

3. Pediatric Core Clerkship

Mission and Introduction

The clerkship in pediatrics provides a learning experience that fosters the highest standards of professional behavior based on principals of bioethics. It will provide students with a clinical experience that prepares them to communicate effectively with patients and families and learn to evaluate and manage children from newborn through adolescence.

The clerkship integrates a foundation of medical knowledge with clinical and communication skills to enable the student to identify and provide quality pediatric care.

After completion of a six week core rotation during the third year, students will demonstrate a firm understanding of the competencies required to evaluate and provide care for children who are sick and well.

The six-week core clerkship allows students to gain clinical experience in evaluating newborns, infants, children and adolescents, both sick and well, through clinical history taking, physical examination and the evaluation of laboratory data. Special emphasis is placed on: growth and development, nutrition, disorders of fluid and electrolytes, common infections, social issues, and preventative care including: immunizations, screening procedures, anticipatory guidance. The student will develop the necessary communication skills to inform, guide and educate patients and families.

Pediatric ambulatory and in-patient services provide an opportunity to observe and enter into the care of pediatric medical and surgical disorders. The student will learn how to approach the patient and family and communicate effectively as they take admission histories and perform physical examinations. They will then provide the patient and parents with the necessary information and guidance to understand and support the child through the time of illness. The student will learn age specific skills regarding interviewing pediatric patients and relating to their parents, and will develop the skills necessary to examine children from newborn through adolescence utilizing age appropriate techniques. The adequacy and accuracy of the students' knowledge, communication skills, manual skills and professional behavior will be measured and evaluated by their supervising physicians, residents and preceptors. There will be formative evaluations and discussion of the students' progress throughout the rotation with emphasis on a formal mid-core and end-core assessment.

It is expected that there be full and active participation in the multiple learning opportunities: didactic learning, clinical seminars, self-directed learning modules, patient rounds, conferences. Preceptor sessions are mandatory and take precedence over all other clinical activities. Students should excuse themselves from their other assignments and attend their preceptor session, unless excused by their preceptor. All of these components are designed to expand the student's concept of how to provide quality care for pediatric patients.

In the out-patient services, the student learns the milestones of growth and development, infant feeding, child nutrition, preventative care (including immunization, screening procedures, and anticipatory guidance), the common ailments of childhood and diagnosis of rare and unusual illnesses. In the pediatric sub-specialty clinics, the student will observe the progression and participate in the management of a wide variety of serious and chronic pediatric illnesses.

Emergency department and urgent care experiences permit the student to be the first to evaluate infants and children with acute illnesses. Emphasis is placed on the evaluation of febrile illnesses, and common emergencies of childhood (e.g. asthma, poisonings, injuries).

The initial management of the newborn is learned in the delivery room. Students then practice the examination of the newborn and learn about the initiation of feeding, neonatal physiological changes, and common newborn conditions. In the newborn intensive care unit, the student is an observer of the management of the premature and term infant with serious illness. Emphasis is placed on observing and understanding the role of the pediatrician in the multidisciplinary team approach to critical care.

These experiences are designed to provide maximum contact between students and patients and their families. The student should use every opportunity to practice communication skills, improve their ability to perform accurate and concise histories, perform physical examinations, expand their knowledge of pediatric diseases, and attain skills in utilizing laboratory and radiologic evaluations most effectively.

Guidelines

- Length: minimum of six weeks.
- Sites: general pediatric unit, ambulatory care unit, pediatric emergency department, nursery, NICU, PICU, private office practice, additional sites, as available. At the start of the clerkship an orientation is given. The clerkship director or designee discusses the program's goals and objectives, the responsibilities of the clerk, the schedule and assignments to preceptors and residents. The student is introduced to the key preceptors and staff members in the department.
- The student must participate in the night, weekend, and holiday on-call schedules. The clerkship director will set the number and timing of calls.
The student must attend scheduled clinical conferences, grand rounds, sub-specialty conferences, and learning sessions. Approximately 30% of the clerkship should be allocated to protected academic time for teaching conferences and structured independent study.
A preceptor meets with students at least twice a week for a minimum of three hours per week. The preceptor sessions will include clinical discussions that focus on problem solving, decision making and adherence to bioethical principals.
The student is involved in all patient care activities in the out-patient facility and inpatient unit. The student will be observed, and given immediate feedback, as they take a history and perform a physical examination on a newborn and a child. As an absolute minimum, each student should examine five term newborns. This includes reviewing the maternal medical record, performing a physical examination on the infant, and talking with the parent about basic care of the newborn and anticipatory guidance.

