**Cardiology**

- II III AVF = inferior stemi, RCA
- Thrombolytic window – 6 hrs
- Contraindications for thrombolytics → if you’re bleeding, past hx of hemorrhagic stroke, recent ischemic stroke, recent closed head trauma
- Right ventricular infarction → hypotension and tachycardia, JVD, lungs are clear, no pulsus paradoxus
  - Don’t give nitro for this, need fluids
- Need at least 3 sets of troponins
  - Won’t all be increased if you catch it early enough, check every 6-8 hrs
- Myoglobins rise first (most sensitive marker for a second infarction)
- MONA (asa or clopidigrel, can also give BB)
- Order coronary angiography (cath lab)
- Intervention option
  - Stents (PCI), CABG (if you have 3 vessel dz, left main, >70% occlusion, diabetic)
- Always send home on aspirin (or clopidigril if stent)
  - BB, ACEi, statin
  - Nitrates if chest pain
- Any new angina is unstable (even if it is just with exertion)
- Work up for unstable angina
  - Stress test
    - BB and CCB must be discontinued before stress test
    - Contraindications for stress test
      - Old LBBB (hard to assess changes), do an echo instead
      - If on digoxin – do echo
    - Can chemically stress people
      - Dobutamine or adenosine
  - Positive test = having chest pain, ST dep, or if BP drops
    - Then go to cath lab for coronary angiography
- MCC of death post MI = arrhythmia (VF)
  - New systolic murmur after MI = regurg after papillary rupture
- Pericarditis
  - Diffuse ST elevation = pericarditis
  - Pleuritic, better when patient leans forward
  - Friction rub
  - NSAIDs
- If pain is reproducible with palpation = costochondritis
- Vague pain with hx of viral infection and murmur = myocarditis
- Pain occurs at rest, worse at night, ladies with migraines = prinzmedals
  - Ergonovine stim test
  - Treat with nitrates and CCB
- ECG
  - 3rd degree heart block
    - regular p-p and regular r-r but they are not communicating
    - cannon A waves (JVD)
  - VT = 3 or more consecutive beats with a QRS
    - Treatment
      - Unstable → synchronized cardioversion if pulse
      - If stable → treat with lidocaine or amiodarone
  - Delta wave = WPW (short PR interval with sloped initial deflection, early depolarization via pathway of kent)
    - Treat with procainamide
    - DO NOT give anything that slows AV conduction (BB, CCB, dig)
  - A flutter = 125-150
    - If unstable = cardiovert
    - If stable = digoxin and BB
  - Torsades
    - Prolonged QT leading to undulating...
    - Electrolyte abnormalities = low potassium/low mag/TCA OD
• **SVT**
  - First line tx = carotid massage
  - Shove kids face in ice water
  - Then meds → adenosine

• **Peaked T wave**
  - Hyperkalemia → renal patient, missed dialysis, crush injury, burn victim
  - Also have short QT, widened QRS, prolonged PR

• **Tamponade**
  - Low voltage - pulsus paradoxos, electrical alternans, JVD, hypotension, distant heart sounds

• **AFib**
  - Undulating baseline, no p-waves, patient may be hyperthyroid, too much synthroid
  - CHF, valve dz, alcohol
  - Rate control is important – BB, dig

- **Murmurs**
- **Lyme** → doxy (amox with kids)
- **Erlichiosis** → doxy

- **Nephrology**
  - **Hyponatremia**
    - Hypervolemic (CHF, nephrotic, cirrotic)
    - Hypovolemic (diuretics, vomiting, free water)
    - Euvolemic (SIADH, check CXR for lung cancer)
  - **Tx**
    - Give NS, the only time you give hypertonic saline (3%) is if they have seizures or its below 120
    - Don’t give more than 12-24/day
    - Volume restrict and diuretics

  - **Hypernatremia** → D5W
  - **Hypocalcemia** → chvostek, troussseau, numbness, prolonged QT
  - **Hypercalcemia** → bones, stones, groans, psycho, shortened QT
  - **Hypokalemia** → Paralysis, ILIUS, ST depression, U-waves (hypokalemia)
  - **Hyperkalemia** → Peaked T waves, prolonged PR and QRS
    - Treat with calcium gluconate to stabilize cardiac membranes
      - Insulin with glucose to drive K into cells
      - Diuretics
      - Albuterol
      - Last resort = dialysis

- **Acid Base**
  - **Normal anion gap = 8-12**
    - Na – [Cl + HCO3]
  - **MUDPILES**
  - **Non-anion gap metabolic acidosis**
    - Lithium → give bicarb
    - Multiple myeloma

- **Acute renal failure**
  - **Cr goes up** (25% or 0.5 over baseline)
  - **BUN/Cr ration** → if >20/1 = prerenal
  - **Urine Na and Cr** → if FENA <1% = prerenal
  - **If patient is on a diuretic, you can rely on FENA, need FENurea**
  - **Pre-renal**
    - Caused by anything keeping the kidney from being perfused
    - Treatment
      - Replete fluids (tx CHF, GN, cirrhosis)
  - **Intrinsic causes**
    - ATN → Muddy brown casts
    - Protein, blood, eosinophils, fever, rash → AIN (allergic rxn), stop med and start steroids
    - CPK high → rhabdo (first test = ECG or check K)
    - Enveloped shaped crystals on UA → ethylene glycol intox
    - Bump in Cr 28-72 hours after CT scan → contrast induced nephropathy
  - **5 indications for emergency dialysis**
A - acidosis
E – electrolytes (K+)
I – intoxication (ethylene glycol or lithium)
O – overload of volume from CHF
U – uremia

- Chronic kidney disease
  - MCC = DM, (HTN is #2)
  - #1 cause of death = cardiovascular complications, target LDL = <100
  - Complications
    - HTN → CHF
    - Anemia → loss of EPO
    - Electrolyte abnormalities
    - Secondary hyperparathyroidism
    - Uremia → increased bleeding

- Patient is peeing blood
  - First test = UA
  - Terminal hematuria = bladder cancer

- Nephritic syndrome
  - Proteinuria, hematuria, HTN, and kidney failure

- Peeing blood 1-2 days after viral syndrome → IGA nephropathy
- Peeing blood 1-2 wks after sore throat or skin infection → glomerulonephritis
- Hematuria & hemoptysis → good pasteures (collagen issue)
- Hematuria & deafness → alport (collagen issue)
- Kid post viral URI with renal failure, abdominal pain, arthralgia, and purpura → Henoch schonlein purpura (IGA), tx with supportive therapy and steroids
- Kid after hamburger with renal failure and diarrhea → Hemolytic uremic syndrome
- Cardiac patient after ticlopidine with renal failure, AMS → TTP (EMERGENT PLASMA PHORESIS, Do not give platelets)

- Kidney stones
  - Best test is a CT
  - Most common type is calcium oxylate
  - Can be cysteine, or struvite stones
  - Treatment
    - <5mm → pass, give fluids
    - >2cm → cut them out
    - 5mm – 2cm 00> lithotripsy

- Proteinuria
  - First test = repeat test in 2 wks

- Nephrotic syndrome = HIGH protein (>3.5 g, edema, hyperlipidemia – fatty/waxy casts)
  - If nephrotic patient suddenly develops flank pain, worry about renal vein thrombosis

- HEME/ONC
  - Microcytic anemia
    - Microcytic anemia, if TIBC is low, worry about chronic disease anemia
    - Thalassemia has a very low MCV
  - Macrocytic anemia
    - High MVC, high homocysteine = folate deficiency anemia
    - High MVC, high homocysteine and high methylmelonic acid
    - High MCV and acanthocyte → liver disease
  - Hemolytic anemia = super high indirect bili
    - Sickle cell crisis (hypoxia, dyhydration
    - G6PD = sudden onset after primquine, sulfas, and fava beans

- Thrombocytopenia
  - ITP, treat with prednisone
  - PTT and bleeding time are high in Von Willenbrands (bound to factor 8)
  - High PTT, corrected with mixing studies → hemophilia
  - Vit K deficiency
  - Liver disease (coagulopathy)
  - PT = factor 7

- Schisocytes, PT, PTT, and fibrinogen are high
DIC!!!

- Causes = sepsis, rhabdo, snake bites
- Tx = FFP

Low platelets, but clotting = HIT

- Tx – stop heparin, reverse warfarin with vitK, start lepirudin

Painful joint

- WBC >50K = septic
  - Gonococcal (ceftriaxone)
  - Staph (nafcillin or vanco)

GBS →

- CSF shows albumin cytologic dissociation
  - Usually campylobacter
  - Treat with IVIG or plasmapheresis

Best first test for esophagus stuff = barium swallow

Acute pancreatitis

- Prognosis- worse if old, WBC>16K, Glc>200, LDH>350, AST>250... drop in HCT, decr calcium, acidosis, hypox

**EMERGENCY MED PEARLS**

- PNA treatment:
  - CAP → strep pneumo, treat with a macrolide (Azithro), or doxy
    - If underlying disease or inpatient, use a fluoroquinolone (levaquin or moxifloxacin) or a β-lactam (ceftriaxone) plus a macrolide (azithro)

- PUD →
  - Most in duodenum
  - NSAID use, smoking, alcohol, zollinger Ellison, steroid use
  - 4-6 wk course of H2 blocker
    - If fail, then treat H-Pylori → PPI, amox +flagyl

- GI bleed →
  - UGIB
    - Melena, NG tube and coffee ground
    - BUN:Cr >30 = UGIB
    - Emergency if → Red blood, hemodynamically unstable, hgb <8
    - MCC = PUD (duodenal)
    - Also varices, Mallory Weiss, esophagitis
  - LGIB
    - BR blood clots
    - Hematochezia
    - MCC = UGIB
    - Diverticulitis
    - When you can discharge
      - No major comorbidities
      - Normal vitals
      - Only trace positive guac
      - Normal h&h
      - Good follow up
    - How do you treat
      - If unstable
        - Use octreotide with varices or if unstable, can use vasopressin (but beware of cardiac ischemia), may need to put them on nitro drip also to maintain coronary patency
        - Sengstaken blakemore tube for varices

- Pancreatitis
  - CT is diagnostic
  - Ransons
    - Age >55
    - Glucose >200
    - WBC >16,000
    - AST >250
    - LDH >350
• IBD → age 15-40
  o Extra intestinal manifestations
    ▪ Arthritis, dermatologic (erythema nodosum, pyoderma gangrenosum), hepatobiliary dz

• Crohn’s
  o Mouth to anus, but it can skip areas (skip lesions)
  o Full thickness involvement, abd pain, cramps, diarrhea (not always blood in stool)

