



P E D I A T R I C S clerkship

“As to diseases, make a habit of two things — to help, or at least, to do no harm.”

— *Hippocrates*



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2 DESCRIPTION



Pediatrics (Third Year): 1 block rotation (4 weeks): During your 4 week rotation Pediatrics rotation you are expected to meet and exceed the following requirements and challenge yourself, to be proactive learners and ask questions. The role of the pediatrician in prevention of disease and injury and the importance of collaboration between the pediatrician and other health professionals is stressed. Pediatrics involves recognition of normal and abnormal mental and physical development as well as the diagnosis and management of acute and chronic problems. As one of the core clerkships during the third year of medical school, pediatrics shares with family medicine, internal medicine, obstetrics/gynecology, psychiatry, and surgery the common responsibility to teach the knowledge, skills and attitudes basic to the development of a competent general physician.

Most students will spend most of their time in the outpatient setting while others might take care of patients on the inpatient setting as well. It is important to learn how to obtain a complete pediatric history and perform physical examinations on children of various ages. Students should become proficient in assessing childhood development and in giving anticipatory guidance to children and their families. There is a lot of material that you are expected to know and 4 weeks might not seem enough, but if you study

correctly you will be just fine. Also remember that there is more than studying for “BOARDS.” Just because the topics covered either in the readings or online questions are not “BOARD” relevant does not mean you should not know it or be expected to know it. The boards likely will not expect you to memorize the immunization schedule but you are expected to know it. This curriculum should be used as a supplemental resource while on your clinical clerkships. It should not be used as the only educational resource for your boards and shelf exams. If there is a problem with one of the questions please email me directly, travis.smith@lecom.edu.

3 REQUIREMENTS

- Complete all reading requirements (PDFs and textbook).
 - Students are encouraged to supplement required readings with additional readings based on your specific rotation exposures.
- Complete the Weekly Online Questions of the Day in the coursework section
- Complete the online End of Rotation Quiz (Worth 20% of your final grade)
- Students MUST adhere to the ACGME rules regarding the workweek, which include working no more than 80 hours per week, no more than 24 hours continuously, except an additional 6 hours may be added to the 24 to perform wrap-up duties, and have at least one of every 7 days completely off from educational activities.
- Extended absences from the clerkship are not permitted. Any absence from the clerkship must be pre-approved by the regional campus dean prior to the beginning of the clerkship.

4 MATERIALS: REQUIRED AND SUPPLEMENTAL

- Textbook of Pediatric Care - 2nd Ed. (2017) (Required)
 - Access this through the Learning Resource Center
 - Then clicking [Electronic Resources](#)
 - Then clicking Stat Ref
- Pediatrics for the Medical Student: Bernstein, 3rd Edition (Required)
- Case Based Pediatrics (Required)
- Pediatric Blue Prints Text: Pediatrics (Supplemental)
- Pediatric Blueprint Quick Notes (Supplemental) : Personal notes for review for last minute studying for your shelf exams
- American Osteopathic Association. (2011). *Foundations for Osteopathic Medicine*. Philadelphia: Chila, Anthony G. Lippincott Williams and Wilkins. (Required)
- DiGiovanna, Eileen L.; Schiowitz, Stanley; Dowling, Dennis J. (Eds.). (2005). *An Osteopathic Approach to Diagnosis and Treatment* (3rd ed.). Philadelphia: Lippincott Williams & Wilkins.
- Savarese, Robert G.; Capobianco, John D.; Cox, James J. Jr. (2003). *OMT Review; A Comprehensive Review in Osteopathic Medicine*. S.I: Savarese
- Quick Reference Guide to Pediatric Care (Supplemental Free Text)
 - Access this through the Learning Resource Center
 - Then clicking Electronic Resources
 - Then clicking Stat Ref

5 EVALUATION: (EFFECTIVE JUNE 2017)

- 50% based on rotation evaluation
- 30% based on the shelf examination
- 20% based on completion of the end of rotation quiz (50 questions) and completion of the weekly quizzes (the weekly quiz grades will not factor into your end of rotation quiz grade).
 - The end of rotation exam is due on the last Sunday of your rotation by 10PM eastern and will not be accepted late!
 - If you fail to complete the exam or fail to turn it in on time (even 1 minute late), you are still required to take the make-up exam (while still receiving a 0% towards your grade)
 - If you then fail the makeup exam (<70%) or fail to take it completely by the end of your next rotation then you will be required to repeat the entire rotation during your elective month.

6 HISTORY AND PHYSICAL TEMPLATE

The following template is an example of a thorough Pediatric History and Physical Exam Template:

IDENTIFYING DATA

Patient's, Parent's or Guardian's Initials: (do NOT use patient's name - this is potentially a HIPAA violation)

Informant: (Generic – patient, mother, father, etc.)

Primary Care Physician: Referring Physician (if not Primary Care Physician):

CLINICAL HISTORY

Chief Complaint: Include the patient's age, ethnic origin, sex, and reason for admission.

Present Illness: Elicit the facts of the illness, particularly the time and nature of the onset. Arrange these facts in a chronological order and relate them in a narrative fashion, tracing the course of events up to the time of the visit. What was done for the child; what drugs were given and what were the results of such treatment? Pay special attention to recording "pertinent negative" data as well as pertinent positive information. This includes physical exams, laboratory evaluations and treatments which occurred before the present admission. How has the illness affected the patient's lifestyle? The HPI should conclude with a description of the visit to clinic or emergency department which resulted in the present admission.

Past History:

Prenatal/Perinatal: Duration of pregnancy, maternal illness prior or during pregnancy, maternal conditions during pregnancy. Details of labor and delivery. Condition of infant at birth. APGAR scores (if available). Gestational age. Drugs taken during pregnancy.

Birth and Neonatal Period: Condition and vigor of infant at birth. Birth weight, postnatal problems such as neonatal cyanosis, jaundice, convulsions, skin eruptions, initial feedings, etc.

Feeding History: Initial feeding, breast or bottle, what kind of feedings. Tolerance for feeds. Weaning. Addition of solid foods. Current dietary intake, balance, and child's attitude toward eating. Vitamin supplements. Usually discussed in detail when patient less than 2-3 years old.

