?

A. Transesophageal echocardiogram

B. Surgery

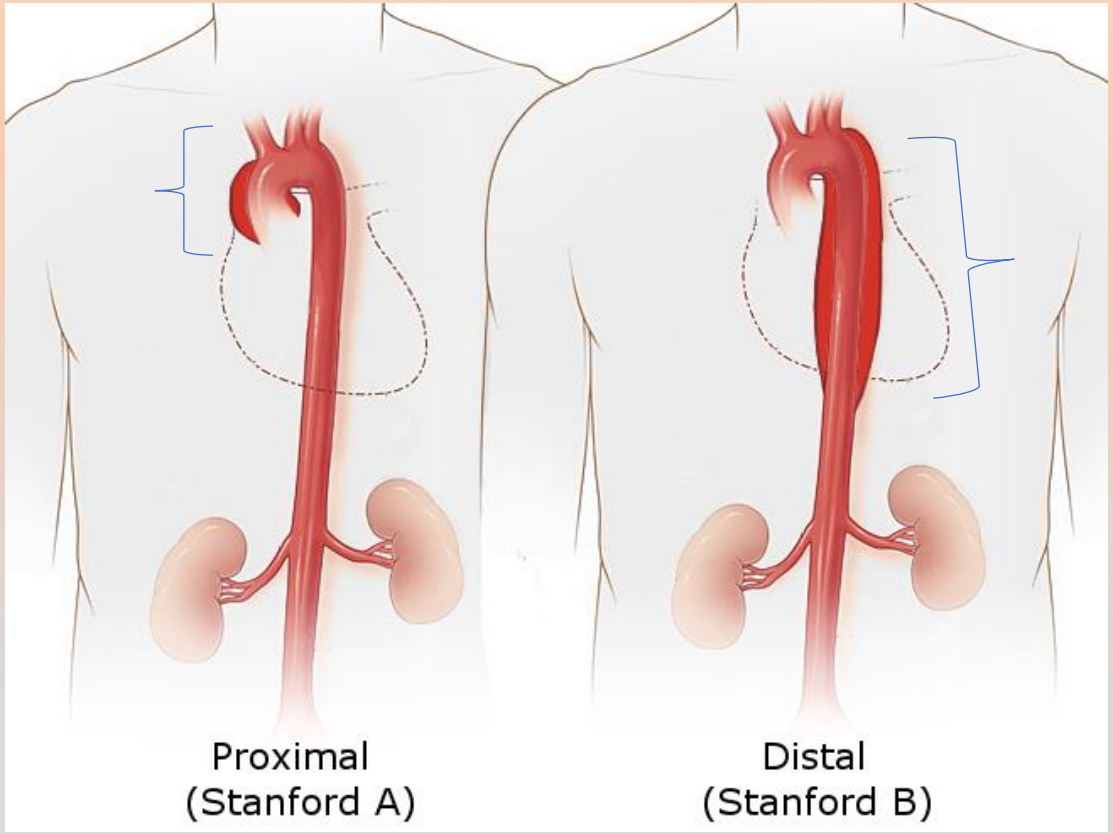
C. Reassurance

D. CT angiography

E. ECG

Suspected aortic dissection

- Steps in diagnosis
  1. Chest X-ray
  2. CT angiography (vessel study provides clear view of aorta)
  3. Transesophageal echocardiogram
     - ONLY IF **one** or more of these:
       1. Hemodynamically unstable (SBP <90/60, delirious, unconscious, etc.)
       2. Renal insufficiency (kidneys can't tolerate contrast in CTA)
       3. History of contrast allergy
- Steps in management
  - Stanford type A (if **any** involvement of ascending aorta)
    - Requires surgical intervention
  - Stanford type B (if **only** involving descending aorta)
    - Beta-blockers (e.g.; labetalol or esmolol) decrease stress on vessel walls
- Complications/different presentations
  - Differential pulses between right and left arms
  - Differential pulses between upper & lower extremities
  - Pleural effusion (blood hemorrhages from aorta -> pleura)
  - Cardiac tamponade (blood hemorrhages into pericardium)
  - Aortic regurgitation (dissection reaches back to aortic valve -> stretches valve)



https://commons.wikimedia.org/wiki/File:Aortic_dissection_types.jpg

Differential Diagnosis

- Hyponatremia
  - Simplified for NBME exam purposes

Differential Diagnosis

- Hyponatremia
  - Hyperglycemia (e.g.; DKA or HHS)
  - Hypovolemic (look for signs of dehydration)
    - U_{Na} **>** 20-40 = kidneys are over-excreting sodium
      - Diuretics, Addison's disease,
    - U_{Na} **<** 20-40 = kidneys are functioning as expected, so much be **extrarenal**
      - Any cause of volume loss not related to kidneys (vomiting, diarrhea, dehydration, burns)
  - Euvolemic
    - SIADH
      - $Urine_{osm}$ > 100 (HIGH: excess ADH -> retains excess water -> urine is **highly concentrated**)
      - Small cell lung cancer, brain trauma, cyclophosphamide
    - Excess water intake (primary polydipsia, "tea and toast" diet)
      - $Urine_{osm}$ < 100 (LOW: drinking tons of water -> urinate water out -> highly **diluted urine**)
  - Hypervolemic (look for signs of fluid overload)
    - CHF, cirrhosis, nephrotic syndrome (retain water & sodium but water >>> sodium)

