PEDIATRIC REVIEW

Cardiology

CHD (Congenital Heart Disease) – 0.5-1% of population

Cyanotic CHD

1) Truncus Arteriosus (increased pulmonary vascular markings, aka PVM's)
2) Transposition of Great Vessels - #1 cause of cyanosis in 1st month; "egg on a string"
3) Tricuspid atresia (decreased PVM's)
4) Tetralogy of Fallot - #1 cause of cyanosis in >1 month, "Boot shaped" - pulmonary obstruction, RVH, VSD, overriding aorta (decreased PVM's)
5) TAPVR – "snowman heart" (increased PVM's)

Acyanotic CHD – VSD, ASD, PDA

VSD.....#1 cause of CHD, usually presents @ 1-2 months with murmur, poor feeds, sweating, FTT. If left untreated, patient may present with cyanosis as pulmonary vascular disease worsens – Eisenmenger's syndrome
ASD.....females, fixed split S2, murmur presents after infancy
pDA.....can close with indomethacin or surgery, machinery-like murmur @ LUSB

Down's.....Endocardial Cushion Defect
Turner's .....Coarctation of the aorta
Marfan's .....aortic dissection and mitral valve prolapse
Kawasaki's.....coronary artery aneurysms
William's.....supravalvular aortic stenosis
Congenital Rubella.....pDA
Noonan's .....pulmonic stenosis (phenotype Turner's)
Holt-Oram..... ASD (and thumb abnormality)
Wide pulse pressure...pDA & aortic insufficiency (both with bounding peripheral pulses)
Prostaglandin.....can be infused to keep a patent ductus open if the patient has ductal-dependent CHD. Side effect is apnea spells

GI

Pyloric Stenosis	progressive, projectile nonbilious vomit, male, 2 weeks – 2 months, hypokalemic hypochloremic metabolic alkalosis, 1st born, diagnose with palpable olive or US (or UGI "string sign")
Malrotation with midgut volvulus	#1 cause of bilious emesis in <1 month old, diagnose withUGI-SBFT
Hirschsprung's disease	if no passage of meconium by 24-48°

Duodenal atresia	"double bubble" on prenatal US – think Down's syndrome, polyhydramnios
Meconium ileus	95% have CF
Intussusception	6 months-2 years, colicky abdominal pain, bilious emesis, and currant jelly stools, diagnosis and treat with enema (air versus barium)
NEC	bloody diarrhea in preemie with fever, "pneumatosis intestinalis," risk of post-inflammatory strictures with subsequent emesis
Celiac disease	gluten-sensitive enteropathy with small bowel mucosal damage and diarrhea at 6 mths-2yrs during the introduction of wheat/rye/barley, diagnose with SI biopsy or antibodies (tissue transglutaminase IgA). Treat – gluten-free diet
Biliary atresia	term infant with increasing direct hyperbilirubinemia, cholestasis with acholic (white) stools and dark urine, hepatomegaly, may see polysplenia, hepatobiliary scan with normal liver uptake but absent excretion into the small intestine, treat surgically with Kasai procedure before 2 mths age
Bloody Diarrhea	
Infections	Salmonella (don't treat unless <2 months, asplenic, septic…) Shigella (can have seizures) E. Coli (HUS if 0157:H7-enterohemorrhagic) Campylobacter (treat with macrolide), ?Guillan-Barre syndrome Yersenia (pseudoappendicitis) C diff colitis (follows abx - PCN/Cephalosporins/Clindamycin) Entamoeba histolytica (hepatomegaly, travel to Mexico)
Crohn's	skip lesions, fistulas, mouth to anus, diarrhea, and abdominal pain, FTT, transmural, anemia secondary to malabsorption
Ulcerative Colitis	rectum and colon involvement, bloody diarrhea and tenesmus, inflammation of mucosa and submucosa, cancer risk
Meckel's	2 years, 2:1 M/F, 2 feet from ileocecal valve, painless dark bleeding from rectum
Polyp	#1 cause of asymptomatic bright red blood in stools in 2-5 year old
Jaundice	#1 cause on day one of life = ABO/Rh/minor blood group incompatibility
Portal hypertension	suspect if UGI bleed from esophageal varices and splenomegaly
Encopresis	involuntary passage of stool, often liquidy, by a child who should be potty-trained, often unperceived by the child, with constipation