• UC
  o Only the colon
  o Only mucosa & submucosa
  o Abdominal pain, bloody diarrhea
  o Almost always has blood in diarrhea
  o Higher risk of toxic megacolon
  o Higher risk of cancer

• Mesenteric Ischemia
  o Digitoxin is a risk factor
  o Presentation – sudden onset of pain out of proportion to exam
  o Mesenteric infarction = 85% mortality
  o Labs – lactic acidosis, super high white count (up to 40,000)
  o Xray – thickening of bowel wall, air in ruq
  o CT scan – thickened bowel loops
  o Diagnostic test = angiogram, also can be therapeutic

• Corneal Abrasion
  o Erythromycin
  o Abx (gentamicin, sulfacetamide) ointment

• Hyphema
  o Elevation, rest, steroids

• Keratitis
  o Painful, blurred vision, frank vision loss
  o Immediate ophtho

• Acute angle glaucoma
  o Tx = anticholinergics, BB, steroids
  o >40mmHg

• UTI
  o Bactrim, nitrofurantoin, cipro

• Meningitis
  o Strep pneumo
  o CT prior to LP if immunocompromised
  o Bacterial – WBC >1000, elevated protein, decreased glucose
  o Treat immediately, do not wait for results
  o Vanco, 3rd gen cephalosporin, ampicillin if baby
  o Acyclovir

• SEPSIS
  o AMS, systolic <100, RR>22, lactate
  o Tx
    ▪ Airway (O2, intubate)
    ▪ Perfusion (BP/vasopressin, lactate, IVF)
    ▪ Empiric ABX

• Endocarditis empiric tx → vanc & ceftriaxone
• Osteomyelitis → IV abx
• Labyrinthitis → acute vertigo, gait impairment, treat with steroids (post viral)
• BPPV → short bursts or nystagmus
  o Dx – dix hallpike
  o Tx – epley, meclizine, valium

• Menieres
  o Vertigo, tinnitus, hearing loss
  o Salt restriction, diruetics

• Pharyngitis
  o 2-3 centor criteria = test and treat
- 4 = treat
  - PCN/Amox
- Peritonsillar abscess
  - Can image, ENT referral
  - I&D, clinda
- Ludwig’s angina
  - High fevers, trismus, inability to swallow, stiffness
  - Secure airway, initiate empiric abx, emergency surgical consult
- Epiglottitis
  - Toxic appearing, high fevers, strider, thumb print
  - Intubation
  - Used to be Hflu (less because of vaccine), now more in adults
  - Tx with ceftriaxone and clinda/vanco
- Malignant otitis externa
  - Older patients with DM
  - Pseudomonas
  - CT scan of temporal bone confirms
  - IV Cipro
- Mastoiditis
  - CT scan
  - IV abx with admission
  - Vanco/zosyn
  - Commonly require masoidectomy and drain/debridement
- Sepsis
  - HR>90
  - RR >20
  - TEMP >101
  - WBC >12,000 (>10% bands)
  - QSOFA
    - SBP <100
    - RR >22
    - AMS
  - Septic shock = persistent hypotension despite fluid resuscitation
    - MAP <65, lactate >2
  - Treatment
    - Fluids, vasopressors (norepinephrine) – if SPB <90 or MAP <65
      - ALSO PHENYLEPHRINE, vasopressin, dopamine
    - Mechanical ventilation if PaO2 <55mm
    - Give VANCO + cephalosporine within <3 hrs
- Cardiogenic shock
  - Give inotropes
- Seizures
  - ABCs, IV, O2
  - Blood glucose
  - PERRL
  - Tx
    - 1st line = benzos (1 min)
    - 2nd line = benzo again, valproic acid, phenytoin, fosphenytoin (1 min)
    - 3rd line = propofol, versed, phenobarb
  - if in status, intubate
  - common complications -> elevated lactic, aspiration, rhabdo, shoulder dislocation
- Acid/base
  - Anion gap – 8-12
  - Positives – negatives
    - [Na]+ · [Cl- + HCO3-]
  - methanol, uremia, DKA, phenformin/metformin, INH, lactic acidosis, ethylene glycol, salicylates
- HTN crisis
  - Reduction of MAP only 20-25% within first hour
Goal of 160/100 by first 2-6 hrs

Optimal agents
  - Nicardipine
  - Labetalol

- Chest pain
  - Asa 325

- Stroke
  - Try to give TPA within 90 min of arrival
  - <4.5 hrs
  - MUST control BP with TPA (labetalol, nicardipine)
  - Permissive BP up to 220/120

- BP control in SAH/ICH
  - <150/90

- Back pain – don’t image till 6 wks

- Trauma
  - Flail chest
    - 3 sided dressing to avoid tension pneumo
  - lateral c-spine, CXR, abdomen/pelvis
  - foley if blood in urethra
  - mediastinum >8cm = aortic dissection
  - basilar skull fracture → raccoon eyes, battle signs, CSF rhinorrhea
  - reverse coumadine with FFP and vitK

- Increased ICP
  - Manitol
  - Hypotonic saline

- Tension pneumo
  - Chest tube

- Open pneumo
  - 3 sided dressing

- Cardiac tamponade
  - becks triad (hypotension, JVD, muffled heart sounds)
  - pericardiocentesis

- Organs most injured in blunt abdominal trauma
  - 1 = spleen
  - 2 = liver
  - 3 = small bowel

- Fast exam
  - heart, liver, spleen, bladder

- Orthopedic emergencies
  - Open fracture (give ancef/cephazolin)
  - Open joint
  - Septic arthritis (>80K in joint asp)
  - Compartment syndrome
  - Pelvic fracture
  - Femoral neck fracture

- Burns
  - Rule of 9s
  - 4cc/kg x BSA
  - First ½ in 8 hrs, second ½ over 16

- Black widow spider bite
  - Muscle pain, tremors, weakness, paresthesias
  - Usually treat with analgesics, benzos, tetanus, supportive care, antivenom may be bad

- Brown recluse
  - Local gross lesion, eschar
  - Nausea, vomiting, fever
  - Clean, tetanus, cold pack

- ASA OD
  - Give glucose, charcoal, IV fluid, sodium bicarb
• Lithium
  o GI sx, tremor, t WAVE FLATTENING
  o ABCs, supportive care, dialysis
• Digoxin
  o Increased contractility
  o GI sx
  o Tx – activated charcoal, atropine, dig specific antibody fragments
• Anticholinergic
  o Dry mouth, dry skin, DRY, flushing
  o Antidote = phosystigmine
• Cholinergic tox
  o WET
  o Antidote = atropine
• Benzos
  o Flumazenil
• Bath salts/cocaine
  o Benzos
• Toxic alcohol
  o Fomepisode
• TCA
  o AMS, seizures, hypotension, tachy, widened QRS
  o Treat with bicarb
• PE
  o CTA
  o Tx – IV heparin bolus, BP, pressors, bridge to Coumadin
• CHF
  o Sit upright, O2, telemetry
  o Volume reduction (diuretics, salt/fluid restriction)
  o Afterload reduction
    ▪ Nitrates (vasodilation), concern for hypotension
  o Dopamine, dobutamine, bipap if unstable
• Anaphylaxis
  o Airway, epi
• Prostatitis
  o Acute – Cipro/levo for up to 6 wks
  o Chronic – fluoroquinolone for 3 months
• Epididymitis
  o <35 → ceftriaxone 250 IM and 100mg doxy x10 days
  o >35 → fluoroquinolone
• ovarian torsion
  o dx with u/s
  o Immediate surgery
• PID
  o Major complication = TOA (U/S OR CT)
  o Tx ceftriaxone 250 IM and 100mg doxy x10 days
• Pyelo
  o CIPRO
• Ectopic
  o Hcg >1500 and no IUP
  o Methotrexate if <500, or less than 3.5cm
  o Otherwise surgery
• Molar pregnancy
  o Super high hcg
• PREeclampsia
  o HELLP
    ▪ MgSO4, hydralazine, labetolol
• AAA
- **Grown >1 cm/yr needs surgery**
- **Thyroid storm**
  - Treat with antipyretics, PTU, MMI, dexamethasone, hydrocortisone, BB
- **Myxedema coma**
  - ABC, telemetry, IV, levothyroxine
  - H2O restriction, pressors
  - Hydrocortisone

- **GUIDELINES (JNC-8)**
  - >60 yo initiate tx at ≥150/≥90, tx to goal of <150/90
  - <60 yo initiate tx at ≥140/≥90, tx to goal of <140/90
  - Diabetes initiate tx at ≥140/≥90, tx to goal <140/90
  - CKD initiate tx at ≥140/≥90, tx to goal of <140/90
    - initial tx should include an ACEi or ARB regardless of race or DM
  - Non-black population, including those with DM, initial BP meds should include a thiazide type diuretic, CCB, ACEi, or ARB
  - Black population, including those with DM, avoid ACEi and ARB, initial tx should include a thiazide-type diuretic or CCB
  - If goal BP is not reached within one month of tx, increase the dose of the initial drug or add a second drug. If the goal BP cannot be reached with 2 drugs, add and titrate a third. Do not use an ACEi and ARB together in the same patient. If goal BP is still not reached, you can add a BP med from another class

- **HTN meds**
  - Hydrochlorothiazide electrolyte imbalances: hyperglycemia, hyperuricemia, hypercalcemia, hypokalemia and hyponatremia.
  - ACEi and ARBs (lisinopril/losartan) will worsen/decrease GFR and can cause hyperkalemia → this is a transient increase in creatinine and a transient drop in GFR that should be reversed after a week of treatment. So anybody that has any type of impaired kidney function should have a repeat creatinine and a repeat potassium after a week of initiating treatment to make sure that it is in fact transient
  - Calcium channel blockers (amlodipine) – common side effect = peripheral edema (this is dose dependent). Common with amlodipine (may not occur at 2.5 mgs, but will at 10 mgs – will need to titrate the dose back down). If you have heart failure, know that it can also cause pulmonary edema.
  - Patients with African decent should stay away from ACE inhibitors, because they’re not as effective as a calcium channel blocker or hydrochlorothiazide.

