

## Goals and Objectives of Pediatric Residency Program Rotations

| <b><u>Topic</u></b>   | <b><u>Page</u></b> |
|---|--------------------|
| <b>Standard Rotation: Adolescent Medicine</b>                 | <b>Page 2</b>      |
| <b>Standard Rotation: Continuity Clinic</b>                   | <b>Page 10</b>     |
| <b>Standard Rotation: Outpatient Pediatrics</b>               | <b>Page 19</b>     |
| <b>Standard Rotation: Inpatient Pediatrics</b>                | <b>Page 27</b>     |
| <b>Standard Rotation: Neonatal ICU</b>                        | <b>Page 34</b>     |
| <b>Standard Rotation: Newborn Nursery</b>                     | <b>Page 42</b>     |
| <b>Standard Rotation: Pediatric Critical Care</b>             | <b>Page 53</b>     |
| <b>Standard Rotation: Pediatric Emergency Medicine</b>        | <b>Page 60</b>     |
| <b>Subspecialty Rotation: Cardiology</b>                      | <b>Page 71</b>     |
| <b>Subspecialty Rotation: Endocrinology</b>                   | <b>Page 77</b>     |
| <b>Subspecialty Rotation: Hematology/Oncology</b>             | <b>Page 83</b>     |
| <b>Subspecialty Rotation: Nephrology</b>                      | <b>Page 89</b>     |
| <b>Subspecialty Rotation: Neurodevelopmental Disabilities</b> | <b>Page 96</b>     |
| <b>Subspecialty Rotation: Neurology</b>                       | <b>Page 102</b>    |
| <b>Subspecialty Rotation: Pulmonology</b>                     | <b>Page 107</b>    |

|   |  |
|---|--|
| <b>Standard Rotation: Adolescent Medicine</b>   |  |
| <b>Primary Goals for this Rotation</b>  |  |
| <b>3.40 GOAL: Prevention, Screening and Counseling (Adolescent).<br/>Understand the role of the pediatrician in the prevention of adolescent health problems through screening, counseling and advocacy.</b>  |  |
| 3.40.1 : Discuss and follow recommendations for the frequency, type and content of adolescent health care visits outlined by the Bright Futures, AAP Health Supervision Guidelines and GAPS guidelines, and describe the rationale behind these recommendations.  |  |
| 3.40.2 : Perform adolescent health maintenance visits, demonstrating ability to: <ol style="list-style-type: none"> <li>1. Organize the visits appropriate for situation (e.g., individualization according to the adolescent's developmental level, social, cultural, spiritual/religious, national [immigrant] background, and family characteristics).</li> <li>2. Obtain and interpret a history from the adolescent's parent(s), including: concerns about the adolescent's health, past medical history, family history, psycho-social history, spiritual or religious history, academic performance, needs for anticipatory guidance, etc.</li> <li>3. Obtain and interpret a detailed, sensitive, and private history from the adolescent (assessing current health concerns, bio-psycho-social history, spiritual or religious history, and behaviors that may affect health).</li> <li>4. Be familiar with questionnaires (e.g., Initial and Periodic Adolescent Preventive Services Visit Forms developed as an adjunct to GAPS), trigger questions (e.g., from Bright Futures), and structured interview techniques (e.g., HEADSS; HEADSFIRST).<br/>Complete a sensitive and skillful physical examination of male and female adolescents and young adults.</li> <li>5. Counsel and provide patient education in a developmentally-appropriate manner, remaining respectful of the adolescent's needs and privacy.</li> </ol> |  |
| 3.40.3 : Discuss how to make the office environment suitable to serve this age group and provide education and counseling to both adolescents and their parents (e.g., discussion of office consent and confidentiality policies for health visits and release of medical records, separate waiting rooms, extended hours, patient education methods).  |  |
| 3.40.4 : Discuss and follow federal, state and local laws that apply to adolescent health care, such as consent for confidential services and release of medical records, times when confidentiality may be abrogated, refusal of medical care, contraception, access to abortion, mental health, STD and   |  |

|  |  |
|--|--|
| chemical dependence services.  |  |
| <p>3.40.5 : Explain the differences in health supervision visits for adolescents with special needs, such as those with:</p> <ol style="list-style-type: none"> <li>1. Nontraditional living situations (e.g., detention centers, foster care, homeless)</li> <li>2. Chronic diseases (e.g., cystic fibrosis, mental retardation, diabetes)</li> <li>3. Financial, social, cultural or language barriers</li> </ol>  |  |
| <p>3.40.6 : Perform and interpret adolescent screening according to guidelines by experts in the field (e.g., AAP, Bright Futures and GAP), and demonstrate familiarity with indications and timing, including:</p> <ol style="list-style-type: none"> <li>1. Physical examination screens (e.g., cardiovascular disease or risk, nutritional risk, dental disease, musculoskeletal problems and pre-participation sports physicals, sexual maturity ratings, skin problems, sexually transmitted diseases, scoliosis [using scoliometer], thyroid disease)</li> <li>2. Psychosocial screening (e.g., school performance, mood disorders, tobacco and substance abuse, sexual risks, media use, other risk taking behaviors)</li> <li>3. Laboratory or procedural screens (e.g., hearing, vision, anemia, hyperlipidemia, tuberculosis)</li> </ol> |  |
| 3.40.7 : Evaluate immunization status and administer indicated immunizations.  |  |
| 3.40.8 : Identify, assess risks, and counsel adolescents and families in the context of health promotion and illness or problem care for common or important conditions according to recommended guidelines (e.g., AAP, Bright Futures and GAP). Example topics from these guidelines are: communication skills and self-esteem building; education and career or vocational planning; injury and violence prevention; substance abuse; nutritional issues; pregnancy prevention; etc.).   |  |
| 3.40.9 : Educate adolescents through demonstration and instruction to perform routine breast and testicular self-examination.  |  |
| 3.40.10 : Help adolescents to use health services appropriately during their teens and guide them in their transition to adult care.   |  |
| 3.40.11 : Empower adolescents to become increasingly responsible for their own health and well-being.  |  |
| 3.40.12 : Describe ways to improve adolescent health and prevention services at the federal, state and/or local level.   |  |
| 3.40.13 : Discuss advocacy strategies you might use to improve or prevent at least one adolescent health problem you see in your patient population.   |  |
| <b>3.41 GOAL: Normal Vs. Abnormal (Adolescent). Understand normal adolescent behavior, growth, development and physiology and recognize</b>  |  |

|   |  |
|---|--|
| <b>deviations from the norm.</b>  |  |
| 3.41.1 : Recognize the wide range of normal patterns of physical growth and pubertal development during adolescence and appropriately counsel patients and their families about pubertal variations.  |  |
| 3.41.2 : Describe the pathophysiology, evaluation and management of variations in growth patterns and pubertal changes, including indications for referral.   |  |
| 3.41.3 : Recognize the range of normal psychosocial development in adolescents; the stages of development across early, mid and late adolescent years; and appropriately identify when behaviors lie outside the norm, requiring special intervention or referral.  |  |
| 3.41.4 : Order and interpret clinical and laboratory tests to identify adolescent disease versus non-disease, taking into account physiologic values for adolescents at different stages of maturity.   |  |
| <b>3.42 GOAL: Undifferentiated Signs and Symptoms (Adolescent). Evaluate and manage common signs, symptoms and situations or risks in adolescents, recognizing when referral is indicated.</b>  |  |
| 3.42.1 : Develop a strategy to evaluate complaints in adolescents that may represent functional complaints or psychosocial problems.<br><br><ol style="list-style-type: none"> <li>1. Recognize common patterns of functional complaints in adolescents (e.g., headaches, abdominal pain, fatigue, chest pains).</li> <li>2. Develop a sensitive, supportive approach to the evaluation of these concerns.</li> <li>3. Recognize characteristics in the adolescent's history or health course warranting further diagnostic tests versus watchful and supportive observation.</li> </ol>  |  |
| 3.42.2 : Evaluate and manage the following signs, symptoms, and common adolescent situations, recognizing which can be managed by the general pediatrician and which ought to be referred to an adolescent subspecialist or other subspecialist:<br><br><ol style="list-style-type: none"> <li>1. Behavioral/psychiatric: school avoidance, absenteeism, truancy and drop out; poor school behavior; poor school performance; sleep disturbance; somatic complaints; social avoidance; parent-adolescent disagreements; concerns about peer pressure; bullied adolescent; overscheduled/extended adolescents; emotional and educational needs of pregnant adolescents and adolescent parents; emotional and educational needs of gifted adolescents; recurrent injuries suspicious of risk taking behavior or abuse, recent loss (e.g., death of friend, parent), anxiety, depression, social isolation, rushed or pushed adolescents, sexual identity</li> <li>2. Cardiovascular: chest pain, syncope, murmurs, IHSS, hypertension</li> <li>3. Dental: mouth and tooth pain or injury; painful or swollen gums or</li> </ol> |  |

|   |  |
|---|--|
| <p>mucosa, TMJ and facial pain</p> <ol style="list-style-type: none"> <li>4. Dermatologic: rashes, hair loss, pigment changes, changing moles, acne</li> <li>5. GI: acute and chronic abdominal pain, acute and chronic diarrhea, dyspepsia, vomiting, constipation</li> <li>6. Growth/endocrine: abnormalities in growth rate or puberty; thyroid enlargement</li> <li>7. GU/Nephrology: dysuria, frequency, scrotal swelling; scrotal pain, STIs, sexual concerns or dysfunction in male, need for contraception in male</li> <li>8. GYN: missed, irregular or excessive vaginal bleeding; vaginal discharge or pain;STIs; lower abdominal pains; feared pregnancy; sexual concerns or dysfunction in female; need for contraception in female, breast asymmetry; also describe findings on history that would initiate a pelvic exam</li> <li>9. Hematology/oncology: fatigue, anemia, swollen glands, fear of cancer</li> <li>10. Infections: fever with no obvious cause, lymphadenopathy, upper respiratory symptoms including sore throat and ear pain, deficient immunizations, objections to recommended immunizations</li> <li>11. Musculoskeletal/Sports medicine: back pain, limp, joint pains, minor injuries/pains, excessive/rapid muscular development in an athlete; missed periods in a female athlete,pre-participation sports evaluations</li> <li>12. Neurologic: headaches, dizziness, syncope, head injury, altered behavior</li> <li>13. Nutritional: Obesity, weight loss, unusual eating habits (vegan diet, alternative diets or food supplements, diet changes during sports training to enhance performance)</li> <li>14. Otolaryngology: recurrent nasal congestion or drip, large tonsils, persistent laryngitis, hearing loss</li> <li>15. Pulmonary: shortness of breath, wheezing, cough</li> </ol> |  |
| <p><b>3.43 GOAL: Common Conditions Not Referred (Adolescent). Diagnose and manage common conditions in adolescents that generally do not require referral.</b></p>  |  |
| <p>3.43.1 : Recognize presenting symptoms, diagnose, describe the pathophysiology, and manage common presentations of the following conditions:</p> <ol style="list-style-type: none"> <li>1. Allergies: environmental and seasonal allergies</li> <li>2. Behavioral/psychiatric: mild cases of substance abuse (tobacco, alcohol, inhalant and illicit drugs), non-organic headaches, common migraines, mild to moderate Attention Deficit Hyperactivity Disorder (ADHD); mild manifestations of anxiety, mood and conduct disorders; chest pain related to anxiety</li> <li>3. Cardiovascular: risk for cardiovascular disease in adulthood, hyperlipidemia, hypertension, functional heart murmurs</li> </ol>  |  |

|  |  |
|--|--|
| <ol style="list-style-type: none"> <li>4. Dental: viral exanthems and aphthous ulcers</li> <li>5. Dermatologic: acne, viral exanthems, dermatophytoses, eczema, pityriasis rosea, contact dermatitis, seborrhea, urticaria, acanthosis nigricans, body art including piercings and tattoos, hirsutism</li> <li>6. Endocrine: thyroid disease, galactorrhea, hirsutism, non-pathologic short or tall stature, male gynecomastia, polycystic ovary syndrome (PCOS)</li> <li>7. Gastrointestinal: gastroesophageal reflux disease (GERD), mild gastritis, dyspepsia, peptic ulcer disease, rectal fissures, hemorrhoids, encopresis, constipation</li> <li>8. GU/ Nephrology: epididymitis, mild varicocele, UTI, proteinuria and hematuria, enuresis, urethritis</li> <li>9. GYN: dysmenorrhea, pre menstrual syndrome (PMS), mild dysfunctional uterine bleeding, amenorrhea, vaginitis, cervicitis, STDs, uncomplicated pelvic inflammatory disease (PID), pregnancy diagnosis, breast mass</li> <li>10. Hematology/oncology: anemia, iron deficiency anemia</li> <li>11. Infections: mononucleosis, strep throat, sinus infections, ear infections, common causes of infectious diarrhea and vomiting, mild cases of hepatitis</li> <li>12. Musculoskeletal/sports: kyphosis, scoliosis &lt; 20 degrees by Cobb angle on x-ray, Osgood-Schlatter Disease, patello-femoral syndrome, back pain due to minor musculoskeletal strain, costochondritis, mild overuse syndromes</li> <li>13. Neurologic: common seizure disorders, uncomplicated tics, migraine headaches</li> <li>14. Nutritional: exogenous obesity, pre-eating disorder behaviors, vegetarian diet</li> <li>15. Pulmonary: mild, moderate, and exercise induced asthma, respiratory tract infections</li> </ol> |  |
| <p><b>3.44 GOAL: Conditions Generally Referred (Adolescent). Recognize, manage, and refer adolescent conditions that generally require consultation or referral.</b></p>   |  |
| <p>3.44.1 : Conduct the initial assessment, develop a differential diagnosis, initiate treatment and/or referral as appropriate of the following conditions that affect adolescents:</p> <ol style="list-style-type: none"> <li>1. Allergy/Immunology: severe allergic reactions (bee, food), immunodeficiency disorders</li> <li>2. Behavioral/psychiatric: anorexia nervosa, bulimia, chronic fatigue syndrome, moderate-severe depression, suicidal/homicidal ideation, learning disabilities, substance abuse including performance enhancing medications, obsessive compulsive disorder (OCD), severe anxiety disorders, psychosis, conduct disorders, conversion reactions, drug overdoses</li> </ol>  |  |

