

DERMATOLOGY (15%)			
Disease/Condition	Description	Diagnosis	Treatment
Dermatitis (Diaper, perioral)	<p>Diaper rash dermatitis: Wearing diapers: contact dermatitis, miliaria, <u>candida</u> RF: friction and moisture from urine and feces</p> <p>Perioral dermatitis: MC in young women, may have a hx of topical corticosteroid use S&S: papulopustules on an erythematous base, which may become confluent into plaques with scales. May have satellite lesions; sparing the vermillion border</p>		<p>Nystatin, clotrimazole, lotrisone Frequent diaper changes q 2 hrs/when soiled, open air exposure Topical zinc oxide or petroleum jelly, 1% hydrocortisone < 2 weeks,</p> <p>Topical: metronidazole or erythromycin; Oral: tetracyclines Avoid topical corticosteroids</p>
Drug eruptions Type I: IgE mediated Type II: cytotoxic, AB Type III: immune AB Ag Type IV: delayed cell	<p>Hypersensitivity reactions; self limiting S&S: exanthematous/morbiliform rash: MC skin eruption, bright-red macules and papules that coalesce to form plaques.</p> <p>Urticarial: 2nd MC type; triggers: antibiotics, NSAIDs, opiates and radiocontrast media.</p> <p>Erythema multiforme: 3rd MC; target lesions due to sulfonamides, penicillin, phenobarbital, Dilantin Fever, abdominal or joint pain may accompany the cutaneous drug reaction</p> <p>Common Rx: anticonvulsants, insulin, iodine, x-ray contrast, PCN, sulfa drugs</p>		<p>D/C offending medication Exanthematous/Morbiliform: oral antihistamines</p> <p>Urticarial/angioedema: systemic corticosteroids, antihistamines</p> <p>Erythema multiforme: symptomatic therapy</p> <p>Anaphylaxis: IM epi = treatment of choice</p>
Lichen Planus	<p>↑ with HCV, cell mediated response S&S: 5 P's: purple, polygonal, planar, pruritic, papules with fine scales, plaques Flexor surfaces, skin, mouth, scalp, genitals</p>	Koebner's phenomenon, Wickham Striae = fine white lines on skin lesions/oral mucosa	Self limiting 1 st line: topical corticosteroids 2 nd line: PO steroids, UVB therapy, retinoids
Pityriasis Rosea	<p>Associated with HSV 7 in older children/YA; fall/spring Acute, self-limiting erythematous patch that often occurs on the trunk S&S: Herald patch (salmon-colored) – single patch that occurs 1-2 weeks before Christmas tree pattern; spares the face Collarette-scaling along cleavage lines</p>		No treatment necessary Pruritus: PO antihistamines Topical steroids, oatmeal baths, UVB phototherapy = severe Resolves in 6-12 weeks
Stevens-Johnson Syndrome	> drug eruptions due to sulfa + anticonvulsant meds; painful, purple/red rash Wide spread blisters ≥ 1 mucosa	Sloughing <10% of body surface area (Hemorrhagic crusting)	Burn unit admission, pain control, stop offending drugs, fluid electrolyte replacement, wound care
Toxic Epidermal Necrolysis	Membrane with epidermal detachment + Nikolsky sign	Sloughing off >30% skin necrosis	
Erythema Multiforme	<p>MC in YA 20-40 As=cute self-limiting hypersensitive reaction Associated with HSV, sulfa drugs, β lactam, phenytoin, pheonobarbituates S&S: "target lesions" dull dusty-violet red and pale EM minor: no mucosal membrane (distributes acrually) EM major: involve > 1 mucous membranes, no epidermal detachment, (distributes centrally)</p>		Treat symptoms; STEROIDS (Prednisone) Lidol/diphenhydrame → oral lesions Systemic steroids = severe
Acne Vulgaris	<p>↑ androgens (sebum production); clogged sebaceous glands Caused by pilosebaceous inflammation of the skin of the face and trunk. propionubacterium acne overgrowth; inflammatory response Can be exacerbated by menstruations, OCP use and steroid use S&S: comedones (open = blackheads, incomplete = blockage; closed = whiteheads = complete blockage)</p>		<p>Mild: topical retinoids, benzoyl peroxide, topical abx (clinda) Mod: + oral ABX (doxy, mino/spironolactone) Severe: isotretinoin (order pregnancy tests)</p>
Lice/Pediculosis	Person to person contact, fomites S&S: Pruritic morbilliform rash with excoriations		Permethrin or Lindane (kills newly hatched nits) – 2 nd line
Scabies	Skin to skin contact caused by sarcoptes scabiei Pruritic lesions, linear burrows Intertriginous zones, web spaces between finger slits, ↑ intensity at night; red itchy papules on scrotum/skin folds	Skin scraping with mineral oil/microscopy	Permethrin topical = DOC Lindane: Cl: tetratogenic in children < 2 YO
Androgenetic Alopecia	Gradual onset; ↑ hair shedding Progressive loss of terminal hairs due to DHT MC areas of hair loss: temporal scalp, midfront scalp, vertex area of scalp Hereditary trait Onset 12-40 YO; evident by 50 YO	Dehydroepiandrosterone (DHEA)-sulfate and testosterone analysis: In women, if virilization is evident Iron, total iron-binding capacity, and transferrin saturation: To test for iron deficiency, if telogen effluvium is present Thyrotropin level: If a thyroid disorder is suspected	Minoxidil (F) Oral finasteride (M) 5 α-reductase inhibitor
Exanthems Any eruptive skin lesions assoc w/fever or other systemic symptoms	<p>5 childhood exanthems: predominantly viral except Scarlet Fever = bacterial 1. Erythema Infectiosum (5th disease) 2. Measles (Roseola) 3. Rubella (German Measles) 4. Varicella (Chicken pox) 5. Scarlet Fever</p>	<p>Erythema infectiosum: Also called "slapped cheek" disease, Fifth disease. - Caused by Parvovirus B19. - Patient will have flu-like symptoms for about 2 weeks before the rash appears. Once the rash appears, the patient is no longer contagious. Measles (Roseola): Caused by morbillivirus. - Diffuse maculo-papular rash that spreads from the face down the rest of the body. - Patient presents with the 3 Cs (Coriza, Cough, Conjunctivitis). Koplik (bluish/white) spots on the buccal mucosa. - No longer contagious once the rash appears.</p>	<p>Rubella (German measles): Caused by togavirus - Forchheimer's papules on the soft palate. - In pregnancy, rubella is a major cause of birth defects. Varicella/Chickenpox: Caused by the VZV. - Vesicles on an erythematous base. Lesions are at various stages of healing. Scarlet fever: Caused by an erythrogenic toxin released by Strep pyogenes. - Sandpaper rash and strawberry tongue. - Centrifuge rash starting from the torso, sparing the face, palms and soles.</p>
Verrucae	Cutaneous HPV (3, 10, 28, 41) Common/plantar: firm hyperkeratotic, thrombosed capillaries (hands) → vulgaris plantis HPV 1, 2, 4, 7 Flat warts: flesh-colored: face, hands, shins → verruca plana		OTC salicylic acid, cryotherapy, electrocautery CO2
Burns	<p>1st degree: superficial 2nd degree: partial thickness; **MOST PAINFUL 3rd degree: full thickness 4th degree: entire skin</p> <p>DO NOT apply ice directly Chemical burns → irrigate with water for 20 mins</p>	Body surface area: Chest 18%, Back 18%, RL 18%, LL 18%, RA 9%, LA 9%, Head and neck 9%, Perineum 1%.	Debridement Pain management, acetaminophen NSAIDs or combo + opioid Silver sulfadiazine IV fluids: lactated ringers
Urticaria	IgE triggers: foods, meds, infxn, bites, drugs,, environment, stress, heat, cold Histamine release → vasodilation S&S: blanchable, edematous, pink papules, wheals, plaques		Oral antihistamines Hydroxyzine, Loaratadine, Cetirizine, Fexofenadine. Corticosteroids and Leukotrien antagonists are second line agents.

Contact dermatitis	Irritants: chemicals, detergents, cleaners, acids, prolonged H2O exposure S&S: burning, itching and erythema to affected area, dry skin, eczematous eruption; sharply margined defined lesions	Allergen patch testing	Avoid irritants, protective wear, wet dressings (Burrow's soln), Topical corticosteroids, betamethasone cream
Atopic dermatitis/ Eczema	Eczema + allergic rhinitis + Asthma ↑ IgE production; triggers: heat, perspiration, allergies; MC in flexor creases Chronic → daily hydration S&S: pruritic lesions, skin inflammation with keratosis and lichenification Acute lesions = plaques/scales Nummular eczema = coin shaped dorsum of hands/feet		1 st line: Topical corticosteroids, antihistamines 2 nd line: calcineurin-inhibitors; avoid irritants/skin hydrations
Tinea	Fungal skin infections; "Trichophyton" due to ↑ skin moisture Tinea versicolor: caused by Malassezi furfur; MC on the neck/chest, back Tinea capitis: broken hair shaft (Kerion + scarring and alopecia) Tinea pedis: scaly rash between toes Tinea cruris: jock itch – groin Tinea corporis: clear center + defined borders and scales	Tinea Versicolor: KOH prep shows spaghetti and meatballs Tine Capitis: fluorescent wood lamp	Tinea Versicolor: topical antifungal cream and shampoo (Fluconazole/Itraconazole)- Tinea capitis → Griseofulvin = 1st line , PO Terbinafine, Itraconazole = 2 nd Pedis, Cruris, Corporis = topical antifungals
Impetigo	Highly contagious skin infection in children Exposed surfaces (face + extremities) MCC = s. aureus, 2 nd MCC = GABHS S&S: nonbullous, honey colored, crusted pustules + fever (S. aureus); ecthyma = ulcerations that heals with scars (GABHS) → strep glomerulonephritis		DOC: topical mupirocin (Bactroban) TID x 10 days Systemic symptoms → cephalexin: 1 st gen cephalosporin
Seborrheic Dermatitis	Hypersensitivity to Malassezia furfur, fungal skin commensal; MC in adult men Occurs in areas of high sebaceous gland oversecretion (scalp, face, eyebrows, body folds) S&S: cradle cap infants (erythematous plaques with fine white scales) dandruff, eyelids, beard mustache, nasolabial folds, trunk, intertriginous regions of the groin	Topical: selenium sulfide, sodium sulfacetamide, ketoconazole or ciclopirox (steroids), zinc pyrithione, calcineruin inhibitors Systemic: oral antifungals (ex: Itraconazole, fluconazole, ketoconazole, Terbinafine) Cradle cap: baby shampoo, ketoconazole (cream/shampoo), topical corticosteroids	
Scarlet Fever	Erythrogenic toxin released by strep pyogenes S&S: fever, chills, pharyngitis ("strep throat") sandpaper rash and strawberry tongue (flushed face with circumoral pallor) , centrifuge rash starting from the torso, sparing the face, palms and soles (desquamates), Pastia's lines = linear petechial lesions seen at pressure points, axillary, antecubital, abdominal or inguinal areas		May return to school > 24hrs of starting abx; PCN G or VK = 1st line (amoxicillin, amoxicillin/clavulanic acid – Augmentin) Macrolides if PCN allergy (other alts: clindamycin, cephalosporins)

