PEDS
Basic Pediatric Clerkship

Sites

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PEDS 667 Madigan, Tacoma, WA
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# Core Pediatric Clerkship Manual Directory

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**Pediatric History Taking**
- Approach to the Patient
- Explanation of Pediatric H&Ps/Pediatric Database
- Example H&Ps (older child and infant)

**Pediatric Physical Examination**
- Benchmarks for Pediatric Physical Examination
- Observed Physical Examination Forms (neonate and older child)

**Pediatric Medical Knowledge**
- Requirements and other learning resources
- CLIPP cases and Instructions
- Therapeutics Problem Set (Exercises 1-4)
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**Pediatric Ethics and Professionalism**
- Discussion Cases
- Resources
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- Work Hours Policy
- Attendance, Weather and Holiday Policy
OVERVIEW
The practice of Pediatrics involves addressing the health needs of children. Every child should have the opportunity to grow and develop to achieve his or her maximum potential; the job of the Pediatrician is to assist in that process by treating and preventing illness, guiding children and their families toward good health choices, and offering information and interventions that support the overall well-being of the child.

**Goals of the core pediatric clerkship:** Provide foundational skills and knowledge about the fundamental issues of health and illness relevant to the care of children.

**Specific Competencies related to the Care of Children addressed in the Core Pediatric Clerkship:**

1. Collect both focused and comprehensive, developmentally appropriate patient histories.
2. Perform an age appropriate physical examination on newborns, infants and older children.
3. Gather patient information in the triadic interviewing setting using active verbal and non-verbal listening skills, clarifying and summarizing statements, and open-ended and closed-ended questions.
4. Construct an appropriate approach to common pediatric clinical problems by:
   a. Identifying essential clinical features
   b. Outlining natural history of disease processes
   c. Creating a stratified differential diagnosis
   d. Formulating evidence-based diagnostic and therapeutic approaches
   e. Discussing how age and development influence essential clinical features, natural history of disease processes, differential diagnosis as well as diagnostic and therapeutic approach
5. Outline the components of childhood healthcare maintenance including: childhood immunizations, assessment of child development and nutrition and the principles of anticipatory guidance. Conduct healthcare maintenance visits that include components of the processes outlined.
6. Discuss the effects of growth and maturation on pharmacokinetics and use this knowledge to select the appropriate treatment regimens of commonly used fluids and medications in patients of different ages.
7. Analyze common professional and ethical dilemmas in pediatrics.
General Competencies addressed in the Pediatric Core Training Experience:

1. Deliver well-organized, appropriately focused, and accurate oral patient presentations.
2. Write well-organized, appropriately focused, and accurate patient notes, including admission, progress and outpatient visit notes.
3. Demonstrate relationship building skills in each clinical encounter and interprofessional exchange.
4. Work effectively as a member of the healthcare team.
5. Elicit and recognize the perspectives and needs of families and provide care for patients within their social and cultural context.

Pediatric Clinical Skills:

After completing your Pediatrics clerkship, we expect that you will have gained knowledge and developed skills in the following areas related to the care of children:

1. Health Supervision/Anticipatory Guidance (includes poisoning/injury prevention)
2. Growth
3. Development and Behavior (includes issues of normal development and also concerns about behavior)
4. Nutrition for Children
5. Issues Unique to Adolescents
6. Newborn Care (includes newborn anticipatory guidance and the newborn physical exam)
7. Fluid/Electrolyte Management and Pediatric Therapeutics
8. Assessment of the Acutely Ill Child

For each area, we will describe the skills you are expected to learn and methods to demonstrate your capabilities.
### Minimal Competency Outline for Pediatric Clinical Skills

**Health Supervision/Anticipatory Guidance (includes poisoning/injury prevention)**

"Anticipatory guidance" means providing information to parents and patients to maintain health, predict normal processes, and avoids problems. You should be able to provide anticipatory guidance in several areas:

<table>
<thead>
<tr>
<th>Specific Skills</th>
<th>Minimum achievement</th>
</tr>
</thead>
</table>
| Health issues, adjusted as appropriate for the age of the child | • Infants - List at least two benefits of breastfeeding; tell parents no solid foods before 4-6 months of age; recommend an appropriate first solid. Address at least one principle of vitamin or mineral supplementation.  
• Toddler - Address eliminating bottle feeding and limiting sugary beverage consumption.  
• Preschooler/School Age - Address at least one principle of a healthy diet, such as limiting sugary beverages and junk food and encouraging fruits and vegetables.  
• All ages - Ask about and/or look at immunization record. |
| • Nutrition  
• Behavior  
• Immunizations  
• Injury prevention  
• Pubertal development |               |
| Personal safety | • Address at least three age-appropriate safety concerns during a health maintenance visit. |
| • Motor vehicle safety  
• Infant sleeping position  
• Falls  
• Burns  
• Poisoning  
• Fire safety  
• Choking  
• Water safety  
• Bike safety  
• STI (formerly called STD)  
• Firearms and weapons |               |
| Home safety and appropriate techniques to prevent accidental ingestions | • Mention to caregiver at least one age-relevant toxin that could be a potential risk for the child; e.g. medicines, cleaning supplies, household and gardening chemicals, lead.  
• Counsel caregiver about the appropriate storage of potential toxins; e.g. cabinet locks, safety caps.  
• Discuss with caregiver the appropriate intervention in the event of an exposure; this must include advice about calling poison control. |

<table>
<thead>
<tr>
<th>Learning Activities:</th>
<th>Assessment:</th>
</tr>
</thead>
</table>
| • Participate in outpatient health supervision clinic visits for at least 1 infant, 1 toddler and 1 older child  
• CLIPP cases 2, 3, 4, 5  
• COMSEP Physical Examination Video  
• Physical Examination Benchmarks  
• Textbook (optional) | • Final examination  
• Clinical Performance Assessment  
• CEX (older child) |
Growth

Normal growth is a marker of child health and well-being. Abnormal growth can be an indicator of chronic illness, genetic disorders, malnutrition, psychosocial problems, or other issues which require intervention. You should be able to address growth issues for children as follows:

<table>
<thead>
<tr>
<th>Specific Skills</th>
<th>Minimum achievement</th>
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</thead>
</table>
| Demonstrate ability to measure and assess growth including height/length, weight, and head circumference and body mass index in patient encounters using standard growth charts. | • Plot growth data accurately.  
• If growth data are abnormal, recheck plot.  
• Recognize normal and abnormal growth patterns. |

Learning Activities:  
• Plot parameters and interpret data on all physical examinations during  
  o Outpatient clinic visits  
  o Inpatient care  
  o Newborn nursery  
• Growth Problem Set  
• Textbook (optional)  

Assessment:  
• Final examination  
• Evaluations of written H&P  
• Clinical Performance Assessment
**Development and Behavior** (includes issues of normal development and also concerns about behavior)

Although there is variation for each individual, childhood development and behavior should follow a generally recognized pattern. Abnormalities of development or behavior may suggest organic or psychosocial problems which require intervention; many problems can be avoided with appropriate guidance. You should be able to recognize and address development and behavior issues in children as follows:

<table>
<thead>
<tr>
<th>Specific Skills</th>
<th>Minimum achievement</th>
</tr>
</thead>
</table>
| Basic assessment of normal childhood development and behavior | • Describe at least one aspect of psychosocial development in a specific patient.  
• Describe at least one aspect of language development in a specific patient.  
• Describe at least one aspect of physical development in a specific patient.  
• Demonstrate an appropriate exam  
• Recognize at least one sign of puberty  
• Describe at least one aspect of motor development in a specific patient.  
• Use an appropriate tool to screen and evaluate developmental progress (e.g. Denver Developmental Screening Test). |
| Demonstrate an ability to assess the following in pediatric patients using appropriate resources:  
• Psychosocial development  
• Language development  
• Physical maturation  
• Motor development | |
| Evaluation and intervention for concerns related to childhood development and behavior | • Ask about and report behavior concerns identified in history or physical exam.  
• Ask about and report psychosocial concerns identified in history or physical exam.  
• Identify common abnormal behaviors seen in either infancy, childhood or adolescence such as sleep issues, toilet training.  
• Identify at least one common psychosocial problem in either infancy, childhood or adolescence such as limited family resources. |
| • Identify behavioral and psychosocial problems of childhood using the medical history and physical examination | |

**Learning Activities:**
- CLIPP cases 2, 3, 4, 5  
- Patient care (inpatient/outpatient)  
- Online Lecture: Behavior & Development  
- Textbook (optional)

**Assessment:**
- Clinical Performance Assessment  
- Final Examination  
- Evaluations of written H&P  
- CEX (newborn and older child)
Nutrition for children

Appropriate nutrition is of paramount importance so that children can achieve their goals of growth and development. Nutritional problems can interfere with growth and development and lead to health issues. During illness or in special chronic medical conditions, nutritional needs will differ from the norm. You should be able to address the following basic issues related to nutrition for children:

<table>
<thead>
<tr>
<th>Specific skills</th>
<th>Minimum achievement</th>
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</thead>
</table>
| Obtain an appropriate dietary history in children of different ages: | • If breastfeeding, ask duration of nursing; if bottle-feeding, ask volume and type of formula.  
  • Ask about elimination (number of wet diapers, stools).  
  • Ask if other foods or fluids are given, including water.  
  • Plot on growth chart. |
| 0-4 months                                           | • Ask about all of the items in 0-4 months.  
  • Ask if child is on solids, how much, and what types.  
  • Ask about consumption of sugary beverages.  
  • Plot on growth chart. |
| 4-12 months                                          | • Ask what child is eating; ask about type and amount of milk or other fluids (e.g. sugary beverages).  
  • Ask about elimination.  
  • Plot on growth chart. |
| 1-2 years                                            | • Ask what child is eating; ask about type and amount of milk or other fluids (e.g. sugary beverages).  
  • Ask about elimination.  
  • Plot on growth chart and calculate BMI. |
| >2 years                                              | • Ask diet history (what, when, how much).  
  • Plot on growth chart and calculate BMI. |
| Adolescent                                            |                                                                              |

Learning Activities:
- CLIPP cases 2, 3
- Patient care (inpatient/outpatient settings)
- Online Lecture: Nutrition
- Textbook (optional)

Assessment:
- Final Examination
- Clinical Performance Assessment
- Evaluations of written H&P
Issues Unique to Adolescents

The changes of adolescence present unique health issues and new challenges for the patient, family, and pediatrician. You should be able to recognize and address these issues when caring for adolescents:

<table>
<thead>
<tr>
<th>Specific skill</th>
<th>Minimum achievement</th>
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</thead>
</table>
| Medical interview of the adolescent | • Separate (or attempt to) patient from parent/guardian for part of the interview.  
• Address confidentiality with patient.  
• Ask a psychosocial history (e.g. HEADSS or other appropriate tool) that includes screening for at least two risk-taking behaviors. |
| Physical examination of the adolescent | • Identify the need for chaperone when appropriate.  
• Utilize appropriate draping techniques.  
• Assess SMR (sexual maturity rating, formerly "Tanner stage") of breast, pubic hair, and genitalia.  
• Assess for scoliosis. |
| Health supervision of the adolescent | • Give basic preventive counseling for common adolescent issues (e.g. diet, exercise, sexuality, substance use, safety). |

Learning Activities:  
• CLIPP case 5  
• Online Lecture: Adolescent Medicine  
• COMSEP Physical Examination Video  
• Physical Examination Benchmarks  
• Patient Care (inpatient/outpatient)  
• Textbook (optional)  

Assessment:  
• Clinical Performance Assessment  
• Final examination
Newborn Care (includes newborn anticipatory guidance and the newborn physical exam)

Pediatric care begins at birth, with careful evaluation of the newborn and support to the parents; this holds true for the normal infant and for those with health challenges. You should be able to assess and provide guidance for a newborn as follows:

<table>
<thead>
<tr>
<th>Specific skills</th>
<th>Minimum achievement</th>
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</thead>
<tbody>
<tr>
<td>Give anticipatory guidance to parents of a newborn for the following issues:</td>
<td>• Ask about plans for feeding.</td>
</tr>
<tr>
<td>• Feeding</td>
<td>• Ask about frequency and volume of feeding.</td>
</tr>
<tr>
<td>• Normal bowel and urinary elimination patterns</td>
<td>• List 2 benefits of breastfeeding/breast milk.</td>
</tr>
<tr>
<td>• Appropriate car seat use</td>
<td>• Display nonjudgmental attitude.</td>
</tr>
<tr>
<td>• SIDS prevention</td>
<td>• Ask about frequency of urine and stool output.</td>
</tr>
<tr>
<td>• Health maintenance/prevention</td>
<td>• Ask if parents have a car seat; ask about car seat positioning (e.g., rear-facing, front vs. back seat).</td>
</tr>
<tr>
<td>• Identifying illness</td>
<td>• Inquire about sleep position.</td>
</tr>
<tr>
<td>Perform a complete physical exam of the newborn infant</td>
<td>• Ask about smoke exposure.</td>
</tr>
<tr>
<td></td>
<td>• Ask about plan for follow-up care.</td>
</tr>
<tr>
<td></td>
<td>• Ask if newborn received Hep B vaccine.</td>
</tr>
<tr>
<td></td>
<td>• Verify that hearing and newborn screening done before discharge.</td>
</tr>
<tr>
<td></td>
<td>• Give at least 2 reasons to call health care provider.</td>
</tr>
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</table>

As outlined in Physical Examination Benchmarks

Learning Activities:
- CLIPP cases 1, 2, 7, 8, 9
- Newborn nursery experience
- COMSEP Physical Examination Video
- Physical Examination Benchmarks
- Textbook (optional)

Assessment:
- CEX (Newborn)
- Clinical Performance Assessment
- Final examination
**Fluid/Electrolyte Management and Pediatric Therapeutics**

Maintaining effective circulating volume is necessary to assure organ perfusion. Children may be at increased risk for volume depletion due to their smaller size and higher propensity to develop volume-depleting ailments. Assessment of volume status and correction of fluid/electrolyte abnormalities are core pediatric skills. Since children come in many sizes, understanding how to address fluid or medication management that is appropriately scaled to the individual patient is of paramount importance. You should understand and be able to address the issues listed below:

<table>
<thead>
<tr>
<th>Specific skills</th>
<th>Minimum achievement</th>
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</thead>
<tbody>
<tr>
<td>Fluid/electrolyte management:</td>
<td>• Ask about intake and output.</td>
</tr>
<tr>
<td>• Obtain history and physical finding information necessary to assess the</td>
<td>• Assess at least 2 physical exam findings and 1 vital sign relevant to intravascular volume status.</td>
</tr>
<tr>
<td>volume status of a child.</td>
<td>• Choose appropriate intravenous fluid (water, sodium, glucose, other additives as indicated).</td>
</tr>
<tr>
<td>• Calculate and write orders for intravenous maintenance fluids for a</td>
<td>• Calculate 1x maintenance correctly using weight or BSA.</td>
</tr>
<tr>
<td>child considering daily water and electrolyte requirements.</td>
<td>• Choose isotonic fluid at 10-20 mL/kg for &quot;rescue&quot; IV bolus.</td>
</tr>
<tr>
<td>• Calculate and write orders for the fluid therapy for a child with severe</td>
<td>• Reassess patient after intervention.</td>
</tr>
<tr>
<td>volume depletion caused by gastroenteritis to include &quot;rescue&quot; fluid to</td>
<td>• Choose appropriate oral rehydration solution and recognize when it is indicated.</td>
</tr>
<tr>
<td>replenish circulating volume, deficit fluid, and ongoing maintenance.</td>
<td></td>
</tr>
<tr>
<td>• Explain to parents how to use oral rehydration therapy for mild to</td>
<td></td>
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<tr>
<td>moderate volume depletion.</td>
<td></td>
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</tbody>
</table>

| Medication dosing and therapeutics                                            |                                                                                     |
| • Calculate a drug dose for a child based on body weight.                     | • Record child’s weight in kilograms.                                               |
| • Write a prescription, e.g. for a common medication such as an antibiotic.   | • Record medications as “per kg” or “per body surface area” (i.e., scaled to patient size). |
|                                                                                  | • Assure that recommended dosing regimen scaled to patient size does not exceed adult maximum dose. |
|                                                                                  | • Starting with a medication and patient measurements, write an appropriate prescription including: name of medication, formulation, dose, dosing schedule, route, duration, amount and refills. |

| Learning Activities:                                                           | Assessment:                                                                         |
| • CLIPP case 15 (and various other cases that have medication administration)  | • Final examination                                                                  |
| • Patient care (inpatient and outpatient)                                     | • Clinical Performance Assessment                                                    |
| • Pediatric Therapeutics Problem Set                                          |                                                                                     |
| • Textbook (optional)                                                          |                                                                                     |
**Assessment of the Acutely Ill Child**

You may be called upon to provide emergency care to a patient at any time. One must be able to recognize and rapidly assess a sick child and understand how the presentation of illness may differ from that seen in an adult. Basic topics in pediatric acute assessment and emergency care, with which you should be familiar, include the following:

<table>
<thead>
<tr>
<th>Specific skills</th>
<th>Minimum achievement</th>
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<tbody>
<tr>
<td>Basic evaluation of the acutely ill patient</td>
<td>• Inspect airway:&lt;br&gt;  o Look and listen&lt;br&gt;  o Auscultate lungs&lt;br&gt;  o Correctly articulate patency of airway&lt;br&gt;  • Inspect for chest movement.&lt;br&gt;  • Recognize signs of respiratory distress (retractions, cyanosis, apnea, tachypnea).&lt;br&gt;  • Assess circulation:&lt;br&gt;  o Feel for a pulse&lt;br&gt;  o Assess capillary refill&lt;br&gt;  o Assess heart rate&lt;br&gt;  • Recognize signs of circulatory compromise (tachycardia, bradycardia, weak pulse, prolonged capillary refill).&lt;br&gt;  • Note mental status as a marker of overall illness (calm, fussy, inconsolable, agitated, somnolent, obtunded).&lt;br&gt;  • Note general appearance as a marker of overall illness (alert, floppy, weak cry, etc.).</td>
</tr>
<tr>
<td>Demonstrate the &quot;ABC&quot; assessment as a means for identifying who requires immediate medical attention and intervention.</td>
<td></td>
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<tr>
<td>Recognize that vital signs and other clinical clues to acute illness are different for children as compared to adults, and will vary for children of different ages.</td>
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</tr>
<tr>
<td>Develop a framework to identify a child who needs acute, urgent, or emergent care.</td>
<td></td>
</tr>
<tr>
<td>Specific topics in pediatric acute care</td>
<td>Make a rapid assessment of the patient's clinical status.</td>
</tr>
<tr>
<td>Obtain history relevant to a pediatric patient with an urgent medical problem, with special recognition of variations in presentation for different age groups.</td>
<td>Obtain assistance as indicated.</td>
</tr>
<tr>
<td>Identify need for acute, urgent, or emergent care for certain specific pediatric issues:&lt;br&gt;  o Poisoning&lt;br&gt;  o Asthma/respiratory distress&lt;br&gt;  o Dehydration/volume depletion&lt;br&gt;  o Foreign body ingestion&lt;br&gt;  o Fever in the neonate&lt;br&gt;  o Non-accidental trauma</td>
<td>Obtain focused history with further details as necessary or appropriate.</td>
</tr>
</tbody>
</table>

**Learning Activities:**
- Therapeutics Problem Set
- CLIPP cases 19, 23, 24, 25
- Acute Care Outpatient experience
- Textbook (optional)

**Assessment**
- Final Examination
- Clinical Performance Assessment
The previous section outlined specific skills that you are expected to obtain during your rotation. In addition, you are expected to obtain core medical knowledge related to the care of pediatric patients and their medical conditions. Specific objectives related to these activities include:

1. Construct an appropriate approach to common pediatric clinical problems by:
   - Identifying essential clinical features
   - Outlining natural history of disease processes
   - Creating a stratified differential diagnosis
   - Formulating evidence-based diagnostic and therapeutic approaches
   - Discussing how age and development influence essential clinical features, natural history of disease processes, differential diagnosis as well as diagnostic and therapeutic approach

<table>
<thead>
<tr>
<th>Learning Activities:</th>
<th>Assessment:</th>
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<tbody>
<tr>
<td>• CLIPP Cases (1-32)</td>
<td>• Final Examination</td>
</tr>
<tr>
<td>• Lectures: Online lectures</td>
<td>• Evaluation of written H&amp;P</td>
</tr>
<tr>
<td>• Patient Care (inpatient/outpatient settings)</td>
<td>• Clinical Performance Assessment</td>
</tr>
<tr>
<td>• Written H&amp;P</td>
<td></td>
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<tr>
<td>• Textbook (optional)</td>
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</table>

2. Analyze common professional and ethical dilemmas in pediatrics

<table>
<thead>
<tr>
<th>Learning Activities:</th>
<th>Assessment:</th>
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<tbody>
<tr>
<td>• Ethics Case discussions</td>
<td>• Participation</td>
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</table>
Grading Approach for the Pediatric Core Training Experience

To pass this course you must:

- Complete all assignments.
- Meet professionalism standards.
- Perform at a passing level or higher on your clinical performance assessments.
- Receive a passing grade or higher on the final examination.