Growth and Development: Birth weight, length and head circumference. History of dentition. When did anterior fontanelle close. Weight at different ages (if known to informant.) Developmental landmarks: First smile, held head erect, rolled over, recognized people, sat alone, stood with support, stood alone, crawled, walked, used words and sentences. If the child is greater than 4-5 years, a global statement such as "the developmental history is normal" is acceptable.

Past Illnesses/Review of Systems:

Infectious disease (measles, rubella, mumps, chicken pox, pertussis diphtheria, poliomyelitis, scarlet fever), details of onset, severity and complications or residuals.

Respiratory system: Functional status. Details of otitis media, tonsillitis, repeated URI's, allergy, bronchitis, pneumonia, cervical adenitis, chronic cough, croup, mouth breathing, persistent fevers, sleeping patterns.

Gastrointestinal system: History of early feeding difficulties, diarrhea, constipation, stool abnormalities, vomiting in relation to infections and emotional difficulties.

Cardiovascular system: Inquire about cyanosis, dyspnea, excessive sweating in infancy, fatigability, syncope, joint pains and epistaxis.

Genitourinary system: Significant items are infections of urinary tract, hematuria, dysuria, frequency, urgency, dribbling, enuresis, edema oliguria. Repeated bouts of unexplained fever.

Nervous system: Inquire about convulsions (get details if they have occurred), tics, habit spasms, emotional liability, tremors and incoordination.

Psychological: Inquire (appropriate to age) for restlessness, tantrums, night terrors, tics. How does child get along with his associate at play, in nursery school, in school. Some indication of the parent's attitude toward the child can be obtained from these and other questions.

Surgical History: Dates, nature of and complications from any operations.

Accidents/Injuries: Date, nature of and complications of any injuries. Mention only if relevant to the present illness or serious in nature.

Immunizations: tabulate dates of all immunizations and tests for immunity. This may be summarized as: "immunizations are up-to-date."

Current Medications: Name, dosage form, dose, frequency, and how long patient has taken it if germane to presenting problem.

Family History: Age, physical condition and state of health of each parent and sibling. List mother's pregnancies in chronological order, giving details and outcome of each. If siblings have died, given the nature of the condition leading to the death and the results of postmortem or other examinations. Recent acute illnesses in the family need to be described. Chronic illnesses among members of the family need to be noted. If the CC and PI suggest the possibility of a heritable condition, explore the family for the pattern of similar conditions within the immediate family and forbears. Check for parental consanguinity. Mention only if clearly relevant to the current admitting problem.

Social History: Explore the living conditions for the family to obtain knowledge of the environment in which the patient lives in order to appreciate the chance for exposure to specific infections, poisons and toxic substance, as well as to appreciate pertinent psychological and emotional factors which might be involved in the present illness.

PHYSICAL EXAMINATION

General information: for example: "in general the patient was a health appearing, chubby infant no acute distress."

Vital signs:

Weight and Height: Record for this patient and give percentiles from comparison against normal range for age.

Head Circumference: Record for this patient and give percentiles from comparison against normal range for age. Mention in any child less than 2-3 years old.

Temperature (when taken)

Pulse rate:

Respiratory Rate:

Blood Pressure:

SpO2:

General Inspection: Habitus, Choice of posture. Type and amount of spontaneous movement. Restless, irritable, calm, apprehensive, drowsy, apathetic, stuporous, comatose. Signs of pain. Nature and quality of breathing. Color of skin and lips (Cyanotic, pale, flushed) Nature of cry (short catchy cry of pneumonia, hoarse cry of laryngitis, sharp painful cry of acute inflammatory process of fracture when body or bed is touched.)

Head: Sutures and fontanel; open or closed. Craniotabes. Scalp (lesions, edema, hair distribution, parasites). Shape normal or abnormal.

Eyes: Condition of conjunctivae and lids. Ptosis, strabismus, other paralysis. Pupillary reactions and asymmetry. Corneal ulcers or opacities. Scleral appearance (jaundice, blue, inflamed). Gross visual acuity in older children.

Ears: Examine external canals for lesions and infection, tympanic membrane for inflammation, bulging, retraction, perforation, serous fluid behind drum, mobility.

Nose: Appearance of mucous membranes and presence of foreign bodies, purulent or serous drainage, blood-tinged drainage. Nasal flaring.

Mouth: Appearance of mucous membranes of lips, gums and buccal areas. Number of teeth, presence of caries. Look for enanthemata. Condition of tonsils, soft and hard palate, posterior oropharynx. Presence of exudates, membranes, petechial or vesicular of ulcerous lesions.

Neck: Mobility, head tilt, limitation of motion, nuchal spasm or rigidity. Position of trachea. Presence of masses or swellings.

Chest: Shape and symmetry in relation to patient's age. Symmetry of movements with respiration. Suprasternal, infrasternal or intercostal retractions.

Lungs: Quality of breathing, breath sounds, voice sounds should be described. Variations of symmetry of transmission or quality of these sounds should be described. Presence of advential sounds such as crackles, wheezes or rubs.

Heart: Description of rate, rhythm, quality of heart sounds, location of PMI, presence and location of murmurs, description of murmurs (intensity, quality, transmission) sometimes the heart is examined first in apprehensive infants.

Abdomen: Symmetry. Status of umbilicus. Presence or absence of palpable organs or masses. Tenderness. Distention. Presence of signs of ascites. Percussion note. Quality of bowel sounds.

Genitalia:

Males: phimosis, paraphimosis, meatal stenosis, hypospadias descent of testes, inguinal hernia, And hydrocele.

Females: Perforate hymen, normal location of urethra, vaginal discharge (nature and quantity). Presence of any dermatitis. Position, tone and appearance of anus. Trunk and Spine: Symmetry, presence of spinal curvature (describe)

Extremities: Look for clubbing, cyanosis, venous engorgement, nail abnormalities, lesions of skin, palms and soles, edema, hemorrhage, and contusion. Check for asymmetry or deformities. Check for presence and strength of central and peripheral pulses. Check for capillary refill. Skin: Rashes, turgor, edema, erythema, cyanosis, pallor

Superficial Lymph Nodes: Cervical, axillary, inguinal, and epitrochlear. Size, consistency, tenderness (measure with tape).