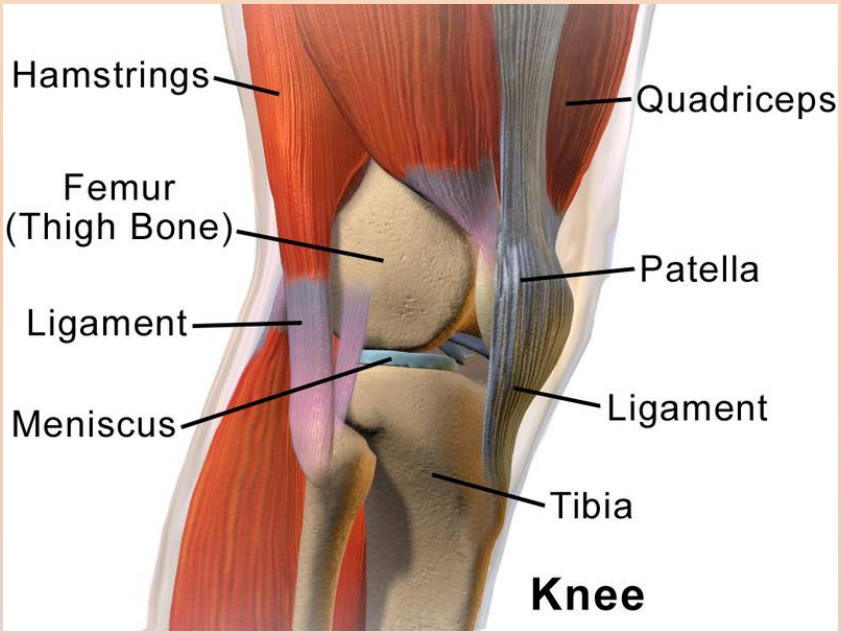
Differential Diagnosis

- Knee pain

Differential Diagnosis

- Patellofemoral syndrome
  - Young, usually **female**,
  - Worsens while **seated** for prolonged periods
- Patellar tendinitis
  - Young **athlete**
  - Pain just **below patella** (at location of tendon)
- Osgood-Schlatter syndrome
  - **Adolescent**
  - Pain at **tibial tuberosity**
  - Imaging may show **fragmentation** at tibial tuberosity

young



https://commons.wikimedia.org/wiki/File:Blausen_0597_KneeAnatomy_Side.png

- Osteoarthritis
  - **Older** (usually 60+), **obese**
  - **Minimal** morning stiffness (< 30 mins), **worsens** throughout the day, **relieved** with rest or sleep
- Rheumatoid arthritis
  - **Middle** age (40s-50s), may have autoimmune history
  - **Significant** morning stiffness (> 30 mins), **improves** throughout the day, **worsens** with rest or sleep

older

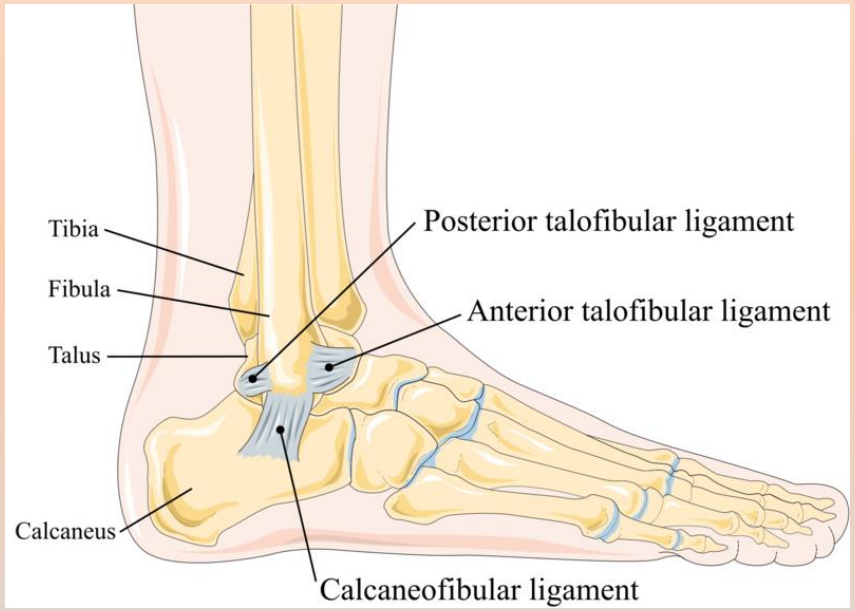
Differential Diagnosis

- Foot pain

Differential Diagnosis

- Plantar fasciitis
  - Pain at **sole** of foot, just anterior to heel
  - Usually **unilateral**, pain on "**passive dorsiflexion**" of foot, worst when **first stepping out of bed**
- Morton neuroma
  - Pain at **sole** of foot, usually between **4th and 5th metatarsal**
  - Pain on **compression** of metatarsals, may hear **clicking** sound with this maneuver
- Hallux valgus (bunion)
  - Lateral deviation of **first toe**, **prominent** 1st metatarsal
- Tarsal tunnel syndrome (posterior tibial nerve compression)
  - Burning, **numbness, tingling** in **tibial nerve** distribution (medial ankle + sole of foot)
- Calcaneal stress fracture
  - Pain at **sole** of the **heel**
  - Recent increase in activity, positive **calcaneal squeeze** test