- **CHF Dx:**
  - Labs: BNP >500 (n=<100), increased Scr / low GFR, serum Na <130, TSH
  - EF <40% seen in systolic dysfxn (n= >55%; EF preserved in diastolic)
  - EKG: ST-T wave changes
  - CXR (pleural effusions, pulmonary edema, cephalization of pulmonary vessels, cardiomegaly)

- **CHF → Managing acute exacerbations (acute decompensated HF):** telemetry, IV diuretics, monitor fluids & lytes, O2, control HTN, evaluate precipitating causes (infx, MI, anemia, dietary indiscretions)
  - Vasodilators: Nitroglycerin, nitroprusside
  - Inotropes: Dobutamine, dopamine

- **Hyperlipidemia/dyslipidemia**
  - DM → initiate statin therapy
  - LDL >160 → initiate therapy
  - LDL >130 & HDL <45 → initiate therapy
  - LDL >130 & HDL >45 → encourage healthy lifestyle
  - ***Increase HDL (goal >40; >60 is negative risk factor): ↑ anaerobic activity, moderate EtOH (1-2/d)
  - Determine when to treat based on individual risk: Framingham CV Risk Assessment Calculator
  - A statin can lower risk by 20-30% (weigh benefit vs. cost, burdens, side effects)
  - Popular non-med management: fish oil, red yeast rice, pu-erh tea
  - Statins = first line in prevention of atherosclerotic dz
    - MOA: inhibit HMG-CoA reductase (enzyme in pathway that produces cholesterol in liver)
    - Taken at bedtime, when cholesterol synthesis peaks
    - Monitoring
      - Baseline labs: CPK, creatinine, LFTs, ALT, cholesterol
- **Check LFTs at baseline**, 6-12wks, 3 mo, then q6-12 mo (if levels normal)
  - **D/c statin if transaminases become 3x greater than baseline** if no hx of liver dz, or 2x if there is a hx of liver dz
  - Recheck lipids 6wks after lifestyle modification or medical therapy is started
  - Fasting required for triglycerides and LDL calculation

- **Contraindications**: active/chronic liver dz, elevated transaminases, pregnancy (category X)
- **Side effects**: muscle injury, hepatic dysfxn (0.5-3%), DM (<0.3%), cognitive impairment
  - Myalgias (up to 11%) → use 100mg daily Coenzyme Q10 / ubiquinone
  - Rhabdomyolysis (<0.1%) → alert if muscle weakness & brown urine

- Other lipid lowering therapies if intolerant to statins: **Fibric Acid Derivatives**, **Bile Acid Sequestrants**, **Niacin**, **Ezetimibe**

- **AFIB**: Antithrombotic therapy to prevent emboli (**CHA2DS2-VASc Score**)
  - Long-term anticoag, also appropriate prior to cardioversion
  - CHADS2 Score = CHF, HTN, Age ≥75yo, DM, Stroke/TIA

**Atrioventricular block**
- Causes
  - Lyme dz, bacterial endocarditis with abscess formation, cardiac sarcoidosis, inferior myocardial infarction, congenital mutations (maternal SLE, anti-Ro, anti-La), corrected transposition of the great vessels, Chagas dz, myotonic dystrophy
- Tx
  - Remove medications impacting conduction, no tx needed if asx
  - Acute tx of 2nd and 3rd degree = atropine 1mg Iv, isoproterenol, temporary pacing (external/transverse)
  - Permanent tx = implanted pacemaker

- **Aortic Stenosis (AS)**
  - SYSTOLIC MURMUR – heard after S1 (during ejection) crescendo/decrescendo, heard at the RUSB, harsh
  - Normal aortic valve area = 3-4cm → critical AS is <0.8cm
  - Valve replacement

- **Mitral stenosis (MS)**
  - Suspect in patients in areas where rheumatic heart disease occurs
  - Most commonly presents with exertional dyspnea and decreased exercise tolerance (anything that increases the cardiac output increases sx)
  - DIASTOLIC MURMUR – heard after S2 during filling, decrescendo-crescendo, caused by rheumatic fever (scarring on the valve)

- **Mitral regurgitation (MR)**
  - SYSTOLIC MURMUR – heard after S1 during ejection, holosystolic, caused by ruptured chordae tendinae, papillary muscle dysfunction, or endocarditis

- **Venous insufficiency**
  - Should evaluated with venous duplex to ID the presence of superficial or deep venous insufficiency which alters treatment options
  - Goals of tx → improved sx and appearance
    - Initial tx is conservative → leg elevation, exercise, and compression therapy
    - Persistent sx and signs after 3 months and documented reflux are candidates for vein ablation therapy
      (saphenous first)
    - After vein ablation, you can correct the varicose veins (etc.) with sclerotherapy or laser therapy
  - **Venous ulcer**
    - Develop mostly along the medial distal leg, minimal pain, typically wet with heavy exudate
    - Tx → compression therapy, skin grafts, surgery

- **Peripheral arterial disease**
  - Risk factors → CAD, hyperlipidemia, smoking, HTN, DM
  - Dx
    - Ankle-brachial systolic pressure index (ABI) → anything <0.90 has a high degree of suspicion
  - Tx
    - Initial – anti-platelet therapy, smoking cessation, statins, tx DM and HTN
    - Exercise therapy
For patients where the limb is threatened – revascularization is a priority to restore perfusion to tissues

- Percutaneous intervention, surgical bypass, or a combination

**Arterial insufficiency Ulcer**
- lateral surface of the ankle
- Tx with debridement and revascularization

**Phlebitis**
- Localized redness and swelling
- Pain or burning along the length of the vein, vein being hard and cord-like
- Usually from catheter/IV, can also occur from desomorphine
- Tx → Treatment usually consists of NSAIDs and local compression (e.g., by compression stalkings). If the phlebitis is associated with local bacterial infection, abx may be used

**Giant cell arteritis** (Temporal Arteritis) – GCA
- Age >50, age is the greatest risk factor for developing the disease, women>men
- Affects the extracranial branches of the carotid artery, Also can affect aorta and major branches
- 1st give corticosteroids! Then Biopsy temporal artery
- Sx
  - Headache: new, severe, localized –temporal
  - Jaw Claudication: most specific symptom
  - Visual symptoms: blurring of vision, double vision, sensitivity to light
  - PMR: aching of your proximal muscles

**Ventricular Septal Defect**
- Most common, holosystolic murmur, down’s association, acyanotic
- Surgical repair indicated for intractable CHF, failure to thrive

**Patent Ductus Arteriosus**
- Acyanotic, Harsh continuous machine murmur, mostly ax
- Refer to pediatric cards for echo and for meds to make ductal tissue regress or surgical repair

**Endocarditis**
- S/sx: fever, fatigue, chest pain, neuro complaints, weight loss
- Exam: heart murmur, petechiae, janeway lesions (nodules on palms/soles), osler nodes (raised lesions on fingers), roth spots (exudative retinal lesions)
- Right-sided: commonly affects TCV w/ S. aureus (more common w/ IVDU) – tx with vanco
- Left-sided: commonly affects MV w/ S. viridans and S. aureus (more common w/ valve defects) – tx with PCN/vanco + gent

**Coarctation of the Aorta**
- diminished femoral pulses
- Association with Turner’s syndrome
- Management → Reopen truncus arteriosus within 4 days of birth with prostaglandins

**Atrial Septal Defect**
- Pulmonary edema, right heart failure
- Midsystolic pulmonary flow or ejection murmur accompanied by a fixed split S2
- Surgical repair at age 2-3 for most

**Transposition of the Great Vessels**
- Severe cyanosis at birth, needs surgery

**Tetralogy of Fallot**
- Most common cyanotic heart defect
- Pulmonary stenosis → RV hypertrophy, overriding aorta, VSD
- Cyanotic “tet spells” where child turns blue, squats to valsalva
- Harsh systolic ejection murmur
- May also have right aortic arch, Down’s or DeGeorge’s syndrome, needs surgery

**Influenza**
- Antivirals WITHIN 48hrs OF SX ONSET
  - Tamiflu/Oseltamivir 75mg BID x5d (PO)
  - Ralenza/Zanamivir 10mg BID x5d (IH)

**Pneumonia (CAP)**
- S. pneumo m/c, H. influenza in smokers
- CURB-65 (confusion, uremia = BUN >7, RR >30, BP <90/60, >65yo, pleural effusion)
  - 0-1 → outpatient
  - >2 → consider hospitalization
- **Azithromycin x5d** (zpak OR 500mg x3d)
- **Levaquin** good for elderly
- **Alternative:** Doxycycline – 100mg BID
- **HCAP = zosyn, carabapenem, cefepime (concern for MRSA, peusodomonas)**

- **Sarcoidosis (Restrictive Pulmonary Disease)**
  - Lupus pernio → lumpy violaceous indurated plaques and nodules around nose, cheeks, lips and ears
  - **Kidney stones are common!**
  - Mainstay of therapy is steroid treatment → corticosteroids

- **TB**
  - Cough, hemoptysis, weight loss, night sweats
  - Monitor with sputum smears & cultures
  - **Tx**
    - Active →
      - 2mo of Isoniazid, Rifampin, Pyrazinamide
      - 4-7mo of continued Isoniazid & Rifampin
    - Latent → 9mo INH or 4mo Rifampin
  - **PPD** → Positive results (abnormal)
    - 5+ if immunocompromised (chemo, transplant, etc) or close contact w TB infected person
    - 10+ for healthcare & lab workers, foreign born from area with high risk, DM, dialysis, etc.
    - 15+ for healthy individuals at low risk

- **Asthma**
  - Mild intermittent = <2/wk, and <2 nights/month → **SABA (albuterol)**
  - Mild persistent = >2/wk, 3-4 nights/month → **SABA + ICS (fluticasone)**
  - Moderate persistent = daily, >5 nights/month → **SABA + ICS + LTRA (montelukast)**
  - Severe persistent = continuous, frequent nights → + systemic corticosteroids, mast cell stabilizers, immunomodulatirs, Spiriva

- **Bronchiectasis**
  - *Haemophilus influenzae most common organism in non-cystic fibrosis patients*
  - *Pseudomonas infection associated with an accelerated course*
  - High-resolution CT is study of choice
  - 6mos *Azithromycin* 3x/week found to ↓ frequency of exacerbation
  - Vaccination:
    - 23-valent pneumococcal vaccination
    - Seasonal influenza vaccination

- **Pulmonary Embolism**
  - Most common = dyspnea followed by pleuritic pain, cough, and DVT sx
  - **Wells Criteria**
    - DVT sx
    - Other dx less likely than PE
    - Hr >100
    - Recent surgery/immobilization
    - Previous DVT/PE
    - Hemoptyis
    - Malignancy
  - Dx → D-dimer (if PE is unlikely, use this to exclude it), if PE likely, use CT pulmonary angiography (and less commonly, ventilation/perfusion (V/Q) scanning)
  - Tx → Initial therapy should focus on oxygenating and stabilizing the patient, Once dx is made - mainstay is anticoagulating (Depending on the risk of bleeding)
    - If tx with unfractionated heparin or warfarin, monitor continuously
    - Rivaroxaban (xarelto) – direct Xa inhibitor – must be taken with food