|   |  |
|---|--|
| <ol style="list-style-type: none"> <li>3. Cardiovascular: mitral valve prolapse, pathologic heart murmurs, refractory hypertension</li> <li>4. Dental: abscess, caries, fractured or avulsed tooth, severe trauma to jaw and soft tissues, malocclusions</li> <li>5. Dermatologic: cystic or nodular acne, psoriasis, alopecia, pyoderma, hydradenitis suppurativa, hirsutism</li> <li>6. Endocrinology: thyroid disease, galactorrhea, hirsutism or virilism, abnormal growth, precocious and delayed puberty, diabetes mellitus types I and II, non-pathologic short or tall stature, Turner syndrome</li> <li>7. Gastrointestinal: appendicitis, inflammatory bowel disease (IBD), refractory encopresis/constipation, irritable bowel syndrome, hepatitis</li> <li>8. GU/Nephrology: nephrotic/nephrotic range proteinuria, testicular torsion, scrotal mass, moderate-severe varicocele, hydrocele, inguinal hernia, genitourinary trauma, obstructive uropathy, renal hypertension, chronic renal disease</li> <li>9. GYN: pregnancy, ectopic pregnancy and other complications of pregnancy, amenorrhea of undetermined etiology, dysfunctional uterine bleeding, polycystic ovary syndrome, ovarian cysts, tumors and torsion, Bartholin's abscess, suspected endometritis, complicated PID, PAP smear abnormalities, persistent breast masses, breast mass, endometriosis, congenital mullerian anomalies, contraception in teens with chronic disease</li> <li>10. Hematology/Oncology: hemoglobinopathies, bone marrow depression, cancer, clotting disorder, bleeding disorder</li> <li>11. Infectious Disease: appendicitis, severe or unusual infections, HIV</li> <li>12. Musculoskeletal: patellar dislocation, scoliosis &gt; 20o by Cobb angle on x-ray, suspected bone tumors, fractures, refractory back pain, chronic joint pain</li> <li>13. Neurologic: uncommon and difficult to control seizures, serious head injury or concussion, acute and chronic neurology conditions, severe headaches</li> <li>14. Pulmonary: severe asthma, cystic fibrosis</li> <li>15. Other: Celiac disease, juvenile rheumatoid arthritis (JRA), systemic lupus erythematosus (SLE), chromosomal abnormalities</li> </ol> |  |
| <p>3.44.2 : Work effectively with a wide range of health professionals who care for adolescents with health care issues.</p>  |  |
| <p>3.44.2.1 :Describe the role and general scope of practice of adolescent-trained specialists, general pediatricians, family practitioners, and other providers (e.g., gynecologist, behavioral health counselors, school staff) who are involved with the care of adolescents.</p>  |  |
| <p>3.44.2.2 :Recognize situations where adolescents benefit from the skills of professionals trained in the care of adolescents.</p>  |  |
| <p>3.44.2.3 :Advocate for the adolescent and his/her family to secure effective, coordinated care for the adolescent using appropriate resources in the community and health profession.</p>  |  |
| <p>3.44.3 : Maintain an interactive and supportive primary care relationship with</p>   |  |

|   |  |
|---|--|
| adolescents and their specialty consultants when patients are referred for management of specific disorders.  |  |
| <b>3.48 GOAL: Pediatric Competencies in Brief (Adolescent). Demonstrate high standards of professional competence while working with adolescents. [For details see Pediatric Competencies.]</b>   |  |
| 3.48.1 : Competency 1: Patient Care. Provide family-centered patient care that is development- and age-appropriate, compassionate, and effective for the treatment of health problems and the promotion of health.  |  |
| 3.48.1.1 :Use a logical and appropriate clinical approach to the care of adolescents, applying principles of evidence-based decision-making and problem-solving.  |  |
| 3.48.1.2 :Provide sensitive support to adolescents and their families in all clinical settings (outpatient, continuity, adolescent clinic, school and community settings, mental health services, inpatient hospital services).   |  |
| 3.48.2 : Competency 2: Medical Knowledge. Understand the scope of established and evolving biomedical, clinical, epidemiological and social-behavioral knowledge needed by a pediatrician; demonstrate the ability to acquire, critically interpret and apply this knowledge in patient care. |  |
| 3.48.2.1 :Demonstrate a commitment to acquiring the base of knowledge needed for care of adolescents.   |  |
| 3.48.2.2 :Know and/or access medical information efficiently, evaluate it critically, and apply it to adolescent care appropriately.  |  |
| 3.48.3 : Competency 3: Interpersonal Skills and Communication. Demonstrate interpersonal and communication skills that result in information exchange and partnering with patients, their families and professional associates.   |  |
| 3.48.3.1 :Communicate skillfully with adolescents and their families, using effective interview, counseling and patient education strategies.   |  |
| 3.48.3.2 :Communicate effectively with physicians, other health professionals, and health-related agencies to create and sustain information exchange and teamwork for patient care.  |  |
| 3.48.3.3 :Develop effective strategies for teaching students, colleagues, other professionals and laypersons.   |  |
| 3.48.3.4 :Maintain accurate, legible, timely, confidential and legally appropriate medical records and consultation reports for adolescents in the outpatient and inpatient setting.  |  |
| 3.48.4 : Competency 4: Practice-based Learning and Improvement. Demonstrate knowledge, skills and attitudes needed for continuous self-assessment, using scientific methods and evidence to investigate, evaluate and improve one's patient care practice.                                    |  |
| 3.48.4.1 :Identify standardized guidelines for diagnosis and treatment of conditions common to adolescents and adapt them to the individual needs of specific patients.   |  |
| 3.48.4.2 :Use scientific methods and evidence to investigate, evaluate and improve one's patient care practice related to adolescents.  |  |
| 3.48.4.3 :Identify individual learning needs, systematically organize relevant information resources for future reference, and plan for continuing acquisition of knowledge and skills related to adolescents.  |  |
| 3.48.5 : Competency 5. Professionalism. Demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles and   |  |

|   |  |
|---|--|
| sensitivity to diversity.   |  |
| 3.48.5.1 :Demonstrate personal accountability to the well being of patients (e.g., following-up lab results, writing comprehensive notes, and seeking answers to patient care questions).   |  |
| 3.48.5.2 :Demonstrate a commitment to professional behavior in interactions with patients, staff and professional colleagues.   |  |
| 3.48.5.3 :Adhere to ethical and legal principles of care; demonstrate appreciation of and understanding of issues pertinent to adolescents (treatment of minors, confidentiality, etc.).  |  |
| 3.48.5.4 :Be sensitive to diversity and recognize one's own biases that may affect one's response to adolescents.   |  |
| <b>3.48.6 : Competency 6: Systems-Based Practice. Understand how to practice high-quality health care and advocate for patients within the context of the health care system.</b>   |  |
| 3.48.6.1 :Identify key aspects of health care systems as they apply to care of adolescents and their families (e.g., challenges to access and continuity of care; factors affecting billing and reimbursement).   |  |
| 3.48.6.2 :When providing care to adolescents in all clinical settings, consider cost and resource allocation without compromising quality of care.  |  |
| 3.48.6.3 :Recognize and advocate for adolescents who need assistance to deal with health care system complexities.  |  |
| 3.48.6.4 :Recognize the limits of one's knowledge and expertise and take steps to avoid medical errors.   |  |
| <b>Procedures</b>   |  |
| <b>7.1. GOAL: Technical and therapeutic procedures.</b> Describe the following procedures, including how they work and when they should be used; competently perform those commonly used by the pediatrician in practice.   |  |
| Genital wart treatment  |  |
| Gynecologic evaluation: postpubertal  |  |
| Urethral swab   |  |
| <b>7.2. GOAL: Diagnostic and screening procedures.</b> Describe the following tests or procedures, including how they work and when they should be used; competently perform those commonly used by the pediatrician in practice.   |  |
| Scoliosis, scoliometer  |  |
| <b>Source</b>   |  |
| Kittredge, D., Baldwin, C. D., Bar-on, M. E., Beach, P. S., Trimm, R. F. (Eds.). (2004). APA Educational Guidelines for Pediatric Residency. Ambulatory Pediatric Association Website. Available online: <a href="http://www.ambpeds.org/egweb">www.ambpeds.org/egweb</a> . [Accessed 07/15/2005]. Project to develop this website was funded by the Josiah Macy, Jr. Foundation 2002-2005. |  |

|   |  |
|---|--|
| <b>Standard Rotation: Continuity Clinic</b>   |  |
| <b>Primary Goals for this Rotation</b>  |  |
| <b>3.2 GOAL: Health Promotion and Screening. Provide comprehensive health care promotion, screening and disease prevention services to infants, children, adolescents and their families in the ambulatory setting.</b>   |  |
| 3.2.1 : Perform health promotion (well child care) visits at recommended ages based on nationally recognized periodicity schedules (e.g., AAP Health Supervision Guidelines, Bright Futures, GAPS).   |  |
| 3.2.2 : Perform a family centered health supervision interview. <ol style="list-style-type: none"> <li>1. Define family and identify significant family members and other significant caretakers and what role they play in the child's life.</li> <li>2. Identify patient and family concerns.</li> <li>3. Discuss health goals for the visit with the patient and family.</li> <li>4. Prioritize agenda for the visit with the patient and family.</li> <li>5. Elicit age-appropriate information regarding health, nutrition, activities, and health risks.</li> </ol> |  |
| 3.2.3 : Perform age-appropriate developmental surveillance, developmental screening, school performance monitoring and job performance monitoring. <ol style="list-style-type: none"> <li>1. Identify risks to optimal developmental progress (e.g., prematurity, SES, family/genetic conditions, etc.).</li> <li>2. Identify patient and parental concerns regarding development, school, and/or work.</li> <li>3. Perform standardized, validated, accurate developmental screening tests for infants and children until school age.</li> </ol>                         |  |
| 3.2.4 : Critically observe interactions between the parent and the infant, child, or adolescent.  |  |
| 3.2.5 : Perform physical exam with special focus on age-dependent concerns and patient or family concerns.  |  |
| 3.2.6 : Order or perform and interpret additional age-appropriate screening procedure, using nationally-recognized periodicity schedules and local or state expectations (e.g., newborn screening, lead, hematocrit, hemoglobin for sickle cell, blood pressure, cardiovascular risk assessment, vision, hearing, dental assessment, reproductive-related concerns).  |  |
| 3.2.7 : Order or perform appropriate additional screening procedures based on patient and family concerns (e.g., sports involvement, positive family history for specific health condition, behavioral concerns, depression, identified risk for lead exposure).  |  |
| 3.2.8 : Perform age-appropriate immunizations using nationally-recognized   |  |