Pain at **sole of foot**



https://commons.wikimedia.org/wiki/File:Lateral_collateral_ligament_of_ankle_joint.png

- Achilles tendon rupture
  - Acute onset of **posterior** ankle paint after sports injury
  - Positive **Thompson** test (squeezing calf does not elicit foot movement: indicates loss of connection between Achilles & calf)
  - May still have ability to flex calf muscle!
- Achilles tendinitis
  - Pain at **posterior** ankle
  - History of overuse
  - **Intact** Achilles anatomy
- Calcaneal apophysitis
  - Pain at **posterior heel** of foot
  - Usually **bilateral**, in a **growing child** who plays sports

Pain at **posterior** ankle

Differential Diagnosis

- Lower extremity vascular disorders

Differential Diagnosis

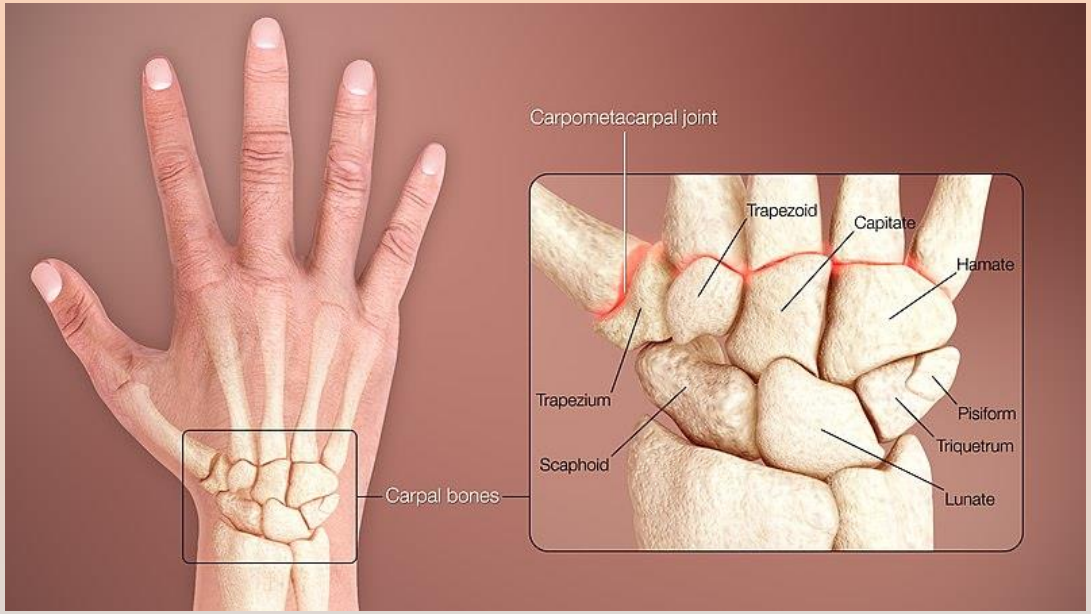
- Peripheral artery disease
  - Location: **tips of toes**
  - Other hints: claudication, pain while **sleeping** (rest pain), history of ACS
- Chronic venous insufficiency
  - Location: **medial malleolus**
  - Other hints: **hyperpigmentation** of ankles (from heme leaking from vessels), history of chronic **LE edema**
- Diabetic foot ulcer
  - Location: **sole** of 1st metatarsal
  - Other hints: usually **painless** (from severe neuropathy)
- Superficial thrombophlebitis
  - **Painful**, palpable, "**cord-like**" swelling of veins
  - Associations: **GI malignancy**, **Buerger syndrome** (thomboangiitis obliterans)
- Lymphangitis
  - **Flat**, painful, **streaks** usually extending proximally from skin infection (cellulitis, erysipelas)
  - Represents infection spreading up lymphatic channels

Differential Diagnosis

- Hand pain/deformity

Differential Diagnosis

- DeQuervain's tenosynovitis
  - Location: proximal **thumb**, compression within thumb extensor retinaculum
  - Other hints: **Finkelstein's** test positive
- Carpal tunnel syndrome
  - Location: **Palmar** aspect of **first three** fingers (can spare the palms on exams)
  - Other hints: pain at **night**, improves when **shaking** out hands, can be **secondary** to many conditions (pregnancy, hypothyroidism, obesity, diabetes)
  - Can also occur secondary to **lunate bone dislocation**
- Scaphoid fracture
  - Location: **Anatomical snuffbox** (between abductor pollicis brevis & longus)
  - Other hints: **Fall on outstretched hand**, "X-ray initially normal"
- Dupuytren's contracture
  - Location: **Palmar**, usually 3rd-5th finger
  - Other hints: **Painless**, fibrosis of palmar fascia, "**painless cord**"