- **Foreign Body Aspiration**
  - Most common site is the right lung, followed by left lung, trachea/carina, and larynx

- **Pulmonary Neoplasms**
  - Screening w/ CT in adults 55-80 who have a 30 pack year history and how have smoked within the past 15 years
  - Lung cancers are more likely to cause paraneoplastic syndromes such as hypercalcemia, SIADH, ectopic ACTH secretion, Lambert-Eaton myasthenic syndrome, and hypercoagulable states
  - **Workup**
    - Begin with CXR, F/u masses with CT, Sputum cytology, Bronchoscopy, Transthoracic needle biopsy, Node
• **Cystic Fibrosis**
  - Autosomal recessive inherited defect of protein regulating chloride channels, bicarb, and other ions (CFTR protein)
  - Defective mucociliary clearance
  - Also affects the pancreas and vas deferens
  - Recurrent pulmonary infections with atypical bacteria (Staph aureus in infancy and Pseudomonas in adulthood), poorly controlled asthma, failure to thrive, meconium ileus, pancreatitis

  - **Workup**
    - Newborn screens detect only severe disease
    - Genetic screens of 23 most common mutations only identify CF in Caucasians
    - Sweat chloride test is confirmatory

  - **Management**
    - Dietary support
    - Promote mucus clearance: percussion and chest compression vests, upside-down coughing, huff breathing, oral oscillators, exercise, CPAP, saline mist, albuterol
    - Infection control: cyclic use of antibiotics against Pseudomonas, intermittent IV antibiotics, oral antibiotics for 2-3 weeks after exacerbation
    - Frequent office visits with PFTs, sputum culture, diabetes screens, bone densitometry, CBC, PT/PTT, UA, vitamin levels, LFTs, albumin, immunizations

  - Median survival age is 38

• **Pertussis**
  - Whooping cough spells (paroxysms) w/ posttussive emesis
  - Catarrhal phase = mild URI sx
  - Paroxysmal stage = whooping cough
  - Convalescent stage = mild cough continues
  - Abx helpful if in catarrhal phase
  - **Azithromycin x5d** (500 mg for the first dose, then 250 mg daily for the next 4d)

• **Bacterial Conjunctivitis**
  - Strep. pneumonia, staph aureus, H. influenza, pseudomonas, N. gonorrhea, C. trachomatis
  - Erythromycin ointment, sulfacetimide drops, FQ in contact lens wearers (pseudomonas)

• **Hordeolum**
  - Hot compresses = best therapy
  - Topical abx (mupirocin/Bactroban), Oral abx, referral if doesn’t clear

• **Glaucoma**
  - **Canal of Schlemm**
    - Rapid onset of severe pain, Red eye, cloudy cornea, dilated pupil, circumlimbal injection, Visual loss - blurred, impaired vision, Photophobia, tearing. See “halos around lights”, Headache, N/V, diaphoresis common
    - Hard orbits on palpation (IOP ~50mmHg)
    - **Emergent referral!**
      - Rapid vision loss (2-5 days)
      - Start IV carbonic anhydrase inhibitor (acetazolamide)
      - Osmotic diuretics (mannitol), Apply topical BB, laser treatment, surgery, etc. (DO NOT administer mydriatics)
  - **Open-angle Glaucoma (Chronic)**
    - Accounts for ~90% of glaucoma, affects 2% of the population (>40yo; mc in AA’s and pts w/FHx of glaucoma or diabetes)
    - Dx
      - Changes in cup-to-disc ratio (“cupping”)
      - Changes in visual field (defects in peripheral vision)
      - IOP abnormalities – increased (normal is 10-21mmHg)
    - **Treatment:**
      - **Prostaglandin analogues, Beta adrenergic blockers** (mechanism = decrease aqueous production)
      - Carbonic anhydrase inhibitors, Alpha2 Agonists (bromonidine), Cholinergics (increase outflow), Adrenergic Agonists
      - Laser surgery

• **Macular degeneration**
  - Age-related or secondary to toxic effects of drugs (chloroquine, phenothiazine)
Leading cause of irreversible **central vision loss**

Drusen deposits found in Bruch membrane eventually leading to hemorrhage and fibrosis

No good treatment

**Presbyopia**

Farsightedness due to loss of lens elasticity

**Orbital cellulitis**

***MC in children, median age = 7-12yo***

***Primarily assoc. w/sinusitis, can be related to dental infection, trauma***

Causative agents: Strep pneumo, S. aureus, H. flu, gram (-), MRSA

Differentiate between peri-orbital and orbital cellulitis

- **Orbital cellulitis**: infx in CNS space deep to tarsal muscles, risk for developing brain abscess and brain infx
- **Peri-orbital cellulitis**: superficial, face cellulitis, more common, **Not an emergency** → PO abx at home

Differentiate via EOM motion exam (orbital should be painful with EOM movement)

- Dx with a CT
- Tx: Medical emergency (hospitalization), IV abx, surgical drainage
  - Nafcillin and metronidazole or clindamycin
  - 2nd/3rd generation cephalosporin, Fluoroquinolones
  - Vancomycin if MRSA suspected

**Retinal detachment**

Acute onset of painless blurred or blackened vision

Blurring occurs over min to hrs

“Curtain being drawn from top to bottom of eye”

Floaters, flashing lights

Dx: Fundoscopic exam reveals ridges/rugae of displaced retina flapping in vitreous humor

Tx: Emergency consult with ophthalmologist for laser surgery or cryosurgery

80% will recover with no recurrence

**Central Retinal Artery Occlusion**

Ophthalmic emergency with poor prognosis

MC causes: emboli, thrombotic events, vasculitides

Sx: Sudden, painless, marked unilateral loss of vision

Dx: Fundoscopy reveals pallor of retinal area

Tx: Emergency referral to ophthalmology

If VEIN
  - Work-up for further thrombosis warranted
  - Neovascularization treated w/intravitreal injections of VEGF inhibitors

**Acute Otitis Media**

*strep pneumonia, S. pyogenes, H. influenza, M. catarrhalis, etc*

Tx:
  - >2yo consider watchful waiting vs. abx:
    - Watchful waiting sufficient for older children w/o severe pain or fever
  - AOM in kids <6 mo, always give abx: **Amoxicillin 500mg TID x5-7d** → liquid: 250mg/5ml (1tsp) TID x7d
  - PCN allergies: macrolide (-mycin)
  - ***Tymanostomy, tymanoentesis, myringotomy may be indicated for severe or refractory cases
  - Mastoiditis can occur w/out proper tx

**Chronic Otitis Media**

Causative agents: Pseudomonas, S. aureus, Proteus, anaerobes

Recurrent OM = 3+ episodes of AOM in 6mo, or 4+ in 1yr

- Prophylactic abx: amoxicillin, sulfisoxazole, Ciprofloxacin w/ dexamethasone drops
- Tymanostomy tubes
- Surgical/TM repair (definitive)
- Perforated TM d/t infx = Amoxicillin PO + Floxin otic drops

**Otitis externa** “Swimmer’s ear”

Common causes: water exposure, trauma, itching/scratching, exfoliative skin conditions (psoriasis, eczema)

Causative agents: Pseudomonas, Proteus, Fungi

Sx: Ear pain (esp. w/movement of tragus/auricle), Redness/swelling of ear canal, Purulent exudate

Tx: Abx otic drops (aminoglycoside or fluoroquinolone + corticosteroids)
  - Avoid further moisture in ear
**Malignant otitis externa** may develop in immunocompromised or diabetic pts → Necrotizing infx extending to blood vessels, bone, cartilage, Requires hospitalization and paraenteral abx

- **Acoustic neuroma** (vestibular schwannoma)
  - Associated with Neurofibromatosis type II
  - Sx: unilateral, progressive one-sided hearing loss w/impaired speech discrimination, continuous central vertigo, Nystagmus – vertical
  - Dx → MRI
  - Tx: Surgery or focused radiation, Bevacizumab (vascular endothelial growth factor blocker)

- **Barotrauma**
  - Most TM perforations will heal on own
  - Clear ear & keep it try
  - Decongestants, Steroids, Autoinflation
  - ABX if infected myringotomy if severe
  - Surgical repair of TM and ossicular chain may be necessary
  - Avoid water/moisture in ear to prevent secondary infx that can impede closure

**Vertigo (Peripheral)**

- **Vestibular Neuritis (+ hearing loss = Labyrinthitis)**
  - viral inflammation affecting vestibular nerve
  - Sx: acute vertigo that may last for days and is continuous, hearing loss, N/V, gait instability, horizontal nystagmus (auditory sx usually absent)
  - Tx: steroids, diazepam

- **Meniere’s Disease** (endolympathic hydrops)
  - over-accumulation of endolymph in vestibular sys, unknown cause, High salt diet can be trigger, syphilis, head trauma
  - Sx: sudden episodic attacks of vertigo (can last for hours), aural fullness, muffled hearing, usually unilateral, sensorineural hearing loss that fluctuates, tinnitus, nystagmus (horizontal)
  - Dx: clinical hx of triad: vertigo + hearing loss + tinnitus
  - Tx: meclizine, anti-emetics, diuretic (acetazolamide), Reduce salt intake, surgery / labyrinthectomy

- **BPPV – benign paroxysmal postural vertigo**
  - canalithiasis (otoliths)
  - Sx: short bursts of vertigo triggered by position; severe rotational vertigo; N/V; nystagmus usually beats away from affected size & resolves with upright position; uncommon to have pain, hearing loss, tinnitus
  - Dx: Dix-Hallpike maneuver
  - Tx: Epley maneuver or antihistamines → Meclizine (=Dramamine

- **Vertigo (Central)**
  - Brainstem Ischemia: Cause: embolic, atherosclerotic (TIA), rotational vertebral artery syndrome, Wallenberg (lateral medullary infarction – vertigo & disequilibrium)
  - Cerebellum infarction & bleed
  - Chiari malformation
  - Migraine, MS

- **Cholesteatoma**
  - Cause: Prolonged Eustachian tube dysfunction/blockage
  - TM → creates a sac that can fill with keratin and desquamated epithelium
  - Often accumulates after TM breakage, Hearing loss (unilateral), Pain, discomfort, pressure, odor
  - Tx = Surgery

- **Mastoiditis**
  - Cause: Usually evolves following inadequately treated acute otitis media (Strep pneumonia, H. influenza, Strep pyogenes)
  - Sx: Postauricular pain & erythema, Fever, Suppurative
  - Tx: IV ABX (cefazolin), Myringotomy, Mastoidectomy