As an absolute minimum, each student should be involved in the care of a child with:

- a gastrointestinal illness, such as dehydration
- a child with a neurological or neurodevelopmental problem
- a child with a respiratory and/or cardiac problem (chronic illness is preferable)
- a child with fever

There is an additional requirement that medical students learn how to identify and report child abuse/neglect. There should be involvement in a case where a child is suspected as being the victim of child abuse/neglect or where the differential diagnosis includes child abuse/neglect. If such a case does not present itself, a virtual case may be used. There should be a discussion of the recognition and reporting requirement and the child protection response and services.

Involvement in these cases should include taking a history, performing a physical examination, discussing the differential diagnosis, formulating a plan for laboratory/radiologic studies and deciding on a treatment plan. These cases may be from the inpatient units, the nursery, the Emergency Room, or the out-patient setting.

Depending on circumstances, participation may be limited to that as an observer, especially in cases of sexual abuse, or the use of a virtual case.

As an absolute minimum, each student will participate in the care of two adolescents. This includes taking a history and performing a physical examination as well as reviewing the immunization record and assessing the adolescent's health, behavior, educational and environmental issues. It is preferable that one of the two adolescents described will have a chronic illness.

The student will give, at a minimum, one major presentation during the rotation. The presentation will be evaluated by the preceptor.

A minimum of four complete clinical write-ups is required per student. These write-ups will be critiqued by the preceptor and returned to the student in a timely manner. It is preferable that the patients selected for these write-ups be examples of the case mix listed in guideline #9 above. The write-ups will be handed in at intervals during the rotation and returned promptly so that the student can improve their written expression.

- The student will keep a Patient Encounter Log. The log will list all of the patients that the student has had direct contact with. The log should reflect a commitment to accurate record keeping and reflect knowledge of the case.
- Each student will have a formative mid-core evaluation with a review of their Patient Encounter log to the session. The Log will be reviewed for completeness, quality and mix of cases. The student's professional behavior will be addressed, as well as progress in attaining the knowledge and skills required to evaluate a patient. There will be appropriate comments and suggestions given to the student to guide them toward improvement. The preceptor will submit a written assessment of the Mid-Core evaluation.

The student will maintain a log of Manual Skills and Procedures that lists the procedures performed or witnessed.

The following procedures are recommended to be performed or witnessed during the pediatric rotation:

- vision and hearing screening
- otoscopy
- administration of inhalation therapy
- throat culture
- immunizations: intramuscular injection, subcutaneous injection.
- nasopharyngeal swab
- peak flow measurement

The students are responsible for completing the introductory modules of the Communication Skills course prior to the start of the 3rd year core rotations. In addition, the modules required for the pediatric rotation are:

- #21. Communication and Relationships with Children and Parents.
- #22. The Adolescent Interview.

The student will complete the web-based assignments.

The final written examination will be the National Board of Medical Examiners Clinical Subject Examination, given at designated sites.

The Department of Pediatrics places special emphasis on professional behavior, as well as knowledge, interviewing skills, clinical problem solving and the ability to communicate information. The final grade is compiled from information gathered from preceptors, residents and staff Members who have evaluated the student's professional behavior, knowledge, ability to communicate and clinical skills.

Educational Objectives

Medical Knowledge

- Gain knowledge in the core topics of the curriculum.
- Gain supplementary information and data from journals, texts, research, the internet and other Resources.
- Demonstrate knowledge regarding the major illnesses and conditions that affect newborns. Demonstrate knowledge of health maintenance and preventive pediatrics, including: immunization schedules, newborn screening, lead testing, TB testing, vision and hearing screening.
- Demonstrate knowledge of growth and development with special emphasis on puberty. (Tanner stages)
- Compare and contrast the feeding and nutritional requirements of each age and stage of childhood.
- Demonstrate knowledge of fluid and electrolyte balance.
- Learn the principles of bioethics and understand how they apply to clinical practice.

