This document is a collection of HY notes from the USMLE World Step 3 question bank. These notes are not 'bottom line statements' nor are they meant to be unequivocally comprehensive in all subject areas. They are a random agglomeration of pearls that should serve as review and to fill in gaps for a student finishing medical school.

Iron deficiency in an infant is often due to supplementing with cow/goat/soy milk under the age of 1, or exclusively breastfeeding after 6 months. Do an FBC and give oral iron supplementation if anaemic. **Reticulocyte count increases first**, followed by Hb and Hct in one month.

'Near-miss events,' or medical errors caught before they reach the patient, must be reported to **hospital administration**. It is not mandatory to report near misses to patients. It is mandatory to report to patients only errors that have occurred.

Caput succedaneum crosses suture lines; cephalohaematoma does not. **Caput can be ecchymotic**; it presents soon after birth + self-resolves in weeks. Cephalohaematoma is associated with underlying skull fracture in 10-25%, there is no discolouration of the scalp, and it is not visible for several hours because of slow bleeding; it self-resolves in two weeks to three months. **Neither requires treatment**.

Mammograms should be done every two years age 50-75. Ultrasound alone is done under the age of 30. Over the age of 30, mammogram and ultrasound is done.

Verapamil, quinidine, amiodarone + spironolactone can all cause digoxin toxicity.

Bezold abscess = neck abscess resulting from medial spread of mastoiditis. The abscess is in the sternocleidomastoid.

A patient with a (+) HepC antibody ELISA screen needs confirmatory testing for HCV RNA as the next best step. A (+) ELISA on its own could mean persistent infection, cleared infection, or false (+).

A child has a 3% chance of acquiring T1DM if only his or her mom has T1DM, and 6% chance if the father has T1DM (difference not fully elucidated). A monozygotic twin has a 50% chance of developing T1DM if his or her twin has it.

Apnea testing confirms brain death in individuals w/ absent cortical and brainstem reflexes.

Herbs associated with increased bleeding risk: Ginkgo biloba, ginsing, saw palmetto (likely platelet dysfunction), black cohosh, garlic, horse chestnut

Ginkgo used for memory; ginsing used for increased mental function; saw palmetto used for BPH (also causes GI disturbance); black cohosh used for post-menopausal Sx; horse chestnut used for venous stasis/insufficiency

Herbs associated with hepatotoxicity: black cohosh, kava kava (used for anxiety/depression and insomnia).

Drugs that can cause HTN: ephedra (used for colds/flus and to increase energy), St John wort when with other serotonergic drugs (used for depression/anxiety and insomnia), and licorice (also causes hypokalaemia).

Echinacea causes anaphylaxis, especially high risk in asthmatics.

Black cohosh can also cause hypotension.

Tx of malignant otitis externa = **intravenous** anti-pseudomonals (e.g., ciprofloxacin) followed by oral therapy for 6-8 weeks of total Abx therapy.

An individual who suffers severe traumatic injury should be given narcotics for pain relief regardless of addiction/abuse Hx.

MRI is best to Dx suspected osteonecrosis (e.g., of hip). Plain films can often appear normal, especially early on.

If hypoglycaemia is present and serum insulin + C-peptide both elevated, **do oral hypoglycaemic serum screen** (e.g., for sulfonylurea levels) as next best step in management. C-peptide can be increased in this case and insulinoma isn't necessarily the answer.

Restless leg syndrome can be caused by **iron deficiency**. Ferritin should be ordered as iron deficiency can be seen in the absence of anaemia. Chronic renal failure/uraemia, diabetes, pregnancy, multiple sclerosis, Parkinson disease, and drugs (e.g., metoclopramide, antidepressants) can also cause it. Treat with iron supplements when ferritin <75 ug/dL, and w/ dopamine agonists or alpha2-delta2 Ca channel ligands (gabapentin).

Risk of future peripartum cardiomyopathy is ascertained **with transthoracic echocardiogram**. Decreased EF suggests worse prognosis if subsequent pregnancy occurs.

If suspected breast abscess (e.g., secondary to mastitis), first do ultrasound to Dx then needle aspiration. Only do incision + drainage if that fails.

HIV (+) patients who are not on HAART should have CD4 count measured every 3-4 months to determine optimal time to commence therapy.

HIV post-exposure prophylaxis in **high-risk situations within 72 hours** (e.g., post-needle stick; exposure to any secretion with blood, breast milk, semen, rectovaginal, eye, mucous membrane, non-intact skin) = **two NRTIs + either an NNRTI, integrase inhibitor or protease inhibitor = three drugs total for FOUR weeks.**

If presents **>72 hours post-exposure of source of HIV was low-risk** (urine, nasal secretions, saliva, sweat, tears [no visible blood in any as well]), **post-exposure prophylaxis is not recommended**.

Examples of NRTIs: tenofovir, lamivudine, emtricitabine, zidovudine

Integrase inhibitor: raltegravir

Protease inhibitors: atazanavir, ritonavir

Hypercalcaemia can cause anxiety/depression, mild weakness, **constipation, peptic ulcer disease and diastolic hypertension.**

Hypocalcaemia can cause hyperpigmentation, seizures, weakness and hypotension.

Mendelson syndrome = pneumonitis from aspiration of gastric contents

Fluid status (i.e., IV fluids) should be closely monitored in patients with kidney injury (e.g., ATN) to prevent pulmonary edema and hyperchloraemic metabolic acidosis.

Gonorrhea Tx = single intramuscular dose of 250mg ceftriaxone *plus* oral doxy 100mg bid or 1g oral azithro stat

Oral erythromycin (14 days) is Tx for both neonatal conjunctivitis and pneumonia. Topical is <u>not</u> effective. Although erythromycin increases risk of pyloric stenosis, it is

the only macrolide well-studied to be effective. Prophylactic eye drops are not effective.

Most important management step in septic shock is **fluid resus to CVP of 8-12 mm Hg**. If poorly responsive → vasopressors.

In patients taking corticosteroids, stress-dose steroids should also be given in septic shock due to adrenal suppression.

Target-specific oral anticoagulants (TSOAC), such as dabigatran, rivaroxaban, apixaban, edoxaban, are not recommened in AF if three is valvulopathy (especially mitral) or renal disease. TSOACs are best for **non-valvular AF** or mild AS.

RDA for calcium is 1200 mg/day; RDA for vitamin D is 600-800 IU/day.

Microbial Dx of diabetic foot ulcers is best achieved via **deep curettage**.

Before Dx fibromyalgia, must do FBC, ESR/CRP and **TSH/T3/T4**.

Antenatal steroids are given intramuscularly.

Tx for uraemic platelet dysfunction is **IV desmopressin**, not platelet transfusion.

Tx for hyperglycaemic hyperosmolar non-ketotic state (HHS) is **fluids**: 0.9% NaCl initially then switch to 5% dextrose once glucose <200 mg/dL; **insulin**: IV infusion initially then switch to SQ long-acting basal insulin (e.g., glargine, detemir) with a 1-2-hr overlap once 1) the patient can tolerate oral feeds, 2) glucose is <200, bicarb is >15, and there's no anion gap acidosis; **potassium**: must give K+ once under 5.2 mEq/L; withhold insulin if K+ under 3.3 mEq/L; patients are always potassium-depleted even if hyperkalaemic; **bicarb**: consider if pH <6.9; **phosphate**: consider if <1 mEq/L or cardio/respiratory compromise; monitor calcium frequently.

Diabetic ketoacidosis is defined as pH <7.3, bicarb <15, and glucose >200 mg/dL. Treatment is 10 mL/kg normal saline over one hour, followed by an insulin drip. K+ is added to the insulin if <5.2.

Severe DKA is pH <7.1, bicarb <5, or altered mental status; **admit to ICU**.

Three Dx criteria for ankylosing spondylitis: 1) low back pain/stiffness >3 months that improves with exercise/activity, 2) decreased range of motion of lumbar spine, 3) decreased chest expansion; initial Dx made via X-ray of sacroiliac joints.

Monitoring of ankylosing spondylitis done with 1) AP + lateral lumbar spine X-rays, 2) lateral cervical spine X-ray, and 3) pelvic/SI joint X-rays.

Extra-articular manifestations of ankylosing spondylitis are anterior uveitis, cataracts, cystoid macular edema, AR/MVP, IgA nephropathy, apical lung fibrosis.

Upper-GI endoscopy to screen for gastric + duodenal adenomas/carcinomas is done following Dx of FAP.

Polymyalgia rheumatica = age >50, myalgia in two or more muscle groups + bilateral pain + morning stiffness for >1 month. ESR + CRP are increased and normocytic anaemia seen occasionally. Tx is **low-dose** glucocorticoids (10-20 mg daily). If patient also has giant cell arteritis, Tx is **high-dose** glucocorticoids (40-60 mg daily).

Statin-induced myopathy has increased CPK and normal ESR. In mild cases CPK may be normal.

Criteria for Dx of giant cell arteritis (3 of 5 is 94% sensitive, 91% specific): **NEATT**: New-onset headache with fever and visual disturbance, ESR >50, Age >50, Tenderness or decreased pulse of temporal artery, Temporal artery biopsy showing necrotizing arteritis with mainly mononuclear cells

Upon Dx of NF1, must immediately do **ophthalmology referral** because of increased risk of optic gliomas (15% of cases). Genetic testing is (-) in 30%.

Asymptomatic Actinomyces found on Pap smear secondary to IUD is **not** Tx.

Dyshidrotic dermatitis is characterized by small blisters on palms/soles; the cause is unknown but may be contact-related.

Lichen simplex chronicus is caused by chronic scratching/itching; seen on any part of body.

SAAG (fraction not difference) >1.1 = portal hypertension = CHF, cirrhosis, hepatitis; SAAG <1.1 = nephrotic syndrome or non-portal hypertension cause = peritoneal carcinomatosis, peritoneal tuberculsosis, pancreatitis, serositis, ovarian metastases.

Lung cancer screening, as per the US Preventive Services Task Force, now recommends annual low-dose CT for individuals 55-80 years of age who have at least 30 pack-year-Hx and who currently smoke or quit <15 years ago. False (+) rate is

95% but decreases mortality 20%. These results are based on the National Lung Screening Trial (NLST) w/ 50,000 patients randomized.

Fluoxetine is the anti-depressant of choice in children/adolescents.

B12 deficiency can have increased indirect bilirubin due to intramedullary hemolysis secondary to erythroid hyperplasia from ineffective erythropoiesis and cell death. LDH, decreased haptoglobin, and increased indirect bilirubin can all be seen.

Must fast for eight hours before hydrogen breath test for lactase deficiency.

Pernicious anaemia is associated with a type of gastritis called autoimmune metaplastic atrophic gastritis (AMAG). The three findings are glandular atrophy, intestinal metaplasia, and inflammation. **Absent rugae** may be seen in the fundus.

Typical Tx for Scheuermann disease (a structural kyphosis) if <70 degrees is a Milwaukee brace and strengthening of spinal muscles. Flexible kyphosis, in contrast, is a benign finding in many adolescents and only reassurance is necessary.

Negative skew = mean < median < mode; this means peak is to the right

Positive skew = mode < median < mean; this means peak is to the left

Mode is the high point (crest) of the curve; the mean is lowest on the flatter part of the curve.

After Dx of lobar carcinoma of breast (LCIS) on fine needle biopsy, **excisional biopsy** is the next best step in management.

PPIs may increase the risk of hip fracture due to decreased calcium absorption.

Platelet transfusion should be reserved for life-threatening bleeding or platelets <50,000 in a haemodynamically stable patient. Stable patients should generally receive restrictive RBC transfusions (i.e., only when Hb <7 g/dL). Unstable patients or those with unstable coronary artery disease will generally receive RBCs regardless.

Shock-wave lithotripsy may be used for uncomplicated proximal ureteral stones, but complicated/symptomatic cases → percutaneous nephrostomy or stent.

Cyanide toxicity can occur with sodium nitroprusside use for malignant HTN. It causes **altered mental status/seizures** and **metabolic acidosis**, as well as

cardiorespiratory and/or gastrointestinal distress. Tx is sodium thiosulfate. Hypertensive encephalopathy is seen **prior** to lowering BP. If Sx seen after lowering BP, think cyanide poisoning.

70% of Sjogren syndrome patients have oral candidiasis (white patches).

Lipodystrophy in HIV is suggestive of insulin resistance (HIV lipodystrophy).

Tx of anaemia of chronic disease is aimed at Tx of the underlying condition (e.g., giving infliximab in rheumatoid arthritis).

In anaemia of chronic disease, iron is low, ferritin is high, transferrin saturation is normal or low, TIBC is low.

In thalassaemia, serum iron and ferritin are both high (increased RBC turnover), transferrin saturation very high, and TIBC low. In alpha-thalassaemia, Hb electrophoresis is normal; in beta-thalassaemia minor Hb A2 is increased. RBC distribution width is normal because all RBCs are uniformly small. Both alpha- and beta-thalassaemia can present initially as 'anaemia' refractory to iron therapy.

Gastrostomy tube feeding is the most effective means to provide feeding following stroke with dysphagia. NG tube is only short-term.

Treatment of Graves disease:

Antithyroid drugs (e.g., PTU, methimazole): MOPP

- Mild hyperthyroidism
- Older patients with limited life expectancy
- Preparation for radioiodine ablation or thyroidectomy
- Pregnancy (PTU 1st trimester; methimazole 2nd/3rd trimesters)

Radioiodine ablation:

- Moderate/severe hyperthyroidism with or without ophthalmopathy (**if with the latter add steroids**)
- Patient preference in mild hyperthyroidism

Thyroidectomy:

- Goiter: very large, or retrosternal with obstructive symptoms
- Severe ophthalmopathy
- Pregnancy if woman cannot tolerate thionamides
- Suspicion of cancer

Radioiodine ablation **plus steroids** together = Tx for Graves w/ ophthalmopathy

Total T3 and free T4 levels are used to assess thyroid function on follow-up in Graves patients following radioiodine ablation, as TSH may remain suppressed for weeks. Thyroid function should normalize in 4-6 weeks, but most patients develop hypothyroidism in 2-6 months.

Tx for Strep pharyngitis is **ten days** of penicillin to prevent rheumatic fever.

Tx for bacterial conjunctivitis = erythromycin ointment, sulfa drops, or polymyxin/trimethoprim drops. Ciprofloxacin only for contact wearers (Pseudomonas).

Tx for mild-moderate localized plaque psoriasis is high-potency topical steroid (**0.05% betamethasone cream**).

Increased ALP and liver enzymes in the setting of acute pancreatitis can be caused by compression of the common bile duct by an edematous pancreas and need not be due to gallstones. First step after lipase is high and calcium is normal is to check lipids and do an ultrasound. The ultrasound should be done to visualize potential stones before an ERCP is considered.

Patients with pancreatitis who have signs of deterioration or infection after 72 hours should undergo a CT scan to look for potential complications or evidence of necrosis.

Breast ultrasound alone for under **thirty**, but mammogram + ultrasound for >30. MRI is best reserved for diagnostic dilemmas.

Inspiratory upright posteroanterior view is best for initially evaluating for pneumothorax. Studies have shown expiratory and inspiratory films have equal sensitivity for pneumothorax detection. Lateral decubitus is most sensitive for detecting pneumothorax since as little as 5 cc of gas can be detected. But most clinicians prefer the former as the initial test.

Presetting the power of a study higher (e.g., at 0.85 vs 0.80) requires more study participants. In other words, whatever results are to be achieved through a study, if the researcher were to decrease power, then he or she will more easily achieve significance in the study at the expense of increased beta-error. *The number of participants enrolled in a study only becomes inadequate if power is increased.*

'Expected magnitude of size' = the size of expected difference between groups. If you're trying to detect a really small difference between groups (e.g., drugs vs placebo), and your expected magnitude of size is therefore small, a large number of study participants is required. If your expected magnitude of size is large (i.e., you're not trying to detect a very small difference), you require fewer participants and less power. Therefore if you want to detect a small difference (i.e., small expected magnitude of size), you need to set power high (i.e., have many participants).

Setting alpha higher (e.g., 0.05 vs 0.01) requires a smaller sample size.

Premature atherosclerosis leading to coronary artery disease and a cardiovascular event is the leading cause of death in SLE. Patients with SLE aged 35-44 have a 50-fold increased risk of CAD.

Exercise ECG is the preferred initial test in the evaluation of coronary heart disease (CHD). The two things to consider are: 1) can the patient exercise, and 2) is his or her baseline ECG normal. If both yes → exercise ECG. If can exercise but not a normal baseline ECG → exercise echocardiography (but not in obesity).
If cannot exercise → adenosine/regadenoson myocardial perfusion scan/imaging. Adenosine however is contraindicated with any Hx of asthma or bronchospasm.

RBC cholinesterase activity is the Dx test for organophosphate poisoning if it is chosen to be performed (history equivocal) and can also assess degree of intoxication. Organophosphate poisoning *and* arsenic poisoning both cause a patient to smell like garlic.

Three examination indicators of severe aortic stenosis: 1) soft, single S2 (delayed A2 leads to synchronization of A2 and P2 or paradoxical splitting where A2 after P2); **the normal splitting of S2 is the most reliable examination factor for excluding severe AS**; 2) pulsus parvus et tardus (delayed upstroke); 3) **loud and late-peaking systolic murmur**; if murmur is early then the AS is usually more mild-moderate.

(+) Likelihood ratio = sensitivity / 1-specificity = likelihood of having the disease given a positive result. This is different from PPV in that PPV is prevalence dependent.

(-) Likelihood ratio = 1-sensitivity/specificity = likelihood of not having the disease after a test result comes back negative. NPV, in contrast, is prevalence dependent.

Acute radiation proctitis can present with diarrhea, mucous discharge and tenesmus within 6 weeks of pelvic radiation (e.g., for cervical cancer). Chronic radiation

proctitis (>9 weeks after radiation) can present with the same Sx plus strictures, fistula formation and rectal bleeding.

Basic calcium phosphate deposition disease (not CPPD disease) can cause a large, cool effusion of the shoulder called Milwaukee shoulder. Basic calcium phosphate crystals aggregate as large, coin-like particles.

Cyclosporin causes gout in 50% of patients. As well as HTN and hypertrichosis.

In renal failure and post-renal transplant patients, acute gout is treated with intra-articular steroids or increasing steroid dose, not NSAIDs. Colchicine, probenecid and allopurinol should also notably be avoided in these patients.

Percutaneous gastrostomy (PEG) placement is ideal in patients who are at high risk of aspiration (e.g., ALS, stroke) who need long-term treatment. Risk of aspiration is not less with a PEG than with an NG tube, but the former is less uncomfortable for the patient. Changing to a liquid diet alone will not decrease future aspiration risk in ALS.

Tick paralysis is caused by toxin made in the salivary glands of Dermacentor ticks in North America and Ixodes in Australia. Paresis and ascending paralysis, and even respiratory failure/death, occur within 2-7 days of tick bite. Pupillary abnormalities are uncommon in tick paralysis. Removal of the offending agent (tick) is the treatment.

Indication of adding steroids to TMP-SMX in pneumocystis infection is A-a gradient >35 mm Hg or PaO2 <70 mm Hg.

Intertrigo = candida/fungal infection of intertriginous areas (skin folds). Treatment is topical antifungals.

Erythrasma is a red/brown intertriginous plaque caused by Corynebacterium minutissimum. Treatment is topical fusidic acid or oral macrolides.

Bronchiolitis obliterans organizing pneumonia (BOOP) = cryptogenic organizing pneumonia (COP), and is often caused by drugs (e.g., amiodarone), autoimmune disease (e.g., rheumatoid arthritis), fumes, infections, radiation, obstructions (e.g., cancer). It clinically and radiographically presents like pneumonia but does not respond to antibiotics. Symptoms develop slowly over weeks to months. 'Organizing' refers to alveolar exudates that persist and eventually undergo fibrosis.

Bronchiolitis obliterans refers to bronchiolar constriction of multiple aetiology (e.g., smoking, chronic asthma, fumes) that eventually results in fibrosis. It is distinct from BOOP/COP because it does not present like a pneumonia and is not characterized by alveolar exudates that fibrose. The fibrosis in BO is subsequent to the actual bronchiolar narrowing.

Thyroid nodules should be evaluated first with TSH and ultrasound, *then* with fine-needle aspiration.

Ultrasound of the neck and cervical lymph nodes, as an important step in staging, should be performed *before* thyroid surgery to remove cancer. Total thyroidectomy is generally indicated, unless the cancer is <1cm, in which a thyroid lobectomy may be performed.

For C. difficile, Tx is oral metronidazole if pseudomembranous colitis is mild or moderate: WBC <15,000, creatinine <1.5 baseline and serum albumin >2.5g/dL. If outside these parameters (severe), start with *oral vancomycin first*. If ileus occurs (exacerbation of severe), add *IV* metronidazole or switch to rectal vancomycin. Surgery reserved for life-threatening cases.

The first recurrence of C. difficile is treated with oral metronidazole *again* if mild or vancomycin is severe. This is because it's thought the first recurrence is due to germination of spores from the initial infection rather than being a second genuine infection. For the second recurrence, use pulsed oral vancomycin over 6-7 weeks. For subsequent recurrences, use fidaxomicin.

Benign pruritis is a common during pregnancy and may involve the scalp, abdomen, vulva and anus.

Pruritic urticarial papules and plaques of pregnancy (PUPPP) is the presence of pruritic papules usually starting on the abdomen and often spreading to the legs, chest, arms. Skin distension is a risk factor and the papules often emerge within striae.

Gestational pemphigoid (also called pemphigoid gestationis; originally called herpes gestationis, but not related to HSV) is an autoimmune disorder characterized by antibodies against hemidesmosomes. **It almost always starts around the umbilicus/naval area** and spreads outward. It is often confused with PUPPP.

Topical steroids and anti-histamines are the first-line Tx for pregnancy-associated dermatoses, including PUPPP and pemphigoid gestationis.

CT scan is used to Dx suspected chronic pancreatitis (e.g., steatorrhea in a chronic alcoholic who has no pain) because amylase/lipase are often normal due to fibrosis.

First-line Tx for chronic pancreatitis is lifestyle modification, including cessation of alcohol and eating a low-fat diet. If conservative measures are unsuccessful, then pancreatic enzyme replacement and possibly opiate medications can be used.

