

# Pediatric Clerkship

University of Alabama School of  
Medicine

Tuscaloosa Campus



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## **Overview of the Pediatric Clerkship**

The purpose of the pediatric clerkship is to meet the educational needs of the medical student who is not necessarily planning to enter this particular specialty. The students must learn the role of a pediatrician and the special knowledge, skills, values, and attitudes that are necessary for the care of pediatric patients. The clerkship is designed to provide students with an understanding of the uniqueness of the health problems of infants, children, and adolescents, as well as providing clinical experience in the management of these problems. While the students will be exposed to a wide variety of pediatric problems, the clerkship is by no means a comprehensive program of pediatric education.

### **Overall objectives of the pediatric clerkship include helping students:**

- To develop a method of care for well and acutely and chronically ill children which recognizes the child as an individual within the context of the family unit and the community. Within this context, the student should understand the services available in the public and private sector to meet the needs of children and the need of the physician to be an advocate for children.
- To use problem oriented pediatric history and physical examination to develop clinical assessment, differential diagnosis, and planned approach for specific pediatric problems encountered.
- To understand that children are individuals within a particular family unit and that variations in cultural background of families will influence their understanding and approach to both healthcare and illness. This will require that the student develop techniques of educating and communicating with patients and families which considers the context of each individual's circumstances.
- To understand that evaluation of childhood health, as well as disease, depends on the stage of growth and development of the child.
- To become familiar with common pediatric illnesses and appreciate their relative prevalence within individual populations.
- To utilize previously learned human biology to understand the clinical problems encountered during childhood.
- To understand the basic concepts of childhood growth and development and use that information to obtain the skills necessary to work with and evaluate children at all stages of physical and psychosocial development.
- To recognize that pediatrics is a field of preventative medicine, the goal of which is to maintain health by preventing illness, as well as caring for illness once it occurs.
- To learn the indications for common pediatric procedures including laboratory evaluations, radiologic evaluations, lumbar punctures, intramuscular injections, and other common pediatric procedural techniques.
- To learn the leading causes of death among children, including the impact of infant mortality.

- To learn to question that which the student does not understand and to develop a format for finding the answers to those questions.
- To develop a life-long approach to learning and information acquisition which will aid the student in future problems.

**Students on the pediatric clerkship rotation are expected to:**

- Develop skill in obtaining a medical history for pediatric patients that is accurate, detailed, complete, and appropriate for the child's age, developmental level, and functional status.
- Develop skill in the collection of information from the physical examination of children of all ages.
- Develop skill in the oral and written presentation of information from history and physical examination in a manner that is interesting, clear, concise, complete, and appropriate for the child's age.
- Be prompt for rounds and clinics.
  - Rounds will begin at the discretion of the attending on service (usual time ~8-8:30am). Residents on the inpatient team will be responsible for finding out the time the attending wishes to meet and sharing this information with the students.
  - Students assigned to morning clinics should leave rounds by 9:20am, in order to be in clinic by 9:30am.
  - Afternoon clinics start at 1:30pm. If there is an afternoon lecture given, students assigned to afternoon clinic should come to clinic after the lecture is over.
- Pre-round on all inpatients and newborns in time to have progress notes written and discussed with the resident before rounds.
- Present on rounds only the information or physical findings you have personally obtained.
- Briefly read on the diagnosis of new admissions prior to rounds and be prepared to discuss a patient-specific differential diagnosis and planned approach to each problem.
- Keep track of all of the important information on the patients you are following.
- Learn to develop a problem list for each patient, based on history, physical examination and lab/radiologic findings.
- Read daily about pediatric topics.
  - This includes reading about issues unique to pediatrics such as growth/development/immunizations, as well as reading about the problems and disease processes of the patients seen in the hospital and clinic.
- Be an active participant during rounds and lectures.
- Learn how to develop rapport with your patients and their families.
- Notify the resident team of your beeper number each day that you are on call.
  - You may also want to let the well baby nursery staff know your pager number as well.
- Take call from 6am-9pm on the day assigned
  - While on-call, students are expected to see and admit all of the patients admitted to the newborn nursery and the pediatric floor with the resident team.

- Students are responsible for presenting a maximum of 3 new patients on rounds; above that number, the new patients can be redistributed to the other medical students to follow.
- Meet the expectations of the residents with regards to attendance at rounds, availability when on call, performance of clerical duties, technical tasks, patient follow-up and anything else they ask of you.
- Speak directly to the attending on call to notify of any absence.
  - Any student missing a significant part of the rotation will be required to repeat the clerkship.
- Complete notes on all patients seen in clinic prior to leaving the clinic that day.
- Wear appropriate attire to clinic.
  - This means no scrubs, jeans, or T-shirts. Attire is to be neat and professional in patient care areas at all times. Appropriateness of attire is at the discretion of the supervising attending.
- Complete all the required tasks of the rotation in a timely manner.

## **Pediatric Clerkship Requirements**

- **Inpatient/Well Baby Nursery Service**

- All students (except during their Birmingham and Clinic weeks – see below) are required to attend rounds at the hospital during the week and during the weekend days that they are on call or post-call. The inpatient pediatric team consists of an attending physician, an upper level resident, 1-2 intern residents, and 3-6 3<sup>rd</sup> year medical students. During the week, the team will meet for sit-down rounds in Room 501 in the Educational Tower of DCH Regional Medical Center (*door code is 611*) at the time pre-designated by the attending on service. The meeting place for weekend rounds varies by attending preference and the students will be made aware of the time and place by the residents on-call for the weekend.

A medical student will be on call each day of the rotation 6am- 9pm from the 1<sup>st</sup> day through the Tuesday before the mini-board. While on-call, students will work alongside the residents to evaluate and admit patients to the pediatric floor and well baby nursery. Each student must perform and formally present to the inpatient team the admission history and physical exam on each patient admitted or each baby born while he/she is on call (up to a maximum of 3 patients) – students will turn in copies of their H&Ps done on floor patients to the attending after rounds. Each patient's daily progress note is to be written and presented on rounds by the student following that patient. The students are encouraged to take as much responsibility as possible in the management of the patients they are following.

Morning rounds are designed to be interactive. The attending physician will ask questions of the students and residents to assess their knowledge of their patients' problems, understanding of the pathophysiology and pharmacology, and determine appropriate learning issues. After the completion of sit-down rounds, the students will accompany the attending physician to the nursery and floor to examine the patients.

- **Pediatric Clinic at University Medical Center/Clinic Week**

- All of the general pediatric clinics are held in the Pediatrics Suite at the University Medical Center. Clinics are held every morning and afternoon during the week. During the 8 week rotation, each student will be assigned to spend one full week in clinic (Clinic Week) in addition to random clinic assignments throughout the clerkship. During Clinic Week, the student will not attend rounds Monday-Thursday, but will attend clinic each morning starting at 8:30 and each afternoon starting at 1:30. On Friday mornings, the student will attend rounds in order to hear the student presentation and lecture and will then attend afternoon clinic. He/she will also attend the lunchtime lectures with the rest of the team on Wednesday and Thursday during the week. Students will also be assigned to General Clinics and specialty clinics during the other weeks of the clerkship. Each student will receive a schedule of the clinic assignments prior to starting the rotation. For the morning clinics when the student is not assigned

to Clinic Week, the student will attend rounds but will leave by 9:20 in order to be in clinic by 9:30am. Afternoon clinic starts at 1:30pm.

Each student is expected to perform the initial history and examination on an average of 3 patients per clinic, which are then presented directly to the attending physician. The student is expected to see a variety of children of different ages, medical complexity, and visit type (including acute illness, follow-up, and well child check-ups). The student should participate in developing a problem list and treatment plan for each patient and in informing and educating each patient and their caregiver about the assessment and plan for the visit. For each patient seen, the student must write an accurate and complete visit note in the Electronic Medical Record prior to leaving the clinic that day.

- Specialty Clinics

- All students are also expected to attend the following subspecialty clinics: Sickle Cell Clinic (meets 5-6 times a year), High Risk Clinic (meets twice a month), ADHD Clinic (held every Monday afternoon), Adolescent Clinic (held every Thursday afternoon), and Autism Clinic (held Monday and Thursday mornings). Students will be informed in advance when they will be attending these clinics, so that they can prepare. All of the clinics except the Autism Clinic are held in the Pediatrics Suite at the University Medical Center. The Autism Clinic is held in the Human Environmental Sciences building across 5<sup>th</sup> Avenue from University Medical Center.

- Birmingham Week

- Students are given the option of spending a week in Birmingham during their pediatrics clerkship with one of the subspecialist teams at Children's Hospital. The options that the students may choose from include: RNICU (Regional Neonatal Intensive Care Unit), Hematology/Oncology, Endocrinology, Pulmonary, Gastroenterology, Allergy/Immunology, Neurology, Adolescent, and Physical Medicine/Rehabilitation. Students should compile a list of their 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> choices and give them to Anita Channell in the Pediatric office area as soon as possible after starting the clerkship (the sooner the list gets to Birmingham, the more likely that students will get their 1<sup>st</sup> choice).

- Parking:

- Students are to park in the 4<sup>th</sup> Avenue Crowne lot. On the 1<sup>st</sup> morning of the rotation, students will need to go to the 5<sup>th</sup> Avenue Parking Deck Security Office (on 1<sup>st</sup> floor) to get a badge in order to swipe into the parking lot. Please call Valerie Helms, UAB Program Coordinator, at (205)934-3353 if you have any problems with the parking.

- Teaching Conferences

- 3 teaching conferences per week are given to the students by the pediatrics faculty (see Appendix K for the list of topics covered). These conferences include case presentation, didactic, interactive, video, and creative game-based formats and have been designed to expose the students to a wide variety of pediatric problems and issues. These sessions



are generally held Wednesdays at 12:15pm (Classroom 4 at UMC), Thursdays at 12:15pm (Classroom 4), and Fridays at 10:30am (DCH Educational Tower Room 501). Times and locations of the conferences are subject to change to accommodate other conferences, schedules, busy services, etc... All students are expected to attend all sessions (except during their Birmingham week). The attending will let the students know in advance the topics being covered during that week so that they can read on the topic ahead of time and be prepared to participate in the discussion. In addition to the conferences given by the attendings, the senior resident on the team will also be responsible for picking a topic to present to the students at a time set-up by him/her.

- Patient Write-Ups

- Each student must turn in 2 patient write-ups giving the complete history and physical of a patient they during the rotation. One of the write-ups must come from Clinic Week rotation. The other can come from a clinic encounter, a patient seen in the ED with the resident team, or a patient admitted to the service. The patient needs to have been checked out and/or seen by one of the pediatric attendings. The write-ups should be turned into Anita Channell who will then give it to the attending physician who saw or heard about the patient during their admission or visit to the clinic/ED. The write-ups must be turned in within 72 hours of the initial patient encounter (extensions for special circumstances are at the discretion of the attending physician and must be approved prior to the deadline date). The last day write-ups will be accepted during a block is the last Tuesday of the rotation. Please see the sections describing the pediatric H&P and the write-up for the format to use for the write-ups. Also refer to the example write-up included in this packet.

- Videotaping Session

- Each student is observed by video camera performing a clinical encounter with a patient at the UMC Pediatrics Clinic. Immediately after the visit, the tape is reviewed with the student by a pediatrics attending, who gives positive and negative feedback about the student's techniques of interviewing, physical examination, and clinical reasoning. The student is given an evaluation sheet filled out by the attending which outlines their strengths and weaknesses (see copy in Appendix J). The "score" from the evaluation sheet will not be used in the calculation of the final grade. However, it is mandatory for the student to participate in the video session to have successfully completed the requirement of the clerkship. The students have access to the videotape for review later at their leisure. Students will be informed in advance of the scheduled time for their videotaping session.