Neurological: Status of cranial nerves. Check DTR's, clonus, Babinski response, abdominal and cremasteric reflexes. Check for touch and pain sensation. Mental status (orientation). Cranial nerves II thru XII. Motor. Sensory (pain, light touch). Reflexes. Coordination and gait. Infants the primitive reflexes, including moro. Tonic neck, Parachute, etc.

ASSESSMENT

List pertinent diagnoses or problems in order of importance beginning with problem that most directly resulted in the patient's admission. Include the appropriate ICD-9 code for each. For each problem, list your differential diagnoses beginning with most likely one.

Example:

1) Wheezing (786.07) Differential diagnosis: asthma, bronchiolitis, cystic fibrosis, or gastroesophageal reflux disease

2) Allergic rhinitis (477.5)

OR

1) Status asthmaticus (493.9)

2) Acute respiratory failure (518.81) 3) Influenza virus infections (??)

PLAN

List your treatment plan as you would if you were writing orders to admit this patient.

DISCUSSION

Give a brief two-paragraph rationale for your differential diagnosis and selection of most likely diagnosis and for your treatment plan.

List a pertinent clinical question that remains regarding diagnosis and plan for treatment.

Diagnostic Studies are traditionally mentioned after the physical exam; however, some attendings may prefer a discussion of the assessment and plan prior to mentioning lab results. Remember that if lab results are obtained prior to patient's arrival at the current hospital, they are appropriately mentioned in the HPI.

7 GOALS AND OBJECTIVES

7.1 MEDICAL KNOWLEDGE:

- Demonstrate knowledge about established and evolving biomedical, clinical, and cognate (e.g. epidemiological and social-behavioral) sciences and the application of this knowledge to patient care.
- Identify the common acute and chronic medical and psychological conditions for which children visit pediatricians
- Develop a reasonable differential diagnosis, diagnostic approach and treatment plan for the common pediatric clinical problems
- List and identify those conditions that require immediate recognition and management in children (e.g. meningococemia, epiglottitis, appendicitis, etc.)
- Demonstrate an awareness of the unique pharmacological concerns involved with prescribing medication for children
- Be able to clinically recognize a dehydrated child.
- Be able to write orders for both rehydration and maintenance fluid for children based on size and clinical condition.
- Assess for failure to thrive and identify its major causes
- Assess for developmental delay and identify its major causes
- Describe the fundamental aspects of health maintenance in children
- Delineate the various immunizations for children
- Discuss the various schedules for children who are on time for immunization and for those children who lag behind
- Discuss the contraindications and most common adverse effects associated with immunizations
- Discuss issues that pediatricians must attend to with respect to parental requests for refusal to immunize
 - [2013- Vaccination Schedule](#)
 - [Recommended Immunization Schedule for Persons Aged 0 Through 18](#)
- Describe the methods for evaluating the nutritional condition of children
- Define normal ranges in children for commonly ordered laboratory studies
- Identify the most likely and most serious possible causes for abnormal laboratory studies

The following topic objectives below are recommended for review while on your 4week rotation. They are broken down into weekly blocks of topics and you should have review each of them during your rotation. Most of these topics are covered in your PowerPoint PDFs which are located in the required reading section.

7.1.1 Week 1: Recommended Review Topics

- **Adolescent Medicine**
 - Puberty, Eating Disorders, anorexia nervosa, Avoidant Restrictive Food Intake Disorder, Binge Eating Disorder, Bulimia nervosa, PICA, Rumination Disorder
 - Substance Use and substance abuse: Alcohol, THC, MDMA, Cocaine/Amphetamines, Phencyclidine (PCP), Hallucinogens (LSD), Heroin, Inhalants, Anabolic Steroids
 - Violence in the Adolescent Population: HEADSS
 - Home
 - Education (i.e., school),
 - Activities/employment
 - Drugs
 - Suicidality
 - Sex
- **Neonatal Medicine**
 - Complete Newborn Exam: [APGAR scoring](#)
 - [Prenatal Teratogens](#): Alcohol, Cocaine, Heroin/Methadone ,Cannabis, Tobacco
 - [Birth Trauma](#) : Cephalohematoma, Caput Succedaneum, Clavicle Fracture, Erb-Duchenne palsy, Prematurity
 - Low-birth weight infants and Very low birth weight infants <1500g
 - [Neonatal Respiratory Distress](#): Respiratory Distress Syndrome (RDS), Meconium Aspiration, Persistent Pulmonary Hypertension of the Newborn

- Gastrointestinal Disease: Jaundice (Hyperbilirubinemia) , Indirect, Physiologic, Hemolytic (immune, drug or red blood cell defects), Breast milk jaundice, Direct, Hyperalimentation cholestasis, Necrotizing Enterocolitis, Tracheoesophageal Fistula, Duodenal Atresia, Congenital Diaphragmatic Hernia, Omphalocele, and Gastroschisis
 - Perinatal infections: Neonatal hepatitis, Sepsis, Disorders of bilirubin metabolism: Gilberts, Crigler-Najar, and Lucey-Driscoll
 - Endocrine Disorders: Hypothyroidism, Maternal Diabetes, Hypopituitarism
 - CNS Diseases: Apnea of prematurity: Central vs obstructive, Intraventricular Hemorrhage, Neonatal seizures
 - Metabolic dysfunction, Drug intoxication or withdrawal, CNS hemorrhage, CNS infection, Genetic syndromes such as tuberous sclerosis
 - Hematological Disorders: Thrombocytopenia, Hydrops Fetalis, Hemorrhagic disease of the newborn,
 - Dermatology (common neonatal rashes): Milia, Seborrheic Dermatitis, Mongolian Spots, Perinatal Infections
 - Erythema Toxicum Neonatorum
 - Congenital/Perinatal Infections : Toxoplasmosis, Rubella, CMV, Herpes Simplex Virus, Syphilis, Parvovirus, VZV, HIV, and Chlamydia
- **Nutrition/Diet:**
 - Breastfeeding, Preterm breast milk, Dietary Recommendations, Expected Growth, Failure to Thrive, Feeding Intolerance, Fluid Maintenance, Fluoride Supplementation, Infant Formulas
 - Malnutrition, Newborn Diet, Newborn Weight Gain
 - Nutrition Overview: Solid Diet, Vitamin Supplementation, Vitamin D Deficiency (Rickets)
- **Growth and Development**
 - Growth Monitoring
 - Developmental Screening
 - The AAP Autism Screening Guidelines
- **Dermatology**
 - Acne Neonatorum, Acne Vulgaris, Alopecia Areata, Bullous Impetigo, Contact Dermatitis, Diaper Rash, Erythema Multiforme, Erythema Toxicum Neonatorum, Giannotti-Crosti Syndrome, Granuloma Annulare
 - Hand Foot Mouth, Herpangina, Impetigo Contagiosa, Infantile Hemangiomas, Lyme Disease, Measles (Rubeolla) Rash, Molluscum Contagiosum, Mongolian Spot, Pityriasis Rosea, Staphylococcal Scalded Skin Syndrome, Stevens-Johnson Syndrome, Tinea Capitis , Kerion, Tinea Corporis, Tinea Versicolor, Toxic Epidermal Necrolysis (TEN)
 - Unilateral Thoracic Exanthem, Varicella, Herpes Zoster, Verrucae (Warts)