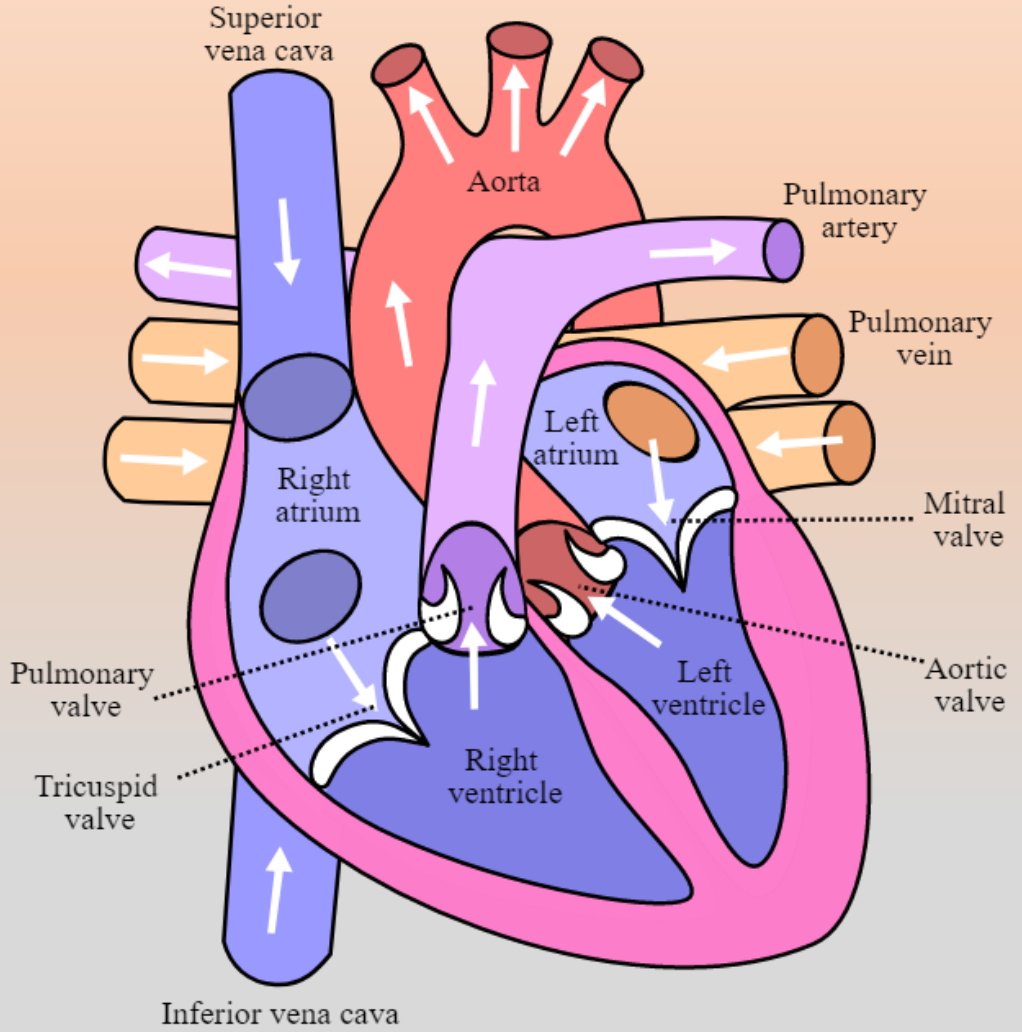
https://commons.wikimedia.org/wiki/File:3D_Medical_Animation_Human_Wrist.jpg

Differential diagnosis

- Myocardial infarction complications

Differential diagnosis

- Within 1-3 days
  - Acute pericarditis
    - **Fever**, **friction rub**, dyspnea
    - May lead to cardiac tamponade
    - Treated **supportively** (already on aspirin usually, don't want to overkill NSAIDs and bleed)
- Within 3-5 days
  - Papillary muscle rupture
    - Location: **mitral area**
    - Holosystolic murmur
  - Interventricular septal rupture
    - Location: **left sternal border**
    - Holosystolic murmur, may have **palpable thrill**
    - **Abnormal O2 saturations** in RV and LV (from ventricles mixing blood)
- Within 5-14 days
  - LV free wall rupture
    - Ventricles leak blood into pericardium
    - **Cardiac tamponade** is almost always how this is tested (leaking blood fills pericardium)
- Weeks to months later
  - Dressler syndrome (autoimmune pericarditis)
    - Similar presentation as acute pericarditis (different **etiology**, **timeline**, and **treatment**)
    - Treated with **NSAIDS** + **colchicine** (colchicine prevents recurrence)
  - Ventricular aneurysm
    - Presents with **persistent ST elevations** and **congestive heart failure**
    - Complications: mural thrombi can embolize -> **stroke**, **acute limb ischemia**, etc.