In treatment-naïve HIV-positive patients, a three-drug HAART therapy should reduce viral load to <50/mL within six months. Virologic failure is defined as not having achieved <200 viral copies/mL by 24 weeks.

Diagnosis of carbon monoxide poisoning is achieved with CO-oximetry, a type of oximetry that can distinguish oxygenated haemoglobin from carboxyhaemoglobin. Normal pulse oximetry can't distinguish.

Apathetic thyrotoxicosis is one of the ways hyperthyroidism may be seen clinically in elderly individuals, presenting as lethargy, depression and confusion. Both hypo- and hyperthyroidism may present this way. Tachycardia may be absent due to conduction defects of beta-blockers.

Asymptomatic hypothyroidism (subclinical) is **not** treated. Only treat when 1) anti-thyroid antibodies are found to be present, 2) lipid abnormalities, 3) symptomatic, 4) ovarian/menstrual dysfunction, 5) TSH over 10 uU/mL.

Invasive and *in situ* SCC of the skin is Tx with surgery. If a patient doesn't want excisional surgery, **cryotherapy, electrosurgery** and **radiation therapy** are used for **invasive**. Topicals like 5-FU may be used for *in situ*.

A **headache diary** (totally stupid) is the next best step in management for patients with uncertain aetiology for headache.

Prophylaxis for cluster headaches is **verapamil** not propranolol. Lithium and prednisone are alternatives but are not preferred for obvious reasons. Propranolol is for migraine prevention. Triptans are only used as abortive therapy for clusters and migraines. Oyxgen is always first-line as abortive therapy ahead of drugs.

A bisphosphonate is added to Ca/VitD in an osteopenic person who has had a fracture. That is, T-score need not be greater than -2.5 in magnitude.

Endotracheal intubation is indicated in a patient with haematemesis due to aspiration risk. Endoscopy would then follow, which could be both diagnostic and therapeutic.

Band ligation vai endoscopy is first-line therapy for esophageal varaces. If this fails and the patient has another massive haematemesis, **repeat endoscopy and do *another* band ligation**. If that fails, then proceed to a shunting procedure (e.g., TIPS). Balloon tamponade is only used as a bridge to a more definitive procedure, since balloon deflation results in resumption of bleeding. Propranolol and octreotide are for prophylaxis but not acute bleeding.

Risk factors for ovarian torsion are **pregnancy, ovulation induction** during fertility treatment, and **ovarian masses** (especially if >5cm). Diagnose with ultrasound and Doppler.

Euvolemic hypoosmolar hyponatraemia may be due to **hypothyroidism, adrenal insufficiency or SIADH**.

Patients with actue inferior MIs should be monitored closely for **preload** because RV dysfunction is common. If hypotension and low cardiac output result from inferior MI, **a bolus of fluids** is the next best step in management.

In suicidal patients taking lithium, the drug should be **maintained** rather than discontinued. Randomized controlled trials support its role in preventing suicide.

In patients with biliary colic Sx who have no gallstones on imaging, do a **cholecystokinin-stimulated cholescintigraphy** to look for gall bladder ejection. Do cholecystectomy in patients with low ejection.

Retrograde ejaculation occurs in 70% of those following a TURP. The bladder neck fails to close which enables sperm to flow backward into the bladder. Dry ejaculate is often seen.

Although scabies can be suspected clinically and from Hx, diagnosis is made via **skin scrapings and examination under light microscopy**.

Proper endotracheal tube placement is confirmed with **capnography**.

Stage 3 or 4 pressure ulcers should be loosely packed with **saline-moistened gauze** to preserve the moist wound environment. The fluids within wounds are thought to contain growth factors that promote reepithelialization.

Ocular melanoma, often arising from a choroidal pigmented nevus, may be managed in asymptomatic patients with **close observation** three months later, followed by biannual appointments. Patients with large tumour or who are symptomatic may be managed with **radiation therapy**. Enucleation is only used as a last-resort.

Typical onset of narcolepsy is late-teens-early-20s. Dx with polysomnography.

Cataplexy is sudden loss of muscle tone, often triggered by strong emotions (e.g., anger, laughter, surprise), and is seen in 70% of patients with narcolepsy. It is first treated with **venlafaxine**, an SNRI. SNRIs, SSRIs, TCAs, and sodium oxybate can all improve cataplexy; the latter is not used much anymore because of its abuse potential.

Best approach to diagnosing Sicca syndrome is an antibody screen (anti-Ro/La, ANA) and confirming secretory deficiency (e.g., Schirmer test).

Delayed gastric emptying should first be evaluated for obstruction with either **endoscopy or radiocontrast study (e.g., barium swallow)**. If there is no intrinsic obstruction, then a **scintigraphic gastric emptying study** can confirm the presence of gastroparesis.

First-line Tx for delayed gastric emptying is dietary modification (smaller, more frequent meals that are **low in both fat and fiber** [yes low in fiber]); if that doesn't work → metoclopramide and/or erythromycin.

In adherent patients already taking lithium who are not fully responsive (i.e., recurrent manic episodes), **increasing the lithium dose** insofar as it is still within the therapeutic window is done **before** adding an atypical antipsychotic for augmentation. The therapeutic window is 0.6-1.2 mEq/L, and if a patient is at 0.7, for instance, increase lithium to target closer to 1.0. Blood lithium levels ~1.0 are necessary to Tx manic episodes in some patients. Another step in a 'manic' patient is a urine toxicology screen to rule out other substances, such as cocaine. Valproate can sometimes be used in place of lithium (i.e., valproate monotherapy, or valproate + an atypical antipsychotic if augmenting).

Thyroid dysfunction associated with lithium use does **not** require that lithium be discontinued. The combination of lithium + levothyroxine can be given to those with history of severe bipolar where the benefits outweigh the cons of lithium use.

Tx of vaso-occlusive crisis in sickle cell disease, if T<38, is pain relief with **IV narcotics** (e.g., morphine) and **rehydration with ½ to ¼ normal saline** because patients with SCD have decreased ability to renally excrete sodium. NSAIDs and paracetamol can be given as adjunct and outpatient therapy. If T>38, the above holds true but **blood cultures are done first**.

Acute chest syndrome in sickle cell is the most common cause of death and second most common cause of hospital admission. The aetiology in adults is most often bone marrow or fat embolus; in children, it is infection, asthma or pulmonary infarction. Tx is with a **third-generation cephalosporin (e.g., cefotaxime/ceftriaxone) to cover Strep and a macrolide (e.g., azithromycin) to cover Mycoplasma, plus ½ to ¼ normal saline + IV nacrotics**. A blood transfusion is only indicated if there is O2 sats <92, significant anaemia, or worsening of Sx despite prior Tx.

Dysphagia and aspiration (e.g., in Parkinson disease) can present with **weight loss**. If patient is febrile and is a smoker and CXR shows an infiltrate, think aspiration pneumonia over cancer. First step is to diagnose aspiration with a **videofluoroscopic swallowing study**. Then **thickened fluids and modified swallowing techniques** may follow with the help of dietetics, nursing and speech pathology.

All SLE patients with nephropathy (either via Sx or through blood work) need **biopsy as first step in management**, before meds, in order to guide therapy. Disease activity is monitored through anti-dsDNA and complement levels.

After a first episode of depression, even if a patient has shown improved Sx after starting an SSRI, it should be **maintained for six months to a year at the same dose** as Tx.

Components of decision-making capacity = CARU = Communicates a choice, Appreciates consequences, Rationale given for a decision, Understands information provided

Criterion for hospice care is **life-limiting illness with <6 months to live**. Whilst a patient can receive palliative treatments while in hospice care (e.g., chemotherapy, radiotherapy, tumour debulking), life-prolonging medical therapies are **not permitted**.

For HCM, beta-blockers are used first, but **verapamil or disopyramide** can be used in addition to beta-blockers if patient is still symptomatic.

Patients with allergic rhinitis are at increased risk of ear and sinus barotraumas. Non-sedating decongestants (especially pseudoephedrine) before diving decrease the incidence of ear and sinus barotraumas by 75%.

TCAs bind to and inhibit fast-sodium channels of His-Purkinje tissue and myocardium to decrease conduction speed, increasing length of phase-0 depolarization, and prolonging the refractory period. This increases QRS duration by >100 ms. Sodium bicarb increases pH (**target range 7.50-7.55**), which converts the TCA to its non-ionized form and decreases its binding to fast-sodium channels. The increased extracellular sodium also increases the electrochemical gradient across cardiac cells that further decreases TCA binding. TCAs also inhibit calcium entry into His-Purkinje and myocardial cells, and acidaemia can increase blood potassium levels. TCAs cause seizures by inhibiting GABA receptors.

Renal parenchymal disease is an important cause of secondary hypertension in adolescents and young adults (<40). FSGS is the most common idiopathic nephrotic syndrome in adults; 50% of FSGS cases are in African Americans. So bear in mind FSGS can present with **hypertension** and **peripheral edema**.

Tx for otitis externa: mild → topical acidifying solution (e.g., acetic acid); moderate → **topical** antibiotic-steroid combo for 7-10 days; severe → systemic Abx. Treatment may be facilitated by clearing the canal **under direct visualization using a wire-loop**; if the tympanic membrane is well-visualized and intact, **irrigation with H2O2 is an acceptable alternative to the wire-loop**. Wick placement is only if canal is completely occluded.

Lacrimation and yawning are fairly specific for opioid withdrawal.

Tuberculous meningitis, military TB, and TB osteomyelitis are all treated with anti-TB therapy for **twelve months**, with RIP given for two months followed by RI for the remaining months.

Patients with TB are considered non-infectious after **three negative sputum smears on three different occasions**.

For single-item screening for alcohol, “how many times in the past year have you had 5 or more (4 for women) drinks in a day?”

For ITP in children: skin manifestations only → observe; bleeding → IVIG or glucocorticoids

For ITP in adults: platelets >30,000 without bleeding → observe; platelets <30,000 or bleeding → IVIG or glucocorticoids

Peripheral smear in ITP shows megakaryocytes and no other abnormalities.

Defibrillation is only indicated in patients with VF or VT. It is **not** effective in asystole or PEA. In asystole or PEA, **chest compressions should be continued + vasopressors (epinephrine, vasopressin) administered**.

Patients with suspected scaphoid fracture with negative findings on x-ray should, as the next step in management, have **immediate MRI or CT of the wrist, OR repeat x-ray in 7-10 days, OR radioscintigraphy bone scan in 3-5 days**. A thumb spica cast should be used to immobilize until a diagnosis is reached on repeat imaging or upon immediate diagnosis with MRI/CT.

HIV-infected patients with syphilis of unknown duration or late-latent syphilis should have **lumbar puncture performed *before*** treatment with penicillin.

Tx for syphilis:

Primary, secondary, or early latent (<12 months since Dx): **IM benzathine penicillin G, 2.4 million units, as a single dose**

Late-latent (>12 months since Dx), unknown duration syphilis, gummatous or cardiovascular tertiary syphilis: **IM benzathine penicillin G, 2.4 million units, given once/wk for three weeks (3 doses total)**

Neurosyphilis: **IV aqueous crystalline penicillin G, 3-4 million units, every 4 hours, for 10-14 days**

Congenital syphilis: **IV aqueous crystalline penicillin G, 50,000 units/kg/dose, every 8-12 hours, for 10 days**

Administer anti-D immune globulin at 28 weeks and peripartum to Rh(-) moms.

Hypertensive urgency: >180/120 (and/or) without evidence of end-organ failure. Tx = **oral route preferred → clonidine or captopril (do NOT use sublingual nifedipine)**

Hypertensive emergency: signs of end-organ damage (e.g., retinal, acute coronary syndrome, acute pulmonary edema, aortic dissection). Tx = **Intravenous nitroprusside (alternatives are labetalol, nicardipine, fenoldopam); for acute**

pulmonary edema: nitroprusside or nitroglycerine PLUS furosemide; for acute coronary syndrome: nitroglycerine; for aortic dissection: labetalol.

Preseptal cellulitis: erythema/swelling of eyelid, chemosis, fever, leukocytosis → Tx with **oral antibiotics → clindamycin**, OR TMP-SMX + either amoxicillin, augmentin, cefpodoxime, or cefdinir.

Orbital (postseptal cellulitis): Sx of preseptal cellulitis + ophthalmoplegia, change in visual acuity, diplopia, proptosis. Tx with **intravenous antibiotics → vancomycin PLUS either ceftriaxone, cefotaxime, ampicillin/sulbactam, or pipericillin/tazobactam**.

Complications of orbital cellulitis are 1) orbital abscess, 2) intracranial infection, and 3) cavernous venous sinus thrombosis

Cavernous venous sinus thrombosis **presents like orbital cellulitis,** but there's also **papilledema + dilated tortuous retinal veins**. Patients also frequently present with **headache**. If there is a patient who appears to have orbital cellulitis, but also has headache, bilateral eye involvement, and/or numbness in the area of CN V1/V2, think cavernous venous sinus thrombosis. The next best step in management to diagnose is **magnetic resonance venography**.

Management of asthma during pregnancy is the same as that in a non-pregnant patient. IV corticosteroids are used if salbutamol alone is not sufficient. Inhaled corticosteroids are not used for acute exacerbation. Asthma medications should be taken as normal to prevent attacks; it is worse to have poorly controlled asthma during pregnancy than it is taking steroids.

Tx for Paget disease is bisphosphonates → oral alendronate for 6 months, or oral risedronate for 2 months, or IV pamidronate.

Patients with congenital bicuspid aortic valve should (**and their first-degree relatives**) receive **regular echocardiogram every 1-2 years because of increased risk of aortic root dilation, aortic aneurysm, and aortic dissection.** Congenital aortic valve is seen in 1% of the population, is more common in males, is present in 30% of cases of Turner syndrome, and is inherited in an autosomal dominant pattern with incomplete penetrance, as well as sporadically.

Necessary tests in Turner syndrome at the time of diagnosis**: renal ultrasound** (increased risk of horseshoe kidney + Wilm tumour), **TSH/T3/T4** (increased risk of

hypothyroidism), **visual and hearing assessment**, and **echocardiogram** (increased risk of aortic coarctation, bicuspid aortic valve, MVP and hypoplastic heart).

Patients with Turner have increased risk of malignancy from their streak gonads **if they have mosaicism with a Y-chromosome present**. Unless this is the case, removal of the streak gonads is not necessary. Short stature is also seen and estrogen therapy is given starting around age 14. HGH is approved to improve final height. Turner patients have increased incidence of insulin resistance later in life; testing for dysglycaemia isn't necessary unless suspected.

Most common complication of tick bites is **local inflammation and infection**. Most patients will have a transitory erythema surrounding a tick bite in the first 24-72 hours. In order to transmit Lyme disease, Ixodes must be attached for **at least 36 hours until it becomes engorged**; it is at this point that Borrelia is transmitted.

Klinefelter syndrome is the **strongest known risk factor for breast cancer in men**, conferring a 50x increased risk.

Pilots taking sildenafil must wait **six hours** before flying because of **blue-green** color haze that occurs in 3% of patients.

Chronic diarrhea should be evaluated first with **stool microscopic examination for leukocytes, ova and parasites**. **Occult blood should also be performed**. Culture and sensitivity have low yields in patients with *chronic* diarrhea.

Skin tags, acanthosis nigricans, and xanthelasma are all common cutaneous signs of insulin resistance.

Contagious ecthyma (orf) is caused by a poxvirus from the occupational exposure of herding sheeps/goats and begins as an erythematous papule on the hand that can blister.

Milkmaid's blister (or milker's nodule) is caused by a parapoxvirus from occupational exposure to the udders of cows and presents similarly to orf and can be maculopapular/vesicular.

Extrapulmonary blastomycosis can present as wart-like or pustular skin lesions.

Multiple sclerosis presents age 15-50; common Sx are optic neuritis (most often monocular visual loss accompanied by pain with movement), Lhermitte sign, internuclear ophthalmoplegia (MLF syndrome), Uhthoff phenomenon (heat

sensitivity), motor (e.g., paraparesis) + sensory (e.g., paresthesias) Sx, bowel/bladder dysfunction, and transverse myelitis (UMN signs and sensory loss below involved spinal level). Types of MS are relapsing/remitting, primary progressive, secondary progressive, progressive relapsing. Dx made via **T2-weighted MRI** revealing paraventricular, juxtacortical, infratentorial and/or spinal cord lesions dessiminated in time and space. If imaging is equivocal, oligoclonal IgG bands on CSF (90% of patients) can make Dx.

Multiple sclerosis flares **decrease during pregnancy and increase in the postpartum period**. Pts should be treated during pregnancy the same way they would be if not pregnant. Women with MS have **higher rates of C-section and assisted deliveries**.

Tx for MS flares is **corticosteroids**. Oral and IV steroids are equally efficacious, but **oral steroids should NOT be given if the patient has optic neuritis, as they are associated with recurrence; in patients with optic neuritis, use IV corticosteroids; a subsequent oral taper may be considered in addition to the IV treatment.**

Beta-interferon and **glatiramer** are good for **long-term therapy** in patients with relapsing-remitting MS, as these decrease the frequency of flares and development of brain lesions. Steroids (even low-dose) are not for long-term therapy.

Specific symptomatic treatments in MS:
Depression: SSRIs, SNRIs
Spasticity: **baclofen** (GABA-B agonist), **tizanidine** (alpha-2 agonist), physical therapy and stretching, massage therapy
Fatigue: Sleep hygiene, regular exercise, **amantadine**, stimulants (methylphenidate, modafinil)
Neuropathic pain: gabapentin, duloxetine
Urge incontinence: timed voiding, fluid restriction <2L/day, **anticholinergics** (oxybutynin, tolterodine)

Tx for blepharospams (which can present as prolonged closure of an eye, especially upon stimulation) is **botulinum toxin injection**.

Tx for toxic shock syndrome is **intravenous fluids and clindamycin (which theoretically prevents toxin synthesis) +/- nafcillin, oxicillin, or vancomycin**.

Either urea breath test or fecal antigen test can be used to confirm H. pylori eradication **at least four weeks after initiation of therapy**.

The cremasteric reflex is regulated by L1-2 of the spinal cord. It can be absent in diabetic neuropathy.

Tx for acute gout:

NSAIDs (indomethacin) first (until 1-2 days post-symptom resolution; usually 5-7 days in most cases). If congestive heart failure, currently on anticoagulation, acute/chronic renal disease, peptic ulcer disease, or NSAID sensitivity → **colchicine next**. If severe renal/liver disease or taking other drug(s) that inhibit(s) P-450 → ask 2 or more joints involved? If no, give **intra-articular**, oral, IM or IV steroids. If yes, give oral, IM IV steroids, but not intra-articular.

Corticosteroids decrease calcium absorption in the gut, increase calcium excretion in the urine, and increase bone resorption. Patients on >3 months of corticosteroid therapy (or >6 months if low dose [<10 mg/day]) should be evaluated with initial bone densitometry, followed by bone densitometry **every year**.

Calcium and vitamin D are recommended for patients taking corticosteroids longer-term.

Bisphosphonates are only given in patients with osteoporosis or those with very high risk of fracture (usually postmenopausal). If premenopausal, exert caution as bisphosphonates are teratogenic. Calcitonin is used only if bisphosphonates aren't effective or are not well-tolerated.

CT scan is not necessary to make a diagnosis of pancreatitis, but it can be used to assess severity and complications. If >30% of the pancreas appears necrotic, prophylactic antibiotics with imipenem or meropenem are given.

Diagnosis of DM: any one random blood glucose >200 mg/dL, an HbA1c > 6.5%, or two fasting blood glucose at >126 mg/dL

To diagnose gestational diabetes mellitus (GDM), the first step is a 50-g glucose challenge (aka 50-g glucose tolerance test). If after one hour, blood glucose is <140 mg/dL, GDM is unlikely and no further testing is necessary. If >140 mg/dL, the next step is the 100-g glucose tolerance test. GDM is diagnosed if two of the following are seen with the 100-g test: fasting (immediately preceding test) glucose >95 mg/dL; 1-hr post glucose >180 mg/dL; 2-hr post glucose >155 mg/dL; 3-hr post glucose >140 mg/dL.

Once GDM is diagnosed, target blood glucose levels are: fasting <95 mg/dL; 1-hr post-prandial <140 mg/dL; 2-hr post-prandial <120 mg/dL. Dietary modifications are the first-line Tx, but if these glucose targets aren't met then **subcutaneous insulin, oral metformin, and oral glyburide** all have the same efficacy. Normal human insulin, aspart and lispro are the insulins typically used.

Women with GDM are at increased risk of developing T2DM **and** T1DM, as well as metabolic syndrome and cardiovascular disease.

Requests for euthanasia/physician-assisted suicide are most common in patients with **terminal cancer**. **Depression or feelings of hopelessness**, not pain, are most frequently associated with these requests.

If you suspect diabetic gastroparesis in a patient (e.g., nausea vomiting, early satiety, bloating and abdominal pain, weight loss, labile glucose, epigastric distension with succession splash on auscultation), **do endoscopy first to rule out mechanical obstruction** (barium swallow acceptable alternative)**.** If extrinsic compression is suspected, do a CT or MRI. **But nuclear gastric emptying study will confirm diagnosis of gastroparesis.** Tx is frequent small meals low in fat and fiber (pts should consume only soluble fiber), erythromycin/metoclopramide.

PPV increases with increased specificity. NPV increases with increased sensitivity. Therefore a test with the highest PPV will have the highest specificity. A test with the highest NPV will have the highest sensitivity.

Higher prevalence increases PPV and decreases NPV. Lower prevalence decreases PPV and increases NPV.

Atypical antipsychotics increase risk of mortality in elderly patients primarily due to **cardiovascular causes** (e.g., MI) **and infection** (e.g., pneumonia).

Acute HepC infection: usually asymptomatic, but symptoms can include nausea, jaundice, and RUQ pain lasting 2-12 weeks. Aminotransferases are often elevated 10-20x upper limit. **Diagnosis is made with HepC RNA PCR**. **After 12 weeks, positive anti-HCV antibodies will be seen**.

HepC infection is resolved once: normal aminotransferases, negative HepC RNA PCR, and positive anti-HCV antibodies.