7.1.2 Week 2: Recommended Review Topics

- **Cardiology**
 - Arrhythmias: Tachyarrhythmia's, Bradyarrhythmias
 - Congenital Heart Disease:
 - Cyanotic Heart Diseases: Ebstein's anomaly, Hypoplastic left heart syndrome, Pulmonary atresia with intact ventricular septum, Tetralogy of Fallot, Total anomalous pulmonary venous connection, Transposition of the great vessels, Tricuspid atresia, Truncus arteriosus
 - Acyanotic Congenital Heart Disease: Aortic Stenosis, Atrial septal defect, Coarctation of the Aorta, Interrupted Aortic Arch, Patent Ductus Arteriosus, Pulmonary Artery Stenosis, Ventricular septal defect
 - Coronary Heart Disease, Dilated Cardiomyopathy, Endocarditis, Heart Murmurs, Hypertension, Hypertrophic Obstructive Cardiomyopathy, Rheumatic Heart Disease, Rheumatic Fever, Kawasaki Disease, Myocarditis
 - Pediatric Basic Life Support
- **Pulmonology**
 - Brief resolved unexplained events (BRUE) (Formerly Apparent life-threatening event (ALTE)), Foreign Body Aspiration, Normal Pediatric Respiratory Physiology, Sudden infant death syndrome (SIDS)
 - Upper Airway Disease: Choanal atresia, Croup, Epiglottitis, Laryngeal papillomatosis , Laryngeal webs, Laryngomalacia, Mandibular Hypoplasia, Obstructive Sleep Apnea, Retropharyngeal Abscess, Subglottic stenosis/masses, Vascular compression, Vocal cord paralysis

- Lower Airway Obstructive Disease: Asthma, Bronchiolitis, Cystic Fibrosis, Foreign body aspiration, GE reflux with aspiration, Primary ciliary dyskinesia, Tracheal or bronchial tumors/granulation tissue, Tracheal Stenosis, Tracheobronchomalacia, Tracheoesophageal fistula, Vascular ring, mediastinal lymph nodes or masses
 - Restrictive Lung Diseases: Pleural effusions, chylothorax, hemothorax, chest wall tumors, mediastinal masses, congenital lobar emphysema, cystic adenomatous malformations, diaphragmatic hernias, and pulmonary sequestration. Pectus Excavatum/ Carinatum
 - Interstitial lung diseases: chronic interstitial lung disease, desquamative interstitial pneumonitis, lymphocytic interstitial pneumonitis (LIP), recurrent aspiration, and sarcoidosis
 - Scoliosis, Neuromuscular Diseases such as Guillain-Barre, Muscular Dystrophy, Spinal Muscular Dystrophy, Pulmonary Hemosiderosis
- **Gastroenterology**
 - Alagille Syndrome, Appendicitis, Celiac Disease, Congenital Diaphragmatic Hernia, Constipation, Crohn's Disease, Ulcerative Colitis, Diarrhea, Esophageal Atresia/Tracheoesophageal fistula, Functional Abdominal Pain, Gastroesophageal Reflux Disease, Omphalocele, Pyloric Stenosis
 - Gastroschisis, Hirschsprung's Disease, Inflammatory Bowel Disease, Intestinal Atresia/ Duodenal Atresia, Intussusception, Malrotation and Volvulus, Meckel's Diverticulum
 - Nonalcoholic Fatty Liver Disease and Steatohepatitis (NAFLD/NASH)
- **Infectious Disease**
 - Bacteremia and Sepsis, Fever of Unknown Origin (FUO), Gastroenteritis, Genitourinary Infections, Bacterial Vaginosis, Vaginal Candidiasis, STDs: Trichomonas Vaginalis, Syphilis, Chlamydia, Gonorrhea, Hepatitis, HIV/AIDS, HSV
 - Upper Respiratory Infections, Epiglottitis, Herpangina, Otitis Media, Rhinosinusitis, Streptococcal Pharyngitis
 - Lower Respiratory Infections, Croup, RSV Bronchiolitis, Bordetella pertussis, Pneumonia (viral and bacterial causes)
 - Lyme Disease, Meningitis, Measles, Pinworm infection, Rocky Mountain Spotted Fever, Mononucleosis,
 - **Hematology**
 - Alpha Thalassemia, Anemia of Chronic Disease, Iron Deficiency Anemia, Normocytic Anemia, Macrocytic Anemia, Microcytic Anemia Autoimmune Hemolytic Anemia, Fanconi Anemia, Physiological Anemia of the Newborn, Sickle Cell Anemia, Thalassemia Major, Thalassemia Minor, Hemolytic Anemia
 - Disseminated Intravascular Coagulation, Erythroblastosis fetalis, G6PD Deficiency, Hemophilia A and B, Hereditary Spherocytosis (HS), , Thrombosis (DVT/PE), Transient Erythroblastopenia of Childhood, Vitamin K deficiency, Von Willebrand Disease
 - Thrombocytopenia: Immune Thrombocytopenia, Neonatal alloimmune thrombocytopenia