Detailed Explanation of Final Grade Calculation:

<table>
<thead>
<tr>
<th>Clinical Performance Grade</th>
<th>Final Examination Grade</th>
<th>Final Clerkship Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
</tr>
<tr>
<td>Pass</td>
<td>High Pass</td>
<td>Pass</td>
</tr>
<tr>
<td>Pass</td>
<td>Honors</td>
<td>Pass</td>
</tr>
<tr>
<td>High Pass</td>
<td>Pass</td>
<td>Pass</td>
</tr>
<tr>
<td>High Pass</td>
<td>High Pass</td>
<td>High Pass</td>
</tr>
<tr>
<td>High Pass</td>
<td>Honors</td>
<td>High Pass</td>
</tr>
<tr>
<td>Honors</td>
<td>Pass</td>
<td>High Pass</td>
</tr>
<tr>
<td>Honors</td>
<td>High Pass</td>
<td>Honors</td>
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<tr>
<td>Honors</td>
<td>Honors</td>
<td>Honors</td>
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</table>

Calculation of the Clinical Performance Grade:  
Synthesis of faculty and resident clinical evaluations

Calculation of the Final Examination Grade:  
- Fail < 65%
- Pass 65-74%
- High Pass 75-84%
- Honors 85-100%

Failing a portion of the clerkship:

If a student fails the final examination on the first attempt, the student will remediate and retake the examination during planned academic breaks. If the student passes the test on re-examination, they will receive a Pass for the final grade, regardless of their clinical performance.

If a student fails the final examination a second time, they will fail the clerkship, regardless of their clinical performance.

If a student receives a fail on their clinical performance, regardless of their final examination grade, they will fail the clerkship. If you are allowed to repeat a failed clerkship, all components of the clerkship must be successfully repeated and completed. Both the clinical performance and final examination performance must be at a passing level.

Specific situations or circumstances will be referred to the Associate Dean for Student Affairs and/or Student Progress Committee in accordance with UWSOM policy.
Mid Clerkship Feedback Form (Pediatrics)

Instructions: During the 3rd week of your clerkship, it is your responsibility to have this form completed and signed by an attending or senior resident. You must then make sure that the completed form is returned to the Medical Student Office or your Site Director by the end of the clerkship.

Student Name: _______________________

Site: ___________ Rotation Dates: _______________________

Feedback: (areas for comment: physical exam skills, interviewing skills, oral and written presentation skills, knowledge about pediatrics, professionalism, appropriate test ordering and medication use, clinical reasoning skills).

Something done well:

Something to work on:

Requirement Review:

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Rotation Site</th>
<th>Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>H&amp;Ps (3)</td>
<td>inpatient</td>
<td></td>
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<tr>
<td>Older Child CEX</td>
<td>inpatient/outpatient</td>
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<tr>
<td>Newborn CEX</td>
<td>Newborn nursery</td>
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<tr>
<td>Growth Problem Set</td>
<td>inpatient/outpatient</td>
<td></td>
</tr>
<tr>
<td>Therapeutics Problem Set</td>
<td>inpatient/outpatient</td>
<td></td>
</tr>
<tr>
<td>Patient Checklist</td>
<td>inpatient/outpatient</td>
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</tbody>
</table>

Number of CLIPP Cases completed: _______________________

Student Signature ____________________________ date ____________

Faculty/Senior Signature ____________________________ date ____________
**UWSOM Clinical Performance Evaluation:**

Faculty and residents will use this evaluation scheme to determine your clinical performance. Your evaluation will be entered into the EValue system. Review the descriptions of each of the levels of performance to better understand how you can improve your performance.

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<thead>
<tr>
<th>Knowledge of Subject: Includes level of knowledge and application to clinical problems.</th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Unacceptable</strong></td>
<td><strong>Below Expectations</strong></td>
<td><strong>Meets Expectations</strong></td>
<td><strong>Exceeds Expectations</strong></td>
<td><strong>Exceptional</strong></td>
<td><strong>NA</strong></td>
</tr>
<tr>
<td>Does not demonstrate understanding of basic principles. Does not apply knowledge to specific patient conditions</td>
<td>Rarely demonstrates understanding of basic principles. Rarely applies knowledge to specific patient conditions</td>
<td>Often demonstrates understanding of basic principles. Often applies knowledge to specific patient conditions.</td>
<td>Consistently demonstrates clear understanding of basic and some complex principles. Consistently applies knowledge to specific patient conditions.</td>
<td>Almost always demonstrates mastery of basic and most complex principles. Almost always applies knowledge to specific patient conditions. A resource for others.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Data-Gathering Skills: Includes basic history and physical examination.</th>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>Unacceptable</strong></td>
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<td><strong>Exceptional</strong></td>
<td><strong>NA</strong></td>
</tr>
<tr>
<td>Does not obtain basic history and physical or key information and findings.</td>
<td>Rarely obtains basic history and physical. Has difficulty gathering all the data or is easily sidetracked or has difficulty prioritizing.</td>
<td>Often obtains basic history and physical. Information is organized and complete enough to make an assessment of major problems.</td>
<td>Consistently obtains basic history and physical. Information is organized and complete and identifies and assesses all major and most minor problems.</td>
<td>Almost always obtains basic history and physical. Information is complete, organized, and efficiently assesses all major and minor problems.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Clinical Reporting Skills: Includes oral case presentations, written or dictated notes, histories, and physical exams.</th>
<th></th>
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</thead>
<tbody>
<tr>
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<td><strong>Exceptional</strong></td>
<td><strong>NA</strong></td>
</tr>
<tr>
<td>Does not communicate medical history and physical exams in an organized or complete manner. Unable to communicate major points in explaining patient’s story.</td>
<td>Rarely communicates medical histories or physical exams in an organized or complete manner. Has difficulty with chronology or details of findings that makes the story difficult to interpret.</td>
<td>Often communicates medical history and physical exams in an organized and complete manner. Presentation identifies and describes all major problems.</td>
<td>Consistently communicates medical histories and physical exams in an organized and complete manner. Presentations identify and describe all major and most minor problems.</td>
<td>Almost always communicates medical histories and physical exams in an organized and complete manner. Clear written and oral presentations.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Procedural Skills: Includes knowledge, preparation, performance, and attention to patient comfort and dignity.</th>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>Unacceptable</strong></td>
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<td><strong>Exceptional</strong></td>
<td><strong>NA</strong></td>
</tr>
<tr>
<td>Not attentive to patient’s comfort or dignity. Demonstrates poor motor skills that result in inadequate performance of tasks. Poor preparation for the task.</td>
<td>Rarely attentive to patient’s comfort or dignity. Rarely demonstrates good motor skills that result in an inadequate performance of the task. Incomplete preparation for the task.</td>
<td>Often attentive to patient’s comfort or dignity. Often demonstrates good motor skills that result in an adequate performance of task. Usually prepared for the task.</td>
<td>Consistently attentive to patient’s comfort and dignity. Consistently demonstrates good motor skills that result in an adequate performance of task. Consistently prepared for the task.</td>
<td>Almost always attentive to patient’s comfort and dignity. Almost always demonstrates excellent motor skills that result in an adequate performance of the task. Almost always prepared for the task and plans ahead for potential problems.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Integration Skills: Includes problem-solving skills, ability to use data from patient interview, physical examination, and ancillary tests to identify major and minor patient problems in an organized and efficient manner.</th>
<th></th>
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<tbody>
<tr>
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<td><strong>Exceptional</strong></td>
<td><strong>NA</strong></td>
</tr>
<tr>
<td>Does not consistently identify major patient problems and issues.</td>
<td>Rarely able to independently identify and prioritize major problems. Rarely able to problem solve and organize efficiently.</td>
<td>Often able to independently identify and prioritize major problems. Often able to problem solve and organize efficiently.</td>
<td>Consistently able to identify and prioritize all major and most minor patient problems. Consistently able to problem solve and organize efficiently.</td>
<td>Almost always able to identify and prioritize all major and minor problems. Almost always able to problem solve and organize efficiently.</td>
<td></td>
</tr>
</tbody>
</table>
**Management Skills:** Includes order writing, initiative, practicality, and independence.

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Does not offer an independent management plan or plan is unrealistic or illogical. All decisions deferred to others.</td>
<td>Rarely offers an independent plan and/or plan is often unrealistic or illogical.</td>
<td>Often offers an independent management plan that is realistic and logical.</td>
<td>Consistently offers an independent management plan that is logical and realistic. Plans are well focused and on target and become part of the team's management of the patient.</td>
<td>Almost always offers an independent management plan that is logical and realistic. Plans are well focused and on target and become part of the team's management of the patient.</td>
<td></td>
</tr>
</tbody>
</table>

**Patient Centered Care:** Includes eliciting and negotiating agenda; eliciting patient's perspective of illness; and negotiating treatment plan.

<table>
<thead>
<tr>
<th>Unacceptable</th>
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</thead>
</table>

**Communication Skills with Patients, Families, Colleagues, and Staff.** Includes ability to modify communication style and ability to listen and constructively resolve conflicts

<table>
<thead>
<tr>
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<th>NA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does not communicate information effectively. Does not have an awareness to modify communication style and content to situation. Unable to establish rapport. Unable to listen and be silent. Not culturally proficient.</td>
<td>Rarely communicates information effectively. Rarely has an awareness to modify communication style and content to situation. Rarely able to establish rapport. Rarely able to listen and be silent. Rarely culturally proficient.</td>
<td>Often communicates information effectively. Often modifies an awareness to modify communication style and content to situation. Often able to establish rapport. Often able to listen and be silent. Often culturally proficient.</td>
<td>Consistently communicates information effectively. Consistently has an awareness to modify communication style and content to situation. Consistently able to establish rapport. Consistently able to listen and be silent. Consistently culturally proficient.</td>
<td>Almost always able to communicate information effectively. Almost always able to modify communication style and content to situation. Almost always able to establish rapport. Almost always able to listen and be silent. Almost always culturally proficient.</td>
<td></td>
</tr>
</tbody>
</table>

**Relationships with Patients and Families:** Includes courtesy, empathy, respect, compassion, and understanding the patient's perspective.

<table>
<thead>
<tr>
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<th>NA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disrespectful, indifferent, callous, discourteous or condescending. Does not solicit the patient’s perspective. Imposes own personal values on patient when in conflict with their own. Violates HIPAA including patient confidentiality. Inappropriate boundaries. Exhibits behavior that is potentially harmful to patients.</td>
<td>Rarely shows respect, empathy, and compassion. Rarely solicits the patient’s perspective. Rarely respects patient’s values or imposes own personal values on patient when in conflict with his/her own.</td>
<td>Often demonstrates respect, empathy, and compassion. Often solicits the patient’s perspective. Often respects the patient’s values, even when in conflict with his/her own.</td>
<td>Consistently demonstrates respect, empathy, and compassion. Consistently able to solicit the patient’s perspective. Consistently respects the patient’s values even when in conflict with his/her own.</td>
<td>Almost always shows respect, empathy, and compassion. Almost always able to solicit the patient’s perspective. Almost always respects the patient’s values even when in conflict with his/her own.</td>
<td></td>
</tr>
</tbody>
</table>

16
### Professional Relationships: Ability to work collaboratively with team members, including faculty, staff, and other students; courteous and cooperative attitude; maintains composure in times of stress.

<table>
<thead>
<tr>
<th>Unacceptable</th>
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<th>Exceptional</th>
<th>NA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does not collaborate and/or establish appropriate relationships with team. Does not respect team members within and across specialties. Not compassionate when interacting with team. Does not clarify expectations or clinical responsibilities. Inappropriate boundaries</td>
<td>Rarely collaborates and/or establishes appropriate relationships with team. Rarely respects the roles of team members within and across specialties. Rarely is compassionate when interacting with team.</td>
<td>Often collaborates and/or establishes appropriate relationships with team. Often recognizes and respects roles of all team members within and across specialties. Often is compassionate when interacting with team.</td>
<td>Consistently collaborates and/or establishes appropriate relationships with team. Consistently recognizes and respects roles of team members within and across specialties. Consistently compassionate when interacting with team.</td>
<td>Collaborates well with entire team and seeks to improve team function. Always recognizes and respects roles of team members within and across specialties and works to improve team cohesion. Almost always compassionate when interacting with team.</td>
<td></td>
</tr>
</tbody>
</table>

### Educational Attitudes: Includes active participation in learning, self-reflection, and responsiveness to feedback, and provides respectful and constructive feedback.

<table>
<thead>
<tr>
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</tr>
</thead>
</table>

### Dependability and Responsibility: Includes attendance, preparation, and personal appearance. Maintains personal honor and integrity.

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Frequently late without a legitimate reason or unprepared. Does not follow through with assigned tasks. Not trusted to work independently. Dishonest in any way. Does not maintain appropriate appearance. Absent without an excuse. Erratic or unpredictable behavior.</td>
<td>Occasionally late or unprepared. Rarely follows through with assigned tasks. Rarely trusted to work independently.</td>
<td>On time and prepared. Often follows through with assigned tasks. Often trusted to work independently and knows limits and asks for help when needed.</td>
<td>On time and prepared. Follows through with assigned tasks and often volunteers additional effort to follow through with patient care. Consistently trusted to work independently and knows limits and asks for help when needed.</td>
<td>On time and prepared for required and optional activities. Follows through with assigned tasks and consistently volunteers additional effort to follow through with patient care. Almost always trusted to work independently and knows limits and asks for help when needed.</td>
<td></td>
</tr>
</tbody>
</table>
ASSIGNMENTS
Checklist for Core Pediatric Clerkship

This is an outline of the assignments you will need to complete to pass your clerkship.

- Complete CLIPP cases (www.med-u.org)
- Perform at least one observed physical examination on a newborn and one observed physical examination on an older child (minimum 2 documented physical examinations)
- Participate in the Ethics and Professionalism discussion
- Perform complete history and physicals on at least 10 patients
- Submit 3 complete history and physical examination write ups for evaluation and feedback
- Work as an integral part of the care team during your rotation
- Satisfactorily complete the Clinical Encounters Checklist
- Take and pass the final examination for the course

The specific information about how and when you will complete these assignments will be given to you by your site coordinator/faculty member.
By the end of the clerkship you must have seen **at least one** of each domain-patient type/core condition. Enter the date you saw the patient in the “Date seen” column. If you complete a CLIPP case to meet this requirement, enter the CLIPP case number in the “CLIPP” column. Bring the checklist to your mid-rotation meeting. You must turn in your completed table when you take your final examination.

Thank you!