- **Presbycusis**
  - MC etiology of sensorineural hearing loss, occurs w/increasing age, Strong genetic predisposition
  - Other RFs: noise exposure, medication exposure (aminoglycosides)

- **“Allergic Triad” = asthma, polyps, serious Cox-1 inhibitor sensitivity (aspirin, ibuprofen, Advil, alieve)

- **Nasal polyps**
  - Often associated w/ asthma and allergies
  - Most common in adults >40, If seen in child, consider CF
  - Tx: *Intranasal corticosteroids: (all equally effective) Beclomethasone Budesonide
- **Epistaxis**
  - Tx: Use humidifier. Vaseline on Keisselbach’s plexus
  - Sit, pinch/apply direct pressure ~15 min
  - Topical nasal decongestants (vasoconstrictor) and anesthetics (phenylephrine, oxymetazoline, lidocaine)
  - Balloon Packing (Epistat). Cauterizing

- **Acute pharyngitis**
  - Strep (group A beta-hemolytic streptococcus [GABHS]) ~15% of pharyngitis cases
  - **Centor clinical criteria:**
    - Tonsillar exudates, tender anterior cervical lymphadenopathy, fever, NO cough
    - 2-3 criteria → Rapid Strep Antigen Test
    - 4 criteria → tx empirically
    - RDT neg but high suspicion → throat cx (on blood agar plate)
  - Penicillin VK 500 mg TID x 7d
  - Amoxicillin 500 mg BID x 10d, IM Penicillin G (benzathine)
  - PCN allergy: macrolides or clinda

- **Acute/chronic sinusitis**
  - ABX for bacterial if sx last >2wks (Sx often self-limiting w/in 2wks)
  - Penicillin VK 500 mg TID x 7d, Amoxicillin 500 mg BID x 10d, IM Penicillin G (benzathine)

- **Epiglottitis**
  - Bacterial infection of epiglottis, most often caused by *H. influenzae Type B*
  - Thumbprint sign
  - Tx (can immunize). Airway emergency! Intubation often required to avoid asphyxiation

- **Oral candidiasis**
  - Dx made clinically – wet prep using KOH will reveal spores and may show non-septate mycelia
  - **Antifungal therapy:** Fluconazole (Diflucan), Ketoconazole Clotrimazole toches Nystatin mouth rinses
  - Chronic untreated infection can lead to **median rhomboid glossitis**

- **Parotitis/ Sialadenitis**
  - Pain, increased pain + swelling w/ meals (pain exacerbated by salivary flow)
  - Pus can often be massaged from duct (Stensen duct drains parotid, Wharton duct drains submandibular)
  - **Tx:** NSAIDs. ABX (nafcillin), Increase salivary flow with: Gentle massage of gland Moist heat therapy Warm compresses, hydration Sialagogues (lemon drops)
  - Refer to ENT for lithotripsy or sialectomy in difficult cases

- **Temporomandibular joint pain**
  - Sx: Pain/tenderness of the jaw, aching pain around ear, difficulty chewing, aching facial pain, locking of joint
  - **Risk factors:** Arthritis (RA, OA), jaw injury, grinding or clenching teeth
  - **Tx:** NSAIDs are first line, tricyclic antidepressants, muscle relaxants, Oral splits, mouth guards, PT
  - Last resort →arthrocentesis, injections (steroid), arthroscopy

- **Croup**
  - Infection of trachea & larynx (6mo - 12yrs (m/c in 1-3yo), Viral → parainfluenza virus
  - Sx: Barking cough, hoarseness, STEEPLE SIGN on AP CXR
  - **Tx:** Steroids (Decadron PO), Nebulizer treatment, Cool humidified air, Racemic epi

- **Lichen Planus**
  - Complications: Mouth – increased oral cancer risk

- **Mono**
  - Severely swollen tonsils w/ exudates, Fever, Abdominal pain, Malaise
  - Cervical adenopathy in 90% of cases Abnormal vitals
  - Painless splenomegaly and hepatomegaly in 50% EBV cases (usually tachycardic with nausea and fever)
  - Epstein-Barr Virus
  - **Dx:** Often clinical diagnosis, Monostat (heterophil antibody test) for EBV --70-92% sensitive, 96-100% specific – lower sensitivity in first 2 wks after clinical symptoms begin
  - **Tx:** Don’t need ABX for virus! Prednisone to help inflammation Can use codeine syrup
  - Rest & time... Avoid contact sports to prevent rupture of enlarged spleen

- **Oral leukoplakia**
  - A white lesion that cannot be removed by rubbing the mucosal surface (no erythematous component, distinguishing it from erythroplakia)
  - Ulcerative lesions may be present
  - Hairy → common early finding in HIV infection
  - **Dx:** Incisional biopsy or exfoliative cytologic examination
**Ludwig's Angina**
- Swollen neck, protruding tongue, trismus
- penicillin + metronidazole, Unasyn
- Massive neck swelling  Protrusion of the tongue  Trismus (inability to open mouth) May cause sore throat
- polymicrobial cellulitis of the submandibular spaces of the head and neck
- *Usually preceded by dental procedure/infection*
- Drainage, surgery
- ABX – penicillin + metronidazole, amp/sulbactam, clindamycin, cephalosporins
- Complications: edema can spread to mediastinum or cause sepsis

**Peritonsillar abscess**
- Sx: Deviated uvula, Unilateral bulging soft palate, Dysphagia, trismus, drooling, hot potato voice
- Tx: Urgent referral to ENT for I&D

**GYN**
- Follicular phase: estradiol rises
- Luteal phase: progesterone level rises via corpus luteum (secretes estrogen as well)
- Normal Adult Menstruation
  - 21 - 35 days
  - Bleeding 2 - 7 days
  - Blood loss < 80 ml
- Primary Amenorrhea
  - Absence of spontaneous menstruation by age 16 (gonadal agenesis, androgen insensitivity, imperforate hymen)
- Secondary Amenorrhea
  - Tests → b-hcg, prolactin, TSH, FSH, estrogen, testosterone, transvaginal u/s
  - ***Women who fail to menstruate in the presence of estrogen stimulation are at risk for endometrial cancer
- Osteoporosis
  - postmenopausal women → adequate calcium and vitD, exercise, smoking cessation, counseling on fall prevention, avoidance of heavy alcohol use
  - 1200mg elemental calcium and 800 international units of vitD
  - T-score of <-2.5, treat with a pharmacologic agent
  - If a woman is high-risk and post-menopausal women with osteopenia (-1 to -2.5), pharmacologic therapy is recommended
  - First line therapy = oral bisphosphonates (alendronate or risedronate)
  - For patients starting on therapy, get a DXA of the hip and spine after 2 years looking at bone mineral density
  - >65yo or <65yo with risk factors should get DEXA scan (no more than q2yrs)
- PMS
  - Most common symptom is mastodynia (can be treated with bromocriptine)
  - Mood symptoms: irritability, sleep, anxiety, appetite changes (SSRIs started mid-cycle through first day of menses)
  - Fluid retention → edema, weight gain, breast pain, bloating, constipation, and back ache (treat with spironolactone)
  - Better with OCPs, limit caffeine, tobacco, chocolate, sodium, stress, try cognitive therapy and aerobic exercise
- Menopause
  - Mean age is 51
  - Surgical menopause → give estrogen till age 45
  - Contraindications to treatment = undiagnosed vaginal bleeding, estrogen dependent tumors, VTE
  - No hysterectomy, you need estrogen & progesterone
  - Progestin challenge test → give for 10 days and the withdrawal (no bleeding = menopause)
  - Dx: FSH >30mIU/mL
- Postpartum Physiological Changes
  - Lochia → normal shedding of blood and decidua for the first few days, should become more watery, has serous exudate, erythrocytes, leukocytes, decidua, epithelial cells, and bacteria
    - Should all pass over the course of a month
  - Skin & Hair → striae if present fade to a silvery color but are permanent
    - Closasma resolves (mask of pregnancy)
    - Hair loss (telogen effluvium) can occur 1-5 months after delivery, should cease at 6-15 months
- Hormone Replacement Therapy (HRT)
  - if you have uterus still, need progesterone to counter estrogen!
- Estrogen + progesterone can increase risk for breast cancer
- Risks of hormone therapy
  - CV disease: Increased risk in women 50-79yr old receiving combo HT, Earlier initiation asx with less risk than late (10yrs or more after menopause)
  - Breast cancer: Increased risk of invasive breast cancer with combine estrogen-progesterone oral therapy
  - Endometrial cancer: Estrogen therapy alone given to women with an intact uterus increases uterine cancer risk
  - Ovarian cancer: Risk increased in women receiving estrogen-only therapy for more than 10yr
  - VTE: Women taking oral estrogen therapy have a 2 fold increase in risk for VTE

- Menopause Therapy
  - Urogenital sx only = vaginal preparations
  - Vasomotor & urogenital sx = systemic estrogen or combo therapy
  - Osteoporosis: Calcium & Vit D supplementation, bisphosphonates
  - Estrogen therapy
    - Transdermal patch = prefered route of systemic therapy
    - Avoids first pass liver metabolism
    - Less likely to affect sex hormone binding globulin vs. oral therapy
    - Deliver estradiol at continuous rate

- Breast Abscess
  - Mostly African americans, obese patients, and smokers
  - Diagnosis made with u/s, u/s may be used for guided aspiration of the collection
  - Can culture breast milk to select abx
  - Most caused by staph (can be MRSA) → if it is recurrent, it may be anaerobic
  - Tx = abx and drainage (needle or surgical)
  - Abx = dicloxacillin or cephalexin, if MRSA → Bactrim or vanco

- Paget's Disease
  - A form of DCIS that extends from nipple ducts into the contiguous skin of the nipple and areola.
  - Nipple can appear fissured, ulcerated and oozing, can look like dermatitis
  - The hallmark is the presence of malignant intraepithelial adenocarcinoma cells (paget cells) within the epidermis of the nipple
  - Diagnosis is made with a punch or full wedge biopsy
  - Both mastectomy and breast conserving surgery followed by whole breast radiotherapy (RT) are acceptable treatment options

- Inflammatory Breast Cancer
  - Painless erythema (usually at least 1/3 of breast), Peau d'orange changes may be present
  - For diagnosed cases, get CT of chest, abdomen, and pelvis (with contrast), and bone scan since many patients have metastatic disease at presentation, may do an u/s guided fine needle aspiration (FNA) if axillary lymph nodes are palpable

- Simple Cysts
  - Fluid filled sac (filling of ducts and lobules), feels like fibroadenoma (mobile), but tender to palpation
  - Confirm with u/s, can aspirate if it causes pain (simple = fluid only, complex = solid as well)