https://commons.wikimedia.org/wiki/File:Diagram_of_the_human_heart.svg

Differential Diagnosis

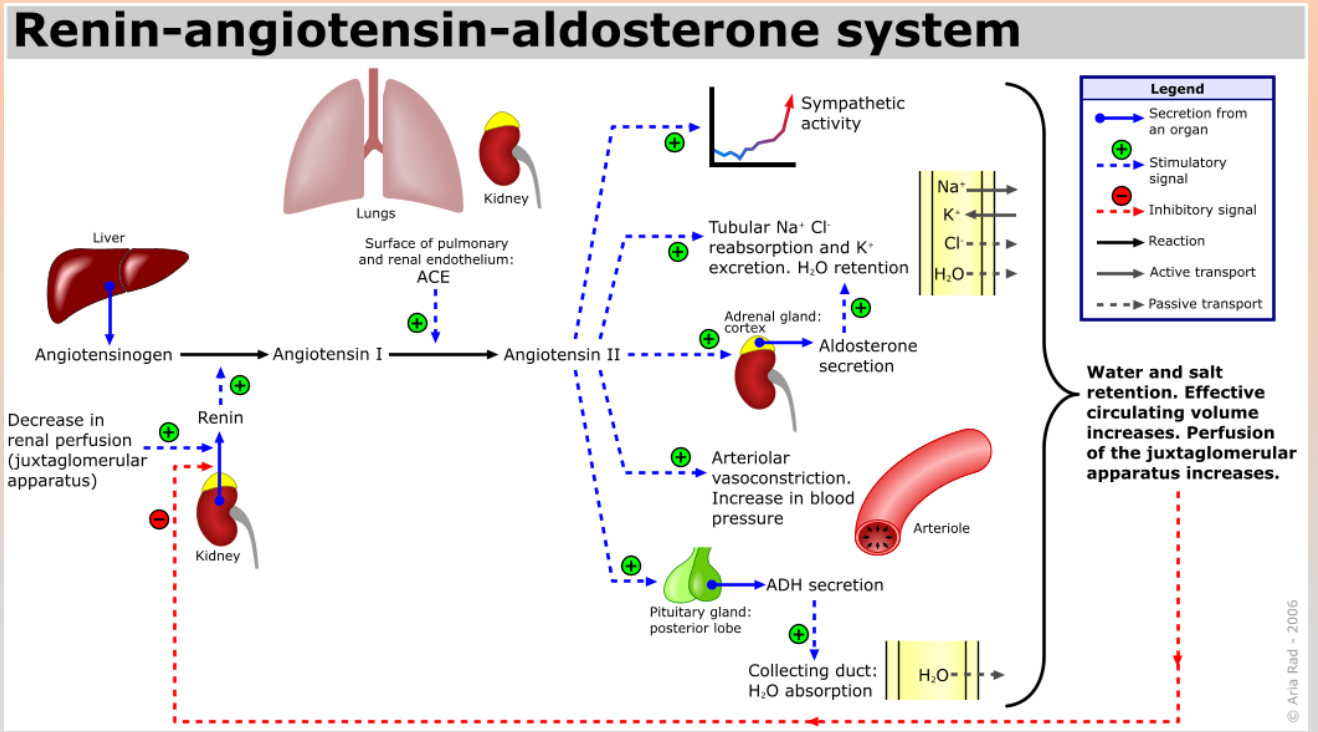
- Secondary hypertension

Secondary Hypertension

- Renal artery stenosis & Fibromuscular dysplasia
- Pheochromocytoma
- Hyperthyroidism
- Primary Hyperaldosteronism
- Secondary Hyperaldosteronism

Secondary Hypertension

- Renal artery stenosis
  - **Carotid** or **abdominal** bruit
  - Atherosclerosis = **older** individuals
  - Fibromuscular dysplasia = **younger**, usually **women**
- Pheochromocytoma
  - **Episodic**, triggered by **anesthesia** or **orthostatic** changes
- Hyperthyroidism
  - Signs of hyperthyroid: **sweating**, **hyperreflexia**, diarrhea, anxiety
- Primary Hyperaldosteronism
  - Overproduction of **aldosterone** (adrenal adenoma or hyperplasia)
  - Renin low (negative feedback), Aldosterone **elevated**
- Secondary Hyperaldosteronism
  - Usually due to excess **renin** (proximal to aldosterone in RAAS pathway)
  - Renin **high**, aldosterone also **high**
  - Causes: renal artery stenosis, PKD, renin secreting tumor



https://commons.wikimedia.org/wiki/File:Renin-angiotensin-aldosterone_system.png

Bacterial Endocarditis

- Which patients qualify for **antibiotic prophylaxis**?
  - Prophylaxis recommended:
    - Prosthetic heart valve
    - Previous endocarditis
    - Heart transplant + valve abnormality
    - Unrepaired **cyanotic** heart diseases
  - **NO prophylaxis**:
    - **Mitral valve prolapse**

Rapid Review Public Health

- Estimates **prevalence** by taking a single snapshot (usually **survey**) that looks for **exposure** and **outcome** at the same time?
  Cross-sectional study
- Reports similarities between multiple **cases** (e.g.; **infectious disease outbreak**)
  Case series
- Groups patients into **exposed** and **unexposed**, follows over time for outcome?
  Prospective cohort study
- Groups patients into **diseased** and **not diseased**, looks back in previous record for **exposure**?
  Case-control study
- Certain patients get **intervention** other patients get **placebo**; monitors for outcome differences?
  Randomized controlled trial
- Identifies patients with **exposure** and **without exposure**; looks back in previous record for differences in **outcomes**?
  Retrospective cohort study