Window period for HepB is when HBsAg and anti-HBsAb are both negative. Anti-HBcAb is often positive in this window period.

A pessary is a structure used to prevent prolapse. It can be used to for uterine prolapse, retroverted uterus, stress urinary incontinence, cystocele and rectocele. Pessaries should only be used in conjunction with **vaginal estrogen**; without it, they can cause chronic discharge and bleeding secondary to damage of vaginal tissue. A **colporrhaphy** is a procedure that repairs the vaginal wall. It is the first-line Tx for symptomatic recto-/urethroceles, but in women who are poor surgical candidates, a pessary + topical estrogen cream can be used.

Risk factors for development dysplasia of the hip are **female gender, breech delivery** and **family history**. Pavlik harness for 1-2 months is treatment, and **referall to an orthopaedic surgeon is necessary**.

Target nutrition for **enteral** feeding is **30kcal/kg/day** and **1g protein/kg/day**. Lower caloric values can be used in severely malnourished patients to prevent refeeding syndrome.

Eosinophilia can be seen in Addison disease, eosinophilic gastroenteritis, intestinal helminthosis.

Nominal data is dichotomous and only has two categories (e.g., male vs female).

Ordinal data has ranking but no numerical value (e.g., freshman, softmore, junior, senior).

The **median** is a better indicator of central tendency (vs mean) in data with a **highly skewed distribution**.

Acute arterial occlusions (e.g., of the legs) are most often due to emboli. **Atrial myxomas** can present with a **diastolic murmur** (pedunculated and can obstruct mitral valve), new-onset heart failure in a young patient, and/or new-onset atrial fibrillation. Diagnosis is with echo (TOE > TEE).

Women with **cyanotic heart disease, Eisenmenger physiology or severe pulmonary hypertension** should be counseled about **progestin implant** or **laparoscopic sterilization**. Estrogen-containing contraceptives are to be **avoided** because of the risk of thromboembolism. Risk of spontaneous abortion is up to 50% in these patients. Ther is also higher risk of maternal death, most often in the first week postpartum, as systemic vascular resistance decreases and a R→L shunt worsens. If a woman is already pregnant, **elective termination should be discussed**. Cardiac

surgery should be minimized or avoided if possible due to fetal risks from general anaesthesia and reduced uteroplacental blood flow from cardiopulmonary bypass.

Diagnosis of adhesive capsulitis is **clinical and imaging is not required**. It is characterized by >50% reduction in both passive and active RoM in two different planes (usually abduction and external rotation). It is caused by contracture of the joint capsule (increased risk in diabetes mellitus). Tx is **stretching/RoM exercises**. The condition is often self-limiting and resolves in 6-18 months, although often with some residual stiffness. If Sx have not improved after 2-3 months of stretching exercises, **intra-articular glucocorticoid injection** can be done.

Prophylaxis of latent TB is INH for 9 months, rifampin for 4 months, rifampin + isoniazid for 4 months, or **isoniazid + rifapentine for 3 months**.

Sinus bradyarrhythmia or AV block is often seen following **inferior MI**. It is usually self-resolving within 24 hours, but symptomatic patients are **treated initially with atropine**, which can resolve the Sx and arrhythmia. If atropine doesn't work and the patient is still symptomatic (e.g., hypotension, dizziness, heart failure, sycope), **temporary transvenous cardiac pacing** is the next best step in management. In contrast, anterior MIs that result in bradyarrhythmia tend to affect distal to the AV node and portend a worse prognosis.

To Dx subarachnoid hemorrhage, do **non-contrast CT first** to see if there's any bleeding. Non-contrast CT is >90% sensitive in first 2-6 hours. If negative, **do a lumbar puncture** as the next best step. An LP is needed to definitively exclude an SAH in a patient with a negative CT. **Xanthochromia from LP confirms diagnosis** (usually >6 hours from SAH onset). **Cerebral angiography** then confirms the source of bleeding.

A **traumatic lumbar puncture** is characterized by high RBCs without xanthochromia, especially if after 6 hours have transpired since Sx started. In a traumatic LP, there is usually one WBC per 750-1000 RBCs, so typical findings might be: no xanthochromia, 75,000 RBCs, 100 WBCs. Traumatic LP is also more likely if out of the four CSF samples collected, the blood is mostly in the first one but tapers off, whereas SAH would be in all four.

Tx of hypertensive emergency in scleroderma renal crisis is **IV nitroprusside + captopril.** Since narrowing of renal arteries from scleroderma increases RAASystem, an ACE inhibitor is an important Tx.

Antibiotic prophylaxis may be offered to women who have >2 UTIs in a 6-month period or >3 UTIs in a year.

Treatment for acute limb ischaemia (i.e., arterial Doppler is inaudible) is **heparin + emergency surgical revascularization.** If both the arterial and venous Dopplers are inaudible, it's a non-viable limb and amputation is the Tx.

Early neurosyphilis can present with **symptomatic meningitis, ocular syphilis** and **otosyphilis**. Ocular syphilis can present as **posterior uveitis**, retinitis or optic neuritis. Otosyphilis can present with sensorineural hearing loss and/or tinnitus. Neurosyphilis can present during any stage of syphilis but most commonly occurs during secondary syphilis.

Haloperidol, not electroconvulsive therapy, is the first-line Tx for severe bipolar mania during pregnancy. ECT, atypical antipsychotics and lithium can be used during pregnancy but are second-line and require discussion of risks. ECT can cause autonomic instability that can affect the fetus. Atypicals can cause neural tube defects. Lithium can cause Ebstein anomaly. Haloperidol, in contrast, has been shown to be safe during pregnancy.

Treatment of septate uterus is **hysteroscopic metroplasty (aka uteroplasty or hysteroplasty)**. It is important to distinguish septate uterus from bicornate uterus, which requires **laparotomy** to fix. The embryo is able to implant in uterine anomalies but miscarriage is common in the first and second trimesters.

CABG is superior to PCI in terms of all-cause mortality and risk of MI for Tx of multi-vessel disease involving the **main left coronary artery** or **multi-vessel CAD (especially of proximal LAD).**

The **Centor criteria** are used to predict the likelihood of Strep pharyngitis. The criteria are: 1) Fever, 2) Absence of cough, 3) Tonsillar exudates, 4) tender anterior cervical lymphadenopathy. The presence of three equates to a PPV of 50% (not so helpful), but 0-2 has an NPV of 80%. If **two or more criteria are present, do a rapid strep test. If 0-1 criteria are present, don't do the rapid strep test and it is likely viral.** If the rapid strep test is negative and strep pharyngitis is strongly suspected, **throat culture** is the next best step.

The optimal glucose range in the peripartum period is 72-126 mg/dL. A pregnant woman with GDM who is on insulin must be monitored every 1-2 hours during the peripartum period because elevated glucose levels can cause **hypoglycaemia** in the neonate due to neonatal hyperinsulinaemia from glucose crossing the placenta.

Patients on NPH should take he full dose the night prior to a scheduled induction of labor, with short-acting insulin given if glucose is >126 mg/dL. Patients on long-acting insulins (e.g., glargine, detemir) should often take 50-70% the night before.

Patients with *just* a positive anti-HBcAb on serology need to have **repeat HepB serology testing** to ensure these results are correct. *Then* **anti-HBcAb IgM and transaminases** need to be measured, where presence of anti-HBcAb IgM indicates acute HepC infection in the window period (HBsAg and anti-HBsAb both absent). If anti-HBcAb IgM is negative but transaminases are positive or there are signs of liver disease, **HBV DNA** must be ordered.

Atopic dermatitis is associated with mutations in **filaggrin** and other key components of the epidermal permeability barrier. Treatment for atopic dermatitis is **hydration of skin with emollients**, forgoing use of harsh soaps/detergents, and avoiding synthetic clothing materials (cotton is recommended in AD). Oral antihistamines may be used, and in patients with refractory symptoms, **topical steroids (e.g., topical triamcinolone)** may be used. In sensitive areas where topical steroids are relatively contraindicated (e.g., face, eyelids), **topical calcineurin inhibitors** (e.g., topical tacrolimus, pimecrolimus) may be used. Lab findings are eosinophilia, increased IgE, and increased leukocyte phosphodiesterase. **However diagnosis is made clinically and does not require the latter three.**

Transverse limb anomaly, which is a complication of chorionic villus sampling, has the greatest risk of occurrence at **gestational age is <9 weeks.** The skill level of the operator does not play a role here.

Allergic rhinitis (AR) and non-allergic rhinitis (NAR) are **both treated with intranasal glucocorticoids** or intranasal antihistamines. Allergic rhinitis tends to have earlier age of onset, involves the eyes and has clearer triggers/seasonal pattern. NAR tends to occur after age 20, does not have significant eye involvement, and does not often have clear triggers or seasonal distribution; NAR can occur year-round.

Rectovaginal swabs for GBS are done at 35-37 weeks gestation in all women unless they meet the following criteria which obviates testing.

Indications for GBS penicillin prophylaxis: Hx of *early-onset* GBS disease in prior pregnancy, current pregnancy tested (+) for GBS within 5 weeks of delivery, current pregnancy had GBS bacteriuria or UTI regardless of proximity to delivery; and unknown GBS status PLUS at least one of the following: maternal fever >38, prolonged rupture of membranes >18 hrs, or preterm delivery <37 weeks.

Mere colonization with GBS in prior pregnancy is not an indication for prophylaxis in current pregnancy.

Penicillin, ampicillin or cephazolin prophylaxis for GBS is given 4+ hours before delivery.

If GBS prophylaxis is given 4+ hours from delivery, **observe neonate for ≥48 hours**. If GBS prophylaxis given <4 hours from delivery, you ask: is neonate <37 weeks gestation at birth (premmie) and/or were ROM >18 hours; if no to both, then **observe neonate for ≥48 hours**; if yes, then **observe ≥48 hours AND perform a blood culture + full blood count**.

Small intestinal bacterial overgrowth (SIBO) can be caused by anatomical abnormalities (e.g., strictures, surgery), motility disorders (e.g., diabetes, scleroderma, radiation enteritis), and other causes such as end-stage renal disease, AIDS, cirrhosis and advanced age. Symptoms can present **similarly to celiac or lactase deficiency**, with abdominal pain, bloating, diarrhea, flatulence, malabsorption, weight loss, anaemia, nutritional deficiencies (e.g., B9/12). **Diagnosis of SIBO is made via endoscopic jejunal aspiration** showing >10^5 organisms/mL (normal <10^4). Glucose hydrogen breath testing may also be used. Common organisms are Strep, bacteroides, E. coli, lactobacillus. **Treatment is 7-10 days of antibiotics** such as amoxicillin-clavulanate or rifaximin, along with dietary changes (high fat + low carb). Avoid anti-motility agents (e.g., narcotics). A trial of a pro-motility agent may be tried (e.g., metoclopramide).

Tx for acute urticaria (<6 weeks): 1st or 2nd generation H1 blocker (if mild) + an H2 blocker (if moderate) + a short course of oral steroids (if severe).

Tx for chronic urticarial (>6 weeks): 2nd generation H1 blocker for two weeks; if not sufficient: increase dose of 2nd generation H1 blocker, or add 1st generation H1 blocker, or add H2 blocker, or add a leukotriene antagonist, or try a short course of steroids. If no improvement, continue adding these treatments. Hydroxychloroquine, tacrolimus and omalizumab are only considered in refractory cases.

Risk factors for chronic urticaria are autoimmune diseases (e.g., **thyroid disease** SLE, vasculitis). Symptoms are **not** difficult to control and **spontaneous resolution is often seen in 2-5 years** (30-50% by 1 year and 70% by 5 years).

Mobitz I: usually at level of AV node, improves with exercise/atropine, worsens with Vagal maneuvres; narrow complex; gradually increased PR before a dropped QRS

Mobitz II: usually below level of AV node (e.g., bundle of His), gets worse with exercise/atropine, and paradoxically improves with Vagal maneuvres; narrow or wide complex; no change to PR before a dropped QRS

Patients with Mobitz II or symptomatic Mobitz I should be paced, as increased risk of conversion to third-degree heart block

Diagnosis of sarcoidosis should be made via biopsy of easy accessible areas first (e.g., parotid gland, or skin lesions that are not erythema nodosum, any palpable lymph node, lacrimal gland). Perihilar lymph node and/or lung biopsy can be done if more accessible sites aren't available.

Appendicitis during pregnancy: if in first trimester, one-third experience spontaneous abortion; in second trimester, 14% experience premature delivery; in third trimester, main complications are rupture with peritonitis and pyelophlebitis (thrombophlebitis due to infection).

Cervical insufficiency should be monitored with **routine ultrasound during 16-24 weeks gestation**, with **cervical circlage (cervical stitch)** as the Tx if cervix is <25mm on ultrasound.

Varenicline can cause **neuropsychiatric instability / vivid dreams and should be avoided in patients with depression and psychiatric disorders**.

Factors portending good/better prognosis in schizophrenia include older age of onset (>40), identifiable precipitating factor, acute/rapid onset (i.e., not prodromal), positive psychotic symptoms, good premorbid functioning, no family Hx, and good social/family support.

Prophylaxis for meningococcus is rifampin (4 doses, one every 12 hours over two days), but ciprofloxacin (once orally, not routinely used in children) can also be used, and ceftriaxone (single IM shot) can be used in pregnancy.

Most patients with ADPKD have progressive decline in renal function. **Regular blood pressure checks are important to keep blood pressure <130/80. Tx of choice is ACE-inhibitors. Only 10% of ADPKD patients get saccular aneurysms; MRI of brain is restricted only to patients with family Hx of SAH. Blood pressure control is ideal in preventing bleeding from saccular aneurysms.**

Male sex denotes worse prognosis in ADPKD.

The most common extrarenal manifestation of ADPKD is **hepatic cysts (70-80% of patients)**. Females occasionally develop massive enlargement of these cysts. Splenic, ovarian and pancreatic cysts can occur but are less common than hepatic cysts. Brain cysts are rare.

ADPKD patients have higher incidence of colonic diverticula, but these are usually seen in patients undergoing dialysis for ESRD. There is also greater risk of rupture of these diverticula. Therefore **total colonoscopy** must be done before peritoneal dialysis is considered.

Abdominal ultrasonography, not PKD1/2 gene analysis, is the diagnostic modality of choice for screening asymptomatic family members of a patient with ADPKD.

Important extra-renal manifestations of ADPKD:

- Hepatic, pancreatic, splenic, pulmonary cysts
- Cerebral aneurysms
- Aortic aneurysms
- Colonic diverticula
- Mitral valve prolapse
- Inguinal and abdominal hernias

Water restriction (not demecocycline, lithium or furosemide) is the initial treatment for SIADH secondary to small cell carcinoma. Meds are only tried once water restriction has failed. But mild-moderate SIADH may actually be responsive to simple water restriction.

Cocaine-induced tachycardia and HTN are treated first with **benzos.** If that doesn't work, ***then*** **alpha-blockers** (e.g., lorazepam then phentolamine).

The **discriminatory zone**, which is the threshold b-hCG in which a transvaginal ultrasound (TVUS) can detect an intrauterine pregnancy is **>1500 IU/L.** Ectopic pregnancies most often present **6-8 weeks** since the LMP and can have Sx of amenorrhea, adnexal/abdominal pain and/or vaginal bleeding. The first step in management in patient with Sx is a **TVUS *before* a quantitative b-hCG**. Therefore:

If a TVUS detects adnexal mass, diagnosis is ectopic pregnancy. If TVUS detects uterine mass, diagnosis is uterine pregnancy. If TVUS is non-discriminatory, a **quantitative** b-hCG must be obtained. **If >1500 IU/L, repeat TVUS and b-hCG in 48 hours. If <1500 IU/L, repeat b-hCG in 48-72 hours**. b-hCG in a healthy pregnancy should rise >66% every 48 hours.

Pearly penile papules are a **normal variant** that occurs circumferentially around the sulcus or corona of the glans of the penis and are more common in uncircumcised males.

In hypothalamic dysfunction leading to **precocious puberty**, the onset is less dramatic than CAH and presents with sequential development: testicular enlargement, penile enlargement, axillary/pubic hair, and finally a growth spurt. In contrast, **precocious pseudo-puberty**, caused by an excess of androgens in CAH (21 hydroxylase deficiency), usually presents dramatically (e.g., cystic acne, severe growth acceleration). CAH can develop late (i.e., doesn't have to be at birth).

Lewy body dementia is the second most common cause of dementia after Alzheimer disease. Core symptoms are **fluctuating cognition (60-80% of patients),** visual hallucinations (2/3 of patients), and spontaneous Parkinsonian features. Resting tremor is rare, unlike idiopathic Parkinson disease. Many patients also experience **neuroleptic hypersensitivity** (e.g., to haloperidol). REM sleep disorder is common and SPECT/PET show decreased dopamine transporter uptake in the basal ganglia.

Exacerbation of hallucinations in Lewy body dementia in a medicated patient is most often due to **dopamine agonist therapy**. Although the dementia itself can present with visual hallucinations, dopamine agonist therapy is known to precipitate hallucinations.

Sleep terrors/walking do not require workup and no treatment or further workup is necessary. But for severe ongoing cases low-dose benzodiazepines may be tried before bed.

Diabetes Tx with SGLT2 inhibitors (e.g., canagliflozin) can cause **vulvovaginal candidiasis**.

Lateral pontine syndrome: AICA affected + CNVII involvement (e.g., Bell palsy, loss of anterior 2/3 taste, hyperacusis) → **FACIAL** is mnemonic → facial involvement + AICA spelled backward. Facial motor nucleus is involved.

Lateral medullary syndrome: PICA affected + dysphagia/loss of gag reflex → **PICACHEW** is mnemonic → PICA + chew (dysphagia). Nucleus ambiguus is involved.

Ischaemic stroke patients receiving thrombolysis should **not receive antiplatelet or anticoagulation therapy in the first 24 hours (i.e., no aspirin, heparin/warfarin).** Also, blood pressure should be kept at **<185/105 but >140/90 in patients receiving**

tPA to avoid additional ischaemia to the penumbra. IV labetalol, nicardipine or nitroprusside may be used.

Ischaemic stroke patients *not* receiving thrombolysis are permitted to have BP no higher than **220/120 to maintain as much perfusion as possible**.

Haemorrhagic stroke patients should have a target systolic BP of 140.

Selective estrogen receptor modulators (SERMs; eg raloxifene) should be **withheld four weeks prior to any surgery** because of increased risk of **thromboembolism**. All other drugs should be continued through surgery. Two exceptions: ACE inhibitors should be withheld the night before in patients **without** heart failure, and diuretics should be withheld the morning of in any type of surgery.

WPW is characterized by 1) short PR interval, 2) slurred upstroke on QRS (delta wave), 3) ST- and T-wave changes. Catheter ablation therapy is Tx in symptomatic patients.

Fomepizole is superior to ethanol for ethylene glycol and ethanol poisoning. Give only fomepizole infusion if possible. Once done, **do not give EtOH, either simultaneously or after fomepizole**. Only if fomepizole is not available should EtOH be given.

If endometriosis is suspected, the first step is **diagnosing it with direct visualization using laparoscopy**. Tx is medical or surgical. Medical Tx is NSAIDs, GnRH analogues, danazol, OCPs. Surgergy is bipolar coagulation or laser ablation.

Antimitochondrial antibodies have high sensitivity (>90%) and specificity (98%) for primary biliary cirrhosis. If suspect PBC on presentation, **do antibody testing next**. Cholesterol/lipid testing is important, but antibody testing is more important to do first. Diagnostic confirmation requires liver biopsy, which can also yield information about stage of disease and prognosis.

Treatment of PBC is **ursodeoxycholic acid** and liver transplantation. Immunosuppressive drugs and steroids have not been proven to be effective.

Osteoporosis/osteopenia is common in PBC because of long-standing cholestatic disease. Screening with bone densitometry, calcium/vitamin D supplementation and bisphosphonates are essential in patient follow-up.

Hyperthyroidism during pregnancy should be treated with **propylthiouracil (PTU) during the first trimester <u>then methimazole during the second and third trimesters</u>**. Although methimazole is a teratogen, the teratogenic effects are less during the second and third trimesters, and PTU can cause liver failure, which is why it is substituted out. So eg, if pt is hyperthyroid and 16 weeks pregnant, just start her on methimazole.

HPV vaccine should be administered starting at **age 11-12 and given as three doses in a 6-month period**. It should be administered to **all individuals 11-26** years of age. The only contraindication to the HPV vaccine is pregnancy because of limited safety data.

Palivizumab is used if preterm <29 weeks gestation, or congenital lung/heart disease. **Apnea** is common in infants <2 months of age.

Urine immunoassay drug screening is the preferred method for identifying recent drug use in the emergency setting. It **qualitatively** identifies the presence of opioids, alcohol, cocaine, marijuana, phencyclidine, amphetamines and others. It cannot identify specific drugs but can identify **the mere presence of a class of drugs**. In contrast, **chromatography-based tests** are more accurate and are used for **quantitative** measurement; they can identify **the presence of specific drugs**.

Albright hereditary osteodystrophy is the constellation of symptoms seen in **pseudohypoparathyroidism type Ia** (low calium, high phosphate, high PTH, low calcitriol). That is, short stature, shortened $4^{th}/5^{th}$ metacarpals, round facies, and often mild mental retardation. **Pseudopseudohypoparathyroidism** is the presence of Albright hereditary osteodystrophy but **normal** biochemistry. Pseudohypoparathyroidism Ib and II have the biochemistry of Ia but no Albright phenotype.

Dx pheochromocytoma with plasma fractionated metanephrines or urine catecholamines + fractionated metanephrines. Former is more sensitive but less specific than latter. (+) test is 2-3x upper limit of normal. A CT **or MRI** of abdomen is appropriate as the next best step in management. Only consider MIBG scan if CT/MRI is negative, or if CT/MRI is positive but tumour is >5cm, family history, or young patient.

Surgical complications of adrenalectomy for pheochromocytoma:

Hypertensive crisis: increased catecholamine secretion from endotracheal intubation or from tumours >4cm; Tx = intravenous nitroprusside, phentolamine, nicardipine

Hypotension: decreased catecholamines after tumour removal; persistent alpha-blockade (e.g., phenoxybenzamine). Tx = **normal saline bolus followed by continuous saline infusion**. If that doesn't work, then pressors can be used.