- Fibroadenomas
  - Common benign tumor of breast, composed of fibrous and glandular tissue
  - Sharply circumscribed, smooth borders, freely mobile, non-tender
  - Occurs during reproductive years, do NOT increase cancer risk (biopsy just in case)

- Fibrocystic Disease
  - Most common breast “disorder” – does not increase breast cancer risk
  - Begins around age 20, peaks prior to menopause, resolves after menopause

- Nipple Discharge
  - Benign = bilateral and multiple ducts, pathology = one duct, unilateral
  - 90% of biopsy = papilloma (most common cause of bloody discharge) – usually <1cm, branching, grows into lactiferous ducts (too small to feel)
  - Also could be pituitary tumor (check prolactin)

- Leiomyomas
  - sx: asymptomatic, pelvic mass, pelvic pressure, menorrhagia, metrorrhagia, intermenstrual bleeding, dysmenorrhea (bleeding is most common presenting sx)
  - Management: observation vs. myomectomy vs. hysterectomy vs. D&C
• Other options: uterine artery embolization, endometrial ablation, GnRH agonist, mifepristone

• **Endometriosis**
  - Most commonly occurs in nulliparous women in late 20s or 30s
  - Infertility is common
  - Dx: US and laparoscopy
  - Tx options: NSAIDs, combined OCPs or progestins, surgery (danazol or GnRH agonist around surgery can improve fertility)

• **Post-menopausal Bleeding**
  - DDx: atrophy*, polyps*, cancer, postmenopausal hormone therapy, endometrial hyperplasia, leiomyomata uteri, adenomyosis, infection, post-radiation, anticoagulants, supplements, disease of adjacent organs
  - Dx: EMBX, TVU

• **PCOS**
  - Underlying abnormality = hypothalamic-pituitary dysfunction & insulin resistance
  - Increased risk of endometrial hyperplasia & carcinoma (d/t unopposed estrogen stimulation)
  - S/sx: hirsutism, truncal obesity, infertility, acne, oligomenorrhea or amenorrhea
  - Impaired glucose tolerance very common – DMII present in 8%
  - Dx: US → “string of pearls” or “oyster ovaries” + elevated serum androgen levels, increased LH/FSH, lipid abnormalities, insulin resistance
  - Management: weight reduction, androgen-lowering agents including OCPs (hirsutism), clomiphene citrate (infertility), metformin

• **Nabothian Cysts**
  - Typically asymptomatic but can cause dyspareunia
  - Tx (if symptomatic): excision, electrocautery, cryotherapy

• **Ovarian Torsion**
  - Primary risk factor is an ovarian mass, and is most common if the ovary is >5cm, it can also occur without an underlying lesion (especially in the pediatric population)
  - A definitive diagnosis is made by direct visualization of a rotated ovary at the time of surgical evaluation
  - Treatment → premenopausal women = detorsion and ovarian conservation rather than salpingo-oophorectomy

• **Atrophic Vaginitis**
  - Treat with vaginal estrogen cream (30% of cream is absorbed systemically)
  - ↑ susceptibility to pathogens (tx w/ vaginal cream, but 30% systemically absorbed)
  - *common cause of postmenopausal bleeding

• **Lichen Sclerosis/Planus**
  - Most common non-neoplastic epithelial vulvar disorder (usually in post-menopausal women over 60 with atrophic vaginitis), NOT contagious
  - Causes intense pruritis, shiny smooth white plaques, lichenification, and hyperkeratosis (can cause fissuring, bleeding, scarring, ecchymosis) – if mild the patient may have no symptoms
  - ALWAYS biopsy → high risk of squamous cell cancer (3-5%), but not considered precancerous
  - Surgery is not a good option (due to recurrence), treat with high potency steroid (start daily, then 2-3x a week)

• **Stress Incontinence** → leakage of urine that occurs with increased intra-abdominal pressure (sneezing, laughing)
  - Most common type in younger women (age 45-49 most common)
  - Tx → after pelvic floor PT, and other initial tx

• **Urgency Incontinence** → urge to void immediately right before or during involuntary leakage (the amount can range quite a bit), also termed “overactive bladder”, frequent small voids, can’t make it to the bathroom in time
  - Common in older women
  - Detrusor overactivity
  - Tx → Antimuscarinics, mirabegron, acupuncture, botox, tibial nerve stimulation, sacral neuromodulation, surgery

• **Overflow Incontinence** → often presents with continuous urinary leakage or dribbling in the setting of incomplete bladder emptying
  - Caused by detrusor underactivity or bladder outlet obstruction
  - Painless loss of urine if detrusor, urine stream can occur with changes in position
  - Obstruction → may need to strain to pass urine
  - Tx → Outlet obstruction may need surgery (POP etc), Detrusor → limited therapy

• **PID & Acute Salpingitis**
  - Gonorrhea & chlamydia are most common agents, and mycoplasma genitalium is also seen
S/sx: lower abd pain, adnexal tenderness, cervical motion tenderness, abnormal uterine bleeding (post-coital bleeding, inter-menstrual bleeding, menorrhagia), non-specific complaints include urinary frequency and abnormal vaginal discharge

Treatment: Inpatient = cefoxitin, cefotetan + doxy, clindamycin + gentamycin
Outpatient = ceftriaxone + doxy +/- metronidazole, cefoxitin + doxy + probenecid +/- metronidazole,

Complications: infertility, Fitz-Hugh-Curtis Syndrome (perihepatitis)

**Abnormal Pap Screening & management**
- <21 yrs → no screening
- 21-29 yrs → cytology alone every 3 years
- 30-65 yrs → HPV and cytology co-testing every 5 years, OR cytology alone every 3 years (not recommended to just do HPV screening)
- >65 yrs → no screening is necessary after adequate negative paps
  - ***women with a hx of CIN 2, CIN 3, or adenocarcinoma in situ should continue routine screening for 20 yrs after spontaneous regression
- HIV positive women → screening starts at age of first intercourse and does not stop at 65 (continues for whole lifetime), should have screening at time of diagnosis of HIV, LSIL → colpo, ASC-US → reflex HPV testing → colpo

**Abnormal Pap management**
- Cytology negative → screen again in 3 yrs
- ASC-US cytology & reflex HPV negative → co-test 3 yrs
- LSIL → With negative HPV test → repeat contesting in 12 months, If ASC or higher, or HPV positive → colposcopy
- LSIL with no HPV test or positive HPV test → colposcopy

**Diethylstilbestrol Exposure (DES)**
- increased risk of developing breast cancer
- Cervicovaginal clear cell adenocarcinoma
- Congenital anomalies and epithelial changes
- Infertility, ectopic pregnancy, pregnancy loss, preterm birth
- Cervical intraepithelial neoplasia
- Earlier menopause

**Estimated date of delivery (EDD)**
- Naegle’s Rule
  - Count back 3 months from the LMP and add 7 days
- APGAR score
  - HR, RR, muscle tone, reflex irritability (grimace/cough), skin color (pink? Blue?)

**Timing of routinely recommended screening & diagnostic studies**
- Nuchal Translucency scan → 11 wks to 13+6 wks
- GDM →
  - 26-28 wks screening → drink glucose solution, one hour later have a blood test to measure your blood sugar level, <130-140 is considered normal
  - if positive go to the 3 hr GTT
  - Fast overnight, check blood sugar levels every hour for 3 hrs
- Rhogam shot at 28-29 wks

**Meconium**
- Failure to pass can be CF or Hirschsprung’s

**Two steps of labor induction**
- Cervical ripening
  - Membrane stripping
  - Transcervical catheter
  - Misoprostol
  - Dinoprostone
- Induction of labor
  - Mechanical → membrane stripping, amniotomy, Oxytocin

**Fetal heart rate monitoring**
- VEAL CHOP
- Variable decelerations = chord compression
- Early decelerations = head compression
- Accelerations = okay
- Late decelerations = placental insufficiency
• **Endometritis**
  - Risk factors
    - **C-section** (especially if performed after onset of labor, BV)
    - Chorioamnionitis, prolonged labor, PPROM, multiple cervical exams, internal fetal monitoring, large amount of meconium in amniotic fluid, manual removal of the placenta, low SES, DM or severe anemia, preterm, postterm, HIV, GBS colonization, nasal carriage of staph aureus, heavy vaginal colonization of strep or e. coli

• **GBS**
  - GBS in pregnant women → neonatal GBS infection
  - Screen women between 35-37 weeks
  - Treat with ampicillin or penicillin IV, prophylaxis is begun at hospital admission and continued every 4 hrs until delivery

• **Postpartum Hemorrhage**
  - Primary PPH → Occurs in the first 24 hrs (early)
  - Secondary PPH → Occurs after 24 hrs up to 12 wks
  - PPH → >500mL of blood after vaginal delivery, or >1,000mL after c-section
  - Causes
    - Atony (most common) – lack of effective contraction of the uterus after delivery
    - Trauma – lacerations, surgical incisions, or uterine rupture
    - Coagulopathy
  - initiate bimanual fundal massage and continue infusing oxytocin 15 units

• **Choriocarcinoma**
  - Highly malignant epithelial tumor, it can arise from any type of trophoblastic tissue (molar pregnancy, abortion, ectopic, preterm)
  - More common after a complete mole rather than a partial mole
  - Most commonly presents following evacuation of a complete hydatidiform mole with the following characteristics
  - Pre-evacuation uterine size is larger than gestational age
  - **Hcg level >100,000**
  - Bilateral ovarian enlargement, AUB

• **Preeclampsia**
  - HTN after 20wks and signs of end-organ damage in previously normotensive patient
    - >140/90 confirmed on repeat exam
    - >160/110 confirmed dx
  - Pharmaceutical tx
    - Medications to use in moderate-severe cases: aldoemet, nifedipine, labetalol
      - Medications usually avoided in 1st trimester,
      - Tx if worried about HTN crisis or progression to eclampsia
    - Do NOT use HCTZ (do not diuresis pregnant patients, will cause further volume depletion)
  - Tx of HTN crisis: Hydralazine 10mg IV or Labetalol 20mg

• **Eclampsia**
  - Preeclampsia w/seizure, coma, or death, Prevention (most important)
    - Close monitoring, bed rest in L lateral
    - If BP >160/110, initiate IV therapy
    - Hydralazine 10mg IV, then drip
    - Delivery only definitive cure
  - Seizures
    - Tonic clonic, short duration, If status results use what is necessary to stop seizure
  - Management of seizures → Magnesium sulfate IV 6gms
    - If overdose, calcium gluconate 1g IV and supportive tx