7.1.3 Week 3: Recommended Review Topics

- **Oncology**
 - Acute Lymphoblastic Leukemia, Acute Myeloid Leukemia, , Hodgkin Lymphoma, Non-Hodgkin's Lymphoma
 - CNS Tumors: Astrocytoma, Brainstem Glioma, Cerebellar Astrocytoma, Medulloblastoma, Optic Glioma, Pinealoma, Supratentorial Ependymoma, Neuroblastoma
 - Osteosarcoma, Retinoblastoma, Wilms Tumor, Ewing Sarcoma
- **Immunology and Rheumatology**
 - Allergic Disorders: atopic dermatitis, food allergies, allergic rhinitis, anaphylaxis, serum sickness
 - Chronic granulomatous disease, Common variable immunodeficiency, Complement Defects (C1 esterase inhibitor deficiency), Henoch-schonlein purpura, Hyper IgM syndrome, Juvenile Rheumatoid Arthritis, Kawasaki Disease, Selective IgA deficiency, X-linked agammaglobulinemia
- **Endocrinology**
 - Ambiguous Genitalia, Congenital Adrenal Hyperplasia, Hypothyroidism, Hyperthyroidism Precocious Puberty, Primary Adrenal Hyperplasia, Pubertal Delay, Short Stature, Hypercalcemia, Hypocalcemia,
 - Diabetes Mellitus Type I and II, Diabetes Insipidus, Diabetic Ketoacidosis, Hypoglycemia
 - Hyperadrenocorticism (Cushing's Disease), Hypoadrenocorticism (Adrenal Insufficiency)

- **Neurology**
 - Assessment of Infantile Reflexes
 - Attention-deficit/hyperactivity disorder, Autism Spectrum Disorders, Asperger's Disorder, Autistic Disorder, PDD NOS, Breath Holding Spells, Cerebral Palsy, Common Behavioral Abnormalities, Common Developmental Milestones, Congenital Neurologic Syndromes, Acute Cerebellar ataxia, Adrenoleukodystrophy, Ataxia Telangiectasia
 - Duchenne-type muscular dystrophy, Friedrich's Ataxia, Hereditary neuropathy, Neurofibromatosis, Spinal Muscular atrophy, Sturge-Weber Syndrome, Tuberous Sclerosis, von Hippel-Lindau Disease, Guillain-Barre Syndrome
 - Headaches: Cluster, Migraine, Tension, Sinus
 - Hydrocephalus, Myasthenia Gravis, Neural Tube Defects, Anencephaly, Chiari malformation, Encephaloceles, Myelomeningoceles, Spina Bifida, Spina Bifida Occulta
 - Seizures: Generalized, Petit Mal, Infantile Spasms, Febrile Seizure,
 - Speech Disorders, Tourette's Complex

- **Orthopedics**
 - Structural abnormalities presenting in childhood, Achondroplasia, Developmental Hip Dysplasia, Blount Disease
 - Foot Deformities: Pes planus (flat feet), Pes cavus (fixed high arch), Metatarsus adductus, Talipes equinovarus, Positional Calcaneovalgus Feet, Positional Clubfoot "Talipes equinovarus"
 - Fractures/Injuries Children: Greenstick fracture, Toddler Fractures, Buckle Fractures, Compartment Syndrome, Subluxation of the radial head (Nursemaid's elbow), Supracondylar Fracture, Salter classifications I,II,III,IV
 - Rotational Deformities of the Legs: Internal Tibial Torsion "In-Toeing", External Tibial Torsion "Out-Toeing", Genu Varum "Bow-legged", Genu Valgum "Knock-Knees"
 - Growing Pains, Legg-Calve Perthes disease, Limp Evaluation, Neuromuscular scoliosis, Osgood-Schlatter disease, Osteogenesis Imperfecta, Osteomyelitis, Septic Arthritis, Transient Synovitis

7.1.4 Week 4: Recommended Review Topics

- **Nephrology and Urology**
 - Acute kidney injury (AKI), Chronic Kidney Disease, Alport syndrome, Benign Familial Hematuria, Ureteropelvic junction obstruction (UPJO), Cryptorchidism, Ectopic Ureter, Enuresis, Hydrocele, Hypospadias, Posterior Urethral Valves, Testicular Torsion, UTI, Varicocele, Vesicoureteral Reflux (VUR)
 - Glomerulonephritis, Diffuse proliferative glomerulonephritis, Focal segmental glomerulonephritis, Membranous glomerulonephritis, Acute post streptococcal glomerulonephritis, IgA nephropathy, Hemolytic Uremic Syndrome, Hypertension (HTN)
 - Multicystic Dysplastic Kidney, Nephrogenic Diabetes Insipidus, Nephrotic Syndrome, Minimal change disease, Polycystic kidney disease, Renal Agenesis, Renal Dysplasia, Renal Tubular Acidosis (RTA)

- **Genetics**
 - Lysosomal Storage Diseases: Gaucher Disease, Niemann-Pick Disease, Tay-Sachs disease (gangliosidosis), Mucopolysaccharidoses
 - Glycogen storage disease: Type I: von Gierkes (glucose-6-phosphatase deficiency), Type II: Pompe's (Lysosomal alpha glucosidase deficiency), Type III: Forbes (Debranching enzyme deficiency), Type IV: Andersen's (Branching enzyme deficiency), Type V: McArdle: Muscle Phosphorylase deficiency, Type VI-VIII are less important and less dangerous
 - Autosomal Recessive Disorders: Cystic fibrosis: 1:5,000-1:15,000, Congenital Adrenal Hyperplasia: 1:2000, Galactosemia disorder: 1:60,000, Gaucher disease: 1:2,500 in Ashkenazi Jews, Infantile Polycystic Kidney Disease: 1:14,000, Phenylketonuria: 1:14,000, Sickle Cell Disease: 1:625 African Americans, Tay-Sachs disease: 1:3,000 in Ashkenazi Jews, Wilson disease: 1:200,000
 - Autosomal Dominant Syndromes: Achondroplasia, Adult polycystic kidney disease, Familial Hypercholesterolemia, Hereditary angioedema, Hereditary spherocytosis, Marfan syndrome, Neurofibromatosis, Protein C deficiency, Tuberous sclerosis, Von Willebrand's disease