Hypoglycaemia: catecholamines normally inhibit insulin release; increased insulin secretion following adrenalectomy; Tx= IV destrose infusion

Cardiac tachyarrhythmia: increased catecholamine release from adrenal gland handling; Tx = intravenous lidocaine or esmolol

Chlamydia trachomatus is strictly sexually transmitted. Young or high-risk pregnant women should be screened **again in third trimester** even if first trimester screening was negative.

Tx of chlamydia in pregnancy is **erythromycin base** (500 mg, qid, 7 days) or **amoxicillin** (500 mg, tid, 7 days). Azithromycin (1 g stat) is an alternative but has not been thoroughly tested in pregnancy. Erythromycin estolate and doxy are contraindicated in pregnancy.

Mechanism of EBV exanthema following inappropriate administration of ampicillin/amoxicillin is immune-mediated from circulating antibodies against penicillin derivatives.

Contraindications to MMR and varicella vaccines:

- Anaphylaxis to **oral** neomycin
- Anaphylaxis to gelatin (e.g., marshmellows)
- Pregnancy
- Congenital immunodeficiency
- Immunosuppressant therapy, severe HIV infection/AIDS
- Haematologic solid tumours

Other precautions to MMR vaccination are history of **thrombocytopenia**, as MMR can rarely cause ITP; if ITP develops after first dose, the second should not be administered if there are adequate antibody titres. History of immunoglobulin administration (e.g., for Kawaski disease) decreases effectiveness of the MMR vaccine, so administration should be delayed 3-11 months depending on the strength of the immunoglobulin preparation.

Vaccines in general should be withheld in a febrile patient so that there is no confusion with vaccine side-effects. Antipyretics shouldn't be administered prior to vaccination and can decrease the immune response.

Alogia is poverty of speech.

Logorrhea is extreme loquacity, which can be seen in Pick disease and other dementia. Mutism can also occur.

Although it was once thought that negative Sx of schizophrenia are improved with atypicals (second-generation) vs typicals (first-generation), **newer research has not corroborated this**. Negative Sx are difficult to manage with medication and the answer is **psychosocial training,** or more specifically, **social skills training**, such as initiating and maintaining conversation, and negotiating other interpersonal interactions.

Management of HSV in pregnancy:

History of HSV infection? If yes, then give antiretroviral Tx (acyclovir) starting at 36 weeks gestation until delivery; if active lesions peripartum then do C-section; if no active lesions peripartum then vaginal delivery is appropriate. If no history of HSV infection, then has there been exposure to HSV-infected partner? If no, no further testing is necessary. If yes, then HSV serology (IgG antibody screen) is done. If (-), no further testing. If (+), then give acyclovir starting at 36 weeks.

Kidney donation increases the risk of **gestational complications (i.e., fetal loss, preeclampsia, gestational diabetes, gestational hypertension)**. These risks are increased in **the patient only**, not relative to the general population, meaning women should generally attempt to complete childbearing before kidney donation, although non-completed childbearing is not a contraindication to donation. There is no increased risk of mortality, end-stage renal disease or depression.

Amoxicillin-clavulanate is the prophylaxis for P. multocida infection following a cat/dog bite, not erythromycin. Doxy can be given in penicillin-allergic pts.

Post-concussive syndrome following mild traumatic brain injury can present as headache, confusion, amnesia, difficulty concentrating, mood alterations, anxiety, sleep disturbance, and other Sx that can last hours to days. Rarely patients have Sx >6 months.

Isolated gastric varices (without esophageal varices) can be a complication of **chronic pancreatitis** secondary to **splenic vein thrombosis**. In contrast, portal vein thrombosis/hypertension results in both esophageal and gastric varices.

Excessive bone resorption after **immobilization leads to hypercalcaemia**. This is most often seen in people with high bone turnover (e.g., adolescents, and elderly with Paget disease).

The risk of a subsequent pregnancy with Turner syndrome after having a child with 45XO is **the same as the general population**. And maternal age also **does not** increase the risk of a baby with Turner.

Tinea versicolor diagnosed is diagnosed with skin scrapings followed by KOH preparation showing hyphae and yeast. M. furfur inhibits transfer of pigmentation to keratinocytes.

A viral prodromal phase (fever, rash, arthralgias) is due to **serum sickness**, secondary to circulating antibodies immune complexes (type-III HS). In HepB, for example, the prodromal serum sickness often resolves with the onset of jaundice. Other extrahepatic manifestations of HepB due to serum sickness/immune complexes are polyarteritis nodosa and glomerulonephritis.

Pick bodies = silver-staining cytoplasmic inclusions = hyperphosphorylated tau

Patients with clinical presentation of presumptive prostatitis should be evaluated with **urinalysis and urine culture**. Prostate massage is **NOT** done because it is painful and has limited therapeutic/diagnostic power.

Non-bacterial prostatitis is treated with Sitz bath and anti-inflammatories.

In evaluating for myelopathy/transverse myelitis (e.g., in MS), do **MRI of spine**, and if structural problem (i.e., compressive myelopathy), Tx is immobilization, surgical evaluation and steroids (for malignancy); if no structural problem, do **lumbar puncture** for cells, glucose, protein, IgG, etc.

Mallory-Weiss tear diagnosed with **endoscopy** showing a longitudinal tear at gastroesophageal junction. Treatment is **supportive care and observation**. Only 30% of patients present with classic presentation of haemoptysis secondary to vomiting/retching. **Hiatal hernia** is present in 40-100% of patients who experience Mallory-Weiss tear; the pressure gradient is greatest within the hernia (smaller volume).

SIADH can be seen with cyclophosphamide, carbamazepine and SSRIs. It can also be seen in HIV, and major abdominal/thoracic surgery (probably mediated by pain afferents).

Symptomatic hyponatraemia should be treated with hypertonic saline (3%) at 1.5-2.0 mEq/L/hour, without exceeding >12 mEq/L/24 hours. Asymptomatic hyponatraemia is treated with fluid restriction and normal saline.

Interferon-gamma release assay is used in patients who have received prior BCG vaccine and concern over false (+) skin test. It **cannot distinguish** latent from active TB. Asymptomatic patients without radiographic findings (i.e., infiltrate, cavitations, pleural effusion, hilar adenopathy) who have previously been treated for active or latent TB **need no further treatment**. Ghon complex on repeat CXR following TB treatment is **not** active disease; no further treatment is needed in this case.

Tx for ecthyma gangrenosum is IV antibiotics (antipseudomonals) alone, without surgical debridement.

HAART is two NRTIs + either 1 NNRTI or protease inhibitor. Efavirenz is associated with **neural tube defects**, facial clefts and anopthalmia **prior to 8 weeks gestation**. However, if a woman is already on efavirenz and has effective viral control (<50/mL), **the drug should NOT be switched** because the risk of drug resistance and viral failure (>50/mL after 24 weeks on HAART) outweigh the risk of teratogenicity. So any drug regimen the mom is on during pregnancy, even if it includes efavirnez, **should be maintained throughout pregnancy**.

If a woman is not on HAART during pregnancy, she should be given **intrapartum zidovudine + have C-section, then start HAART after parturition.**

A c-section should be performed if viral load **>1000 copies/mL**, as risk of transmission transmission is ~2% with C-section. The risk of transmission is also ~2% with vaginal delivery if the mom has **undetectable viral load** (>50).

The neonate of HIV(+) mom should receive **zidovudine for 6 weeks + serial HIV PCR testing**.

Avoid instrumentation (e.g., vacuum, forceps), fetal scalp electrode and artificial rupture of membranes (ROM) during parturition in HIV(+) women.

Avoid amniocentesis unless viral load is undetectable.

Nevirapine is associated with life-threatening hypersensitivity in patients with CD4 counts >250.

Contraindications to breast feeding: active TB infection (may commence breastfeeding after 2 weeks on RIPE), maternal HIV infection even if viral load is undetectable (in western countries especially since formula is readily available), active HSV lesions, current abuse of alcohol or drugs, chemotherapy or ongoing radiation therapy, varicella infection 5 days before to 2 days postpartum; in the infant, the contraindication is galactosemia.

Hypoxic patients in need of oxygen who have **impaired consciousness or risk of aspiration (e.g., vomiting) need endotracheal intubuation with a rapid sedating agent (e.g., etomidate, propofol, midazolam) + a parylytic agent (succinylcholine, rocuronium).** PEEP is used notably for asthma, COPD and CHF.

Massive PE can lead to pulmonary hypertension and **tricuspid regurgitation**.

Alopecia areata is characterized by discrete, circular, smooth areas of hair loss without associated inflammation or scaling; **it is recurring in 1/3 and hair regrowth occurs**. It is autoimmune as T-cell infiltrate is seen around the hair follicles, and is associated with other diseases like pernicious anemia, vitiligo, and thyroid disease. Tx is topical or intralesional glucocorticoids. Hair regrowth can occur within weeks to months with Tx or within 1-2 years without Tx.

Yogurt with live cultures is appropriate for patients with **lactose intolerance**, as the fermented milk and live cultures contain **beta-galactosidase**, which is well-tolerated in lactose intolerant patients.

Steroids are indicated for spinal cord compression secondary to metastases or traumatic injury, but they are **not** empiric for spinal epidural abscess (SEA). For SEA, MRI of the spine is indicated if suspected, with blood cultures, ESR/CRP, and **CT-guided aspiration with culture + Abx**. Emergency surgical decompression and drainage are indicated for most patients.

Acyclovir/valacyclovir is indicated for **7-10 days within 72 hours of onset of Sx**.

Varicella zoster vaccine is recommended for **all adults >60 yrs**. If zoster occurs once in an individual, **there is only a 5% chance of another recurrence** (i.e., one zoster experience doesn't mean risk is high of another), but vaccine is still recommended.

Transmission of zoster is through **direct contact only**, whereas primary chickenbox infection is through direct contact and respiratory droplet. Those with mild varicella who are immunocompromised or those with disseminated varicella should be **hospitalized**.

Post-herpetic neuralgia can be treated with **TCAs (amitriptyline), capsaicin cream, gabapentin, and long-acting oxycodone**.

Any diabetic aged 40-75 should be on a statin.

Vasovagal syncope = **neurocardiogenic syncope**. Neurogenic syncope = from atherosclerosis of cerebral circulation. Cardiogenic syncope = from arrhythmia or obstructive lesions, eg AS or HOCM.

Adverse drug reactions occur in 5-7% of hospitalized patients and are the most common cause of adverse events in hospital.

For SSRI-associated sexual dysfunction, switch to bupropion or mirtazapine.

Bishop scoring is a pre-labor scoring to determine whether induction of labor will be required. Bishop scoring = PCFED = cervical Position, cervical Consistency, Fetal station, cervical Effacement, cervical Dilation. Highest score is 13; score 5 or less = labor unlikely to start without induction; score 9 or greater = labor likely to happen spontaneously. Components:

Position: posterior 0 points, middle 1 point, anterior 2 points

Consistency: firm 0 points, medium 1 point, soft 2 points

Fetal station: -3 station relative to ischial spines as reference point (~3-4 cm inside vagina = 0 points; -2 station = 1 point; 0/+1 = 2 points; +2/+3 = 3 points

Effacement: refers to how 'thin' the cervix is; cervix is normally 3cm long; as it prepares for labor it thins; 0-30% = 0 points; 40-50% = 1 point; 60-70% = 2 points; 80+% = 3 points

Dilation: closed 0 points, 1-2cm = 1 point; 3-4 cm = 2 points; 5+ cm = 3 points

Tx in paeds sepsis: if <28 days need to cover GBS and E. coli = ampicillin + cefotaxime; if >28 days need to cover S. pneumoniae and N. meningitidis = cefotaxime or ceftriaxone +/- vancomycin (when meningeal involvement suspected)

Ceftriaxone and sulfonamides are avoided in neonates because they can displace albumin from bilirubin, increasing risk of kernicterus. TMP-SMX is avoided <6 weeks because it can cause **methaemoglobinaemia**.

Testing for dermatomyositis includes **increased CPK, aldolase and LDH; also test for anti-Jo1, anti-Mi2 and anti-RNP**. Muscle biopsy if tests non-diagnostic but disease suspected. Tx is **high-dose glucocorticoids + glucocorticoid-sparing agent** (e.g., azathioprine to taper) and **screening for malignancy**. DM associated with malignancy may resolve completely once malignancy is treated.

HIV can cause psoriasis (HIV-associated psoriasis).

Tx for acne, three types: comedomal, inflammatory, and nodular (cystic) acne

Comedomal: **topical retinoids**, salicylic/azelaic/glycolic acid

Inflammatory: if mild, **topical retinoids + benzoyl peroxide;** if moderate, add topical antibiotic (e.g., erythromycin, clindamycin); if severe, add oral antibiotic (e.g., tetracycline).

Nodular (cystic; large nodules >5mm that an appear cystic): moderate give **topical retinoid + benzoyl peroxide + topical antibiotic**; severe add oral antibiotic; if unresponsive severe **add oral isotretinoin**.

Oral antibiotics are also considered in more mild acne cases that are more widespread (e.g., back, upper arms), where topical is impractical.

Topical retinoids and benzoyl peroxide are not used in pregnancy. Tazarotene and isotretinoin are absolutely contraindicated in pregnancy. Tx of acne in pregnancy is topical erythromycin or clindamycin (inflammatory acne), or topical azelaic acid (commedomal acne).

Liver enzymes and triglycerides should be monitored in patients on **oral** retinoids. Isotretinoin is associated with hepatotoxicity, hypertriglycerideamia (in 25% of patients; caution patients about risk of pancreatitis with alcohol), hyperglycaemia, severe depression and suicidality, mucucutaneous disorders, blood dyscrasias, and ocular toxicity.

Bacterial infection occurs in up to 50% of patients hospitalized for acute variceal bleeding. Prophylactic antibiotics should be given – **a fluoroquinolone for 7-10 days**.

Urethral diverticula can present following birth trauma or instrumentation of the urethral tract. It presents with the 3Ds: post-void Dribbling, followed by Dysuria and Dyspareunia. **Anterior vaginal wall fullness** is seen on clinical exam. Diagnosis is via **transvaginal ultrasound or MRI**; voiding cystourethrography is not as sensitive because narrow diverticular necks may prevent contrast from entering diverticula.

Juvenile myoclonic epilepsy most often starts in adolescence and typically begins as **myoclonic jerks within the first hour of waking**. **This then progresses to generalized tonic-clonic seizures in all patients**. Up to 50% can have a concomitant psychiatric diagnosis such as an anxiety disorder. EEG shows **bilateral polyspike and slow discharge** during the interictal period. **Valproic acid** is the treatment and suppresses seizures in 80% of patients.

For psoriasis Tx, must consider mild-moderate plaque psoriasis, severe plaque psoriasis, psoriatic arthritis, intertriginous psoriasis, and guttate psoriasis.

Mild-moderate plaque psoriasis: **topical high-potency corticosteroids, topical vitamin D derivatives**

Severe plaque psoriasis: phototherapy, **methotrexate**, biologics

Pustular psoriasis (including von Zumbusch pustular): **methotrexate**, biologics

Psoriatic arthritis: **methotrexate**, biologics

Intertriginous psoriasis: **topical tacrolimus + low-potency corticosteroids**

Guttate psoriasis: **phototherapy or observation**

Asymptomatic cholelithiasis is best treated with **observation and reassurance**. Most people with asymptomatic gallstones will never develop symptoms. In symptomatic patients, laparoscopy is ideal. If surgery isn't wanted, **ursodeoxycholic acid** can be used if stones are small and cholesterol-based. If surgery is contraindicated and stones are non-cholesterol-based, lithotripsy procedures can be implemented; extracorporeal shockwave lithotripsy is only indicated with three or fewer stones; electrohydrolic lithotripsy, which involves cannulating the common bile duct for 1-2 weeks before laser ablation, is only indicated for non-cholesterol stones in patients whom cholecystectomy or ECSW lithotripsy can't be done.

People with Down syndrome have increased risk (among other things eg Alzheimer) of ADHD/depression, autism and seizures.

All pregnant women should be screened for HepB at the first prenatal visit. Women with unknown HepB status or those with ongoing risk factors (e.g., IVDU) should be screened again near the time of delivery. High-risk patients should be vaccinated against HepB *regardless as to their surface antigen status*. **HepB vaccine AND HepB treatment should be given during pregnancy if needed.** At birth, the neonate should be given **both HepB IgG and vaccine**.

Varicose veins are treated with **leg elevation and compression stockings**. Only after conservative therapy has **failed for 3-6 months, injection of sclerosing agent may be considered**; sclerosing agents are only used for small veins however. **Surgical ligation and stripping** is only used for large, symptomatic varicose veins with associated ulcers, bleeding or recurrent thrombophlebitis.

Renal ultrasound is done if pyelonephritis isn't responding to antibiotics in order to look for a renal or perinephric abscess. Renal ultrasound is also done in all children <2 to look for underlying renal anomalies after acute Sx have resolved.

Pyelonephritis is Tx with IV antibiotics in unstable patients, recurrent pyelo, or stable patients with vomiting. Oral Abx are used only in first-time pyelo without vomiting.

Risk factors for paediatric constipation are **introducing solid food and cows milk, toilet draining, and school entry**. Complications are **anal fissures, haemorrhoids, encopresis, UTIs/pyelo, vomiting**. Tx is increasing fiber, limiting cows milk consumption to <24oz/day, laxatives, suppositories/enema.

Chagas disease can cause biventricular failure (R>L) with DCM, **left ventricular apical aneurysm** (considered pathognomonic of Chagas), mural thrombosis with **embolic complications**, and fibrosis leading to **conduction abnormalities** (e.g., ventricular tachycardia, heart block). Can also get progressive dilation of esophagus and colon.

Intralesional glucocorticoids are the preferred method for treating keloid scars. Excision is **not** the first-line treatment and is only attempted if intralesional glucocorticoids are not effective.

Dx of Lyme disease is via ELISA then western blot of **serum serology**, not of arthrocentesis-derived fluid.

Lyme disease is Tx with a **28-day-course** of doxycycline or amoxicillin. Use amoxicillin in children <8 or in pregnant women.

Following first DVT, heparin is given, followed by **warfarin for 3-6 months**.

Mastocytosis can present with a rash, which upon rubbing can cause wheals and erythema (Darier sign). Hepatosplenomegaly is also seen in 50%.

Tx of pneumonia in CF must cover Staph and Pseudomonas. **Staph is most common cause of pneumonia <20 years of age in CF; pseudomonas is most common >20 years; at 20 years the incidence is roughly the same**. Treatment therefore must be **vancomycin** (to cover MRSA due to increased risk of resistant staph in CF), **tobramycin** (an aminoglycoside more effective against pseudomonas than gentamicin), and either **ticarcillin/clavulanate** or **pipericillin/tazobactam** or **meropenem** or **imipenem/cilastatin** or **ceftazadime** or **cefepime**.

If a healthcare worker incurs a needlestick injury and the patient refuses to give blood to test for HIV/HepB/HepC, **do not draw the patient's blood AND start post-exposure HIV prophylaxis (2 NRTIs for 4 weeks +/- protease inhibitor) immediately.**

If medullary thyroid carcinoma is diagnosed in someone with MEN-II, the first step is **measuring 24-hr metanephrines** before a thyroidectomy consult. Those with undiagnosed pheo going into surgery can have catastrophic consequences.

Guidelines for lipid-lowering therapy:

Clinically significant atherosclerotic disease (ACS, MI, stroke/TIA, PVD, angina): **high intensity statin <75 years-old; moderate-intensity statin >75.**

LDL >190 mg/dL: **high-intensity statin**

Diabetes 40-75: **high-intensity statin if atherosclerotic cardiovascular disease (ASCVD) risk >7.5%; moderate-intensity statin ASCVD <7.5%.**

High-intensity statin = atorvastatin 40-80mg, rosuvastatin 20-40mg

Moderate-intensity statin = atorvastatin 10-20mg, rosuvastatin 5-10mg, pravastatin 40-80mg, simvastatin 20-40mg, lovastatin 40mg

At 8-12 weeks post-commencement of statin, cholesterol/lipids and LFTs should be checked.

Brain-dead patients who are organ donors **should be supported hemodynamically, with mechanical ventilation in ICU, and with hormone replacement therapy (e.g., vasopressors, methylprednisolone, thyroxine).** Most organs are donated from brain-dead patients and efforts should be made to maintain perfusion to organs until donation can be done.

Hepatitis A vaccine should be given to all unimmunized patients with underlying chronic liver disease (e.g., HepC). HepC that presents with normal liver enzymes, mild hepatic inflammation and no fibrosis may be treated with observation. Interferon and ribavirin are initiated if LFTs are raised, inflammation is at least moderate, or fibrosis is present.

Bilateral hilar lymphadenopathy on CXR, with or without right paratracheal lymph node enlargement, is the best indicator (most specific) of a diagnosis of sarcoidosis. Elevated ACE, ESR, and hypercalcaemia are all **less specific** and can be seen in other medical conditions.

For Dx of suspected urinary tract malignancy, do **cystoscopy** to evaluate the lower urinary tract; cytology is less sensitive but can be used as an alternative test in low-risk patients. **Contrast-enhanced CT urogram** should be done to evaluate the upper urinary tract; in renal insufficiency, ultrasound or MRI is done instead.

Paget disease is often picked up incidentally on radiograph showing thickened bone with heterogenous densities. First step is **calcium and ALP level**. Patients should also have a **radionuclide bone scan** to look for other involved areas. First-line Tx is **bisphosphonates**.

Elevated cardiac troponins in the setting of a PE is associated with worse prognosis than elevated A-a gradient.

Standardized mortality ratio = observed # of deaths / expected # of deaths

TdP is treated first with IV magnesium. If the patient doesn't respond, temporary transvenous pacing should be used.

Tx for acute anovulatory uterine bleeding is **oral contraceptives containing high-dose estrogen**. IV estrogen can be used to induce rapid hemostasis in patients with severe bleeding.