ENT/OPHTHALMOLOGY (15%)

Disease/Condition	Description	Diagnosis	Treatment
Normal Vision Health Maintenance	A. Newborn Eye Exam 1. Red Reflex (Pupillary Light Reflex, Bruckner Test) 2. Pupil Response 3. Observe constant Eye Deviation 4. Observe for Congenital Cataracts B. Infants at 6 months of age to 3 years 1. Newborn Eye Exam (as above) and 2. Fixation and Following a. Ocular Alignment (Screen for Strabismus) Corneal Light Reflex (Hirschberg Test) Cover Test b.	C. Children 3 to 5 years old 1. Visual Acuity (Tumbling-E Test, Allen OR HOTV Chart) 2. Ocular Alignment (Screen for Strabismus) a. Corneal Light Reflex (Hirschberg Test) b. Cover Test	D. Children 6 years and older: 1. Snellen Chart (Letters or Numbers) Visual acuity loss concerns about infectious keratitis, iritis: ciliary flush, foreign body sensation, photophobia
Conjunctivitis 0-5d: N. gon (copious d/c) 5d-5w: Chlamyd (mucopurulent d/c) 5w-5Yr: strep/PNA/HIB	Viral: MCC = adenovirus, swimming pool; HSV 1/2, Picornavirus S&S: Preauricular lymphadenopathy, copious watery d/c mucoid d/c Allergic: Cobblestone mucosa, S&S: chemosis/conjunctival swelling Bacterial: MCC = s. aureus, pseudomonas, strep pneumo, H. influenza, Moraxella S&S: purulent D/c, lid crusting, absence of ciliary injection		Supportive (Cool compress), antihistamine H2 blockers, antihistamines , Olopatadine (Patanol), pheniramine/Naphazoline Erythromycin, fluoroquinolones IM Ceftriaxone → gonorrhea
Orbital cellulitis	Secondary sinus infections commonly in ethmoid; 7-12 YO; ophthalmologic emergency MCC: S. aureus, s. pneumo, GABHS, H. influenza S&S: ↓ vision, pain with ocular movements, proptosis	High resolution CT scan/MRI Leukocytosis on labs Ddx: Periorbital cellulitis: no visual change, no pain	IV abx (vanco/clindamycin, + ceftotaxime or ampicillin/sulbactam or Piperacillin/Tazobactam)
Strabismus	Misalignment of the eye; stable eyes by 2 months Esotropia = convergent, cross eyed (>_)** (MC) Exotropia = divergent (<_) Diplopia, scotomas or amblyopia	Hirschberg corneal light reflex test (screen) Cover/uncover test	Patch therapy = cover good eye Corrective surgery – severe cases, correct before 2 YO otherwise risk of amblyopia
Acute otitis media	Infection of middle ear, temporal bone and mastoid air cells MC > viral URI, rapid onset MCC: S. pneumo, H. influenza, M. Catarrhalis, Strep. Pyogenes; RSV, rhinovirus, influenza RF: Eustachian tube dysfunction, day care, sick contacts, parental smoking, drinking while lying flat S&S: otalgia, ear tugging, TM perf → rapid pain relief and otorrhea, bulging, erythematous TM and effusions , ↓ TM mobility		DOC: amoxicillin (10-14 days) Cefixime in children 2 nd line: augmentin PCN allergy → Erythromycin-Sulfox Chronic → mastoidectomy, myringoplasty and tympanoplasty
Allergic rhinitis	MC type of rhinitis → IgE mediated, mast cell histamine release S&S: clear rhinorrhea, nasal polyps, worse in AM; pale, violaceous boggy turbinates, allergic shiners, allergic salute (transverse nasal crease), cobblestone mucosa of conjunctiva		Intranasal corticosteroids (Fluticasone, Mometasone) Oral antihistamines, Decongestants
Hearing impairment	Conductive loss: Rinne: BC > AC. Weber localizes to affected ear. Sensorineural loss: 30% due to presbycusis in patients 70+ YO. If unilateral, think of acoustic neuroma. Health Maintenance: immunization, proper care during pregnancy, avoid loud noise, avoid certain types of medication (aminoglycosides: streptomycin, gentamicin); MCC: cerumen impaction, Eustachian tube dysfunction; test hearing loss with pneumatic otoscopy		
Mastoiditis	Inflammation of the mastoid air cells of temporal bones; Complication of prolonged/inadequate treated OM (usually Strep pneumo) → brain abscess, septic sinus S&S: deep ear pain, fever, mastoid tenderness	CT scan	IV ABX + middle ear/mastoid drainage Myringotomy with or without tympanostomy tube placement Mastoidectomy
Otitis externa "Swimmer's ear"	Excess H2O or local trauma MCC = pseudomonas S&S: 1-2 days of ear pain, pruritus, auricular d/c	PE: Pain on traction of ear canal/tragus	Ciprofloxacin/dexamethasone Fluoroquinolones are preferred 1. gentle cleaning, topical neomycin, polymyxin and quinolone

	Bacterial = painful, fungal = painless Acute diffuse malignancy		
TM perforation	Penetration/noise trauma MC @ pars tensa, anteriorly or inferiorly S&S: Acute ear pain, hearing loss, bloody, tinnitus, vertigo	Otoscopic examination +/- conductive hearing loss	Avoid H2O moisture Topical aminoglycosides Most heal spontaneously in 1 month
Epistaxis	Anterior: Kiesselbach's plexus/Little's area (MC) → trauma Posterior: Woodruff plexus/Palatine artery → HTN/atherosclerosis = bleeding in both nares and posterior pharynx Complications → septal hematoma associated with loss of cartilage		1st line: direct pressure, lean forward Topical decongestants/ vasoconstrictors Phenylephrine, oxymetazoline,
Acute pharyngotonsillitis	Primary manifestation of HSV-1 in adults.; MCC: strep pyogenes, adenovirus, enterovirus, influenza, EBV, RSV S&S: fever, malaise, HA, sore throat	Vesicles → ulcerative lesions with grayish exudates in posterior pharyngeal mucosa	Oral hygiene Resolves within 7-14 days If assoc w/mono DO NOT give amox!
Epiglottitis	MCC = Hib , 3 months – 6 years (Think: no vaccination, under served areas) = medical emergency! S&S: 3 D's: dysphagia, drooling , distress, odynophagia, inspiratory stridor, tripod position	Definitive = laryngoscopy Lateral cervical x-ray = thumbprint sign Avoid instrumentation for risk of laryngospasm	Maintain airway + supportive management 2 nd /3 rd generation cephalosporin (ceftriaxone/cefotaxime)
Oral candidiasis "thrush"	MCC: candida albicans; breastfeed S&S: mouth or throat pain; white curd like plaques/bleeds if scraped	KOH smear → budding yeast/pseudohyphae	Nystatin liquid = DOC 2 nd line: clotrimazole, oral fluoroquinolones
Peritonsillar abscess "Quinsy"	Tonsils → cellulitis → abscess MCC = strep pyogenes (GABHS) , S. aureus, polymicrobial S&S: "muffled" hot potato voice , drooling, trismus, uvula, deviation to contralateral side	CT Scan Dx: Needle aspiration	Aspiration, I&D (Ampicillin/sulbactam), clindamycin, Pen G + metronidazole Vanco if MRSA is suspected
Streptococcal Pharyngitis "Strep throat"	Group A BHS / Strep pyogenes = MCC of bacterial pharyngitis S&S: fever > 38, pharyngotonsillar exudates, tender anterior cervical lymphadenopathy, absence of cough; beefy red uvula Complications if untreated: acute GN, rheumatic fever, Scarlet fever, neuropsych disorders	Rapid antigen detection test Throat Culture = definitive diagnosis = Gold Standard	Shortens illness by 48 hours and prevents complications (Rheumatic fever, glomerulonephritis) Penicillin G or VK 1st line: amoxicillin, amoxicillin/clavulanic acid (Augmentin) Macrolides if PCN allergy, or clindamycin, cephalosporins

PULMONARY (12%)