- Chromosomal Syndromes: 22 q11.2 deletion syndrome, Anglemann's Syndrome, Charge Syndrome, Cri du chat syndrome, Klinefelter's Syndrome 47 XXY, Prader-Willi Syndrome, Trisomy 13: Patau Syndrome, Trisomy 18: Edwards Syndrome, Trisomy 21: Down Syndrome, Turner's Syndrome (45 XO)
- X-Linked Disorders: Bruton agammaglobulinemia, Chronic Granulomatous Disease, Duchenne Muscular Dystrophy, Fragile X syndrome, Glucose-6-phosphate dehydrogenase, Hemophilia A and B, Lesch-Nyhan Syndrome, Ornithine transcarbamylase deficiency
- **Ophthalmology**
 - Strabismus, Amblyopia, Infectious Conjunctivitis, Hordeolum, Chalazion, Periorbital Cellulitis, Orbital Cellulitis
 - Nasolacrimal Duct Obstruction, Approach to the child with leukocoria, Red eye in the infant, Chemical irritation, Chlamydia, and Gonorrhea
- **Poisoning, Burns, and Injury Prevention**
 - Acute Poisonings: Acetaminophen, Anticholinergic agents, Carbon monoxide (CO), Ethanol, Ethylene glycol, Hydrocarbons, Ibuprofen, Methanol, Iron, Insecticides/Organophosphates, Opiates, Salicylates, Sympathomimetics, Theophylline, Tricyclics
 - Apparent Life Threatening Event (ALTE), Concussion, Child Abuse, Burns, Child Neglect, Sexual Abuse, Drowning, Foreign Body Aspiration, Sudden infant death syndrome (SIDS)
- **Vaccines**
 - DTaP (Diphtheria, tetanus, pertussis): 2,4,6,15 months, and then at 4 years
 - Hepatitis A: PRN foreign travel, Hepatitis B: Birth, 1 and 6 months
 - Hib (haemophilus influenzae type B): 2,4,6,12 months
 - Influenza: Yearly
 - IPV (inactivated polio): 2,4,6, and then at 4 years
 - MMR: 12 months , 4 years
 - PCV (pneumococcal): 2,4,6,12 months
 - Rubella:
 - Td (tetanus): Every 10 years after 4 years of age
 - Varicella: 1st dose: 12 through 15 months: 2nd dose: 4 through 6 years (may be given earlier, if at least three months after the 1st dose)

7.2 PATIENT CARE:

- Provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health.
- Demonstrate history and physical examination skills for:
 - Newborns
 - Infants and toddlers
 - Children
 - Adolescents
- Learn how to interpret vital signs at different ages, how the pediatric exam is different than the adult exam, and a basic knowledge of what is normal.
- Write a complete H&P, including pediatric-focused items such as development, diet, and growth.
- Demonstrate the appropriate involvement of parents and other caregivers in the assessment of the well and sick child
- Order laboratory tests as indicated for both health maintenance and illness assessment
- Plot growth and development for children and interpret the results
- Conduct developmental assessments on children and interpret the results
- Perform simple procedures such as:
 - Beginning an intravenous line
 - Phlebotomy
 - Audiometry
 - Tympanometry
 - Testing for streptococcal pharyngitis
 - Testing for Hematocrit
 - Giving immunizations

- Effectively differentiate between the sick child who needs immediate attention and the child who sick child who can managed less acutely
- Write prescriptions appropriately for children of different weights (kg).

7.3 INTERPERSONAL AND COMMUNICATION SKILLS:

- Demonstrate interpersonal and communication skills that result in effective information exchange and teaming with patients, their patients families, and professional associates.
- Recognize and address the needs of both the child and the parent or caretaker during the visit
- Utilize appropriate techniques in interviewing children and their parents or caretakers
- Communicate the diagnosis in lay language and assure comprehension
- Provide effective patient education that allows the parents or caretakers and the child to self-care where appropriate
- Educate regarding indications for calling the doctor or returning to the office for follow-up, especially regarding conditions that can worsen suddenly or significantly
- Provide anticipatory guidance on
 - Normal growth and development concerns
 - Normal psychological developmental issues
 - Issues related to puberty and adolescence
 - Issues related to family dynamics as the child grows and matures
- Consider confidentiality issues and the rights of parents and minor children around health care issues

7.4 PRACTICE-BASED LEARNING AND IMPROVEMENT:

- Investigate and evaluate their patient care practices, appraise and assimilate scientific evidence, and improve their patient care practices.
- Identify and utilize up-to-date content sources for use in diagnosis and therapeutics
- Whenever possible, apply evidence-based medicine to clinical decision-making processes
- Weigh actual practice against gold standards for care (e.g. clinical guidelines, published best practice standards) where available in an effort to minimize unexpected and unnecessary clinical variation

7.5 SYSTEMS-BASED PRACTICE:

- Demonstrate an awareness of and responsiveness to the larger context and system of health care and the ability to effectively call on system resources to provide care that is of optimal value
- Formulate diagnostic and therapeutic plans based upon medical, psychosocial, spiritual, socioeconomic and ethical factors
- Utilize community agencies and institutions supporting the medical, social, spiritual and psychological needs of children and their parents or caretakers
- Apply ethical and legal boundaries with regard to the interaction with and treatment of children and their parents or caretakers
- Educate parents or caretakers on safety issues specifically regarding recreational activities, exercise, diet, drugs and alcohol, sexual activity, sexually transmitted diseases and pregnancy

7.6 PROFESSIONALISM:

Professionalism should imbue all aspects of your performance. Medicine as a whole will continue to evolve and change but this aspect of your character will stick with you forever. Each student should understand and be able to demonstrate these professional objectives:

- A commitment to caring for all patients regardless of their medical diagnoses or social factors.
- Accepting responsibility for your patients
- Acknowledge and demonstrate respect for the child and their parents or caretakers throughout the interaction
- Actively seek to broaden education and experience beyond clerkship requirements
- Avoid complaining
- Avoiding confrontations
- Be dependable