- Patient Encounter Log

- Each student is expected to log the patients they see (both in clinic and in the hospital) in the E-value system. This list must be completed prior to the last day of the rotation.
- The required patient encounters during the rotation are as follows:
  - At least 8 evaluations on patients with acute medical problems, including:

- 2 patients with respiratory problems
  - 2 patients presenting with fever
  - 2 patients presenting with abdominal complaints
  - 2 patients with other complaints
  - At least 2 well-child visits
  - At least 5 well-newborn evaluations
  - At least 3 complete adolescent visits with sexual history and pubertal maturation
  - At least 2 work-ups or evaluations of patients with chronic illness or issues which can lead to chronic problems
- PowerPoint Presentation
  - Each student will be responsible for preparing and giving a 30-45 minute PowerPoint presentation during the rotation. The students will be pre-assigned dates for their presentations and this schedule will be given to them on the 1<sup>st</sup> day of the rotation. The presentations will be given on Friday mornings with the entire inpatient pediatric team in attendance. Students can choose any topic on which to give their presentation and should discuss their presentation with the attending on service in advance of their presentation day. Most students choose to format their presentation as a case presentation with an accompanying discussion of the patient's diagnosis. An example of a previous student presentation includes the case presentation of a patient who presents with a fever and a rash and then a discussion of pediatric leukemia. *Pediatrics in Review* is a great resource for interesting pediatric case presentations, but there are many other useful resources as well. The staff at the Health Sciences Library is a great resource for obtaining the most current literature.
- Mid-Rotation Evaluation
  - Each student must meet with the Clerkship Director midway through the 8-week block. During this one-on-one meeting, the Clerkship Director gives the student constructive feedback from each of the pediatric attendings and assesses the student's progress in completing the clerkship requirements. The purpose of this meeting is to identify any specific strengths or weakness in the student's performance so that he/she has a chance to gain confidence in his/her strengths and/or improve on his/her weaknesses as the clerkship continues. In addition, suggestions and comments from the student about the rotation are solicited and discussed. See Appendix F for a copy of the form used in the evaluation.
- CLIPP Cases
  - Students are required to complete 22 standardized computer based cases (Computer Learning in Pediatrics Project or CLIPP). These cases cover the evaluation and management of acute illness, well child care, and the approach to children with chronic illness. Performance in the cases will not be used in any calculation of a student's final grade. However, completing the 22 required cases is mandatory for successful

completion of the clerkship. The students will be assigned 3-4 of the required CLIPP cases each of the 1<sup>st</sup> 7 weeks of the rotation and are expected to complete the cases in the time frame allotted.

- The 22 required cases include:
  - Case 1: Prenatal and newborn visit
  - Case 2: Infant well child
  - Case 4: 8 year old well child
  - Case 5: 16 year old girl's health maintenance visit
  - Case 7: Respiratory distress in a newborn
  - Case 8: 6 day old with jaundice
  - Case 9: 2 week old with lethargy
  - Case 10: 6 month old with fever
  - Case 13: 6 year old with chronic cough
  - Case 14: 18 month old with congestion
  - Case 15: 6 week old with vomiting
  - Case 16: 7 year old with abdominal pain and vomiting
  - Case 17: 3 year old refusing to walk
  - Case 18: 2 week old with poor weight gain
  - Case 19: 16 month old with 1<sup>st</sup> seizure
  - Case 20: 7 year old with headache
  - Case 21: 6 year old with a rash
  - Case 23: 11 year old with lethargy and fever
  - Case 27: 8 year old with abdominal pain
  - Case 28: 18 month old with developmental delay
  - Case 29: Infant with hypotonia
  - Case 30: 2 year old with sickle cell disease
- The CLIPP cases can be accessed at the following web address:
  - <http://www.med-u.org/>
  - You must go to the website to register for a logon and password. When prompted, enter your UAB email address (CLIPP will not issue a logon unless you have a valid email address).
- Weekly Supplemental Readings and Cases
  - At the beginning of the rotation, each student will be loaned a copy of *Nelson Essentials of Pediatrics*. Each of the 1<sup>st</sup> 7 weeks of the rotation, the students will be provided a list of suggested readings taken from the Nelson textbook and the articles found on the online reading list (found in the pediatric clerkship section of the CCHS website) to accompany the 3-4 assigned CLIPP cases for that week.

**The following items should be turned in and/or completed prior to the end of the clerkship:**

- 2 Patient write-ups
- Patient encounter log in E-value
- 22 CLIPP cases

**Note:** The last write-up can be submitted no later than the final Tuesday of the rotation; the rest of the items on the list (Checklist, Learning issue log, Patient encounter log) should be turned in to Anita Channell in the Pediatric office on the last Wednesday of the rotation.

## Final Grade Determination

- The final grade is determined by the following formula:
  - 80% faculty evaluation
  - 20% National Mini-board Exam score
- Each faculty member completes the standard UASOM evaluation form on each student (see Appendix G). Beginning with Block VI of the 2010-2011 year, an honors designation has been added to the grading system. Faculty members are asked to designate whether they feel a student's performance merits an honors designation for clinical component of the clerkship. Students receiving honors from the faculty will receive a clinical grade of 95. Faculty will meet as a group at the end of the clerkship to decide which students will receive honors for the clinical grade on the Tuscaloosa Campus. Students receiving pass without honors designation will receive a clinical grade of 85. In order to receive honors for the clerkship as a whole, a student has to receive honors from the faculty and meet the honors criteria set for the mini-board exam (50<sup>th</sup>% or higher for the Pediatric Clerkship).
- If a student is felt to be in jeopardy of not successfully completing the clinical (subjective) portion of the clerkship, he/she will **NOT** be allowed to take the National mini-board exam. The Clerkship Director will meet with the particular student involved to develop a plan of action designed specifically to address the deficiency noted.
- Failure of the National mini-board exam will result in a grade of incomplete (I) for the entire clerkship. The student will be given an opportunity to retake the exam. When the exam is passed, the student will receive a grade for the clerkship. If the exam is failed the second time, the student will be required to retake the entire clerkship.
- Approximately 4-6 weeks after the completion of the rotation, the students' grades will be mailed out to them as well as to the Office of Student Affairs.

## **The Pediatric History and Physical**

- **General Points**
  - Introduce yourself and explain what you are about to do and why it is important.
  - Present yourself in an unhurried, interested and sympathetic manner.
  - Do not perform the interview where it can be heard by others.
  - Remain objective; avoid becoming judgmental.
  - Use language that the caregivers and/or child can understand.
  - Address the patient by name.
  - Convey interest in the patient's story and demonstrate empathy.
  - Reflect on what they say.
  - Clarify their statements.
  - Start with open-ended questions, but use directed questioning for specific problems.
  - Recap the information as you go.
  - Look for clues in the spoken and unspoken (i.e. interaction of child and caregiver, level of concern of the caregiver, level of child's anxiety and/or discomfort).
- **History**
  - Obtain demographic data including:
    - Name (nickname)
    - Sex
    - Age
    - Birthdate
    - Race
    - Name of informant and relation of that person to the patient
    - Probable reliability of that individual
    - Primary care provider or referring physician
  - Chief Complaint
    - This is the reason the child was brought to the doctor in the patient or parent's own words.
      - E.g. "He's been getting a lot of bruises."
  - History of Present Illness
    - This is a chronologic account of all events leading up to the present visit.
    - Information included here should include:
      - Onset of symptom
      - How symptom developed (including setting)
      - Location of symptom
      - Quality of symptom
      - Quantity of symptom
      - Timing of symptom (duration, frequency)
      - Setting in which symptoms occurs (time of day)
      - Aggravating factors

- Alleviating factors
- What has been done for symptom (therapies, medications, previous doctor visits for symptom)
- Associated symptoms
- Pertinent negative symptoms
- Exposures to illness
- Example of a history of present illness:
  - “This is the 1<sup>st</sup> hospital admission for this 4 year old black male who was well until 5 days prior to admission when the patient developed bruising. The bruising was first noted over the lower extremities after he played outside. Over the next day, the bruising progressed to include his arms. The bruises were nontender and were worse after being outside. Over the last 2 days although some of the bruises have faded, new ones have appeared and the patient has developed a red rash. The rash appears as small, nontender red spots. The parents have sought no medical attention for this until this time and gave no medications to the child. The parents deny that the patient has had vomiting, diarrhea, fever, swollen glands, or appeared pale. His urination has been normal. The child was noted to have had an ear infection about 2 weeks prior to the onset of this problem. No others in the household are ill.”
- Note: in the case of a newborn, it is often important to begin the history of present illness with the prenatal and birth history of the child.
  - E.g. “This is the 1<sup>st</sup> hospital admission for this 10 day old Caucasian female who was brought in with the chief complaint of fever. She was the full term product of an uncomplicated pregnancy. The child’s birth was an uneventful spontaneous vaginal delivery. The mother was noted to develop fever 1 day post-partum. The infant cried immediately after delivery and went home with the mother 3 days after birth. The child was breastfed and was doing well until the evening prior to admission...”
- Past Medical History
  - Prenatal History
    - Health of mother during pregnancy (including diet, medications including vitamins, illnesses, restricted activity, problems with bleeding, duration of pregnancy).
      - Full term : 37-40 weeks
      - Premature: <37 weeks
      - Postdates: >41 weeks
  - Natal History
    - Length of labor, degree of difficulty, vaginal or caesarian section, and infant status at birth (i.e. cried at delivery or required some resuscitation).

- This should be more detailed for a newborn and should include whether there was prolonged rupture of membranes (>18 hours), maternal fever at time of delivery, and mom's Group B strep status (and if GBS+, whether she received antibiotics at least 4 hours prior to delivery).
- Neonatal History
  - Any problems after birth, length of initial stay in hospital, any problems at home (i.e. feeding problems, jaundice, rashes, fever, etc...)
- Illnesses/Injuries
  - Significant childhood illnesses, injuries, and chronic problems
- Hospitalizations
  - Include age, location, and diagnosis
- Surgeries
  - Include age, surgery, and diagnosis (also surgeon if known)
- Immunizations/Screenings
  - State whether child up-to-date on vaccines and screenings (i.e. TB, lead, anemia screenings)
- Medications
  - List all prescription and over-the-counter meds patient is currently taking
- Allergies
  - List any known allergies to drugs, foods, or products
- Developmental History
  - Assess developmental milestones (ask age-appropriate questions to determine if patient is developing normally or is delayed).
    - Give history pertaining to major milestones (i.e. age when first held head up when prone, rolled over, sat up without support, walked without support, talked, potty-trained).
    - Ask about child's bowel and sleep patterns.
    - Ask about grade in school and academic performance.
    - Ask about relationship with peers.
- Feeding History
  - Infant
    - Breastfed or formula fed, frequency of feedings, type and volume of formula, supplements to feeding, difficulty with feeds
  - Child
    - Food likes and dislikes, amount and type of food eaten
- Family history
  - Can draw out family tree or just list illnesses and affected family members.
  - Be sure to list relative affected and whether diseases are on paternal or maternal side.