Disease/Condition	Description	Diagnosis	Treatment
Acute bronchiolitis	Inflammation of bronchioles MCC: RSV in a child 2 mo- 2 years S&S: wheezing episode + flu-like symptoms, respiratory distress RF: day care, smoke exposure	CXR: atelectasis; hyperinflation Pulse ox is single best predictor in children RSV nasal swab test & PCR rapid antigen	Supportive care, unless hospitalization is warranted Humidified O2 , β agonist, nebulized epi Palivizumab = prophyl!
Bronchiectasis	Due to irreversible destruction of the muscle and elastic tissue of the bronchial tree (Scarring) . MCC in children is CF (CFTR gene on Cr 7). The second MCC is foreign body aspiration. Sx: Foul-smelling sputum. Persistent "wet" cough, hemoptysis Associated infections in CF: <18 YO = staph, >18 YO = pseudomonas	High resolution CT Scan = Study of choice: airway dilation, lack of tapering of the bronchi, bronchial wall thickening "tram track" appearance, mucopurulent plugs, consolidations, Signet ring sign = pulm artery with dilated bronchus PFT: obstructive pattern CXR, Sputum gram stain/culture, bronchoscopy to remove FB	Empiric Antibiotics: ampicillin, amoxicillin, TMP-SMX Pseudomonal coverage: Fluoroquinolone, Piperacillin/Tazobactam, aminoglycoside, cephalosporin Mucus management/chest physiotherapy: bronchodilators, anti-inflammatory agents; surgery, embolization for bleeding
Croup/ Laryngotracheo-bronchitis	MC in 6 mo – 6 YO in fall winter MCC = parainfluenza virus Secondary to acute viral infection, subglottic, larynx, trachea swelling S&S: "barking cough", stridor, hoarseness, dyspnea	Cervical XRay shows Steeple sign . Clinical Diagnosis	Mild: cold air mist, dexamethasone Moderate: dexameth PO/IM + supportive treatment Severe: Dex + racemic epi + hosp
Bacterial Pneumonia	Strep pneumo (Gram+): MCC, Classic lobar consolidation, Rusty Sputum ----- H. Influenza (Gram-): CF, COPD, PD ----- Mycoplasma pneumonia = MCC atypical pneumonia Pseudomonas:- Most commonly a nosocomial infection (ie develops within 48 hours of hospital/ventilator use/nursing room admission). 1- Anti-pseudomonal Beta-lactam + an Anti-pseudomonal quinolone Example: Zosyn + Levo or Cipro 2- Anti-pseudomonal Beta-lactam +an Aminoglycoside 3- Aminoglycoside + Anti-	CXR: classic lobar consolidation, hilar adenopathy or pleural effusion Gram stain/culture sputum PE: dullness to percussion, ↑ fremitus, egophany Labs: leukocytosis or WBC <5,000 Abscess → S. aureus	<5 YO = amoxicillin, or 2 nd gen cep 1- [Quinolones or Macrolides]/Azithromycin 2- Betalactam + [Quinolones or Macrolides] . Betalactam options are: High dose Augmentin, Piperacillin/tazobactam or a 3rd or 4th generation cephalosporins. Treatment of MRSA: Replace Betalactam by Vanco or Linezolid in regimen above. i.e. [Vanco or Linezolid] + [Quinolones or Macrolides]
Viral Pneumonia	MCC in young kids is RSV . - Adenovirus: ~ 7 days; military recruits, GI symptoms (Diarrhea) - Hanta virus – rodent feces, causes ARDS not a pneumonia - Typically preceded by a cold caused by the bugs above.		
Respiratory syncytial virus	MC serious disease in premies Chronic lung disease, heart disease, asthma, heart defects; MCC of lower respiratory infection in children (<5 YO)	CXR: atelectasis	Supportive care unless hospitalization is warranted (O2 stat <95% Ribavirin- if severe
Asthma	Reversible chronic obstructive disease, air way inflammation + bronchoconstriction S&S: coughing, wheezing, chest tightness, SOB, eczema, allergies Samter's triad: asthma + nasal polyps + ASA/NSAID Allergy assoc w/atopic dermatitis MechN: Airway hyperactivity: extrinsic (allergy): pollen, ragweed, dander, dust, mold, aerosols, tobacco, smoke, air pollution assoc with ↑ IgE Intrinsic: nonallergic triggers Bronchoconstriction/obstruction Inflammation	PFTs = gold standard FEV1/FVC ratio <80% and failure to see a 10% improvement of ratio with beta agonists challenge; peak expiratory flow rate = best and most objective way to assess asthma exacerbation Asthma management: ICS, asthma action plans: provides instruction and information on how to self-manage one's asthma daily, including taking medications appropriately, and identifying and avoiding exposure to allergens and irritants that can bring about asthma symptoms.	Mild: Symptoms only some days of the week, use of inhaler some days of the week. Rx: SABA . Moderate: Daily symptoms, use of inhaler daily. Rx: SABA + ICS . Severe: Constant symptoms, frequent use of inhaler daily. Rx: SABA + ICS + LABA . 1. Acute treatment: Inhaled SABA (Albuterol) + IV Steroids . Admit if no improvement within 4 hours. 2. Long term treatment: Sequentially expand regimen as we move from mild to severe: SABA+ ICS + LABA .
Foreign body	RF: AMS, alcoholism, impaired cough/swallowing reflex, dementia MC on right side (wide, vertical/shorter bronchus) MC in right middle lobe; usually nuts, hot dogs	CXR: regional hyperinflation – 1 st Bronchoscopy: provides direct visualization of and removal of foreign object	Bronchoscopy Beyond oropharynx → endoscopy

	S&S: asymmetric breath sounds, cough, choking, wheezing, hemoptysis → aspiration pneumonia, Gastric aspiration → ARDS, pneumonia		
Hyaline Membrane Disease/ Infant Respiratory Distress Syndrome	MC in premies/ deficiency in surfactant Newborn < 37 weeks of gestation; MCC of resp failure in new born RF: premature birth, diabetic mother, positive family hx S&S: cyanosis, tachypnea, tachycardia, expiratory grunting, nasal flaring	CXR: ground glass appearance ABG: metabolic/respiratory acidosis and hypoxia that responds to O2	Give steroids to mom > birth (Bethametasone IM x2) Give exogenous surfactant to baby at birth
Cystic Fibrosis	Autosomal recessive inherited disorder of defective CFTR protein. Prevents chloride transport → build up of thick, viscous mucus in lungs, pancreas, liver, intestines → Obstructive lung disease, exocrine gland dysfunction ↑ incidence in Caucasians, N. Europeans Case: young with bronchiectasis, pancreatic insufficiency, growth delays and infertility S&S: meconium ileus at birth, pancreatic insufficiency, ↓ fat absorption, steatorrhea, bulky pale/foul smelling stools, weight loss, Vitamin ADEK deficiency, recurrent respiratory infection, chronic sinusitis, infertility	Elevated sweat chloride test CXR: bronchiectasis, hyperinflation of the lungs PFTs: obstructive (often irreversible) DNA analysis = definitive test; Genotyping Sputum cultures ABG: hypoxemia and compensated RA	Airway clearance treatment: bronchodilators, mucolytics, abx, decongestants Pancreatic enzyme replacement, supplement fat soluble vitamins (ADEK) Lung and pancreatic transplantation Antibiotics: Pseudomonas → Piperacillin/Tazobactam, aminoglycoside, cephalosporin

INFECTIOUS DISEASE (12%)

Disease/Condition	Description	Diagnosis	Treatment
Atypical mycobacterial disease	Underlying diseases contribute to atypical mycobacteria infections, including pulmonary emphysema, diabetes mellitus, leukemia, collagen diseases, lung cancer, chronic kidney diseases, systemic lupus erythematosus (SLE); Often misdiagnosed as a cutaneous infection	Tissue Culture, PCR, CXR	Clarithromycin
Pinworms/ Enterobiasis	Enterobius vermicularis: feco → oral MC in school-aged children S&S: perianal itching especially nocturnal as eggs are laid at night	Scotch tape test (AM) to look for eggs	Albendazole , mebendazole Pyrantel – 2 nd line No treatment if < 2 YO
Epstein-Barr disease/Infectious Mononucleosis HHV4	"kissing disease" MC in 15-25 YO S&S: Fever, sore throat, posterior cervical lymphadenopathy, malaise, myalgia, splenomegaly, petechial rash (esp if given Ampicillin)	Heterophile (Monospot) Ab test, Rapid viral capsid antigen test Peripheral smear: atypical lymphocytes, ↑ LFTs	Supportive mainstay of treatment: rest, analgesics, antipyretics Corticosteroids ONLY if there is obstruction due to lymphadenopathy Avoid trauma/contact sports at least 1 month if splenomegaly to prevent splenic rupture
Erythema infectiosum/ Fifth Disease/ Parvovirus B19/ Slapped Cheek	Parvovirus B19; MC < 10 YO Respiratory droplets, 4-14 days incubation period S&S: coryza, fever, slapped cheek, lacy reticular rash on extremities, spares palms and soles, resolves in 2-3 weeks, arthropathy/artralgias in older children ↑ fetal loss in pregnancy (fetal hydrops, CHF, spontaneous abortion) Assoc with aplastic crisis in sickle cell patients	Serologies	Supportive, anti-inflammatories
Herpes simplex (HSV1/HSV2)	Prodromal symptoms 24 hours (burning, paresthesias, tingling) → painful, grouped vesicles on erythematous base S&S: acute herpetic gingivostomatitis*, fever, anorexia, gingivitis, vesicles in the mouth	PCR most sensitive and specific test for HSV = clinical diagnosis Tzanck smear: multinucleated giant cells and intranuclear inclusion bodies	Acyclovir, Valacyclovir, Famciclovir
Influenza	Acute respiratory illness caused by influenza A or B viruses (orthomyxovirus) A – more severe, extensive outbreaks (H1N1, H3N2) Influenza A viruses are divided into subtypes based on two proteins on the surface of the virus: the hemagglutinin (H) and the neuraminidase (N). Spreads via airborne respiratory secretions mainly in fall/winter S&S: abrupt onset; HA, fever, chills, malaise, URI symptoms, pharyngitis, pneumonia	Clinical Rapid influenza test (nasal swab) or viral culture Leukopenia and proteinuria may be found	Supportive mainstay of treatment in healthy patients (acetaminophen, salicylates) Antivirals: Neuraminidase inhibitors, oseltamivir (Tamiflu) Prevention: Influenza vaccine (Oct/Nov)
Mumps	Paramyxovirus – respiratory droplets Patients are usually infectious 48 hours prior to and 9 days after onset of parotid swelling S&S: low grade fever, myalgias, headache → Parotid gland pain & Swelling Complications: orchitis in males, acute pancreatitis in children, deafness, arthritis, infertility	Serologies, ↑ amylase Clinical diagnosis	Supportive, anti-inflammatories Symptoms lasts 7-10 days Prevention: MMR Vaccine given at 12-15 months, second dose at 4-6 YO
Roseola (6th Disease) HHV 6/7	Transmission: respiratory droplets, MC < 5 YO 10 day incubation period High fever 3-5 days → rose, pink blanchable rash on <u>trunk</u> **/back → face Only childhood viral exanthema that starts on trunk* Child appears well and alert during febrile phase		Supportive, anti-inflammatories, anti-pyretics
Rubella (German Measles)	Togavirus family. Transmission: respiratory droplets "3 day rash" S&S: low grade fever, cough, anorexia, lymphadenopathy (Opsterior cervical, posterior auricular) → pink, light-red spotted maculopapular rash on face → extremities (3 days); Forcheimer spots: small red, macules or petechiae on soft palate Transient photosensitivity, joint pains *Teratogenic in 1st trimester → congenital syndrome (ToRch Syndrome)	Clinical diagnosis Rubella specific IgM antibody via enzyme immunoassay	Anti-inflammatories, supportive Prevention: MMR Vaccine given at 12-15 months, second dose at 4-6 YO
Measles (Rubeola)	Respiratory droplets, person to person, airborne Paramyxovirus S&S: URI prodrome: high fever, 3 cs: cough, coryza, conjunctivitis → koplik spots (small red spots in bucca Imucosa with pale/blue/white center), precedes rash by 24-48 hours, lasts 3-4 days → morbilliform, brick red rash on face → extremities; rash lasts for 7 days + fever that darkens and coalesces Complications: diarrhea, otitis media, pneumonia, conjunctivitis & encephalitis		Supportive, anti-inflammatories Vitamin A reduces mortality Prevention: MMR Vaccine given at 12-15 months, second dose at 4-6 YO
Varicella infection/ Chicken Pox HHV-3	Respiratory droplets, direct contact, 10-20 days incubation period Primary infection: fever, malaise, cluster of vesicles on an erythematous base "dew drops on a rose petal" different stages		Symptomatic treatment