Hyperbilirubinemia

Direct – biliary atresia, neonatal hepatitis (TORCH), galactosemia, alpha-1 antitrypsin deficiency, cystic fibrosis, sepsis, TPN, Dubin-Johnson and Rotor's syndromes

Indirect – physiologic, breast milk & breast feeding jaundice, blood group incompatibilities, RBC abnormalities (may see gallstones), Crigler-Najjar syndrome, Gilbert's (mild jaundice in teenager during infection or starvation states)

Development

8 weeks	smiles, coos, follows to midline
3-5 months	rolls front to back
4-6 months	rolls back to front, reaches for objects
6 months	sits by self, babbles, transfers objects
9 months	mama and dada (non-specific), early pincer grasp, object permanence, stranger anxiety, social games like peak-a-boo and pat-a-cake
8-10 months	pulls to stand, cruises
1 year	walks, mama and dada (specific) & couple other words, mature pincer grasp
18 months	runs clumsily, throws ball overhand
2 years	can make 2 word sentences (50+ words), kicks ball forward
3 years	rides tricycle
Shapes	18 mths-scribbles, 2-copy line, 3-circle, 4-cross, 4.5-square, 5-triangle, 6-diamond
Stairs	15 mths-crawls up, 18 mths-walk upstairs with hand held, 2 y/o-climb up & down alone-2 feet per step, 3 y/o-upstairs alternating feet, 4 y/o-downstairs alternating feet
Body parts	# of body parts drawn ='s # of years old

ID

FUO	think infection #1, then #2 Neoplasms (leukemia, lymphoma), and #3 collagen vascular diseases (SLE, JRA, Crohn's)
Ears	S pneumo > H inf NT > Moraxella
Meningitis	<2 months→GBS>E. Coli > Listeria→Amp & Claf (newborn-Amp/Gent) >2 months→S pneumo > N Meninginitis > H inf type b →Claf/Rocephin +/- Vancomycin
Rheumatic Fever	nonsuppurative sequela of GAS pharyngitis, with fever and JONES criteria (J=joints=migratory polyarthritis; O=heart=endocarditis/myocarditis/pericarditis; N=nodules=subcutaneus nodules; E=Erythema marginatum; S=Sydenham's Chorea)
TSS	see fever, rash, hypotension, DIC, renal failure, conjunctival erythema, often due to staph (menstruating female with tampon, or osteomyelitis) or strep.

Pneumonia	Lobar = S pneumo, Teen with pneumonia = Mycoplasma (cold agglutinins), Pleural effusion= GAS/Staph aureus/S pneumo, TB=hilar lymphadenopathy/ hemoptysis/ fever/ night sweats/ travel or prison exposure, Viral pneumonia predominates in children < 5 y/o (RSV-most common in infancy, Adenovirus-high fevers and red eyes/red throat, Influenza-high fevers/myalgias/headache, Parainfluenza)
Bronchiolitis	RSV #1, expiratory wheezes with tachypnea/retractions during December to March months, may see apneic episodes, treat with O_2 and fluids, prophylaxis preemies with Synagis (monoclonal RSV Ab)
Croup (laryngo-tracheobronchitis)	inspiratory stridor, parainfluenza #1, winter months, hoarseness and barking cough, especially at night. Treat with Decadron, +/-Epinephrine (racemic), quiet environment
Mononucleosis	school-age child or adolescent with fatigue, splenomegaly, exudative pharyngitis, and generalized lymphadenopathy. CBC with atypical lymphocytes. Diagnose with monospot (heterophile Ab) or EBV serology
UTI	Gram negatives (E. Coli, Klebsiella, Proteus) VCUG and US if $\leq$ 5 years
Chlamydia trachomatis pneumonia	presents at 1-3 months of age with cough, tachypnea, rales, history of conjunctivitis, eosinophilia, without fever/wheezes Treat orally with macrolide (eye drops do not prevent pneumonia)
Cellulitis	GAS + Staph aureus