<table>
<thead>
<tr>
<th>Domain-patient type/core condition</th>
<th>Symptoms/signs/issues related to domain/patient condition</th>
<th>Date seen</th>
<th>CLIPP</th>
<th>Expected level of student responsibility* (OB, PP, FP)</th>
<th>Clinical setting+ (O, I, E)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Maintenance</td>
<td>Well newborn care (0-1 month)</td>
<td></td>
<td>FP</td>
<td></td>
<td>O</td>
</tr>
<tr>
<td></td>
<td>Well infant care (1-12 months)</td>
<td></td>
<td>FP</td>
<td></td>
<td>O</td>
</tr>
<tr>
<td></td>
<td>Well toddler care (12-60 months)</td>
<td></td>
<td>FP</td>
<td></td>
<td>O</td>
</tr>
<tr>
<td></td>
<td>Well child care (5-12 years)</td>
<td></td>
<td>FP</td>
<td></td>
<td>O</td>
</tr>
<tr>
<td></td>
<td>Well adolescent care (13-19 years)</td>
<td></td>
<td>FP</td>
<td></td>
<td>O</td>
</tr>
<tr>
<td>Growth</td>
<td>Parental concerns/abnormalities</td>
<td></td>
<td>FP</td>
<td></td>
<td>O, I, E</td>
</tr>
<tr>
<td>Nutrition</td>
<td>Parental concerns/abnormalities</td>
<td></td>
<td>FP</td>
<td></td>
<td>O, I, E</td>
</tr>
<tr>
<td>Development</td>
<td>Parental concerns/abnormalities</td>
<td></td>
<td>FP</td>
<td></td>
<td>O, I, E</td>
</tr>
<tr>
<td>Behavior</td>
<td>Parental concerns/abnormalities</td>
<td></td>
<td>FP</td>
<td></td>
<td>O, I, E</td>
</tr>
<tr>
<td>Upper respiratory tract</td>
<td>Runny nose, eye discharge, sore throat, difficulty swallowing, earache</td>
<td></td>
<td>FP</td>
<td></td>
<td>O, I, E</td>
</tr>
<tr>
<td>Lower respiratory tract</td>
<td>Cough, wheeze, shortness of breath</td>
<td></td>
<td>FP</td>
<td></td>
<td>O, I, E</td>
</tr>
<tr>
<td>Gastrointestinal tract</td>
<td>Nausea, vomiting, diarrhea, abdominal pain</td>
<td></td>
<td>FP</td>
<td></td>
<td>O, I, E</td>
</tr>
<tr>
<td>Dermatologic system</td>
<td>Rash, pallor</td>
<td></td>
<td>FP</td>
<td></td>
<td>O, I, E</td>
</tr>
<tr>
<td>Central nervous System</td>
<td>Lethargy, irritability, fussiness, headache</td>
<td></td>
<td>OB/PP/FP</td>
<td></td>
<td>O, I, E</td>
</tr>
<tr>
<td>Emergent clinical problem</td>
<td>Respiratory distress, shock, ataxia, seizures, airway obstruction, apnea, proptosis, suicidal ideation, trauma, cyanosis</td>
<td></td>
<td>OB/PP/FP</td>
<td></td>
<td>O, I, E</td>
</tr>
<tr>
<td>Chronic medical problem</td>
<td></td>
<td></td>
<td>FP</td>
<td></td>
<td>O, I, E</td>
</tr>
<tr>
<td>Unique condition: fever without localizing findings</td>
<td>fever</td>
<td></td>
<td>OB/PP/FP</td>
<td></td>
<td>O, I, E</td>
</tr>
<tr>
<td>Unique condition: neonatal jaundice</td>
<td>jaundice</td>
<td></td>
<td>FP</td>
<td></td>
<td>O, I, E</td>
</tr>
</tbody>
</table>

I confirm that I have completed the above

Signature: ___________________________ Date: ________________

*OB=Observation only  
PP=Partial participation (history or physical only)  
FP=Full participation (history, physical, write note/presentation)  
+ O=Outpatient  
I=Inpatient  
E=Emergency unit
### Sample Domain-related Symptoms/Signs/Issues

<table>
<thead>
<tr>
<th>Domain-patient type/core condition</th>
<th>Diagnosis or issue addressed</th>
<th>CLIPP cases that cover this topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Maintenance</td>
<td>Various issues related to newborn, infant, toddler, child and adolescent</td>
<td>CLIPP case 2, 3, 4, 5</td>
</tr>
<tr>
<td>Growth</td>
<td>FTT, poor weight gain, obesity, short stature, microcephaly, macrocephaly, constitutional delay, small for gestational age, large for gestational age</td>
<td>CLIPP case 16, 26</td>
</tr>
<tr>
<td>Nutrition</td>
<td>FTT, breast vs formula feeding, questions about switching to formula, when to add solids, beginning cow's milk, diet</td>
<td>CLIPP case 2, 8, 16, 26</td>
</tr>
<tr>
<td>Development</td>
<td>Delayed or possibly delayed language, gross motor, fine motor, or social adaptive skills, Denver II screening test</td>
<td>CLIPP case 28, 29</td>
</tr>
<tr>
<td>Behavior</td>
<td>Sleep problems, colic, temper tantrums, toilet training, feeding problems, enuresis, ADHD, encopresis, autistic spectrum disorder, eating disorders, head banging, poor school performance</td>
<td>CLIPP case 4</td>
</tr>
<tr>
<td>Upper respiratory tract</td>
<td>Pharyngitis, strep throat, viral URI, herpangina, peritonsillar abscess, common cold, allergic rhinitis, otitis media, sinusitis, otitis externa</td>
<td>CLIPP case 14</td>
</tr>
<tr>
<td>Lower respiratory tract</td>
<td>Bronchiolitis, bronchitis, pneumonia, aspiration, asthma, bronchiectasis</td>
<td>CLIPP case 12, 13</td>
</tr>
<tr>
<td>Gastrointestinal tract</td>
<td>Gastroenteritis, Giardiasis, pyloric stenosis, appendicitis, Henoch-Schonlein Purpura, peptic ulcer disease, gastroesophageal reflux disease</td>
<td>CLIPP case 15, 21, 27</td>
</tr>
<tr>
<td>Dermatologic system</td>
<td>Viral rash, scarlatina, eczema, urticaria, contact dermatitis, toxic shock, thrush, atopic dermatitis, seborrheic dermatitis, acne, anemia</td>
<td>CLIPP case 3, 11, 21</td>
</tr>
<tr>
<td>Central nervous system</td>
<td>Meningitis, concussion, seizures, ataxia, closed head injury, headache</td>
<td>CLIPP case 19, 20, 25</td>
</tr>
<tr>
<td>Emergent clinical problem</td>
<td>Meningitis, shock, testicular torsion, diabetic ketoacidosis, acute life threatening event (ALTE), congestive heart failure, burns, status asthmaticus, status epilepticus, encephalitis, child abuse, etc.</td>
<td>CLIPP cases 16, 23, 24, 25</td>
</tr>
<tr>
<td>Chronic medical problem</td>
<td>Seasonal allergies, asthma, cerebral palsy, cystic fibrosis, diabetes mellitus, malignancy (e.g. acute lymphocytic leukemia or Wilms tumor), sickle cell disease, epilepsy, atopic dermatitis, obesity, sensory impairment, HIV/AIDS</td>
<td>CLIPP case 13, 26, 28, 30</td>
</tr>
<tr>
<td>Unique condition: fever without localizing findings</td>
<td>Rule out sepsis; urinary tract infection, systemic viral infection (e.g. EBV), autoimmune diseases</td>
<td>CLIPP case 10</td>
</tr>
<tr>
<td>Unique condition: neonatal jaundice</td>
<td>Rule out sepsis; ABO incompatibility; breast-feeding jaundice</td>
<td>CLIPP case 8</td>
</tr>
</tbody>
</table>
Approach to the Pediatric Patient in the Medical Setting

Taking a history & physical exam from toddlers, children, or adolescents & their caregivers

What is a “Pediatric Patient-Centered” Approach?
- Takes into account the patients' previous experience with medical illness
- Considers the patient’s cognitive ability & developmental stage
- Involves the patient in age-appropriate ways
- Views the patient and caregiver as “the expert[s]” on the patient, including historical details and how the patient may cope with illness

Why does a “Pediatric Patient-Centered” Approach Matter?
- Improves collection of historical data & physical exam findings.
- Enhances the patient & family’s ability to cope with illness.
- Improves adherence in-house & with out-patient regimens.
- It will SAVE time because it improves care!

Common Reactions of Pediatric Patients in the Hospital Setting
- Overt or Active: crying, resisting treatment, destructive to the environment
- Passive: decreased eating, decreased communication & activity
- Regressive: temper tantrums, toileting accidents, dependency on parents

General Principles When Communicating with Pediatric Patients
- Get their attention before speaking: engage the patient with a non-judgmental, non-specific comment about surroundings, TV, interests, etc.
- Get on the child’s eye-level when speaking with him/her. (i.e., avoid standing over the bed.)
- Always introduce yourself and explain who you are (including your role on the team, i.e., as medical student).
  Don’t be shy about showing your name on your badge.
- Don’t ask if you are not ok with the possible answer. (e.g., Can I come in? Can I examine you?)
- Don’t minimize or ignore the patient’s experience or feelings (i.e., don’t say “it’s okay!”)
- Ask children to repeat what you said in order to correct misunderstandings.
- BE HONEST!
  o Always answer questions truthfully (i.e., it’s okay to say “I don’t know”)
  o Use honest, simple, minimally threatening explanations that are developmentally appropriate.
  o Avoid reassurance with potentially false/vague statements (e.g., don’t promise it won’t hurt!)
  o In being honest, you avoid creating mistrust between the patient and the medical team.

Considerations When Communicating with Patients Based On Developmental Stage

Toddlers/Preschoolers
- Are afraid of being away from their parents.
- Have difficulty sitting still.
- May conceptualize illness as a punishment.
- Engage in concrete and “magical” thinking (e.g., I am in the hospital because I didn’t listen to mommy last night)
- Often rely on imitation and look to others, especially parents, for how they should respond.

Childhood/School Age
- Begin to understand their bodies and how they work.
- Will likely have many questions.
- May be afraid that their bodies won’t work or they will look different.
Adolescents

- Are very worried about privacy and how they look.
- Want to feel competent and have their opinions validated.
- Cognitively adolescents can understand most things about their care, but behaviorally they continue to require monitoring. Adherence difficulties are common, often due to poor education/transfer of skills and desire to fit-in.
- Adolescents can fail to see long-term consequences (e.g., explaining that poor diabetes control can lead to dialysis is not often a convincing way to improve adherence in teenagers with diabetes.
- Will often not be forthcoming with sensitive topics unless asked directly.

* * *

Involving and Interacting with Parents/Caregivers

- Always introduce yourself in full, including role on team. Again, don’t be shy showing your name on your badge.
- With younger children, try to meet with one or both parents alone first (although this can be challenging in the inpatient setting).
- With adolescents, it is often better – when possible -to meet with them first. Better yet: give adolescents the choice!
- Remember that caregivers have a unique understanding of their child’s medical experiences and therefore provide key details of the medical history including:
  - Patient’s experience of and expression of pain or discomfort
  - Patient’s knowledge of or understanding of diagnosis
  - Treatment regimen
    - Medication dosage and tolerance
    - Previous hospitalizations & frequency of outpatient care
    - Previous degree of cooperation with each aspect of the regimen
    - Patient’s previous level of involvement in care
    - Developmental history, school history, and cognitive functioning

* * *

Tips on Entering the Room & Doing the Physical Exam

- If you need to gown/glove, introduce yourself first with face visible then dress and enter.
- Seat yourself to include patient and caregiver at patient’s eye-level
- With toddler/school-age patients, demonstrate use of the stethoscope or other instruments on yourself, a caregiver, a toy or a non-threatening body part (e.g. hand) first.
- If the child appears intimidated by you, try providing distance from the child and visibly engage with the caregiver(s) first before turning to the child. It allows the child to see a positive interaction between you and caregiver making the child more amenable to approaching you.
- Leave the most invasive or painful parts of the physical examination to the end.
- Use distraction as much as possible.
Explanation of Pediatric H&Ps/Pediatric Database

Reference: Bates' Guide to Physical Examination and History Taking, 8th ed. Chapter 17; pp 625-726

History:

CC: Same as for adults

HPI:
The information is the same for any medical problem. A careful and complete description of the presenting problem, with appropriate chronology is key. Always include pertinent positives/negatives and relevant family history or social history items. An important distinction is that much of the history will be observations from a third party (parent/caregiver). Important questions include: mood, activity level, eating pattern, urine output (specific as possible), sleep pattern and a description in the parent's words what the problem is, how it has changed, what they have tried to alleviate the symptoms and what they think is causing the child's illness.

Past Medical History:

Birth/Pregnancy History:
For infants, this component is particularly important. Often birth/pregnancy history is either relevant to the chief complaint or represents the majority of the PMH. Make sure to include these questions on all infants and any child with a problem that might be related to perinatal/neonatal issues. We usually include this in all children.
Maternal: mother's age, gravida, para, health problems and medications
Pregnancy: complications, prenatal care/labs/tests
Labor: Duration of membrane rupture and complications
Delivery: Gestational age (at a minimum whether term or premature), Mode (vaginal/C-section/forceps/vacuum), Apgars.
Neonatal: Duration of hospitalization and any events that occurred shortly after birth.

Medical history:
Any medical problems or hospitalizations with a brief summary and dates.
Specifically ask about the last health supervision visit.

Surgical history:
Any surgeries and dates

Allergies:
Allergies and reactions

Medications:
Any prescription medications, over the counter medications or herbs/supplements.
Include doses when known.

Diet:
Description of diet. Particularly important in the first year of life or if growth is abnormal. In infants comment whether breast feeding or formula feeding (and what type of formula and how
much) in infants. In older children ask about typical diet or about concerns the parents may have.

Growth and Development:
This should be part of every history.
The way you ask the questions will change over time. Start with an open ended question to parents like “tell me what types of things your child is doing now”. Childhood development is often categorized into 4 domains (social, fine motor, gross motor and language) and screening questions in each domain should be explored (see Denver developmental screening chart). In older children, make sure to ask about their hobbies, activities, school and friends. Assess academic achievement from parents/patient.

Immunizations:
In every patient ask about receipt of immunizations; there are standard immunizations given at specific ages. Parents sometimes have the immunization record; if the child has not received immunizations, delicately explore the reasons why. Saying “up to date” without checking actual documents or registries is an insufficient response, try to document what immunizations were given and when.

Family history (include genogram):
Explore any diseases that are in the family (e.g. hypertension, diabetes, or other problems resembling the child’s problem). Also gently explore any miscarriages or childhood deaths in the family.

Social history:
Ask who lives in the home and whether there are other siblings and the state of the siblings’ health. Explore childcare arrangements—whether it is the family, an in-home setting or center-based (larger classrooms). Inquire about what languages are spoken at home. If the child is verbal, directly ask them about school/daycare, friends, and favorite pastimes/toys, pets and siblings/family members. Identify sources of stress for the parents.

Environmental History:
Ask about smokers in the house; firearms, seatbelts, hot water heaters and car seats.
Travel history, pets and exposures to ill people.

Review of Systems:
This section is similar to that for adult patients. Remember that preverbal children cannot report many of the symptoms, so parental observation is the main source of information. A sample review of systems:

<table>
<thead>
<tr>
<th>General: fever, weight loss, activity</th>
<th>GU: frequency, dysuria, urine output, hematuria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Endocrine: change in habitus, weight gain</td>
<td>Skin: rashes</td>
</tr>
<tr>
<td>Eyes: crossing, pain, redness, drainage</td>
<td>Neuro: seizures, loss of consciousness</td>
</tr>
<tr>
<td>HEENT: Ear pain, drainage, hearing loss</td>
<td>GI: feeding/appetite, vomiting, diarrhea, constipation, blood in the stool, abdominal pain</td>
</tr>
<tr>
<td>Nose: Drainage, discharge, sinusitis</td>
<td>Throat: tooth pain, sore throat, hoarseness</td>
</tr>
<tr>
<td>Resp: cough, wheezing, apnea, cyanosis, difficulty breathing</td>
<td>Musculoskeletal: joint swelling, tenderness, weakness</td>
</tr>
<tr>
<td>CV: murmurs, chest pain</td>
<td>Psych: mood changes, sleep problems</td>
</tr>
</tbody>
</table>

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Physical Examination:

The approach to the physical examination will vary with the age of the child. There are special maneuvers that are done at each age. There are specific benchmarks and appendices available in the clerkship manual and on the pediatric student website.

Vital Signs: HR RR Temp BP

Height_______________ % Weight_______________ % OFC _______ % BMI_________

General: Describe the state of alertness, mood, and willingness to cooperate with the exam and whether the child is in distress

Head: For infants and children feel for the fontanelle; comment on the shape of the head

Eyes: Note presence of the red reflex in all children; check pupillary reaction, lids/conjunctiva

NB: Fundoscopic exam is difficulty to perform on infants but can usually be done in children over 5-6 years of age (The examination in this age group provides an excellent opportunity to see the optic disc and vessels).

Ears: Check for tenderness of pinna, discharge and gross assessment of hearing. Check tympanic membranes bilaterally with insufflation.

Nose: Check for discharge, turbinate color

Throat: Check for teeth/caries. Inspect the tongue, buccal mucosal and the posterior pharynx for erythema, enlarged tonsils. Feel for submucosal cleft palate.

Neck: Gently palpate neck for masses and assess range of motion (often by observation)

Lymphatic: Check lymph nodes in neck, axilla and groin.

Chest: Observe for signs of respiratory distress (nasal flaring, retractions and grunting). Normal respiratory rate varies with age. Palpate for tactile fremitus then auscultate anterior and posterior lung fields. Note the inspiratory:expiratory ratio (I:E ratio)

Cardiovascular: Observe for cyanosis, respiratory distress and hyperdynamic precordium. Palpate the precordium (for thrills); auscultate as in adults—pediatric heart rates are faster than adults thus distinguishing systole and diastole is more difficult. An S3 may be found in normal children (represents rapid ventricular filling). Many children will have benign murmurs (of no medical importance) ---train your ears to hear them! Palpate the peripheral pulses as in adults. (Femoral pulses are particularly important to feel in neonates when screening for coarctation of the aorta).

Abdomen: observe, auscultate and palpate as in adults. Children often have a palpable liver edge...always palpate from the pelvic brim up.
GU: See Tanner staging information in CLIPP and physical exam benchmarks in the clerkship manual and on the medical student website.

Musculoskeletal: Much of this portion of the examination is observation for tone and strength. In neonates, observe for increased or decreased tone...both are pathological. When children are older and can follow directions, the approach is similar to an adult exam. There are also special maneuvers to screen for congenital hip dysplasia (Barlow/Ortolani maneuvers).

Neurological: Much of this exam is by observation (especially the cranial nerves). Children have deep tendon reflexes just like adults that should be tested. Neonates have primitive reflexes that are considered normal (like an upgoing toe with a Babinski test).
SAMPLE H&P (Older Patient)

CC: AB is a 16-year-old female presenting to the Emergency Department with 4 days of bloody diarrhea, abdominal pain and fever.

HPI: AB was in her usual state of health until 7 days prior to admission when she started experiencing nasal congestion, clear rhinorrhea and low-grade fever (maximum temperature 99-100). She went to her primary care provider, had a CT scan of her sinuses done, was diagnosed with a sinus infection and was treated with a nasal spray (patient not sure what type). Five days prior to admission, she began having intermittent fevers to 101.9, which have continued until the time of admission. Four days prior to admission, AB started having severe (7/10) generalized abdominal pain, worse in her subgastrum. She describes the pain as constant, dull, non-migratory, not relieved by anything, including acetaminophen, and exacerbated by eating. During the three days prior to admission, she has also had 3-4 episodes of bloody red diarrhea with the abdominal pain. She says that having a bowel movement makes her abdominal pain worse. AB has also had 2 episodes of nonbloody, nonbilious emesis in the past two days. She has noticed increased fatigue and has lost 2 lbs in the last week, though she still has a good appetite.

Notably, AB was seen approximately 5 months ago in the Emergency Department in Everett with abdominal pain. She had no diarrhea or emesis at that time. Her stool guaiac was negative, but was diagnosed with iron deficient anemia with a hemoglobin of 12.2 g/dL. She was sent home on iron supplements and no clear diagnosis for her abdominal pain. Since that episode she has noticed intermittent abdominal pain, fatigue and has lost 10 lbs.

She denies any rashes, arthralgias or myalgias, eye discharge or inflammation, oral lesions, cough, jaundice, petechiae or easy bruising. She has normal urine output. Her past medical history is also remarkable for cholecystitis requiring cholecystectomy at the age of 10. Her travel history is significant for being in N. Europe on a cruise 3 months before the onset of symptoms. She has two dogs and one cat. Her LMP was last week and was normal in volume and duration. AB does not have a family history of inflammatory bowel disease or rheumatological diseases.