	Macules, papules, vesicles, pustules and crusted lesions at any given time beginning on the face, trunk and extremities, usually pruritic Complications: bacterial infection*, PNA, encephalitis, GBS, → reactivation to Herpes zoster (Shingles)	
Hand-foot-and-mouth disease/ Coxsackie A Virus	Coxsackie virus is part of the enterovirus family; MC in children > 5YO spread feco-oral and oral-orally, MC late summer/early fall S&S: mild fever, URI sx, ↓ appetite starting 3-5 days after exposure, vesicular lesions with erythematous halos in oral cavity (buccal mucosa and tongue), exanthema 1-2 days after with vesicular, macular or maculopapular lesions on distal extremities (palms and soles)	Supportive: antipyretics, topical lidocaine
Pertussis (Whooping Cough)	Highly contagious infection secondary to bordetella pertussis: Gram negative coccobacillus MC seen in children < 2 YO S&S: 7-10 days incubation period, <u>catarrhal phase*</u> (most contagious) → <u>paroxysmal phase</u> → <u>covaescent phase</u>	PCR of nasopharyngeal swab = gold standard! Lymphocytosis – WBC may be as high as 50,000 Supportive treatment mainstay* oxygenation, nebulizer, mechanical ventilation as needed Abx used to ↓ contagiousness Macrolides = DOC (Erythromycin) TMP- SMX = 2nd line if allergic to macrolides

CARDIOVASCULAR (10%)

Disease/Condition	Description	Diagnosis	Treatment
Atrial septal defect	Hole in atrial septum (L→R, noncyanotic) MC in ostium secundum Asymptomatic until >30 YO PE: systolic ejection crescendo-decrescendo flow murmur @ pulmonic area (like PS) Wide split fixed S2: does not vary with respirations	CXR: cardiomegaly ECG: incomplete RBBB Crochetage sign: notching of R wave in inferior leads Echocardiogram = Gold standard!!!	Spontaneous closure in first year Surgical correction if symptomatic @ age 2-4 YO
Coarctation of the aorta	Congenital narrowing of descending thoracic aorta. Male: female 2:1; assoc w/Turner Syndrome Noncyanotic (L → R); ↑ LV afterload with SNS activity & RAAS activation → HTN, LVH, CHF, bicuspid aortic valve S&S: Secondary HTN, bilateral claudication, infants: failure to thrive PE: systolic murmur that radiates to back/scapula/chest ↑ BP upper > lower extremities Delayed/weak femoral pulses: ↓ flow distal to obstruction in lower extremities	CXR: rib notching, 3 isgn ECG: LVH CT Angiogram = Gold standard!!!	Surgical correction Balloon angioplasty Prostaglandin E1 (PGE1), improves lower extremity blood flow pre-op
Patent ductus arteriosus	Communicating between descending thoracic aorta/pulmonary artery (L→R) Cause of Rubella infection in 1 st trimester S&S: poor feeding, weight loss, frequent lower respiratory tract infection, pulmonary congestion Part of Eisenmenger's syndrome (switches to R→L shunting) PE: continuous machinery murmur, loudest @ pulmonic area , wide pulse pressure, bounding peripheral pulses, loud S2	CXR: normal or <u>cardiomegaly</u> ECG: LVH, Left atrial enlargement Echocardiogram = Gold Standard	IV indomethacin = 1st line treatment to close PDA Surgical correction if indomethacin fails (1-3 YO)
Tetralogy of Fallot	MC cyanotic congenital heart disease R→L (Cyanotic) PROV" 1. RV outflow obstruction/Pulmonary artery stenosis 2. RV Hypertrophy 3. Overriding aorta 4. VSD S&S: blue baby syndrome, tet spells, older children relieve by squatting, Eisenmenger's syndrome (also seen with PDA, VSD, TOF) PE: Harsh holosystolic murmur @ LUSB – like PS; Right ventricular heave, digital clubbing	CXR: Boot-shaped heart ECG: Right ventricular hypertrophy Echocardiogram = GOLD STANDARD!!!!	Surgical repair in first 4-12 months of life PGE1 infusion: prevents ductal closure in cyanotic patients prior to surgery
Ventricular septal defect	Hole in the ventricular septum causing opening between R/L ventricles. MC type of CHD Perimembranous VSD = MC; L→R Shunt S&S: restrictive = normal pressure between ventricles remain; large VSD = more severe symptoms Eisenmenger's syndrome = non-restrictive (R → L Shunt = Cyanosis) PE: loud high-pitched harsh, holosystolic murmur @ LLSB	CXR Echocardiogram*** determines size/location of VSD; echo preferred over catheterization ECG: LVH with mild to moderate VSD	Restrictive VSD (L→R): associated with good prognosis; will close spontaneously within 10 years Surgery: patch closure
Acute rheumatic fever	Autoimmune multi-systemic illness mainly affecting children 5-15 YO. Infection with GABHS (Group A β-hemolytic strep/Strep pyogenes), stimulates production and damages organs → onset of rheumatic fever by 2-6 weeks Complications: rheumatic valvular disease: mitral* , aortic, tricuspid/pulmonic	Jones Criteria (2 Major/ or 1 + 2 Minor) Major: Joint (migratory polyarthritis), Oh my <3 (active carditis), Nodules (subcutaneous), Erythema marginatum, Sydenham's Chorea Minor: Fever >101.3, arthralgia (joint pain); ↑ ESR, CRP, leukocytosis, prolonged PR interval on ECG + evidence of GABHS (+ throat culture, or Rapid ASO)	Anti-inflammatory: Aspirin 2-6 weeks, taper PCN – G = most important for prevention
Kawasaki disease	AKA: Mucutaneous lymph node syndrome MC in Asian boys < 5 YO Medium and small vessel necrotizing vasculitis (coronary arteries) CRASH + Burn Mnemonic/S&S: Conjunctivities, Rash, Arthritis, Strawberry tongue, Hands/skin peeling + Fever > 5 days Complications: coronary vessel arteritis/aneurysm, MI	↑ ESR/CRP, leukocytosis, reactive thrombocytosis Echocardiogram (4/5 symptoms): Acute onset fever up to 105 x 4 days; Bilateral conjunct, cervical lymph, truncal polymorph rash, oropharynx, mucosal changes, dry lips, strawberry tongue, peripheral extrem	IV IG + High dose aspirin Corticosteroids = CI
Hypertrophic cardiomyopathy	Inherited genetic disorder of inappropriate LV/RV hypertrophy Subaortic outflow obstruction, hypertrophied septum + systolic anterior motion/muscle displacement Diastolic dysfunction: impaired ventricular relaxation/filling S&S: dyspnea, angina pectoris, syncope, arrhythmias, sudden cardiac death*** (extreme exertion due to vfib) PE: harsh systolic crescendo-decrescendo murmur at LLSB, ↑ with Valsalva/standing	Echocardiogram: asymmetrical wall thickness, systolic anterior motion of mitral valve ECG: LVH, atrial enlargement CXR: cardiomegaly	ICD placement Counseling to avoid dehydration/extreme exertion/exercise β-blockers = 1 st line treatment Myomectomy surgery

Syncope	a transient, self-limited loss of consciousness with an inability to maintain postural tone that is followed by spontaneous recovery Syncope in children is most often neurally mediated and usually has a natural history of spontaneous resolution or improvement Conservative measures should be tried before introducing pharmacotherapy. Cardiac syncope is potentially life-threatening and can usually be suspected after the use of simple evaluative measures, including history, physical examination and ECG.	ECG - Emphasis should be placed on the QT interval and T wave morphology for evidence of long QT syndrome; voltage criteria that are consistent with left or right ventricular hypertrophy for the evaluation of obstructive cardiac lesions or cardiomyopathies; manifest pre-excitation of WPW; and bradycardia, pauses, conduction disturbances or ectopy.	Behavior Modification Cardiac Syncope – β blockers
Normal Physiology	At the time of delivery, the physiology of the heart and vascular system changes so that the lungs become the source of oxygen for the baby. When all goes well, the transition goes smoothly and the ductus arteriosus closes within the first day or two. In a normal baby, once the ductus arteriosus closes, the blood which is low in oxygen returning from the body is separated from the oxygen rich blood returning from the lungs.	Echocardiography Transthoracic echocardiography (MC, performed using a small ultrasound probe, like a wand, moved on the chest and upper abdomen) Transesophageal echocardiography, or TEE (while under sedation or anesthesia, a flexible ultrasound probe is inserted in the mouth through the esophagus) Cardiovascular CT Cardiac MRI Know your murmurs!!!!	