Clinical Skills

- Demonstrate the ability to approach the patient and family in an empathic and focused manner to form a positive and informative relationship.
- Demonstrate the ability to perform an accurate and organized diagnostic interview and record the information precisely and concisely.
- Perform both comprehensive and focused histories and physical examinations on newborns, infants, toddlers, children and adolescents.
- Participate in the selection of relevant laboratory and radiological tests.
- Interpret results to support or rule out diagnoses and arrive at a working diagnosis.
- Actively participate in formulating a management plan and participate in carrying out that patient care plan.
- Communicate orally and/or in writing the information necessary to inform and educate all persons involved in the care of the patient: the patient, family/guardians, nurses and all members of the multidisciplinary health care team. Communication should avoid jargon and vagueness. Participate in making decisions regarding management, discharge and follow-up plans.
- Interpret laboratory values according to age-related norms.
- Accompany and observe senior staff in the delivery room for high risk births.
- Communicate with families regarding education and anticipatory guidance during outpatient visits. Evaluate common infections and acute illness of children of all ages in the urgent care or emergency setting.
- Evaluate children with serious illness in the inpatient setting.
- Evaluate children with chronic and rare illnesses in the outpatient and sub-specialty centers.
- Prepare management plans that consider the patient's identity, culture and ability to adhere to the recommendations.
- Demonstrate your ability to research topics and apply clinical research to your understanding of patient issues.
- Participate in clinical research when possible, either by participating in an ongoing project or initiating a new line of inquiry.
- Learn to self-assess your own unique learning needs.
- Learn how to devise and enact a plan to remediate your deficiencies relevant to learning gaps. Learn to assess the credibility of information sources.

Professional Behavior

- Establish rapport with patients and families that demonstrates respect and compassion. Appreciate and acknowledge their identity and culture.
- Demonstrate honesty, integrity and respect in dealing with patients, families and colleagues. Adhere to the principals of confidentiality, privacy and informed consent.
- Demonstrate that you are a responsible team member and carry out all of your assigned duties in a timely manner.
- Offer assistance when and where it is needed.
- Demonstrate that you are an effective member of the team by fully participating in discussions and contributing to learning endeavors.
- Demonstrate sensitivity to issues related to culture, race, age, gender, religion, sexual orientation and disabilities.
- React appropriately to conflicts and ethical dilemmas by working toward solutions.
- Demonstrate a commitment to professionalism and adherence to the principals of Bioethics.
- Demonstrate responsibility in completing assignments.
- Share insights and information with your peers.
- Learn to recognize your personal biases and how they lead to diagnostic error.
- Learn to recognize when there is a need for consultation.
- Prepare for and commit to life-long learning.

Core Topics

General

- Pediatric history
- Pediatric physical exam
- Patient write-up (problem oriented approach)
- Begin to formulate a differential diagnosis that relates to the presenting complaint, symptoms and findings on history and physical examination.
- Formulate a plan for further evaluation (ie, laboratory, radiology), treatment and management.

Well Child Care

- Immunizations
- Routine screening tests
- Anticipatory guidance
- Nutrition

Growth and Development

- Developmental milestones (when and how to evaluate)
- Failure to thrive
- Short stature
- Obesity

Neonatology

- The normal newborn
- Neonatal problems (jaundice, respiratory distress, sepsis, feeding issues)
- Newborn screening
- APGAR scoring/Ballard scoring.
- Fetal Alcohol Syndrome
- Sudden Infant Death Syndrome

Common Childhood Illnesses and Their Treatments

- Ear Nose and Throat (ENT) and pulmonary disorders
- Upper Respiratory Infection (URI)
- Pharyngitis
- Otitis media
- Sinusitis
- Cervical adenitis
- Croup/epiglottitis
- Bronchiolitis
- Asthma
- Foreign body
- Pneumonia
- Cystic fibrosis
- Tuberculosis
- Fever without focus

Eyes

- Conjunctivitis
- Ocular trauma
- Amblyopia
- Strabismus

Cardiac

- Fetal circulation.
- Congenital anomalies: Ventricular Septal Defect (VSD), Atrial Septal Defect (ASD), Tetralogy of Fallot, transposition of the great vessels, coarctation of the aorta, patent ductus arteriosus (PDA), Pulmonic stenosis (PS). The significance of these defects as isolated findings and as they relate to genetic syndromes.
- Acquired heart disease: Rheumatic Fever (RF), myocarditis
- Hypertension

Gastrointestinal Disorders (G.I.)