Fecal impaction is the most common cause of fecal incontinence in elderly patients. Treatment is **enemas followed by suppositories**. The patient is then sent home with recommendation for **increased fiber and fluid intake**. Stool softeners are useful in treating constipation but are not helpful in the setting of established fecal impaction.

Thyroid screening during pregnancy is initially done with **just TSH** (trimester-specific ranges) +/- **total T4**. Also important to know that **levothyroxine dose needs to be increased 25-50%, especially during first trimester,** to meet increased metabolic demands. Initially b-hCG binds to TSH receptor and can increase T3/T4 and decrease TSH, but increasing estrogen levels increase TBG levels and increase total T4 by ~1.5x. Free T4 is not reliable and tends to be artificially low due to assay artifact. Serum T3 is not useful in the management of hypothyroid patients, including those who are pregnant, and are not a sensitive marker of thyroid status. T3 levels often remain normal despite under-replacement of thyroid hormone.

Amiodarone-induced thyrotoxicosis (AIT) types I and II:

Type I: decreased TSH, increased T3/4, decreased RAIU, increased vascularity on ultrasound. Tx = antithyroid drugs

Type II: decreased TSH, increased T3/4, **undetectable** RAIU, decreased vascularity on ultrasound. Tx = corticosteroids

Amiodarone can also cause inhibition of peripheral T4-T3 peripheral conversion (normal/increased TSH, high T4, low T3; **no Tx needed**), and inhibition of thyroid hormone synthesis (Wolff-Chaikoff effect; high TSH, low T3/4; Tx = levothyroxine).

Most amiodarone-induced thyroid abnormalities are seen in the first three months of treatment and **then improve in the subsequent 3-6 months**.

Euthyroid sick syndrome most commonly has low T3 and normal T4 + TSH. Causes are multifarious; Tx is not well established.

Skin tags are seen with insulin resistance/diabetes, obesity, metabolic syndrome, pregnancy, and Crohn disease (perianal).

Sunburn (**both caused by sun and due to photosensitivity from drugs, e.g., doxycycline**) can be treated the same: **oral NSAIDs** for pain/erythema/damage to epidermis, and oral antihistamines for itch. Cool compresses, aloe vera and calomine lotion can also be used. Steroids are not used for drug-induced photosensitivity resulting in sunburn.

For choking children **who are conscious**, **if age <1**: turn face/head down and administer 5 back blows; then turn face up and give 5 chest thrusts. If **age >1**, lean the child forward and give 5 abdominal thrusts (Heimlich maneuver); alternatively, with the child leaning forward, 5 back blows followed by 5 abdominal thrusts may be administered. **If unconscious**, perform CPR.

Heparin-induced thrombocytopenia (HIT) type I: is a **non**immune process caused by direct activation of platelets by heparin; there are no clinical consequences.

HIT type II: antibodies formed against the PF4-heparin complex; >50% drop in platelet count within **5-10 days** of heparin administration; platelets tend to nadir around 30-60,000. Presents with **thrombosis**. aPTT should also be elevated (just normal effect of heparin).

Dx of HIT type II is via **serotonin release assay, heparin-induced platelet aggregation assay, or platelet-PF4 antibody ELISA**.

Patients diagnosed with HIT must avoid **all forms** of heparin for life (including LMWH), even for things like heparin flushes for arterial lines or heparin-coated catheters.

Warfarin should not be started in HIT until platelet count has recovered to normal (>150,000).

Primary bile acids are converted to secondary bile acids by bacteria, which can cause colonic stimulation and diarrhea in excess amounts. This type of diarrhea can occur **postcholecystectomy** (in 5-10%) or in **short bowel syndrome**/ileal resection. Tx is **cholestyramine**.

Parinaud syndrome = impingement of superior colliculus by pineal gland tumour = loss of pupillary reaction, upward gaze paralysis, loss of optokinetic nystagmus, and ataxia.

Neurologic impairment/seizures is the most common cause of death in TSC, followed by renal failure. Most cardiac rhabdomyomas spontaneously regress during infancy.

All children <2 years with first-time febrile UTI **should be given 7-10 days of antibiotics** (trimethoprim 4mg/kg, 150mg max, BD; TMP-SMX 0.5mL/kg; 20mL max BD; or cephalexin 15mg/kg, 500mg max, TDS) **and have a renal AND bladder**

ultrasound to look for structural anomalies. **Indications for voiding cystourethrogram: complex or atypical presentation, recurrent febrile UTI, or renal/bladder ultrasound showing HHOR → hydronephrosis, or high-grade vesicoureteral reflux, or obstructive nephropathy, or renal scarring.**

CHA_2DS_2VASc score is used to assess risk of thromboembolism in AF = CHF, Hypertension, Age >75, Diabetes, Stroke/TIA, Vascular disease (previous MI, PVD, aortic plaque), Age 65-74, Sex female

All are 1 point, except age >75 and previous Stroke/TIA are 2 points. Patients are assigned to only one of the age categories. 0 points = no antiplatelet/anticoagulation needed; 1 point = no Tx, **or aspirin**, or anticoagulation; 2 points = anticoagulation with warfarin, or dabigitran, or argatroban, or rivaroxaban

Recovery expectation is an important predictor of work outcome in patients with occupational back pain. Education to improve patients' understanding of natural history and prognosis may improve the likelihood of returning to work.

Rhematic fever: peak incidence 5-15 yrs, twice as common in girls; major criteria = JONES = Joints (polyarthritis), 🍎 (supposed to be round heart shape = O = carditis), Nodules, Erythema marginatum, Sydenham chorea; minor criteria = FEAP = Rever, ESR/CRP, Arthralgias, Prolonged PR interval.

Diagnosis of RF = two major, or one major + one minor, or Sydenham chorea alone, or carditis alone.

Sydenham chorea develops **1-8 months** after the Strep infection; carditis and arthritis develop within 3 weeks. Tx for Sydenham chorea is **penicillin** to eliminate carriage of Group A Strep. Corticodsteroids are reserved for severe cases.

First-line Tx for hepatic hydrothorax is **sodium restriction and diuretics**. Transhepatic portosystemic shunt is second-line.

In Tx of pulmonary artery HTN, a **vasoreactivity test** (pulmonary artery pressure change measured with a catheter in response to a vasodilator) should first be performed, which determines responsiveness to **calcium channel blockers** as initial Tx. If negative, then a **prostanoid (epoprostenol), bosentan, or sildenafil** may be used.

Patients with localized lymphadenopathy (e.g., cervical nodes in mononucleosis) can be observed for 3-4 weeks. But persistent and localized lymph nodes should be biopsied to rule out lymphoma.

Any person exposed to a patient with active TB **should be given baseline PPD with another PPD three months later**.

Indications for C-section in twin pregnancy are: monochorionic-monoamniotic twins; if presenting (first) twin is in breech position; if non-presenting (second) twin in either vaginal or breech position is <1500g or >20% the estimated weight of the presenting twin; if either twin has non-reassuring HR monitoring.

Indications for thrombolytic therapy: ischaemic stroke with measurable neurodeficits; onset of Sx <3-4.5 hours from time of Tx

Absolute contraindications to thrombolysis:

- Haemorrhage or multi-lobar infarct involving >33% of the cerebral hemispheres on non-contrast CT
- Stroke or head trauma in past 3 months
- Any Hx of intracranial bleeding, intracranial neoplasm, or intracranial vascular malformation
- Recent spinal/intracranial surgery
- BP > 185/110 (either)
- Platelets <100,000, INR >1.7, PT >15s, aPTT >40s
- Glucose <50 mg/dL

Relative contraindications to thrombolysis:

- Mild or rapidly improving neurodeficits
- Major surgery/trauma in past 14 days
- MI in past 3 months
- GI/GU bleeding past 3 weeks
- Seizure at onset of stroke
- Pregnancy

Ischaemic stroke presenting outside this window is treated with **aspirin and permissive HTN**. Most stroke patients are also discharged on statins.

In acute stroke, nothing is given by mouth (food, water, medications) until a **swallowing evaluation** is performed (water swallowing test, Toronto Bedside Swallowing Screening Test). >55% of stroke patients experience a degree of dysphagia.

Hyperglycaemia is common in stroke patients (due to stress or undiagnosed diabetes). Insulin, not metformin, is used in hospital. But care must be taken not to induce hypoglycaemia.

The most common cause of early death following stroke is **pulmonary embolism secondary to DVT**. 2-10% of stroke patients experience DVT, with risk highest in the first 2-7 days. Up to 75% of those with hemiparesis experiencing DVT on the hemiparetic side. Ischaemic stroke patients should be treated with **low-dose heparin or LMWH** for DVT prophylaxis. Haemorrhagic stroke patients should receive **pneumatic compression**.

Acyclovir should be given **starting 36 weeks gestation** in pregnant women with HSV. Only do C-section if there are peripartum prodromal Sx or active lesions. C-section decreases transmission risk from 7% to 1.2% in these cases.

Superior sagittal sinus thrombosis (or any cerebral vein/dural thrombosis for that matter) presents with **headache in 90%** +/- vomiting. **Can occur in pregnancy** and other hypercoagulable states. **Dx is with MRI + MR venography**. **Tx is with LMWH, even if focal areas of intracranial haemorrhage.**

In patients with elevated PTH (higher end of normal, or high) and calcium, if urinary calcium is >200 mg/day, it is suggestive of primary hyperparathyroidism; if urinary calcium <100 mg/day, it is suggestive of familial hypocalciuric hypercalcaemia.

New-onset seborrheic dermatitis (erythematous and pruritic rash on face and axilla) is commonly seen in HIV-positive individuals and can be one of the presenting complaints of the disease.

Prehn sign is relief of testicular pain upon elevation of the testis. Relief of pain (positive Prehn sign) **is suggestive of epididymitis**. Negative Prehn sign is suggestive of testicular torsion.

Levothyroxine Tx in patients with uncorrected adrenal insufficiency can cause adrenal crisis due to increased metabolic demand and clearance of glucocorticoids.

If adrenal insufficiency is suspected, **first do ACTH level + 8AM cortisol, OR ACTH and ACTH stimulation test.** With the ACTH stimulation test, if cortisol increases suboptimally, look at ACTH; if ACTH high then primary adrenal insufficiency; if ACTH low, then secondary adrenal insufficiency. If cortisol increases normally but adrenal

insufficiency is strongly suspected, do **metyrapone test or insulin-hypoglycaemia test**.

Metyrapone is an 11-beta-hydroxylase inhibitor. Administration should decrease cortisol, increase ACTH, and increase 11-deoxycortisol. If cortisol decreases >220 nmol/L, it indicates adequate inhibition by metyrapone. If neither ACTH nor 11-deoxycortisol rise, then diagnosis is secondary adrenal insufficiency. If ACTH rises but 11-deoxycortisol doesn't, then diagnosis is primary adrenal insufficiency.

Patients who report a fall should first undergo a **postural stability test (i.e., the "Get up and Go" test)** to assess whether additional workup is necessary.

Confidentiality is upheld in minors for contraception, pregnancy care, sexually transmitted disease, substance abuse, and mental health issues. But if the mental health issues suggest increased risk of self-harm, confidentiality must be breached. Confidentiality is breached in possible harm to self or others, neglect, physical or sexual abuse, violent injuries (e.g., gunshot or stab wounds).

Thiazides and loops both contain sulfur. Thiazides however are associated with **photosensitivity** more often than loops.

Patients with Colles fracture can have concomitant **ulnar styloid fracture, scaphoid fracture, and/or acute carpal tunnel syndrome**.

Constipation in children is treated initially with diet modification. If this is unsuccessful, mild laxatives should be used (**e.g., magnesium hydroxide, aka milk of magnesia**). Enemas and suppositories are reserved for severe constipation or as short-term rescue.

Hepatorenal syndrome is a diagnoses of exclusion in liver disease, and **a fluid bolus should be given to rule out prerenal failure as the cause of renal dysfunction**. A combination of midodrine, octreotide and albumin is the treatment of choice after the diagnosis is confirmed. Midorine and octreotide will decrease splanchnic blood flow, as the splanchnic circulation is vasodilated in cirrhosis, which is the likely aetiology of hepatorenal syndrome.

Nursemaid's elbow is radial head subluxation. In the process, the **annular ligament** becomes displaced between the radiohumeral joint. Supination and flexion of the forearm at the elbow, OR hyperpronation of the forearm are the two maneuvres to Tx.

Three drugs can be used as alternatives to amoxicillin in acute otitis media (e.g., in persistent/recurrent infection): amoxicillin-clavulanate, cefuroxime axetil, or intramuscular ceftriaxone.

After treatment for acute otitis media, effusion in the middle ear may persist for up to three months. Otitis media with effusion (OME) is an effusion without other signs of otitis media. Tx is **"watchful waiting"** as OME often self-resolves in six weeks.

Trichloracetic acid is a first-line Tx for condylomata acuminata.

Tx for cryptorchidism is **referral to elective surgery; surgery should be performed before six months of age**, as spontaneous descent after this age is rare.

Hip fracture is Tx with **surgery within 48 hours**. Nonsurgical Tx can be considered in patients who are nonambulatory, have advanced dementia, or who are medically unstable.

If a woman is taking valproic acid and is **already** pregnant, **continue the valproate and do not discontinue it**. If a woman is planning on getting pregnant and is currently taking valproic acid, **switch to a different AED** before the start of the pregnancy.

Taking anti-epileptic drugs is **not** a contraindication to breastfeeding.

Treatment for **intertrigo** (fungal infection of intertriginous areas presenting as erythematous plaques with satellite vesicles or pustules) is **nystatin powder**.

Hidradenitis suppurativa (HS) is the presence of abscesses or subcutaneous boil-like infections, although some can be bacteria free. It is thought that **family history, obesity, smoking and sanitary habits** are contributing factors. Therefore, **weight loss, smoking cessation** and **daily cleansing of affected areas** is required in all patients, however **all patients still need medical Tx**. The **Hurley system** is used stage HS.

Hurley I (mild disease; acne-like; no nodules, sinus tracts or scarring): Treatment = **topical clindamycin; if insufficient, try intralesion glucocorticoids + oral tetracycline.**

Hurley II (moderate disease; nodules, sinus tracts, or scarring): Treatment = **oral tetracycline; if insufficient, try oral clindamycin + rifampin.**

Hurley III (severe disease; diffuse, painful, large scarring/involvement): Treatment = **anti-TNF drugs, oral retinoids (acitretin), surgical excision**.

The bottom line is that warm compresses are **not** treatment for HS.

Thyroxine should be taken **on an empty stomach**, preferably in the morning, separate from other medications. Supplements like **calcium and iron** can decrease absorption of thyroxine (and increase TSH).

The major problem that leads to difficulties in finding cross-matched blood in patients with history of multiple blood transfusions is **alloantibodies**, which are minor RBC antigens, such as E, L and K. Normally when blood is ordered for transfusion, the patient's ABO, Rh and minor RBC antibodies are screen for to prevent alloimmunization.

Surgical management is the treatment modality of choice for renal cell carcinoma. **Partial nephrectomy** can be offered for stage I disease (confined within renal capsule). If disease extends beyond renal capsule but not beyond Gerota fascia (stage II), **radical nephrectomy** is the treatment of choice. Patients with more extensive disease can undergo a debulking procedure. Radiation and chemotherapy are offered to patients with metastatic disease.

Physicians who are **attendees** at conferences cannot accept travel compensation, lodging or other personal expenses. However physicians who are **lecturers** at conferences can accept travel compensation and honorarium **but not slide/presentation material**. And all compensations/grants/gifts must be fully disclosed in presentations as conflict of interest.

Porphyria cutanea tarda is caused by deficiency of **uroporphyrinogen decarboxylase**. Presentation is often photosensitivity with blisters, fragility of the skin of the dorsum of the hands, facial hypertrichosis and hyperpigmentation. Diagnosis is measuring **increased urinary uroporphyrins**. The condition can be precipitated by estrogens and ethanol; these should be discontinued if suspect. **Phlebotomy, hydroxychloroquine and IFN-alpha** can provide relief. **Hepatitis C** can also precipitate attacks.

Ketogenesis can occur not just in DKA due to lack of insulin, but **also in stress hyperglycaemia due to high levels of glucagon, cortisol, catecholamines, and pro-inflammatory cytokines**. In hyperglycaemic-hyperosmolar non-ketotic state in T2DM, insulin is not absent but stress markers aren't high either, so there's no ketogenesis.

Physical exam is the most accurate way of diagnosing Parkinson disease. In cases where the diagnosis is equivocal, **striatal dopamine transporter scan (DaTSCAN)** can be used, which uses ioflupane-123 (iodine-123), an isotope that has high affinity specifically for striatal dopamine receptors. Low I-123 uptake diagnoses Parkinson disease. MRI is of little value in diagnosing Parkinson and instead can be used to rule out other conditions if necessary.

Initial Tx for Parkinson disease is **dopamine agonists** (e.g., pramipexole, ropinerole). **Levodopa** is the most effective Tx but may hasten destruction of substantia nigra cells and worsen symptoms in the long term; it reserved for advanced disease or in older patients.

Children swallowing objects (e.g., coins, batteries) can be **observed for passage in stool if child asymptomatic**. Up to 90% of foreign bodies in the stomach will be passed without difficulty. Only do endoscopic removal if **battery is coingested with magnet, or any symptoms develop, or if remains in stomach 4 days or longer**.

Pregnant women with UTIs are treated with amoxicillin, Augmentin, cephalexin or nitrofurantoin.

Pregnant women with pyelonephritis are Tx with third-generation cephalosporins, aztreonam, or ampicillin/gentamicin. If severe pyelonephritis (urinary retention, urosepsis, immunocompromised), Tx with pipericillin/tazobactam, ticarcillin/clavulanate, or carbapenems.

For MVP, decreased LV volume = earlier-onset, but longer and softer; increased LV volume = delayed onset and shorter in duration.

Any type of breast mass needs to be investigated <u>even if</u> it is likely a fibroadenoma or simple cyst. In women 30+, do mammogram +/- ultrasound; in women <30 do mammogram + ultrasound. In both age groups, if simple cyst, do FNA if woman desires drainage; if complex cyst or solid lesion/suspicion of malignancy, do **image-guided core needle biopsy**.

Meralgia paresthetica is **lateral femoral cutaneous nerve entrapment** resulting in **anterolateral thigh pain and/or numbness**; muscle strength is not directly affected. Tx is **reassurance, weight loss and avoidance of tight-fitting garments**. Physical therapy has no role in Tx of meralgia paresthetica.

Management of retrosternal goiter with compressive Sx is surgical.

Tx for aortic dissection = IV beta-blocker (such as labetalol, esmolol, propranolol) to get systolic down to 100-120 and HR <60. Nitroprusside should only be used if systolic is still above 100-120.

Unilateral headache + Horner syndrome = carotid artery dissection until proven otherwise. The cervical sympathetic nerves run along the common carotid and internal carotid, so dissection can impinge on the nerves. Miosis + partial ptosis is common, but not anhydrosis since the sweat nerves run alongside the external carotid. **CT angiography of the head and neck** is the next best step in management. If equivocal but Dx still strongly suspected, do **MR angiography or catheter angiography**. **Tx = antithrombotic therapy**. Sx of stroke/TIA or amaurosis fugax can occur and are important complications of carotid artery dissection.

HSV, varicella, EBV, CMV (all herpesviridae) can cause hepatitis.

Most acute HepB can be managed with **supportive measures and close follow-up**. Tx with lamivudine is for severe fulminant HepB with impaired synthetic function (e.g., increased PT), concurrent infection with HepC, or immunosuppression.

The risk of developing chronic HepB following acute infection is >5% in adults, 90% perinatally, and 20-50% ages 1-5. Elevated ALT >6 months indicates progression to chronic hepatitis. PT is one of the best prognostic indicators for patients with acute HepB; a persistently normal PT suggests the infection will likely resolve without significant sequelae.

Tx of chronic prostatitis = 6-12 weeks of Abx therapy. First-line Tx is a fluoroquinolone (ciprofloxacin or levofloxacin), and the cure rate is ~70%. A second-line alternative is TMP-SMX.

For human bites, Abx prophylaxis should be given regardless of the appearance of the wound. Tx and prophylaxis = amoxicillin-clavulanate.

Empiric Tx for pasteurella multocida = amoxicillin-clavulanate, cephalosporins.

Preferred Tx for bartonella hensellae is azithromycin.

A Dx of 21-beta-hydroxylase deficiency is confirmed with increased **17-hydroxyprogesterone levels.**

Hoarseness secondary to compression of recurrent laryngeal nerve secondary to LA enlargement = Ortner syndrome

Mitral stenosis is associated with **loud S1, loud P2 (if associated pulmonary HTN), opening snap, and mid-diastolic rumble.**

Mitral facies = pinkish-purplish plaques on face associated with mitral stenosis; presentation is due to low cardiac output with inadequate perfusion of facial skin.

Broad and notched P waves = **P mitrale** = LA abnormality = ECG finding in mitral stenosis

ASD can lead to mid-systolic murmur from increased pulmonic flow.

Noonan syndrome = autosomal dominant condition characterized by short stature, facial dysmorphism, and congenital cardiac defects (90% of patients; classic is **pulmonic stenosis**, ASD, hypertrophic cardiomyopathy).

ACE inhibitors combined with dihydropyridine CCBs reduce the incidence of peripheral edema/fluid retention because the former cause post-capillary venodilation.

Ehlers-Danlos syndrome has "velvety," dough-like skin with atrophy + scarring. It can also cause bilateral inguinal hernias, and uterine/cervical prolapse. COL5A1/2 mutations in AD inheritance most common.

Anomalous coronary artery is a cause of sudden cardiac death in young persons. Echo is normal. In HOCM, echo will show the abnormalities, which can be used to differentiate.

Mild transaminitis is normal after INH commencement. However it should be stopped if transaminases increase >5 times upper limit of normal, or with symptoms >3 times upper limit of normal.

USFDA drug risk categories during pregnancy:

A = safe in pregnancy; B = likely safe in pregnancy; C = may be safe; D/X = unsafe

A: no human or animal fetal risk
B: animal studies no risk + human studies not enough information; OR animal studies risk + humans no risk

C: animal studies risk + humans not enough information; OR animal + human studies not enough information
D: positive human fetal risk, but drug may be justified in certain circumstances
X: positive human fetal risk, and drug is never justified

Mycotic aneurysms, or infective arterial aneurysms, occur due to septic embolization to systemic or cerebral vessels. They are a complication of endocarditis and if cerebral can present with headache and/or neurological Sx. Diagnosis of cerebral mycotic aneurysm can be confirmed with CT angiography.