GASTROINTESTINAL/NUTRITIONAL (10%)			
Disease/Condition	Description	Diagnosis	Treatment
Gastroenteritis	Inflammation of stomach/intestines due to viruses, Food/H ₂ O contamination, reaction to a new food MC Viruses: rotavirus, norovirus , astrovirus, adenovirus MC bacteria: salmonella, campylobacter, shigella , E.coli, C.diff S&S: N/v/d/abdominal cramping	Clinical diagnosis or Stool Culture	Treat symptoms Campy: erythromycin C. diff: Metronidazole or vanco E. coli: TMP- SMX Salmonella: ampicillin, chloramphenicol or TMP- SMX Vibrio: choleraetetracycline or doxy
Dehydration	MCC in children: severe diarrhea and vomiting S&S: dry mouth and tongue, no tears when crying, no wet diapers for 3 hours, sunken eyes, cheeks, sunken soft spot on top of skull	Labs: electrolytes (Na/K) UA	Oral/IV rehydration: Pedialyte/Hydralyte
Appendicitis	Obstruction of the appendix MC due to fecolith , inflammation, malignancy or FB S&S: anorexia and periumbilical/epigastric pain → RLQ pain, N/V PE: rebound tenderness, rigidity, guarding, retrocecal appendix Rovsing sign: RLQ pain + LLQ palpation Obturator sign: RLQ pain + internal/external hip rotation with flexed knee Psoas sign: RLQ pain with right hip flexion/extension (raise leg against resistance) McBurney's point tenderness	CT scan, Ultrasound to confirm diagnosis: dilated and thickened wall (>6 mm) Leukocytosis with left shift	Appendectomy; broad spectrum abx
Colic	Babies with colic often cry more than three hours a day, three days a week for three weeks or longer. Colic is common. It usually starts a few weeks after birth and often improves by age 3 months. S&S: predictable crying episodes, intense or insoluble crying, crying that occurs for no apparent reason, posture changes RF: Infants of mothers who smoke during pregnancy or after delivery have a greater risk of developing colic. Possible causes: allergies, lactose intolerance, high carb, changes in digestive system		Gas Relief medications (simethicone) Probiotics Hold infant upright or prone across lap
Gastroesophageal reflux disease	Transient relaxation of LES → gastric acid reflux → esophageal mucosal injury Complications: esophagitis, stricture, Barrett's esophagus, esophageal adenocarcinoma S&S: recurrent heartburn , ↑ with supine position, dysphagia, cough at night, regurgitation, dysphagia Know when child should stop having GERD? 6 months?	Endoscopy = 1st line Esophageal manometry: ↓ LES pressure; upper endoscopy for symptoms: dysphagia, odynophagia, weight loss, bleeding 24 ambulatory pH monitoring = gold standard!	Lifestyle modifications PRN pharmacological therapy: H₂ receptor antagonists (antacids/OTCs) Initiation of Schedule Pharmacologic therapy: H ₂ RA, PPI, Prokinetic agents PPIs = DOC for moderate-severe disease Nissen fundoplication if refractory
Constipation	Infrequent BM (<2/week) , hard stools feeling of incomplete evacuation Disordered movement of stool, slow colonic transit: idiopathic, motor disorders (colorectal CA, DM, hypothyroid), SE of drugs: verapamil, opioids		Fiber, bulk forming laxatives, osmotic laxatives (polyethylene glycol, lactulose), stimulant laxatives (Bisacodyl, senna)
Pyloric stenosis	Hypertrophy/hyperplasia of pylorus → functional outlet obstruction; ↑ risk with Erythromycin use Usually present in first 3-12 weeks of life (< 6 months) S&S: non-bilious vomiting/regurgitation → projectile after feeding; leads to hypochloremic metabolic alkalosis; olive-shaped	Ultrasound = 1st line Upper GI contrast = STRING SIGN	Initial management: rehydration IV fluids (K+) Pyloromyotomy = definitive management
Intussusception	Intestinal segment invaginates/"telescopes" into adjoining intestinal lumen → bowel obstruction, MC: ileocolic MC in children (6-18 months) S&S: vomiting, abdominal pain, passage of blood "currant jelly stool"	Dance's sign = sausage-shaped mass in RUQ or hypochondrium and empties in RLQ; target/donut sign on US Barium contrast enema (dx + therapeutic)!!!! X-ray: leak of gas in bowels	Barium or air insufflation
Hirschsprung disease "Congenital megacolon"	Congenital absence of ganglion cells → functional obstruction, MC in distal colon and rectum Assoc with Down Syndrome Neonatal intestinal obstruction: meconium ileus (failure of meconium passage > 48 hours), bilious vomiting, abdominal distention	Anorectal manometry = initial screening test Contrast enema, abdominal X-ray Rectal biopsy = definitive diagnosis	Surgical resection of affected bowel
Foreign body	Coins, button batteries, toy parts, marble (24 hrs to pass)	CXR Endoscopy	Endoscopy (dx and therapeutic) Surgery
Encopresis	Fecal incontinence or soiling, is the repeated passing of stool (usually involuntarily) into clothing (impacted stool collects in the colon and rectum: the colon becomes too full and liquid stool leaks around the retained stool, staining underwear) Encopresis usually occurs after age 4, when the child has already learned to use a toilet	H&P: Digital Rectal Exam X-ray to confirm impacted stool	Clear colon (laxatives, rectal suppositories, enemas), encourage healthy BM, psychotherapy/behavioral modification
Hepatitis	HAV: feco-oral, usually asymptomatic in children < 6 YO HBV: Vertical transmission	+ IgM HAV Ab	Self limiting Supportive care if acute,

	Wilson disease, a-antitrypsin deficiency, autoimmune deficiency of liver = chronic hepatitis; hereditary spherocytosis	+ HBsAg (surface antigen): establishes infection and infectivity + HBsAb (Surface antibody): resolved infection or vaccination + HBeAb (core antibody): IgM: acute infection IgG: chronic infection/resolved infection	Chronic: alpha-interferon 2b, Lamivudine, Adefovir Prevention: Hep B vaccine: given at 0, 1, 6 months
Jaundice	↑ indirect (unconjugated) bilirubin; ↑ 3-5 days and falls during the week of a newborn Jaundice in the first 24 hours of life = hemolysis or hereditary spherocytosis, persistent jaundice 10-14 days, ↑ indirect bilirubin = pathologic (Crigler-Najjar, Gilberts, Cretinism and hemolytic anemia) ↑ direct (conjugated) : dubin-johnson syndrome, rotor syndrome, infections	Bilirubin > 20 mg/dL → kernicterus and neurotoxicity Prenatal and maternal blood type, Rh and Ab testing. Baby's blood type should be done if mother is type O or Rh - with testing. ---Direct and indirect bili levels should be obtained. CBC, retic count, and blood smear should be considered.	Phototherapy Exchange transfusion: severe cases, ABOtherapy
Duodenal atresia	Complete absence or closure of a portion of the duodenum → gastric outlet obstruction; MC at ileum; hx of polyhydramnios Assoc with Down Syndrome , other congenital deformities S&S : intestinal obstruction shortly after birth: abdominal distention, bilious vomiting	Abdominal x-ray: double bubble sign	Decompression of GI tract, electrolyte of IV fluid replacement Duodenoduodenostomy (surgical repair)
Inguinal hernia	Protrusion of the contents of the abdominal cavity through the inguinal canal Indirect inguinal : lateral protrusion; persistent patent process vaginalis, MC in young children , MC type of hernias Direct inguinal : medial protrusion; RIP: rectus abdominis, inferior epi vessels (lat), Poupart's lig (Inf) due to weakness of inguinal canal floor; DOES NOT REACH the scrotum	May develop scrotal swelling with indirect hernias Incarcerated : painful enlargement of an irreducible hernia Strangulated : ischemic incarcerated hernias with systemic toxicity	Surgical repair Strangulated = surgical emergencies
Umbilical hernia	Congenital: failure of umbilical ring closure		Observation: resolves by 2 YO Surgical repair > 5 YO
Vitamin B3/ Niacin deficiencies	Often due to diets high in corn or diets that lack tryptophan Pellagra: 3 D's: diarrhea, dementia, dermatitis		
Vitamin A deficiency	Vit A → vision, immune function, embryo development, hematopoiesis, skin/cellular health Found in kidney, liver, egg yolk, butter, green leafy vegetables Deficiency RF: liver disease, EtOH, fat-free diets	S&S : visual changes (Especially night blindness), xerophthalmia, impaired immunity (poor wound healing), dry skin, poor bone growth, squamous metaplasia , Bitot's spots	Vitamin A Excess : teratogenicity, alopecia, ataxia, visual changes skin disorders, hepatotoxicity <20 mg/dL = vitamin A deficiency
Vitamin C (Ascorbic acid) deficiency	RF: diets lacking raw citrus fruits and green vegetables, smoking, alcoholism, malnourished individuals, elderly Survy → 3 H's: Hyperkeratosis : hyperkeratotic follicular papules often surrounded by hemorrhage Hemorrhage : vascular fragility with recurrent hemorrhages in gums, skin and joints; impaired wound healing Hematologic : anemia, glossitis, malaise, weakness, ↑ bleeding time		
Vitamin D deficiency	Obtain VitD: Fortified milk and sun exposure Rickets : softening of the bones leading to bowing deformities, fractures, costochondral thickening ("rachitic rosary"), dental problems, muscle weakness and developmental delays		Ergocalciferol (Vitamin D)
Lactose intolerance	Inability to digest lactose due to low levels of lactase enzymes (MC in AA, Asians, S. Amer) @ sm. intestine S&S : loose stools, abdominal pain, flatulence, borborygmi (grumbling noise) after ingestion of milk	Hydrogen breath test (test of choice); performed after a trial of a lactose-free diet Tests for malabsorption	Lactase enzyme preparations Lactaid (pre-hydrolyzed milk) Lactose-free diet

PSYCHIATRY/BEHAVIORAL MEDICINE (6%)			
Disease/Condition	Description	Diagnosis	Treatment
Child abuse and neglect	Sexual abuse : abuser often male and knows victim; genital/anal trauma, STIs, UTIs Physical Abuse : female, usually primary caregiver: burns, stocking glove pattern, lacerations, healed fx on x-rays, subdural hematoma, hyphema or retinal hemorrhages seen in shaken baby syndrome Child neglect : failure to provide basic needs of a child: malnutrition, withdrawal, poor hygiene, failure to thrive		
Attention-deficit/hyperactivity disorder	ADD/ADHD : neurodevelopmental disorder characterized by problems paying attention, difficulty controlling behaviors and hyperactivity that is not age-appropriate	Onset before 12 YO, must be present at least 6 months and must occur in at least 2 settings (school, home, EC activities)	Multimodal approach Behavior modification Sympathomimetic (stimulants): KNOW SE: ↓ appetite; Methylphenidate (Ritalin), Amphetamine/dextroamphetamine (Adderall) Nonstimulants: Atomoxetine (Strattera)
Autism spectrum disorder	Social interaction difficulties Impaired communication: inability to communicate or difficulty understanding Restricted, repetitive, stereotyped behaviors and patterns of activities Persistent failure to develop social relationships		Refer for neuropsychologic testing, behavioral modification strategies, medications
Feeding or eating disorders	Anorexia Nervosa : refusal to maintain a normal BW; morbid fear of fatness or gaining weight Bulimia Nervosa: NORMAL WEIGHT +/- overweight; concerned about body image Binge Eating: recurrent episodes, occurs at least weekly x 3 months Compensatory behavior: purging type: self-induced vomiting, diuretic/laxative/enema abuse Non-purging: ↓ caloric intake, dieting, fasting	BMI ≤ 17.5 kg/m2 or BW < 85% of ideal weight, PE (lanugo), labs Teeth pitting or enamel erosion (from vomiting), Russel's sign (calluses on the dorsum of the hand), parotid gland hypertrophy, metabolic alkalosis from vomiting Labs: +/- hypokalemia, hypomagnesia	Medical stabilization, psycho therapy (CBT), pharmacotherapy (SSRIs if depressed) Psychotherapy: CBT Pharmacotherap: Fluoxetine
Depressive disorders	Major Depressive Disorder (MDD)/Unipolar depression : depressed mood or anhedonia (loss of pleasure) with ≥ 5 associated symptoms for at least 2 weeks S&S : clinical distress or impairment; absence of mania or hypomania Persistent Depressive Disorder (Dysthymia) : Chronic depressed mood >1 year in children/adolescent, milder than MDD Patients are able to function Generalized loss of interest, @ least 2 symptoms: insomnia, hypersomnia, fatigue, low self esteem, overeating, poor concentration	Psychotherapy = principal treatment; CBT, SSRIs = first line Rx SSRIs : citalopram, escitalopram, fluoxetine, sertraline SNRIs : venlafaxine (Effexor), desvenlafaxine, duloxetine (Cymbalta) TCAs : amitriptyline, clomipramine, desipramine, doxepin, imipramine, Nortriptyline Bupropion MAOIs : phenelzine, tranylcypromine, Isocarboxazid ** Antidepressants should be continued for a minimum of 3-6 weeks to determine efficacy ** Electroconvulsive therapy	
Anxiety disorders	Panic Attacks : episode of intense fear or discomfort that develops abruptly, usually peaks within 10 minutes and usually lasts <60 minutes. > 4 symptoms	Recurrent, unexpected panic attacks (at least 2)	Benzodiazepines (Lorazepam, Alprazolam) = 1 st line for panic attacks; acute for panic disorders