- Important diseases to ask about in pediatric population include: still births, miscarriages, anemia, congenital problems, blindness, deafness, asthma, epilepsy, type I diabetes, kidney disease, early cardiac death, etc...
- Social History
  - Ask adolescents about sexual activity, smoking, alcohol and drug use.
  - Determine who lives in home, type of house, city or well water, sewer system or septic tank, are the parents employed outside the home, who cares for the child while parents are working, smokers, pets, etc...
- Review of Systems (meant to be a brief catalog of head-to-toe symptoms; do not have to ask every symptom on every patient. ROS should be problem-focused and age-appropriate)
  - General
    - Weight gain or loss, fatigue, decreased activity, pallor, fever, behavior change
  - Skin
    - Rash, lumps, itch, dryness, color change
  - Eyes
    - Change in vision, pain, redness
  - Ears
    - Change in hearing, infections, pain, drainage
  - Nose
    - Bleeding, drainage
  - Mouth
    - Teeth, gums problems, sore throat, lesions
  - Neck
    - Lumps, swelling, pain
  - Respiratory
    - Cough, wheezing, shortness of breath, increased work of breathing
  - Cardiac
    - History of murmurs, chest pain, cyanosis, hypertension, palpitations
  - Gastrointestinal
    - Swallowing difficulty, emesis, type and quality of stool, abdominal pain, blood in stool
  - GU
    - Dysuria, discharge, pain, hematuria
  - Neuromuscular
    - History of seizure, spasms, headache, unsteady gait, joint/bone/or muscle pain
  - Endocrine
    - Growth problems, age at puberty

- Physical Exam
  - General Points
    - Allow adequate time for the child to become familiar with you before performing the exam.
    - Talk quietly and in a friendly manner and tell older children what you are about to do.
    - Wash hands prior to touching any patient.
    - Perform as much of the exam as possible with a small child in the parent's lap.
    - Remove clothes gradually to prevent chilling and to allow the older child to maintain some degree of modesty.
    - Begin the exam with the area that is least likely to be uncomfortable for the child (i.e. save the ears and throat for last in young children).
  - Vital Signs
    - Temperature (fever is considered any temperature  $\geq 100.4^{\circ}\text{F}$ )
    - Blood pressure, pulse, respirations
      - Refer to resource such as *The Harriet Lane* for age appropriate normals.
    - Oxygen saturation
      - State whether this value is while the patient is breathing room air or if receiving oxygen, state how much (i.e. on 2L O<sub>2</sub> via nasal cannula).
    - Weight, height, and head circumference (if under 2)
      - Plot these on standard growth charts and record percentiles.
        - <http://www.cdc.gov/growthcharts/>
  - Exam
    - General appearance
      - Is child well or ill-appearing; alert or altered mental status; well- or malnourished; in any distress
      - Include details about patient's physical condition (i.e. spastic CP, in wheelchair, nonverbal, etc...)
      - Also describe level and quality of patient's interaction with examiner, caregiver, and environment
    - Skin
      - Turgor, color, edema, lesions, rash
        - Need to describe lesions and rashes
          - I.e. size, color, macular vs. papular vs. vesicular, blanching or not, location, tenderness
    - Head
      - Shape
      - Fontanelles (in infants – see section on Infant Exam)
        - Comment on openness, fullness
    - Eyes
      - Pupils (size and reaction to light), conjunctivae, extraocular movements, red reflex, light reflex, fundoscopic exam, vision (depending on age)
    - Ears

- Pinna, canals, tympanic membranes (color, landmarks, perforation, effusions, mobility, tubes)
- Nose
  - Discharge, turbinates
- Mouth
  - Mucous membranes (color, moisture), teeth, tonsils (size, exudates), palate (petechiae, arched/cleft)
- Neck
  - Swelling, thyroid gland, webbing, tracheal position, meningismus
- Lymph
  - Enlargement (lymphadenopathy usually means lymph node >1cm), position, mobility, erythema, fluctuance, discrete vs. matted
- Chest
  - Work of breathing, breath sounds (clear, wheezing, rhonchi, crackles, stridor, referred upper airway noise)
- Cardiac
  - PMI, heart sounds, murmurs, pulses
- Abdomen
  - Tenderness, rigidity, bowel sounds, distention, hepatomegaly or splenomegaly, hernias
- Genitalia
  - Males: circumcision, meatal opening (hypospadias), testes (position in canal and size), Tanner stage
  - Females: labia, vagina, Tanner stage
- Extremities
  - Tone, color, deformity, atrophy, hypertrophy, edema, clubbing, cyanosis of nail beds, joint mobility, temperature, hips in infants (Ortolani and Barlow – see section on Infant Exam)
- Back
  - Curvatures, dimples, tufts of hair, tenderness
- Neurologic
  - Infant reflexes (see section on Infant Exam)
  - Cranial nerves II-XII
  - Cerebellar function (gait, finger-to-nose, etc...)
  - Motor strength (scale of 5/5), tone, and symmetry
  - Deep tendon reflexes
  - Mental status

## Special Considerations for the Newborn History

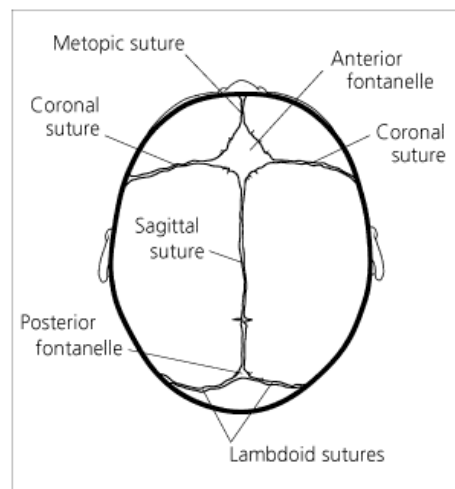
- Students will be working with the residents to exam and admit newborns to the well baby nursery at DCH Regional Medical Center. When admitting a newborn to the nursery, it is important to review the mother's prenatal record, admission notes and labs, and labor and delivery records.
- Prenatal Records
  - The mother should have had the following labs done prior to the delivery of the infant (usually done during prenatal visits to OB; if no records available at the time of the delivery, these labs will be repeated):
    - Group B strep (screen usually performed around 35 weeks)
      - If positive, mother will receive antibiotics during delivery to decrease risk of transmission of infection to infant during birthing process.
        - Adequate antibiotic therapy for +GBS mom means that she received at least 1 dose of an appropriate antibiotic at least 4 hours prior to the delivery of the infant.
    - Hepatitis B surface antigen (HBsAg)
      - If positive, infant will need both the Hepatitis B vaccine and the Hepatitis B immune globulin (HBIG) within 12 hours of birth.
      - If mom's Hepatitis B status is unknown, the infant should receive the Hepatitis vaccine within 12 hours of birth and steps should be taken to determine the mom's status. If she is HBsAg-positive, the infant should receive HBIG no later than 1 week of age.
    - Rubella
      - If mom is rubella non-immune, she will be given MMR vaccine after delivery of infant.
    - Blood Type
      - If mom is Rh-, infant's blood type will be tested after birth. If the infant is Rh+, the mother will be given Rhogam to prevent Rh isoimmunization with future pregnancies.
    - RPR (Rapid plasma reagin)
      - This is a test for syphilis; if positive, both mom and infant will need further confirmatory tests and treatment.
  - The prenatal records should also be searched for information on length of prenatal care, pregnancy complications, ultrasound findings, and gestational age of infant.
- Labor and Delivery Notes
  - These should be read looking for the following information:
    - Medications given to mom
      - In particular, antibiotics, narcotics, and magnesium sulfate.
    - Type of labor.
      - I.e. spontaneous vs. induced vs. scheduled C-section
    - Time of rupture of membranes

- >18 hours prior to delivery of the infant is considered prolonged and increases the infant's risk of infection.
- Also note whether the fluids were clear, blood-stained, or meconium-stained.
- Type of delivery
  - Vaginal (spontaneous vs. assisted – i.e. with vacuum) vs. C-section
    - If emergency C-section, what were the indications.
    - Also note the position of the infant (cephalic vs. breech).
- Infant's condition upon delivery
  - There should be a sheet describing the interventions done to the infant at delivery.
  - Apgar score (numerical expression of the condition of a newborn infant reported on a scale of 0-10; usually recorded at 1 and 5 minutes after birth)
    - A: Appearance
      - 0: Blue or pale
      - 1: Pink body with blue extremities
      - 2: Completely pink
    - P: Pulse
      - 0: Absent
      - 1: Slow (<100 beats/min)
      - 2: >100 beats/min
    - G: Grimace (reflex irritability)
      - 0: No response
      - 1: Grimace
      - 2: Cough or sneeze
    - A: Activity (muscle tone)
      - 0: Limp
      - 1: Some flexion
      - 2: Active movement
    - R: Respirations
      - 0: Absent
      - 1: Slow, irregular
      - 2: Good, crying

## Special Considerations for the Infant Physical Exam

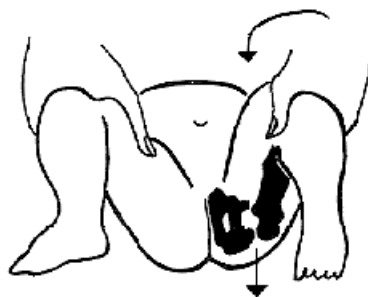
- Fontanelles

- Anterior fontanelle is situated between the coronal and sagittal sutures and has a diamond shape.
  - Usually closes between 9-18 months.
- Posterior fontanelle is located between the sagittal and lambdoid sutures.
  - Usually closes between 3-6 months.

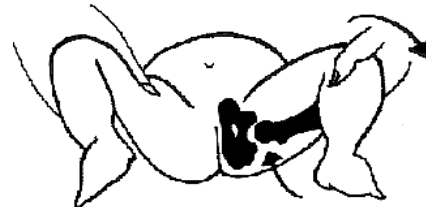


- Hip exam

- The Barlow and Ortolani tests are performed to detect the presence of congenital hip dysplasia.
  - The Barlow test detects the unstable hip dislocating from the acetabulum and with a positive Barlow test, a palpable “clunk” is felt as the femoral head exits the acetabulum posteriorly.
  - The Ortolani test elicits the sensation of the already dislocated hip reducing and with a positive Ortolani test, a “clunk” is felt as the dislocated femoral head reduces into the acetabulum.
- To perform the test:
  - Examine 1 hip at a time.
  - Gentle pressure by the thumb is first placed in the infant’s groin in a posterior and lateral direction to dislocate the hip. The fingers then push the greater trochanter of the femur anteriorly and medially to return the femoral head to the acetabulum.



Barlow Maneuver



Ortolani Maneuver

- Infant Primitive Reflexes

- Moro reflex

- Abduction, followed by adduction and flexion of the upper extremities
    - Also known as the “startle reflex”
    - Elicited by sudden head extension
    - Present at birth; disappears by 6 months
    - Asymmetry may signify a fractured clavicle, a brachial plexus injury, or hemiparesis; absence of the reflex points towards significant CNS dysfunction



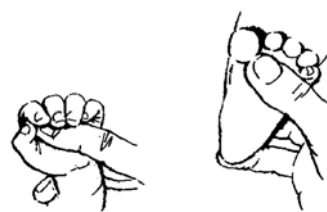
- Asymmetric Tonic Neck Reflex

- With infant supine, turning head to 1 side results in extension of arm and leg on that side with flexion of contralateral arm
    - Appears at 2-3 weeks of life; disappears by 3 months



- Palmar and Plantar Grasp Reflex

- Flexion of fingers (palmar reflex) or toes (plantar reflex)
    - Elicited by placing finger in the infant's palm or sole
    - Present at birth; disappears by 6 months (palmar reflex) and 15 months (plantar reflex)



- Galant Reflex

- With infant prone, scratch the skin of the infant's back from the shoulder downwards ~2-3 cm lateral to the spinous processes; causes a curvature of the spine with the concavity on the stimulated side
    - Present at birth; disappears by 4 months of age.

- Rooting Reflex

- Elicited by stroking infant's cheek causing infant to turn head towards that direction and open mouth
    - Present at birth; less prominent by 1 month.



- Babinski Reflex

- Stroking the side of the infant's foot causes the toes to fan out and the big toe to extend
    - Present at birth; disappears by 1 year

- Ballard Exam

- The Ballard scoring system is a method of estimating the gestational age of an infant developed by pediatrician, Jeanne Ballard.
  - It is most accurate if performed within the first 12 hours of life (especially for premature infants).
  - The exam consists of 6 neuromuscular criteria and 6 physical criteria.

- The scores for the 12 parts of the exam are totaled together and the total is compared to a chart which lists the corresponding gestational age for each score obtained with the Ballard exam.
- Forms which describe the 12 components of the exam and contain the scoring chart can be found in the well baby nursery.
- Videos of Dr. Ballard performing the exam can be viewed at the following website:
  - [www.ballardscore.com](http://www.ballardscore.com)
- A PowerPoint presentation explaining how to do the exam can be found by clicking on “Clinical Resources” on the desktop on one of the CCHS computers, scrolling to the bottom of the page to the section entitled “References by Specialty” and selecting “Pediatrics,” and then locating “Ballard exam” under the heading “Neonatology.”
- Students are expected to perform the Ballard exam and fill out the Ballard sheet on each newborn they admit to the well baby nursery.