Complications of endocarditis –

Cardiac: valve insufficiency, perivalvular abscess, mycotic aneurysm, conduction abnormalities

Neuro: embolic stroke, cerebral hemorrhage, brain abscess, acute encephalopathy or meningoencephalitis

Renal: renal infarction, glomerulonephritis, drug-induced tubulointerstitial nepritis from drug therapy

MSK: vertebral osteomyelitis, septic arthritis, musculoskeletal abscess

Patellofemoral syndrome is caused by chronic overuse of the knee. Diagnosis is suggested with the patellofemoral compression test, i.e., pain elicited by extending the knee while applying patellar compression. Usually seen in **young female athletes**. Tx is **primarily biomechanicial with exercises to stretch and strengthen the thigh muscles**.

Patellar tendonitis ("jumper's knee") is primarily in athletes; characterized by **episodic pain and tenderness at inferior patella**.

Prepatellar bursitis ("housemaid's knee") is seen in people who spend a lot of time on their knees (e.g., painters, tilers). Pain is sharp and localized anterior to the patella. **Septic bursitis**, most frequently causes by S. aureus, is a common complication of prepatellar bursitis.

Anserine bursitis is a common cause of **medial knee pain distal to the joint line**.

Peptic stricture/esophageal stricture is a common complication of GERD. It causes dysphagia similar to esophageal carcinoma (i.e., solids progressing to liquids) but

without any B-Sx, and usually presents in younger age. That is, young age and lack of B-Sx suggest stricture over malignancy.

Whole-brain radiation is the Tx of choice for **brain metastases** and increases survival. Corticosteroids can also prolong survival. Chemotherapy is not the Tx of choice because of poor hemato-encephalic barrier.

Warfarin dose should be decreased 25-50% after initiation of amiodarone therapy due to increased bleeding risk.

Omeprazole also increases bleeding risk with warfarin.

An endoscopy is done in the setting of chronic GERD when 1 or more of the following are present: age >50, male gender, obesity, smoker, hiatal hernia, white ethnicity

If Barrett esophagus (BE) not present, no more surveillance is needed. If BE present, do biopsy. **If no dysplasia present → surveillance repeat endoscopy in 3-5 years; if low-grade dysplasia present → surveillance endoscopy in 6-12 months OR endoscopic ablation; if high-grade dysplasia present → immediate endoscopic ablation**

Cocaine-induced coronary vasospasm may lead to coronary artery thrombosis. If ECG shows signs of ischaemia, **must do coronary angiography to rule out coronary thrombus. Initial Tx for cocaine-induced coronary vasospasm is nitrates (or dihydropyridine calcium-channel blockers), aspirin + a benzo.**

Abnormal heel prick capillary samples should be reevaluated with **venous peripheral blood draw**. Capillary samples can have falsely elevated hematocrit. Hematocrit is highest at two hours of age and should be rechecked at 12-24 hours of age.

Non-dihydropyridine CCBs cause constipation, not dihydropyridines.

Tx of chronic constipation: evaluate for secondary causes and medications; when these have been ruled out, increase fiber to 20-30g/day; if no improvement → **bulk-forming laxatives are first-line**, followed by either osmotic laxatives, saline laxatives, and/or stimulant laxatives. If still not effective, the **chloride channel activator, lubiprostone, may be used**.

Bulk-forming laxatives: psyllium, methylcellulose, polycarbophil; these increase stool bulk, maintain stool water, and soften stool; they are safe and effective in most patients.

Osmotic laxatives: polyethylene glycol, lactulose, sorbitol; these increase stool water and volume; long-term use can cause electrolyte abnormalities (e.g., hypokalaemia).

Saline laxatives: milk of magnesia (hydrated magnesium carbonate), magnesium citrate; increase stool water/secretions; should be avoided in renal failure due to risk of hypermagnesaemia.

Stimulant laxatives: bisacodyl, senna; these increase intestinal parastalsis and increase stool water; long-term use can cause electrolyte disturbance (e.g., hypokalaemia).

Lubiprostone: chloride-channel activator used for severe constipation refractory to above Txs; long-term data not yet gathered.

Docusate sodium is a surfactant stool softener that increases stool hydration; it is **less effective** than laxative treatments (the above ones) for chronic constipation and is not useful for long-term therapy, but can be used in postoperative patients who need to avoid straining.

Pap smear guidelines:

Immunocompromised (e.g., transplant recipient, HIV)/autoimmune disease (e.g., SLE): from the onset of sexual intercourse every 6 months (x2), then annually.

Under age 21: no screening

Age 21-29: cytology every 3 years

Age 30-64: cytology every 3 years, OR combined cytology + HPV testing every 5 years.

Age 65+: no more routine screening indicated if negative prior screens and not high-risk (i.e., no Hx of high-grade cervical lesions, cervical cancer, or exposure to DES)

Women with hysterectomy (including cervix): no screening indicated if not high-risk

The basis for the difference in HPV guidelines for ages 21-29 vs 30-64 is because 50% of young women will be infected with HPV within the first three years of sexual onset; it is most often transient with spontaneous regression in two years.

In women with atypical squamous cells of undetermined significance (ASCUS), if 21-24, do not do HPV testing. **Repeat Pap smear for cytology in one year.** Only do colposcopy if three consecutive Pap smears are ASCUS.

For women 25+ with ASCUS, do HPV testing. If (+), do colposcopy. If (-), repeat Pap smear AND HPV testing in THREE years.

In women 30+, if normal cytology and HPV (-) → routine screening. If normal cytology and HPV(+) → HPV genotyping, OR repeat cytology + HPV testing in one year.

Always do colposcopy if any Pap smear comes back with ASC-H (atypical squamous cells-cannot rule out high-grade squamous lesion), atypical glandular cells (AGC), or high-grade intraepithelial lesion (HGIL).

In women with cervical intraepithelial neoplasia (CIN) I, next best step is **cytology and colposcopy every 6 months for one year.** Rate of malignant transformation of CIN-I is low. However for CIN-II and CIN-III, **if the woman is pregnant OR under 25 + desires pregnancy, Tx = same as CIN-I**; if woman is not pregnant or over 25, Tx = ablation/excision (same as CIN-III).

Infantile botulism is associated with raw honey **or environmental dust**, since **spores** can be ingested from either. Sx include constipation, cranial nerve palsies (including impaired gag reflex), hypotonia and loss of deep tendon reflexes. Dx = C. botulinum spores or toxin in stool. Most children with infantile botulism are hospitalized for 1-3 months and prognosis is excellent.

Canned fruit, vegetables, and fish contain **preformed botulin toxin**.

Tx for infant botulism = **human-derived botulism immune globulin**

Tx for foodborne botulism = **equine-derived botulism immune globulin**

Tx = Guillain-Barre = **pooled human immune globulin**

HPV vaccine is indicated **ages 9-21** for all boys and men. HPV vaccine is indicated for all women, immunocompromised individuals, and men-who-have-sex-with-men **ages 9-26.** HPV vaccine is **not** indicated in pregnancy.

Women who have sex with women (WSW) have **the same risk of cervical cancer, and an increased risk of bacterial vaginosis**.

IV pentamidine can cause a number of adverse effects, with their incidence reaching up to 70% in treated patients. Such adverse effects include **hypo-/hyperkalaemia, hypocalcaemia, and hypo-/hyperglycaemia**. If you get a question that shows biochemistry/glucose as normal and then the patient is given pentamidine and has an adverse effect (e.g., seizure), **do a finger stick blood test** to make sure the patient's values haven't changed.

Erosion of an **artery** of a vasa recta within a diverticular sac is the most common source of diverticular bleeding.

Patients who receive Abx therapy before LP may have negative CSF cultures, even though glucose and protein are altered. If there is strong suspicion of bacterial meningitis despite negative cultures, patients should still receive a full course of Abx therapy.

Cardiotoxicity with trastuzumab therapy is **not cumulative** and is **often reversible with cessation of therapy.**

A non-dihydropyridine CCB can be used as a third drug to decrease renal protein excretion (after ACEi, ARB) due to its anti-proteinuric properties.

Hypercalcaemia secondary to sarcoidosis responds quickly to corticosteroids.

Corticosteroids are the initial medical management for toxic megacolon (e.g., in IBD). 5-ASA compounds are to be avoided in toxic megacolon and can precipitate attacks.

Low-grade fevers are seen in up to 14% of patients as a normal finding in pulmonary embolism. Initial management is **withholding antibiotic Tx**.

Corrected calcium = measured serum calcium + 0.8(4.0 – albumin)

Therefore if serum calcium is e.g., 7.5 and albumin is e.g., 2.5, then corrected calcium is 8.7 (normal).

For every 1.0 g/dL drop in albumin, calcium drops 0.8 mg/dL. Calcium in blood is normally 45% albumin-bound, 40% free, and 15% bound to organic/inorganic ions.

Most common cause of **sudden hyperglycaemia in a patient receiving TPN is sepsis.** One must do a thorough check for infection (e.g., sepsis, pneumonia, wound infection) in a patient with sudden hyperglycaemia who has an IV line.

Consequences of hypophosphataemia are respiratory weakness, hemolysis, impaired oxygen release from hemoglobin.

Maternal hyperglycaemia (diabetic) can cause fetal myocardial glycogen deposition, resulting in hypertrophic cardiomyopathy (i.e., hypertrophic interventricular septum) and CHF. The HCM is reversible following birth.

Renal colic in pregnant patients is first evaluated with **renal and pelvic ultrasound**. If negative, then do **transvaginal ultrasound**. If negative, then treat empirically for stone and observe, OR do **MR urogram**, OR do low-dose CT urogram (2^{nd} + 3^{rd} trimesters only).

Rapidly progressive weakness of lower extremities, accompanied by sensory loss and bladder retention, following a viral infection is characteristic of transverse myelitis.

Patients with mechanical heart valves need **both antiplatelet therapy and anticoagulation (aspirin + warfarin)**.

Aspirin dose is 75-100mg/day in those taking warfarin. Dose is 75-325mg/day in those who cannot tolerate anticoagulation.

Warfarin INR 2.0-3.0: those with mechanical aortic valves and no high-risk factors (e.g., AF, EF<30%, Hx thromboembolism, hypercoagulable state)

Warfarin INR 2.5-3.5: those with mechanical mitral valves; all aortic valve patients in first 3 months; aortic valve patients with high-risk factors

Tx of diphtheria with antitoxin **causes serum sickness in 10%, and can lead to anaphylaxis. So epinephrine should always be available.**

If esophageal biopsy in HIV patient with odynophagia reveals giant ulcers with not viruses grown on culture, **the Dx is likely aphthous ulcers, and Tx is prednisone.**

All hospitalized patients with varicella/zoster infections (even if just localized infection) **require contact isolation until lesions are fully crusted** due to risk of nosocomial spread.

Periodic sharp-wave complexes on EEG and presence of 14-3-3 protein in CSF are suggestive of Creutzfeldt-Jakob syndrome.

Gold standard Tx for endometritis is **clindamycin + gentamicin**. Metronidazole is contraindicated in breastfeeding mothers.

The most important risk factor for endometritis is **route of delivery**. Endometritis occurs after 3% of vaginal births but after 15-30% of C-sections.

Silent thyroiditis (painless thyroiditis; subacute lymphocytic thyroiditis) is a variant of Hashimoto thyroiditis. It is characterized by a brief hyperthyroid phase followed by spontaneous recovery or hypothyroid phase. **Anti-TPO antibodies are positive in 50% and radioiodine uptake is low.** It presents as pain**less** (in contrast to subacute granulomatous thyroiditis; de Quervain; which is painful) and is more common in women. It is associated with various types of immunotherapy (e.g., interferon for HepC; IL-2 for metastatic melanoma) and lithium use. **Propranolol** can be used for the hyperthyroid phase if symptomatic.

Dx of rubella is achieved with PCR and acute/convalescent IgM/IgG serology.

Subchorionic hematomas are the most commonly identified source of first trimester bleeding. They appear on ultrasound as a crescentic hypoechoic region between the gestational sac and endometrium. There is no known Tx but management is mere repeat ultrasound in one week's time. Women are most at risk for **spontaneous abortion**.

The **Kleihauer-Betke test** measures the amount of fetal hemoglobin the blood stream of an Rh(-) mother in order to determine the dose of RhoGAM needed. In the test, the mother's blood on a smear is exposed to an acid bath, which removes the maternal hemoglobin but not the fetal hemoglobin. The cells are then stained with Sharper's method, which makes fetal hemoglobin a rose-pink, whereas maternal cells appear as "ghosts." 2000 cells are counted and a percentage of fetal cells is calculated. The KB test is done if the **initial rosette test** is (+) for the presence of maternal-fetal hemorrhage.

Patellar tendon rupture entails excruciating pain, anterior knee swelling, and an inability to maintain passive extension of the leg against gravity.

Dietary modifications are helpful in GERD but not in dyspepsia (chronic/recurrent pain in the epigastric area without reflux Sx).

If a patient has dyspepsia, diet modification therefore is not first-line Tx; instead first consider whether patient has GERD Sx or NSAID use; if either, Tx GERD (acid suppression), or for NSAIDs, either remove them **or add acid suppression (PPI)**. If patient has dyspepsia without GERD Sx or NSAID use, see whether there's alarm Sx (B-Sx, dysphagia/odynophagia, abdominal mass/lymphadenopathy, anaemia/fatigue, persistent vomiting, hematemesis, family Hx gastric cancer, Japanese). If EITHER B-Sx or >55 years of age, do endoscopy. If no B-Sx and <55 years of age, consider where patient is from. If from H. pylori location with prevalence <10% (America), **give 4-6-week trial of PPI**. If patient is from H. pylori location with >10% prevalence (Asia, eastern Europe, Mexico, Latin/South America, Africa), do H. pylori testing first. If (-) give trial of PPI; if (+) treat for H. pylori.

Romantic/sexual relationships with former **non-psychiatric** patients are acceptable on a case-by-case basis; the ethics is debated. However relationships with former **psychiatric** patients are always unethical; these relationships are not illegal, but just unethical.

Urinary obstruction **in conjunction with prostatitis** should be initially treated with **suprapubic catheterization**. A transurethral (Foley) catheter and prostate massage should both be avoided because of risk of precipitating bacteremia.

Complex regional pain syndrome should be suspected in patients with recent injury who develop burning pain, edema, skin changes, and/or decreased range of motion. Type I has no identifiable nerve lesion; type II does.

Dx of ABPA made with positive skin antigen test for Aspergillus, eosinophilia >500/uL, IgE > 417 IU/mL, IgG/IgE for Aspergillus.

First do FBC shows eosinophilia (which increases suspicion). Then do the skin prick antigen test for Aspergillus. **Then** do testing for serum IgE levels and serum precipitating antibodies to Aspergillus.

Presentation of ABPA is recurrent asthma exacerbations, fleeting infiltrates, and central bronchiectasis (seen on CT). Tx is **oral glucocorticoids** +/- itraconazole.

Tics in Tourette disorder are treated with **atypical antipsychotics first-line**. Alpha-2 agonists (e.g., clonidine, guanfacine) and tetrabenazine (dopamine depleter) have

also shown efficacy. First-generation antipsychotics are also approved by the FDA but aren't first-line because of their side-effect profile.

Sickle cell anaemia is definitely diagnosed with **hemoglobin electrophoresis**. Blood smear may show sickle cells but it is not a definitive diagnosis.

Bisphosphonates are contraindicated in renal failure. Parathyroidectomy is indicated if there is high calcium or phosphate refractory to conservative therapy, PTH > 1000 pg/mL, intractable bone pain, intractable pruritis, episode of calciphylaxis, soft tissue calcification.

Anterior nosebleeding comes from Kiesselbach plexus, which is an anastomosis of the sphenopalatine, greater palatine, anterior ethmoid, and superior labial arteries. Tx is with pinching the nasal alae and leaning forward. If this doesn't work then oxymetazoline (alpha-1 agonist) can be applied to cotton, and this can be compressed against the nasal septum.

Tx for primary dysmenorrhea is NSAIDs, followed by OCPs.

Dx of Becker/Duchenne muscular dystrophy is first through **measurement of CPK**, which is elevated 10-20x by age 2 and then decreases with age as muscle is replaced by fibroadipose tissue. Genetic testing confirms the diagnosis. Muscle biopsy and electromyography are not needed.

Those who have urticarial/cutaneous allergy to eggs (but not anaphylaxis) can receive the influenza vaccine and be observed for 30+ minutes. If Hx of anaphylaxis with eggs, defer vaccine and refer to allergy specialist.

Complete urinary continence should be achieved by age 5. A **urinalysis** is recommended for all children >5 with enuresis to rule out secondary causes (e.g., diabetes mellitus).

Intoxicated patients who may have incurred life-threatening injuries should be physically restrained and treated.

The **ECG** is the initial tool of choice in suspected **blunt cardiac injury**. Cardiac enzymes are non-specific and are not of value for diagnosing BCI. A CXR should also be done. If the CXR is abnormal or the patient is haemodynamically unstable, an echo should be done.

Angiodysplasia is associated with **aortic stenosis (Heyde syndrome) and end-stage renal disease (ESRD)**.

A pregnant woman with a pelvic cystic mass >5cm needs **surgical intervention in second-trimester**. Cysts >5cm are at increased risk of rupture, torsion and hemorrhage.

Tx of lead intoxication: mild (5-44 ug/dL) = no medication (levels should be rechecked **within a month** to make sure they are not rising); moderate (45-69) = oral succimer; severe (70+) = IM dimercaprol + IV EDTA

Abdominal CT scan should be performed in patients with bilateral or right-sided varicocele, or varicocele that doesn't disappear while supine, to look for causes of obstruction (e.g., tumour, clot).

Indications for carotid endarterectomy:

50+% stenosis in symptomatic men; 60%+ stenosis in asymptomatic men

70%+ stenosis in both symptomatic/asymptomatic women

Drug effects on thyroid metabolism:

Increase TBG and require increasing thyroxine dose: estrogens (OCPs), SERMs (tamoxifen, raloxifene), methadone, heroin; in women starting OCPs who take thyroxine, thyroid tests should be done 12 weeks later, and T4 dose may need to be increased.

Decrease TBG and require decreasing thyroxine dose: androgens, danazol, anabolic steroids, glucocorticoids

Patients with fungal endophthalmitis (e.g., candida) should be treated with vitrectomy + either amphotericin B or fluconazole.

Dextrose is the first-line Tx in sulfonylurea poisoning. **Octreotide** is a somatostatin analogue that decreases insulin secretion caused by the sulfonylurea.

Management of symptomatic peripheral arterial disease:

Risk factor control: antiplatelet therapy, statin therapy, smoking cessation, blood pressure control, diabetes control

Exercise: **exercise program >30 mins/day, 3 days/wk for >3 months = important management step before cilostazol or surgery**

Medications: **cilostazol** (preferred to pentoxifylline)

Surgery: indicated for limb-threatening disease or continual functional impairment despite above management; can be endovascular (angioplasty + stent) or surgical (bypass graft)

A normal reaction to caloric stimulation of the external auditory canal (transient, slow deviation toward the side of the stimulus [brain-stem mediated], followed by saccadic correction to the midline [cortical correction]) strongly suggests **psychogenic coma**. This oculovestibular reaction cannot be voluntary suppressed.

Priapism is first treated conservatively with ice. The next best step is injection of phenylephrine or epinephrine to achieve dumetescence via alpha-1 agonism.

Shoulder traction/dystocia leading to Erb Duchenne palsy can also be associated with **diaphragmatic paralysis**.

IFN-g release assay cannot differentiate between active and latent TB. If a patient has suspected active TB on CXR (Hx of BCG doesn't matter), the next best step is **sputum culture (gold standard at 81% sensitivity and 98% specificitiy but takes 3-8 weeks, and drug-sensitivity testing can be performed), and smear microscopy (fast and easy to visualize mycobacterium but low sensitivity)**.

Endoscopic ultrasound with aspiration is the best way to evaluate a pancreatic cyst to differentiate malignancy from non-malignant causes.

Emergency contraception:

Copper uterine device most effective (99%), within 5 days (120 hrs); however **contraindications are active vaginal/cervical infection, undiagnosed vaginal bleeding, or Wilson disease**.

Ulipristal (selective-progesterone receptor modulator; SPRM) is the most effective oral contraceptive; it is effective (85%) within 5 days and can be used when there is active infection or vaginal bleeding; **contraindications are hepatic/renal insufficiency or uncontrolled asthma**.

Levonorgestrel is effective (85%) within 3 days and does not have contraindications.

Oral contraceptives (containing levonorgestrel or norgestrel) are effective (75%) within 3 days.

Charcot triad for cholangitis = fever + RUQ + jaundice; Reynold pentad = Charcot triad + hypotension + confusion (50% mortality rate)

Tx of cholangitis = blood cultures + antibiotics (ampicillin + gentamicin; imipenem; levofloxacin); once patient has stabilized (usually within 24 hours) an ERCP can be scheduled

Neonatal stool frequency is ~6-8/day (~1/breastfeed); this pattern changes around **week four of life to ~1/day or less (even three/wk)**. Bear in mind as exaggerated parental concerns of child constipation should be weighed against what is normal.

For suspected ruptured viscous (e.g., peptic ulcer), Dx is first done with **chest and abdominal x-rays**. Initial management is **intravenous fluids, antibiotics and IV PPI therapy.**

X-rays are **often negative (<50% sensitivity)** in diagnosing stress fractures, especially in the first 2-3 weeks following injury. The patient can be managed based on clinical findings. But if a definitive diagnosis is needed, MRI can show the stress fracture, which may in fact be abnormal for up to one year after the fracture has healed.

Bilirubin, INR and creatinine are used to determine the MELD score (Model for End-Stage Liver Disease), which can help predict prognosis from liver disease. The USMLE wants you to know that these three are the best indicators of poor prognosis in liver disease.