	<p>Panic Disorder: 2-3x MC in Females</p> <p>Generalized Anxiety Disorders: excessive anxiety or worry a majority of days; ≥ 6 month period about various aspects of life</p> <p>Social Anxiety Disorder: persistent > 6 months, intense fear of social or performance situations where the person is exposed to the scrutiny of others</p>	<p>Followed by concern about future attacks, worry, significant change in behavior for at least 1 month</p> <p>Agoraphobia: fear of being alone</p> <p>Assoc w/>3 symptoms: fatigue, restlessness, difficulty concentrating, muscle tension, sleep disturbances, headaches</p>	<p>SSRIs: 1st line (Paroxetine, Sertraline, Fluoxetine)</p> <p>Cognitive Behavioral Therapy:</p> <p>GAD/SAD: Antidepressants, SSRIs, SNRIs, Buspirone (Buspar), Benzodiazepines, β-blockers, TCAs, psychotherapy (CBT)</p>
Disruptive, impulse-control, and conduct disorders	<p>Conduct Disorder: deviate sharply from age-appropriate norms/ violates rights of others → antisocial personality disorder by 18</p> <p>Tourette Syndrome: (MC in 2-5 YO boys) associated with obsessive compulsions Motor-tics: face, head, neck Verbal or phonetic tics: grunts, throat clearing, obscene words (Coprolalia), repetitive phrases, repeating phrases of others (echolalia), self mutilating tics</p>	<p>Social and academic difficulty</p> <ol style="list-style-type: none"> serious violations of laws aggressive/cruel to animals deceitfulness destruction of property 	<p>Behavioral Modification</p> <p>Habit Reversal therapy Dopamine blocking agents: Haloperidol, Risperidone, Fluphenazine, Pimozide, Tetrabenazine Alpha-adrenergics: Clonidine</p>
Oppositional Defiant Disorder	KNOW!!!!		
Suicide	<p>Previous attempts or threat is the strongest single predictive factor</p> <p>Females attempt $>$ males; BUT males COMPLETE suicide more often than male ↑ with age, whites $>$ blacks</p> <p>Underlying psych disorders (depression, bipolar disorder, substance abuse, schizophrenia, anxiety disorders, ↑ with substance abuse)</p>	<p>Suicide Risks: Past attempts. Disrupted sleep patterns. Increased anxiety and agitation. Outbursts of rage or low frustration tolerance. Risk-taking behavior. Increased alcohol or drug use. Sudden mood change for the better. Any talk or indication of suicidal ideation or intent, planning or actual actions taken to procure a means.</p>	<p>Cognitive therapy: evoking crisis in session so client can apply test coping skills</p> <p>Dialectical Behavior Therapy: treat emotion regulation difficulties and suicidal behavior; address the issues of distress tolerance and development of healthy affect regulating strategies</p>

NEUROLOGY/DEVELOPMENTAL (6%)

Disease/Condition	Description	Diagnosis	Treatment
Normal growth and development			
<1mo	D - Lifts head slightly while prone, responds to noise, regards face, turns head to side, follows to midline, interacts E - formula/breast, sleep, crib/bas/bed on back, <u>brm</u> , handling, car seat, clean gums		
1-2 mo	D - Vocalizes, smiles responsively, lifts head to 45 degrees, follows past midline, kicks E - formula/breast, sleep, <u>brm</u> , handling, car seat, clean gums, no bottle in crib		
3 - 4 mo	D - prone lifts head to 90, head steady while sitting, laughs, grasp rattle, rolls over one way, follows to 180 E - formula/breast, solids, sleep, fever control while teething, home safety, shaking, smoke detector, burns, 911, car seats, clean gums, bottle in crib		
5 - 6 mo	D - pulled to sit with no head lag, sits briefly alone, reaches and gums objects, babbles, smiles spontaneously, turns to sound, rolls over both ways E - breast/formula, solids, introduction of cup, play pen, home safety, fever control, gum cleaning, avoid sweets, no bottle in crib		
7 - 9 mo	D - sits without support, creeps and crawls, moves object hand to hand, bangs together objects, feeds <u>self cracker</u> , turns to voice, stranger anxiety E - breast/formula, solids, finger foods, using cup, clean gums, avoid sweets, no bottle in crib, teething ring P - spanking, shaking, no honey or corn syrup, choking hazards, poisons, pools		
10 - 12 mo	D - stands momentarily, walks holding furniture, pincer grasp, cup, bangs objects, "mama" "dada", understands no, waves bye E - breast/ formula, solids, finger foods, cup, no honey/corn syrup, car seats, choking hazards P - child proof home, drowning, negativism, discipline, no shaking		
13 - 15 mo	D - stands alone, walks, stoops to pick up toy, build 2 block tower, uses cup with little spillage, pulls/points/indicates want, 3 word vocabulary E - Table food, whole milk/24 hrs, vitamins, cup, child proof home, stove, bathtub, tooth brushing, bottle caries P - Drowning, self - feeding, temper tantrums, family play, toilet training, shoes, fever control		
16 - 23 mo	D - walks well/climbs, mimics chores, piles 2-3 blocks, scribbles, 4-10 word vocab, answers questions with questions E - 3 meals/day, snacks, NO junk food, playing with other children, hot water, drowning, smoke detector, child proof home P - toilet training, temper tantrums, discipline, fever control, tooth brushing, no sweets		
2 years	D - Runs well (clumsy), up and down stairs, plays rough/tumble, kick ball, hide and seek, simple household tasks, follow direction, handle spoon well, point to body part E - 3 meals/snacks, <u>lowfat</u> milk, no food rewards, toilet train, exercise, peer play, <u>ty</u> limits, tooth brushing, streets/cars/knives/falls/burns		
4-5 years	D - dressed by self, buttons clothes, copies square/draw man, knows 3 colors, fully potty trained, night time bedwetting, speech understandable, follows 3 commands, hops on one foot, throws ball, tolerates separation E - 3 meals/snacks, breakfast importance, car/bike safety, burns, water safety/swimming lessons, outdoor play, brushing, flossing P - TV programs, school, role playing, aggression, stranger danger		
6-8 years	D - rides bike, plays sports, has peer relationships, has hobbies, school progress, knows animals E - junk food, importance of breakfast, water safety, seat/bike safety, burns, drugs, P - <u>Ty</u> programs, school, early sex education, discipline, reading, bedtime		
9-12 years	D - Sports, hobbies, home, peer relationships, school progress E - nutrition/junk reading labels, exercise/activity, smoking education, safety, dentist : brushing/flossing P - independence, peer pressure, puberty		
13 - 15 yo	D - School progress, hobbies, sports, home, peer relationships, sports, body image, sex/drugs/alcohol/smoking E - nutrition, read labels, smoking education, seatbelt/helmet/guns/gangs, drowning, brushing/flossing, sex <u>cd</u> , abstinence/contraception P - risk taking behavior, need for parental respect		
17 - 20 yo	D - school progress, future plans, sports/activity, hobbies, peer relationships, body image, sex/drugs/alcohol/smoking E - 3 meals/snacks, seatbelt/helmet/risk taking <u>bhx</u> , brushing/flossing, sex <u>cd</u> , contraception		
Immunization guidelines	<p>Birth: HBV #1</p> <p>2 months: HBV #2, DtaP #1, Hib #1, IPV #1, PCV #1</p> <p>4 months: ----- DTap#2, Hib #2, IPV #2, PCV #2</p> <p>6 months: ----- DTap#3, Hib #3, ----- PCV #3</p> <p>6-18 months: HBV #3, -----, IPV #3</p> <p>12- 15 months: ----- Hib #4 ----- PCV #4, MMR #1</p>		

	12- 18 months: Varicella #1 15- 18 months: ----DtaP#4 4 – 6 YO: Varicella #2, DtaP#5-----IPV #4 ----- MMR #2 11- 18 YO: MCV4, Td/Tdap, HPV		
Anticipatory guidance	providing education to parents about what to expect, or anticipate, over the next few months or years with your child. Recommendations are specific to a child's age at the time of a visit.		
Teething	~6 months of age (3-12 months) S&S: swelling of gums, drooling or dribbling, ↑ chewing, crying, sleeplessness	NSAIDs	
Febrile seizures	Simple febrile seizure: The single seizure is generalized and lasts less than 15 minutes The seizure is described as either a generalized clonic or a generalized tonic-clonic seizure Complex febrile seizure: This seizure is either focal or prolonged (ie, >15 min), or multiple seizures occur in close succession		Subsequent febrile seizures: control fever phenobarbital or valproate to ↓ occurrence
Epilepsy	Focal seizures without loss of consciousness (simple partial seizures): involuntary jerking of a body part, such as an arm or leg, and spontaneous sensory symptoms such as tingling, dizziness and flashing lights. Focal dyscognitive seizures (complex partial seizures): change or loss of consciousness or awareness. During a complex partial seizure, you may stare into space and not respond normally to your environment or perform repetitive movements, such as hand rubbing, chewing, swallowing or walking in circles.	Neurological Exam Blood Tests Electroencephalogram (EEG)	Anti-epileptics Carbamazepine is used to treat seizures that occur in the temporal lobe. Diazepam is used to treat cluster and prolonged seizures. Ethosuximide is used to treat all forms of absence seizures. Gabapentin is used to treat partial seizures.
Bacterial Meningitis	Hx of sinusitis or pneumonia < meningitis S&S: fevers/chills, HA/nuchal rigidity, photosensitivity, nausea/vomiting → AMS, seizures, + Kernig's Sign, + Brudzinski's sign	LP: ↑ 100-10,000 PMN (neutrophils), ↓ glucose <45, ↑ protein, ↑ CSF pressure	Ampicillin + Ceftriaxime or Aminoglycoside (1 mo) Or Ceftriaxone + Vancomycin
Viral Meningitis	Viral infection of meninges; enterovirus (Echovirus, Coxsackie), Arboviruses, Mumps, HSV1/2, HIV S&S: HA, fever, mild confusion, nuchal rigidity, + Brudzinski & Kernig, photophobia, phonophobia	CT scan to rule out intracranial mass; MRI: diffuse enhancement of meninges CSF analysis: ↑ lymphocytosis (10-300), normal glucose, <100 normal protein	Supportive care Antipyretics IV fluids, antiemetics
Turner syndrome	Females with an absent/nonfunction X sex chromosomes (1:2500 newborns); hypogonadism → primary amenorrhea/early ovarian failure, delayed secondary sex characteristics, short stature, webbed neck, edema, low hairline, low set ears, widely spaced nipples Mosaicism: X monosomy (45, XO) → gonadal dysgenesis	Karyotype – definitive diagnosis, 45XO; mosaicism or x-chromosome abnormalities high serum FSH/LH levels	GH replacement Estrogen/progesterone replacement
Down syndrome (Trisomy 21)	3 copies of chromosome 21 Head & Neck: low set ears, flat facies, Extremities: brushfield spots; palmar (simian crease), CHD: congenital heart disease: AVSD, vsd, asd GI: duodenal atresia/stenosis, Hirschsprung DZ		
Macrocephaly	Enlargement of the skull bones or an ↑ in the volume of the intracranial structures like cerebrospinal fluid, blood, or the brain parenchyma itself (megalencephaly). It may be secondary to raised intracranial pressure or space-occupying lesions. It can also be a feature of various congenital syndromes and is then referred to as syndromic macrocephaly.	US/CT of the head	Benign familial macrocephaly does not necessitate treatment and children mostly remain asymptomatic. Periodic monitoring of head size is sufficient in these cases along with regular monitoring for physical growth and neurologic development.