Indwelling central line…Staph epidermidis infection

Stevens Johnson syndrome…think HSV, mycoplasma, or drugs(anti-seizure meds, sulfa drugs), target lesions with two or more mucous membranes involved

Roseola (HHV 6)	high fever for 3 days, then macular rash immediately after the fever breaks
Erythema Infectiousum (5^{th} disease)	"slapped cheek" rash with lacy reticulations on the extremities, caused by parvovirus B 19 (can also cause nonimmune hydrops fetalis in utero, arthritis in an adolescent female, and a transient aplastic crisis in a child with hemolytic disease)
Rubeola (measles)	Koplik spots, 3 C's(cough/ coryza/conjunctivitis), and maculopapular rash
HSV encephalitis	altered mental status and focal seizures

Fever with neutropenia…think Gram negatives, especially Pseudomonas

Exudative Pharyngitis…GAS, EBV, Arcanobacterium, Adenovirus
Rare – tularemia, diphtheria, leukemia

Congenital CMV	most common congenital infection with blueberry muffin rash, hepatosplenomegaly, and periventricular calcifications, hearing loss
Congenital Toxo	more ophthalmologic findings, diffuse cerebral calcifications, and communicating hydrocephalus
Congenital Rubella	deafness (sensorineural), cataracts, and CHD (pDA)
Septic Arthritis	presents with hip pain, fever, and decreased ROM at hip joint with legs held flexed, abducted, and externally rotated, caused by S aureus > GAS, and is a surgical emergency
Epiglottitis	2-7 y/o toxic child with high fever, drooling, sits upright, muffled voice, H inf type b, respiratory distress with inspiratory stridor, can visualize on lateral neck xray, diagnose with direct examination or laryngoscopy in a controlled environment
Staph species	Gram + cocci in clusters
Strep species	Gram + cocci in pairs/chains
Neisseria species	Gram negative intracellular diplococci

Heme/Onc

Sickle Cell disease	presents at 6 months age as HgbF decreases, functionally asplenic, AA, increased risk of infection with encapsulated bugs and Salmonella osteomyelitis, aplastic/pain crisis/acute chest syndrome, acute dactylitis, prophylax with penicillin
Hemophilia A	in male (X-linked recessive), intramuscular hematomas and hemarthroses, circumcision bleeds, factor VIII deficiency -- prolonged PTT. Treat with factor 8 concentrate
VWF	most common bleeding disorder, usually nose bleeds/gingival bleeds/petechiae/heavy menses, prolonged bleeding time - treat with DDAVP; Humate or cryoprecipitate if severe
ITP	1-4 y/o child with viral infection in the preceeding 1-4 weeks, autoimmune with decreased platelets (petechiae, nose bleeds) and normal WBC's & RBC's. Treat with IVIG/anti-D Ig/steroids
Anemia	in child, #1 cause is iron deficiency (decreased MCV, increased RDW)..may be seen with ingestion of large amounts of cow's milk
Wilm's	#1 renal mass, asymptomatic unilateral abdominal mass +/- HTN/hematuria, association with aniridia & hemihypertrophy, may be bilateral, distorts renal calyces in IVP