If a psych patient is a non-responder to an anti-depressant, switch the drug. If he or she is a partial-responder, consider augmentation therapy.

If a family member (i.e., parent, grandparent, aunt, uncle, sibling) of a newborn/infant has total cholesterol >240 mg/dL, **order total random cholesterol shortly after the age of TWO. If <170, repeat in five years; if >200, order fasting lipid profile (FLP). If family member has Hx of CAD, order FLP directly at 2 years of age.**

Any actinic keratosis should be treated, not observed, due to 20% risk of progression to SCC. If local, use cryotherapy or excision. If scattered, use field therapy, such as topical 5-FU, imiquimod cream, topical diclofenac, or photodynamic therapy.

Topical metronidazole and oral tetracycline are appropriate Tx for acne rosacea.

SGLT2 inhibitors (canagliflozin, dapagliflozin) are associated with UTIs/candida and hypotension.

DPP-4 inhibitors (sitagliptin, saxagliptin) are associated with nasopharyngitis.

MMR and varicella can be given to HIV patients with CD4 count >200.

All HIV patients should also receive PCV13, followed by PSV23 eight weeks later then every 5 years.

Meningococcal vaccine should be given to all HIV patients 11-18 yrs, and/or those who live in close/dorm/military quarters, and/or those with complement deficiency or asplenia.

Tx for supratherapeutic INR (given no/minimal bleeding):

If INR <5: withhold warfarin for 1-2 days or decrease dose

If INR 5-9: withhold warfarin and give low-dose (1-2.5 mg) **oral** vitamin K

If INR >9: withhold warfarin and give medium-dose (2.5-5 mg) **oral** vitamin K

If serious/life-threatening bleeding: give high-dose (10 mg) **IV** vitamin K + FFP, recombinant factor VIIa, or prothrombin concentrate

Initial Tx for cryptococcal meningitis is **amphotericin B + flucytosine. Patients are then discharged home only on oral fluconazole.** In patients not already on anti-retrovirals, **they should not be started until at least 4-10 weeks post-cryptococcal infection** as the improvement of the immune system can cause a paradoxical worsening called **immune reconstitution inflammatory syndrome (IRIS).** IRIS is best treated with **continuation of HAART and reassurance**.

Increased ICP secondary to meningitis is initially managed with **serial lumbar punctures**, not mannitol. Some patients require lumbar drains or ventriculostomies.

Anagen hairs are in the active growing phase; out of ~100,000 hairs on the average scalp, ~85% are in anagen. The catagen phase is of slower mitotic activity. The telogen phase is the resting state. Catagen + telogen = ~15% of hairs on the scalp. **Anagen effluvium** is loss of the active phase of hair growth; **telogen effluvium** is when hairs are prematurely pushed into the resting state; these effluvia can be seen with medications such as chemotherapeutics, beta-blockers, anticoagulants, topical retinoids, anticonvulsants, and anti-thyroid medications.

Phase 1 of labor: latent phase is until 5cm dilation in multiparous woman or 6cm dilation in nulliparous woman

Arrest of labor: no cervical change in **>4 hours** despite **adequate** contractions, OR no cervical change in **>6 hours** with **inadequate** contractions

Most common cause of arrest of labor is inadequate fetal contractions. Other causes are contracted pelvis, fetal malposition (e.g., posterior occiput), and fetal macrosomia.

In evaluating arrest of labor, strength of uterine contractions should be measured with an **intrauterine pressure monitor**. Contractile strength is measured in **Montevideo units**. A measurement of >200 Montevideo units signifies adequate contractions. The # of contractions over 10 minutes x contractile strength (peak – baseline).

Salmonellosis does not need to be treated in immunocompetent individuals >12 months of age. Ciprofloxacin, TMP/SMX, or ceftriaxone can be given if immunocompromised, if <12 months of age, or if >50 yrs with known atherosclerotic disease.

One should have a low threshold for obtaining a paracentesis to check for SBP in patients with cirrhosis and ascites.

Gestational thrombocytopenia is a benign condition responsible for most instances of thrombocytopenia in pregnancy; it does not need Tx or further investigation unless patient is symptomatic.

Blood pressure control is more important than smoking cessation for decreasing risk of stroke.

Tetanus post-exposure prophylaxis:

If patient has had three toxoid vaccine doses in past at any stage

<5 years since vaccination: **no intervention is needed**

5-9 years since last vaccine dose: Clean wound → no intervention; dirty/serious wound → **toxoid vaccine dose**

10+ years: **give just toxoid dose even for clean wounds**

Do **not** give immunoglobulin in any circumstance if patient is known to have had three doses of vaccine toxoid, even if ages ago.

If patient has not had three toxoid vaccine doses in past, or vaccination Hx is uncertain:

Clean wounds: give three doses toxoid vaccine

Dirty/serious wounds: give tetanus immunoglobulin + three doses toxoid vaccine

Note that the only time tetanus immunoglobulin is given is if there's incomplete/uncertain vaccination Hx and the wound is dirty/serious.

Management of shoulder dystocia: BECALM

B: Breathe, don't push; lower head of bed
E: Elevate legs into sharp hip flexion while in supine (**McRobert maneuver**)
C: Call for assistance (doctors, nurses, anaesthetists)
A: Apply suprapubic pressure downward and laterally
L: enLarge vagina with **episiotomy**
M: Maneuvers, such as delivery of posterior arm; **Woods' corkscrew** (push anterior shoulder [the shoulder that faces toward the ceiling] toward chest, and posterior shoulder toward back, bringing baby's face toward rectum); **Rubin maneuver** (bring anterior shoulder toward back); **Gaskin maneuver** (all fours); **Zavanelli maneuver** (baby's head back through vagina followed by C-section)

Varenicline is superior to nicotine-replacement therapy (NRT) and bupropion. Buproprion is contraindicated in Hx of seizures of eating disorders. Varenicline is associated with increased risk of cardiovascular events.

Thyroxine has been shown to decrease risk of recurrence of thyroid cancers due to TSH suppression (which would ordinarily activate residual metastases or bulk tumour).

For small, low-risk tumours: thyroxine should be given so that TSH is suppressed to 0.1-0.5 uU/mL for 6-12 months, then low-normal range (0.5-2.25)

For intermediate-risk tumours: target TSH 0.1-0.5 uU/mL indefinitely

For high-risk tumours/metastatic disease: target TSH <0.1 uU/mL indefinitely

Condylomata acuminata are not a contraindication to vaginal delivery.

GERD can be exacerbated postprandially and with emotional stress.

T1DM patients in hospital should be **maintained on a basal insulin** (e.g., glargine, detemir, NPH) while in hospital. Doses are generally decreased 20-30%. Short-acting insulins should then be given every 4 hours (or regular every 6 hours) with finger-prick glucose guiding doses.

Rabies vaccine:

Pre-exposure prophylaxis: four doses of vaccine (day 0, 7, 21, 28)

Post-exposure prophylaxis (unvaccinated): rabies immunoglobulin day 0, then four doses of vaccine (0, 3, 7, 14)

Post-exposure prophylaxis (vaccinated prior): two doses vaccine only (0, 3)

Definition of pre-eclampsia = systolic ≥140 or diastolic ≥90, PLUS either proteinuria (≥300mg/day; protein/creatinine ratio ≥0.3; urine dipstick ≥1+) or signs of end-organ damage; at ≥20 weeks gestation without pre-existing hypertension or renal disease

Severe pre-eclampsia Sx: systolic ≥160 or diastolic ≥110, measured on two separate occasions at least four hours apart; platelets <100,000; creatinine ≥1.1 or 2x baseline; elevated transaminases; pulmonary edema; new-onset visual or cerebral Sx

Tx for pre-eclampsia = IV or IM magnesium sulfate + delivery if at term; if BP ≥160/110, give IV labetalol or IV hydralazine or PO nifedipine

Patients with pre-eclampsia ≤34 weeks should be admitted to the hospital as they are at risk of developing severe Sx.

Stress testing is indicated when there is intermediate-risk of coronary artery disease in order to risk stratify patients. However if there is high risk of, or underlying, heart failure, proceed directly to coronary angiography.

The dysfunctional cells in anterior pituitary gonadotrophic tumours produce non-functional LH or FSH, resulting in low or low-normal levels of LH/FSH but **excess alpha-subunit secretion.** It should also be noted that **prolactin levels can be slightly elevated (e.g., 50 ng/mL; normal is 5-20)** due to gonadotrophic tumour compression of the pituitary stalk, resulting in decreased dopamine-mediated inhibition. In prolactinoma, levels are usually >200 ng/mL.

Patients with negative A/B toxin test for pseudomembranous colitis can undergo **limited colonoscopy or sigmoidoscopy to confirm diagnosis**.

Chondrodermatitis nodularis helicis is a painful lesion on the pinna of the ear that is caused by **increased pressure** (e.g., always sleeping on one side, chronic use of headwear). It is often confused with skin cancer.

Management of molar pregnancy:

Ultrasound + b-hCG + thyroid levels → suction evacuation → contraception for 6-12 months + weekly b-hCG assays; if b-hCG levels return to normal, must achieve 3 consecutive normal **quantitative serial b-hCG readings**, then stop; if b-hCG levels plateau or rise, do surgery and/or radiotherapy.

Depression is an independent risk factor (significant on its own) for development of cardiovascular disease (thought to be through upregulation of cortisol, abnormal platelet activation, endothelial cell dysfunction, and sympathetic tone).

Tx of Bell palsy = **corticosteroids** + eye care/patching

Evaluation of adrenal masses:

Any adrenal mass (incidentaloma) **needs to be** evaluated in a patient for **electrolytes, dexamethasone suppression test, 24-hr urinary catecholamines, metanephrines, vanillylmendelic acid, 17-ketosteroid measurement**.

If tumours are **functional** (meaning they produce Sx or endocrine measurements are deranged), are **heterogenous in appearance, or >4cm**, they **require surgical excision**. Otherwise observation and repeat evaluation may be implemented.

The most common cause of oral lesions in elderly patients is trauma. With denture use, patients should abstain from denture use for 1-2 weeks if a lesion develops.

Dihydropyridine CCBs and beta-blockers are considered safe for concurrent use with lithium, as they don't affect lithium levels. Drugs that do increase lithium levels are NSAIDs (not aspirin), **SSRIs**, diuretics, non-dihydropyridine CCBs, ACEi/ARBs, and anti-epileptics. Dihydropyridine CCBs are preferred to beta-blockers first-line for HTN in a patient taking lithium.

First step in management of suspected normal pressure hydrocephalus (NPH) is **lumbar puncture drainage of 30-50 mL CSF (Miller-Fisher test)**. If there is relief of gait instability or cognition deficits then this suggests NPH and **ventriculoperitoneal shunting as an effective Tx**.

Clozapine users need weekly WBC measurements for the first 6 months, then bimonthly, then monthly checks. All users should be listed in a central registry.

A severed digit should be wrapped in saline-moistened gauze and placed in a sealed plastic bag. The sealed bag should then be transported in a container filled with **ice + water, or ice + saline**. This will enable cold ischaemia @ 1-10˚.

Presbycusis is one of the most frequent causes of social withdrawal and isolation in the elderly. Screening can be done with simple hearing tests.

External-beam radiation should be used for palliative pain relief in patients with new single or multiple bone metastases due to hormone-refractory prostate cancer.

Workup for suspected Hirschsprung disease is **abdominal x-ray** to rule out free intraperitoneal air and evaluate bowel gas pattern. Then **contrast enema** is performed to discern the level of the obstruction. Diagnosis is confirmed with **rectal suction biopsy**.

Endocarditis prophylaxis:

Only given in **high-risk procedures** under the following circumstances:

- Hx of endocarditis
- Prosthetic valve

- Unrepaired congenital heart defect
- Partially repaired congenital heart defect
- Fully repaired congenital heart defect using prosthetic material within 6 months of the surgery
- Hx of heart transplant with valvular disease

High-risk procedures:

- Dental procedures involving gingival/apical manipulation
- Respiratory procedures requiring incision/biopsy
- Cardiac procedures
- If there is concurrent GI/GU infection
- Procedures on infected skin or MSK tissue

Low-risk procedures (prophylaxis NOT required):

- GI procedures (e.g., ERCP, endoscopy)
- GU procedures (prostatectomy, catheterization)
- Vaginal delivery or C-section

Prophylaxis meds:
Dental/respiratory → Oral amoxicillin, azithromycin, clindamycin, or cephalexin; or IV ampicillin, clindamycin, or ceftriaxone
Concomitant GI/GU infection (Enterococci) → ampicillin, amoxicillin, vancomycin
Concomitant MSK/skin infection (MRSA) → vancomycin, clindamycin

Contraindications to beta-blockers:
Absolute contraindication: unstable heart failure
Relative contraindications: asthma or emphysema sensitive to beta-agonists, HR <60, systolic BP <100, second- or third-degree HB, peripheral vascular disease, severe depression

Mechanism of beta-blocker mortality benefit in heart failure: decreased RAAS; decreased catecholamine binding reduces cardiac remodelling

Only beta-blockers shown to improve mortality in heart failure: carvedilol, bisoprolol, metoprolol-XR

Contraindications to verapamil:
LV systolic dysfunction; congestive heart failure; not effective for maintenance of sinus rhythm in AF following cardioversion

Contraindications to dronedarone:

NYHA III/IV status, EF ≤35%, hospitalization for heart failure in past 4 weeks

Management to maintain sinus rhythm in atrial fibrillation:

Rate control +/- rhythm control; most patients with AF will be treatable with rate control alone (paroxysmal especially)

Rate control: beta-blockers (e.g., metoprolol), non-dihydropyridine CCB (verapamil), or digoxin

Rhythm control (in the following circumstances):

No structural heart disease/coronary artery disease: flecainide

LV hypertrophy: amiodarone, dronedarone

Coronary artery disease without heart disease: dronedarone, sotalol

Heart failure: amiodarone, dofetilide

Refractory to anti-arrhythmic Txs: radiofrequency catheter ablation

Ibutilide is IV and is therefore not useful for long-term maintenance of sinus rhythm.

The number of wet diapers should equal the neonate's age in days for the first week (e.g., one-day-old = 1 wet nappy; after the first week, there should be ≥6 wet diapers/day).

Lyme disease during pregnancy is treated with amoxicillin or cefuroxime, and there is no risk to the fetus.

Next best step in management for a patient with **partial** bowel obstruction is **hospital admission + observation**. If patient fails to improve in 12-24 hours, early surgical intervention is recommended (laparoscopic > laparotomy).

Patients having undergone cholecystectomy **do not need postsurgical change in diet.** 50% of patients may have transient diarrhea, flatulence and/or bloating, but these symptoms are usually mild and do not require any interventions.

Licorice inhibits **11-beta-hydroxysteroid dehydrogenase**, which converts cortisol to cortisone (in equilibrium). Essentially 11-deoxycortisol → cortisol ←→ cortisone.

More available cortisol in chronic licorice use can cause hypertension, hypokalaemia, and metabolic alkalosis.

Patients with acute MI are eligible for thrombolytic therapy if presenting within 12 hours and ECG shows >1mm ST-elevation in two contiguous leads.

Any **non-displaced** clavicular fracture can be treated with **sling + analgesics**. Figure-of-8 bandage can be used as an alternative to sling in **mid**-shaft clavicular fractures. **Displaced** clavicular fractures (evidenced by shortening) are all treated with **open reduction and internal fixation**. Management is similar for both children and adults.

Orthostatic proteinuria is the most common cause of proteinuria in adolescents (60-75% of cases). Dx is made with **24-hr split (day and night) urine protein collection, OR calculating the Pr/Cr ratio with samples in both the supine and standing positions**. Causes are thought to be exaggerated AT-II response when standing, subtle glomerular abnormalities (e.g., focal mesangial hypercellularity or basement membrane thickening), or renal vein entrapment. **No diagnostic workup or Tx is necessary.**

Glucocorticoids, amiodarone, beta-blockers, and PTU all inhibit 5-deiodonase.

Fever and hypotension are common in necrotizing fasciitis. **Group A strep** is the most common cause of necrotizing fasciitis in otherwise healthy patients.

Tx for necrotizing fasciitis = pipericillin/tazobactam OR a carbapenem (for group A strep + anaerobe cover), PLUS vancomycin (MRSA cover), PLUS clindamycin (prevents strep/staph toxin formation), PLUS surgical debridement. **Both antibiotics + surgical debridement MUST be implemented as management for necrotizing fasciitis**.

Low-back pain is the 2nd most common reason adults present to the physician.

Red flags in back pain = I I CHANT 1 = Infection, IV drug use, Constitutional symptoms, Hx of malignancy, Age ≥50, Night pain, Trauma, ≥1 month of Sx

Sx of cord compression = saddle anaesthesia, bladder/bowel dysfunction, motor/sensory neuropathy

If low-back pain and no red flag Sx, sciatica, or cord compression Sx → **Tx = 4-6 weeks of conservative therapy** (physiotherapy + non-opioid analgesics); **if no improvement in 4-6 weeks, do ESR/x-ray.**

If any red-flag Sx present OR sciatica, without cord compression Sx → do x-ray + ESR

X-ray might pick up lytic lesions; increased ESR could suggest osteomyelitis, inflammatory arthritis, epidural abscess

If any cord compression Sx present, do immediate MRI (no x-ray first).

If either x-ray OR ESR abnormal → do MRI.

If x-ray/ESR normal but no improvement in 4-6 weeks, do MRI.

90% of patients with low-back pain and no red flag Sx improve spontaneously in 4-6 weeks.

Severe hyperparathyroidism can cause anaemia 2˚ to erythropoietin resistance.

Aluminum can also cause anaemia.

Iron deficiency should be ruled out before starting erythropoietin-stimulating agents (ESAs) in ESRD. ESAs should be started if haemoglobin is <10; target Hb is 10-11.5 g/dL. IV (not oral) iron should be started if transferrin saturation is <30% and ferritin is <500 ng/mL.

Cerebral palsy (CP) is classified as: spastic, dyskinetic, mixed, or hypotonic; and also by the limbs affected: hemiplegic, diplegic, paraplegic. Spastic CP is most common (spasticity, upgoing Babinski, hyperreflexia). Spastic CP is also characterized by "scissor-kicking" and toe-walking. Although Dx is clinical, patients with CP **should undergo MRI** to look for abnormalities (present in 80-90%).

Primarily osteoblastic mets: prostate, small cell lung, Hodgkin lymphoma; do a radionuclide bone scan as first step to Dx, then x-ray positive findings

Primarily osteolytic mets: myeloma, non-small cell lung, non-Hodgkin; do an x-ray, or PET or PET/CT to Dx

Mixed mets: breast; do bone scan, CT/PET, or MRI

Consider CT and/or MRI in any positive findings to assess cortical integrity and fracture risk; do MRI if neurological involvement.

Lumbago is just another name for lower back pain; the two are interchangeable.

MRI, not x-ray, is the initial imaging of choice to diagnose lumbar spinal stenosis.

Patients who experience myopathy with statin-use necessitating discontinuation **should be restarted on statin therapy** after myopathy has resolved and CK is normalized. Only if CK levels are **>10x upper limit of normal** (NR: 25-90 units/L) should statins be **discontinued**. It is not uncommon for patients on statins to experience myopathy following prolonged or intense exercise.

Hypophosphataemia is a major cause of respiratory muscle weakness and inability to wean a patient from mechanical ventilation.

In a patient exposed to another with TB, perform an initial PPD test, **then perform the second 10 weeks later.**

Unlike juvenile myoclonic epilepsy (JME), which is characterized by life-long seizures, **childhood absence epilepsy (CAE) has a good prognosis and improves with age.**

If the diagnosis of ARDS is going to be made, **an echocardiography must be performed first to rule out cardiogenic aetiologies.**

Mechanical ventilation in ARDS:

- Tidal volumes of ≤8 mL/kg
- Plateau pressure <30 mm H_2O
- Oxygen saturation 88-95% (55-80 mm Hg)
- **Generous PEEP (e.g., 10 mm H_2O)**

If it is suspected clinically that a patient has testicular cancer, **an ultrasound** is the best next test to see if the mass is solid vs cystic, and intra- vs extra-testicular. If results are suspicious, then serum markers (AFP, b-hCG, P-ALP) and CT scan of the abdomen and pelvis are indicated to detect retroperitoneal lymph node metastases.

Effect of intensive glycaemic control in T2DM:

Macrovascular complications (e.g., MI, stroke): **no decrease in risk (possible long-term)**

Microvascular complications (e.g., nephropathy, retinopathy): **yes, decrease**

Mortality: **no change if HbA1C (6-7); INCREASED if HbA1C <6%**

Thyroid function tests and imaging (e.g., ultrasound, thyroid scan, CT) to look for ectopic thyroid tissue are both warranted before surgical excision of thyroglossal duct cyst.

Intervals for follow-up colonoscopy following polypectomy:

Small (<1cm) hyperplastic polyps (any #): **10 years**

1-2 tubular adenomas (<1cm): **5 years**

3+ adenomas; any one adenoma ≥1cm; high-grade or villous features: **3 years**

>10 adenomas: **<3 years; consider familial syndromes**

Sessile tubular adenoma ≥2cm requiring peacemeal removal: **2-6 months**

Any adenocarcinoma (minimal invasion and ≥2mm margins): **2-3 months**

Tx for trichomoniasis is metronidazole for patient + partner **with single 2g dose, or 7 days of 500mg/day**. Both are equally efficacious. In breastfeeding women, the former should be given with **discontinuation of breastfeeding for 12-24 hours after dose**.

Dumping syndrome is a common complication of gastrectomy/partial gastrectomy. Sx include dizziness, generalized sweating, dyspnea, abdominal pain, nausea/vomiting, diarrhea. **Tx is high-protein/low-carb diet + smaller, more frequent meals**.

Topical metronidazole is the Tx for papulopustular rosacea, which presents as persistent facial flushing, erythema, and inflammatory acneiform papules and pustules. **Topical brimonidine** (alpha-2 agonist) and pulsed laser light may also be considered.

Rosacea is associated with <u>ocular</u> symptoms/pathologies, such as <u>recurrent chalazion</u> (granulomatous inflammation of a meibomian gland and presents as a painless pea-sized nodule within the eyelid). Other ocular pathologies include foreign body sensations, keratitis, conjunctivitis, blepharitis, and corneal ulcers.