## Patient Write-Ups

- Each student will be expected to prepare 2 patient write-ups during their pediatric clerkship. Write-ups can come from patients the student admits to the hospital or from interesting patients seen in the clinic or the emergency room. The patients must have been presented to and/or seen by a pediatric attending. Regardless of where the patient is seen, all write-ups should consist of a complete history and physical examination, an assessment of all the patient's problems with a list of differential diagnoses, and a formulation. The write-up should be written in the time frame of the initial encounter (i.e. information such as culture results or later testing should not be used since this information would not be available to the physician at the time of the initial encounter).
  
- History and Physical Examination
  - Should be done in the format demonstrated in the Pediatric History and Physical section of this handbook.
  - Be sure to attach growth chart with patient's weight and height plotted.
  
- Assessment
  - This is essentially your patient's problem list. List as the 1<sup>st</sup> assessment, the primary diagnosis that led to the visit or hospitalization and the assessment that will be the focus of your formulation. List as subsequent assessments, the other diagnoses or problems the patient has even though these will not be discussed in your differential.
    - For example:
      - 1. Reactive airway disease
      - 2. Failure to thrive
      - 3. Immunization deficient
  
- Formulation
  - For the formulation, the student should compose a list of 3-5 differential diagnoses for the patient's primary assessment (the one that led to the visit/hospitalization). The student should then discuss each of the diagnoses on the differential and explain what features (i.e. demographics, history, exam findings, labs, or xrays) in the patient's case make each diagnosis more or less likely. The formulation should ultimately be a discussion as to why the student feels the patient should be diagnosed with the assessment listed as the primary diagnosis compared to the other diagnoses listed in the differential. The point of the formulation is to have the student go through the exercise of working through the differential for a patient's chief complaint in order to come to the most likely diagnosis by gathering clues from the history, physical exam, and laboratory/radiologic tests.

Students should use pediatric reference materials such as pediatric textbooks (*Pediatrics* by Rudolph, *Textbook of Pediatrics* by Nelson, etc...) and journals (*Pediatrics in Review*, etc...) to learn about the differential diagnosis for a given complaint. However, they

should be careful to report the information in the formulation in their own words (i.e. **no plagiarism**). The librarians in the Health Science library are an excellent resource for finding good references. The student can also contact an attending if they are having difficulty identifying sources of information. The sources that the student uses to gather the information for the formulation should be listed at the end of the write-up. Please see the example write-up included in the orientation packet (Appendix E).

- Write-ups must be turned in within 72 hours of the initial encounter. Please include your name, the attending physician's name, date of encounter, and primary diagnosis. The write-ups are to be turned in to Anita Channell in the pediatric office. A student may not do more than 1 write-up on the same clinical problem; however, more than 1 student can write-up a patient if both students were present at the initial evaluation and obtain a complete history and physical. Students will receive a grade for each of their write-ups (see the Appendix H for a copy of the evaluation form used). This grade is not used in the calculation of the final grade. The write-ups, however, do provide the faculty an opportunity to see a student's clinical thought processes and are therefore important in forming the subjective impression of a student. Students should seek assistance early if they find they are having problems understanding how to prepare a write-up.
- Students are expected to have completed 1 write-up by the mid-rotation evaluation. The last write-up can be turned in no later than 4:45pm on Tuesday of the last week. Students will not be excused from other clinical duties to allow time for the completion of write-ups.

# Appendices



## Appendix A

### Tips for Writing Daily Progress Notes

- The following is a template to use for writing daily progress notes:

Date/Time      Medical Student Progress Note

HD#\_\_\_\_ (hospital day #)    if relevant... Antibiotic day #\_\_\_\_ Postop day #\_\_\_\_

S: (Subjective) This is what the parent/caregiver/nurse says about how the patient has been since rounds the previous day.

O: (Objective) This section is broken into several parts.

Vital Signs: Tmax for the preceding 24hrs, Heart rate (range), Respiratory rate (range), Blood pressure (range)

Weight: (amount up or down from prior day if daily wts are obtained).

Ins and Outs (I&Os):

Intake: Include total ins (IVF +PO)

IVFs: calculate amount pt is receiving in mL/m<sup>2</sup>/day  
(maintenance is 1500mL/m<sup>2</sup>/day)

Caloric intake (calculate for infants): \_\_\_\_ kcal/kg/day  
(see section in Appendix on  
calculating calories)

Output: Unless patient is getting strict output recorded, this is usually recorded as # of voids and # of stools  
(also include here other output – emesis, drains)

Physical Exam: (brief exam with emphasis paid to relevant exam findings for patient's primary diagnosis)

Lab data: (include any labs since the note the day before)

Xrays: (include any xrays since the note the day before)

A/P: (Assessment/Plan) This should be a numbered problem list with a discussion of the day's plan for each problem. In addition to the primary assessment (the reason they are hospitalized), each patient should have a section dedicated to FEN (fluids, electrolytes, nutrition), Social (any social issues, also place to address caregiver's adjustment to illness/hospitalization), and Dispo (discharge plan).

Example: 1. Pneumonia – day #2 of Rocephin. Plan to switch to oral antibiotics if patient is taking good PO later today.

2. Dehydration – patient now tolerating clears; plan to advance diet as tolerated.

3. FEN – on clear liquids; will discontinue IVF.

4. Social – mom seems appropriately concerned.

5. Dispo – discharge home on oral antibiotics when taking adequate PO.

## **Appendix B**

### Tips for Writing Admission Orders

- One mnemonic that is commonly used is ADC VANDALISM.
- **A:** Admit to Pediatric Floor; Attending \_\_\_\_\_, Resident \_\_\_\_\_, Intern \_\_\_\_\_
- **D:** Diagnosis
- **C:** Condition (stable, guarded, critical)
- **V:** Vitals (list frequency you want vitals recorded, e.g. q4hours. Also list here whether you want daily weights, strict I/Os, etc...)
- **A:** Activity (bed rest, ad lib, must lay flat, etc...)
- **N:** Notify MD for... (list vital sign parameters you want to be called for...i.e. RR >50, HR >130)
- **D:** Diet (NPO, regular diet, clear liquid diet, soft/mechanical diet, etc...)
- **A:** Allergies
- **L:** Labs
- **I:** IVF
- **S:** Special instructions (such as pulse oximetry, chest physical therapy, etc...)
- **M:** Meds

## Appendix C

### Calculating Infant Caloric Intake

- Most of the commonly used infant formulas (for term infants) have 20 kilocalories to every ounce. There are 30mL in 1 ounce. Doing the math:
  - $20 \text{ kilocalories}/1 \text{ ounce} \times 1 \text{ ounce}/30\text{mL} = 0.67 \text{ kcal/mL}$
  - So an infant that took in 360mL:
    - $360\text{mL} \times 0.67\text{calories/mL} = 241 \text{ kcal}$
  - We usually look at caloric intake in terms of weight (in kg), so:
    - For an infant weighing 3.5kg who took in 360mL/day:
      - $241 \text{ kcal}/3.5\text{kg} = 69 \text{ kcal/kg/day}$
    - Term infants need 50-60kcal/kg/day to maintain weight and 100-120 kcal/kg/day for weight gain/growth.
- Some infants (premies, infants with poor weight gain) are on higher calories formulas (Neosure) or are fortifying their formulas (adding fortifier or adding more powder) to increase the caloric density.
  - For 22kcal formulas:
    - $22\text{kcal}/1\text{ounce} \times 1\text{ounce}/30\text{mL} = 0.73 \text{ kcal/mL}$
  - For 24kcal formulas:
    - $24\text{kcal}/1 \text{ ounce} \times 1\text{ounce}/30\text{mL} = 0.8 \text{ kcal/mL}$

## Appendix D

### Calculating IVF Compositions and Rates

- **To calculate rates for maintenance IVF use 1 of the following 2 methods:**
  - 4-2-1 Rule:
    - Otherwise known as the Holliday-Segar Method.
    - Should not be used for neonates <14 days old (it will overestimate their needs).
    - To calculate the rate: give the patient 4mL/kg/hr for the 1<sup>st</sup> 10kg, 2mL/kg/hr for the 2<sup>nd</sup> 10kg, and 1mL/kg/hr for each additional kilogram.
    - Example: 8 year old male weighing 25kg.
      - 4 mL/kg/hr x 10kg = 40mL/hr
      - 2mL/kg/hr x 10kg = 20mL/hr
      - 1mL/kg/hr x 5kg = 5mL/hr

25kg = 65mL/hr (maintenance fluid rate)
  - Body Surface Area Method:
    - Based on the assumption that caloric expenditure is related to body surface area.
    - Calculate BSA by using a BSA nomogram or the following formula:
      - Surface area (m<sup>2</sup>) = Square root of [(Height in cm x weight in kg)/3600]
    - Maintenance fluid requirement for a pediatric patient = 1500mL/m<sup>2</sup>/day
  - For most pediatric patients, maintenance sodium requirements will work out to IVF of 1/4NS.
  
- **To calculate replacement fluids in the case of dehydration:**
  - **Isonatremic Dehydration (Na 130-149)**
    - Total fluids = fluid deficit + maintenance fluid.
    - Calculate maintenance fluid using 1 of the above methods.
    - To calculate fluid deficit, use 1 of the following 2 methods:
      - Fluid deficit = % dehydration x preillness weight (kg) x (1000mL/kg)
        - Can calculate preillness weight by following formula:
          - [current weight/(% dehydrated)] + current weight
        - Example: 10kg child who is 10% dehydrated
          - 0.10 x 11kg x 1000mL/kg = 1100mL
      - Fluid deficit = [preillness wt (kg) – illness wt (kg)] x 1000mL/kg
        - Example: 10kg child who weighed 11kg prior to illness
          - (11kg – 10kg) x 1000mL/kg = 1000mL
    - For most pediatric patients, the Na concentration of the replacement fluids will work out to IVF of 1/2NS (77mEq/L).

- **Hyponatremic Dehydration** (Na <130) – implies excess Na deficit
  - There are several possible methods of doing these calculations; the following is an example of 1 method.
  - Do the above calculation to determine the IVF rate and then you need to calculate the Na concentration of the IVF by calculating the total Na deficit.
  - To calculate the total Na concentration needed you have to sum the total Na deficit plus the maintenance Na requirements.
    - Maintenance Na = total maintenance fluid (mL)/ day x 3mEq/100mL
    - Na deficit (this is the Na lost in the patient's fluid deficit) = fluid deficit (L) x 0.6 (proportion of Na from extracellular fluid) x 140 (concentration of Na in extracellular fluid)
    - Excess Na deficit (this is the excess Na the patient lost leading to hyponatremia) = (desired Na concentration – current Na concentration) x 0.6 (proportion of Na in extracellular fluid) x preillness weight (kg)
    - Total Na concentration of fluid = (Maint Na + Na deficit + Excess Na deficit)/total fluid given to the patient
  - Note: the target rise of Na should not exceed 2-4 mEq/L every 4 hours or ~10-20mEq/L in 24 hours.
  
- **Hypernatremic Dehydration** (Na >150) - implies excess free water loss
  - There are several possible methods of doing these calculations; the following is 1 example.
  - To determine the fluids needed, you have to calculate the free water deficit, the solute fluid deficit, and the maintenance fluid requirements.
    - Note: 4mL/kg of free water is needed to drop the Na by 1mEq/L (or 3mL/kg if Na >170 because less free water is required to drop Na at higher concentrations).
      - Therefore, free water deficit = 4mL/kg x weight (kg) x (current Na concentration – desired Na concentration)
    - Solute fluid deficit = Total fluid deficit (L)– free water deficit
      - How to calculate total fluid deficit was described under Isonatremic dehydration section
    - Maintenance fluid (use 1 of 2 methods described in 1<sup>st</sup> section)
  - To calculate the Na needed, you have to calculate the maintenance Na and the solute Na deficit.
    - Solute Na deficit = solute fluid deficit (L) x 0.6 (proportion of Na from extracellular fluid) x 140 (Na concentration in ECF)
  - Replace ½ of the free water deficit and all of the solute deficit over 24 hours; then replace the remainder of the free water deficit over the next 24 hours.
    - To calculate the total volume of fluids for the 1<sup>st</sup> 24 hours:
      - Maintenance fluid/day + (free water deficit/2) + solute fluid deficit



- To calculate the Na concentration of the fluids for 1<sup>st</sup> 24 hours:
  - $(\text{Maintenance Na} + \text{solute Na deficit}) / \text{total volume of fluids for 1}^{\text{st}} \text{ 24 hours (L)}$
- To calculate the total volume of fluids for the 2<sup>nd</sup> 24 hours:
  - $\text{Maintenance fluid/day} + (\text{free water deficit}/2)$
- To calculate the Na concentration of the fluids for the 2<sup>nd</sup> 24 hours:
  - $\text{Maintenance Na} / \text{total volume of fluids for the 2}^{\text{nd}} \text{ 24 hours (L)}$
- Remember to account for initial boluses given to the patient in the calculations.
- Avoid dropping the serum Na  $>15\text{mEq/L}$  per 24 hours to minimize the risk of cerebral edema.