Neuroblastoma	abdominal mass involving adrenal glands, better if <1 year old, can be anywhere along the sympathetic chain (Horner's syndrome and Opsoclonus Myoclonus syndrome), metastatic disease can lead to periorbital ecchymosis and proptosis, displaces renal calyces on IVP
ALL	good prognosis in kids, especially if 1-10 years old at diagnosis - #1 cancer in kids, may present with pancytopenia or high WBC's - relapses at CNS , testes, and bone marrow
AML	Aeur rods on blood smear, abnormal WBC's with anemia & thrombocytopenia, may present with chloromas ("knots" on scalp)
Lead poisoning	microcytic hypochromic anemia with basophilic stippling, lead lines in bones and gums, opacities on intestinal xray, presents asymptomatic or abdominal complaints (constipation, vomiting) / encephalopathy (widened sutures)
Osteosarcoma	#1 long bone tumor in children, "sunburst" pattern, metaphyseal
Ewing's Sarcoma	mid-shaft bone tumor in an adolescent male
Vitamin K deficiency	classic onset at 2-7 days of life in infant delivered at home, more common in preemies and breast fed infants, with bleeds from GI tract/circumcision/cutaneous/intracranial, increased PT/PTT, decreased factors 2/7/9/10…may have earlier onset if mother was on anticonvulsant therapy during pregnancy

MCV
- Microcytic: iron deficiency, thalassemia, lead poisoning, sideroblastic anemia
- Normocytic: acute blood loss, chronic disease, disorders with hemolysis (extrinsic/ intrinsic)
- Macrocytic: folate & vitamin B12 deficiency, normal newborn

Hemoglobin	physiologic nadir at 1-2 months old…as low as 9 g/dL normal

Genetics

Trisomy 21	Down's, high risk Alzheimer's, single palmar crease, hypotonia, up slanted palpebral fissures, low set ears, hypothyroid, duodenal atresia, increased risk Hirschsprung's, Endocardial Cushion defect, MR, hearing loss, leukemia (AML>ALL), atlantoaxial instability
Trisomy 18	Edward's, overlapping fingers, rocker bottom feet, prominent occiput, micrognathia
Trisomy 13	Patau's, polydactyly, microcephaly, cleft lip/palate, microphthalmia, scalp defects

Turner's	XO, female, wide spaced nipples, web neck, short stature, primary amenorrhea secondary to ovarian dysgenesis, coarctation of aorta, congenital lymphedema, kidney problems (horseshoe kidney)
Sturge Weber	sporadic inheritance, facial port wine stain, meningeal involvement with seizures, glaucoma
Neurofibromatosis	AD, café au lait spots, axillary/inguinal freckling, Lisch nodules, neurofibromas at time of puberty, osseus bone lesions
Tuberous sclerosis	AD, seizures (infantile spasms), MR, heart rhabdomyomas, adenoma sebaceum, ash leaf spots, shagreen patch
Cystic Fibrosis	chromosome 7, AR, bugs (Staph aureus and pseudomonas), recurrent pneumonia/diarrhea/FTT/rectal prolapse/polyps in nose
Prader-Willi	H_3O (early Hypotonia, Hypomentia, Hypogonadism, Obesity with voracious appetite), small hands & feet , almond-shaped eyes
Marfan's	tall, connective tissue disease, subluxed eyes, flexible, AD, aortic dissection (vs. homocystinuria – phenotypic Marfan's with increased risk of thromboembolism)
Klinefelter's	XXY, small testes, mild MR, gynecomastia
William's	elfin facies, cocktail personality, high calcium @ birth, MR, supravalvular aortic stenosis
Fragile X	mental retardation, male, large ears and big testes
VACTER	association with Vertebral, Anorectal, Cardiac, TE fistula (can't pass NG tube), and Radial/Renal abnormalities

Renal

Hematuria	#1 cause is hypercalciuria (urine Ca/Cr ratio >0.2)
PSGN	blood and some protein in "smoky/tea/cola" urine, hypertension, & edema, S/P strep infection by 2-3 weeks, low C3, elevated ASO titer
HSP	palpable purpura of the buttocks and lower extremities, renal involvement, arthritis, GI (pain, bleeds)
RTA	cause of FTT in 1st year of life, usually with paradoxical alkaline urine, normal anion gap metabolic acidosis, hyperchloremia
Potter's syndrome	renal agenesis, oligohydramnios, flat facies and pulmonary hypoplasia