Indications for stress ulcer prophylaxis (PPI first-line)**:**

Any one of following:

- Coagulopathy (platelets <50,000, INR ≥1.5, aPTT ≥50s)
- Mechanical ventilation ≥48 hours
- GI bleeding or ulceration in last 12 hours

OR, any two of the following:

- Glucocorticoid therapy
- Sepsis
- Occult GI bleeding for 6 days
- ≥1-week ICU stay

Transurethral resection of the prostate (TURP) is frequently associated with **hyponatraemia** due to the addition of isosmotic flushing solutions to the circulation.

In patients who develop DVT as a result of a reversible or time-limited factor (i.e., surgery, trauma, pregnancy, OCPs), **warfarin should be given for 3-6 months, without exceeding 6 months because risk of DVT is low.** For patients who experience idiopathic DVT, **at least 6 months of warfarin** is recommended, with reevaluation of anticoagulation following this initial Tx cycle.

Local anaesthetics are ineffective for managing cellulitis because they are basic and are neutralized by the acidic environment of the infection.

Henoch-Schonlein purpura can present with blood in stool. Abdominal pain in HSP is due to small bowel intussusceptions.

Mentzer index = MCV/RBC; **>13 suggests iron deficiency; <13 correlates with thalassaemia**

Cardiac resynchronization with **biventricular pacing** is recommended in patients with **systolic dysfunction with EF ≤35%; NYHA class-II, -III, or –IV Sx; and left bundle branch block with QRS >150 ms.**

Autoimmune hepatitis is most common in young to middle-age women. It presents with increased ALT and AST, but normal ALP and bilirubin. It is associated with arthritis, erythema nodosum, thyroiditis, pleurisy, pericarditis, anaemia, and sicca syndrome. Its course is variable and in severe cases can progress to cirrhosis and liver failure in 6 months. Diagnosis can be made by looking for ANA (homogenous staining pattern; “lupoid hepatitis”) and anti-smooth muscle Abs (against actin).

Hypoglossal nerve injury is known to occur with carotid endarterectomy.

HepB has the highest rate of transcutaneous transmission (6-30%), i.e., with needle-stick injury, which is much higher than HIV and HepC.

Pancreatogenic diabetes (PD), due to alcoholism/chronic pancreatitis, is also known as **type 3c diabetes mellitus**. Patients have both beta- and alpha-cell destruction, which means they have lesser ability to mount a stress response (glucagon) to hypoglycaemic stress. These patients also have both low insulin + low C-peptide levels, AND insulin resistance. **Tx is with metformin first, followed by insulin.** Metformin also decreases the risk of pancreatic cancer in PD. Sulfonylureas increase the pancreatic cancer risk.

Tinea capitis is treated with **oral griseofulvin or oral terbinafine**. Oral griseofulvin is preferred first-line because it is effective against Trichophyton tonsurans, Microsporum canis, and Microsporum audouinii. Terbinafine is less efficacious against Microsporum.

Exercise-induced haematuria should be managed by **mere evaluation with repeat urinalysis in one week's time.** RBCs will be seen on hpf. In the absence of RBCs on hpf and rhabdomyolysis is suspected, serum CPK, not serum myoglobin, is good for diagnosis.

Anticoagulation in pregnancy (assuming patient is normally on warfarin):

First trimester: **use LMWH instead of warfarin**

Second + third trimesters: **warfarin should be used in high-risk patients (e.g., mechanical heart valve)**

Prior to delivery (last few weeks): **unfractionated heparin** (easily reversible) instead of warfarin

Ways to diagnose diabetes mellitus:

HbA1c:

- **≥6.5%** = diabetes mellitus
- 5.7-6.4 = increased risk of diabetes
- <5.7 = normal

Fasting glucose:

- **≥126 mg/dL** = diabetes
- 100-125 = increased risk

- <100 = normal

Random glucose:

- **≥200 mg/dL** = diabetes
- 140-199 mg/dL = increased risk
- <140 = normal

Glucose tolerance test (75g glucose bolus + 2-hour monitoring)

- **≥200 mg/dL** = diabetes
- 140-199 = increased risk
- <140 = normal

If a patient is asymptomatic, a positive test should be reconfirmed with the same test on a different day.

For the Dx of vasovagal syncope, **the diagnosis is made clinically, but in uncertain cases tilt-table testing can be used**.

Asymptomatic pulmonary sarcoidosis **does not** need treatment (steroids). The combination of erythema nodosum + hilar adenopathy represents a very favourable variant of sarcoidosis that is associated with a high rate of spontaneous remission and good prognosis.

Dengue hemorrhagic fever is the most serious dengue viral infection and is due to increased capillary permeability leading to hemoconcentration, thrombocytopenia, prolonged fever, and cardiorespiratory failure. Dx can be made with a **positive tourniquet test** (petechiae after cuff inflation for 5 minutes).

Leptospirosis risk factors are profession (farmer, veterinarian), swimming in fresh water areas, or household exposures (pet dogs, rodents). Symptoms are systemic (e.g., fever, nausea, myalgias), often with GI Sx (vomiting, diarrhea). **Conjunctival suffusion (conjunctivitis without exudates) is seen in 20-30% of leptospirosis cases and is specific.** Hepatosplenomegaly +/- lymphadenopathy can be seen, with progression to **jaundice** (Weil disease) and renal failure.

Desmoid tumor is a locally aggressive benign tumor of fibroplastic elements growing within muscle of fascial planes. It has high rate of recurrence and is often seen on the abdomen.

Dermatofibroma is a benign proliferation of fibroblasts often on the fingers of forearms.

Epidermoid cyst is a benign cyst in the skin made of ectodermal tissue (squamous epithelium).

Pyogenic granuloma (also known as lobular capillary hemangioma) is caused by capillary proliferation after trauma and presents as a dome-shaped papule with recurrent bleeding. It is most commonly seen in pregnant women.

Pain with passive muscle stretching is seen before loss of distal pulses in compartment syndrome.

If haemoglobin and/or haematocrit are elevated (men: Hb 13.5-17.5 g/dL; Hct 41-53%; women: 12.0-16.0; 36-46%), **check erythropoietin levels first**; low levels suggest polycythaemia vera; high levels suggest secondary cause, such as renal cell carcinoma. If EPO levels are high, the most common cause is **chronic hypoxia**. So first do a **carboxyhaemoglobin test** to rule out CO poisoning (especially if a smoker); if negative, consider **nocturnal anoxia**, particularly if pulse oximetry is normal.

Management of heart failure:

Step 1:

- ACEi
- If cannot tolerate ACEi, give ARB
- If Step 1 insufficient, proceed to Step 2

Step 2:

- Diuretic therapy (e.g., furosemide)
- Beta-blocker (if EF ≤40% and euvolemic)
- Spironolactone (if EF ≤30%) and good renal function and normal K levels
- Defibrillation if EF ≤30%
- If insufficient, proceed to Step 3

Step 3:

- Hydralazine + isosorbide dinitrate for African Americans (or if ACEi/ARB was contraindicated from Step 1)
- Digoxin if symptomatic on spironolactone
- Cardiac resynchronization therapy if QRS ≥150 ms
- If insufficient, proceed to Step 4

Step 4:

- Transplant/ventricular assist device

Case fatality rate refers to the proportion of people with a disease/pathology who end up dying from that disease/pathology (e.g., 2% develop stent thrombosis from bare metal stent, and 40% die from it). **Mortality rate**, in contrast, refers to the general populaton's likelihood of dying from a disease. **Standardized mortality ratio** compares # of observed deaths to # of expected deaths.

Both metformin **and sulfonylureas** are metabolized by the kidneys and should be avoided in renal insufficiency. **Insulin is the mainstay of Tx in diabetics with renal failure.**

Treatment for breast milk jaundice is **continuation of breastfeeding**. Temporary cessation of breastfeeding is not recommended.

Retrograde ejaculation is the most common complication of TURP.

Metformin is contraindicated in: renal insufficiency, hepatic insufficiency, alcoholism, sepsis, congestive heart failure, prior to IV contrast procedures; in general, withhold metformin while in hospital

Meningococcal prophylaxis = rifampin, ciprofloxacin, or ceftriaxone. The latter two are used if woman is on OCPs.

Indications for genetic breast cancer testing (+ more aggressive screening):

- Two **first-degree** relatives with breast cancer
- Three **first- and/or second-degree** relatives with breast cancer
- One first- or second-degree relative with **ovarian AND breast** cancer
- First-degree relative with **bilateral** breast cancer
- Breast cancer in a **male relative**
- **Ashkenazi female** with any first- or second-degree relative with breast or ovarian cancer

Screening in women with unremarkable clinical exam should always be done with mammography starting at 40-50. Ultrasound should never be done as a stand-alone test in screening for unremarkable clinical exam. If a mass is present then ultrasound if <30, and mammogram + ultrasound if ≥30. Breast MRI has not shown to improve mortality but may be used in women with implants, or in those with confirmed genetic bilateral breast cancer syndrome (to reduce radiation).

Over 60% of head and neck cancers (HNCs) are locally advanced at the time diagnosis is made and are inoperable. The standard of care is **chemoradiotherapy (CRT)**, not just chemo- or radiotherapy alone.

Management for haematochaezia (bright red blood per rectum; BRBPR):

If haemodynamically stable:

- Colonoscopy first
- If no source found, do EGD
- If no source found, capsule endoscopy or repeat EGD/colonoscopy

If haemodynamically unstable:

- EGD first
- If no source found and now stable, do colonoscopy; if no source found and still unstable following the initial EGD, do angiography; if no source found and still unstable following angiography, do tagged red cell scan

Most failure to thrive (FTT) is non-organic in aetiology → decreased caloric consumption, decreased caloric absorption, or increased calorie requirements. In an otherwise well-appearing child (likely dietary, i.e., non-organic cause) who has FTT, **dietary modification** is the first-line Tx. If on the other hand an organic cause is suspected (e.g., hypothyroidism), additional tests may be ordered.

Tuberculosis in pregnancy is treated with **rifampin, INH and ethambutol for nine months**. There is a paucity of information on pyrazinamide during pregnancy and it should be avoided unless the TB is thought to be drug-resistant.

Cutaneous Cryptococcus can occur as an early manifestation of disseminated cryptococcosis in patients with HIV. It presents as multiple, discrete, **reddish colored papules with central umbilication**. Diagnosis is with **biopsy** with periodic acid Schiff or Gomori methenamine silver stain.

Delayed puberty in males is **non-enlargement (<2.5cm) of the testicles by age 14, OR failure of development for 5 years despite testicular enlargement. The initial test is a bone age (left wrist x-ray). If bone age is equal to or older than chronological age, more tests should be done.**

The primary goal in the management of a brain dead donor is **euvolemia, normotension and normothermia**. It is a myth that the body should be cooled.

Catalepsy is passive induction of posture held against gravity (i.e., an examiner can 'mold' the patient's position); it is one of the indicators of catatonia. **Treatment for catatonia is benzodiazepines (lorazepam) or ECT.**

If metastatic thyroid cancer is suspected following thyroidectomy, **CT scan of neck and chest** is the next best step in management. If negative, **do CT of abdomen**. If negative, consider PET or I111 octreotide scans.

If a patient has subclinical hypothyroidism (i.e., high TSH but normal free T4) but presents with depression, **yes, threat with levothyroxine**.

A **chest CT** should be ordered in any patient (e.g., smoker) with an unresolving pneumonia (i.e., recurrent consolidation on CXR). A CT can pick up abscess, empyema and obstructive malignancy.

A retroverted uterus is a common finding (11% of the female population). It can present with **lower back pain, dyspareunia and/or dysmenorrhea**. It will naturally antevert at 12-16 weeks of pregnancy. In 1.4% of patients it does not antevert and the physician needs to manually reposition it to avoid uterine incarceration in the sacral region, which jeopardizes the lives of the mother and fetus. Sometimes **PID and endometriosis** can be aetiologic agents (causative) of a retroverted uterus, in which case there exists some risk of infertility, but there is **no increased risk of abortion** due to retroverted uterus.

In endophthalmitis, **80% of the time the retinal vessels cannot be visualized. Hypopyon is also a common finding.** Presentation is acute unilateral deterioration of vision, hypopyon, conjunctival and lid edema and erythema.

Chronic mitral regurgitation can lead to **increased LV stroke volume and EF and can mask the signs of LV failure 2˚ to fluid overload in the early-compensated stage.**

In biostatistics, **asymmetry in a funnel plot** indicates **publication bias**.

AAA risk factors: men, ever-smoker, white, ≥65, family Hx, atherosclerotic disease.

AAA management: smoking cessation, aspirin + statin therapy; elective repair if ≥5.5 cm, ≥0.5cm of growth in 6 months; if 4.0-5.4cm, do ultrasound every 6-12 months; if <4 cm, do ultrasound every 2-3 years

PCI is recommended within **12 hours** of symptom onset of STEMI. If patient cannot have PCI or PCI is not available, fibrinolysis should be done (this can also be done within 12 hours; it is in stroke that the limit is 3-4.5 hours).

Obtaining a **reticulocyte count** helps in determining the predominant pathophysiologic mechanism of normocytic/normochromic anaemia.

In vitamin D deficiency, both calcium and phosphate are low, but sometimes if PTH is compensative and high, calcium can be normal.

Dx of vitamin D deficiency is serum 25(OH)D levels **<20 ng/mL.** Insufficiency is **20-30 ng/mL**. Normal is **>30 ng/mL**.

Tx for deficiency is 50,000 IU/week for the first 8 weeks to achieve >30 ng/mL. Then maintenance is 2-3000 IU/day if no malabsorption; or 3-6000 IU/day if malabsorption.

A presentation of skin blistering **requires skin biopsy** from edge of intact blister to differentiate between disorders (e.g., BP vs PV). BP is often associated with **itching** and **most frequently occurs ages 60-80**.

Linear IgA bullous dermatosis presents as **grouped lesions** in a linear or annular pattern.

Erb palsy has a **good prognosis** and an 80% chance of full or near-full recovery. A serious complication is diaphragmatic paralysis due to phrenic nerve involvement (C5).

Carbidoba-levodopa, and other anti-Parkinson medications, can cause psychosis due to their pro-dopaminergic effects. In instances when Parkinson disease is severe and reduction of Parkinson meds outweighs the benefits, **a trial of low-dose quetiapine is indicated, followed by clozapine if quetiapine doesn't work.**

Losartan is the anti-hypertensive drug of choice in gout because it has a modest uricosuric effect. Thiazides, loop diuretics and low-dose aspirin should be avoided in gout when at all possible.

Spinal cord compression occurs in up to 25% of those with Pancoast tumour and requires urgent intervention. Pancoast tumours most frequently present with shoulder pain (50-90%), Horner syndrome, and upper-extremity weakness and muscle atrophy.

Bacterial vaginosis can be treated with either **oral** metronidazole **or clindamycin.**

Bacterial vaginosis is indeed associated with **premature delivery, premature rupture of membranes,** and **spontaneous abortion**. It should be treated in pregnancy to alleviate symptoms.

Hypogonadism in hemochromatosis is **central** due to iron deposition in the pituitary.

Subphrenic abscess is a common complication of abdominal surgery and presents with swinging fever, leucocytosis +/- right shoulder pain. Diagnosis is made via **abdominal ultrasound**.

Bacterial rhinosinusitis is Tx first-line with amoxicillin-clavulanate. Doxycycline and fluoroquinolones are alternatives. Never acceptable due to resistance: amoxicillin, TMP-SMX, macrolides, 2^{nd}/3^{rd} generation cephalosporins

Length-time bias occurs when the survival benefits of a screening test are overstated because of detection of a disproportionate number of slowly progressive, benign cases.

Lead-time bias is when a test diagnosis a disease earlier, so the time from diagnosis until death appears prolonged even though there is no actual improvement in survival.

Passenger (baby), **pelvis** (of pregnant woman), and **power** (strength of uterine contractions) (the 3 Ps) are all necessary for successful vaginal delivery. The most common aetiology of arrest disorders is **cephalopelvic disproportion,** which is when the fetus does not fit in the maternal pelvis due to size or shape, despite adequate uterine contractions). An operative vaginal delivery with forceps or vacuum-assisted delivery is **contraindicated** in arrest of labor if uterine contractions are adequate due to cephalopelvic disproportion. **The management is Cesarean section**.

Long-term methylphenidate use may result in decreased height and weight compared to age-matched controls, particularly in younger children.

The most common cause of congestive heart failure (especially dilated cardiomyopathy) in the United States is **ischaemic heart disease**. **50-75% of patients with CHF have coronary disease as the aetiology. Therefore a patient who has dilation of cardiac chambers or lowering of EF requires stress testing to investigate for ischaemic heart disease**. Other causes of CHF are hypertension

(13%), valvular disease (10-12%), renovascular disease, and other rare causes, such as obstructive sleep apnea, alcohol, cocaine, myocarditis secondary to coxsackie, pregnany, Chagas disease, anthracyclines (e.g., doxorubicin).

For every 500 mL of packed RBCs given to patients with **renal failure, hepatic failure, shock, or lactic acidosis, 10 mL of 10% prophylactic calcium gluconate** should be given because of the risk of hypocalcaemia. These patients are less able to metabolize citrate (used to prevent stored RBC lysis) into lactate. And citrate can chelate calcium causing hypocalcaemia. **Serum calcium levels may be normal** in this type of hypocalcaemia because the ionized calcium has dropped but not the total.

Inferior MI is often associated with sinoatrial node dysfunction (20-40% of patients) and subsequent **sinus bradycardia**. In such instances, this bradycardia is treated with **intravenous atropine**.

Low-stimulation environment is the treatment for PCP intoxication.

Transient increases in PSA are common (e.g., with urinary retention, infection, DRE, recent ejaculation). Elevated levels suspected to be due to transient causes can be reinvestigated in 4-6 weeks.

Immunologic blood transfusion reactions:

Febrile non-haemolytic (most common):

- Fever + chills
- Occurs 1-6 hours after transfusion
- Due to **cytokine accumulation during blood storage** (can be prevented with **leukoreduction**)

Acute haemolytic:

- Fever, chills, **flank pain**, haemoglobinuria, DIC, renal failure (due to immune complex deposition)
- Occurs within first hour of transfusion
- Positive direct Coomb test; pink plasma (plasma free Hb >25 mg/dL)
- Caused by **ABO mismatch**, or Rh, Kell, and other Ab responses

Delayed haemolytic:

- Mild fever + haemolytic anaemia
- Occurs 2-10 days following transfusion
- Positive direct Coomb test; positive new antibody screen
- Caused by **anamnestic antibody response**

Anaphylactic:

- Shock, angioedema, urticaria, respiratory distress
- Occurs within seconds to minutes of transfusion
- Caused by **recipient anti-IgA antibodies (i.e., IgA deficiency)**

Allergic/urticarial

- Pruritis, urticarial, flushing, angioedema
- Occurs within 2-3 hours of transfusion
- Caused by **recipient anti-IgE antibodies and mast cell activation**

Transfusion-related lung injury:

- Respiratory distress and non-cardiogenic pulmonary edema
- Occurs within 6 hours of transfusion
- Caused by **donor anti-leukocyte antibodies**

Drugs associated with pancreatitis:

Diuretics: loops, thiazides

IBD: sulfasalazine, 5-ASA

Immunosuppressants: azathioprine, L-asparaginase

Anti-epileptics: valproic acid

AIDS: didanosine, pentamidine (for PCP)

Antibiotics: metronidazole, tetracyclines

Initial diagnosis of Marfan syndrome requires **transthoracic echocardiography** to evaluate for aortic root dilation and dissection. The aortic root needs replacement if ≥50mm.

Pneumococcal vaccination:

PPSV23 alone:

- Chronic heart, lung, and/or liver disease
- Diabetics, alcoholics, current smokers

Sequential PCV13 + PPSV23 in 6-12 months:

- Anyone over age 65
- High-risk patients ≤64 years → sickle cell/asplenia; cochlear implants/CSF leaks; immunocompromised; chronic kidney disease

Only symptomatic cases of giardia need to be treated (metronidazole, tinidazole, nitazoxanide). Asymptomatic carriers do not need to be treated. Contact isolation is only for patients in diapers.

Phenytoin toxicity is associated with **horizontal nystagmus**, as well as other non-specific systemic and neurotoxic side-effects.

Most strawberry hemangiomas spontaneously regress, but for disfiguring lesions or those located at functional sites (e.g., eyelid, airway), consider **propranolol.**

If a ureteral stone is <10mm (and patient does not have urosepsis, renal failure, or complete obstruction leading to hydronephrosis), patient can be **sent home** with hydration, pain control, alpha blockers, and told to strain urine. If uncontrolled pain + no stone passage in 4-6 weeks, the patient needs a urology consult.

Physician-directed counselling intervention is the answer for best method to quit smoking during pregnancy (i.e., instead of NRT, varenicline, bupropion).

When to treat asymptomatic bacteriuria:

- Pregnancy
- Urological intervention
- Hip arthroplasty

Asymptomatic bacteriuria is common in the elderly and frequently self-resolves without the need for antibiotics.

Premenstrual dysphoric disorder (PMDD) is a severe form of PMS with predominant anger and irritability. **SSRIs** are the first-line Tx for PMS/PMDD. Any single SSRI may fail to relieve symptoms in one-third of patients, **so a second SSRI** should be tried next. If that doesn't work, then **oral contraceptives** are the next therapy.

The lifetime risk of a psychiatric disorder (e.g., depression) in patients with PMS or PMDD approaches 80%.

Reconstruction of cleft lip typically occurs at **ten weeks of age.**

24-hour urinary calcium >250 mg is consistent with primary hyperparathyroidism; <100 mg is consistent with familial hypocalciuric hypercalcaemia.

Indications for parathyroidectomy in asymptomatic primary hyperparathyroidism:

- Serum calcium ≥1 mg above the upper limit of normal
- Young age (<50)
- Bone mineral density T <2.5 at any site
- Reduced renal function (GFR <60 mL/min)

All symptomatic patients should undergo parathyroidectomy. Familial hypocalciuric hypercalcaemia needs to be excluded prior to parathyroidectomy.