Past Medical History:
BH: Term, vaginal delivery, no complications
PMH: No previous medical problems. Abdominal pain, cholecystitis and anemia described in the HPI.
GOPO, regular menses
Immunizations: Up to date, including HPV and influenza (checked online vaccine registry)

Past Surgical History: Cholecystectomy, 6 years prior to admission (see HPI)

Medications: Ferrous sulfate for anemia
Multi-vitamin
No over the counter meds or alternative therapies

Family History: No history of inflammatory bowel disease (Crohn's or ulcerative colitis); No history of childhood rheumatological diseases or systemic lupus erythematosus. Paternal grandmother has psoriasis. Maternal grandmother with osteoarthritis. Paternal grandfather with heart disease and diabetes. No sick contacts.

Social History: Lives in Marysville with Mother, step Father, 15 mo brother
Is in the 11th grade, same school as last year; good grades (A's and B's).
Plays soccer and tennis; sings in the school choir
Denies EtOH, nicotine, and other drug use.
Is not and has not been sexually active. No current partner (boyfriend or girlfriend)

Review of systems:
General: See HPI
Endocrine: no change in habitus, weight gain
Eyes: see HPI; no redness, no blurred vision or double vision.
Ears, Nose, Throat:
   Ears: ear pain or drainage, no hearing loss.
   Nose: see HPI
   Throat: No tooth pain, sore throat or hoarseness
Cardiovascular: No chest pain or murmurs
Genitourinary: normal urine output, no frequency, dysuria, hematuria
Gastrointestinal: see HPI
Musculoskeletal: See HPI
Hematology/Lymphatic: see HPI; no jaundice or swollen glands
Psychiatric: no mood changes or sleep problems

Admitting PE:
Vitals: T 37.8  HR 140 RR 18  SaO2 97% on RA  BP 113/82  Pain 5/10
   Weight 42.5 Kg (< 3%) Height: 158 cm (25%)
General: well developed, skinny young female, looks fatigued w/o significant distress
Skin: pale skin, no rashes or erythema, no petechiae or bruising
HEENT:
   Eyes: PERRLA, full EOM, conjunctiva without exudates; sclera anicteric without injection, no
      periorbital edema
   Ears: Pinna and canals normal; TMs gray w/o erythema
   Nose: nasal turbinates are slightly swollen and mildly pale with some clear rhinorrhea
   Oropharynx: dry lips, mildly dry oral MM, 2+ tonsils w/o exudates or crypts, no pharyngeal
      erythema.
Neck: Supple with full range of motion; non tender to palpation. Thyroid soft and without nodules.
Lymphatic: no cervical, supraclavicular, axillary, inguinal adenopathy.
Chest: Symmetric inspiration, clear to auscultation bilaterally with no wheezes, crackles or rhonchi.
Breasts: Tanner stage V
CV: Tachycardic, regular rhythm, prominent PMI over 5th intercostal space ~ MCL, normal S1 and S2, I-II/VI systolic ejection murmur over L sternal border, < 5cm CVP; 1+ radial and 3+ pedal and inguinal pulses
   which are symmetric, capillary refill 2-3 seconds.
GI: several small well healed scars from previous lap cholecystectomy, active bowel sounds,
tenderness on light palpation in all 4 quadrants and worse in LLQ and RLQ, + guarding in LLQ, +
peritoneal signs by moving the patient and rebound tenderness in LLQ, negative obturator and psoas
signs, liver edge and spleen not felt. Liver span estimated to be 7 cm. No masses palpated.
Rectal examination: normal tone, no masses; no fissures; guaiac positive.
GU: 3 skin tags in the peri-anal region, no abscesses, erythema or fistulas in perineal region, tanner
   stage V genitalia and pubic hair.
MS: full ROM w/o pain, no erythema or increased warmth over joints, no effusions. No clubbing
Neuro: CN II-XII intact, Muscle strength 4-5+ throughout, 1+ and symmetric patellar reflexes, sensation to light touch intact in all extremities

Laboratory:
CBC: 8.1 WBC (28%pmns, 33%lymphs, 12%mono, 23%bands); Hct 27.4; MCV 89; RDW 13; RBC morphology is normal; Platelets 622K
U/A: pH 6.5; 1.025 sp gravity; tr protein; 0-5 WBC; 0-5 RBC; LE neg; Nitrite neg
Chemistry: Na 143, K 3.8, Cl 103, HCO3 29, BUN 11, Cr 0.7, Glu 97
CRP 4.3
ESR 114

Assessment:
AB is a 16 y.o. female with several month history of intermittent diffuse abdominal pain, fatigue, ten pound weight loss, with an acute course of profuse bloody diarrhea with fever. Her physical examination is remarkable for signs of peritonitis and volume depletion without signs of shock. Notable laboratory data include elevated inflammatory markers, anemia, normal platelet count and a left shift on her CBC.

AB’s bloody diarrhea with fever and abdominal pain can be from infectious enterocolitis (parasite and bacteria), inflammatory bowel disease (IBD), malabsorptive (celiac), vasculitis (HSP, PAN), carcinoma of ileum or colon, carcinoid tumor, intestinal lymphoma as well as other less likely diseases. Given AB’s long standing illness course with weight loss and anemia it is likely that she has a chronic illness thus making inflammatory bowel disease (IBD) the most likely diagnosis. Other chronic illnesses such as carcinoma, lymphoma or carcinoid tumors are unlikely in this age group. There are no specific signs/symptoms that differentiate ulcerative colitis (UC) and Crohn’s disease (CD). Weight loss, bloody diarrhea, abdominal pain, fever and anemia can occur in both CD or UC. Given her skin tags, and past cholecystitis, it is more likely that she has CD than UC. In addition, she has significant elevation of CRP and ESR, and a left shift on her CBC indicating severe acute inflammation, which is all consistent with inflammatory bowel disease.

An infectious agent is less likely because of the chronic course, no significant travel risks, lack or suspicious foods eaten and no sick contacts. While she did travel before the onset of the symptoms, the travel was not temporally related to her symptoms. Possible agents could include E. coli O157:H7, E. coli (other pathogenic strains), Shigella, Salmonella, Yersinia enterocolitica, C. jejuni, C. difficile, amebiasis, giardiasis and cryptosporidium. Stool culture and O&P exams are necessary to diagnose an infection. Celiac disease rarely presents with bloody stools, but could explain her weight loss and abdominal pain. She has no other features of vasculitis, such as rash, swollen joints or kidney dysfunction to suggest these possibilities as the cause of her symptoms. However, if no unifying diagnosis is determined, further consideration and testing of these causes of her symptoms should be pursued.

AB’s anemia is normocytic with an MCV of 89 and a Hct of 27.4. Typically iron deficiency anemia is microcytic making this diagnosis less likely. Her RBC morphology is normal, making intravascular hemolysis less likely. The anemia is most likely due to acute blood loss, and/or anemia due to chronic inflammatory state and poor iron utilization. Her anemia can also be complicated by B12 or folate deficiencies due to poor absorption. Her RDW is within normal range. If needed, a ZPPH, iron studies, B12 and folate levels, and reticulocyte count can be ordered to work up a continued anemia. Since she is likely volume depleted as suggested by her tachycardia, she may be more anemic that she appears to be at the time of admission.
Plan:

Blood Diarrhea:
1. KUB for focal abdominal pain. Monitor abdominal exam for increased pain, nausea, continued bloody diarrhea and signs of obstruction (bilious emesis, severe abdominal pain, leukocytosis, SIRS syndrome, sepsis).
2. Consider H2 or PPI for gastritis.
3. Consult gastroenterology for consideration of diagnostic endoscopy.

Anemia:
1. Recheck hematocrit x 2 if she continues to have bloody diarrhea
2. Consider transfusion if Hbg < 8.5 mg/dL. It is very possible that she will need a transfusion because she is volume depleted and has an ongoing hemorrhage which will make her hematocrit lower.

Fluids/Electrolytes/Nutrition:
1. FEN: D5 + 1/2 NS + KCl 20meq/L @ 100cc/hr. Monitor urine output to determine if additional normal saline boluses will be needed to correct volume depletion. Continue IV fluids until she is taking adequate PO and vitals are stable. Monitor vitals for orthostasis. Optimize fluids to maintain normal heart rate for age.
2. Clear diet, ad lib.

Hospital Course:
AB was admitted and had a KUB that showed edema of the descending colon but was otherwise unremarkable. She was placed on NPO for increasing guarding and peritoneal signs and had a CT abdomen with oral contrast. The CT scan showed colitis in the sigmoid colon and rectum, but no abscess, strictures or free peritoneal fluid. She was placed on clear diet. Due to her long standing weight loss and anemia an albumin level was ordered and was 2.4, indicating chronic malnutrition and/or significant protein loss. Stool exams grew out non-EHEC E. coli and were negative for C. difficile toxins A & B, Shigella, EHEC, Salmonella, C. jejuni, Y. enterocolitica and ova and parasites. She was given a GoLytey bowel prep and an endoscopy and colonoscopy was performed with biopsies. It showed mild esophageal inflammation, chronic gastritis, a normal duodenum, normal terminal ileum, a small patch of cecal inflammation, and profound erythema, pus and colitis of the descending, sigmoid colon and rectum. Path reports were sent and revealed mild esophagitis w/predominant lymphs, gastric and antral chronic inflammation with cellular atypical changes and mixed WBC infiltrate in the lamina propria and epithelium w/no organisms, terminal ileum was normal, cecal inflammation with crypt distortion and microabscesses, left colon severe inflammatory reactions with crypt distortion and microabscesses. The inflammation extended into the lamina propria and there were no granulomas detected in the biopsies.

The patient was then placed on metronidazole for anaerobic coverage and anti-inflammatory affects, mesalamine for immune modulation, lansoprazole for gastritis, and ferrous sulfate for anemia and started on an GI 1 diet. She responded well to the p.o. intake and was discharged home. Discharge diagnoses were IBD, likely Crohn's disease due to the diffuse inflammation, and iron deficiency anemia.
Example H&P (infant)

ID/CC: 7 mo old ex-40 week AGA healthy infant presents w/ a 3 month history of failure to thrive and a 1 mo history of recurrent upper respiratory symptoms

HPI
TS’s mother believed her infant to be in good health until earlier today when during a routine primary care visit his pediatrician was alarmed by his thin appearance and fall in his weight for age from the 30th percentile to the 2nd over the past 3 months. His length and OFC for age also crossed percentiles during this period but have remained on the normal curve. The mother denies any recent changes in TS’s appetite and explains that he eagerly breastfeeds every 2-3 hours for 5-10 minutes at a time during the day (without nighttime feedings from 10 pm to 7 am) plus soft baby foods 1-2 times per day. She believes that this “is approximately the same amount that her two older daughters ate at that age”. She also believes that her milk supply is “good” because she is easily able to express milk by squeezing her breast. She is also currently 16 weeks pregnant.

She denies TS having symptoms of fatigue, diaphoresis or rapid breathing during feeding as well as post-feeding fussiness, emesis or diarrhea. He has 2-3 wet or mixed diapers per day and his stools are brown in color without melena, clay color or bright red blood, and they are not particularly foul smelling. TS’s development thus far has been appropriate for age and growth was following a normal curve at least until 4 months of age. Neither parent has a known history of HIV or other sexually transmitted infections nor any high risk behaviors. There is no history of recent travel or exposure to persons infected with TB. He has had one newborn metabolic screen at 1 day old which was normal; the second screen was not obtained.

Of note, TS has also experienced approximately 1 month of recurring fever, cough and rhinorrhea that lasts for 3-4 days at a time. He is having some of these symptoms today with a transient fever to 101.2 earlier today but no wheezing, stridor or increased work of breathing. He has had all of his childhood immunizations up to the age of 4 months with the exception of rotavirus and influenza. Several family members have also had these symptoms all of which have self-resolved. The mother describes no changes in TS’s appetite or feeding frequency/duration while ill.

ED Course
On arrival to SCH ED, TS was afebrile and all vital signs were within normal limits. He was given a 300 ml NS bolus via peripheral IV. CBC, electrolytes, CRP and a viral panel were obtained. He arrived to the floor shortly thereafter.

Birth Hx
Born at 40 +3/7 AGA to G3P2 mother via uncomplicated vaginal delivery. APGARs at birth were 7 at one minute, 8 at five minutes. The mother’s screening was remarkable only for lack of Rubella immunity. Neonatal course remarkable for mild jaundice (Tbili max = 6.8) which required no intervention and initial difficulty latching. Both resolved prior to discharge.

PMH
Stable/Resolved Problems
1. Neonatal jaundice: see Birth Hx
2. Difficulty breastfeeding: see Birth Hx

PSH
None

Allergies
None known
Medications
No medications or supplements

Diet
See HPI.

Growth and Development
Weight for age: 30th percentile (age 4 months) -- 2nd percentile (age 7 months)
Length for age: 85th percentile (age 4 months) -- 15th percentile (age 7 months)
OFC: 70th percentile (age 4 months) -- 40th percentile (age 7 months)

TS is able to sit up on his own with good head control, starting to crawl, reaching for objects, stacking blocks and babbling. His mother reports that he is developing similarly to his sisters, even during the time he has lost weight.

Immunizations
Routine vaccinations up to age 4 months with the exception of Rotavirus and Influenza

Family Hx
Hyperthyroidism: paternal grandfather and cousins
Type II DM: maternal grandmother
Both parents and 2 older siblings with no significant PMH

Social/Environmental Hx
Lives in home in Everett, WA with mother, father and two sisters (ages 2 and 4). Mother stays at home
while father works outside of the home as an engineer during the day. No additional care providers. TS
does not attend day care. Mother does not have any concerns for safety in the home.

Exposures: both parents are non-smokers, cleaning supplies and toxins out of reach, pets include 2
Guinea pigs.

ROS
Gen: + transient fevers over past month (see HPI). No chills or sweats, activity at baseline,
Endo: no change in habitus, + weight loss (see HPI)
HEENT: No head trauma, + stork bites over bilateral eyelids, No eye crossing, no rhinorrhea, +moderate
clear nasal drainage, no ear pain, drainage, or hearing loss, + thick white coating on tongue and lips, no
hoarseness.
Resp: + intermittent wet cough (see HPI), no snoring, apnea, increased work of breathing, cyanosis or
wheezing
CV: no murmurs, no fatigue, sweating or tachypnea with feeding, no cool extremities
Heme/Lymph: no easy bruising or bleeding, anemia, jaundice or lymphadenopathy
GI: no signs of abdominal pain, normal appetite, no dysphagia or choking, no hematemesis, diarrhea,
melena or hematochezia, no constipation
GU: No change in frequency, urine output or urine color, no hematuria
Neuro: no seizures or LOC
MSK: no joint swelling or erythema, no asymmetry or weakness
Skin: +diaper rash
Psych: no changes in sleep pattern or appetite

Physical Examination:
Vital Signs (on admission)
Weight: 6.322 kg (2%); Height 65cm (15%); Head Circumference 42.5 cm (40%)
HR: 148 BP: 81/67 RR: 32 SpO2: 100% on RA Temp: 37.6
Gen: pale and thin appearing, alert and interactive, consolable when fussy

HEENT
  Head: NC/AT, anterior fontanelle 1 cm and flat, sutures normal with no overriding.
  Eyes: normal position, normal red reflex, PERRLA, EOMI, conjunctiva somewhat pale, no scleral icterus
  Ears: pinna normally positioned; no drainage, external canal without erythema or exudate, TMs slightly red bilaterally but no bulging or pus.
  Nose: non-purulent drainage, nares patent, no nasal flaring
  Throat: 2 erupting bottom teeth, palate intact, posterior pharynx without erythema or exudate, normal appearing tonsils without pus, tongue, buccal mucosa and soft palate with thick white plaque

Neck: no masses; thyroid normal size and consistency

Lymphatic: shotty anterior cervical lymphadenopathy; no inguinal or axillary lymphadenopathy

Chest: normal inspiratory: expiratory ratio, symmetrical chest expansion, no wheezing, rales, bronchi or stridor, no increased WOB

CV: RRR, no murmurs, rubs or gallops, brachial, femoral and dorsalis pedis pulses full and symmetrical, no cyanosis

Abdomen: soft, non-tender, non-distended, no masses, 1 cm reducible umbilical hernia, normal active bowel tones, liver edge is palpable 2 cm below the right costal margin; no spleen tip is palpable.

Back: normal curvature, no sacral dimples or hair tufts

MSK: normal ROM, joints without erythema or swelling

GU: Tanner stage 1, normal genitalia, anus patent, erythematous patch with satellite lesions along inguinal folds and beneath scrotum

Neuro: alert and interactive
  Cranial nerves: II-X and XII intact by gross examination
  Motor: 5/5 strength upper and lower extremities
  Tone: normal, no fasciculation
  Sensory: responsive to light touch
  Reflexes: 1+ patellar reflexes, Babinski, no moro, rooting, palmar or plantar grasp
  Cerebellar: unable to assess
  Gait: unable to assess

Labs/Studies
CBC w/diff
  WBC: 8.6
  Hb: 10
  Hct: 30 (L) MCV 72 (L)
  Plts: 167K

Electrolytes: Na 139 K 3.9 Cl 110 HCO3 25 BUN 10 Cr 0.3

CRP: 1.4 (H)

Viral PCR: + for RSV
Assessment/Plan

7 month old previously healthy and developmentally normal breastfed male presents with FTT since last assessed by PCP at age 5 months. He has a normal appetite without vomiting or diarrhea, no loss of developmental milestones but 1 month of recurring URI symptoms of fever, cough and rhinorrhea. Physical examination is remarkable for white plaques on his tongue/buccal mucosa, rhinorrhea, and erythematous diaper rash. Viral PCR positive for RSV.

Problem 1: Failure to thrive

TS meets FTT criteria due to a decrease in weight from 7.0 kg at age 4 months to 6.32 kg at age 7 months (from approximately 30th percentile to 2nd percentile on weight for age). His length and OFC have also crossed percentiles but remain on the normal curve. The DDx for FTT broadly includes nutritional causes (neglect, abuse, inadequate feeding) vs metabolic/increased demand causes (CHD, diabetes, RTA, malignancy, inborn errors of metabolism, etc) vs infectious (UTI, HIV, TB) vs. malabsorption causes (CF, cow-milk-protein intolerance, IBD, GERD, pyloric stenosis, etc).

The most likely cause of FTT in this previously healthy and developmentally normal 7 mo male is inadequate nutrition both because it is epidemiologically most likely and because there are no obvious signs/symptoms of organic causes. There is also some suggestion from his mother's lactation history and current 16 week pregnancy that her breast milk may be inadequate to support this infant. In addition, TS is being offered only once daily table foods which is likely too little to make up for deficiencies in breast milk. Poor latching and inadequate frequency of feeding are unlikely given the mother's ability to provide detailed history of his feeding schedule. UTI and prolonged URI are also possible given the recent fevers and accompanying symptoms, however these would be unlikely to cause such a dramatic change in growth over a 1 month period in the setting of normal PO intake.