Rapid Review Public Health

- Study that evaluates based on **patient reported survey** leads to patients with significant history **remembering** things more frequently than less complicated patients?
  - Recall bias
- Differences between **hospital** patients and the **general public**?
  - Berkson's bias
- Improvement in **screening** leading to catching disease earlier and falsely improving survival?
  - Lead-time bias
- Only detecting patients with **mild** disease (patients with severe disease die and aren’t collected into study)?
  - Length-time bias AKA length-biased sampling
- Prospective studies that lose patients who **don’t follow up**?
  - Attrition bias

Rapid Review

- Young person, recent flu-like illness, now presents with dyspnea and S3 sound
  Viral myocarditis -> dilated cardiomyopathy
- What groups (4) almost always get a statin?
  1. Age 40-75 + diabetes
  2. ASCVD 7.5%+
  3. LDL 190+
  4. ANY complications of atherosclerosis (ACS, stroke, PAD, angina, etc.)
- Which conditions (3) can present with a “biphasic” or dual-carotid pulse upstroke?
  HOCM, aortic regurgitation, PDA
- Anatomic origin of atrial fibrillation vs. atrial flutter?

  A-fib = pulmonary veins

  A-flutter = cavotricuspid isthmus
- Young person, recent flu-like illness, now presents with chest pain, dyspnea, and scratching heart sound
  Acute pericarditis (diffuse ST elevation or PR depressions on ECG)

Rapid Review

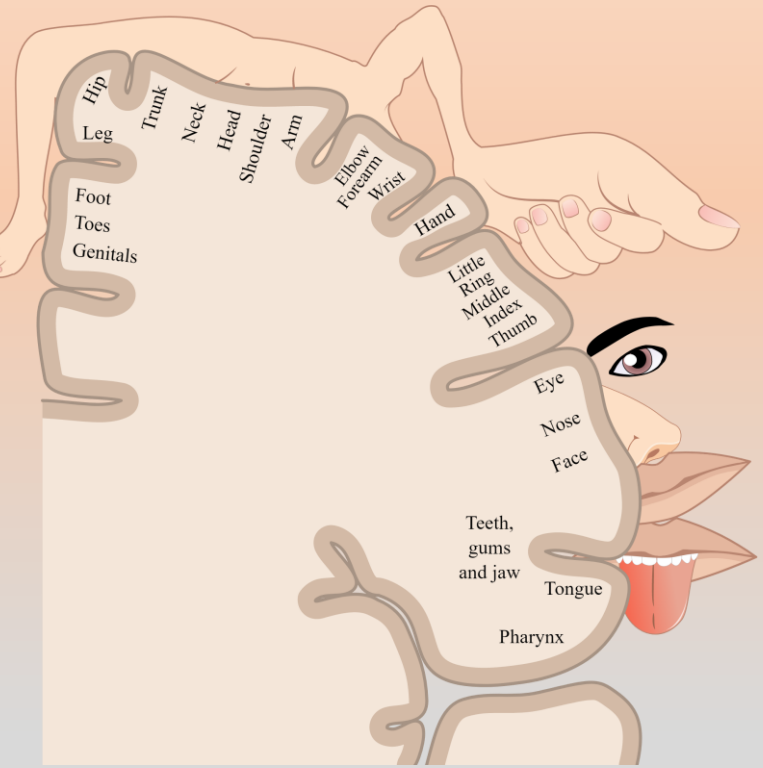
- Patient with longstanding COPD and a harsh, holosystolic murmur at lower left sternal border
  - Tricuspid regurgitation (COPD -> cor pulmonale -> right heart overload -> blood regurgitates back through tricuspid)
- What does S3 sound indicate?
  - Volume overload (systolic CHF, dilated cardiomyopathy)
- What about S4?
  - Stiff left ventricle (diastolic CHF, HOCM, restrictive cardiomyopathy)
- What does pulsus paradoxus indicate? Which conditions are associated with it?
  - Decrease in systolic blood pressure > 10 on inspiration (caused by excess pressure on heart during inspiration)
  - Cardiac tamponade, asthma, COPD
- What about Kussmaul sign? Associations?
  - Increase in JVP upon inspiration (caused by reduced compliance of heart or pericardium)
  - Constrictive pericarditis, restrictive cardiomyopathy
- Young person with diastolic murmur with opening snap
  - Mitral stenosis
- Systolic murmur at the left sternal border, **lessens** in intensity with Valsalva?
  - Aortic stenosis (other hints: pulsus parvus et tardus, radiates to carotids, older patient unless bicuspid aortic valve)
- Systolic murmur at left sternal border, **increased** intensity with Valsalva
  - Hypertrophic cardiomyopathy (other hints: young patient, family history of similar murmur, history of syncope)