|  |  |
|--|--|
| periodicity schedules.   |  |
| 3.2.9 : Provide age-appropriate anticipatory guidance to parent(s) or caregiver(s), and the child or adolescent, according to recommended guidelines (e.g., AAP TIPP program, Bright Futures, GAPS). Address topics including:   |  |
| 3.2.9.1 :Promotion of healthy habits (e.g., physical activity, reading, etc.)  |  |
| 3.2.9.2 :Injury and illness prevention   |  |
| 3.2.9.3 :Nutrition   |  |
| 3.2.9.4 :Oral health   |  |
| 3.2.9.5 :Age-appropriate medical care  |  |
| 3.2.9.6 :Promotion of social competence  |  |
| 3.2.9.7 :Promotion of positive interactions between the parent and infant/child/adolescent   |  |
| 3.2.9.8 :Promotion of constructive family communication, relationships and parental health   |  |
| 3.2.9.9 :Promotion of community interactions   |  |
| 3.2.9.10 :Promotion of responsibility (adolescence)  |  |
| 3.2.9.11 :Promotion of school achievement (middle childhood, adolescence)  |  |
| 3.2.9.12 :Sexuality (infancy, early and middle childhood, adolescence)   |  |
| 3.2.9.13 :Prevention of substance use/abuse (middle childhood, adolescence)  |  |
| 3.2.9.14 :Physical activity and sports   |  |
| 3.2.9.15 :Interpretation of screening procedures   |  |
| 3.2.9.16 :Prevention of violence   |  |
| 3.2.10 : Work collaboratively with professionals in the medical, mental-health, educational and community system to optimize preventive health services for children.  |  |
| 3.2.11 : Demonstrate practical office strategies that allow provision of comprehensive and efficient health supervision (e.g., share tasks with office staff; develop and use structured records, computerized information, websites, questionnaires, patient education handouts, books, videos; develop office policies for such things as consent and confidentiality, request for transfer of medical records, school information). |  |
| 3.2.12 : Discuss logistical barriers to the provision of health supervision care (e.g., financial, social, environmental, health service, insurance systems) and discuss strategies to overcome these for specific families.   |  |
| <b>3.4 GOAL: Common Signs and Symptoms (Continuity Clinic and Primary Care OPD). Evaluate and manage common signs and symptoms associated with the practice of pediatrics in the Continuity Clinic and Primary Care Pediatric Outpatient Department.</b>   |  |
| 3.4.1 : Evaluate and manage the following signs and symptoms that present in the context of health care promotion:   |  |
| 1. Infancy: malpositioning of feet, hip clicks, skin rashes, birthmarks, jitteriness, hiccups, sneezes, wheezing, heart murmur, vaginal  |  |

|  |  |
|--|--|
| <p>bleeding and/or discharge, foul smelling umbilical cord with/without discharge; undescended testicle, breast tissue, breast drainage, malpositioning of feet, malrotation of lower extremities, developmental delays, sleep disturbances, difficulty feeding, dysconjugate gaze, failure to thrive, frequent infections, abnormal head shape or size, evidence of abuse or neglect, abdominal masses, abnormal muscle tone</p> <ol style="list-style-type: none"> <li>2. General: Acute life-threatening event (ALTE), constitutional symptoms, excessive crying, failure to thrive, fatigue, fever, weight loss or gain, dental caries, excessive thumb-sucking or pacifier use, sleep disturbances, difficult behaviors, variations in appetite, variations in toilet training, overactivity, somatic complaints, poor school performance, attention problems, fatigue, masturbation, anxiety, violence</li> <li>3. Cardiorespiratory: Apnea, chest pain, cough cyanosis, dyspnea, heart murmur, hemoptysis, hypertension, inadequate respiratory effort, respiratory failure, rhythm disturbance, shortness of breath, stridor, syncope, tachypnea, wheezing</li> <li>4. Dermatologic: Congenital nevus and other birth marks, ecchymoses, edema, paleness, petechiae, pigmentary changes, purpura, rashes, urticaria, vascular lesions, foul smelling umbilical cord</li> <li>5. EENT: Acute visual changes; dysconjugate gaze; conjunctival injection; ear or eye discharge; ear, throat, eye pain, edema, epistaxis; nasal foreign body; hoarseness; stridor</li> <li>6. Endocrine: growth disturbance, short stature, heat or cold intolerance, normal and abnormal timing of pubertal changes, polydipsia, polyuria</li> <li>7. GI/Nutrition/Fluids: Abdominal pain, mass or distention; ascites; constipation; dehydration; diarrhea; dysphagia; encopresis; hematemesis; inadequate intake of calories or fluid; jaundice; melena; obesity; rectal bleeding; regurgitation; vomiting</li> <li>8. Genitourinary/Renal: Change in urine color, dysuria, edema, enuresis, frequency, hematuria, oliguria, pain referable to the urinary tract, scrotal mass, pain or edema, trauma to urinary tract or external genitalia, undescended testicle, enuresis</li> <li>9. GYN: Asymmetry of breast development, abnormal vaginal bleeding, pelvic or genital pain, vaginal discharge or odor; vulvar trauma or erythema, delayed onset of menses, missed or irregular periods</li> <li>10. Hematologic/Oncologic: Abnormal bleeding, bruising, hepatosplenomegaly, lymphadenopathy, masses, pallor</li> <li>11. Musculoskeletal: Malpositioning of feet, malpositioning of legs, hip clicks, abnormal gait, abnormal spine curvature, arthritis or arthralgia, bone and soft tissue trauma, limb or joint pain, limp, variations in alignment (e.g., intoeing)</li> <li>12. Neurologic: Delays in developmental milestones, ataxia, change in sensorium, diplopia, headache, head trauma, hearing concerns, gait disturbance, hypotonia, lethargy, seizure, tremor, vertigo, visual</li> </ol> |  |
|--|--|

|   |  |
|---|--|
| <p>disturbance, weakness</p> <p>13. Psychiatric/Psychosocial: Acute psychosis, anxiety, behavioral concerns; conversion symptoms, depression, hyperactivity, suicide attempt, suspected child abuse or neglect</p>  |  |
| <p><b>3.5 GOAL: Common Conditions (Continuity Clinic and Primary Care OPD). Recognize and manage common childhood conditions presenting to the Continuity Clinic and Primary Care Pediatric Outpatient Department.</b></p>  |  |
| <p>3.5.1 : Evaluate and manage the common conditions and situations presenting in the context of health promotion visits.</p> <ol style="list-style-type: none"> <li>1. Infancy: Breast feeding, bottle feeding, colic, congenital hip dislocation, constipation, strabismus, colic, parent-infant interactional issues, sleep problems, child care decisions, separation protest, stranger anxiety, failure to thrive, recurrent respiratory and ear infections, positional foot deformities, rashes, teething, injury prevention and safety</li> <li>2. General: Colic, failure to thrive, fever, overweight, iron deficiency, lead exposure, strabismus, hearing problems, child care decisions, well-child and well adolescent care (including anticipatory guidance), parental issues (financial stress, divorce, depression, tobacco, alcohol or substance abuse, domestic violence, inadequate support networks)</li> <li>3. Allergy/Immunology: Allergic rhinitis, angioedema, asthma, food allergies, recurrent infections, serum sickness, urticaria</li> <li>4. Cardiovascular: Bacterial endocarditis, cardiomyopathy, congenital heart disease (outpatient management of minor illnesses), congestive heart failure, heart murmurs, Kawasaki disease, palpitations, rheumatic fever</li> <li>5. Dermatology: abscess, acne, atopic dermatitis, cellulitis and superficial skin infections, impetigo, molluscum, tinea infections, viral exanthems, verruca vulgaris, other common rashes of childhood and adolescence</li> <li>6. Endocrine/Metabolic: Diabetes mellitus, diabetes insipidus, evaluation for possible hypothyroidism, growth failure or delay, gynecomastia, hyperthyroidism, precocious or delayed puberty</li> <li>7. GI/Nutritional: Appendicitis, bleeding in stool, constipation, encopresis, foreign body ingestion, gastroenteritis, gastroesophageal reflux, hepatitis, inflammatory bowel disease, nutritional issues, obesity, pancreatitis</li> <li>8. GU/Renal: Electrolyte and acid-base disturbances (mild), enuresis, glomerulonephritis, hematuria, Henoch Schonlein purpura, nephrotic syndrome, obstructive uropathy, proteinuria, undescended testicles, UTI/pyelonephritis</li> <li>9. Gynecologic: Genital trauma (mild), labial adhesions, pelvic inflammatory disease, vaginal discharge or foreign body</li> </ol> |  |

|  |  |
|--|--|
| <p>10. Hematology/Oncology: Abdominal and mediastinal mass (initial work up), anemia, hemoglobinopathies, leukocytosis, neutropenia, thrombocytopenia</p> <p>11. Infectious Disease: Cellulitis, cervical adenitis, dental abscess with complications, initial evaluation and follow-up of serious, deep tissue infections, laryngotracheobronchitis, otitis media, periorbital and orbital cellulitis, pharyngitis, pneumonia (viral or bacterial), sinusitis, upper respiratory tract infections, viral illness, recurrent infections</p> <p>12. Musculoskeletal: Apophysitides, femoral retro- and anteversion, fractures, growing pains, hip dysplasia, limp, metatarsus adductus, sprains, strains, tibial torsion</p> <p>13. Pharmacology/Toxicology: Common drug poisoning or overdose, ingestion avoidance (precautions)</p> <p>14. Neurology/Psychiatry: Acute neurologic conditions (initial evaluation), behavioral concerns, discipline issues, temper tantrums, biting, developmental delay, seizures (evaluation and adjustment of medications), ADHD, learning disabilities, substance abuse</p> <p>15. Pulmonary: Asthma, bronchiolitis, croup, epiglottitis, pneumonia; sinusitis, tracheitis, viral URI and LRI</p> <p>16. Surgery: Initial evaluation of patients requiring urgent referral, pre- and post-op evaluation of surgical patients (general, ENT, ortho, urology, neurosurgical, etc.)</p> |  |
| <p><b>3.6 GOAL: Diagnostic Testing (Continuity Clinic and Primary Care OPD). Utilize common diagnostic tests and imaging studies appropriately in the outpatient department.</b></p>   |  |
| <p>3.6.1 : Demonstrate understanding of the common diagnostic tests and imaging studies used in the outpatient setting, by being able to:</p>  |  |
| <p>3.6.1.1 :Explain the indications for and limitations of each study.</p>   |  |
| <p>3.6.1.2 :Know or be able to locate age-appropriate normal ranges (lab studies).</p>   |  |
| <p>3.6.1.3 :Apply knowledge of diagnostic test properties, including the use of sensitivity, specificity, positive predictive value, negative predictive value, likelihood ratios and receiver operating characteristic curves, to assess test utility in clinical settings.</p>   |  |
| <p>3.6.1.4 :Recognize cost and utilization issues.</p>   |  |
| <p>3.6.1.5 :Interpret the results in the context of the specific patient.</p>  |  |
| <p>3.6.1.6 :Discuss therapeutic options for correction of abnormalities.</p>   |  |
| <p>3.6.2 : Use appropriately the common laboratory studies in the Continuity Clinic and Outpatient setting:</p> <ol style="list-style-type: none"> <li>1. CBC with differential, platelet count, RBC indices</li> <li>2. Blood chemistries: electrolytes, glucose, calcium, magnesium, phosphate</li> <li>3. Hemaglobin A1C</li> <li>4. Cholesterol</li> <li>5. Renal function tests</li> </ol>  |  |

|  |  |
|--|--|
| <ol style="list-style-type: none"> <li>6. Tests of hepatic function (PT, albumin) and damage (liver enzymes, bilirubin)</li> <li>7. Serologic tests for infection (e.g., hepatitis, HIV)</li> <li>8. CRP, ESR</li> <li>9. Routine screening tests (e.g., neonatal screens, lead)</li> <li>10. Wet preps and skin scrapings for microscopic examination, including scotch tape test for pinworms</li> <li>11. Tests for ova and parasites</li> <li>12. Thyroid function tests</li> <li>13. Culture for bacterial, viral, and fungal pathogens, including stool culture</li> <li>14. Urinalysis</li> <li>15. Gram stain</li> <li>16. Developmental, behavioral and depression screening tests</li> </ol> |  |
| <p>3.6.3 : Use the common imaging, diagnostic or radiographic studies when indicated for patients evaluated in Continuity Clinic or the Outpatient Pediatric Clinic:</p> <ol style="list-style-type: none"> <li>1. Plain radiographs of the chest, extremities, abdomen, skull, sinuses</li> <li>2. CT, MRI, angiography, ultrasound, nuclear scans (interpretation not expected) and contrast studies when indicated</li> <li>3. Bone age films</li> <li>4. Electrocardiogram and echocardiogram</li> <li>5. Skin test for tuberculosis</li> </ol>  |  |
| <p><b>3.7 GOAL: Monitoring and Therapeutic Modalities (Continuity Clinic and Primary Care OPD). Understand how to use physiologic monitoring and special technology in the Continuity Clinic and Primary Care Pediatric Outpatient Department, including issues specific to care of the chronically ill child.</b></p>   |  |
| <p>3.7.1 : Demonstrate understanding of the monitoring techniques and special treatments commonly used in the Continuity Clinic and Pediatric Outpatient Department:</p> <ol style="list-style-type: none"> <li>1. Discuss indications, contraindications and complications.</li> <li>2. Demonstrate proper use of technique or treatment for children of varying ages.</li> <li>3. Interpret results of monitoring based on method used, age and clinical situation.</li> </ol>   |  |
| <p>3.7.2 : Appropriately use the monitoring techniques commonly used in the Continuity Clinic and Pediatric Outpatient Department:</p> <ol style="list-style-type: none"> <li>1. Cardiac monitoring</li> <li>2. Pulse oximetry</li> </ol>  |  |