- Be prepared and on-time
- Communicate cases to colleagues, supervisors and consultants clearly and succinctly
- Convey humility
- Demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.
- Demonstrate a positive attitude towards learning by showing intellectual curiosity, initiative, honesty, integrity, and dedication.
- Demonstrate tolerance of family attitudes, beliefs (religious and otherwise), cultural and socioeconomic influences
- Displaying good manners
- Displaying sensitivity to cultural differences
- Effectively communicates empathy
- Employ effective and proper strategies when confronted with problems relative to patient care responsibilities
- Give feedback (including filling out course and teaching evaluations in a timely manner)
- Honor the principles of compassion, empathy, and respect including respect for modesty, privacy and confidentiality
- Learn how to talk with children of different ages and their families both to get complete, accurate histories, and to explain clinical findings and plans. Learn how to reassure.
- Not passing others' work off as your own
- Puts patients' needs above own (altruism)
- Reliable attendance and participation
- Satisfactorily perform an oral presentation to house officers and attending physicians.
- Showing discernment while avoiding deception when communicating with patients and their families
- Showing intellectual curiosity
- Strive for excellence
- Take ownership of your patients – know the history, exam, and lab results at any given time.
- Talk to families about prevention, including immunizations, safety, violence, sex, and substance use. Using the CDC chart, know what immunizations a child needs at a given age.
- Treat all patients, staff, and colleagues with respect.
- Use appropriate dress, behavior and language in dealing with children, parents or caretakers, staff, peers and other health care workers

7.7 OSTEOPATHIC PHILOSOPHY AND OSTEOPATHIC MANIPULATIVE MEDICINE

Integrate Osteopathic Concepts and OMT into the medical care provided to patients as appropriate. Understand and integrate Osteopathic Principles and Philosophy into all clinical and patient care activities.

Each student must be familiar with the following OMM learning objectives which are taken from **text**: American Osteopathic Association, and Anthony Chila. **Chapter 58: The Child with Ear Pain**. *Foundations of Osteopathic Medicine, 3rd ed.* Baltimore, MD: Lippincott Williams & Wilkins, 2011, **pp. 918-930**.

- How to effectively evaluate, diagnose, demonstrate a constructive clinical approach, and apply OMT in the treatment of the pediatric patient with asthma and the child presenting with ear pain.
- Be familiar with the following different etiologies that can cause ear pain in children and understand that they can be caused by diseases and processes both within the ear structure, and referred to the ear from distant structures:
 - ❖ Barotrauma
 - ❖ Colic
 - ❖ Dental Problems
 - ❖ Eustachian tube dysfunction
 - ❖ GERD
 - ❖ Headaches
 - ❖ Mastoiditis
 - ❖ Otitis externa
 - ❖ Otitis media
 - ❖ Pharyngitis
 - ❖ Pneumonia
 - ❖ Sinusitis
 - ❖ Thyroiditis

- Be familiar with the structural, environmental, genetic, ethnic, and other factors that make some children “otitis prone.”
- Understand the distorted dynamic balance between sympathetic and parasympathetic influences in the lungs of the pediatric patient with asthma.
- Be familiar with the factors that may precipitate an asthma attack as well as the mechanical injuries.
- From an osteopathic perspective, be familiar with the specific musculoskeletal areas that may contribute or exacerbate a patient’s breathing difficulties.
- Apply the five pathophysiologic models used in osteopathic patient care for an pediatric patient with asthma and a child with ear pain:
 - ❖ **Biomechanical model:**
 - ❖ **Respiratory-circulatory model:**
 - ❖ **Neurological model:**
 - ❖ **Metabolic-energy model:**
 - ❖ **Behavior model:**
- Describe the anatomy and physiology of middle ear, various factors that can result in ear pain as well as the role of the structural exam in the differential diagnosis of ear pain.
- Describe the relationship between the cranial base and Eustachian tube.
- Demonstrate how non-otic structures that cause ear pain, how the structural issues that can impede middle ear drainage, and demonstrate how dysfunction of the above structures can be diagnosed and treated.
- Identify and understand the recommended osteopathic treatments for acute otitis media and be familiar with the following treatment objectives in the treatment of otitis media:
 - ❖ Improve lymphatic drainage from the inner ear
 - ❖ Decrease inner ear effusion
 - ❖ Improve function of the Eustachian tube
 - ❖ Improve cranial and temporal bone motion
 - ❖ Decrease pain
- Understand the goals of using OMT in the treatment of the child with asthma.
- Be familiar with the unique challenges of treating children with OMT.
- Be familiar with the diagnosis of colic, the usual presentation, typical osteopathic exam findings, and recommended OMT treatment options.
- Identify and understand the recommended osteopathic treatments for the asthmatic patient
 - ❖ Myofascial release
 - ❖ Balanced ligamentous tension
 - ❖ Rib raising techniques
 - ❖ Soft tissue techniques: Paraspinal inhibition of the cervical region and suboccipital release
 - ❖ Osteopathy in the cranial field
- List and perform the following key OMT techniques that are utilized in the treatment of ear pain in a child:
 - ❖ Condylar decompression
 - ❖ Effleurage
 - ❖ Gallbreath mandibular drainage
 - ❖ Lymphatic pump techniques
 - ❖ Myofascial release of the cervical musculature, thoracic outlet, and abdominal diaphragm
 - ❖ Occipitomastoid decompression
 - ❖ Release thoracic inlets
 - ❖ Rib raising
 - ❖ Temporal Decompression
 - ❖ Soft tissue: knead, stretch, paraspinal inhibition

8 REQUIRED READING

During your 4 week rotation in addition to your daily text book readings you are should be familiar with the following Power Points. There is an associated PDF PowerPoint that correlates with the topics and will be the focus of your weekly quizzes and end of rotation quiz.

Week 1 PowerPoint Readings

1. [Adolescent Medicine](#)
2. [Neonatal Medicine](#)
3. [Pediatric Developmental Milestones](#)
4. [Pediatric Dermatology](#)
5. [Pediatric Nutrition/Diet](#)

Week 2 PowerPoint Readings

1. [Pediatric Cardiology](#)
2. [Pediatric Gastroenterology](#)
 - a. DiGiovanna, Eileen L.; Schiowitz, Stanley; Dowling, Dennis J. (Eds.). (2005). **Chapter 114: Gastrointestinal Applications.** *An Osteopathic Approach to Diagnosis and Treatment* (3rd ed.). Philadelphia: Lippincott Williams & Wilkins. pp. 637-638.
3. [Pediatric Hematology](#)
4. [Pediatric Pulmonology](#)
 - a. American Osteopathic Association, and Anthony Chila. **Chapter 54: Uncontrolled Asthma.** *Foundations of Osteopathic Medicine, 3rd ed.* Baltimore, MD: Lippincott Williams & Wilkins, 2011, pp. 883-888.
 - b. DiGiovanna, Eileen L.; Schiowitz, Stanley; Dowling, Dennis J. (Eds.). (2005). **Chapter 112: Pulmonary Applications.** *An Osteopathic Approach to Diagnosis and Treatment* (3rd ed.). Philadelphia: Lippincott Williams & Wilkins. pp. 622-623.
5. [Pediatric Infectious Disease](#)
 - a. American Osteopathic Association, and Anthony Chila. **Chapter 58: The Child with Ear Pain.** *Foundations of Osteopathic Medicine, 3rd ed.* Baltimore, MD: Lippincott Williams & Wilkins, 2011, pp. 918-930.