- Gastroenteritis
- Constipation/Hirschsprung's disease

- Acute abdomen (appendicitis, intussusception, volvulus)
- Inflammatory bowel disease
- Gastroesophageal reflux disease (GERD)

Endocrine

- Diabetes, Diabetic Ketoacidosis (DKA)
- Thyroid disease
- Adrenal disease
- Congenital Adrenal Hyperplasia (CAH)
- Failure to Thrive
- Obesity
- Metabolic Syndrome

Neurology

- Seizures
- Meningitis
- Head trauma
- Cerebral palsy
- Tumors

Hematology/Oncology

- Anemias/hemoglobinopathies
- Pediatric malignancies (Acute Lymphoblastic Leukemia, lymphomas, neuroblastoma, Wilm's tumor)
- Immune thrombocytopenic purpura (ITP)

Renal and Genitourinary (G.U.)

- Urinary tract infections (UTI's)
- Nephritis/nephrosis
- Fluid and electrolyte balance
- Congenital anomalies

Dermatology

- Seborrheic dermatitis
- Atopic dermatitis
- Impetigo
- Fungal Infections
- Exanthems
- Neurocutaneous stigmata (neurofibromatosis, etc.)

Ingestions and Toxidromes

- Lead poisoning
- Salicylate, acetaminophen

- Iron
- Opiates

Common Pediatric Orthopedic Problems

- Developmental dysplasia of the hip
- Osgood Schlatter disease
- Slipped Capital Femoral Epiphysis
- Transient synovitis
- Legg-Calve-Perthes disease
- Subluxated radial head,(Nursemaid's elbow)
- Fractures

Musculoskeletal System

- Osteomyelitis/septic arthritis
- Muscular dystrophies

Adolescence

- Tanner staging
- Precocious/delayed puberty
- Stages of adolescent development
- Sexually transmitted infections
- Pregnancy/menstrual irregularities
- Vaginal discharge

Child Maltreatment Syndrome

- Physical abuse
- Sexual abuse
- Emotional abuse
- Neglect
- Munchausen by proxy syndrome

Genetics

- Down Syndrome, # 21 trisomy
- #13 trisomy
- #18 trisomy
- Turner Syndrome
- Klinefelter Syndrome

Collagen Vascular

- Juvenile Rheumatoid Arthritis
- Systemic Lupus Erythematosus

- Henoch Schonlein purpura
- Kawasaki disease
- Hemolytic Uremic Syndrome

Behavioral Issues

- Temper tantrums
- Discipline issues
- Sleep disorders
- Attention Deficit Disorders
- Hyperactivity issues
- Learning disabilities
- Oppositional defiant disorders
- Parasomnias

Immunology

- Human Immunodeficiency Virus infection (HIV)
- Congenital Immunodeficiency Syndromes

Ethical Principles

- Respect for persons (privacy, confidentiality, informed consent, inclusion of patient/parent in decision making, provision for identity and culture, disclosure).
- Medical beneficence (concern for the patient's best interest).
- Non-maleficence (not harming).
- Utility (balancing potential benefit to potential harm).
- Justice (being fair).

Reading

Suggested Approach to Reading for Medical Student Pediatric Rotations

"Reading" is an essential part of medical education. How to best benefit from the time spent reading for Pediatrics may vary among individuals. More important, than the reading per se is the retention of what you have read and the ability to recall and return to the source of the material – to create a "library" of important material in your notes in your files, and in your memory.