|  |  |
|--|--|
| 3. Repeated assessment of temperature, heart rate, respiratory rate, blood pressure, as clinically indicated during an office visit  |  |
| 3.7.3 : Use appropriately or be familiar with the following treatments and techniques in the Continuity Clinic and Pediatric Outpatient Department:<br><br><ol style="list-style-type: none"> <li>1. Universal precautions</li> <li>2. Hand washing between patients</li> <li>3. Isolation techniques</li> <li>4. Administration of nebulized medication</li> <li>5. Injury, wound and burn care</li> <li>6. Oxygen delivery systems</li> <li>7. Intramuscular, subcutaneous and intradermal injections</li> </ol> |  |
| 3.7.4 : Recognize normal and abnormal findings at tracheostomy, gastrostomy, or central venous catheter sites, and demonstrate appropriate intervention or referral for problems encountered.  |  |
| 3.7.5 : Demonstrate skills for assessing and managing pain.<br><br><ol style="list-style-type: none"> <li>1. Use age-appropriate pain scales in assessment.</li> <li>2. Describe indications for and use of behavioral techniques and supportive care, and other non-pharmacologic methods of pain control.</li> </ol>   |  |
| <b>3.8 GOAL: Pediatric Competencies in Brief (Continuity Clinic/Outpatient): Demonstrate high standards of professional competence while working with patients in the continuity and outpatient setting. [For details see Pediatric Competencies.]</b>   |  |
| 3.8.1 : Competency 1: Patient Care. Provide family-centered patient care that is development- and age-appropriate, compassionate, and effective for the treatment of health problems and the promotion of health.  |  |
| 3.8.1.1 :Use a logical and appropriate clinical approach to the care of outpatients, applying principles of evidence-based decision-making and problem-solving.  |  |
| 3.8.1.2 :Provide sensitive support to patients and their families in the outpatient setting.   |  |
| 3.8.1.3 :Provide effective preventive health care and anticipatory guidance to patients and families in continuity and outpatient settings.  |  |
| 3.8.2 : Competency 2: Medical Knowledge. Understand the scope of established and evolving biomedical, clinical, epidemiological and social-behavioral knowledge needed by a pediatrician; demonstrate the ability to acquire, critically interpret and apply this knowledge in patient care.   |  |
| 3.8.2.1 :Demonstrate a commitment to acquiring the knowledge needed for care of children in the continuity and general ambulatory setting.   |  |
| 3.8.2.2 :Know and/or access medical information efficiently, evaluate it critically, and apply it appropriately to outpatient care.  |  |
| 3.8.3 : Competency 3: Interpersonal Skills and   |  |

|  |  |
|--|--|
| Communication. Demonstrate interpersonal and communication skills that result in information exchange and partnering with patients, their families and professional associates.  |  |
| 3.8.3.1 :Provide effective patient education, including reassurance, for conditions common to the outpatient setting.  |  |
| 3.8.3.2 :Communicate effectively with physicians, other health professionals, and health-related agencies to create and sustain information exchange and teamwork for patient care.  |  |
| 3.8.3.3 :Develop effective strategies for teaching students, colleagues and other professionals.   |  |
| 3.8.3.4 :Maintain accurate, legible, timely, and legally appropriate medical records in this clinical setting.   |  |
| 3.8.4 : Competency 4: Practice-based Learning and Improvement. Demonstrate knowledge, skills and attitudes needed for continuous self-assessment, using scientific methods and evidence to investigate, evaluate, and improve one's patient care practice. |  |
| 3.8.4.1 :Identify standardized guidelines for diagnosis and treatment of conditions common to outpatient care, and adapt them to the individual needs of specific patients.  |  |
| 3.8.4.2 :Work with health care team members to assess, coordinate, and improve patient care in the outpatient setting.   |  |
| 3.8.4.3 :Establish an individual learning plan, systematically organize relevant information resources for future reference, and plan for continuing acquisition of knowledge and skills.  |  |
| 3.8.5 : Competency 5: Professionalism. Demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles and sensitivity to diversity.   |  |
| 3.8.5.1 :Demonstrate personal accountability to the well being of patients (e.g., following-up lab results, writing comprehensive notes and seeking answers to patient care questions).  |  |
| 3.8.5.2 :Demonstrate a commitment to professional behavior in interactions with staff and professional colleagues.   |  |
| 3.8.5.3 :Adhere to ethical and legal principles and be sensitive to diversity.   |  |
| 3.8.6 : Competency 6: Systems-Based Practice. Understand how to practice high quality health care and advocate for patients within the context of the health care system.  |  |
| 3.8.6.1 :Identify key aspects of health care systems (e.g., public and private insurance) as they apply to the primary care provider, such as the role of the PCP in decision-making, referral, and coordination of care.                                  |  |
| 3.8.6.2 :Demonstrate sensitivity to the costs of clinical care in the outpatient setting, and take steps to minimize costs without compromising quality.   |  |
| 3.8.6.3 :Recognize and advocate for families who need assistance to deal with system complexities, such as lack of insurance, multiple medication refills, multiple appointments with long transport times, or inconvenient hours of service.              |  |
| 3.8.6.4 :Recognize one's limits and those of the system; take steps to avoid medical errors.   |  |
| <b>Procedures</b>  |  |
| <b>7.1. GOAL: Technical and therapeutic procedures. Describe the</b>   |  |

|   |  |
|---|--|
| following procedures, including how they work and when they should be used; competently perform those commonly used by the pediatrician in practice.  |  |
| Breast pump use   |  |
| Medication delivery: IM/SC/ID   |  |
| Medication delivery: inhaled  |  |
| PPD: placement  |  |
| Pulmonary function tests: peak flow meter   |  |
| <b>7.2. GOAL: Diagnostic and screening procedures.</b> Describe the following tests or procedures, including how they work and when they should be used; competently perform those commonly used by the pediatrician in practice.   |  |
| ADHD home and school questionnaires   |  |
| Behavioral screening questionnaire  |  |
| Developmental screening test  |  |
| Hearing screening   |  |
| PPD: interpretation   |  |
| Scoliosis, scoliometer  |  |
| Tympanometry evaluation: interpretation   |  |
| Vision screening  |  |
| <b>Source</b>   |  |
| Kittredge, D., Baldwin, C. D., Bar-on, M. E., Beach, P. S., Trimm, R. F. (Eds.). (2004). APA Educational Guidelines for Pediatric Residency. Ambulatory Pediatric Association Website. Available online: <a href="http://www.ambpeds.org/egweb">www.ambpeds.org/egweb</a> . [Accessed 07/22/2005]. Project to develop this website was funded by the Josiah Macy, Jr. Foundation 2002-2005. |  |

|  |  |
|--|--|
| <b>Standard Rotation: Outpatient Pediatrics</b>  |  |
| <b>Primary Goals for this Rotation</b>   |  |
| <b>3.4 GOAL: Common Signs and Symptoms (Continuity Clinic and Primary Care OPD). Evaluate and manage common signs and symptoms associated with the practice of pediatrics in the Continuity Clinic and Primary Care Pediatric Outpatient Department.</b>   |  |
| 3.4.1 : Evaluate and manage the following signs and symptoms that present in the context of health care promotion:   |  |
| <ol style="list-style-type: none"> <li>1. Infancy: malpositioning of feet, hip clicks, skin rashes, birthmarks, jitteriness, hiccups, sneezes, wheezing, heart murmur, vaginal bleeding and/or discharge, foul smelling umbilical cord with/without discharge; undescended testicle, breast tissue, breast drainage, malpositioning of feet, malrotation of lower extremities, developmental delays, sleep disturbances, difficulty feeding, dysconjugate gaze, failure to thrive, frequent infections, abnormal head shape or size, evidence of abuse or neglect, abdominal masses, abnormal muscle tone</li> <li>2. General: Acute life-threatening event (ALTE), constitutional symptoms, excessive crying, failure to thrive, fatigue, fever, weight loss or gain, dental caries, excessive thumb-sucking or pacifier use, sleep disturbances, difficult behaviors, variations in appetite, variations in toilet training, overactivity, somatic complaints, poor school performance, attention problems, fatigue, masturbation, anxiety, violence</li> <li>3. Cardiorespiratory: Apnea, chest pain, cough cyanosis, dyspnea, heart murmur, hemoptysis, hypertension, inadequate respiratory effort, respiratory failure, rhythm disturbance, shortness of breath, stridor, syncope, tachypnea, wheezing</li> <li>4. Dermatologic: Congenital nevus and other birth marks, ecchymoses, edema, paleness, petechiae, pigmentary changes, purpura, rashes, urticaria, vascular lesions, foul smelling umbilical cord</li> <li>5. EENT: Acute visual changes; dysconjugate gaze; conjunctival injection; ear or eye discharge; ear, throat, eye pain, edema, epistaxis; nasal foreign body; hoarseness; stridor</li> <li>6. Endocrine: growth disturbance, short stature, heat or cold intolerance, normal and abnormal timing of pubertal changes, polydipsia, polyuria</li> <li>7. GI/Nutrition/Fluids: Abdominal pain, mass or distention; ascites; constipation; dehydration; diarrhea; dysphagia; encopresis; hematemesis; inadequate intake of calories or fluid; jaundice; melena; obesity; rectal bleeding; regurgitation; vomiting</li> <li>8. Genitourinary/Renal: Change in urine color, dysuria, edema, enuresis, frequency, hematuria, oliguria, pain referable to the urinary tract, scrotal mass, pain or edema, trauma to urinary tract or external</li> </ol> |  |

|   |  |
|---|--|
| <p>genitalia, undescended testicle, enuresis</p> <ol style="list-style-type: none"> <li>9. GYN: Asymmetry of breast development, abnormal vaginal bleeding, pelvic or genital pain, vaginal discharge or odor; vulvar trauma or erythema, delayed onset of menses, missed or irregular periods</li> <li>10. Hematologic/Oncologic: Abnormal bleeding, bruising, hepatosplenomegaly, lymphadenopathy, masses, pallor</li> <li>11. Musculoskeletal: Malpositioning of feet, malpositioning of legs, hip clicks, abnormal gait, abnormal spine curvature, arthritis or arthralgia, bone and soft tissue trauma, limb or joint pain, limp, variations in alignment (e.g., intoeing)</li> <li>12. Neurologic: Delays in developmental milestones, ataxia, change in sensorium, diplopia, headache, head trauma, hearing concerns, gait disturbance, hypotonia, lethargy, seizure, tremor, vertigo, visual disturbance, weakness</li> <li>13. Psychiatric/Psychosocial: Acute psychosis, anxiety, behavioral concerns; conversion symptoms, depression, hyperactivity, suicide attempt, suspected child abuse or neglect</li> </ol>   |  |
| <p><b>3.5 GOAL: Common Conditions (Continuity Clinic and Primary Care OPD). Recognize and manage common childhood conditions presenting to the Continuity Clinic and Primary Care Pediatric Outpatient Department.</b></p>  |  |
| <p>3.5.1 : Evaluate and manage the common conditions and situations presenting in the context of health promotion visits.</p> <ol style="list-style-type: none"> <li>1. Infancy: Breast feeding, bottle feeding, colic, congenital hip dislocation, constipation, strabismus, colic, parent-infant interactional issues, sleep problems, child care decisions, separation protest, stranger anxiety, failure to thrive, recurrent respiratory and ear infections, positional foot deformities, rashes, teething, injury prevention and safety</li> <li>2. General: Colic, failure to thrive, fever, overweight, iron deficiency, lead exposure, strabismus, hearing problems, child care decisions, well-child and well adolescent care (including anticipatory guidance), parental issues (financial stress, divorce, depression, tobacco, alcohol or substance abuse, domestic violence, inadequate support networks)</li> <li>3. Allergy/Immunology: Allergic rhinitis, angioedema, asthma, food allergies, recurrent infections, serum sickness, urticaria</li> <li>4. Cardiovascular: Bacterial endocarditis, cardiomyopathy, congenital heart disease (outpatient management of minor illnesses), congestive heart failure, heart murmurs, Kawasaki disease, palpitations, rheumatic fever</li> <li>5. Dermatology: abscess, acne, atopic dermatitis, cellulitis and superficial skin infections, impetigo, molluscum, tinea infections, viral exanthems, verruca vulgaris, other common rashes of childhood and adolescence</li> </ol> |  |