ORTHOPEDICS/RHEUMATOLOGY (5%)

Disease/Condition	Description	Diagnosis	Treatment
Nursemaid's elbow	Radial Head subluxation; Lifting/swinging/pulling a child (MC 2-5YO), forearm is pronated & extended → stretched annular ligament Child will come in with arms slightly flexed, refuses to use arm (flexed/internal rotation)	No radiographs needed	Reduction (supination/flexion)
Slipped capital femoral epiphysis (SCFE)	Femoral head (epiphysis) slips posterior and inferior at growth plate; medially/posteriorly relative to fem neck MC in 7-16 YO Obese AA males during growth spurt (weakness of growth plate and hormonal changes at puberty) If seen before puberty, suspect hormonal/systemic disorders (hypothyroidism) Hip, thigh, or knee pain with limp, external rotation of affected leg	X-ray of pelvis, hip, thigh (views = AP, Launstein [frog] lateral views that show epiphyseal displacement)	Non-weight bearing with crutches ORIF (↑ risk of avascular necrosis)
Osgood-Schlatter disease	Osteochondritis of patellar tendon @ tibial tuberosity from OVERUSE or small avulsions MCC of chronic knee pain in young, active adolescents; MC in males, 10-15 YO; growth spurts S&S: activity-related knee pain/swelling (running, jumping, kneeling), tenderness to anterior tibial tubercle	X-ray: shows prominence or heterotopic ossification at tibial tuberosity	RICE, NSAIDs, quadriceps stretching
Scoliosis	Lateral curvature of the spine >10 degrees; associated with kyphosis (humpback) or lordosis (sway back); MC at 8-10 YO (Females > males) Associated with café au lait spots, skin tags, axillary freckles → NF1	Adams forward bending test Cobb's angle measured on AP/lateral films	Observation Bracing (20-40 degrees) Surgical correction (>40 degrees)
Congenital hip dysplasia	Developmental dysplasia of the hip (DDH) are identified during examination of the newborn. The classic examination finding is revealed with the Ortolani maneuver, in which a palpable "clunk" is present when the hip is directed in and out of the acetabulum and over the neolimbus.	Ultrasound = MOST ACCURATE Plain X-ray (standing AP view of the pelvis) CT/MRI	< 6 mo: bracing (Pavlik harness) >2 YO: open reduction = TOC
Avascular necrosis of the proximal femur (Legg-Calve-Perthes DZ) Also, see above SCFE	a pathologic process that results from interruption of blood supply to the bone Femoral head ischemia results in the death of marrow and osteocytes and usually results in the collapse of the necrotic segment. S&S: pain and limited range of motion; exacerbated with weight bearing and relieved by rest ----- **Ischemia of capital femoral epiphysis in children; MC in boys 4-10 YO) painless limping x weeks, loss of abduction + internal rotation	X-rays: Obtain AP and frog-leg lateral views of both hips. May find femoral head lucency and subchondral sclerosis MRI ----- Hip radiographs: ↑ density of femoral head, widening of cartilage space Advanced: crescent sign, deformity	PT, Surgery ----- Observation: self-limiting Pelvic osteotomy may be indicated > 8 YO
Osteosarcoma	MC in adolescents; produces osteoid = immature bone, 90% in the metaphysis of long bones (MC in femur → tibia, humerus) Commonly metastasizes to the lungs	Radiographs: hair on end or "sub ray/burst" appearance	Limb-sparing resection, radical amputation Chemotherapy as adjuvant treatment

Ewing Sarcoma	S&S: bone pain, joint swelling; palpable soft tissue mass Giant cell tumor MC in children (Males 5-25); DIAPHYSIS Femur (MC) and pelvis, tibia, humerus; usually S&S: bone pain, palpable mass, fever	Lytic lesion, layered periosteal reaction "onion skin" appearance on radiographs	Chemotherapy, surgery, radiation therapy
Osteochondroma	MC benign bone tumor (Males 10-20); begins in childhood and grows until skeletal maturity	Pedunculated, grows away from growth plate and involves medullary tissue	Observation
Juvenile idiopathic rheumatoid arthritis	Autoimmune mono or polyarthritis in children < 16 YO (3 types: pauci-articular, systemic/acute febrile, polyarticular) Pauci-articular: <5 joint involvement in the 1 st 6 months (knee, ankle), associated with iridocyclitis (anterior uveitis) Systemic/acute febrile (Still's disease): daily arthritis, diurnal high fever, salmon-colored/pink migratory rash Polyarticular: arthritis ≥ 5 small joints, hip involvement, ↑ risk of iridocyclitis	Clinical diagnosis ↑ ESR, CRP + ANA seen in oligoarticular + Rheumatoid factor	NSAIDs/corticosteroids Methotrexate or Leflunomide

ENDOCRINOLOGY (3%)

Disease/Condition	Description	Diagnosis	Treatment
Short stature	Growth failure (GF) is often confused with short stature. By definition, GF is a pathologic state of abnormally low growth rate over time, whereas short stature is often a normal variant.	Measurement of serum levels of insulinlike growth factor-I and IGF binding protein-3 (IGFBP-3) Karyotype by G-banding Measurement of serum levels of growth hormone (GH)	Recombinant human growth hormone (rhGH)
Hypothyroidism	Iodine deficiency, hashimoto's, hypothalamic hypothyroidism, cretinism S&S: ↓ basic metabolic rate, cold intolerance, weight gain, dry thickened rough skin, loss of outer 1/3 of eyebrow, nonpitting edema (myxedema), hypoactivity, constipation, bradycardia , ↓ CO, menorrhagia, hypoglycemia	Normal free T4 & T3 levels, ↑ TSH	Levothyroxine therapy
Hyperthyroidism	Graves Disease , Toxic multinodular goiter, S&S: ↑ BMR, heat intolerance, weight loss, skin warm, moist, hyperactivity, diarrhea, tachycardia , palpitations, high output heart failure	↑ Free T4/T3, ↓ TSH	Radioactive iodine Methimazole or propylthiouracil (PTU)
Hypercalcemia	90% of cases are due to Primary hyperparathyroidism or malignancy S&S: stones, bones, groans and moans Kidney stones, polyuria, painful bones, constipation, ↓ DTR, weakness fatigue	↑ ionized Ca, ↑ total serum Ca ²⁺ , PTH-related protein, shorted QT intervals & prolonged PR interval, QRS widening on ECG	Mild: treat underlying causes IV saline → furosemide = 1 st line AVOID HYDROCHLOROTHIAZIDE Calcitonin, bisphosphonates in severe cases
Obesity	↑ risk for coronary disease, DM, breast and colon cancer	BMI > 30 kg/m ² or ≥ 20% over their ideal weight Binge Eating: at least weekly for 3 months	Behavioral modification Rx:: antidepressants if there is underlying depression Anti-obesity Rx:: Orlistat, Lorcaserin; surgery (gastric bypass, sleeve, banding)
Diabetes mellitus	Hyperglycemia due to inability to produce insulin, insulin resistance or BOTH T1DM: pancreatic beta cell destruction; MC in children, YA, Type 1 A: autoimmune beta destruction T2DM: Combo of insulin resistance, relative impairment of insulin secretion S&S: polyuria, polydipsia, polyphagia, weight loss, DKA, HHS	Fasting plasma glucose ≥ 126 mg/dl; fasting at least 8 hours on 2 occasions = GS Oral glucose tolerance test (GTT) ≥ 200 Glycosuria, ↑ glycosylated Hgb, Ketonuria (may also be noted in starvation, high-fat diets, alcoholic ketoacidosis and fever), proteinuria and microalbuminuria	Insulin Therapy in T1DM T2DM: diet, exercise, and lifestyle changes; should be tried first → oral antihyperglycemic agents
Congenital Adrenal Hyperplasia	a deficiency of an enzyme involved in the synthesis of cortisol, aldosterone, or both. Deficiency of 21-hydroxylase, resulting from mutations or deletions of CYP21A = MCC S&S: poor feeding, vomiting, dehydration, hypotension, hyponatremia, hyperkalemia	Newborn screening programs for 21-hydroxylase deficiency Prenatal testing: amniocentesis, CVS	IV bolus of isotonic sodium chloride solution; corticosteroids, mineralocorticoids, salt supplements
Rickets	Vitamin D deficiency; delayed fontanel closure, growth retardation, delayed dentition, costal cartilage enlargement, long bowlegs: bowing	↓ vitamin D, ↓ calcium, ↓ phosphate, ↑ alkaline phosphatase Looser lines (zones) on X-ray, transverse "pseudo fracture lines"	Vitamin D (Ergocalciferol) first line;

UROLOGY/RENAL (3%)