The report of recurrent URI symptoms, mouth plaques c/w thrush, and yeast infection also raises suspicion for possible congenital immune deficiencies such as severe combined immune deficiency (SCID), selective IgA deficiency or X-linked agammaglobulinemia. SCID commonly presents with FTT and thrush but usually also includes chronic diarrhea which TS has not had. I would also not expect normal growth for the first 4 months of life with this etiology. Agammaglobulinemia fits TS's age (decreased maternal IgG by 6 months) but he has not experienced recurrent bacterial infections and tonsils are present. Selective IgA deficiency is possible in the setting of recent recurrent URI symptoms but usually doesn't present as FTT as the first symptom; I would expect more sinopulmonary symptoms. HIV and TB are much less likely given no maternal or paternal h/o HIV infection or risky sexual behavior and lack of travel or exposure to contacts with TB. Malignancy should also be considered given his recent pattern of fevers and weight loss; however this is also less likely than inadequate feeding. Neglect and/or abuse should be considered although there are no overtly concerning findings on social history or physical exam to raise significant suspicion.

Other possibilities including CHD, CF, milk protein intolerance, IBD, GERD, pyloric stenosis, diabetes, inborn errors of metabolism, and RTA are least likely given the lack of suggestive history and physical exam findings. CHD would likely present as fatigue, diaphoresis, tachypnea during feeding. CF would present with greasy, foul smelling stools and possibly rickets. He has no h/o high blood glucose or polyuria to suggest diabetes. Milk protein intolerance and IBD would be suggested by bloody stools of which there is no history. GERD and pyloric stenosis would present with significant post-feeding symptoms (projective vomiting, fussiness, tachypnea). Inborn errors of metabolism would have likely been discovered on his newborn screen (although he did not have a 2nd screen) and presented earlier in infancy. I would also expect developmental delays with this etiology. RTA or chronic renal insufficiency would be considered if urinalysis and/or electrolyte abnormalities were present (elevated BUN, creatinine), but there is no e/o this currently.

-Pre- and post-feeding weights to determine adequacy of breast feeding
-Calorie counts
-Strict l&O’s
-Nutrition and lactation consults
-Social work consult to r/o psychosocial contributors
-UA to r/o UTI and renal causes
-Stool elastase to r/o malabsorption
-QG vital signs
-No maintenance fluids at this time, reassess if become tachycardic or hypotensive
-Nutrition and lactation consults as above
-Consider re-feeding labs

Problem 2: Anemia
TS's anemia is most likely secondary to combined iron and possibly folate deficiencies given current state of malnutrition. Will want to reassess as outpatient if does not resolve with improved nutrition.
- Multivitamin supplementation
- Consider infant formula if breastfeeding determined to be inadequate
- F/u CBC as outpatient

Problem 3: URI symptoms (low grade fever, cough, rhinorrhea)
TS has been afebrile since arrival to the ED but most likely etiologies of transient low grade fever, cough and rhinorrhea in this 7 month old infant w/viral panel positive for RSV and no increased WOB is URI. Recent contacts with similar, self-resolving symptoms support this diagnosis. UTI or other bacterial infections are also possible but less likely given the long duration and self-resolving nature of symptoms.
- Respiratory viral PCR
- UA and CBC as above to screen for other common causes of fever

Problem 4: Elevated CRP
Likely 2/2 a combination of malnutrition and current respiratory illness.
- Address malnutrition as above
- Monitor for signs of worsening illness

Problem 5: Diaper rash/ mouth plaques
Likely 2/2 yeast, such as Candida, given the location and satellite lesions. Mouth/tongue plaques also c/w oral candidiasis.
- Oral nystatin and topical

Disposition
- home, pending ability to gain weight in hospital and parental education regarding adequate intake or determination of organic cause.
The Pediatric Physical Examination

Students often feel intimidated about performing the pediatric physical examination.

We have provided some tools to make learning this skill easier and hopefully fun for you!

A few pearls for the examination:

- You may have to do the physical examination out of order in many children. Be flexible.
- You can’t stop and write down your findings as you go. You have to remember what you saw/heard/felt. Write it down afterwards.
- Save the most invasive parts for last (ears and mouth)
- Children over 5 can usually follow directions, so their examination is similar to adults
- Enlist the caregiver’s help as needed!
- Have fun and think of how to make this a game (for yourself and your patient)

Review the following video that provides additional tips for performing physical examinations in children. This is found on the COMSEP website (Council of Medical Student Education in Pediatrics—the national pediatric clerkship organization).

http://www.comsep.org/educationalresources/multimediateachingtools.cfm

After you have watched the video, look through the Physical Examination Benchmarks and Appendices.

Watch your preceptor/faculty member/resident do an exam and then go for it!

Use the Physical Exam CEX as a way to track your progress.

Remember, the more you practice, the better you will become. Ask the people you work with to show you how to do the physical examination, be honest if you don’t hear or see a physical exam finding. And remember, the more you practice....
Pediatric Physical Examination Benchmarks

General Approach

The approach to examining children is flexible. You must establish rapport with the child and the parent before starting the exam. In general, children between the ages of 8 months and 4 years require the most flexible approach. Ideally, you will perform the most "invasive" part of the examination (e.g., the head and neck examination) last.

**Do**

- **Use an age appropriate approach to the examination**
  - **Newborn:** Place the newborn on the examination table. Conduct a general assessment by observing the child and then listen to the heart and lungs; once those are accomplished proceed with the remainder of the exam.
  - **Infant/Toddler:** You may examine the child in the caregiver's lap. Begin slowly with a non-threatening part of the examination, perhaps the hands. Then move to the heart and lung exam. End with the Head and neck examination, focusing on the ears and throat last.
  - **Older child/adolescent:** The sequence of the examination mirrors that of the adult. Pay particular attention to modesty and whether parents will remain in the room.

- **Assess the child’s growth**
  - Complete a growth chart accurately plotting height, weight and head circumference on the CDC Growth charts of the United States.

- **Assess the child’s development**
  - Use a comment developmental screening instrument such as the Denver II or Ages and Stages questionnaire.

**Know**

- Be alert to the possibility of a problem when the head circumference is at one extreme or the other.
- Sequential measurements of growth are sensitive measures of overall health.
- Alteration in the rate of growth "crossing percentiles" should alert you to possible underlying problems.
- Developmental delays are "red flags" for neurodevelopmental disorders.

The maneuvers you use in the adult physical examination are also used when examining children. The contents of the curriculum and appendices include the basic maneuvers that are unique to pediatric patients or are more challenging to perform in this population. It is expected that you will be able to correctly execute the basic physical examination maneuvers commonly used for all patients.
The Newborn Examination

You should be able to conduct a complete examination of all organ systems in all newborns using an age appropriate approach. Specific maneuvers that are a part of the neonatal examination include:

Fontanel assessment:

**Do**
- Palpate the anterior fontanel, assessing size and firmness
- Palpate the posterior fontanel (many not be able to feel this)

**Know**
- The posterior fontanel usually closes by 6 weeks of age. The anterior fontanel closes by 18 months in most infants.
- Changes in intracranial pressure or hydration status are reflected in changes of the palpable tension of the fontanel (increased with increased intracranial pressure, decreased with dehydration).
- Fontanel size varies tremendously; persistent delays in closure or unusually large size of fontanels (particularly the posterior fontanel) may indicate pathologic bone growth delay.

Eye Exam:

**Do**
- Assess whether the red reflex is present
- Test corneal light reflex

**Know**
- Presence of a red reflex bilaterally suggests absence of cataracts or intraocular pathology.
- Asymmetric corneal light reflex is a sign of strabismus, an imbalance of ocular muscle tone. If this is not corrected early it can lead to blindness

Hip Exam:

**Do**
- Assess the neonate for congenital hip dysplasia by performing:
  1. Barlow Maneuver
  2. Ortolani test

**Know**
- The infant may have a congenitally dislocated or subluxable hip if:
  - You feel or hear a click during either adduction or abduction
  - There is spasm or discomfort of the adductor muscles of the femur

Newborn reflexes:

**Do**
- As part of your newborn exam, elicit the following primitive reflexes.
  - Asymmetric Tonic Neck Reflex (Fencer's position)
  - Moro Reflex (startle response)
  - Palmar grasp
  - Plantar grasp

**Know**
- Reflexes should be symmetric. Asymmetry suggests weakness in a particular muscle group
- Primitive reflexes disappear as the infant matures, persistence of these reflexes is a signal of underlying neurological dysfunction.
Skin exam

**Do**
- Inspect the all of the skin of the infant (including diaper area)
- Describe (size, shape, color, distribution) of any rashes
- Note any areas lacking skin

**Know**
- Benign lesions that parents may have questions about include:
  - Small angiomatos present on the eye lids, nape of the neck, forehead
  - Milia: small white spots on the skin, particularly on the nose and cheeks
  - Erythema toxicum: yellowish/white pustules on an erythematous base that occur singly or in groups.
- Concerning changes include large angiomatos lesions, vesicles, pustules or areas lacking skin
- Midline abnormalities (dimple, hair tuff, moles) on the back may indicate an underlying abnormality in the bones/nervous system.

**Infant/Toddler Examination**

You should be able to conduct a complete examination of all organ systems in all infants/toddlers using an age appropriate approach. Specific maneuvers that are a part of the infant/toddler examination include:

**Ear examination**

**Do**
- Ask about hearing concerns
- Inspect the ears
  - Pay particular attention to the shape and position of the ears
- Palpate the tragus and posterior auricular area
- Otoscopic exam including insufflation

**Know**
- Any delay in language acquisition or loss of language milestones should prompt a referral for formal hearing testing
- Tenderness to palpation of the tragus is indicative of otitis externa
- The most common reason for an immobile tympanic membrane with pneumatic otoscopy is a poor seal between the otoscope and ear canal
- You must assess the movement of the tympanic membrane to determine if a patient has otitis media
- Changes in the appearance of the tympanic membrane highly suggestive of acute infection include: bulging or purulent material visualized behind the tympanic membrane

**Mouth examination**

**Do**
- Inspect the teeth
- Inspect gums, mucosal surfaces and posterior pharynx

**Know**
- The numbering system for primary teeth is different that the system used in adults
- Dental caries is the most common chronic illness in the United States. More than ½ of children within the U.S. have dental caries. *Streptococcus mutans* is associated with the development of dental caries.
- Using a tongue blade in this population is challenging. Inserting it along the side of the mouth and then gagging the child will allow for an unobstructed view of the posterior pharynx in most children.
- The diagnosis is streptococcal pharyngitis is a laboratory, not clinical diagnosis.
Musculoskeletal Examination

**Do**

- Observe the child closely; noting in particular range of motion and limb use
- Inspect the joints for redness or swelling
- Palpate methodically and in a systematic manner the involved area and all other areas that influence the involved area.
  - Note muscles, bony prominences, other important landmarks, and joints of the involved body part.
  - Be observant for pain or warmth
- Assess Active and Passive Range of motion for each major joint.
- Assess the strength major muscle groups of the upper and lower extremities
  - Be able to test pelvic girdle strength

**Know**

- Much of your assessment will be derived from observation
- Common normal variants seen in this age group include:
  - Child’s feet turn in:
    - Internal Femoral Torsion (femoral anteversion)- femurs are internally rotated & patella are rotated inward. Rotate legs so patellas point straight forward and feet then also point straight ahead
    - Internal Tibial Torsion- patellas point directly ahead and feet turn in
  - Genu Varum (bowlegs) and Genu Valgum (Knock knees): are physiologic in majority of children, Genu varum usually corrects by 2 years old and genu varum by 4 years of age. If it persists, must rule out pathology
  - Flat feet: normal in children < 2-3 years old. Check to insure good mobility of feet and reassure parents

Older child/Adolescent Examination

You should be able to conduct a complete examination of all organ systems in all adolescents using an age appropriate approach. The physical examination in an older child/adolescent is very similar to that done in adults. Pay particular attention to patient modesty. Specific maneuvers that are a part of the older child/adolescent examination include:

**Tanner staging**

**Do**

- Assess Tanner staging for both male and female patients
  - Female: Breast and pubic hair
  - Male: genitalia and pubic hair

**Know**

- Pubertal changes typically occur between the ages of 8 and 14 in girls and 9 and 16 in boys. Occurrence of pubertal changes outside these ranges should be evaluated.
**Musculoskeletal exam**

*Do*

- Be able to perform a basic musculoskeletal examination (see ICMII benchmarks)
- In addition:
  - Assess pelvic girdle strength
  - Back examination
    - Inspect the back for spinal dimples & midline abnormalities such as a tuft of hair, midline nevi or central dimple (this should be done throughout childhood)
    - Assess symmetry of the back/spine:
      - Shoulders should be at the same level, as should posterior superior iliac crest
      - Have the child bend forward at the waist keeping knees straight and allowing arms to hang freely; ribs/thorax should be symmetric.

*Know*

- Gower’s sign occurs when a child is unable to rise from a sitting to standing position without assistance. This sign indicates proximal muscle weakness
- Midline abnormalities may indicate an underlying spinal cord or vertebral abnormality
- Scoliosis occurs is common in children and screening is a part of the adolescent or older child examination
- Excessive thoracic kyphosis that persists when the child lies down is pathologic

**Suggested Readings:**

*This is a gold mine of tips and techniques for the pediatric history and physical. Excellent pictures and explanations are included in each chapter.*

*This textbook provides an excellent basic introduction to the pediatric history and physical.*

*This book is an outstanding reference for physical diagnosticians in pediatrics. It provides both normal and abnormal findings and is subdivided by subspecialty with an emphasis on diagnoses that have significant findings on physical exam.*
Pediatric Physical Examination Core Curriculum Appendices

These appendices are to be used as a supplement to the Pediatric Physical Examination Core curriculum benchmarks of the 3rd year general pediatric clerkship.

As a 3rd year clerkship student you are not expected to MASTER this material. It is supplemental and provides additional detail about some of the maneuvers outlined in the Physical examination benchmarks.

As a 4th year student who will be caring for children in your rotations and future careers, your goal should be to master the material presented in the appendices. Continue to work on both the knowledge and skills presented here.

The specific techniques used to perform the maneuvers outlined in the core curriculum appear below with additional supplemental information. We hope that you will use this material as a guide to improving your physical diagnostic skills.

Basic Approach

Do

Assess the child’s growth

•Complete a growth chart accurately plotting height, weight and head circumference on the CDC Growth charts of the United States.

Plotting growth measurements:

Assessing growth is a part of each pediatric encounter because this is a sensitive measure of overall health of the child. There are growth curves available for different age groups (0-36 months, 2-20 years).

Weight:

Infants should be weighed naked or in a diaper only. If the weight is too high/low recheck the weight and accuracy of the scale. Fluctuations in weight influence management of children, especially those who are hospitalized.

Height

Most children younger than 2 years cannot/will not stand by themselves so their length is measured instead of their height. There are measuring devices to assist with accurate assessment. If there is any concern about growth, measure the length at least twice.

Head circumference:

The tape should encircle the most prominent portions of the head. For increased accuracy, measure three times. It is easy to make small changes in the measurements accidentally. Do not start your examination by obtaining this measurements b/c the infant may start crying.

BMI

BMI should be calculated in all children and followed in addition to height and weight. To calculate BMI:

\[
\text{BMI} = \frac{\text{Wt (kg)} / \text{ stature (cm)}}{\text{ stature (cm)} x 10,000}
\]

Or

\[
\text{BMI} = \frac{\text{Wt (lb)} / \text{ stature (in)}}{\text{ stature (in)} x 703}
\]

Special situations:

Premature infants: the growth of premature infants is typically "corrected" for their premature birth. Although special growth charts are available, many pediatricians plot the current weight at the "chronological" age and then subtract the months/weeks of prematurity (e.g. if the child was born at 30 weeks they subtract 10 weeks) and plot the growth parameters at the "corrected" age. Plotting the corrected age usually continues until age 2 years.

Other populations: there are special growth charts available to plot the growth for children with Down syndrome, Turner syndrome and achondroplasia.
Assess the child's development
Use a comment developmental screening instrument such as the Denver II or Ages and Stages questionnaire. You should practice doing this during your pediatrics/family medicine clerkships.

• Tips for doing a developmental assessment:
  • Ask open-ended questions about each area of development outlined on the Denver II
  • Know 1-2 items in each category that you can ask initially, and then follow up any concerns (yours or the parents) by asking more specific questions from the Denver or other screening tool.
  • You will get information about the child's development by history and your own personal observation.

Know

Be alert to the possibility of a problem when the head circumference is at one extreme or the other.

Sequential measurements of growth are sensitive measures of overall health.
Alteration in the rate of growth "crossing percentiles" should alert you to possible underlying problems.

Typical weight gain: 20-30 grams/day in the newborn period

Typical height velocity:
  • In children 5 years – puberty, normal growth velocity is ≥ 5 cm; < 5 cm/year should be investigated;
  • < 4 cm is pathologic

Patterns of growth:
  • Growth hormone deficiency (high weight to height ratio)
  • Chronic disease (e.g. inflammatory bowel disease...low weight to height ratio)
  • Constitutional growth delay (normal weight to height ratio)

Developmental delays identified on tools used in clinician's office are "red flags" and warrant further, more formal investigation.

The Newborn Examination

Fontanel assessment:

Do

• Palpate the anterior fontanel, assessing size and firmness
  • Place the infant in an upright position (and hopefully she/he will remain calm!)
  • Gently place your fingers over the anterior fontanel, located midline on the superior temporal portion of the skull.
  • Gently palpate for the edges of the fontanel.

• Palpate the posterior fontanel (may not be able to feel this)
  • Repeat the same procedure outlined above, feeling for the posterior fontanel, located in the midline occipital region.

Know

• Craniosynostosis: premature closure of cranial sutures. This can be primary due to closure of one or more sutures due to abnormal skull development. This occurs in ~ 1/2000 children and is most often present at birth. It can also be secondary due to abnormal brain development.

• Conditions associated with a large anterior fontanel (greater than 3 cm): hydrocephaly, achondroplasia, hypothyroidism, osteogenesis imperfecta, and Vitamin D deficiency rickets

Eye Exam:

Do

Assess whether the red reflex is present

The newborn infant spontaneously opens his/her eyes if the head is gently tipped forward/backward. This is more effective than trying to force open tightly shut eyelids!
Test corneal light reflex
Shine your ophthalmoscope or penlight in the newborn's eyes; you are assessing whether the light is symmetrically placed on the cornea bilaterally. Many newborns appear to be "cross eyed" because of prominent epicanthal folds.