|   |  |
|---|--|
| <ol style="list-style-type: none"> <li>6. Endocrine/Metabolic: Diabetes mellitus, diabetes insipidus, evaluation for possible hypothyroidism, growth failure or delay, gynecomastia, hyperthyroidism, precocious or delayed puberty</li> <li>7. GI/Nutritional: Appendicitis, bleeding in stool, constipation, encopresis, foreign body ingestion, gastroenteritis, gastroesophageal reflux, hepatitis, inflammatory bowel disease, nutritional issues, obesity, pancreatitis</li> <li>8. GU/Renal: Electrolyte and acid-base disturbances (mild), enuresis, glomerulonephritis, hematuria, Henoch Schonlein purpura, nephrotic syndrome, obstructive uropathy, proteinuria, undescended testicles, UTI/pyelonephritis</li> <li>9. Gynecologic: Genital trauma (mild), labial adhesions, pelvic inflammatory disease, vaginal discharge or foreign body</li> <li>10. Hematology/Oncology: Abdominal and mediastinal mass (initial work up), anemia, hemoglobinopathies, leukocytosis, neutropenia, thrombocytopenia</li> <li>11. Infectious Disease: Cellulitis, cervical adenitis, dental abscess with complications, initial evaluation and follow-up of serious, deep tissue infections, laryngotracheobronchitis, otitis media, periorbital and orbital cellulitis, pharyngitis, pneumonia (viral or bacterial), sinusitis, upper respiratory tract infections, viral illness, recurrent infections</li> <li>12. Musculoskeletal: Apophysitides, femoral retro- and anteversion, fractures, growing pains, hip dysplasia, limp, metatarsus adductus, sprains, strains, tibial torsion</li> <li>13. Pharmacology/Toxicology: Common drug poisoning or overdose, ingestion avoidance (precautions)</li> <li>14. Neurology/Psychiatry: Acute neurologic conditions (initial evaluation), behavioral concerns, discipline issues, temper tantrums, biting, developmental delay, seizures (evaluation and adjustment of medications), ADHD, learning disabilities, substance abuse</li> <li>15. Pulmonary: Asthma, bronchiolitis, croup, epiglottitis, pneumonia; sinusitis, tracheitis, viral URI and LRI</li> <li>16. Surgery: Initial evaluation of patients requiring urgent referral, pre- and post-op evaluation of surgical patients (general, ENT, ortho, urology, neurosurgical, etc.)</li> </ol> |  |
| <p><b>3.6 GOAL: Diagnostic Testing (Continuity Clinic and Primary Care OPD). Utilize common diagnostic tests and imaging studies appropriately in the outpatient department.</b></p>  |  |
| <p>3.6.1 : Demonstrate understanding of the common diagnostic tests and imaging studies used in the outpatient setting, by being able to:</p>   |  |
| <p>3.6.1.1 :Explain the indications for and limitations of each study.</p>  |  |
| <p>3.6.1.2 :Know or be able to locate age-appropriate normal ranges (lab studies).</p>  |  |
| <p>3.6.1.3 :Apply knowledge of diagnostic test properties, including the use of sensitivity, specificity, positive predictive value, negative predictive value, likelihood ratios and receiver operating characteristic curves, to assess test utility in clinical</p>  |  |

|   |  |
|---|--|
| settings.   |  |
| 3.6.1.4 :Recognize cost and utilization issues.   |  |
| 3.6.1.5 :Interpret the results in the context of the specific patient.  |  |
| 3.6.1.6 :Discuss therapeutic options for correction of abnormalities.   |  |
| 3.6.2 : Use appropriately the common laboratory studies in the Continuity Clinic and Outpatient setting:  |  |
| <ol style="list-style-type: none"> <li>1. CBC with differential, platelet count, RBC indices</li> <li>2. Blood chemistries: electrolytes, glucose, calcium, magnesium, phosphate</li> <li>3. Hemaglobin A1C</li> <li>4. Cholesterol</li> <li>5. Renal function tests</li> <li>6. Tests of hepatic function (PT, albumin) and damage (liver enzymes, bilirubin)</li> <li>7. Serologic tests for infection (e.g., hepatitis, HIV)</li> <li>8. CRP, ESR</li> <li>9. Routine screening tests (e.g., neonatal screens, lead)</li> <li>10. Wet preps and skin scrapings for microscopic examination, including scotch tape test for pinworms</li> <li>11. Tests for ova and parasites</li> <li>12. Thyroid function tests</li> <li>13. Culture for bacterial, viral, and fungal pathogens, including stool culture</li> <li>14. Urinalysis</li> <li>15. Gram stain</li> <li>16. Developmental, behavioral and depression screening tests</li> </ol> |  |
| 3.6.3 : Use the common imaging, diagnostic or radiographic studies when indicated for patients evaluated in Continuity Clinic or the Outpatient Pediatric Clinic:   |  |
| <ol style="list-style-type: none"> <li>1. Plain radiographs of the chest, extremities, abdomen, skull, sinuses</li> <li>2. CT, MRI, angiography, ultrasound, nuclear scans (interpretation not expected) and contrast studies when indicated</li> <li>3. Bone age films</li> <li>4. Electrocardiogram and echocardiogram</li> <li>5. Skin test for tuberculosis</li> </ol>  |  |
| <b>3.7 GOAL: Monitoring and Therapeutic Modalities (Continuity Clinic and Primary Care OPD). Understand how to use physiologic monitoring and special technology in the Continuity Clinic and Primary Care Pediatric Outpatient Department, including issues specific to care of the chronically ill child.</b>   |  |
| 3.7.1 : Demonstrate understanding of the monitoring techniques and special treatments commonly used in the Continuity Clinic and Pediatric Outpatient   |  |

|  |  |
|--|--|
| <p>Department:</p> <ol style="list-style-type: none"> <li>1. Discuss indications, contraindications and complications.</li> <li>2. Demonstrate proper use of technique or treatment for children of varying ages.</li> <li>3. Interpret results of monitoring based on method used, age and clinical situation.</li> </ol>   |  |
| <p>3.7.2 : Appropriately use the monitoring techniques commonly used in the Continuity Clinic and Pediatric Outpatient Department:</p> <ol style="list-style-type: none"> <li>1. Cardiac monitoring</li> <li>2. Pulse oximetry</li> <li>3. Repeated assessment of temperature, heart rate, respiratory rate, blood pressure, as clinically indicated during an office visit</li> </ol>   |  |
| <p>3.7.3 : Use appropriately or be familiar with the following treatments and techniques in the Continuity Clinic and Pediatric Outpatient Department:</p> <ol style="list-style-type: none"> <li>1. Universal precautions</li> <li>2. Hand washing between patients</li> <li>3. Isolation techniques</li> <li>4. Administration of nebulized medication</li> <li>5. Injury, wound and burn care</li> <li>6. Oxygen delivery systems</li> <li>7. Intramuscular, subcutaneous and intradermal injections</li> </ol> |  |
| <p>3.7.4 : Recognize normal and abnormal findings at tracheostomy, gastrostomy, or central venous catheter sites, and demonstrate appropriate intervention or referral for problems encountered.</p>   |  |
| <p>3.7.5 : Demonstrate skills for assessing and managing pain.</p> <ol style="list-style-type: none"> <li>1. Use age-appropriate pain scales in assessment.</li> <li>2. Describe indications for and use of behavioral techniques and supportive care, and other non-pharmacologic methods of pain control.</li> </ol>   |  |
| <p><b>3.8 GOAL: Pediatric Competencies in Brief (Continuity Clinic/Outpatient): Demonstrate high standards of professional competence while working with patients in the continuity and outpatient setting. [For details see Pediatric Competencies.]</b></p>  |  |
| <p>3.8.1 : Competency 1: Patient Care. Provide family-centered patient care that is development- and age-appropriate, compassionate, and effective for the treatment of health problems and the promotion of health.</p>   |  |
| <p>3.8.1.1 :Use a logical and appropriate clinical approach to the care of outpatients, applying principles of evidence-based decision-making and problem-solving.</p>   |  |

|   |  |
|---|--|
| 3.8.1.2 :Provide sensitive support to patients and their families in the outpatient setting.  |  |
| 3.8.1.3 :Provide effective preventive health care and anticipatory guidance to patients and families in continuity and outpatient settings.   |  |
| <b>3.8.2 : Competency 2: Medical Knowledge.</b> Understand the scope of established and evolving biomedical, clinical, epidemiological and social-behavioral knowledge needed by a pediatrician; demonstrate the ability to acquire, critically interpret and apply this knowledge in patient care. |  |
| 3.8.2.1 :Demonstrate a commitment to acquiring the knowledge needed for care of children in the continuity and general ambulatory setting.  |  |
| 3.8.2.2 :Know and/or access medical information efficiently, evaluate it critically, and apply it appropriately to outpatient care.   |  |
| <b>3.8.3 : Competency 3: Interpersonal Skills and Communication.</b> Demonstrate interpersonal and communication skills that result in information exchange and partnering with patients, their families and professional associates.   |  |
| 3.8.3.1 :Provide effective patient education, including reassurance, for conditions common to the outpatient setting.   |  |
| 3.8.3.2 :Communicate effectively with physicians, other health professionals, and health-related agencies to create and sustain information exchange and teamwork for patient care.   |  |
| 3.8.3.3 :Develop effective strategies for teaching students, colleagues and other professionals.  |  |
| 3.8.3.4 :Maintain accurate, legible, timely, and legally appropriate medical records in this clinical setting.  |  |
| <b>3.8.4 : Competency 4: Practice-based Learning and Improvement.</b> Demonstrate knowledge, skills and attitudes needed for continuous self-assessment, using scientific methods and evidence to investigate, evaluate, and improve one's patient care practice.                                   |  |
| 3.8.4.1 :Identify standardized guidelines for diagnosis and treatment of conditions common to outpatient care, and adapt them to the individual needs of specific patients.   |  |
| 3.8.4.2 :Work with health care team members to assess, coordinate, and improve patient care in the outpatient setting.  |  |
| 3.8.4.3 :Establish an individual learning plan, systematically organize relevant information resources for future reference, and plan for continuing acquisition of knowledge and skills.   |  |
| <b>3.8.5 : Competency 5: Professionalism.</b> Demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles and sensitivity to diversity.   |  |
| 3.8.5.1 :Demonstrate personal accountability to the well being of patients (e.g., following-up lab results, writing comprehensive notes and seeking answers to patient care questions).   |  |
| 3.8.5.2 :Demonstrate a commitment to professional behavior in interactions with staff and professional colleagues.  |  |
| 3.8.5.3 :Adhere to ethical and legal principles and be sensitive to diversity.  |  |
| <b>3.8.6 : Competency 6: Systems-Based Practice.</b> Understand how to practice high quality health care and advocate for patients within the context of the  |  |

|   |  |
|---|--|
| health care system.   |  |
| 3.8.6.1 :Identify key aspects of health care systems (e.g., public and private insurance) as they apply to the primary care provider, such as the role of the PCP in decision-making, referral, and coordination of care.                     |  |
| 3.8.6.2 :Demonstrate sensitivity to the costs of clinical care in the outpatient setting, and take steps to minimize costs without compromising quality.  |  |
| 3.8.6.3 :Recognize and advocate for families who need assistance to deal with system complexities, such as lack of insurance, multiple medication refills, multiple appointments with long transport times, or inconvenient hours of service. |  |
| 3.8.6.4 :Recognize one's limits and those of the system; take steps to avoid medical errors.  |  |
| <b>Procedures</b>   |  |
| <b>7.1. GOAL: Technical and therapeutic procedures.</b> Describe the following procedures, including how they work and when they should be used; competently perform those commonly used by the pediatrician in practice.                     |  |
| Abscess: I & D of superficial abscesses   |  |
| Abscess: aspiration   |  |
| Bladder: catheterization  |  |
| Conjunctival swab   |  |
| Ear: cerumen removal  |  |
| Eye: eyelid eversion  |  |
| Eye: patch  |  |
| Eye: fluorescein eye exam   |  |
| Foreign body removal (simple): nose   |  |
| Foreign body removal (simple): ear  |  |
| Foreign body removal (simple): subcutaneous   |  |
| Ingrown toe nail treatment  |  |
| Inguinal hernia: simple reduction   |  |
| Intravenous line placement  |  |
| Liquid nitrogen treatment for molluscum/warts   |  |
| Lumbar puncture   |  |
| Medication delivery: inhaled  |  |
| Medication delivery: IV   |  |
| PPD: placement  |  |
| Pulmonary function tests: peak flow meter   |  |
| Pulse oximeter: placement   |  |
| Rectal swab   |  |
| Reduction of nursemaid elbow  |  |
| Skin scraping   |  |
| Sterile technique   |  |
| Subungual hematoma: drainage  |  |
| Suctioning: nares   |  |
| Suctioning: oral pharynx  |  |

|   |  |
|---|--|
| Throat swab   |  |
| Tooth: temporary reinsertion  |  |
| Urethral swab   |  |
| Venipuncture  |  |
| Wood's lamp examination of skin   |  |
| <b>7.2. GOAL: Diagnostic and screening procedures.</b> Describe the following tests or procedures, including how they work and when they should be used; competently perform those commonly used by the pediatrician in practice.   |  |
| ECG: emergency interpretation   |  |
| ECG: perform  |  |
| PPD: interpretation   |  |
| Monitoring interpretation: pulse oximetry   |  |
| Radiologic interpretation: abdominal X-ray  |  |
| Radiologic interpretation: chest X-ray  |  |
| Radiologic interpretation: extremity X-ray  |  |
| Radiologic interpretation: sinus films  |  |
| Tympanometry evaluation: interpretation   |  |
| Vision screening  |  |
| <b>Source</b>   |  |
| Kittredge, D., Baldwin, C. D., Bar-on, M. E., Beach, P. S., Trimm, R. F. (Eds.). (2004). APA Educational Guidelines for Pediatric Residency. Ambulatory Pediatric Association Website. Available online: <a href="http://www.ambpeds.org/egweb">www.ambpeds.org/egweb</a> . [Accessed 07/22/2005]. Project to develop this website was funded by the Josiah Macy, Jr. Foundation 2002-2005. |  |