Rashes

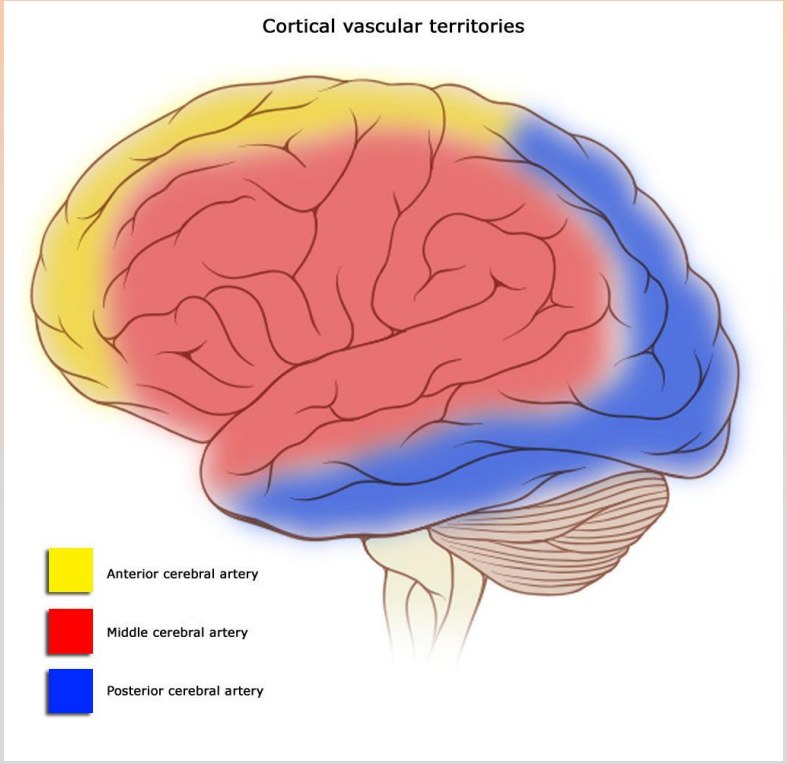
- Elderly patient with generalized itching for a few months, now has a few tense blisters
  Bullous pemphigoid (autoimmune destruction of **hemidesmosomes**)
- 50-year-old patient with new onset blisters, slough with pressure, oral involvement
  Pemphigus vulgaris (autoimmune destruction of **desmosomes**)
- Patient with history of hypothyroidism presents with depigmented areas on hands and face
  Vitiligo
- Patient with recent history of summer travel presents with depigmented areas on back
  Tinea versicolor
- Diabetic patient with lower leg swelling, redness, and pain; **flat** edges and **poorly** demarcated borders
  Cellulitis
- Redness, swelling, and pain in neck with **raised**, **sharply** demarcated edges, and **early** onset of fever
  Erysipelas
- Photosensitive rash in a patient with history of Hepatitis C virus
  Porphyria cutanea tarda
- Diabetic patient with recurrent, painful, redness and swelling in armpits and groin
  Hidradenitis suppurativa

Neuro Rapid Review

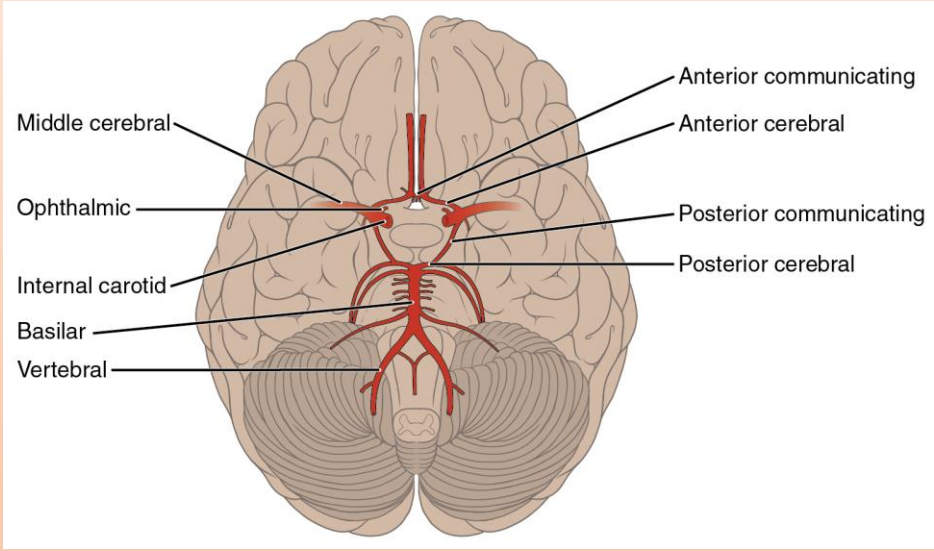
- Middle-aged male, hyperreflexia, fasciculations, and muscle atrophy
  Amyotrophic lateral sclerosis (ALS)
- Young, adult female with headaches that worsen with Valsalva, vision loss when bending over
  Idiopathic intracranial hypertension (pseudotumor cerebri)
- Severe, unilateral headache located over the eye, rhinorrhea, Horner syndrome
  Cluster headache
- Most likely cause of **lobar** intracerebral hemorrhage in adults?
  Cerebral amyloid angiopathy
- Most likely cause of **subcortical** intracerebral hemorrhage in adults
  Hypertension
- Obese patient with shooting pain of lateral thigh
  Meralgia paresthetica (lateral femoral cutaneous nerve compression)
- Sudden onset left leg weakness, urinary incontinence, emotional instability
  Anterior cerebral artery stroke
- Right sided facial numbness, left sided arm and leg numbness, dysphagia, hoarseness
  Lateral medullary ischemic stroke (Wallenberg syndrome)



https://commons.wikimedia.org/wiki/File:Sensory_Homunculus-en.svg



https://commons.wikimedia.org/wiki/File:Cerebral_vascular_territories.jpg



https://commons.wikimedia.org/wiki/File:2123_Arteries_of_the_Brain.jpg

Lateral	Medial	CNs		
		Medial	Lateral	
PCA	PCA	3 4		**Midbrain**
AICA	Basilar	5	6,7,8	**Pons**
PICA	ASA	12	9,10,11	**Medulla**