Disease/Condition	Description	Diagnosis	Treatment
Phimosis	Inability to retract foreskin over the glans		Circumcision
Testicular torsion	Spermatic cord twists and cuts off testicular blood supply; true urologic emergency!; posterior epididymis MC in teenagers (10-20 YO) S&S: abrupt onset of scrotal, inguinal or lower abdominal pain (<6 hrs) +/- nausea & vomiting	(-) Prehn's sign: no relief with scrotal elevation, negative (absent cremasteric reflex, blue dot sign at upper pole) Testicular Doppler US = BEST INITIAL TEST – avascular testicle	Detorsion & orchiopexy within 6 hours
Hypospadias	Abnormal urethral placement (proximal and ventral); congenital birth defect	Clinical dx made on PE Bilateral renal US to R/O pathology	Surgery; do not circumcise
Vesicourethral reflux	a condition in which urine flows retrograde, or backward, from the bladder into the ureters/kidneys. ↑ risks of UTI	KUB Ultrasound – shows hydronephrosis Voiding cystourethrogram (VCUG). Common UTIs	Phenazopyridine (Pyridium) Nitrofurantoin Fluoroq, TMP-SMX Cefotaxime/Ceftriaxone, Ampicillin + Gentamicin
Glomerulo-nephritis	HTN, Hematuria (RBC casts), dependent edema (proteinuria) & Azotemia MC > GABHS (2-14 YO boy with facial edema up to 3 weeks > Strep with dark urine) Edema: peripheral, periorbital	↑ Antistreptolysin (ASO) titers, low serum complement (C3) Renal biopsy hypocellular; ↑ BUN/Cr Transudative pleural effusion	Supportive; disease resolves without complications
Cystitis	Vesicoureteral reflux, newborns c FUO; diabetes mellitus, catheter E. COLI = MCC S&S: dysuria, <0 frequency, urgency, hematuria, suprapubic discomfort	UA: pyuria, + leukocyte esterase Dipstick + leukocyte esterase, nitrites, hematuria Urine culture US (2 mo – 2 Yr); Voiding cystourethrogram (VCUG)	Phenazopyridine (Pyridium – orange urine, Nitrofurantoin (Macrobid), Fluoroquinolones, TMP-SMX, Cefotaxime/Ceftriaxone, Ampicillin + Gentamicin
Cryptorchidism	Undescended testicles; ↑ risk for premature infants, LBW, effects right-side; usually descends by 3 months Complications: testicular cancer	Testosterone level > HCG stimulation US/CT	Orchiopexy at 6 months of age, but ideally 1 YO Observation <6 months
Hydrocele	Cystic testicular fluid collection = MC cause of painless scrotal swelling; congenital tunica vaginalis	+ Transillumination on PE	No treatment needed; surgical repair > 1 YO; generally resolves by age 2

Nephrotic Syndrome	Proteinuria + hypoalbuminemia, + hyperlipidemia + edema Minimal change disease (80% in children) ; idiopathic with viral infections, allergies, Hodgkin DZ, SLE	Podocyte damage seen on electron microscope; loss of negative charge	Prednisone = TOC!
Paraphimosis	Foreskin becomes trapped behind the corona of glans, forms a tight band, constricting penile tissue = urologic emergency Occurs if foreskin remains retracted for a prolonged period of time		Manual reduction Injection of hyaluronidase Dorsal slit - sx
Secondary Enuresis Enuresis = urinary incontinence > 5 YO	"Bedwetting" A condition that develops at least six months — or even several years — after a person has learned to control his or her bladder. Secondary nocturnal enuresis (SNE) accounts for about one quarter of children with bedwetting.	UA	Behavioral Modification Alarm therapy

HEMATOLOGY (3%)			
Disease/Condition	Description	Diagnosis	Treatment
Anemia	Causes: ↑ blood loss, ↑ RBC destruction, ↓ RBC production S&S: CV: palpitations, tachycardia Pulm: SOB, tachypnea, chest pain Skin: pallor General: fatigue, weakness Neurologic: HA, neuropathies, AMS, vertigo Abdomen: hepatosplenomegaly, ascites +	CBC with RBC, hemoglobin, hematocrit, MCV, MCH, RDW, RBC Peripheral blood smear: Bone marrow biopsy = GS Reticulocyte Count: ↑ reticulocyte: brisk bone marrow response to hemolysis or blood loss ↓ reticulocyte: deficient RBC production	Normal MCV: 80-100 fL ; anemia of chronic DZ Microcytic (<80) ; Fe deficiency, lead, thalassemia, early anemia Macrocytic (>100) : B12 deficiency, folate deficiency
Macrocytic Anemias MCV >100	B12 (Cobalamin Deficiency) animal food; think of kids with special diets Pernicious anemia: autoimmune destruction. loss of gastric parietal cells S&S: neurologic symptoms: paraesthesias, gait abnormalities, memory loss, dementia, GI Folate (Vitamin B9) Deficiency: malabsorption, pregnancy, hemolysis, Rx: methotrexate, Bactrim, Phenytoin S&S: similar but NOT ASSOCIATED WITH NEUROLOGIC ABNORMALITIES; Glossitis	Peripheral smear: ↑ MCV > 115, hypersegmented neutrophils, ↑ serum homocysteine: ↑ methylmalonic acid, Pernicious anemia: + Ab intrinsic factor, +Schilling test ↑ MCV > 115, hypersegmented neutrophils	B12 replacement (IM); watch for signs of hypokalemia with treatment Folic acid 1 mg PO daily
Microcytic Anemias	Iron Deficiency Anemia: MC due to bleeding; chronic blood loss, occult S&S: pagophagia (ice craving), pica, angular cheilitis, koilonychia; plummer-vinson syndrome: dysphagia + esophageal webs + atrophic glossitis + Fe deficiency Lead Poisoning Anemia: acquired sideroblastic anemia S&S: abdominal pain with constipation, neurologic symptoms	↓ Ferritin, ↑ TIBC, ↓ serum Fe, ↑ RDW, ↓ transferrin saturation ↑ Serum lead, ↑ Serum Fe Peripheral smear: microcytic, hypochromic anemia w/basophilic stippling X-ray: Lead lines @ metaphyseal plates	Iron replacement; vitamin C ↑ Fe absorption Remove source of lead, chelation therapy (Succimer, CaNa2EDTA) in severe cases
Bleeding disorders Von Willebrand Disease	Ineffective platelet adhesion due to defective VWF; MC in women MC hereditary bleeding disorder S&S: mucocutaneous bleeding, easy bruising, epistaxis, gums, bleeds after minor lacerations Type 1 (quant deficiency -MC) / Type 2 (qualit deficiency)	↓ vWF levels, ↑ PTT prolongation worse with aspirin, ↑ Bleeding time GS: ↓ RISTOCETIN ACTIVITY ; no platelet agglutination	Avoid aspirin! Mild disease: no treatment needed Mod disease: DDAVP , desmopressin Type II → DDAVP (vWF + Factor VII before procedures)
Leukemia (ALL)	Malignancy of lymphoid stem cells in bone marrow → lymph nodes, spleen, liver, other organs (peak age 3-7 YO) Assoc with Down Syndrome S&S: pancytopenia symptoms: Fever , lethargy, bone pain; CNS symptoms: HA, stiff neck, visual changes, vomiting PE: pallor, fatigue, petechiae, bruising, hepatosplenomegaly, lymphadenopathy	Bone Marrow Exam: hypercellular with >20% blast; WBC: 5-100,000 Philadelphia chromosome (t9;22)	Oral chemotherapy (Hydroxyurea); Imatinib (Philadelphia Chromosome +)
Lymphoma	Primary: Variant of extranodal NonHodgkin Lymphoma, 2°: METS from another site, diffuse large B cell lymphoma or Burkitt's Lymphoma EBV+ , immunosuppression S&S: Focal deficits; ocular symptoms: visual changes, steroid-refractory posterior uveitis	CT scan or MRI with contrast; ring-enhancing lesion, Biopsy Reed-Sternberg Cells (Hodgkins)	Chemotherapy: methotrexate Radiation therapy, Corticosteroids
Neutropenia	Mild (1000 to 1500/μL) Moderate (500 to 1000/μL) Severe (<500/μL) Neutrophils (granulocytes) body's main defense against infections Causes due to intrinsic defects in myeloid cells: i.e. aplastic anemia, chronic idiopathic neutropenia, congenital neutropenia Fever may or may not be present	<ul style="list-style-type: none"> Clinical suspicion (repeated or unusual infections) Confirmatory CBC with differential Evaluation for infection with cultures and imaging Identification of mechanism and cause of neutropenia 	<ul style="list-style-type: none"> Treatment of associated conditions Antibiotic prophylaxis Myeloid growth factors Discontinuation of suspected etiologic agent (eg, drug) Sometimes corticosteroids
Brain tumors (Astrocytoma)	MC infratentorial in children Pilocytic astrocytoma (GRADE I): Juvenile Astrocytoma – localized "most benign" of all astrocytomas, MC in children and YA S&S: Focal deficits: general sx: HA, may wake up at night, AMS, ↑ pressure due to mass will lead to HA, N/V/papilledema, ataxia, drowsiness, stupor	CT Scan/MRI with contrast, Brain biopsy – sacs of fluid; Rosenthal fibers (eosinophilic corkscrew fibers)	Surgical excision, radiation if tumor cannot be completely removed
Hemophilia A (Factor VIII/8 Deficiency)	MC type of hemophilia, X-linked recessive trait, ALMOST ONLY MALES Lack of factor 8 (intrinsic pathway) → failure to form hematomas S&S: hemarthrosis: bleed in ankles, knees, elbows Excessive hemorrhage in response to trauma/tooth extraction, easy bruising, GI bleeds	Low Factor VIII, prolonged PTT* Normal platelet levels	Factor VIII infusion, Desmopressin (DDAVP); used prior to procedures to prevent bleeding Avoid aspirin and other antiplatelet medications
Hemophilia B (Christmas Disease/Factor IX/9 Deficiency)	X-linked recessive trait; ALMOST ONLY IN MALES DEEP TISSUE BLEEDING	↓ Serum Factor IX, prolonged PTT ; PTT corrects with mixing study	Factor IX infusion

Hereditary Spherocytosis	Autosomal dominant intrinsic hemolytic anemia (RBC membrane/cytoskeleton defect); MC in N. Europeans; ↑ cell fragility, sphere-shaped RBCs = ↑ RBC hemolysis in spleen by splenic macrophages (Aplastic criteria if infected with Parvovirus B19) S&S: Anemia, jaundice , splenomegaly , pigmented black gallstones (calcium bilirubinate)	Blood smear: Hyperchromic microcytosis, (round RBCs lacking central pallor) (+) Osmotic Fragility Test (-) Coombs Test	Give Folic Acid; Splenectomy = TOC for severe disease to stop splenic RBC destruction
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