• **HELLP syndrome**
  - Hemolysis, elevated liver enzymes, low platelets
  - Sx’s: edema of face and hands, HA, visual changes, N/V, RUQ pain, decreased urine output

• **Vaginal bleeding in first trimester**
  - Rh Immunoglobulin (Rho-Gam) administered @ 28-29wks to all Rh (-) mother as prophylaxis

• **Cervical insufficiency mas**
  - Painless dilation of cervix
    - Often in 2nd trimester, accounts for 15% second trimester loss
    - Fetal membranes may become exposed to vaginal flora, infection, PROM
  - RF’s: Prior trauma to cervix: lacerations at delivery, LEEP, cone biopsy, In utero exposure to DES (diethylstilbestrol – synthetic estrogen)
- **Management:**
  - Can perform cervix suturing to prevent in patients who are at risk or suspected cervical opening, in subsequent pregnancies in pts with known cervical insufficiency (cerclage)

- **Placental Abruption**
  - RF’s: increased age and parity, HTN, PROM, prior abruption, cocaine use, cigarette smoking, thrombophilias, trauma

- **Mastitis**
  - Incidence about 1%
  - Usually occurs in 3rd or 4th week
  - Unilateral pain assoc. w/chills, high fever, erythema, hard breast
  - 10% will develop an abscess
  - Most common pathogen = Staph aureus
  - Tx: doxycillin 500mg 4X daily, erythromycin if penicillin allergic

- **Metabolic Syndrome**
  - HLD <40 in males, or <50 in females, Triglycerides >150
  - BP >135/85 mmHg
  - Fasting blood sugar 100-125, or OGTT 140-199
  - Waist circumference >35 inches for females, >40 inches for males

- **DM**
  - **Screening Population** → Adults aged 40 to 70 years who are overweight or obese
  - **Screening interval** → Screen every 3 years.
  - **Diabetic levels**
    - Fasting blood glucose → >126
    - OCTT >200
    - Random Glucose >200 w/ sx
    - HbA1c >6.5
  - Metformin should be used as first-line
  - **Initiate treatment** → A1C >6.5, fasting plasma glucose >126, random plasma glucose >200 w/ symptoms of hyperglycemia, 2-hr plasma glucose >200 during OGTT, **START METFORMIN**
  - If target not reached in 3 months, start second drug (SU, TZD, DPP-4 Inhibitor, GLP-1 receptor agonist, insulin (basal))
  - If target is STILL not reached 3 months later, add a third drug from the same list
  - **Bigenidues: Metformin (Glucophage, Glumetza)** → First-line, suppresses hepatic glucose production without risk of hypoglycemia.
    - S/E: GI/N/D that will go away over time, B12 deficiency may occur over time
    - Contraindicated in renal insufficiency; stop if SCr >1.5 M or >1.4 F
  - **Insulin therapy** →
    - Initial therapy* = bedtime basal insulin (then add prandial short acting prn)
    - NPH insulin or **Detemir** @ bedtime, OR **Glargine** @ bedtime or morning
  - **Sulphonylureas** → Increase insulin secretion. SE: low blood sugar and weight gain.
    - (1-2% ↓) = **Glipizide**, Glimepiride, Glyburide
      - Increase insulin secretion by pancreatic beta cells (avoid in type I)
      - May cause weight gain and increase risk of hypoglycemia

- **Hypoparathyroidism**
  - DiGeorge syndrome is a congenital cause of hypocalcemia arising from parathyroid hypoplasia
  - Hypocalcemia → tetany, carpopedal spasms, muscle cramps, paresthesias, teeth, nail, hair defects, and hyperreflexia
  - **Chvostek sign** is a contraction of the eye and mouth elicited by tapping along the facial nerve
  - **Trousseau sign** produces a spasm in the hand/wrist when compressing the forearm
  - Hallmark = decreased PTH and serum calcium and increased phosphate levels
  - Tx: Correct hypocalcemia: calcium & vitamin D, calcitriol

- **Hyperparathyroidism**
  - F>M, more common in post-menopausal females
  - Hypercalcemia → “stones, bones, abd groans, psychic moans”
  - **Treatment:** **Parathyroidectomy (if sx)**, low Ca+ and Vit D intake, Bisphosphonates, Calcitonin

- **Hypothyroidism**
  - Weakness, fatigue, lethargy, cold intolerance, dry skin, hair loss, coarse hair, constipation, brittle fingernails, slow HR, leg cramps, depression, heavier menses, ED, weight gain, slower thinking, eyelid & facial edema, **hyporeflexia**, pretibial myxedema
Hyponatremia may occur due to renal problems, increased risk of HLD, CAD, anemia can result, 30% of downs patients have hypothyroidism

- **Primary:** ↑ TSH, ↓ T3/T4 (normal T3/T4 if no sx)
- **Secondary:** ↓ TSH, ↓ T3/T4
- **Treatment:** Levothyroxine sodium (LT4), higher dose in pregnancy

### Hyperthyroidism

- **Primary:** Grave’s dz (80%), goiter, toxic nodule, hashimotos thyroiditis, post-partum thyroiditis, inflammatory process, pregnancy, excessive iodine intake, can be caused by radiographic contrast or amiodarone
- **Secondary:** TSH-secreting pituitary adenoma
- **Primary:** ↓ TSH, ↑ T3/T4 (normal T3/T4 if subclinical)
- **Tx:** Anti-thyroid drugs → Thionamides (Methimazole, PTU)
  - Beta-blockers (sx control), radioactive iodine ablation, thyroidectomy
  - Complications: Afib, hypercalcemia, osteoporosis, impotence, decreased libido

### Thyroid Storm

- May be precipitated by illness, sepsis, trauma, surgery, RAI administration, and pregnancy
- High fever, tachycardia, agitation, sweating, tremor, instability, delirium, vomiting, diarrhea
- Mortality is high and these patients should go to the ICU
- **Treatment**
  - PTU may be given orally, but monitor for liver dysfunction (also MMI)
  - IV sodium iodide
  - IV hydrocortisone

### Myxedema Crisis

- This can be precipitated by sepsis, cardiac disease, respiratory disease, CNS disease, cold exposure, drug use, or non-compliance with treatment
- **Clinical Features:** Obtundation, CO2 retention, coma, AMS is the hallmark, Mortality is between 20-50%, patient should go to ICU
- **Treatment:** Thyroxine IV bolus, consider hydrocortisone if adrenal insufficiency is suspected

### Thyroid cancer

- **Risk Factors:** Childhood radiation (25-fold increase), family history, gardner syndrome, MEN type II
- **Diagnosis:** Ultrasound, RAIU, Whole body scan, CT scans, PET scans
- **Treatment**
  - Thyroidectomy or lobectomy
  - Radioactive iodine (100+ mCi)
  - TSH suppression w/ levothyroxine

### Adrenal insufficiency (Addison disease)

- Glucocorticoid deficiency (adrenal etiology) → loss of GC + MC, high ACTH levels
- **Clinical Features**
  - Weakness, fatigue, anorexia, GI sx, salt craving, postural dizziness, muscle or joint pains, weight loss, hyperpigmentation, hypotension, vitiligo
  - Primary specifically: Na loss & K retention (MC), hyperpigmentation (↑ ATCH – only found in primary disease)
  - Delayed DTRs, orthostatic hypotension, small heart, hyperplasia of lymphoid tissues, scant axillary and pubic hair, hypogonadism, AMS (can be fatal)
- **Diagnosis**
  - Will see a subnormal response to Cosyntropin Stimulation Test (CST)
- **Primary disease is treated with a combination of corticosteroids and mineral-corticoids**
  - Maintenance therapy: GC replacement (hydrocortisone or prednisone), and MC replacement (fludrocortisone), ↑ salt

### Cushing syndrome

- ACTH-secreting pituitary adenoma, 10% due to adrenal adenomas, exogenous cushing’s is commonly cause by corticosteroid use
- Less severe in patients >50 years of
- **Symptoms:** Truncal obesity, thirst, polyuria, striae, moon faces, hirsutism, easy bruising, proximal muscle weakness, backache, headache, acne, depression, insomnia, menstrual issues, HTN, gonadal dysfunction, thyroid dysfunction, osteoporosis
- **Dx:** ACTH levels detectable

### Acromegaly - Somatotroph Adenoma (GH)

- **Symptoms:** Acral enlargement, frontal bossing, prognathism (protruding jaw), jaw malocclusion, soft tissue swelling, arthralgia & arthritis, proximal myopathy, cardiac hypertrophy, HTN, DM, CAD, skin tags, hyperglycemia, sleep apnea, visceromegaly, kidney stones, hyperhidrosis, menstrual abnormalities, hirsutism
- **Diagnosis**: Measure IGF-1 → increased suggests acromegaly, Confirmatory tests with OGTT or nadir glucose levels
- **Treatment**: Somatostatin, Somatostatin analogue (octreotide), GH receptor antagonists, Surgery (transphenoidal), Radiation (usually post-op)

- **Diabetes insipidus Type 1/Type 2**
  - High serum osm, low urine osm
  - **Water Deprivation Test**
    - **Central** → responds to DDAVP; urine osmolality (Na) increases
    - **Nephrogenic** → no response to desmopressin; urine osmolality does not significantly increase
  - **Treatment**
    - Desmopressin (increases water resorption) → treatment of choice for central DI or with pregnancy

- **Prolactinoma**
  - **Clinical Features**
    - Signs of increased prolactin
    - Women: infertility, amenorrhea, galactorrhea
    - Men: headache, visual abnormalities, libido loss, ED
  - **Treatment**
    - Dopamine agonists → Bromocriptine, Cabergoline

- **SIADH**
  - malignancy (small cell lung ca)
  - **Diagnosis**
    - Decreased serum Na
    - Increased urine Na loss
  - **Treatment**
    - Restrict fluid intake
    - Administer hypertonic fluids

- **Atopic Dermatitis**
  - **Clinical Features**
    - Topical steroids are the mainstay, try to avoid systemic steroids

- **Seborrhea**
  - Scattered yellowish/gray, scaly macules and papules with a greasy look
  - Dandruff: use shampoos containing selenium or zinc and ketoconazole for acute flare-ups, tar shampoos or topical steroids can be used for severe cases

- **Psoriasis**
  - Removing the scale → **auspitz sign**
  - Pruritis is common, scratching leads to more lesions (Koebner phenomenon)
  - Patients with extensive disease also have **nail involvement**, tiny pits, ridges, and separation (onycholysis), have oil spots
  - In mild cases, treatment is topical steroids and vitamin D preparations (calcipotriene)

- **Pityriasis Rosea**
  - Characterized by a **herald patch**
  - Rash beings on drunk as oval, salmon colored, raised macules, followed the natural skin folds giving a **Christmas tree like pattern** on the trunk
  - Collarettes around lesions, **self-limited (3-8 wks)**
  - May by mild URI before rash, herald patch precedes the rash by 1 wk
  - No treatment needed, can use emollients for scales, UVB light may be helpful at first week, can use lotions, antihistamines etc

- **Lichen Planus**
  - **Clinical Features**
    - Lesions are discrete, flesh colored, waxy, dome shaped, umbilicated papules over the face, trunk and extremities
    - Usually 3-6 mm, a white curd-like material can be expressed
  - **Treatment**
    - Topical steroids, occlusive dressings, translesional steroids, topical tretinoin, cyclosporine mouthwash, systemic therapy (cyclosporine, corticosteroids, retinoids)
    - Psoralens plus UVA (PUVA) can be helpful

- **Molluscum contagiosum**
  - **Clinical features**
    - Lesions are discrete, flesh colored, waxy, dome shaped, umbilicated papules over the face, trunk and extremities
  - **Treatment**
    - Not usually necessary since the disease is self-limited
    - Can do local excision of lesions

- **Herpes Zoster**
  - **Acyclovir (w/in 72hrs of acute vesiculation)**
  - Analgesics for pain control
  - Gabapentin

- **Seborrheic Keratosis**
The sign Lester-Trelat -- sudden explosive onset of numerous SKs is associated with an internal malignancy (still benign but can mean they have CA).