Week 3 PowerPoint Readings

1. [Pediatric Oncology](#)
2. [Pediatric Neurology](#)
3. [Pediatric Endocrinology](#)
4. [Pediatric Orthopedics](#)
5. [Pediatric Immunology, Allergy, and Rheumatology](#)
 - a. DiGiovanna, Eileen L.; Schiowitz, Stanley; Dowling, Dennis J. (Eds.). (2005). **Chapter 111: HEENT Applications.** *An Osteopathic Approach to Diagnosis and Treatment* (3rd ed.). Philadelphia: Lippincott Williams & Wilkins. pp. 614-615.

Week 4 PowerPoint Readings

1. [Pediatric Genetics](#)
2. [Pediatric Ophthalmology](#)
3. [Pediatric Nephrology and Urology](#)
4. [Pediatric Poisoning, Burns, and Injury Prevention](#)
5. [Pediatric Vaccinations](#)

9 SUPPLEMENTAL READING

- [Pediatric Blueprints Notes](#)
- [AAP: Diagnosis and Management of Acute Otitis Media](#)

- [The Diagnosis and Management of Acute Otitis Media](#)
- [Diagnosis and Management of Bronchiolitis](#)
- [Interpreting conjugated bilirubin levels in newborns](#)
- [Choice and Duration of Antimicrobial Therapy for Neonatal Sepsis and Meningitis](#)
- [Haemophilus influenzae type b](#)
- [8/16 - PBL Pediatrics Take Home Points \(Pyloric Stenosis\)](#)
- [Recommended Immunization Schedule for Persons Aged 0 Through 18](#)
- [Prevention of pneumococcal diseases in the post-seven valent vaccine era](#)
- [2013- Vaccination Schedule](#)
- [Pathogenesis of Kawasaki disease](#)
- [American Academy of Pediatrics News](#)
- [Pediatric Cases By Disease](#)
- [Pediatric Respiratory Emergencies PPT](#)
- [General Pediatrics](#)
- [MedPage Today Pediatrics](#)
- [Medscape Pediatric News](#)
- [The Royal Children's Hospital Clinical Resources & Guidelines](#)
- [University of Hawaii Cased Based Pediatrics](#)
- [Acute Otitis Media in Children: Getting It Right](#)
- [Diagnosing AOM: Test Yourself](#)
- [Otitis Media –videos of the tympanic membrane & pathologies](#)
- [Congenital Heart Disease](#)
- [Pediatric Neurodevelopmental Exam](#)
- [Pediatric Rare Diseases/Syndromes/Genetic disorders](#)
- Neonatal Information:
 - Ballard Scoring (new version): www.ballardscore.com/

10 PEDIATRIC JOURNALS

- [Advances in Pediatrics](#)
- [Archives of Pediatrics & Adolescent Medicine](#)
- [BMC Pediatrics](#)
- [Clinical Pediatric Emergency Medicine](#)
- [Contemporary Pediatrics](#)
- [Indian Pediatrics](#)
- [International Journal of Pediatrics](#)
- [European Journal of Pediatrics](#)
- [Journal of the American Academy of Pediatrics](#)
- [Pediatric Critical Care Medicine](#)
- [Pediatric Emergency Medicine Database](#)
- [Pediatrics in Review](#)
- [PEDIATRICS Subspecialty Collections](#)
- [Journal of Pediatrics](#)

11 SHELF AND BOARD EXAM REVIEW

This test tends to be heavy in microbiology and infectious diseases. Do USMLE world questions throughout the rotation. Pick one of the 3 review books below and you should be fine. Below is a breakdown of the topics on prior exams. There is a sample [NBME peds exam](#) that you can take & self-assess. I believe the cost is \$20 for the service. It is part of the "Clinical Science Mastery Series." This exam contains actual retired questions from prior shelf exams. The student will need to create an account.

Normal Development 5%-10%

Organ Systems 90%-95%

- Immunologic Disorders 5%-10%
- Diseases of the Blood and Blood-forming Organs 5%-10%
- Mental Disorders 1%-5%
- Diseases of the Nervous System and Special Senses 5%-10%
- Cardiovascular Disorders 10%-15%
- Diseases of the Respiratory System 10%-15%
- Nutritional and Digestive Disorders 10%-15%
- Gynecologic Disorders 1%-5%
- Renal, Urinary, and Male Reproductive System 10%-15%
- Disorders of Pregnancy, Childbirth, and the Puerperium 1%-5%
- Disorders of the Skin and Subcutaneous Tissues 1%-5%
- Diseases of the Musculoskeletal System and Connective Tissue 5%-10%
- Endocrine and Metabolic Disorders 5%-10%

Physician Tasks

- Promoting Health and Health Maintenance 5%-10%
- Understanding Mechanisms of Disease 25%-30%
- Establishing a Diagnosis 40%-45%
- Applying Principles of Management 10%-15%

Pediatrics Resources

1. BRS Pediatrics: Very complete resource in outline format. Very cumbersome book. Has everything that could ever be tested on the subject exam, but would be difficult to use unless you are very dedicated. Excellent tables and charts. If ambitious, you could obtain >90th percentile using this book.
2. Blueprints: Pediatrics: Contains high yield pediatrics subject matter in paragraph format. Very thorough resource. Contains practice questions at the end of the book.
3. Case Files: Pediatrics: Presents common pediatric subjects in the form of clinical vignettes similar to the subject exam. Relatively complete. Probably the 2nd best subject exam resource. Not as much info as Blueprints. Not separated into body systems, just random case.