Know
• Presence of a red reflex bilaterally suggests absence of cataracts or intraocular pathology.
• Leukocoria (white papillary reflex) suggests cataracts, chorioretinitis, retinopathy of prematurity, persistent hyperplastic vitreous or retinoblastoma. Leukocoria mandates an immediate ophthalmologic evaluation.
• Asymmetric corneal light reflex is a sign of strabismus, an imbalance of ocular muscle tone. If this is not corrected early it can lead to blindness. Proper coordination of eye movements should be achieved by 3-6 months; persistent eye deviation requires evaluation.
• Visual acuity of a newborn is approximately 20/400; this rapidly normalizes and by 2-3 years of age is 20/30-20/20.

Hip Exam:
Do
• Assess the neonate for developmental dysplasia of the hip by performing:
  Barlow Maneuver and ortalani test
  • Place the baby on a firm surface in the supine position
  • Flex the thighs to a right angle to the abdomen and the knees at right angles to the thighs
  • Grasp each thigh with your forefinger along the outside shaft of the femur, with your middle finger on the greater trochanter and thumb medially
  • Adduct the femora fully and push down toward the bed. (Barlow maneuver)
  • Gently abduct each leg from the position of full adduction so that the knees come to lie laterally on the table
  • During adduction, push the greater trochanters medially and forward with your fingers (Ortalani test)

Know
The infant may have a congenitally dislocated or subluxable hip if:
• you feel or hear a click during either adduction or abduction
• there is spasm or discomfort of the adductor muscles of the femur

Developmental Dysplasia of the hip:
1/100 infants have clinically unstable hips; 1/800-1000 experience true dislocation. There is a positive family history in 20% of patients and associated generalized ligamentous laxity. 9:1 female to male ratio.
Developmental dysplasia typically presents after birth in most infants. If it is present at birth, you should look for an underlying neuromuscular disorder. This type of developmental dysplasia of the hip is called Teratologic DDH.

Newborn reflexes:
Do
As part of your newborn exam, elicit the following primitive reflexes.
  Asymmetric Tonic Neck Reflex (Fencer’s position)
  • Place the infant on his/her back
  • Turn the newborn’s head to one side
  • Observe the gradual extension of the arm on the side to which the head is turned
  • Observe the flexion of the other arm
  Moro Reflex (startle response)
  • Hold the infant supine and support the infant's head with one hand
  • Gently move the infant's head (while supporting it) below the level of the rest of the body
  • Observe the infant extend both arms suddenly and rapidly with open hands
  • Observe the infant bring both hands back to midline in an "embrace" movement
  Palmar grasp
  • Place your index finders in each of the infant's open hands
Plantar grasp
- Place your thumb on the sole of the infant's foot under the toes
- Observe the toes curl around your thumb

Know
Reflexes should be symmetric. Asymmetry suggests weakness in a particular muscle group.

Primitive reflexes disappear as the infant matures; persistence of these reflexes is a signal of underlying neurological dysfunction.

Asymmetric Tonic Neck Reflex (Fencer's position)
Appears by 35 wks gestation, is fully developed at 1 month & lasts 6-7 months

Moro Reflex (startle response)
Appears by 28-30 wks gestation; if fully developed at term & lasts 5-6 months

Palmar grasp
Appears by 28 wks, is fully developed by 32 wks gestation & lasts 2-3 months

Skin exam
Do
- Inspect all of the skin of the infant (including diaper area)
- Describe (size, shape, color, distribution) any rashes
- Note any areas lacking skin

Know
- Benign lesions that parents may have questions about include:
  - Small angiomatous present on the eye lids, nape of the neck, forehead
  - Milia: small white spots on the skin, particularly on the nose and cheeks
  - Erythema toxicum: yellowish/white pustules on an erythematous base that occur singly or in groups.
- Concerning changes include large angiomatous lesions, vesicles, pustules or areas lacking skin
- Midline abnormalities (dimple, hair tuff, moles) on the back may indicate an underlying abnormality in the bones/nervous system.

Examples of common neonatal skin lesions can be found at

Infant/Toddler Examination

Ear examination
Do
- Ask about hearing concerns
  - Inquire about infant's response to
  - Observe an older infant's/toddler's speech pattern

Inspect the ears
- Assess the shape of the ears
  - Determine if both ears are well formed
- Assess the position
  - Examine the child from the front, with the child's head held erect and the eyes facing forward.
  - Draw an imaginary line between the inner canthi and extend it around the head.
  - This line should be at or above the top of the pinnae

Palpate the tragus and posterior auricular area

Otoscopy exam including insufflation
• Position the child for an ear examination
  This part of the exam can be examined either on the examination table or in the
caregiver's lap. The head should be stabilized to prevent movement during otoscopy.
A parent or assistant can assist with the examination by forcing the child's wrists and
arms over the child's abdomen with one hand and then holding the child's head against
the parent's/assistant's chest with the other.

• Visualize the external canal
  Gently hold the tragus and insert the otoscope while visualizing the canal. In contrast to
adults, gentle posterior traction may help you visualize the canal and eventually the
tympanic membrane.

• Visualize the tympanic membrane
  Identify the landmarks starting with long handle of the malleus then moving to the "cone
  of light" in the pars tensa.
Carefully visualize the pars flaccida

![Diagram of ear structures]

• Perform pneumatic otoscopy
  Hold the otoscope and bulb with one hand and retract the pinna with the other
Gently apply a small "puff" of air to the tympanic membrane
Normal movement: medially (away from you) with the application of air and laterally
(toward you) when the bulb is released

**Know**

Hearing:
Any delay in language acquisition or loss of language milestones should prompt a
referral for formal hearing testing
Hearing impairment is estimated to occur in 1-2/1000 live births
Some etiology of hearing loss in childhood
  Sensory neural: cochlear malformation, damage to hair cells (due to noise,
disease, ototoxic agents) or 8th nerve damage
  Conductive: (most common)—ear canal atresia, cerumen impaction, otitis
media with effusion

Position/Shape of the ears
Malformed external and middle ears may be associated with serious renal or other
craniofacial malformations

Palpation:
Tenderness to palpation of the tragus is indicative of otitis externa.
You will also typically see white cheesy material in the external auditory canal.
Treatment is aural toilet and topical antibiotics

Tenderness to palpation and/or redness in the posterior auricular area may suggest
mastoiditis.

Otoscopy:
Areas of retraction in the pars flaccida may represent a cholesteatoma and should be further evaluated. A cholesteatoma acts as a benign tumor causing local bone destruction and is a nidus for bacteria to grow and cause chronic infections.

The most common reason for an immobile tympanic membrane (TM) with pneumatic otoscopy is a poor seal between the otoscope and ear canal.

You must assess the movement of the TM to determine if a patient has otitis media. In addition to pneumatic otoscopy, acoustic tympanometry can be used.

Changes in the appearance of the TM that are highly suggestive of acute infection include: bulging or purulent material visualized behind the tympanic membrane. Guidelines for the diagnosis and treatment of otitis media: www.aap.org

Removal of cerumen is difficult but sometimes necessary to adequately see the TMs. The external auditory canal bleeds easily with minor trauma so ask for help if you need to clear out cerumen. It can be done by gentle irrigation with warm water, H₂O₂ or with direct visualization and use of a wire/plastic loop.

Mouth examination

**Do**

The approach
- Save the mouth exam for the very last in young children.
- Ask child to open their mouth and show you their teeth (appropriate for an older toddler/child). If this doesn't work, be prepared to be fast with your tongue blade.
- An alternative is to be flexible and look in the mouth when the child is crying for some other reason!!

Inspect the teeth
- Count the number of teeth and note position
- Note any defects or discolorations

Inspect gums, mucosal surfaces and posterior pharynx
- Inspect the buccal mucosal and gums looking for ulcers, canida or trauma
- To see the posterior pharynx, you may have to use the tongue blade and gag the child.
- Alternative tricks you can use include asking the child to "roar like a lion", "pant like a dog", have their parents model what you would like to child to do or have the child look in your mouth.

**Know**

The numbering system for primary teeth is different than the system used in adults.
- There are 20 primary teeth
  - Time for first tooth eruption is variable; delayed eruption maybe familial or associated with other syndromes/conditions (like hypothyroidism)
  - There may be developmental anomalies associated with tooth development

Dental caries is the most common chronic illness in the United States. More than ¼ of children within the U.S. have dental caries. *Streptococcus mutans* is associated with the development of dental caries.
- Early childhood caries may occur on the smooth surfaces if upper/lower incisions because of prolonged exposure to sugar containing substances.
- Site for caries in children include pits/tissues of biting (occlusal) surfaces in older children (> 3 yo)

Using a tongue blade in this population is challenging. Inserting it along the side of the mouth and then gagging the child will allow for an unobstructed view of the posterior pharynx in most children.
The size of tonsils are described in the following way:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Appearance</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Absent</td>
</tr>
<tr>
<td>1</td>
<td>Visible between the tonsillar pillars</td>
</tr>
<tr>
<td>2</td>
<td>Easily visible outside of the tonsillar fossae</td>
</tr>
<tr>
<td>3</td>
<td>Enlarged and occupying &gt;75% of posterior pharynx</td>
</tr>
<tr>
<td>4</td>
<td>Touching in the midline occupying all of the posterior pharynx</td>
</tr>
</tbody>
</table>

The diagnosis is streptococcal pharyngitis is a laboratory, not clinical diagnosis. Other infections that can cause tonsillar exudates include EBV infections, CMV infections, S. aureus infections, adenoviral infections.

Heart Examination

The approach the pediatric heart examination is the same as in an adult. Included here is a brief discussion of MURMURS in children.

Newborn period

As the pulmonary vascular resistance decreases, flow through the Patent Ductus Ateriosus or Patent Foramen Ovale stops as these structures close. Some murmurs heard shortly after birth will disappear.

However, as the pulmonary vascular resistance decreases, this may allow left to right shunting and new murmurs may appear (such as seen with a VSD)

Presence of central cyanosis is an important clue for congenital heart disease. Those lesions associated with cyanotic heart disease are the "Ts": Tetralogy of Fallot, Tricuspid Atresia, Transposition of the Great Arteries, Total Anomalous venous return & Truncus arteriosus (there are others but these are easy to remember)

Beyond the newborn period

50% of children have innocent murmurs
Non-pathologic murmurs include:

Peripheral Pulmonary flow murmur:
- Soft (1-2/6) systolic ejection murmur heard in L upper sternal border with radiation to the axilla and back
- Venous hum
- Soft (1-2/6) continuous murmur heard in 1st or 2nd ICS

Innocent murmur
- Soft (<3/6) early systolic murmur heard along the L sternal border between the 2nd/3rd or 4th/5th Intensity varies with position & might be heard with the bell. "Vibratory/blowing/musical" in quality.

Hemic murmur (flow murmur)
- Heard in states with increased physiologic need (fever, anemia). Heard at base of the heart, soft (<3/6) and often associated with tachycardia

Musculoskeletal Examination

Do

Observe the child closely; noting in particular range of motion and limb use
An excellent time to get this information is before the examination while the child is playing or interacting with their parents.

Inspect the joints for redness or swelling
Start with the hands or some non-threatening part of the examination; examine the affected joint last.
Palpate methodically and in a systematic manner the involved area and all other areas that influence the involved area.
Note muscles, bony prominences, other important landmarks, and joints of the involved body part.
Be observant for pain or warmth
Assess Active and Passive Range of motion for each major joint.
Young children may not cooperate with this part of the examination; you may have to range their joints and gauge how much they resist you to judge function.

**Older child/Adolescent Examination**

You should be able to conduct a complete examination of all organ systems in all adolescents using an age appropriate approach. The physical examination in an older child/adolescent is very similar to that done in adults. Pay particular attention to patient modesty. Specific maneuvers that are a part of the older child/adolescent examination include:

**Tanner staging**

**Do**
Assess Tanner staging for both male and female patients. You should assess and report pubic hair development separately from breast or genitalia development.

<table>
<thead>
<tr>
<th>Girls</th>
<th>Hair (Pubic/Axillary)</th>
<th>Breasts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage I</td>
<td>No coarse/pigmented hair</td>
<td>Papilla elevated only</td>
</tr>
<tr>
<td>Stage II</td>
<td>Scant course pigmented hair on labia</td>
<td>Breast buds palpable, areola enlarge</td>
</tr>
<tr>
<td>Stage III</td>
<td>Course, curly hair over mons pubis, Axillary hair develops</td>
<td>Elevation on contour, areola enlarge</td>
</tr>
<tr>
<td>Stage IV</td>
<td>Hair of adult quality, not on lateral thigh</td>
<td>Areola forms a secondary mound on the breast</td>
</tr>
<tr>
<td>Stage V</td>
<td>Spread of hair to lateral thigh</td>
<td>Adult breast contour</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Boys</th>
<th>Hair (Pubic/Axillary)</th>
<th>Testes length</th>
<th>Penis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage I</td>
<td>No coarse/pigmented hair</td>
<td>&lt;2.5 cm</td>
<td>No growth</td>
</tr>
<tr>
<td>Stage II</td>
<td>Scant course pigmented hair at base of penis</td>
<td>2.5-3.2 cm</td>
<td>Earliest increase length/width</td>
</tr>
<tr>
<td>Stage III</td>
<td>Course, curly hair over pubis</td>
<td>3.6cm</td>
<td>Increased growth</td>
</tr>
<tr>
<td>Stage IV</td>
<td>Hair of adult quality, not on lateral thigh, Axillary hair develops</td>
<td>4.1-4.5 cm</td>
<td>Continued growth</td>
</tr>
<tr>
<td>Stage V</td>
<td>Spread of hair to lateral thigh</td>
<td>&gt;4.5 cm</td>
<td>Mature genital size</td>
</tr>
</tbody>
</table>


**Know**
Pubertal changes typically occur between the ages of 8 and 14 in girls and 9 and 16 in boys. Occurrence of pubertal changes outside these ranges should be evaluated.

Precocious puberty:
- Benign precocious adrenarche: may occur in boys before age 9 and girls before age 8; absence of penile enlargement in boys or of clitoral enlargement in girls distinguishes this from pathologic virilization.
- Precocious thelarche: isolated premature breast development in girls
- Other causes include: CNS tumors, Ovarian cysts, Gondal tumors, Congenital adrenal hyperplasia, exogenous sources

Delayed puberty:
- Constitutional (physiologic): most common, occurs in boys more often and is associated with delayed growth and bone age; ask about family history
- Other causes: Malnutrition (including anorexia nervosa), chronic disease, Central causes (hypothalamic/pituitary abnormality, tumors, drugs, other endocrine problems like hypothyroidism), gonadal causes (chromosomal—XXY, XO, anatomic abnormalities, immunologic).

Musculoskeletal exam
An excellent demonstration of the 2 minute orthopedic examination in an older child can be found: case #6 (Mike pre-sports physical); also Chapter 17 in Goldbloom’s Pediatric Clinical Skills (p 311).

Do
Be able to perform a basic musculoskeletal examination (see ICMII benchmarks)
Additional techniques:
Assess the strength major muscle groups of the upper and lower extremities
- Be able to test pelvic girdle strength: Ask the patient to sit on the floor and then stand up.
- Lower extremity strength/joint function: Ask the child to squat and walk like a duck across the room.

Back examination
- Inspect the back for spinal dimples & midline abnormalities such as a tuft of hair, midline navi or central dimple (this should be done beginning in infancy)
- Assess whether the spinal dimples are level
  - Inspect the patient back from behind when the stand. If the spinal dimples are at the same level, there is not significant leg length discrepancy. (example page 273 Goldbloom)
- Assess symmetry/ screening for scoliosis:
  - Shoulders should be at the same level, as should posterior superior iliac crest.
  - Inspect the patient’s back when they are facing away from you.
  - Have the child bend forward at the waist keeping knees straight and allowing arms to hang freely; ribs/thorax should be symmetric

Know
Gower’s sign occurs when a child is unable to rise from a sitting to standing position without assistance. This sign indicates proximal muscle weakness

Midline abnormalities may indicate an underlying spinal cord or vertebral abnormality

Scoliosis occurs in children and screening is a part of the adolescent examination

Excessive thoracic kyphosis that persists when the child lies down is pathologic

References:
Goldbloom, R B. Pediatric Clinical Skills, 3rd edition. 2003 Elsevier Science (USA) Philadelphia. This is a gold mine of tips and techniques for the pediatric history and physical. Excellent pictures and explanations are included in each chapter.


Zitelli, BJ and H. W. Davis. Atlas of Pediatric Physical Diagnosis, 4th Edition. 2002 Elsevier Science, Philadelphia. This book is an outstanding reference for physical diagnosticians in pediatrics. It provides both normal and abnormal findings and is subdivided by subspecialty with an emphasis on diagnoses that have significant findings on physical exam.

Other references:

**Purpose:** To understand how to do an age appropriate pediatric examination. **Directions:** Students are to complete 2 examinations (a newborn and a child, 2-12 yrs. old). The examination forms must be completed by a faculty member or resident. Return completed checklists to the local site director.

**Date** __________  **Student** _______________  **Observer** _______________

**Neonatal Examination**

<table>
<thead>
<tr>
<th>General</th>
<th>Heart</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Introduces self/preceptor</td>
<td>□ Palpates for position</td>
</tr>
<tr>
<td>□ Uses appropriate exam sequence</td>
<td>□ Auscultation</td>
</tr>
<tr>
<td><strong>Assesses maturity</strong></td>
<td>□ Identification of murmur present</td>
</tr>
<tr>
<td>□ Term</td>
<td></td>
</tr>
<tr>
<td>□ Pre-term</td>
<td></td>
</tr>
<tr>
<td><strong>Assesses intrauterine growth</strong></td>
<td></td>
</tr>
<tr>
<td>□ SGA</td>
<td></td>
</tr>
<tr>
<td>□ AGA</td>
<td></td>
</tr>
<tr>
<td>□ LGA</td>
<td></td>
</tr>
<tr>
<td><strong>Skin</strong></td>
<td><strong>Genitalia</strong></td>
</tr>
<tr>
<td>□ Notes findings</td>
<td>□ Examines and identifies abnormalities</td>
</tr>
<tr>
<td><strong>Head</strong></td>
<td></td>
</tr>
<tr>
<td>□ Palpates fontanels/sutures</td>
<td>□ Hypospadias</td>
</tr>
<tr>
<td>□ Notes caput succedaneum</td>
<td>□ Hernias/hydroceles</td>
</tr>
<tr>
<td>□ Notes subgaleal hemorrhage</td>
<td></td>
</tr>
<tr>
<td><strong>Eyes</strong></td>
<td><strong>Anus</strong></td>
</tr>
<tr>
<td>□ Checks red reflex</td>
<td>□ Visual check for patency</td>
</tr>
<tr>
<td><strong>Ears/Nose/Throat</strong></td>
<td><strong>Spine</strong></td>
</tr>
<tr>
<td>□ Position</td>
<td>□ Dimples/sinus tracts</td>
</tr>
<tr>
<td>□ Pre-auricular pits</td>
<td>□ Scoliosis/masses</td>
</tr>
<tr>
<td>□ Checks for cleft palate</td>
<td></td>
</tr>
<tr>
<td><strong>Thorax</strong></td>
<td><strong>Extremities</strong></td>
</tr>
<tr>
<td>□ Symmetry</td>
<td>□ Pulses</td>
</tr>
<tr>
<td>□ Breast tissue</td>
<td>□ Hip dislocation:</td>
</tr>
<tr>
<td>□ Observes rate, depth of breathing</td>
<td>□ Gluteal folds</td>
</tr>
<tr>
<td>□ Auscultates (with correct findings)</td>
<td>□ Barlow/Ortolani</td>
</tr>
</tbody>
</table>

**Reflexes**

- Checks: Moro root palmar grasp
- Babinski sign
- DTRs
- Cranial nerves
- Active/passive tone
- Spontaneous motor activity
- Cry

**Overall Performance:**

- □ Satisfactory (performed >70% of maneuvers correctly without instruction)
- □ Needs improvement (performed >70% of maneuvers correctly but with significant instruction)
- □ Unsatisfactory (performed < 70% of maneuvers correctly)

**Additional Comments:**

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53
**UWSOM Department of Pediatrics Clerkship Mini-CEX Form**

**Purpose:** To understand how to do an age appropriate pediatric examination.
**Directions:** Students are to complete 2 examinations (a newborn and a child, 2-12 yrs. old). The examination forms must be completed by a faculty member or resident. Return completed checklists to the local site director.