## **Appendix E: Sample Patient Write-Up**

**Chief Complaint:** “He was limping and said his right leg was hurting.”

**Source of History:** Patient and patient’s mother who seemed reliable

### **History of Present Illness:**

DT is a 9 year old African American male who presented to the Emergency Department for chief complaint of right leg pain. His mother reports he was in his usual state of good health until two days prior to admission when she noticed he was he was sitting in a chair, rocking himself with a pillow held at his abdomen. She states that he began complaining of pain in his right leg and reported that he had been wrestling earlier that day but had not complained of any injury. His mother reports that he started limping the following day (1 day prior to admission) and that he continued to complain of pain in his right leg. His mother states that he also felt warm to the touch and thought he was running a fever, but she never recorded a temperature. His mother also reports that he seemed to have decreased energy and began complaining of headaches. She gave him Motrin to help with his leg pain and headaches, and he reports that the Motrin helped. His mother noticed that he also had decreased appetite and she thought he may have been constipated. She questioned him about his recent bowel movements and he denied having hard stools but stated that his last bowel movement was 3 days prior and that it was only a small amount. She gave him prune juice and Juicy Juice to improve his bowel movements, but she states that his appetite did not improve. His mother states that he was still limping the morning of admission and that he began to complain of increased pain upon walking. She also reports that he still felt warm to the touch and that she gave him more Motrin that morning. She also states that his appetite had not improved and that he was not drinking as many fluids as he normally did, so she decided to take him to the ED. DT localizes his pain to right hip, right anterior thigh, and right knee. He states that his pain is worse while walking and laying on his right side. He rates his pain as a 9/10 and describes it as an achy pain that does not radiate and is of the same quality and intensity when he is sitting, standing, and lying down. He reports that his pain is better when he lays on his left side and when he puts a pillow between his knees while laying on his side. He denies nausea, vomiting, diarrhea, rash, and exposure to sick contacts. He denies trauma to his right hip, thigh, and knee.

### **PAST MEDICAL HISTORY**

**Neonatal:** Mother received prenatal care throughout pregnancy and took no medications other than prenatal vitamins. She had no infections and no bleeding throughout pregnancy and denies using tobacco, alcohol, or illicit drugs during pregnancy. Pregnancy was uncomplicated. Delivery was by spontaneous vaginal delivery and was complicated by umbilical cord wrapped around neck. Per mother, DT was born on time, weighed 5 pounds, and was admitted to Well Baby Nursery. There were no problems while in Well Baby Nursery, and he went home with his mother 2 days after delivery.

**Illnesses:** 1) past history of asthma – last exacerbation approximately 4 months ago

2) Chickepox – age 3

**Surgical procedures:** None.

**Hospitalizations:** Once for asthma exacerbation, unknown date.

**Accidents/Injuries:** None.

**Immunizations and screening:** 5 DTaP, 1 HAV, 3 HBV, 4 Hib, 4 IPV, 2 MMR, 1 varicella

**Allergies:** No known drug or food allergies.

**Medications:** None prior to admission.

### **DEVELOPMENTAL HISTORY**

Mother reports he has met all developmental milestones on time. She reports that he began walking around age 12 months and that he began talking around age 12 months. She states he potty trained at age 3. She reports that he just finished the 2<sup>nd</sup> grade at Woodland Forrest Elementary School. She states he had no problems during the school year and that he made mostly A's and B's, with one F at the end of the year. He will be starting 3<sup>rd</sup> grade at Northington Elementary this month and mostly enjoys school. His mom reports he repeated first grade per her request and he also attended summer school. She states that he sleeps 7-8 hours per night and sleeps through the night with no night terrors, enuresis, or sleep walking.

### **FEEDING HISTORY**

Mother reports that he is not a picky eater and eats 3 balanced meals per day. DT reports that he likes chocolate milk, most fruits, some vegetables, and all meats (chicken, pork, beef, and fish).

### **FAMILY HISTORY**

1. Mother – history of asthma; history of atrial flutter during most recent pregnancy
2. Father – healthy
3. 16 y/o sister – healthy
4. 15 y/o brother – history of seizure disorder
5. 13 y/o brother – healthy
6. 1 y/o brother – history of asthma
7. Positive family history of hypertension and diabetes mellitus on both mother's and father's side of family.
8. No family history of congenital heart disease, anemia, tuberculosis, blindness, deafness, cancer, or mental retardation.

### **SOCIAL HISTORY**

Patient lives in an apartment in Tuscaloosa with his mother and 4 siblings. They have central air conditioning, city water, and carpet. There are no pets in the home, and there are no smokers who live in the home. Mother reports that an uncle occasionally smokes inside the home while visiting.

## REVIEW OF SYSTEMS

**General:** febrile x 2 days; no chills; decreased activity level x 1 day; no noticeable change in weight; no lethargy; no weakness

**Skin:** abrasion to left knee; no rashes; no dryness; no itchiness; no color change

**Eyes:** no change in vision; no pain; no redness

**Ears:** no drainage; no change in hearing; no pain; no tinnitus; no vertigo

**Nose:** no bleeding; no drainage; no colds

**Oral:** no lesions; no sore throat; no hoarseness

**Neck:** no lumps; no swelling

**Respiratory:** no coughing; no wheezing; no colds; no shortness of breath

**Cardiovascular:** no cyanosis; no history of murmurs; no edema; no chest pain; no palpitations

**Gastrointestinal:** decreased appetite x 2 days; no vomiting; no diarrhea; no blood in stool; no change in bowel pattern

**Genitourinary:** no change in urination pattern; no pain on urination; no blood in urine

**Neurological:** frontal headaches x 2 days; no seizures; no spasms

**Musculoskeletal:** right hip and knee pain with limp x 2 days; no fractures

**Endocrine:** no growth problems to date; no temperature intolerance

## PHYSICAL EXAM

**Vital signs:** Temp: 101.7-104.2 Pulse: 112-116 Respirations: 20-24 BP: 106/67

Weight: 68lbs (30.9kg), 75<sup>th</sup> percentile Height: 52" (132.1 cm), 50<sup>th</sup> percentile

**General:** Patient appears uncomfortable and in pain; crying, not easily consoled by mother; laying on left side; well-developed

**Skin:** left patellar abrasion, healing well; no rashes; no bruising

**HEENT:** normocephalic, atraumatic; positive red reflexes bilaterally; pupils equal, round, and reactive to light; extraocular movements intact; tympanic membranes clear bilaterally without discharge; nasal mucosa pink and moist without discharge; oral mucosa pink and moist; tonsils are normal in size and without exudates

**Neck:** supple; no lymphadenopathy

**Chest:** no increased work of breathing; lungs clear to auscultation bilaterally

**Cardiovascular:** tachycardic; regular rhythm; no murmurs, rubs, or gallops; radial and posterior tibial pulses 2+ bilaterally

**Abdomen:** soft; non-tender; non-distended; positive bowel sounds; no organomegaly

**Genitalia:** normal circumcised male; testes descended bilaterally; no hypospadias

**Extremities:** tenderness to palpation of right hip, right anterior thigh, and right knee; right hip is warm to touch; pain upon flexion, internal rotation, and external rotation of right hip; no pain upon flexion or extension of right knee; no edema noted over hips, knees, or ankles bilaterally; no pain noted on left leg examination; upper extremities normal range of motion, without pain

**Trunk/Spine:** normal alignment; no scoliosis

**Neurological:** alert; oriented; no focal signs; cranial nerves 2-12 grossly intact

## LABS

**Blood culture:** pending

### CBC with manual differential:

13.2  $\left\langle \begin{array}{c} 12.7 \\ \hline 36.0 \end{array} \right\rangle 221$

Manual Differential  
 Polys – 80%  
 Bands – 9%  
 Lymphs – 6%  
 Monos – 5%  
 Eos – 0%

<b>BMP:</b>		
131	95	18
4.3	25	0.6
117		

**CRP:** 9.8 mg/dL

**ESR:** 58 mm/hr

**X-ray right hip:** no acute skeletal abnormality; no fracture, dislocation, or joint effusion present

**Ultrasound right hip:** no evidence of joint effusion; hips appear symmetrical

**IMPRESSION:** Osteomyelitis vs. septic arthritis vs. transient synovitis (rule out osteomyelitis and septic arthritis)

### DIFFERENTIAL DIAGNOSES

1. Osteomyelitis
2. Septic arthritis
3. Transient synovitis
4. Legg-Calve-Perthes
5. Slipped capital femoral epiphysis
6. Juvenile Rheumatoid Arthritis
7. Osgood-Schlatter disease
8. Bone cancers
9. Acute lymphoblastic leukemia

### FORMULATION

1. **Osteomyelitis:** Osteomyelitis is infection of bone. Bacteria are the most common pathogens in osteomyelitis, and *Staphylococcal aureus* is the most common bacterium. Group B streptococcus and gram-negative enteric bacilli are also common pathogens in neonates with osteomyelitis, while Group A streptococcus and *Pseudomonas aeruginosa* (associated with puncture wounds) are more common in older children. Osteomyelitis is more common in younger children with approximately 50% of cases occurring in children age five and younger. Bacteria usually infect long bones through hematogenous spread, and the vascular system of long bones makes them ideal environments for bacterial seeding. Nutrient arteries in the metaphysis of long bones make sharp, 90 degree turns before meeting venous sinusoids, and blood flow through these arteries is quite slow. Bacteria present in the blood have ample time to colonize the bone during this sluggish flow, and infection may be easily established. Children with osteomyelitis often present with pain, limping, refusal to move affected limb, and fever. The tibia and femur are the most commonly affected sites in children with osteomyelitis. Radiographs may show displacement of deep muscle planes within 72 hours of onset of osteomyelitis, but lytic changes may not be evident on x-ray for 7 to 14 days. CT and MRI scans may show changes within bone and bone marrow and may show accumulation of subperiosteal pus. Bone scans may show increased perfusion ("hot spots") to specific areas of the bone, indicating increased vascularity and ongoing inflammation from infection. Laboratory values may show an increased white blood cell count, elevated C-reactive protein, and an increased erythrocyte sedimentation rate, indicating ongoing inflammation. These markers are not specific for osteomyelitis and

cannot be used alone to distinguish osteomyelitis from septic arthritis. Diagnosis of osteomyelitis can be made by needle aspiration of the affected bone. Gram stain of fluid obtained will guide treatment with antibiotics.

In the case of our patient, osteomyelitis is a likely cause of hip pain and must be ruled out as a cause of his acute hip pain as infection in bone can rapidly destroy bone tissue. His ESR and CRP were both elevated, indicating ongoing inflammation. However his X-ray did not show displacement of muscle planes or fat pads. Ultrasound also showed no abnormality. Bone scan, if ordered, may show increased perfusion to the affected bone. Diagnosis may be confirmed by needle aspiration.