|   |  |
|---|--|
| <b>Standard Rotation: Inpatient Pediatrics</b>  |  |
| <b>Primary Goals for this Rotation</b>  |  |
| <b>4.8 GOAL: Common Signs and Symptoms (Inpatient). Evaluate and manage common signs and symptoms associated with acute illness and hospitalization.</b>  |  |
| 4.8.1 : Evaluate and manage, with consultation of indicated, patients with signs and symptoms that commonly present to the Inpatient Unit (examples below).   |  |
| <ol style="list-style-type: none"> <li>1. General: acute life-threatening event (ALTE), constitutional symptoms, hypothermia, excessive crying, failure to thrive, fatigue, fever without localizing signs, hypothermia, weight loss</li> <li>2. Cardiorespiratory: apnea, chest pain, cough, cyanosis, dyspnea, heart murmur, hemoptysis, hypertension, hypotension, inadequate respiratory effort, rhythm disturbance, shock, shortness of breath, stridor, syncope, tachypnea, respiratory failure, wheezing</li> <li>3. Dermatologic: ecchymoses, edema, petechiae, purpura, rashes, urticaria</li> <li>4. EENT: acute visual changes, conjunctival injection, edema, epistaxis, hoarseness, nasal discharge, stridor, trauma</li> <li>5. Endocrine: heat/cold intolerance, polydipsia, polyuria</li> <li>6. GI/Nutrition/Fluids: abdominal masses or distention, abdominal pain, ascites, dehydration, diarrhea, dysphagia, hematemesis, inadequate intake, jaundice, melena, rectal bleeding, regurgitation, vomiting</li> <li>7. Genitourinary/Renal: change in urine color, dysuria, edema, hematuria, oliguria, scrotal mass or edema</li> <li>8. GYN: abnormal vaginal bleeding, pelvic pain, vaginal discharge</li> <li>9. Hematologic/Oncologic: abnormal bleeding, bruising, hepatosplenomegaly, lymphadenopathy, masses, pallor</li> <li>10. Musculoskeletal: arthritis/arthritis, bone and soft tissue trauma, limb pain, limp</li> <li>11. Neurologic: ataxia, coma, delirium, diplopia, headache, hypotonia, head trauma, lethargy, seizure, vertigo, weakness</li> <li>12. Psychiatric/Psychosocial: acute psychosis, child abuse or neglect, conversion symptoms, depression, suicide attempt</li> </ol> |  |
| <b>4.9 GOAL: Common Conditions (Inpatient). Recognize and manage common childhood conditions presenting to the Inpatient Unit.</b>  |  |
| 4.9.1 : Evaluate and manage, with consultation as indicated, patients with conditions that commonly present to the Inpatient Unit (examples below).   |  |
| <ol style="list-style-type: none"> <li>1. General: failure to thrive, fever of unknown origin</li> <li>2. Allergy/Immunology: acute drug allergies/reactions, anaphylaxis,</li> </ol>   |  |

|   |  |
|---|--|
| <p>immunodeficiencies, including graft vs. host disease, recurrent pneumonia, serum sickness, severe angioedema</p> <ol style="list-style-type: none"> <li>3. Cardiovascular: bacterial endocarditis, cardiomyopathy, congenital heart disease, congestive heart failure, Kawasaki disease, myocarditis, rheumatic fever</li> <li>4. Endocrine: diabetes (including diabetic ketoacidosis), electrolyte disturbances secondary to underlying endocrine disease</li> <li>5. GI/Nutrition: appendicitis, bleeding, cholangitis, complications of inflammatory bowel disease, complications of liver transplantation, cystic fibrosis, gastroenteritis (with/without dehydration), gastroesophageal reflux, hepatic dysfunction (including alpha-1-antitrypsin disease), bowel obstruction, pancreatitis, severe malnutrition</li> <li>6. GU/Renal: electrolyte and acid-base disturbances, glomerulonephritis, hemolytic-uremic syndrome, nephrotic syndrome, urinary tract infection/pyelonephritis</li> <li>7. Gynecologic: genital trauma, pelvic inflammatory disease, sexual assault</li> <li>8. Hematologic/Oncologic: abdominal and mediastinal mass, common malignancies, fever and neutropenia, thrombocytopenia, severe anemia, tumor lysis syndrome, vaso-occlusive crises and other complications of sickle cell disease</li> <li>9. Infectious Disease: cellulitis (including periorbital and orbital), cervical adenitis, dental abscess with complications, encephalitis, HIV, infections in immunocompromised hosts, laryngotracheobronchitis, late presentation of congenital infections (CMV, syphilis, tuberculosis, abscesses), line infection, meningitis (bacterial or viral), osteomyelitis, pneumonia (viral or bacterial), sepsis/bacteremia (including newborns), septic arthritis, tuberculosis</li> <li>10. Pharmacology/Toxicology: common drug poisoning or overdose, dose adjustment for special conditions or serum drug levels</li> <li>11. Neurology: acute neurologic conditions (acute cerebellar ataxia, Guillain Barre syndrome, movement disorders), developmental delay with acute medical conditions, seizures, shunt infections</li> <li>12. Respiratory: airway obstruction, asthma exacerbation, bacterial tracheitis, bronchiolitis, croup, cystic fibrosis, epiglottitis</li> <li>13. Rheumatologic: Henoch Schonlein purpura (HSP), juvenile rheumatoid arthritis (JRA), systemic lupus erythematosus (SLE)</li> <li>14. Surgery: pre- and post-op consultation and evaluation of surgical patients (general, ENT, orthopedics, urology, neurosurgical, etc.), special needs of technology-dependent children (blocked trachea, gastric tube dysfunction)</li> </ol> |  |
| <p><b>4.10 GOAL: Diagnostic and Screening Procedures (Inpatient). Utilize common diagnostic tests and imaging studies appropriately in the inpatient setting.</b></p>   |  |

|  |  |
|--|--|
| 4.10.1 : Demonstrate an understanding of the common diagnostic tests and imaging studies used in the inpatient setting, by being able to:  |  |
| 4.10.1.1 : Explain the indications for and limitations of each study.  |  |
| 4.10.1.2 : Know or be able to locate age-appropriate normal ranges (lab studies).  |  |
| 4.10.1.3 : Apply knowledge of diagnostic test properties, including the use of sensitivity, specificity, positive predictive value, negative predictive value, false-positive and negative results, likelihood ratios, and receiver operating characteristic curves, to assess the utility of tests in various clinical settings.  |  |
| 4.10.1.4 : Recognize cost and utilization issues.  |  |
| 4.10.1.5 : Interpret test results in the context of the specific patient.  |  |
| 4.10.1.6 : Discuss therapeutic options for correction of abnormalities.  |  |
| 4.10.2 : Use common laboratory studies when indicated for patients in the inpatient setting.<br><br><ol style="list-style-type: none"> <li>1. CBC with differential, platelet count, RBC indices</li> <li>2. Blood chemistries: electrolytes, glucose, calcium, magnesium, phosphate</li> <li>3. Renal function tests</li> <li>4. Tests of hepatic function (PT, albumin) and damage (liver enzymes, bilirubin)</li> <li>5. Serologic tests for infection (e.g., hepatitis, HIV)</li> <li>6. C-reactive protein, erythrocyte sedimentation rate</li> <li>7. Therapeutic drug concentrations</li> <li>8. Coagulation studies</li> <li>9. Arterial, capillary, and venous blood gases</li> <li>10. Detection of bacterial, viral, and fungal pathogens</li> <li>11. Urinalysis</li> <li>12. Cerebrospinal fluid analysis</li> <li>13. Gram stain</li> <li>14. Stool studies</li> <li>15. Other fluid studies (e.g. pleural fluid, joint fluid)</li> <li>16. Electrocardiogram</li> </ol> |  |
| 4.10.3 : Use common imaging or radiographic studies when indicated for patients on the inpatient unit.<br><br><ol style="list-style-type: none"> <li>1. Plain radiographs of the chest, extremities, abdomen, skull, sinuses</li> <li>2. Other imaging techniques such as CT, MRI, angiography, ultrasound, nuclear scans, contrast studies (interpretation not expected)</li> <li>3. Echocardiogram</li> </ol>  |  |
| <b>4.11 GOAL: Monitoring and Therapeutic Modalities (Inpatient).<br/>Understand how to use physiologic monitoring and special technology in the general inpatient setting, including issues specific to care of the chronically ill child.</b>   |  |
| 4.11.1 : Demonstrate understanding of the monitoring techniques and special  |  |

|  |  |
|--|--|
| <p>treatments commonly used in the inpatient setting, by being able to:</p> <ol style="list-style-type: none"> <li>1. Discuss indications, contraindications and complications.</li> <li>2. Demonstrate proper use of technique for children of varying ages.</li> <li>3. Determine which patients need continuous monitoring or special monitoring (e.g., neurological checks).</li> <li>4. Interpret and respond appropriately to results of monitoring based on method used, age and clinical situation.</li> </ol> |  |
| <p>4.11.2 : Use appropriate monitoring techniques in the inpatient setting.</p> <ol style="list-style-type: none"> <li>1. Monitoring of temperature, blood pressure, heart rate, respirations</li> <li>2. Cardiac monitoring</li> <li>3. Pulse oximetry</li> </ol>   |  |
| <p>4.11.3 : Use appropriately the treatments and techniques used in the inpatient setting.</p> <ol style="list-style-type: none"> <li>1. Universal precautions</li> <li>2. Nasogastric tube placement</li> <li>3. Administration of nebulized medication</li> <li>4. Injury, wound and burn care</li> <li>5. Oxygen delivery systems</li> <li>6. I.V. fluids</li> <li>7. I.V. pharmacotherapy (antibiotics, antiepileptics, etc.)</li> <li>8. Transfusion therapy</li> </ol>   |  |
| <p>4.11.4 : Describe key issues in the inpatient and home management of the technology-dependent child with the following care needs:</p> <ol style="list-style-type: none"> <li>1. Tracheostomy</li> <li>2. Chronic mechanical ventilation</li> <li>3. Chronic parenteral nutrition (HAL)</li> <li>4. Gastrostomy tube for feedings</li> <li>5. Permanent central venous catheter</li> </ol>  |  |
| <p>4.11.5 : Recognize normal and abnormal findings at tracheostomy, gastrostomy, or central venous catheter sites, and demonstrate appropriate intervention or referral for problems encountered.</p>  |  |
| <p>4.11.6 : Demonstrate the skills for assessing and managing pain.</p> <ol style="list-style-type: none"> <li>1. Use age-appropriate pain scales in assessment.</li> <li>2. Describe indications for use and side effects of common narcotic and non-narcotic analgesics.</li> <li>3. Administer medications to control pain in appropriate dose, frequency and route.</li> </ol>   |  |

|  |  |
|--|--|
| 4. Describe indications for and use of behavioral techniques and supportive care, and other non-pharmacologic methods of pain control.   |  |
| <b>4.12 GOAL: Pediatric Competencies in Brief (Inpatient): Demonstrate high standards of professional competence while working with patients on the Inpatient Service. [For details see Pediatric Competencies.]</b>   |  |
| 4.12.1 : Competency 1: Patient Care. Provide family-centered patient care that is development- and age-appropriate, compassionate, and effective for the treatment of health problems and the promotion of health.   |  |
| 4.12.1.1 :Use a logical and appropriate clinical approach to the care of hospitalized patients, applying principles of evidence-based decision-making and problem-solving, demonstrating: <ul style="list-style-type: none"> <li>1. Careful data collection and synthesis</li> <li>2. Appropriate orders for vital signs, I &amp; Os, medications, nutrition, activity</li> <li>3. Well thought-out daily care plans</li> <li>4. Good clinical judgment and decision-making</li> <li>5. Careful discharge plans (orders, patient education, followup)</li> </ul> |  |
| 4.12.1.2 :Provide sensitive support to patients with acute and chronic illnesses and to their families, and arrange for ongoing support and preventive services at discharge.  |  |
| 4.12.2 : Competency 2: Medical Knowledge. Understand the scope of established and evolving biomedical, clinical, epidemiological and social-behavioral knowledge needed by a pediatrician; demonstrate the ability to acquire, critically interpret and apply this knowledge in patient care.  |  |
| 4.12.2.1 :Demonstrate a commitment to acquiring the base of knowledge needed to care for children in the inpatient setting.  |  |
| 4.12.2.2 :Know and/or access medical information efficiently, evaluate it critically, and apply it to inpatient care appropriately.  |  |
| 4.12.3 : Competency 3: Interpersonal Skills and Communication. Demonstrate interpersonal and communication skills that result in information exchange and partnering with patients, their families and professional associates.  |  |
| 4.12.3.1 :Provide effective patient education, including reassurance, for condition(s) commonly seen on the inpatient service.   |  |
| 4.12.3.2 :Participate and communicate effectively as part of an interdisciplinary team, as both the primary provider and the consulting pediatrician (e.g., patient presentations, sign-out rounds, communication with consultants and primary care physicians of hospitalized patients).  |  |
| 4.12.3.3 :Develop effective strategies for teaching students, colleagues, other professionals and laypersons.  |  |
| 4.12.3.4 :Maintain accurate, legible, timely and legally appropriate medical records.  |  |
| 4.12.4 : Competency 4: Practice-based Learning and Improvement. Demonstrate knowledge, skills and attitudes needed for continuous self-assessment, using scientific methods and evidence to investigate, evaluate and improve one's patient care practice.   |  |