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Proteinuria	#1 cause is orthostatic (get a.m. 1st void urine)
Nephrotic Syndrome	heavy proteinuria, hypoalbuminemia, edema, hyperlipidemia, with increased risk of S pneumo peritonitis and increased risk of thromboembolism, treat with steroids and salt restriction
Eagle Barrett Syndrome	aka Prune Belly syndrome, with triad: deficient abdominal musculature, cryptorchidism, and urinary tract abnormalities
Enuresis	voluntary or involuntary loss of urine after a developmental age when bladder control should be established, usually by 5 y/o. Can treat with alarm systems, imipramine, or DDAVP (side effect of hyponatremia). If secondary enuresis, think DM vs. DI vs. UTI

Endocrine

Congenital hypothyroid	(low T4, high TSH) Hispanic female > male, constipation, feeding difficulties, hypothermia, macroglossia, large AF, umbilical hernia, MR
DKA	presents with abdominal pain, vomiting, Kussmaul breathing, low pH, ? coma - treat with insulin and IVF's
Type 1 DM	presents with polyuria, polydipsia, polyphagia, and weight loss
Type II DM	overweight, acanthosis nigricans (sign of insulin resistance), often Hispanic or African American with polyuria/polydipsia/polyphagia
Ambiguous genitalia	in female, #1 cause is Congenital Adrenal Hyperplasia
CAH	(like Addison's), see increased K^+, decreased Na^+, and hypoglycemia, with increased adrenal sex hormones - 21 OH deficiency >11 OH deficiency, may be salt loser - usually CAH presents at 1-3 weeks of age(vs. Addison's = teen with weakness, increased tan, vomiting, weight loss)
Short Stature	#1 cause is delayed puberty (see delayed bone age and delayed Tanner maturation, reassure)
Puberty	1st sign is Female - breast enlargement Male - testes enlarged
SIADH	see low serum Na^+, increased urine osmolality

DI	high serum Na^+, decreased urine osmolality -central = decreased release of ADH -nephrogenic = defective ADH receptor, sex-linked recessive (versus dehydration – high Na^+, increased urine osmolality)
Texas Newborn Screen	Congenital Adrenal Hyperplasia, galactosemia, hypothyroid, PKU, sickle cell disease (all autosomal recessive except hypothyroid)
Galactosemia	E. Coli sepsis at 1 week of age, cataracts, hepatomegaly with direct hyperbilirubinemia, hypoglycemia, + urine reducing substances
Rickets	usually secondary to breast feeding without supplementation and with poor UV exposure, typically in African Americans. Symptoms – craniotabes, rachitic rosary, widened wrists and ankles, bowlegs labs: #1 is low phosphorous Treatment: Vitamin D and sunlight
Final adult height	[(dad's + mom's height) +13cm or 5 in in males vs. -13cm or 5 in in females]/2

Neurology

Seizures	F = Febrile (6 mths-6yrs, generalized, <15 minutes) E = Epilepsy (infantile spasms = hypsarrhythmia, Absence = 3/sec spike and wave activity with sudden cessation of motor activity, blank stare, and eyelid flickering B = Brain (tumor, bleed, hydrocephalus, AV malformation) R = tRauma (accidental vs. child abuse) I = 4 I's (Infection with meningitis/HSV encephalitis/Shigella, Ischemia/hypoxia in first 3 days of life, Ingestion with cocaine/theophylline, IEM) L = Low pyridoxine E = Electrolytes (hypoglycemia #1, hypocalcemia in DiGeorge's syndrome with absent thymus/ heart murmur/ immunodeficiency, hypo- or hypernatremia, hypomagnesemia)
Guillain Barre Syndrome	acute ascending post infectious demyelinating polyneuropathy, usually follows infection with campylobacter, lose DTR's, increased protein in CSF tap
Cerebral Palsy	non progressive motor disorder secondary to early brain injury
Reye syndrome	metabolic encephalopathy, secondary to aspirin use in Varicella/Influenza B