2. **Septic arthritis:** Septic arthritis is infection of a joint space. In children, infection is usually limited to a single joint, most commonly the knee, followed by the hip and elbow. Bacteria are the most common pathogens in septic arthritis, and *Staphylococcus aureus* is the most common bacterium found in septic joints. *Haemophilus influenzae* type b, Group A streptococcus, and *Streptococcus pneumoniae* are other pathogens that may be found in children with septic arthritis. *Neisseria gonorrhoeae* may also be suspected in sexually active adolescents. Septic arthritis is more common in younger children with approximately 2/3 of cases occurring in children less than two years of age. Joint spaces usually become infected through hematogenous spread of bacteria, but occasionally may become infected through direct inoculation or contiguous spread. Because the joint space is richly vascularized, bacteria present in the blood stream can easily colonize the synovium. Children with septic arthritis often present acutely with fever, pain in the infected joint as well as referred pain in surrounding joints, and limp, as well as warmth, edema, and erythema of the skin overlying the joint. Children often complain of excruciating pain upon palpation of the affected joint and may prefer to hold the joint in a specific position so as to maximize the joint space and decrease pain. Radiographs and ultrasound usually show a joint effusion indicating that inflammation is present. The white blood cell count, erythrocyte sedimentation rate, and C-reactive protein levels may all be elevated, indicating an ongoing inflammatory reaction. However, these markers are not specific for septic arthritis and cannot be used alone to distinguish between septic arthritis and osteomyelitis. Diagnosis of septic arthritis can be made only when the joint is aspirated and gram stain completed to determine pathogen responsible. Treatment relies on knowing pathogen present in joint space and tailoring antibiotic therapy to the pathogen.

In the case of our patient, the presentation of acute onset of hip pain and fever warrant a careful evaluation for septic arthritis. Septic arthritis must be ruled out in monoarticular joint pain as infection and inflammation can easily and quickly destroy the joint space. His ESR and CRP were elevated, indicating an ongoing inflammatory reaction. He was tender to palpation over his hip, and he preferred to lie on the opposite side of his body. However, his radiographs and ultrasound did not show joint effusion. In order to confirm septic arthritis, joint aspiration would have to be performed and the fluid cultured for pathogens.

3. **Transient synovitis:** Transient synovitis is one of the most common causes for limp in children. Children often present with acute onset of pain and limping and may have some limitation in movement of the affected joint. Some children may prefer to keep the hip slightly flexed, abducted, and externally rotated in order to minimize pain symptoms. Children usually have symptoms for less than one week and usually appear “non-toxic.” Fever usually does not accompany pain and limping, but some children may present with a low-grade fever. The cause of transient synovitis is usually unknown, but it may be caused by recent or active viral syndrome, allergic hypersensitivity, or trauma.

Approximately 50% of all children with transient synovitis have had a recent viral upper respiratory infection (within the last 7-14 days). Children between the ages of three and eight are most commonly affected, although children in any age group may develop transient synovitis. Males are more commonly affected than females, and recurrence rates are between 4-15%. Radiographs of the hips (AP and froglegs) may show a joint effusion of the affected hip but are otherwise unremarkable. Ultrasonography of the affected joint may also show a small effusion. Laboratory values are typically normal; however the erythrocyte sedimentation rate may be slightly elevated. Transient synovitis is a diagnosis of exclusion once osteomyelitis and septic arthritis have been considered and ruled out. Treatment is usually conservative, consisting of bed rest and non-steroidal anti-inflammatory drugs. Prognosis is good with no long lasting disability.

In the case of our patient, transient synovitis may be suspected once osteomyelitis and septic arthritis have been ruled out. He presented with acute onset of pain and limping, and demonstrated flexion, abduction, and internal rotation of the hip in order to relieve pain symptoms. X-ray and ultrasound showed no joint effusion, and his white blood cell count was not elevated. However, he did not report a recent upper respiratory tract infection and his lab values show an elevated C-reactive protein and erythrocyte sedimentation rate. He also presented with a high fever, which most children with transient synovitis do not.

4. **Legg-Calve-Perthes:** Legg-Calve-Perthes (LCP) is an idiopathic avascular necrosis of the hip. Children with LCP often present with acute hip pain and limping, although many children may have only painless limping. Some children may prefer to keep the hip slightly flexed, abducted, and externally rotated in order to minimize pain symptoms. It is more common in males than females and usually presents between the ages of two and 12. While the cause of LCP is unknown, it may be associated with inherited coagulopathies (factor V Leiden, protein C or S deficiency) that may lead to disruption of blood flow to the femoral head. Children with LCP often have delayed bone age, disproportionate growth, and short stature. Radiographs of the hip may be normal or may show subtle widening of the medial joint space due to epiphyseal cartilage hypertrophy, irregularity of the physeal plate, and a smaller, more dense epiphysis compared to the opposite side. Some children may have a crescent sign on X-ray, indicating a possible subchondral fracture. Later radiographs may show fragmentation, healing, and/or deformity of the femoral head. Bone scans may show decreased perfusion to the femoral head, and MRI studies may show subtle changes in bone marrow. Most children have normal laboratory values. Treatment of LCP includes no weight bearing of affected hip, abduction stretching exercises to maintain mobility, and containment of the femoral head within the acetabulum to prevent serious deformity.

In the case of our patient, LCP is probably not a likely diagnosis as his radiographs did not show any destruction or necrosis of the femoral head, although he does fit the age and gender profile. X-ray did not show any widening of the joint space or a crescent sign. In order to completely exclude LCP, a bone scan may be performed to determine if perfusion to the femoral head is decreased. Also, his labs show evidence of ongoing inflammation, indicating a possible infectious source for his hip pain.

5. **Slipped capital femoral epiphysis:** Slipped capital femoral epiphysis (SCFE) is a deformity characterized by posterior movement of the femoral epiphysis. It is the most common adolescent hip disorder, and usually affects children between the ages of 10 and 17. Males are more frequently affected than females. Adolescents often present with pain in affected hip, referred pain to the knee, and limping. Running and pivoting activities exacerbate pain symptoms, and patients may hold hip externally rotated to

minimize pain. The cause of SCFE is unknown but may be associated with underlying endocrine disorders, including hypothyroidism and abnormalities of growth (growth hormone deficiency). When SCFE occurs in children younger than 10 years of age, a growth hormone deficiency should be suspected. Local trauma may predispose to or contribute to SCFE. Radiographs of both hips may show swelling of the joint capsule, widening of the epiphyseal line, as well as rotation of the femoral neck anteriorly while the epiphysis shifts posteriorly in the acetabulum. Laboratory values are typically normal. Treatment of SCFE includes closure of the epiphysis with pins and screws in an attempt further slipping. Complications of SCFE include osteonecrosis and chondrolysis.

In the case of our patient, SCFE is not a likely diagnosis because his radiographs did not show any slipping of the femoral epiphysis or swelling of the joint capsule. Also, his labs show evidence of ongoing inflammation, indicating a possible infectious source for hip pain. The patient also does not fit the age profile, and although he is less than 10 years of age, he has not had any growth problems to date (no suspected endocrine deficiency).

6. **Juvenile Rheumatoid Arthritis:** Juvenile rheumatoid arthritis (JRA) is a disorder characterized by idiopathic arthritis of peripheral joints. Joints are often swollen, warm, and show effusion on radiographic studies. Three types of JRA have been described, including oligoarthritis, polyarthritis, and systemic disease. Age of onset is typically less than 16 years of age, and duration of symptoms is usually greater than six weeks. Presenting symptoms include swelling, warmth, pain, tenderness, limited range of motion, and/or morning stiffness in one or more joints (may be large and small joints). Systemic disease may also present with fever and rash. The cause of JRA is unknown but may be associated with specific HLA subtypes and certain environmental triggers (e.g. viral infections, hypersensitivity reactions). Radiographic studies may show joint effusions, periostitis, accelerated epiphyseal closure, and evidence of bone destruction. Laboratory values may show an elevated white blood cell count and platelet count, increased erythrocyte sedimentation rate, an elevated C-reactive protein, and some evidence of anemia. Anti-nuclear antibody titers may be elevated, and some children may be positive for rheumatoid factor. Treatment for JRA includes non-steroidal anti-inflammatories as well as other immunosuppressive agents such as etanercept, methotrexate, and sulfasalazine. Complications include leg length discrepancy, popliteal cysts, and flexion contractures.

In our patient's case, JRA is not a likely diagnosis. While his pain is localized to more than one joint, it is acute onset. He has not been experiencing pain for greater than six weeks, and he has no complaints of morning stiffness. He did complain of pain and tenderness in both his knee and hip, and his hip was warm to the touch. His CRP and ESR were elevated, but his white cell count and platelet count were within normal limits. In order to definitively rule out JRA, an ANA titer and rheumatoid factor could be measured.

7. **Osgood-Schlatter disease:** Osgood-Schlatter disease (OSD) is an osteochondritis of the tibial tuberosity and is typically associated with overuse of the affected knee. OSD is thought to be associated with traumatic strain leading to chronic avulsion and secondary ossification of the tibial tuberosity. OSD is often seen in active children who participate in athletics, especially adolescent boys and athletic females who have recently undergone a growth spurt. Children present with anterior knee pain that gradually becomes worse with time. Pain may be exacerbated by running, jumping, or direct trauma to the affected knee, and rest may alleviate pain symptoms. OSD often shows



swelling over tibial tuberosity, pain, and tenderness. Radiographic studies and laboratory values are typically normal. OSD is typically a benign and self-limited condition, and treatment is usually conservative, encouraging continued participation in athletics.

In the case of our patient, OSD is not a likely diagnosis. His principle complaint was hip pain, and he did not localize his knee pain to the tibial tuberosity. He has yet to complete a growth spurt and has no history of overuse due to athletics. His radiographs were normal, but his white blood cell count, CRP, and ESR were elevated, indicating ongoing inflammation likely due to another reason.

8. **Bone cancers:** Limping in children may be the only presentation for bone tumors such as osteoid osteoma, Ewing's sarcoma, unicameral bone cysts, fibroid dysplasias, and osteosarcoma. Some children may present with persistent pain and swelling that is often attributed to minor trauma. Ewing's sarcoma and osteosarcoma are the two most common malignant bone tumors in children, and bone pain is present in approximately 80% of these patients. Bone tumors must always be considered in children who complain of bone pain at night and in nonarticular locations. Radiographic studies often show intraosseous lesions, bony destruction, onion skinning, sunbursting, and/or sclerotic changes indicative of either a benign or malignant tumor.

In the case of our patient, bone tumor is not likely. He can localize his pain to specific joint areas and his pain is acute onset. His radiographic images did not show any lesions within the bone that are indicative of bone tumors.

9. **Acute lymphoblastic leukemia:** Children with acute lymphoblastic leukemia (ALL) may present with pain, limping, and refusal to bear weight. Children may also present with headache, lymphadenopathy, fever, and other non-specific symptoms. ALL is most common in children between ages two and five, and is more common in boys than girls. Radiographic studies may show osteopenia, metaphyseal bands, periosteal bone formation, lytic lesions, sclerosis, and bony destruction. Laboratory studies usually show depressed white blood cell counts, thrombocytopenia, anemia, and evidence of lymphoblasts and other abnormal cell types on peripheral smears.

In the case of our patient, ALL is not a likely diagnosis. Only 35% of children with ALL present with bone pain, and his radiographs showed normal bone without bony destruction. He also does not fit the correct age profile for ALL. His laboratory values did not show leukopenia, thrombocytopenia, or anemia, and they did not show evidence of abnormal cell types.

## SOURCES

1. Lampe, Richard M. "Osteomyelitis and Suppurative Arthritis." *Nelson Textbook of Pediatrics* 17<sup>th</sup> ed. 2004: 2297-2302.
2. Thompson, George H. "The Hip." *Nelson Textbook of Pediatrics* 17<sup>th</sup> ed. 2004: 2273-2279.
3. Clark, Mark. "Overview of the causes of limping in children." *Up-To-Date Online* 15.2; 2007.
4. Nigrovic, Peter; Wilking, Andrew P. "Overview of hip pain in childhood." *Up-To-Date Online* 15.2; 2007.