<table>
<thead>
<tr>
<th>Date</th>
<th>Student</th>
<th>Observer</th>
</tr>
</thead>
</table>

**Pediatric Examination**

<table>
<thead>
<tr>
<th>General</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Introduces self/preceptor</td>
</tr>
<tr>
<td>□ Uses appropriate exam sequence</td>
</tr>
<tr>
<td>□ Puts child at ease</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Head</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Palpates</td>
</tr>
<tr>
<td>□ Examines hair</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Eyes</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Checks red reflex</td>
</tr>
<tr>
<td>□ Conjunctiva/sclera</td>
</tr>
<tr>
<td>□ Extraocular movements</td>
</tr>
<tr>
<td>□ Fundoscopic exam</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ External ear exam</td>
</tr>
<tr>
<td>□ Visualizes TM</td>
</tr>
<tr>
<td>□ Checks response to voice</td>
</tr>
<tr>
<td>□ Checks nose/mucosa</td>
</tr>
<tr>
<td>□ Notes state of dentition/gingiva</td>
</tr>
<tr>
<td>□ Examines tonsils/pharynx</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Neck</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Palpates lymphatic chain</td>
</tr>
<tr>
<td>□ Checks for masses</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Skin</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Notes presence/absence of rashes</td>
</tr>
<tr>
<td>□ Describes rashes/skin lesions</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lymphadenopathy</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Palpates: neck axilla groin</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Thorax</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Symmetry</td>
</tr>
<tr>
<td>□ Breast tissue</td>
</tr>
<tr>
<td>□ Palpates for masses</td>
</tr>
<tr>
<td>□ Tanner stage</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lungs</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Observes rate, depth of breathing</td>
</tr>
<tr>
<td>□ Palpates/percusses chest</td>
</tr>
<tr>
<td>□ Auscultates (with correct findings)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cardiovascular</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Palpates PMI</td>
</tr>
<tr>
<td>□ Auscultates</td>
</tr>
<tr>
<td>□ Correctly identifies murmurs</td>
</tr>
<tr>
<td>□ Checks pulses Neck wrist groin feet</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gastrointestinal</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Auscultates for bowel sounds</td>
</tr>
<tr>
<td>□ Percusses</td>
</tr>
<tr>
<td>□ Palpates for:</td>
</tr>
<tr>
<td>□ Masses</td>
</tr>
<tr>
<td>□ Liver edge</td>
</tr>
<tr>
<td>□ Spleen</td>
</tr>
<tr>
<td>□ Tenderness</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Musculoskeletal</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Checks for clubbing, cyanosis</td>
</tr>
<tr>
<td>□ Checks strength in all extremities</td>
</tr>
<tr>
<td>□ Checks ROM:</td>
</tr>
<tr>
<td>□ Upper extremities</td>
</tr>
<tr>
<td>□ Lower extremities</td>
</tr>
<tr>
<td>□ Scoliosis</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GU</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Tanner stage</td>
</tr>
<tr>
<td>Male: phallus testes pubic hair</td>
</tr>
<tr>
<td>Female: vulva/pubic hair</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Neurological</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Cranial Nerves</td>
</tr>
<tr>
<td>□ DTR</td>
</tr>
<tr>
<td>□ Sensation</td>
</tr>
<tr>
<td>□ Cerebellar function</td>
</tr>
<tr>
<td>□ Babinski</td>
</tr>
<tr>
<td>□ Gait (if patient able)</td>
</tr>
<tr>
<td>□ Affect/mental status</td>
</tr>
</tbody>
</table>

**Overall Performance:**

| □ Satisfactory (performed >70% of maneuvers correctly without instruction) |
| □ Needs improvement (performed >70% of maneuvers correctly but with significant instruction) |
| □ Unsatisfactory (performed < 70% of maneuvers correctly) |

**Additional Comments:**
Pediatric Medical Knowledge

During the course of the clerkship, you will learn about common pediatric illnesses/problems in all age groups as well as approach to healthcare maintenance for children.

This material is covered in the CLIPP cases (www.Med-u.org). You are expected to complete all the CLIPP cases during the course of the clerkship.

In addition, there are 2 problems sets for you to complete:

1) Therapeutics Problem Set (Exercises 1-4)
2) Growth problem Set

Collectively, this content will provide you with a solid foundation for caring for common pediatric problems and prepare you for your final examination.

To further prepare for the USMLE Step II CK, we recommend thorough review of the content presented in the clerkship, completion of additional practice questions, use of review books as appropriate, adequate study time and following the guidance of the learning specialists at UW School of Medicine.

Alternative learning tools include:
- Blueprints in Pediatrics (6th or 7th edition) optional textbook
- Online Lectures: http://www.washington.edu/medicine/pediatrics/students/current/third-year/core-materials (you will need your UW NetID to sign in)

Copies of all of the information on this page can be found on the clerkship website: http://www.washington.edu/medicine/pediatrics/students/current/third-year
Instructions for the CLIPP cases

To obtain your password/login:

Go to http://www.med-u.org/

Click on the CLIPP icon, then the “Go to Cases” link. Register as a new user and fill out the entire new user registration form. Your password and login will be emailed to your u.washington.edu email account. You can change the password but not the login once you receive them. To obtain the password/login you must use your u.washington.edu email address (the program won’t recognize domain names like gmail or hotmail).

Remember that you have to use your UW email account to sign up. Once you get the login and password, you will be able to modify the password to something you can remember. Please contact the Medical Student Office if you need more log in help.

Please go to the Med-U website (www.med-u.org), log in, and start working on the cases. If you have done your Internal Medicine Clerkship, this site should be familiar. Start with the “Go To Cases” link on the main page. You will be instructed to provide information for future logins.

Once you get to the case selection page, choose CLIPP as the course. You will then be able to select the cases you are to complete.

You don’t have to do the cases all at once. When you quit the program, the website will save the place you stopped. You should be able to return to the case at that point.

An important note: Please look carefully at the name associated with the cases to make sure you are doing the correct one!
Pediatric Therapeutics Exercise #1

Fluid Management for Pediatric Patients
Part 1 – How to Address the Volume Deplete Patient

Things to remember:

- Always evaluate your patient’s volume status
- Use weight changes and your clinical judgment to assess a volume deficit
- The goal in volume replacement is to improve effective circulating volume
- Oral therapy and IV therapy both have a place in treating children with volume depletion
- Ongoing monitoring and review of your patient’s progress is required

Clinical Problems

1. A normally healthy 18-month-old girl who weighed 11kg two weeks ago comes to the ER with the complaint of “the flu”. She had emesis four times this morning and now has had two loose stools. She weighs 10.8kg on admission to the ER; her physical exam is significant for a weepy, unhappy appearing child.

What would you do to assess and treat this child’s fluid and electrolyte abnormality?

2. A normally healthy 18-month-old girl who weighed 11kg two weeks ago comes to the ER with the complaint of “the flu”. She has only been taking water and juice; now she refuses all fluids. She weighs 10.2kg on admission to the ER; her physical exam is significant for tachycardia and dry mucous membranes.

What would you do to assess and treat this child’s fluid and electrolyte abnormality?

3. A normally healthy 18-month-old girl who weighed 11kg two weeks ago comes to the ER with the complaint of “the flu”. She has only been taking water and juice for several days; now she refuses all fluids and her parents say she is lethargic. Her parents do not remember the last time she made any urine. She weighs 9.2kg on admission to the ER; her physical exam is significant for tachycardia, dry mucous membranes, cool extremities and tenting skin. She is afebrile. She arouses to noxious stimuli.

What would you do to assess and treat this child’s fluid and electrolyte abnormality?
Pediatric Therapeutics Exercise #2

Fluid Management for Pediatric Patients
Part 2 – How to Provide Maintenance Fluids

Things to remember:
- The volume of fluid required to keep a patient in normal balance is often called “maintenance”
- Maintenance needs may differ from person to person or from day to day
- Based on assumptions of normal physiology, it is possible to calculate maintenance needs
- The assumptions about maintenance needs do not always hold in the setting of illness

Clinical Problems

Write the intravenous maintenance fluid order for the following patients. Remember to include the type of intravenous fluid (i.e., amount of dextrose, sodium chloride, potassium, etc.) and the hourly rate.

1. A previously healthy 8-year-old girl seen in the pediatric emergency department with possible appendicitis. The pediatric surgeons have recommended that she be kept NPO (nothing by mouth) while they observe to see if her clinical signs will evolve, necessitating surgery. Weight is 25kg.

2. An 18-month-old boy is admitted to the hospital with rotavirus infection. Family tried to give oral fluids at home but over the last 24 hours his oral intake has been reduced. In the emergency department he appeared volume deplete so he received normal saline bolus 20ml/kg intravenously. He no longer appears volume deplete on clinical examination but he will only take small sips of clear liquids; it is felt he would again become volume deplete were he to be discharged home. Weight is 12kg.

3. A 17-year-old girl with a kidney transplant comes in for a routine surveillance kidney biopsy. The biopsy goes well but she feels nauseous from her anesthetic and is uninterested in drinking fluids. The nurse contacts you for maintenance IV fluid orders until the patient is feeling better and will take fluids by mouth. The patient weighs 65kg. Kidney transplant function is normal with serum creatinine of 0.8 mg/dL. She took all of her appropriate medications this morning and is not due for her medications again until 8pm (5 hours from now). The renal transplant team has instructed her to take 2.5 liters of fluid every day to “keep her transplant healthy” – normally she has no problem taking this volume of daily fluid.

4. A newborn 32-week infant male, birthweight 1600 grams, is admitted to the neonatal ICU for observation following preterm delivery due to premature rupture of membranes and preterm labor. He has good respiratory effort and does not require oxygen or mechanical ventilation. The neonatology team wishes to observe him for 24 – 48 hours before considering feeds
Pediatric Therapeutics Exercise #3

Medication Ordering Exercise

Things to remember:
1. Medications and other therapeutics need to be dosed in a manner appropriate for children. This most often requires scaling a drug dose to body weight or body surface area. Accurate weight and height are therefore necessary to both evaluate and treat a pediatric patient.
2. In some rare circumstances (e.g., extremes of abnormal weight, fluid excess, etc.), measured body weight/height may not be appropriate for dosing calculations. Rather, “ideal” weight/height would be used.
3. Not all medications come in forms that are usable in all children (e.g., liquids for oral use in a small child who cannot swallow a pill) and not all medications are acceptable for use in children. These issues must be considered when prescribing.

Using a pediatric formulary reference, determine the appropriate dose of medications for the following clinical situations. Write the dose, route, frequency, and if necessary the duration, formulation (tablets, liquid, etc.) and/or the “as needed” (PRN) indication.

<table>
<thead>
<tr>
<th>Clinical Situation</th>
<th>Medication</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-month-old boy admitted for fever and respiratory distress</td>
<td>Rx: ACETAMINOPHEN</td>
</tr>
<tr>
<td>Weight: 12kg</td>
<td></td>
</tr>
<tr>
<td>Height: 82cm</td>
<td></td>
</tr>
<tr>
<td>4-year-old girl admitted for pyelonephritis</td>
<td>Rx: CEFTRIAXONE</td>
</tr>
<tr>
<td>Weight: 16kg</td>
<td></td>
</tr>
<tr>
<td>Height: 100cm</td>
<td></td>
</tr>
<tr>
<td>16-year-old girl seen in the clinic with probable UTI</td>
<td>Rx: TRIMETHOPRIM-SULFAMETHOXAZOLE</td>
</tr>
<tr>
<td>Weight: 72kg</td>
<td></td>
</tr>
<tr>
<td>Height: 155cm</td>
<td></td>
</tr>
<tr>
<td>7-year-old boy treated in the ER for acute asthma exacerbation</td>
<td>Rx: ALBUTEROL</td>
</tr>
<tr>
<td>Weight: 21 kg</td>
<td></td>
</tr>
<tr>
<td>Height: 122 cm</td>
<td></td>
</tr>
<tr>
<td>3-year-old girl with new-onset nephrotic syndrome</td>
<td>Rx: PREDNISONE</td>
</tr>
<tr>
<td>Weight: 14 kg</td>
<td></td>
</tr>
<tr>
<td>Height: 95 cm</td>
<td></td>
</tr>
<tr>
<td>12-year-old boy admitted to ICU with hypotension</td>
<td>Rx: DOPAMINE</td>
</tr>
<tr>
<td>Weight: 55 kg</td>
<td></td>
</tr>
<tr>
<td>Height: 162 cm</td>
<td></td>
</tr>
</tbody>
</table>
Pediatric Therapeutics Exercise #4

Clinical Case Exercise

Things to remember:

Prescribing Basics:

1. Medications and other therapeutics need to be dosed in a manner appropriate for children. This most often requires scaling a drug dose to body weight or body surface area. Accurate weight and height are therefore necessary to both evaluate and treat a pediatric patient.

2. In some rare circumstances (e.g., extremes of abnormal weight, fluid excess, etc.), measured body weight/height may not be appropriate for dosing calculations. Rather, “ideal” weight/height would be used.

3. Not all medications come in forms that are usable in all children (e.g., liquids for oral use in a small child who cannot swallow a pill) and not all medications are acceptable for use in children. These issues must be considered when prescribing.

Fluids Management:

1. Every patient deserves an “effective circulating volume” to permit appropriate organ perfusion.

2. The volume deplete patient should have the volume deficit replaced according to the clinical situation:
   a. In shock: rapid and aggressive resuscitation using isotonic intravenous fluids with goal-directed approach and appropriate critical care support
   b. In more moderate but clinically significant volume depletion: Intermittent boluses of isotonic/deficit-replacement fluids with clinical re-evaluation until clinical status/perfusion improves (most often intravenous; could consider enteral depending on patient status and resources)
   c. In mild volume depletion: Oral “boluses” of fluids to improve clinical status based on observation (enteral first (e.g., “rehydrating” solutions; popsicles); consider intravenous if enteral fails)

3. The volume replete/euvolemic patient should take enteral fluids whenever possible

4. The euvoelomic patient who cannot take enteral fluids should receive intravenous fluids using the “maintenance” concept

Therapeutics exercise:

Case: It is 3:00 am on Saturday morning. The mother of a 3 week old infant calls to tell you that her baby has a temperature of 39 C and isn’t nursing well.

A. Outline the differential diagnosis of this patient’s problem and describe your management of this child. Outline how it would vary depending on the results of the information you seek including history, physical and laboratory data.

B. The patient is seen in the emergency room. The patient’s weight is 4.3 kg; height is 53 cm. The patient is febrile to 39. Calculate the acetaminophen dose you would give this child.

C. Your attending physician decides that the child should be admitted and a complete evaluation for sepsis done (do you know why you are admitting the child? And do you know what “a complete evaluation for sepsis” means?). Write admission orders for this patient including laboratory orders, fluid orders (if appropriate) and medication orders.
Growth Problem Set

1. Required Reading: Weintraub, B. Growth. Pediatrics in Review 2011; 32; 404-06. You can find the article in the medical student manual and on the medical student website. (This is a brief overview of normal growth, how to measure growth and the approach to growth problems).

2. Plot the growth of one patient you see in clinic for well child care. Try to do this in an older toddler or school age child who has multiple growth points.

3. For the following scenarios, plot and interpret the following growth parameters. Create a differential diagnosis (if needed) for the growth pattern and explain your rationale for each choice. Finally, for each scenario, outline a strategy for assessment and management of the patient. Remember, some scenarios may represent normal growth!

Scenario A (boy)

<table>
<thead>
<tr>
<th>Age</th>
<th>Weight</th>
<th>Height</th>
<th>Head Circumference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth</td>
<td>3.2 kg</td>
<td>51 cm</td>
<td>35 cm</td>
</tr>
<tr>
<td>6 mo</td>
<td>7.2 kg</td>
<td>66 cm</td>
<td>44 cm</td>
</tr>
<tr>
<td>12 mo</td>
<td>8.8 kg</td>
<td>72 cm</td>
<td>47 cm</td>
</tr>
<tr>
<td>18 mo</td>
<td>10 kg</td>
<td>77 cm</td>
<td>48.5 cm</td>
</tr>
<tr>
<td>24 mo</td>
<td>10.9 kg</td>
<td>81 cm</td>
<td>49.5 cm</td>
</tr>
</tbody>
</table>

Scenario B (girl)

<table>
<thead>
<tr>
<th>Age</th>
<th>Weight</th>
<th>Height</th>
<th>Head Circumference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth</td>
<td>3.6 kg</td>
<td>52 cm</td>
<td>34 cm</td>
</tr>
<tr>
<td>2 weeks</td>
<td>3.6 kg</td>
<td>53 cm</td>
<td>35 cm</td>
</tr>
<tr>
<td>1 month</td>
<td>3.8 kg</td>
<td>56 cm</td>
<td>36.2 cm</td>
</tr>
<tr>
<td>3 months</td>
<td>4.4 kg</td>
<td>57 cm</td>
<td>39.5 cm</td>
</tr>
</tbody>
</table>
Scenario C (boy)

<table>
<thead>
<tr>
<th>Age</th>
<th>Weight</th>
<th>Height</th>
<th>BMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 years</td>
<td>12 kg</td>
<td>84 cm</td>
<td>17</td>
</tr>
<tr>
<td>4 years</td>
<td>18 kg</td>
<td>102 cm</td>
<td>17.4</td>
</tr>
<tr>
<td>6 years</td>
<td>25 kg</td>
<td>115 cm</td>
<td>18.9</td>
</tr>
<tr>
<td>8 years</td>
<td>35 kg</td>
<td>127 cm</td>
<td>21.7</td>
</tr>
</tbody>
</table>

Scenario D (girl)

<table>
<thead>
<tr>
<th>Age</th>
<th>Weight</th>
<th>Height</th>
<th>BMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 years</td>
<td>15 kg</td>
<td>95 cm</td>
<td>16.6</td>
</tr>
<tr>
<td>5 years</td>
<td>20 kg</td>
<td>107 cm</td>
<td>17.4</td>
</tr>
<tr>
<td>10 years</td>
<td>38 kg</td>
<td>137 cm</td>
<td>20.2</td>
</tr>
<tr>
<td>14 years</td>
<td>40 kg</td>
<td>160 cm</td>
<td>17.4</td>
</tr>
</tbody>
</table>
Growth Problem Set Reading

You will be given a copy of the following article at your site to help you complete the Growth Problem Set.