|   |  |
|---|--|
| 4.12.4.1 :Use scientific methods and evidence to investigate, evaluate and improve one's patient care practice in the inpatient setting.  |  |
| 4.12.4.2 :Identify personal learning needs, systematically organize relevant information resources for future reference, and plan for continuing acquisition of knowledge and skills.                                     |  |
| 4.12.5 : Competency 5: Professionalism. Demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to diversity.  |  |
| 4.12.5.1 :Demonstrate personal accountability to the well being of patients (e.g., following-up on lab results, writing comprehensive notes, and seeking answers to patient care questions).                              |  |
| 4.12.5.2 :Demonstrate a commitment to professional behavior in interactions with staff and professional colleagues.   |  |
| 4.12.5.3 :Adhere to ethical and legal principles, and sensitivity to diversity while providing care in the inpatient setting.   |  |
| 4.12.6 : Competency 6: Systems-Based Practice. Understand how to practice high-quality health care and advocate for patients within the context of the health care system.  |  |
| 4.12.6.1 :Identify key aspects of health care systems, cost control, billing and reimbursement in the hospital inpatient setting.   |  |
| 4.12.6.2 :When providing care in the inpatient setting, consider cost and resource allocation without compromising quality of care.   |  |
| 4.12.6.3 :Take steps to avoid medical errors by recognizing the limits of one's knowledge and expertise; work with the health care team to recognize and address systems errors.  |  |
| <b>Procedures</b>   |  |
| <b>7.1. GOAL: Technical and therapeutic procedures.</b> Describe the following procedures, including how they work and when they should be used; competently perform those commonly used by the pediatrician in practice. |  |
| Anesthesia/analgesia: pain management   |  |
| Arterial puncture   |  |
| Bladder: catheterization  |  |
| Central line: use/care  |  |
| Chest physiotherapy   |  |
| Gastric tube placement (OG/NG)  |  |
| Gastrostomy tube replacement  |  |
| Intravenous line placement  |  |
| Lumbar puncture   |  |
| Medication delivery: IM/SC/ID   |  |
| Medication delivery: inhaled  |  |
| Medication delivery: IV   |  |
| Medication delivery: rectal   |  |
| PPD: placement  |  |
| Pulmonary function tests: peak flow meter   |  |
| Pulmonary function tests: spirometry  |  |

|   |  |
|---|--|
| Pulse oximeter: placement   |  |
| Rectal swab   |  |
| Sterile technique   |  |
| Suctioning: nares   |  |
| Suctioning: oral pharynx  |  |
| Suctioning: tracheostomy  |  |
| Tracheostomy tube: replacement  |  |
| Venipuncture  |  |
| <b>7.2. GOAL: Diagnostic and screening procedures.</b> Describe the following tests or procedures, including how they work and when they should be used; competently perform those commonly used by the pediatrician in practice.   |  |
| ECG: emergency interpretation   |  |
| ECG: perform  |  |
| Electroencephalogram (EEG)  |  |
| pH probe (Tuttle test)  |  |
| PPD: interpretation   |  |
| Monitoring interpretation: cardiac  |  |
| Monitoring interpretation: Holter   |  |
| Monitoring interpretation: pulse oximetry   |  |
| Monitoring interpretation: respiratory  |  |
| Pulmonary function tests: interpretation  |  |
| Radiologic interpretation: abdominal ultrasound   |  |
| Radiologic interpretation: abdominal X-ray  |  |
| Radiologic interpretation: chest X-ray  |  |
| Radiologic interpretation: CT of head   |  |
| Radiologic interpretation: extremity X-ray  |  |
| Radiologic interpretation: GI contrast study  |  |
| Radiologic interpretation: MRI of head  |  |
| Radiologic interpretation: nuclear medicine GI scanning   |  |
| Radiologic interpretation: renal ultrasound   |  |
| Radiologic interpretation: skeletal X-ray (incl. abuse)   |  |
| Radiologic interpretation: skull film for fracture  |  |
| Radiologic interpretation: sinus films  |  |
| Radiologic interpretation: voiding cystourethrogram   |  |
| <b>Source</b>   |  |
| Kittredge, D., Baldwin, C. D., Bar-on, M. E., Beach, P. S., Trimm, R. F. (Eds.). (2004). APA Educational Guidelines for Pediatric Residency. Ambulatory Pediatric Association Website. Available online: <a href="http://www.ambpeds.org/egweb">www.ambpeds.org/egweb</a> . [Accessed 07/22/2005]. Project to develop this website was funded by the Josiah Macy, Jr. Foundation 2002-2005. |  |

|   |  |
|---|--|
| <b>Standard Rotation: Neonatal ICU</b>  |  |
| <b>Primary Goals for this Rotation</b>  |  |
| <b>4.19 GOAL: Perinatal Prevention. Understand the pediatrician's role in and become an active advocate for programs to reduce morbidity and mortality from high-risk pregnancies.</b>  |  |
| 4.19.1 : Identify and describe strategies to reduce fetal and neonatal mortality, including use of group B strep prophylaxis, perinatal steroids.   |  |
| 4.19.2 : Understand and know how to access:   |  |
| 4.19.2.1 :Basic vital statistics that apply to newborns (neonatal and perinatal mortality, etc)   |  |
| 4.19.2.2 :Prenatal services available in one's region   |  |
| 4.19.2.3 :Tests commonly used by obstetricians to measure fetal well-being  |  |
| 4.19.2.4 :Neonatal transport systems  |  |
| 4.19.3 : Describe effective intervention programs for teens and other high-risk mothers.  |  |
| 4.19.4 : Recognize potential adverse outcomes for the fetus and neonate of common prenatal and perinatal conditions, and demonstrate the pediatrician's role in assessment and management strategies to minimize the risk to the fetus and/or newborn in the following situations:  |  |
| <ol style="list-style-type: none"> <li>1. Maternal infections/exposure to infection during pregnancy</li> <li>2. Fetal exposure to harmful substances (alcohol, tobacco, environmental toxins, medications, street drugs)</li> <li>3. Maternal insulin-dependent diabetes and pregnancy-induced glucose intolerance</li> <li>4. Multiple gestation</li> <li>5. Placental abnormalities (placenta previa, abruption, abnormal size, function)</li> <li>6. Pre-eclampsia, eclampsia</li> <li>7. Chorioamnionitis</li> <li>8. Polyhydramnios</li> <li>9. Oligohydramnios</li> <li>10. Premature labor, premature ruptured membranes</li> <li>11. Complications of anesthesia and common delivery practices (e.g., Caesarian, vacuum, forceps assisted, epidural, induction of labor)</li> <li>12. Fetal distress during delivery</li> <li>13. Postpartum maternal fever or infection</li> <li>14. Maternal blood group incompatibilities</li> <li>15. Other common maternal conditions having implications for the infant's health such as lupus, HELLP syndrome, maternal thrombocytopenia</li> </ol> |  |
| <b>4.20 GOAL: Resuscitation and Stabilization (NICU). Assess, resuscitate</b>   |  |

|  |  |
|--|--|
| <b>and stabilize critically ill neonates.</b>  |  |
| 4.20.1 : Explain and perform steps in resuscitation and stabilization, particularly airway management, vascular access, volume resuscitation, indications for and techniques of chest compressions, resuscitative pharmacology and management of meconium deliveries.  |  |
| 4.20.2 : Describe the common causes of acute deterioration in previously stable NICU patients.   |  |
| 4.20.3 : Function appropriately in codes and neonatal resuscitations as part of the NICU team by: <ol style="list-style-type: none"> <li>1. Participating in resuscitations</li> <li>2. Completing Neonatal Resuscitation Program (NRP) or comparable training</li> <li>3. Using neonatal resuscitation drugs appropriately</li> </ol> |  |
| <b>4.21 GOAL: Common Signs and Symptoms (NICU). Evaluate and manage, under the supervision of a neonatologist, common signs and symptoms of disease in premature and ill newborns.</b>   |  |
| 4.21.1 : Under supervision, evaluate and manage patients with the signs and symptoms that present commonly in the NICU (examples below).   |  |
| 4.21.1.1 :General: feeding problems, history of maternal infection or exposure, hyperthermia, hypothermia, intrauterine growth failure, irritability, jitteriness, large for gestational age, lethargy, poor post-natal weight gain, prematurity (various gestational ages)  |  |
| 4.21.1.2 :Cardiorespiratory: apnea, bradycardia, cyanosis, dehydration, heart murmur, hypertension, hypotension, hypovolemia, poor pulses, respiratory distress (flaring, grunting, tachypnea), shock  |  |
| 4.21.1.3 :Dermatologic: birthmarks, common skin rashes/conditions, discharge and/or inflammation of the umbilicus, hyper- and hypopigmented lesions, proper skin care for extreme prematures   |  |
| 4.21.1.4 :GI/surgical: abdominal mass, bloody stools, diarrhea, distended abdomen, failure to pass stool, gastric retention or reflux, hepatosplenomegaly, vomiting  |  |
| 4.21.1.5 :Genetic/metabolic: apparent congenital defect or dysmorphic syndrome, metabolic derangements (glucose, calcium, acid-base, urea, amino acids, etc.)  |  |
| 4.21.1.6 :Hematologic: abnormal bleeding, anemia, jaundice in a premature or seriously ill neonate, neutropenia, petechiae, polycythemia, thrombocytopenia   |  |
| 4.21.1.7 :Musculoskeletal: birth defects and deformities, birth trauma and related fractures and soft tissue injuries, dislocations  |  |
| 4.21.1.8 :Neurologic: birth trauma related nerve damage, early signs of neurologic impairment, hypotonia, macrocephaly, microcephaly, seizures, spina bifida   |  |
| 4.21.1.9 :Parental stress and dysfunction: anxiety disorders, child abuse and neglect, poor attachment, postpartum depression, substance abuse, teen parent  |  |
| 4.21.1.10 :Renal/urologic: abnormal genitalia, edema, hematuria, oliguria, proteinuria, renal mass, urinary retention  |  |
| <b>4.22 GOAL: Common Conditions (NICU). Recognize and manage, under the supervision of a neonatologist, the common conditions in patients encountered in the NICU.</b>   |  |

4.22.1 : Under supervision, evaluate and manage patients with conditions that present commonly in the NICU (examples below):