SMA1 (Werdnig Hoffman)	weakness by 1st few months followed by death, disease of anterior horn cells, tongue fasciculations
Duchenne MD	Male (X-linked recessive), walks normal at first but by 3-5 years has difficulty walking, Gowers sign, pseudohypertrophy of the calves, frequent cardiomyopathies, diagnosis with CK
Botulism	acute descending flaccid paralysis, often from ingestion of Clostridium botulism spores from honey or dirt, with early cranial nerve involvement, mask-like facies, constipation, lethargy, and loss of DTR's
Cerebellar Ataxia	usually post infectious, often following Varicella
Dermatomyositis	proximal muscle weakness with heliotrope rash and Gottron's papules
Myelomeningocele	75% lumbosacral, bowel/bladder/lower extremity problems, 80% with hydrocephalus due to Chiari II malformation, prevent with maternal intake of folate

Immunology

B cell deficiency	(example X-linked agammaglobulinemia) Bacterial sinopulmonary infections starting at 6 months. Treat with monthly IVIG. May see absent tonsils and minimal lymphadenopathy
T cell deficiency	presents at birth, ? absent Thymus, viral/fungal/parasitic infections
Phagocyte Defect	1. CGD-male, with recurrent catalase positive infections (E.Coli, Staph, Nocardia), treat with prophylactic Bactrim and gamma interferon, problem with respiratory burst in phagocytes 2. LAD–delayed separation of the umbilical cord with neutrophilia
Complement C5-C9 deficiency	N meningococcus infections

Optho

Abnormal Red Reflex	cataracts, retinoblastoma, glaucoma, chorioretinitis

Strabismus = eye deviation; amblyopia = poor vision

Eye Redness and discharge in neonate:
- at <48 hours – chemical conjunctivitis due to silver nitrate
- at 2-5 days – N gonorrhoeae
- at 5-14 days – Chlamydia trachomatis

Other

Gastroschisis	herniation of abdominal contents to the right of the umbilicus, without associated covering. Rare associated intestinal atresia.
Omphalocele	herniation of abdominal contents through the umbilicus, usually the liver, and covered with peritoneum. Increased risk of other anomalies (Beckwith Wideman-big tongue, hemihypertrophy, hyperinsulinism, Wilms)
Kawasaki's	fever $\geq$ 5 days, plus 4 out of 5 (bilateral non-purulent conjunctivitis, oropharyngeal involvement, cervical LAD, body rash, desquamating/swollen/red hands); see increase platelets and coronary aneurysms (need 2-D Echocardiogram), treat with IVIG and aspirin
Learning Disorder	$\geq$16 point difference between I.Q. and achievement test scores
Legg-Calves Perthes	Usually skinny male, idiopathic avascular necrosis of the hip, 4-8 y/o with "painless limp"
SCFE	Adolescent, overweight male, "falling ice cream cone" on Xray, presents with painful limp (pain at hip/thigh/knee)
Osgood Schlatter	traction apophysitis of the tibial tubercle with unilateral lower knee pain in a 10-15 y/o male
Nursemaid's elbow	dislocation of the radial head from longitudinal traction applied to the upper extremity while the elbow is in extension (often from jerking), and presents with the arm held in pronation across the chest
Torsion of appendix Testes	#1 cause of acute scrotal pain in a 2-10 y/o male, "blue dot"
Testicular Torsion	#1 cause of acute testicular pain in a male >10 years of age, elevation of testes on affected side with absent cremasteric reflex, surgical emergency
Inguinal hernias	always require surgical repair; commonly involve bowel in males and ovary in females
Eating disorders	Anorexia is defined by body weight 15% below expected, with extreme fear of gaining weight and amenorrhea. Bulimia involves recurrent episodes of binge eating with lack of control, followed by vomiting/laxatives/exercise. Both occur more commonly in females. Can see bradycardia, hypothermia, hypotension, electrolyte disturbances, elevated BUN, bone marrow hypoplasia, constipation, and arrythmias
Foreign body	foul smelling, purulent bloody drainage from orifice; if in airway – initial choking spell with subsequent stridor and cough