**2 to 20 years: Boys**  
**Stature-for-age and Weight-for-age percentiles**

NAME DT

RECORD # \_\_\_\_\_

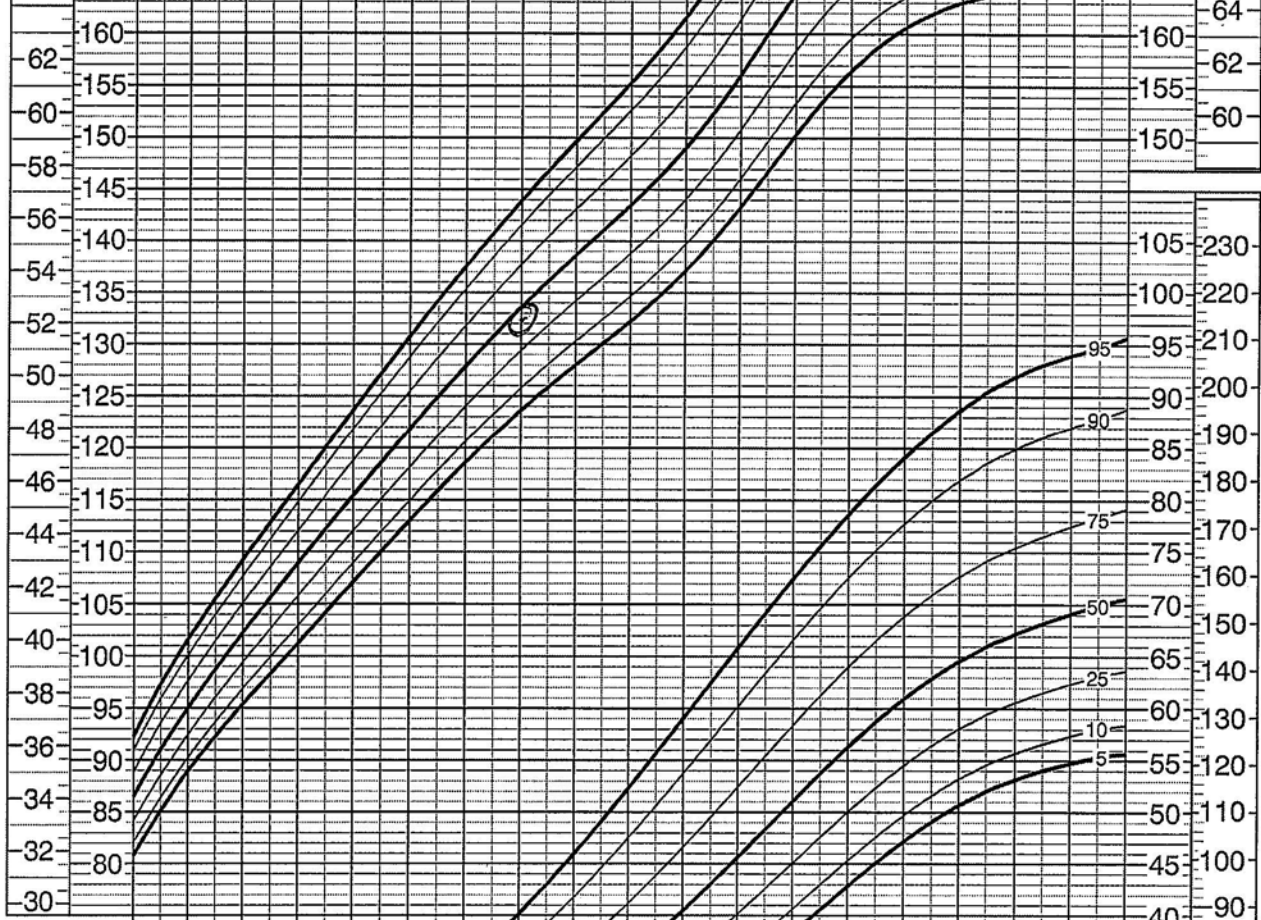
12 13 14 15 16 17 18 19 20

Mother's Stature _____		Father's Stature _____		
Date	Age	Weight	Stature	BMI*

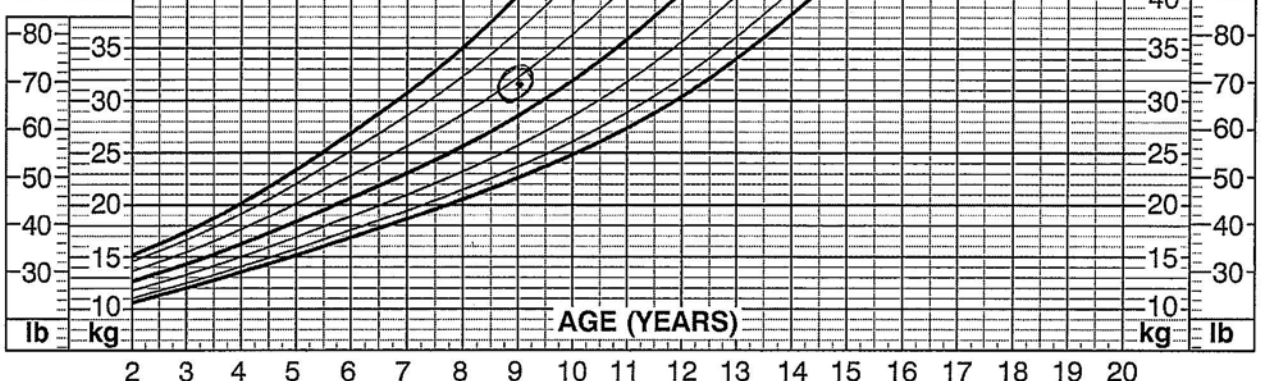
\*To Calculate BMI: Weight (kg) ÷ Stature (cm) ÷ Stature (cm) x 10,000  
 or Weight (lb) ÷ Stature (in) ÷ Stature (in) x 703

in	cm	3	4	5	6	7	8	9	10	11
----	----	---	---	---	---	---	---	---	----	----

STATURE



WEIGHT



Published May 30, 2000 (modified 11/21/00).

SOURCE: Developed by the National Center for Health Statistics in collaboration with the National Center for Chronic Disease Prevention and Health Promotion (2000).  
<http://www.cdc.gov/growthcharts>



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**Appendix F: Mid-Term Clerkship Feedback**

**STUDENT:**

**CLERKSHIP: Pediatrics**

Please give reasons for any ratings less than 3  
 Poor            Adequate            Excellent  
 1            2            3            4            5

Skills

- 1) Ability to perform comprehensive and accurate history and physical exams \_\_\_\_\_
- 2) Ability to formulate appropriate differential diagnosis and plan \_\_\_\_\_
- 3) Skill in patient care \_\_\_\_\_
- 4) Skill in presentation \_\_\_\_\_
- 5) Skill in invasive procedures \_\_\_\_\_
- 6) Skill in documentation and note writing \_\_\_\_\_

Knowledge

- 1) Basic fund of knowledge \_\_\_\_\_
- 2) Acquisition of knowledge pertinent to patients seen or cared for \_\_\_\_\_
- 3) Skill in finding answers in the library \_\_\_\_\_

Attitude

- 1) Shows enthusiasm and interest \_\_\_\_\_
- 2) Dependability and attendance \_\_\_\_\_
- 3) Pleasant to work with \_\_\_\_\_
- 4) Able to accept criticism \_\_\_\_\_

OVERALL PERFORMANCE (circle one):

OUTSTANDING PERFORMANCE

DOING WELL

NEED FOR IMPROVEMENT

\*IN JEOPARDY OF FAILING

\*Please delineate action necessary to convert this  
to passing grade.

OVERALL IMPRESSION OF THE STUDENT:

---



---

AREAS FOR IMPROVEMENT:

---



---

Signature of Faculty Member

Signature of Student

## APPENDIX G: Copy of Final Clerkship Evaluation Form

### University of Alabama School of Medicine Student Evaluation

Insert  
Student  
Picture  
Here

Student Name: \_\_\_\_\_ Clerkship: \_\_\_\_\_ Clerkship Dates: \_\_\_\_\_

Rater's Name: \_\_\_\_\_ Ward/Service: \_\_\_\_\_ Dates on Service: \_\_\_\_\_

**CONSIDERING THE OVERALL PERFORMANCE OF THIS TRAINEE,**

**PLEASE NOTE WHETHER THIS STUDENT PASSES OR FAILS THIS CLERKSHIP**

**OVERALL GRADE (check one):**

I am confident this student should FAIL

I am NOT confident this student should PASS

I am confident this student should PASS

**Thank You. Next, please evaluate each of the following specific areas of performance.**

**Instructions for Raters:** Please check the box for each category on this form that best describes the student's performance during the clerkship. On the last page please be as specific as possible in your elaboration of the student's strengths and weaknesses.

<b>CLINICAL SKILLS</b>			
<b>Below Expectations</b>	<b>Meets Expectations</b>	<b>Exceeds Expectations</b>	<b>Unable to Assess</b>
<p><b>HISTORY &amp; PHYSICAL</b> Hx &amp; PE is incomplete or inaccurate. Important data not obtained.</p> <p><input type="checkbox"/> 1      <input type="checkbox"/> 2      <input type="checkbox"/> 3</p>	<p>Hx &amp; PE relatively complete and accurate with satisfactory organization.</p> <p><input type="checkbox"/> 4      <input type="checkbox"/> 5      <input type="checkbox"/> 6</p>	<p>Hx &amp; PE exceptionally complete. Importance of findings apparent.</p> <p><input type="checkbox"/> 7      <input type="checkbox"/> 8      <input type="checkbox"/> 9</p>	<p>Unable to assess.</p> <p><input type="checkbox"/></p>
<p><b>CASE PRESENTATION</b> Presentation disorganized; uses imprecise, ambiguous terms; data incomplete, unintegrated and/or inaccurate.</p> <p><input type="checkbox"/> 1      <input type="checkbox"/> 2      <input type="checkbox"/> 3</p>	<p>Presents satisfactory description of patient that is adequately accurate, complete, and organized.</p> <p><input type="checkbox"/> 4      <input type="checkbox"/> 5      <input type="checkbox"/> 6</p>	<p>Clear, organized, accurate, complete, polished presentations. Clearly delineates a differential diagnosis.</p> <p><input type="checkbox"/> 7      <input type="checkbox"/> 8      <input type="checkbox"/> 9</p>	<p>Unable to assess.</p> <p><input type="checkbox"/></p>
<p><b>DATA ANALYSIS</b> Great difficulty integrating and interpreting history, PE, and lab data to reach diagnosis or management decisions.</p> <p><input type="checkbox"/> 1      <input type="checkbox"/> 2      <input type="checkbox"/> 3</p>	<p>Able to integrate information to form reasonable diagnostic possibilities. Good use of lab data and clinical judgment.</p> <p><input type="checkbox"/> 4      <input type="checkbox"/> 5      <input type="checkbox"/> 6</p>	<p>Evaluates data critically and consistently arrives at correct decisions even of highly complex nature. Outstanding clinical judgment.</p> <p><input type="checkbox"/> 7      <input type="checkbox"/> 8      <input type="checkbox"/> 9</p>	<p>Unable to assess.</p> <p><input type="checkbox"/></p>
<p><b>FACTUAL KNOWLEDGE</b> Principles, pathophysiology clearly below acceptable standards. Lacks knowledge to deal with common clinical problems.</p> <p><input type="checkbox"/> 1      <input type="checkbox"/> 2      <input type="checkbox"/> 3</p>	<p>Adequate comprehension of basic pathophysiological principles and application to patients' problems.</p> <p><input type="checkbox"/> 4      <input type="checkbox"/> 5      <input type="checkbox"/> 6</p>	<p>Outstanding knowledge of basic medical principles relating to patients' problems, both common and uncommon.</p> <p><input type="checkbox"/> 7      <input type="checkbox"/> 8      <input type="checkbox"/> 9</p>	<p>Unable to assess.</p> <p><input type="checkbox"/></p>
<p><b>PATIENT INTERACTION</b> Avoids personal contact with patients and families. Tactless and inattentive to patient needs. Shows little awareness of patient personal and emotional problems. Mistrusted by patients.</p> <p><input type="checkbox"/> 1      <input type="checkbox"/> 2      <input type="checkbox"/> 3</p>	<p>Able to understand and deal with emotional and personal needs of patients and families and can enlist their cooperation.</p> <p><input type="checkbox"/> 4      <input type="checkbox"/> 5      <input type="checkbox"/> 6</p>	<p>Unusually sensitive and skillful in eliciting and dealing with emotional and personal problems of patients and families. Establishes rapport. Wins confidence and cooperation of patients.</p> <p><input type="checkbox"/> 7      <input type="checkbox"/> 8      <input type="checkbox"/> 9</p>	<p>Unable to assess.</p> <p><input type="checkbox"/></p>