If you would like to access this article electronically you may do so via UW HealthLinks:

Weintraub, Benjamin. Growth. Pediatrics in Review 2011;32;404
Ethics Cases and Additional Resources in Pediatric Bioethics

Introduction:
At times during the practice of Pediatrics, clinicians must make difficult ethical and moral decisions to serve the best interest of their patients. The scenarios described below are real cases, address ethical issues unique to pediatric patients and give you the chance to develop practical approaches to these problems. Please note that you can also find the cases, a model case and references on our website: http://www.washington.edu/medicine/pediatrics/students/current/third-year/core-materials/ethics-cases. We have also included a list of online resources to introduce you to broader materials available in pediatric bioethics.

Group Discussion:
Your bioethical learning objective can be met by a group discussion of the cases. Be prepared to discuss the following for BOTH case 1 and 2, as everyone is expected to participate:
- The ethical issues raised by each case;
- How you would weigh the various sides of the conflicts/view the different arguments;
- How you would develop a plan to resolve the problem and the ethical conflicts;
- Basic ethical principles that would guide your plans.

Ethics Cases

Case 1
You are a primary care physician who is assuming the care of a family. Upon review of the past medical history of the 1-year-old daughter, you find that she has had no immunizations although she received several well child examinations with their homeopathic caregiver. Her current medications include Chinese herbal supplements and the family follows a vegan diet. You ask the parents why your patient hasn’t received immunizations and they state, "We don’t believe in immunizations".

Case 2
A 14 year-old boy is admitted to the Hematology-Oncology ward with acute lymphoblastic leukemia. He presented to the Emergency Department with pallor and dizziness and was found to have a hematocrit of 14.9%. The oncologist would like to start best available chemotherapy immediately, but the patient and his legal guardians (aunt and uncle) have made it clear both verbally and in writing that, as Jehovah’s Witnesses, they will refuse all blood products. His chemotherapy is myeloablative and will cause a further decline in his hematocrit. There is virtually a 100% chance of death with this leukemia if it is not treated and an approximately 75% chance of survival with best available chemotherapy.

Case 3 [Optional]:
A 7-week old previously healthy full term Hmong female infant presents to your clinic with 24 hours of fever, mild cough, nasal congestion and irritability. Mom measured an axillary temperature of 104.5 degrees Fahrenheit this morning. On physical exam, you find the infant sleeping comfortably in no acute distress in her mother’s arms but who begins to whimper when you try to move her. Overall, her exam is non-focal with a full but soft anterior fontanelle. Initial labs show a normal white blood cell count but with a left shift, a negative urinalysis, and an elevated C-reactive protein. Mom declines any further work-up—including a lumbar puncture—saying she is "against any more invasive tests".
Resources in Pediatric Bioethics

Most of the questions posed by these cases are addressed in the following resources:

University of Washington School of Medicine

(1) Pediatric Clerkship UW
    http://depts.washington.edu/bioethx/topics/index.html
This website presents core materials about ethics and professionalism for each clerkship at UW. Go to the pediatric clerkship section for specific information. Benchmarks for Ethics/Professionalism for Pediatric Clerkship (see “Additional Information” section of this manual, or:
    http://depts.washington.edu/peds/students/core_materials/ethics_probenchmarks.html
    • Parental rights to guide care
    • Child abuse reporting
    • Care of Adolescent Patients
      o Decision-making capacity
      o Emancipated minor, mature minor status
      o Confidentiality
    • Informed consent, parental permission, child assent
    • Admitting mistakes
    • Learning issues

(2) Treuman Katz Center for Pediatric Bioethics
    http://bioethics.seattlechildrens.org/education/education.asp
The Treuman Katz Center for Pediatric Bioethics at Seattle Children’s Hospital and the University of Washington offers a number of helpful resources for pediatric bioethics. You may also access past conferences and videos of the presentations. Check the calendar for grand rounds presentations on ethics, guest speakers, and other educational activities.

National Resources in Pediatric Bioethics:

(3) American Academy of Pediatrics
    http://www.aap.org/sections/bioethics/default.cfm
American Academy of Pediatrics has been at the forefront of ethical policy development for the Pediatrics profession. While AAP policy statements are not legally binding, they reflect the considered wisdom and consensus of leadership in the profession. The ethics policy statements and full length articles from the membership are some of the most thoughtful ethical discussions among professional statements in medicine. The site is also the best place to go to see a comprehensive list of both classic and current articles on issues in pediatric ethics. Click on “current articles”, “classic articles”, and “policy statements” to access these documents.

(4) American Medical Association’s “Virtual Mentor”
    http://virtualmentor.ama-assn.org/
Virtual Mentor is a terrific resource sponsored by the AMA. It offers case scenarios, brief discussions and helpful presentations. Enter: “child” as the search word to bring up additional discussions in pediatric ethics:
Immunization Information


(6) Information for providers from the CDC: (having conversations about vaccine hesitancy) http://www.cdc.gov/vaccines/spec-grps/hcp/conv-materials.htm (reviews of how vaccines work and vaccine safety) http://www.cdc.gov/vaccines/spec-grps/hcp/provider-resources-safetysheets.html

(7) AAP Policy Immunization Refusal: http://pediatrics.aappublications.org/content/115/5/1428.full.html

Classic Textbooks on Ethical Reasoning and Pediatrics:


General Pediatric Textbook (Nelson’s, Rudolph’s etc.): Ethics in pediatric medicine


Ethics and Professionalism Benchmarks for Pediatrics

Many of the ethical principles that apply to caring for adults also apply to caring for children. These benchmarks outline several topics unique to pediatric patients that are highlighted in your clerkship. This is not an all-inclusive list. Useful links to additional cases are also included in the final section of the document.

ETHICS

Parental rights to guide care
Know
Parental rights:
Society has given the right of making medical care decisions to parent because they are viewed as uniquely capable of determining the child’s best interest. This included authorizing treatments AND refusing treatments (even life sustaining treatments).
Limitations to parental rights:
If the parents’ actions appear not to be in the child’s best interest, the parents’ rights can be challenged. You have the ethical responsibility to advocate for the patient if you believe the parents’ actions are imminently dangerous, neglectful or abusive.

Do
Fully elicit parents’ reasons for therapeutic decisions.
Explore perceived differences in an open and accepting manner (even if you really disagree).
Assess whether parents are capable/competent to make medical decisions
Determine (through conversations with your resident and faculty supervisors) whether there are concerns about the parents advocating for the child’s best interests.

Child abuse reporting
Know
Caregivers' legal responsibility:
Physicians who care for children have a legal obligation to report suspected child abuse. It is not your responsibility to determine whether the abuse occurred, what person may have perpetrated the abuse or any other specific details. This is a critical role to understand. There are often complicated social interactions and caring for abused children is a team effort. We work with nurses, social workers, other physicians and child protective services as a team to help determine what happened. If you do NOT report it and you suspect it you are legally liable.

Do
Be vigilant about this issue
Be non judgmental—just because you suspect abuse doesn’t mean it happened OR you know who the abuser might be.
Be honest about what you see with the parents and ask for their explanation of your findings.
Discuss your observations with your faculty supervisor
Clearly document what you see and what you are told
You SHOULD NOT disclose your concerns to the family before discussing this you’re your supervisors…discussing these issues is the faculty/attendings responsibility.

Care of adolescent patients
Know:

General approach:
Adolescent patients are capable of participating and guiding their medical therapy. The extent of each patient’s ability will depend on the developmental maturation of the patient. In general, parents retain the responsibility to direct care for patients less than 18 years of age unless there is disagreement about the course of therapy.

Special considerations:
As a caregiver for pediatric patients you should be able to define the following special categories of patients:

1. Emancipated minor:
   There are specific categories of adolescents who are legally capable of directing their medical care. The categories include: 1) married, 2) pregnant/parent, 3) in the military 4) self-supporting.

2. Mature minor:
   Courts can grant decision-making capacity to minors; this may be limited to specific categories of care (see below) or in some cases of chronic illness when the PHYSICIAN case determined that the patients is capable of informed consent.

3. Specific categories of care:
   Decision-making capacity is given to minors for the treatment/ care of pregnancy, drug or alcohol abuse and sexually transmitted disease. Laws vary by state.
   For WA:
   http://www.bostoncoop.net/lcd/wiki?action=browse&diff=1&id=Washington
   For AK:
   http://www.state.ak.us/courts/shceman.htm
   For ID:
   No emancipation except by marriage
   http://www2.state.id.us/women/IdLaw/Ch4.html
   For MT:
   http://data.opi.state.mt.us/bills/2003/BillHtml/HB0647.htm

As a caregiver for pediatric patients you should be able to define the difference between:

1. Informed consent: requires that the patient be competent to make health care decisions, physician disclosure of relevant information, patient understanding of the information and a voluntary, un-coerced patient decision.
2. Parental permission: parents give permission for therapy provided to their children. The same standards and procedures for giving informed consent to a competent patient apply
3. Child Assent: helps patients acquire a developmentally appropriate understanding of her condition, telling the patient what he can expect from the treatment, assessing the patient’s understanding of the situation, including determining whether they feel pressured to accept/reject the treatment. It also includes soliciting the patient’s willingness to undergo the procedure (you can see how this is probably a team effort with the parents!) This approach is not limited to adolescent patients but is appropriate for ALL pediatric patients.

Do

Use appropriate language for the patient’s developmental level when explaining medical care options.
Respect the patient’s privacy.
Discuss sensitive issues when you are alone with older patients (e.g. drug or alcohol use, sexual practices/preferences, suicide risk etc.)
Obtain parental permission about therapeutic interventions
Obtain child assent from patients about therapeutic interventions.

PROFESSIONALISM:

Admitting Mistakes

Know
A medical error or mistake is a preventable or unexpected outcome of a medical treatment. An adverse event is a side effect that is may occur in a certain percentage of cases that are treated.
Medical mistakes are usually not due to negligence. They arise from incomplete knowledge base, an error of judgment, lapse in attention or a "systems" error. You have a professional responsibility as a health care provider to disclose errors to your patients. Although it is difficult and uncomfortable disclosing errors, most patients appreciate honesty (wouldn't you?). Loss of trust usually arises from nondisclosure of errors.

Do
When you identify a medical error:
Determine the effect (actual or potential) on the patient
Investigate/identify possible causes
Explain in a calm, unhurried, truthful and apologetic manner that an error has occurred.
Answer all questions the patient has and be open for additional questions in the future
Provide information about follow up of the incident
Accept responsibility and apologize if necessary

Balancing Learning and Care for the patient

Know
As a student is a common dilemma and each case should be approached on an individual basis. The primary conflict in these cases is the care for THIS patient vs. the need to learn to care for FUTURE patients. Balancing the risk to the patient you are caring for presently compared to what you will learn must be determined. There is an adage "see one, do one, teach one", that may or may not be appropriate based on the risk to the patient and your own unique abilities. You must be honest and provide adequate informed consent. An additional stressor for most students is also balancing care for the patient and being evaluated.

Do
Provide informed consent:
You should clearly indicate who will be doing the procedure and what the level of training is. You must answer additional follow up questions (like...how many of these have you done?).
Know your limitations
Communicate your abilities clearly with your supervisors
First do no harm to your patients

Additional reading materials:
Parental decision-making:
  http://odu.org/hscer.washington.edu/bioethics/topics/parent.html
Child abuse reporting:
  http://www.ama-assn.org/ama/pub/category/10936.html
  (Case 2)
Adolescent decision-making:
  http://www.ama-assn.org/ama/pub/category/10936.html
  (Power point presentation on decision-making)
Mistakes:
  http://eduserv.hscer.washington.edu/bioethics/topics/mstks.html
Learning issues
  http://www.ama-assn.org/ama/pub/category/7678_.html
Informed consent in pediatric patients:
OTHER MATERIALS
Pediatrics Career Advisors

Our career advisors are happy to provide individualized help with your decision making. These advisors are excellent resources and are happy to meet with you at various points throughout the long application process. With your initiative, your advisor will become acquainted with you and your record, and will be able to provide you with individual feedback to help you with these important decisions.

The current Department of Pediatrics faculty members who serve as advisors for aspiring pediatricians:

Career Advising Coordinators:
Dr. Sherilyn Smith - Email: sherilyn.smith@seattlechildrens.org
Dr. Jordan Symons - Email: jordan.symons@seattlechildrens.org

Pediatrics:
Dr. Curt Bennett - Email: fbennett@uw.edu
Dr. Glen Tamura - Email: glen.tamura@seattlechildrens.org
Dr. Michelle Terry - Email: michelle.terry@seattlechildrens.org
Dr. Kyle Yasuda - Email: kyasuda@uw.edu

Med/Peds:
Dr. Judd Walson - Email: walson@uw.edu
Dr. Susan Hunt - Email: susan.hunt@seattlechildrens.org
LOGISTICS
UWSOM Work Hours Policy for Required and Elective Clerkships

The goals of medical students and the faculty of the School of Medicine are one and the same: to get the best medical education possible while not ignoring overall health and happiness. Attention needs to be paid to both duty/work hours and personal time.

Work hour rules, often referred to as the 80 hour work week, were developed for residents. Similar rules were not developed at the national level for medical students. There are obvious differences in terms of goals, reimbursement, and responsibilities between residents and students. Nonetheless, the School's Required Clerkship and Elective Clerkship Committees developed the following guidelines:

Clerkships with Call:

1. No more than 80 hours of awake time in the hospital or clinic per week.

2. Post-call, if you did not sleep, go home at the same time as the intern or resident, within 30 hours of starting the prior day.

3. Post-call, if you slept at least 5 hours, you should stay through the working day.

4. You should have at least one full day off per week, averaged over a month.

5. No matter how many hours you have worked, always check out with the team before leaving for the day.

Clerkships without Call:

1. No more than 80 hours of awake time in the hospital or clinic per week.

2. Parking and transportation issues may demand you leave the hospital by a certain time (i.e. shuttle service or security escort service availability).

3. Feel free to come in early or stay late. Family and personal obligations are important and need to be balanced.

4. You should have at least one full day off per week, averaged over a month.

5. No matter how many hours you have worked, always check out with the team before leaving for the day.
Clerkship Absentee, Weather and Holiday Policy

The Required Clerkship Curriculum Committee, which is composed of clerkship directors, students, and members of the Dean’s Office, developed the following policy related to absences from clinical coursework. These guidelines are also on the Web, will be provided to you as part of the Clerkship Track Scheduling material in the fall of the second year, and are included as part of each clerkship’s syllabus.

**General Absentee Policy**
1. It is in the student’s best interest to be present for all days during clerkships. Please try to anticipate personal events and fit them into breaks or elective time off.
2. Time is too short during two-week clerkships to allow any anticipated time off.
3. Absences should not be planned during orientation, final examination, or other required elements of the clerkship.
4. Students needing any time off should consult with the appropriate Clerkship Director at least six weeks prior to the beginning of the clerkship to make sure there are no conflicts with #3 above and to limit the negative impact on the clerkship experience.
5. Students absent without permission may receive a Fail grade and may be required to repeat the clerkship. In addition, students may also receive an Unacceptable professionalism grade.

**Anticipated Absences**
1. Personal Events
   Personal events include weddings, graduations, presenting papers at conferences and receiving awards. If more than two days off are needed during a four to twelve-week clerkship, the clerkship should be rescheduled.

2. Vacations
   There are no vacation days during clerkships except for Match Day and possibly holidays, as discussed below. Please schedule vacation days during school breaks or time off.

3. National or Religious Holidays
   As a member of a health care team during clerkships, there is no guaranteed time off for University of Washington holidays, traditional observances, or major days of religious significance, just as there won’t be when you are a practicing physician. Students are expected to follow the holiday practice of the clinic/hospital/site at which they are rotating. Meaning, if it is a holiday at your site, you may get the day off. If it is a working day for your site, you must show up. Clinical responsibilities such as night call and rounding take precedence over holiday schedules. To plan ahead for national holidays, you may wish to call the practice site in advance and inquire.

The UW SOM clerkship committee encourages faculty and students to work together to accommodate students’ scheduling constraints in observing their central religious and cultural practices. Similar to when you are in practice, you must take responsibility and plan ahead. If you have religious holidays that require you to miss or modify work, consult with the clerkship director well in advance to see what accommodations can and can’t be made.

4. Residency Interviews
   Students should schedule time off for residency interviews. If interviews are offered when students are already scheduled for clerkships in the fourth year, students should work directly with the Clerkship Director right away regarding absences for residency interviews.
5. Match Day
All graduating students will be allowed to attend the Match Day celebration with no clerkship responsibility starting at 8AM on Match Day until the next morning (variable start time depending on the clerkship). For students doing WWAMI clerkships, additional travel time the day prior to the celebration may also be needed.

Unanticipated Absences
1. Unanticipated Illness or Personal Emergency
Students missing ANY number of days must speak with the site director as well as the attending or resident in charge prior to the start of the shift. It is not acceptable to leave only a phone or email message or to contact only administrative staff. Students should receive confirmation (direct conversation, return email or phone call) from the site director and/or the attending/resident in charge indicating that the team is aware of the student’s absence. The specific person and his/her contact information are available on the individual clerkship websites.

Students missing THREE OR MORE days must also contact the Clerkship Director who will determine if make-up time is needed for unanticipated absences or if the entire clerkship needs to be rescheduled.

Grades may be delayed until the time is made up.

If a clerkship exam must be postponed, the student should contact the Clerkship Director to determine if the exam should be rescheduled as soon as possible or delayed until the next time the exam is given. Progress in other clerkships may be interrupted until the examination is taken depending on the situation surrounding the delay.

2. Inclement Weather
The inclement weather policy for clerkships matches the policy for holidays. If your team is working in the hospital or the clinic is open, you are expected to show up. If you are unable to access the hospital/clinic due to hazardous travel, you must notify your team as described above.