Death	if < 1 y/o – perinatal problems; if > 1 y/o, most commonly from injuries
Asthma	earliest symptom is often recurrent nocturnal cough, if persistent - #1 treatment is inhaled corticosteroids, highest predictor of asthma = atopy
Rett Syndrome	normally developing female until 6 months-2 yrs, then loss of milestones, microcephaly, odd handringing, loss of speech
Histiocytosis X	lytic bone lesions in the skull, severe seborrheic dermatitis, hepatomegaly, Birbeck's granules
Wiskott-Aldrich	X-linked recessive (male) with triad: thrombocytopenia with tiny platelets, severe eczema, and recurrent infections

Neonatal opiate withdrawal...CNS irritability with possible seizures, increased respiratory effort, diarrhea, sweating, jittery with excessive crying

Basilar skull fracture...usually of the temporal bone, with hemotympanum, CSF otorrhea or rhinorrhea, Battle's sign (mastoid ecchymosis), and raccoon eyes

Acrodermatitis enteropathica...zinc deficiency with chronic diarrhea, alopecia, and rash around the mouth/anus/hands/feet

TTN	early onset of tachypnea, retractions, and grunting, see fluid in the fissures and overaeration, often follows C-section delivery, resolves in 1-3 days (rule out RDS – in preemie; rule out GBS pneumonia – air bronchograms like RDS, but often term with temperature instability and maternal GBS +)
Congenital stridor	Laryngomalacia is by far the most common cause – inspiratory stridor worse when supine; if with hoarseness – vocal cord paralysis; if occurring after prolonged intubation – subglottic stenosis
TE Fistula	polyhydramnios, excessive infant oral secretions, coughing or choking with feeds, unable to pass NG tube at birth
Hearing Loss	acquired most commonly due to chronic OME, presents with speech delay

Physiologic Leukorrhea...thin white asymptomatic vaginal discharge in a near-menarchal girl

Ingestions	bimodal with 90% < 5 y/o (single drug) and 10% teenager (multiple drugs). Activated charcoal is often the best treatment, but doesn't absorb irons/alcohol/caustics/hydrocarbons/lithium/heavy metals
SLE	autoimmune disorder, adolescent female with BRAIN SOAP MD (Blood – anemia/ thrombocytopenia/ leucopenia, Renal problems, ANA, Immunologic – anti-dsDNA and anti-Sm Ab, Neurologic – seizures and psychosis, Serositis, Oral ulcers, Arthritis, Photosensitivity, Malar rash, Discoid rash), treat with steroids, maternal Ab can pass to fetus and cause congenital heart block

JRA	most commonly presents with a 1-4 y/o blue-eyed, blonde-haired female with arthritis of the knee or ankle, high risk of uveitis, systemic form with daily spiking fevers and salmon Still's rash
Autism	develops before 30 months age, more common in males, with impairments in verbal and nonverbal communication (poor speech, doesn't orient to name, echolalia), social interaction (plays alone, ignores others, treats people as objects), and poor imaginative activity
Physiologic pubertal gynecomastia	...asymmetric or unilateral breast enlargement in a pubertal male, lasting less than 2 years, reassurance without invasive workup
Abdominal mass	#1 cause in neonate is hydronephrosis/multicystic kidney disease, #1 cause in children is Neuroblastoma, followed closely by Wilm's
IUGR	symmetric – early insult (chromosomal, genetic, infection); asymmetric (late insult in gestation, spares FOC, placental insufficiency common); often see hypoglycemia
Moro reflex	asymmetry implies brachial plexus injury (Erb Duchenne palsy), may be very exaggerated with neurologic insults (Tay-Sachs)
Breath holding	spell in a 1-2 y/o child, provoked by scolding or anger, with brief cry followed by forced expiration and apnea, +/- cyanosis and seizures, manage with support and reassurance of the parents