<b>PROFESSIONALISM</b>		
<b>Unsatisfactory</b>	<b>Satisfactory</b>	<b>Unable to Assess</b>
<b>COOPERATION</b> Generally does not cooperate with other health professionals and/or acts in ways conveying lack of respect for others' professional roles. <input type="checkbox"/>	Maintains acceptable and workable co-worker relationships. <input type="checkbox"/>	Unable to assess. <input type="checkbox"/>
<b>DEPENDABILITY</b> Could not be relied upon in one or more areas: Attendance, punctuality, dress/demeanor. <input type="checkbox"/>	Can be relied upon in all areas: Attendance, punctuality, appropriate dress/demeanor. <input type="checkbox"/>	Unable to assess. <input type="checkbox"/>
<b>CLERKSHIP REQUIREMENTS</b> Did not complete requirements or assignments. <input type="checkbox"/>	Completed requirements/assignments satisfactorily. <input type="checkbox"/>	Unable to assess. <input type="checkbox"/>

**AREAS OF STRENGTH:**

**AREAS IN NEED OF IMPROVEMENT:**

Do you have any reason to question this student's honesty?  Yes  No If Yes, explain:

Contact hours with student?  1-10 hr/wk  11-20 hr/wk  21-30 hr/wk  >30 hr/wk Weeks spent with student?  0-1  1-2  2-4  >4

Rater's Signature \_\_\_\_\_

**APPENDIX H: Copy of Write-Up Evaluation**

## WRITE-UP EVALUATION

Student \_\_\_\_\_

Write-Up # \_\_\_\_\_ of 2

Faculty \_\_\_\_\_

Diagnosis: \_\_\_\_\_

Date Turned in to Peds: \_\_\_\_\_

Date Returned to Student: \_\_\_\_\_

Unsatisfactory   Satisfactory   Exceptional

Information obtained in history

Completeness of PE

Organization of information

Ex. Format, order

Completeness of assessment

Development of differential diagnosis

Formulation/discussion of differential diagnosis

Integration of patient into formulation

Legibility

Overall:

C

B

A

COMMENTS:

**APPENDIX I****VIDEOTAPING SCORE SHEET**

<b>INTERVIEWING SKILLS</b>	<b>0=NONE</b>					<b>5=EXCEPTIONAL</b>
1. Introduced themselves	0	1	2	3	4	5
2. Spoke clearly	0	1	2	3	4	5
3. Used words patient could understand	0	1	2	3	4	5
4. Repeated information back to patient	0	1	2	3	4	5
5. Talked to child/eye contact	0	1	2	3	4	5
<b>HISTORY</b>						
6. Obtained pertinent +’s	0	1	2	3	4	5
7. Obtained pertinent –’s	0	1	2	3	4	5
8. Established chronicity of symptoms	0	1	2	3	4	5
9. Repeated summary of HPI to patient	0	1	2	3	4	5
10. Addressed PMH	0	1	2	3	4	5
11. Addressed medications/treatments	0	1	2	3	4	5
<b>PHYSICAL</b>						
12. Used otoscope correctly	0	1	2	3	4	5
13. Began with non-threatening parts of exam	0	1	2	3	4	5
14. HEENT adequately examined	0	1	2	3	4	5
15. CV adequately examined	0	1	2	3	4	5
16. Lungs adequately examined	0	1	2	3	4	5
17. Abdomen adequately examined	0	1	2	3	4	5
18. Seemed comfortable with child	0	1	2	3	4	5
<b>PRESENTATION</b>						
19. Accurate summation of history	0	1	2	3	4	5
20. Accurate description of exam findings	0	1	2	3	4	5

---

**Total possible score: 100** (<40: need help; 55-65: average; >80:excellent)



## APPENDIX J

### Contents of Supplemental Reading Material CD

- Pediatric Clerkship Handbook
- Articles listed by topic:
  - Child Abuse
    - “Failure to Thrive as a Manifestation of Child Neglect.” *Pediatrics* 2005; 116; 1234-1237.
    - “Evaluation of Suspected Child Physical Abuse.” *Pediatrics* 2007; 119; 1232-1241.
    - “Evaluation of Sexual Abuse in Children.” *Pediatrics* 2005; 116; 506-512.
  - ADHD (note: articles are combined in one link on CD)
    - “Clinical Practice Guideline: Diagnosis and Evaluation of the Child with Attention Deficit/Hyperactivity Disorder.” *Pediatrics* 2000; 105; 1158-1170.
    - “Clinical Practice Guideline: Treatment of the School-Aged Child with Attention-Deficit/Hyperactivity Disorder.” *Pediatrics* 2001; 108; 1033-1044.
  - Anemia
    - “Managing Anemia in Pediatric Office Practice: Part 1.” *Pediatrics in Review* 2002; 23; 75-84.
    - “Managing Anemia in Pediatric Office Practice: Part 2.” *Pediatrics in Review* 2002; 23; 111-122.
  - Asthma
    - “New Treatments for Asthma.” *Pediatrics in Review* 2003; 24; 222-232.
  - Bronchiolitis
    - “Respiratory Syncytial Virus.” *Pediatrics in Review* 2003; 24; 301-309.
  - Cancer
    - “Consultation with the Specialist: Childhood Leukemia.” *Pediatrics in Review* 2005; 26; 96-104.
    - “Consultation with the Specialist: Lymphomas.” *Pediatrics in Review* 2003; 24; 380-386.
  - Cardiology
    - “Presentation of Congenital Heart Disease in the Neonate and Young Infant.” *Pediatrics in Review* 2007; 28; 123-131.
    - “Heart Murmurs in Pediatric Patients: When Do You Refer?” *American Family Physician* 1999; 60; 558-565.
  - Croup
    - “Viral Croup.” *Pediatrics in Review* 2001; 22; 5-12.
  - Cystic Fibrosis
    - “Cystic Fibrosis.” *Pediatrics in Review* 2001; 22; 257-264.
  - Failure to Thrive
    - “Failure to Thrive: A General Pediatrician’s Perspective.” *Pediatrics in Review* 1997; 18; 371-378.

- "Failure to Thrive: A Consequence of Undernutrition." *Pediatrics in Review* 2006; 27; e1-e11.
- Gastroenteritis
  - "Gastroenteritis." *Pediatrics in Review* 1994; 15; 461-471.
  - "A Synopsis of the American Academy of Pediatrics' Practice Parameter on the Management of Acute Gastroenteritis in Young Children." *Pediatrics in Review* 1997; 18; 221-223.
- Headache
  - "Pediatric Migraine." *Pediatrics in Review* 2007; 28; 43-53.
  - "Headaches in Children and Adolescents." *American Family Physician* 2002; 65; 625-632.
- Hyperbilirubinemia
  - "Neonatal Jaundice." *Pediatrics in Review* 2006; 27; 443-454.
- Infant Feeding
  - "Infant Feeding." *Pediatrics in Review* 2000; 21; 191-200.
  - "Formulas for the Healthy Term Infant." *Pediatrics in Review* 1995; 16; 107-112.
- Obesity
  - "Obesity in Children and Adolescents." *Pediatrics in Review* 2005; 26; 155-162.
- Otitis Media
  - "Evidence Based Clinical Practice Guideline for Medical Management of Acute Otitis Media in Children 2 Months to 13 Years of Age." Cincinnati Children's Hospital Clinical Practice Guidelines. Revised October 29, 2004.
- Pneumonia
  - "Pneumonia." *Pediatrics in Review* 2002; 23; 132-140.
- Puberty Abnormalities
  - "Delayed Puberty." *Pediatrics in Review* 2001; 22; 309-315.
  - "Precocious Puberty." *Pediatrics in Review* 2006; 27; 373-381.
- Seizures
  - "Seizures in Children: Determining the Variation." *Pediatrics in Review* 2007; 28; 363-371.
  - "A Synopsis of the American Academy of Pediatrics' Practice Parameters on the Evaluation of Treatment of Children with Febrile Seizures." *Pediatrics in Review* 1999; 20; 285-287.
  - "Febrile Seizures." *Pediatrics in Review* 1997; 18; 5-9.
- Short Stature
  - "A General Pediatric Approach to Evaluating a Short Child." *Pediatrics in Review* 2005; 26; 410-420.
- Sinusitis
  - "Sinusitis." *Pediatrics in Review* 2001; 22; 111-117.
- Sudden Infant Death Syndrome (SIDS)
  - "Sudden Infant Death Syndrome." *Pediatrics in Review* 2007; 28; 209-214.

- Urinary Tract Infections
  - “Evidence-Based Care Guideline for Medical Management of First Urinary Tract Infection in Children 12 Years of Age or Less.” Cincinnati Children’s Hospital Clinical Practice Guidelines. Revised April 18, 2005.
- Vaccinations
  - “Recommended Adult Immunization Schedule.” *MMWR Weekly* October 19, 2007; 56.
  - “Recommended Immunization Schedules for Persons Aged 0-18 Years.” *MMWR Weekly* January 5, 2007; 55.
  - “Vaccine Update 2007.” Handout.
  - “Administration of Vaccines – UMC November 2006.” Handout.
  - “Recommended and minimum ages and intervals between vaccine doses of routinely recommended vaccines.” Table from *MMWR Weekly* December 1, 2006; 55.

### **Appendix K: Pediatric Clerkship Lecture Topics**

<b>Dr. Karen Burgess</b>	<ul style="list-style-type: none"> <li>• Rashes</li> <li>• Diabetes Mellitus</li> <li>• Orthopedics</li> <li>• Growth and Development</li> <li>• Toxicology</li> <li>• Neonatology</li> </ul>
<b>Dr. Elizabeth Cockrum</b>	<ul style="list-style-type: none"> <li>• Hyperbilirubinemia</li> <li>• Renal Problems</li> <li>• Anemia</li> <li>• Asthma</li> <li>• Pharyngitis</li> <li>• Constipation/Encopresis</li> <li>• Pediatric Jeopardy</li> </ul>
<b>Dr. Ashley Evans</b>	<ul style="list-style-type: none"> <li>• Seizures</li> <li>• An Approach to Parenteral Fluid Therapy in Children</li> <li>• SIDS/Apnea/ALTE</li> <li>• Pediatric Cancer</li> </ul>
<b>Dr. Heather Taylor</b>	<ul style="list-style-type: none"> <li>• Pediatric Cardiology</li> <li>• Genetic Syndromes</li> <li>• Endocrine Disease in Children</li> <li>• Discipline/Problem Behaviors</li> <li>• Pediatric Obesity and Co-morbidities</li> </ul>
<b>Dr. Michael Taylor</b>	<ul style="list-style-type: none"> <li>• Immunizations</li> <li>• Failure to Thrive</li> <li>• Child Abuse</li> <li>• Attention Deficit Hyperactivity Disorder</li> <li>• Otoscope Use 101</li> </ul>
<b>Dr. Mark Thomas</b>	<ul style="list-style-type: none"> <li>• Acne Management</li> <li>• Dealing with Adolescent Patients</li> </ul>

Due to time constraints and scheduling conflicts, it is likely that not all of these lectures will be given during each clerkship rotation. The attending on service will let you know in advance what lecture topics will be given the week that he/she is on service.

During the 1<sup>st</sup> week of a clerkship rotation, the students will be given lectures on the infant/toddler development, infant feeding, and autism.

## **APPENDIX L**

### **List of Important Passwords and Door Codes**

- Code for the doors to the computer lab and pediatric conference room located on the 5<sup>th</sup> floor in the Educational Tower of DCH
  - 611