The following suggested reading materials – comprehensive textbooks, condensed textbook, specialized topical books, reference books, synopses, journals, internet sites – may be available at your Pediatric site and should constitute sufficient resources for your basic and applied Pediatric reading.

As you start your rotations, important preliminary reading should be done in the earlier chapters devoted to Growth and Development in one of the comprehensive textbooks. One must formulate a sense of the normal parameters of each stage of development so as to appreciate how illness affects children differently during different stages of the pediatric years.

These textbooks, journals, as well as internet sites, provide in-depth descriptions of all new aspects of pediatric care.

Students should use the most recent edition of the following:

Required

Pediatrics for Medical Students – Most recent edition, edited by Daniel Bernstein and Steven P. Shelov, Lippincott Williams and Wilkins.

Comprehensive Textbooks

Nelson's Textbook of Pediatrics, Latest Edition, Saunders publisher, edited by Behrman, Kliegman, Jenson

Rudolph's Textbook of Pediatrics, Latest Edition, McGraw-Hill publisher, edited by Rudolph, Rudolph, Hostetter, Lister, Siegel

Illustrated Textbook of Pediatrics by Tom Lissauer and Graham Clayden Pediatrics and Child Health by Rudolf and Levene published by Blackwell.

Condensed Textbooks

Pediatrics: A Primary Care Approach, 1st Edition, Saunders publisher, Editor C. Berkowitz

Manual of Pediatric Practice, Saunders publisher, Editor L. Finberg

Growth and Development, Watson and Lowrey

Essential Pediatrics, Hull and Johnstone

Useful Subspecialty Books

Textbook of Pediatric Emergency Medicine, Lippincott, WW publisher, edited by Fleisher, Ludwig, Henretig, Ruddy, Silverman

Clinical Pediatric Dermatology, Elsevier publisher, edited by Paller & Mancini

Atlas of Pediatric Physical Diagnosis, Mosby publisher, edited by Zitelli and Davis

The Requisites in Pediatrics, Mosby publisher, series of small topical subspecialty volumes edited by L Bell, including Nephrology, Urology, Pulmonary, Endocrinology, and Cardiology

Red Book, (Infectious Diseases) American Academy of Pediatrics, Edited by Pickering et al

Abbreviated Reference Books

Harriet Lane Handbook, Mosby publisher, edited by senior pediatric residents at The Johns Hopkins Hospital

Pediatric Secrets, Hanley & Bellis publisher, edited by Polin and Ditmar

The 5-Minute Pediatric Consult Series, CHOP, edited by M. William Schwartz

Resource Materials pertaining to Cultural Competency

- Bigby J. Cross Cultural Medicine. New York: American College of Physicians, 2003 p. 1-28 Miller S.Z. Humanism and Medicine Acad Med Vol 74, N07/July 1999 p. 800-803
- Coulehan JL. Block MR. The Medical Interview; Mastering Skills for Clinical Practice. 4th ed. Philadelphia, Davis, 2001. Chapter 12 Cultural Competence in the Interview p. 228-245
- The Spirit Catches you and You Fall Down; A Hmong Child, Her American Doctors, and the Collision of Two Cultures. By Anne Fadiman. Farrar, Straus.

Journals

- Pediatrics
- Journal of Pediatrics
- Academic Pediatrics
- Pediatrics in Review
- Pediatric Clinics
- Journal of Pediatric Infectious Disease

Internet Sites

www.comsep.org - Provides curriculum and lists topics in pediatrics. This site is primarily for faculty members, but has relevant sections for students

There is an excellent video demonstrating how to perform a physical examination on a child.

www.aap.org - Offers access to all American Academy of Pediatrics Policies and Guidelines

www.brightfutures.aap.org - Offers information about developmental milestones, anticipatory guidance, and mental health

www.geneclinics.org - Sponsors a database for genetic diseases and newborn screening methodologies

WEB BASED EDUCATIONAL ASSIGNMENTS FOR INDEPENDENT LEARNING

The school requires the successful completion of web-based assignments in order to receive credit for this clerkship. Students should log into their portal to see these assignments. The Office of the Dean monitors student performance on these assignments. The clinical faculty feels these assignments are excellent preparation for the NBME clinical subject exams as well as Step 2.