Sleeping events

- Nightmares – occur in REM sleep in 2nd half of night, child upset but awake, consolable, may remember the event
- Night terrors – occur in stage 4 NREM sleep in 1st third of night, often in a 5-7 y/o boy, confused and agitated, not consolable, and with amnesia of the event
- NREM – stage 3 & 4 deep sleep, greater in 1st third of night, may see sleep walking/talking
- REM – loss of activity in large muscles, high % of newborn sleep, predominates in 2nd half of night

Nutritional problems

- Folate deficiency – seen with early introduction of goat's milk
- B12 deficiency – seen with Crohn's, ileal resection, and vegetarian diets
- Marasmus – severe caloric deficiency with FTT, hypothermia, emaciation, poor activity
- Kwashiorkor – deficient protein intake with edema, dermatitis, and hair problems

Breast feeding contraindications	active TB, HIV/AIDS, galactosemia, certain medications
Breast milk	ideal source of nutrition, but low in iron/fluoride/vitamin D
Aspirin	overdose causes respiratory alkalosis by directly stimulating the respiratory center, and also metabolic acidosis, N/V, tinnitus

Overdose Treatments:

- Tylenol: mucomyst (N acetylcysteine-works to replenish glutathione stores)
- Anticholinergic (antihistamine, Jimsen weed): physostigmine
- Benzodiazepines: Flumazenil
- B Blocker: Glucagon
- Calcium Channel Blocker: Calcium Chloride
- CO Poison: 100% oxygen
- Digoxin: FAB fragments
- Iron: Defuroxime (not absorbed with activated charcoal)
- Opiates: Narcan
- Tricyclics: Sodium bicarbonate

Toxidromes

- Cholinergic – (organophosphate insecticides, nerve gas, most mushrooms) - SLUDGE (Salivation, Lacrimation, Urination, Defecation, GI, Eye-miosis)
- Anticholinergic – (antihistamines, antipsychotics, atropine, tricyclics, jimson weed, Amanita mushroom) - Blind as a bat (mydriasis), hot as a hare (hyperthermia), red as a beet (vasodilation), dry as a bone (anhydrosis), mad as a hatter (delirium)
- Sympathomimetics – (amphetamines, cocaine, theophylline, ephedrine) – seizures, restlessness, diaphoreseis, fevers, tachycardia, HTN, mydriasis
- Opiates (heroin, morphine, codeine) – pinpoint pupils, euphoria, decreased pain perception, respiratory depression, constipation
- PCP – vertical nystagmus, hallucinations, psychosis
- LSD – altered perception, "seeing smells and hearing colors," tachycardia, dilated pupils

Immunizations

- Killed vaccines – IPV, DTaP, Prevnar, Hib, Hepatitis A and B, Influenza
- Live viral vaccines – Varicella, MMR, Rotavirus, yellow fever, smallpox, oral typhoid; can give simultaneously at different sites, otherwise > 1 month apart
- MMR causes transient anergy to TB protein, so can't trust PPD for 2 months after MMR
- Severely immunocompromised patients should not receive live viral vaccines
- Contraindications: DTaP (encephalopathy within 7 days of previous dose, precaution with seizure disorder), MMR or Varicella (pregnancy or severely immunocompromised), Influenza (history of anaphylaxis to eggs), IPV/MMR/Varicella (history of anaphylaxis to neomycin), for all vaccines (moderate or severe illness regardless of fever)
- IVIG – if given, should delay live viral vaccines by 6-12 months