**Folliculitis**
- Inflammation of the hair follicles, most commonly caused by *staph aureus*, but hot tub folliculitis is most commonly caused by *pseudomonas*.
- Mupirocin (bactroban) may also help.

**Cellulitis**
- Start empiric abx for *h. flu, strep, and staph*.
- Treatment: Mild/early infections may be treated with dicloxacillin or cephalosporin.

**Impetigo**
- Most common bacterial infx in kids.
- Tx: Topical: Bactroban ointment 2% (Mupirocin) -- treats GAS, *S. aureus* + MRSA (apply QID x2wks).

**Erysipelas**
- GAS, treat with PCN.

**Hidradenitis Suppurativa**
- Tx: BPO/triamcinolone, abx, intralesional steroids, I&D, surgery, isotretinoin.

**Dermatophyte (tinea) infections**
- Well-demarcated scaling plaque.
- 10% KOH → *hyphae*.
- Tx:
  - Terbinafine (Lamisil) x1-2wks
  - (allymines)
  - Ketoconazole x2wks
  - Griseofulvin PO for tinea capitis & unguium
  - Avoid steroids and nystatin.

**Tinea Versicolor**
- *Malassezia furor*.
- Fluconazole (Diflucan).
- Ketoconazole.
- Selenium sulfide.

**Basal Cell Carcinoma**
- Sx:
  - flat, firm area with small, raised, translucent pearly papule with central ulceration and raised rolled borders.
  - most common on face, nose, trunk, often friable.
  - may have telangiectastic vessels.
- Dx:
  - *punch or shave biopsy* looking for basophilic cells.
- Tx:
  - *electric disiccation/curettage*.
  - moh's for difficult cases.
  - imiquod & 5FU.

**Squamous Cell Carcinoma**
- 2nd most common, *often preceded by actinic keratosis or HPV*, also sun and envt.
- Sx:
  - most common on lips, hands, neck and head.
  - red, elevated nodule with adherent white scaly or crusted bloody margins.
- Dx:
  - *biopsy* - epidermal or dermal cells with large, pleomorphic, hyperchromatic nuclei.
- Tx:
  - *excision*, can do Moh's, XRT.

**Melanoma**
- ~80% caused by UV radiation, aggressive, high mets.
- Sx:
  - *ABCDE* (E=evolution).
  - *diameter >6mm*.
  - *thickness is most important prognostic factor for mets*.
- Dx:
  - *full thickness wide excision biopsy with LN biopsy*.
  - *shave biopsy discouraged*.
- Tx:
• *excision*, possible LN dissection
• high risk = a-interferon

**Paronychia**
- Tx: I&D, ABX treatment for staph infection
- Paronychia caused by Candida → Oral fluconazole 150mg qd 1-2wks; avoid irritation; wear cotton under vinyl glove

**Meningitis**
- classic triad = fever, nuchal rigidity, mental status change
- other s/sx: HA, photophobia, N/V, seizures, focal deficits, rash, + kernig sign, + brudzinski sign
- send for non-contrast CT → LP
- typical CSF findings: elevated opening pressure (>200), WBCs 1-5k with >80% neutrophils, elevated protein (100-500), low glucose (<40 with a CSF:serum glucose ratio of <0.4)
- Do not wait for CT to treat empirically: Ceftriaxone, Vancomycin, Ampicillin, Acyclovir, Steroids
- Under 1 mo → GBS
- 1 mo to 50 years → #1 cause is Strep pneumo
- Greater prevalence of Neisseria meningitidis in ages 0-5 and 14-21

**Guillain-Barre syndrome**
- Signs & Symptoms
  - Symmetric motor and sensory polyneuropathy that begins in an ascending fashion, from legs to trunk to arms
  - Progresses over a 2 week period
  - Paresthesias
  - Areflexia
  - Recent viral illness
  - Absent or depressed DTRs
  - Dysautonomia: tachycardia, urinary retention, hypo/hypertension alternating, ileus, loss of sweating
- Workup
  - Initial test is CSF: increased protein, normal WBCs (but not present in all pts)
  - EMG studies
- Management
  - Supportive: mechanical ventilation
  - Plasma exchange

**Seizure disorders**
- Management
  - 1st line: carbamazepine, phenytoin, lamotrigine, valproate, or oxcarbazepine
  - 2nd line: gabapentin, topiramate, levetiracetam, zonisamide, tiagabine, phenobarbital, felbamate

**Cluster HA**
- Tx: O2 (7lpm x20min), triptans (2nd line = ergotamine, ocreotide)
- Prophylaxis: DOC is verapamil (takes 8 weeks to work), Li, ergotamine, prednisone taper, nerve block

**Migraines**
- Tx: headache diary (ID triggers), Triptans (sumatriptan), analgesics (ibuprophen, naproxen, indomethacin), Ergots (ergotamine), antiemetics (Reglan), dexamethasone
- Preventive (4+/mo, >12hrs, significant disability) → BB, CBB, ACEI, amitriptyline or antidepressants, gabapentin or antiepileptics

**Tension HA**
- Tx: NSAIDs (IBF, naproxen, ketorolac), acetaminophen +/- caffeine, heat, ice, massage

**Acute Renal Failure**
- decline in kidney function with ↑ BUN & Cr
- Pre-renal azotemia (FENA <1%) = hypovolemia / dehydation / hypoperfusion → decreased PO intake, hypoperfusion from sepsis, hemorrhage, surgery, low CO
  - → rapid volume replacement, correct cause of hypoperfusion
- Renal azotemia = glomerulonephritis, interstitial nephritis, tubular necrosis, thrombosis, nephrotoxic agents (contrast dye, ACEIs, PCN, NSAIDs)
  - → increase urine flow, remove toxic agent, dialysis may be indicated
- Postrenal azotemia = obstructive → stones, abd or pelvic mass, enlarged prostate w/ severe urinary retention, urethral strictures
  - → US, catheter until obstruction relieved, may require surgical decompression

**Glomerulonephritis**
- inflammation of glomeruli, can be acute or chronic
- Nephrotic syndrome: proteinuria >3.5g/d, edema, HLD, hypoalbuminemia, lipid casts
  - Minimal change dz, focal segmental GN, membranous nephropathy
- Nephritic syndrome: proteinuria <3g/d, hematuria, RBC casts, oliguria, HTN
## PEDIATRIC VIRAL EXANTHEMS

<table>
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<th>Disorder</th>
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| **ROSEOLA** (6TH’S DISEASE)    | --HHV 6 & 7, spread by respiratory droplets, 10d incubation period  
--high fever 3-5 days → defervescence coincides with rash  
--rose pink maculopapular blanchable rash (trunk/back → face)  
---**only childhood viral exanthem that starts on trunk & spreads to face**  
--tx = supportive, anti-inflammatories |
| **HAND-FOOT-MOUTH DZ**         | --coxsackie A virus (enterovirus), spread feco-oral and oral-orally  
--mild fever, URI sx, decreased app starting 3-5 days post-exposure → rash  
--**vesicular lesions on a reddened base** in oral cavity (buccal mucosa, tongue) → lesions on distal extremities 1-2d post initial sx |
| **MUMPS**                      | --paramyxovirus, spread by respiratory droplets, 12-14d incubation period  
--low-grade fever, myalgias, headache → painful **parotid gland swelling**  
--supportive, anti-inflammatories, MMR (sx usually last 7-10d)  
--complications: **orchitis**, encephalitis, aseptic meningitis, deafness, **pancreatitis** |
| **RUBEOLA / MEASLES**          | --paramyxovirus, spread by respiratory droplets, 10-12d incubation period  
--URI prodrome: high fever, cough, coryza, conjunctivitis, **koplik spots** (precedes rash 24-48hr)  
--maculopapular (mobiliform) **brick-red rash** on face beginning at hairline → extremities  
--**rash lasts 7 days, fevers concurrent w/ rash**  
--tx: supportive, anti-inflammatories, isolate for 1wk after rash onset  
--complications: **OM***, pneumonia, diarrhea, encephalitis |
| **RUBELLA** (German Measles)   | --Togavirus, spread by respiratory droplets, 2-3 week incubation period  
--**rash lasts 3 days**  
--low fever, cough, anorexia, LAD → rash (may see photosensitivity & joint pains)  
--pink, light-red spotted maculopapular rash on face → extremities (**blueberry muffin**)  
--tx = supportive, anti-inflammatories (generally no complications)  
--teratogenic (esp 1st trimester), part of TORCH  
---**congenital syn = sensorineural deafness**, cataracts, TTP, mental retardation, heart |
| **ERYTHEMA INFECTIOSUM** (5TH’S DISEASE) | --parvovirus B19, spread by respiratory droplets, 4-14 day incubation period  
--coryza, fever → **slapped cheek rash** w/ circumoral pallor 2-4d → **lacy reticular rash on extremities** (spares palms & soles) → resolves in 2-3 wks  
--tx: supportive, anti-inflammatories  
--complications arthropathy (in older kids and adults), aplastic crisis w/ SSD |

Rashes that affect palms & soles... Coxackie (HFM), RMSF (esp wrist), syphilis (secondary), Janeway lesions, Kawasaki, measles, TSS, reactive arthritis, meningococcemia