Pulmonary Rapid Review

- Young patient with large amounts of productive sputum for months, clubbing, history of CF as a child
  Bronchiectasis (**obstructive** lung disease)
- Lower lobe pneumonia, purulent sputum production, history of alcoholism, recently unconscious
  Aspiration pneumonia (**anaerobic** organisms from oral flora)
- Young female with cough, hilar adenopathy, rash on shins
  Sarcoidosis (other associations: lupus pernio, cardiomyopathy, uveitis)
- Patient with history of alcoholism & cirrhosis with dyspnea and hypoxia that worsens upon **sitting up**?
  Hepatopulmonary syndrome
- Patient with long-standing COPD, now has JVD, hepatomegaly, pitting edema
  Cor pulmonale (look for **secondary complications**: tricuspid regurg & RVH)
- Patient who worked as a **sandblaster**, chronic dyspnea, now suspicious for **Tb** infection and has **eggshell calcifications** of hilar lymph nodes
  Silicosis
- Sudden onset respiratory distress after removal of **central line**, hypoxemia, **obstructive shock**, but normal breath sounds?
  Venous air embolism
- Tall, young patient who experiences sudden onset respiratory distress, JVD, and hyperresonance on percussion?
  Primary spontaneous pneumothorax

GI Rapid Review

- Older male with dysphagia, regurgitation, and halitosis
  - Zenker's diverticulum
- Young patient with dysphagia, sharp chest pain with eating, disorganized contractions on esophageal manometry?
  - Diffuse esophageal spasm (use **manometry** to distinguish from achalasia which has high LES pressure)
- Patient with longstanding history of reflux symptoms, presents with severe abdominal pain, **rebound** and **guarding**, with **free air** under the diaphragm on X-ray?
  - Perforated peptic ulcer
- 60-year-old female with diarrhea that occurs while **fasting** and **resting**, normal colonoscopy, **lymphocytic** infiltrate on biopsy?
  - Microscopic colitis (**secretory** diarrhea occurs while fasting because it is not related to osmotic solutes in food)
- Young female patient with incidental **liver mass**, scan shows "star-like" appearance with **central scar**
  - Focal nodular hyperplasia (benign, no intervention or treatment necessary)
- Older patient with painless **hematochezia**, abnormal colonic **vessel dilations** noted on colonoscopy
  - Angiodysplasia
- Patient with cirrhosis, low grade fever, confused, abdominal pain
  - Spontaneous bacterial peritonitis
- Older patient with severe abdominal pain, but only mild tenderness noted on physical exam
  - Acute mesenteric ischemia

Renal rapid review

- Child with new onset lower extremity swelling, hyperlipidemia, recent history of viral illness
  Minimal change disease (most common form of **nephrotic** syndrome in children)
- Constant, **non-radiating** flank pain, with **enlarged kidney** on U/S (may have **hypercoagulable** history)
  Renal vein thrombosis
- Patient with periorbital swelling, hematuria, hypertension and history of **Hepatitis C virus**
  Membranoproliferative glomerulonephritis (usually **nephritic** syndrome on exams) (HCV also associated with membranous version, which is usually **nephrotic** on tests)
- Colicky, flank pain, radiating to the groin
  Nephrolithiasis (calcium oxalate most common)
- Previously health patient after intense exercise, concentrated urine, Creatinine 1.5, BUN/Cr > 20
  Pre-renal AKI (Intrarenal has BUN/Cr < 20 with U_{Na} > 20-40)
- Patient recently treated with **cisplatin**, brown casts in urine
  Acute tubular necrosis (presents with **intra**renal azotemia)
- Patient with **renal failure**, necrotic **skin ulcers**, hyperphosphatemia, may see soft tissue calcifications on imaging
  Calciphylaxis (AKA calcific uremic arteriosclerosis)
- Patient with history of renal failure with confusion, nausea, asterixis
  Uremia

Substances

- Unconscious patient with respiratory rate of 6 and miosis
  Opioid overdose (treat with naloxone)
- Patient with miosis, bradycardia, diarrhea, sweating profusely after nerve gas attack
  Acetylcholinesterase inhibitor poisoning (AKA organophosphates: treat with **atropine first!**)
- Patient with agitation, miosis, and nystagmus
  Phencyclidine (PCP)
- Confusion, **flank pain**, hematuria, anion gap metabolic acidosis, and calcium oxalate urine crystals
  Ethylene glycol toxicity
- Confusion, headache, red skin after recent indoor barbeque
  Carbon monoxide poisoning
- Confusion, **blurred vision**, anion gap metabolic acidosis, history of alcohol use
  Methanol toxicity
- Vomiting, watery diarrhea, garlic breath after exposure to pesticides
  Acute arsenic toxicity
- Tachycardia, dry mouth, confusion, seizures with QRS or QT prolongation
  Tricyclic antidepressant toxicity (if QRS > 100, treat with **sodium bicarbonate**)

Questions?