1. General: congenital malformations
2. Cardiovascular: cardiomyopathy, congenital heart disease (cyanotic and acyanotic--e.g., common disorders such as patent ductus arteriosus, ventricular septal defect, tetralogy of Fallot, transposition of the great arteries), congestive heart failure, dysrhythmias (e.g. supraventricular tachyarrhythmia, complete heart block), pericarditis
3. Genetic, endocrine disorders: abnormalities discovered from neonatal screening programs as they affect the premature infant, common chromosomal anomalies (Trisomy 13, 18, 21, Turner's), inborn errors of metabolism, infant of a diabetic mother, infant of a mother with thyroid disease (e.g. maternal Graves Disease), uncommon conditions such as congenital adrenal hyperplasia, hypothyroidism, hyperthyroidism
4. GI/nutrition: biliary atresia, breast feeding support for mothers and infants with special needs (high risk premature, maternal illness, multiple birth, etc.), complications of umbilical catheterization, gastroesophageal reflux, growth retardation, hepatitis, hyperbilirubinemia, meconium plug, necrotizing enterocolitis, nutritional management of high risk neonates or those with special needs (cleft lip/palate, other facial anomalies, etc.)
5. Hematologic conditions: coagulopathy of the newborn, erythroblastosis fetalis, hemophilia, hydrops fetalis, hyperbilirubinemia, splenomegaly
6. Infectious disease: central line infections, Group B Streptococcal infections, hepatitis, herpes simplex, immunization of the premature neonate, infant of mother with HIV, intrauterine viral infections, neonatal sepsis and meningitis, nosocomial infections in the NICU, syphilis, ureaplasma, varicella exposure
7. Neurologic disorders: central apnea, CNS malformations (e.g. encephalocele, porencephaly, holoprosencephaly), drug withdrawal, hearing loss in high risk newborns (prevention and screening), hydrocephalus, hypoxic-ischemic encephalopathy, intraventricular hemorrhage, retinopathy of prematurity, seizures, spina bifida
8. Pulmonary disorders: atelectasis, bronchopulmonary dysplasia, meconium aspiration, persistent pulmonary hypertension of the newborn, pneumonia, pneumothorax, respiratory distress syndrome, transient tachypnea of the newborn
9. Renal: acute and chronic renal failure, hematuria, hydronephrosis, oliguria, proteinuria
10. Surgery [assess and participate in management under supervision of a pediatric surgeon or cardiac surgeon]: congenital heart disease, (cyanotic, patent ductus arteriosus, obstructive left-sided cardiac lesions, pre- and post-operative care), diaphragmatic hernia,

|  |  |
|--|--|
| esophageal or gut atresia, gastroschisis, omphalocele, intestinal obstruction, necrotizing enterocolitis, perforated viscus, Pierre Robin syndrome, volvulus   |  |
| <b>4.23 GOAL: Diagnostic Testing (NICU). Under the supervision of a neonatologist, order and understand the indications for, limitations of, and interpretation of laboratory and imaging studies unique to the NICU setting.</b>  |  |
| 4.23.1 : Demonstrate understanding of common diagnostic tests and imaging studies used in the NICU by being able to:   |  |
| 4.23.1.1 : Explain the indications for and limitations of each study.  |  |
| 4.23.1.2 : Know or be able to locate readily gestational age-appropriate normal ranges (lab studies).  |  |
| 4.23.1.3 : Apply knowledge of diagnostic test properties, including the use of sensitivity, specificity, positive predictive value, negative predictive value, likelihood ratios, and receiver operating characteristic curves, to assess the utility of tests in various clinical settings.   |  |
| 4.23.1.4 : Recognize cost and utilization issues.  |  |
| 4.23.1.5 : Interpret the results in the context of the specific patient.   |  |
| 4.23.1.6 : Discuss therapeutic options for correction of abnormalities.  |  |
| 4.23.2 : Use appropriately the following evaluations that may have specific application to neonatal care:  |  |
| <ol style="list-style-type: none"> <li>1. Serologic and other studies for transplacental infection</li> <li>2. Direct and indirect Coomb's tests</li> <li>3. Neonatal drug screening</li> <li>4. Cranial ultrasound for intraventricular hemorrhage</li> <li>5. Abdominal X-rays for placement of umbilical catheter</li> <li>6. Chest X-rays for endotracheal tube placement, air leak, heart size, and vascularity</li> </ol>  |  |
| 4.23.3 : Use appropriately the following laboratory tests when indicated for patients in the neonatal intensive care setting:  |  |
| <ol style="list-style-type: none"> <li>1. CBC with differential, platelet count, RBC indices</li> <li>2. Blood chemistries: electrolytes, glucose, calcium, magnesium, phosphate</li> <li>3. Renal function tests</li> <li>4. Tests of hepatic function (PT, albumin) and damage (liver enzymes, bilirubin)</li> <li>5. Serologic tests for infection (e.g., hepatitis, HIV)</li> <li>6. CRP, ESR</li> <li>7. Therapeutic drug concentrations</li> <li>8. Coagulation studies: platelets, PT/PTT, fibrinogen, fibrin split products, D-dimers, DIC screen</li> <li>9. Arterial, capillary, and venous blood gases</li> </ol> |  |

|  |  |
|--|--|
| <ul style="list-style-type: none"> <li>10. Detection of bacterial, viral, and fungal pathogens</li> <li>11. Urinalysis</li> <li>12. CSF analysis</li> <li>13. Gram stain</li> <li>14. Stool studies</li> <li>15. Toxicologic screens/drug levels</li> <li>16. Other fluid studies (e.g., pleural fluid, joint fluid)</li> <li>17. Newborn screening tests</li> </ul>   |  |
| <p>4.23.4 : Appropriately use the following imaging or radiographic or other studies when indicated for patients in the NICU setting:</p> <ul style="list-style-type: none"> <li>1. Chest X-ray</li> <li>2. Abdominal series</li> <li>3. Skeletal survey</li> <li>4. CT scans</li> <li>5. MRI</li> <li>6. Nuclear medicine scans</li> <li>7. Electrocardiogram and echocardiogram</li> <li>8. Cranial ultrasonography</li> </ul> |  |
| <p><b>4.24 GOAL: Monitoring and Therapeutic Modalities (NICU).<br/>Understand how to use the physiologic monitoring, special technology and therapeutic modalities used commonly in the care of the fetus and newborn.</b></p>   |  |
| <p>4.24.1 : Demonstrate understanding of the monitoring techniques and special treatments commonly used in the NICU by being able to:</p> <ul style="list-style-type: none"> <li>1. Discuss the indications, contraindications and complications.</li> <li>2. Describe the general technique for use in infants.</li> <li>3. Interpret the results of monitoring.</li> </ul>   |  |
| <p>4.24.2 : Use appropriately the following monitoring and therapeutic techniques in NICU.</p> <ul style="list-style-type: none"> <li>1. Physiologic monitoring of temperature, pulse, respiration, blood pressure</li> <li>2. Pulse oximetry</li> <li>3. Neonatal pain and drug withdrawal scales</li> </ul>  |  |
| <p>4.24.3 : Demonstrate understanding of the following techniques and procedures used by obstetricians and perinatal specialists:</p> <ul style="list-style-type: none"> <li>1. Fetal ultrasound for size and anatomy</li> <li>2. Fetal heart rate monitors</li> <li>3. Scalp and cord blood sampling</li> </ul>   |  |

|  |  |
|--|--|
| <ol style="list-style-type: none"> <li>4. Amniocentesis</li> <li>5. Cardiocentesis</li> <li>6. Intrauterine transfusion including exchange transfusions</li> <li>7. Chorionic villus sampling</li> </ol>   |  |
| <p>4.24.4 : Use appropriately the following treatments and techniques in the neonatal intensive care unit under supervision by the attending neonatologist, monitoring effects and anticipating potential complications specific to each procedure. (The degree of supervision should take into consideration the skill required, acuity of the patient, and relative risk of the procedure.)</p> <ol style="list-style-type: none"> <li>1. Oxygen administration by hood, CPAP or assisted ventilation</li> <li>2. Endotracheal intubation</li> <li>3. Administration of surfactant therapy</li> <li>4. Positive pressure ventilation and basic ventilator management</li> <li>5. Extracorporeal membrane oxygenation/nitric oxide therapy</li> <li>6. Phototherapy</li> <li>7. Umbilical arterial and venous catheterization</li> <li>8. Central hyperalimentation and parenteral nutrition</li> <li>9. Enteral nutrition</li> <li>10. Analgesic, sedatives and paralytics</li> <li>11. Blood and blood product transfusions, including exchange transfusion</li> <li>12. Vasoactive drugs (pressors and inotropes)</li> <li>13. Judicious use of antibiotics</li> <li>14. Administration of medications specific to the needs of the newborn (e.g., Vitamin K)</li> <li>15. Arterial puncture</li> <li>16. Venous access by peripheral vein</li> <li>17. Umbilical artery and vein catheterization</li> <li>18. Chest tube placement</li> <li>19. Paracentesis</li> </ol> |  |
| <p>4.24.5 : Describe home medical equipment and services needed for oxygen-dependent and technology-dependent graduates of the NICU (oxygen, apnea monitor, ventilator, home hyperalimentation, etc.).</p>   |  |
| <p>4.24.6 : Use appropriate resources to facilitate the transition to home of the technology-dependent neonate.</p>  |  |
| <p>4.24.7 : Guide mothers in the use of electric and manual breast pumps.</p>  |  |
| <p><b>4.25 GOAL: Pediatric Competencies in Brief (NICU): Demonstrate high standards of professional competence while working with patients in the Neonatal Intensive Care Unit. [For details see Pediatric Competencies.]</b></p>  |  |
| <p>4.25.1 : Competency 1: Patient Care. Provide family-centered patient care that is development- and age-appropriate, compassionate, and effective for the treatment of health problems and the promotion of health.</p>  |  |
| <p>4.25.1.1 :Use a logical and appropriate approach to the assessment and daily management of seriously ill neonates and their families, under the guidance of a</p>   |  |

|   |  |
|---|--|
| neonatologist, using evidence-based decision-making and problem-solving skills.   |  |
| 4.25.1.2 :Provide emotional, social, and culturally sensitive support to families of NICU infants, including those at home.   |  |
| 4.25.2 : Competency 2: Medical Knowledge. Understand the scope of established and evolving biomedical, clinical, epidemiological and social-behavioral knowledge needed by a pediatrician; demonstrate the ability to acquire, critically interpret and apply this knowledge in patient care. |  |
| 4.25.2.1 :Demonstrate a commitment to acquiring the knowledge base expected of general pediatricians caring for seriously ill neonates under the guidance of a neonatologist.   |  |
| 4.25.2.2 :Know and/or access medical information efficiently, evaluate it critically, and apply it appropriately to the care of ill newborns  |  |
| 4.25.3 : Competency 3: Interpersonal Skills and Communication. Demonstrate interpersonal and communication skills that result in information exchange and partnering with patients, their families and professional associates.   |  |
| 4.25.3.1 :Provide effective and sensitive communication with families of infants in the NICU setting.   |  |
| 4.25.3.2 :Function effectively as part of an interdisciplinary team member in the NICU to create and sustain information exchange and teamwork for patient care.  |  |
| 4.25.3.3 :Maintain accurate, timely, and legally appropriate medical records in the critical care setting of the NICU.  |  |
| 4.25.4 : Competency 4: Practice-based Learning and Improvement. Demonstrate knowledge, skills and attitudes needed for continuous self-assessment, using scientific methods and evidence to investigate, evaluate, and improve one's patient care practice.                                   |  |
| 4.25.4.1 :Use scientific methods and evidence to investigate, evaluate, and improve one's patient care practice in NICU setting.  |  |
| 4.25.4.2 :Identify personal learning needs, systematically organize relevant information resources for future reference, and plan for continuing acquisition of knowledge and skills.   |  |
| 4.25.5 : Competency 5: Professionalism. Demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles and sensitivity to diversity.   |  |
| 4.25.5.1 :Demonstrate a commitment to carrying out professional responsibilities while providing care in the NICU setting.  |  |
| 4.25.5.2 :Adhere to ethical and legal principles, and be sensitive to diversity in caring for critically ill newborns.  |  |
| 4.25.6 : Competency 6: Systems-Based Practice. Understand how to practice high-quality health care and advocate for patients within the context of the health care system.  |  |
| 4.25.6.1 :Identify key aspects of health care systems, cost control and mechanisms for payment in the NICU setting.   |  |
| 4.25.6.2 :Recognize the limits of one's knowledge and expertise and take steps to avoid medical errors.   |  |
| <b>Procedures</b>   |  |
| <b>7.1. GOAL: Technical and therapeutic procedures. Describe the</b>  |  |

|   |  |
|---|--|
| following procedures, including how they work and when they should be used; competently perform those commonly used by the pediatrician in practice.  |  |
| Arterial puncture   |  |
| Breast pump use   |  |
| Chest tube placement  |  |
| Endotracheal intubation   |  |
| Exchange transfusion: newborn   |  |
| Gastric tube placement (OG/NG)  |  |
| Lumbar puncture   |  |
| Medication delivery: endotracheal   |  |
| Pulse oximeter: placement   |  |
| Suctioning: nares   |  |
| Suctioning: oral pharynx  |  |
| Suctioning: trachea (newborn)   |  |
| Umbilical artery and vein catheter placement  |  |
| Ventilation: bag-valve-mask   |  |
| Ventilation support: initiation   |  |
| <b>7.2. GOAL: Diagnostic and screening procedures.</b> Describe the following tests or procedures, including how they work and when they should be used; competently perform those commonly used by the pediatrician in practice.   |  |
| ECG: emergency interpretation   |  |
| Hearing screening   |  |
| Monitoring interpretation: cardiac  |  |
| Monitoring interpretation: pulse oximetry   |  |
| Monitoring interpretation: respiratory  |  |
| Monitoring interpretation: Capnometry/end-tidal CO2   |  |
| Radiologic interpretation: abdominal ultrasound   |  |
| Radiologic interpretation: abdominal X-ray  |  |
| Radiologic interpretation: chest X-ray  |  |
| Radiologic interpretation: cranial US   |  |
| Radiologic interpretation: CT of head   |  |
| Radiologic interpretation: extremity X-ray  |  |
| Radiologic interpretation: GI contrast study  |  |
| <b>Source</b>   |  |
| Kittredge, D., Baldwin, C. D., Bar-on, M. E., Beach, P. S., Trimm, R. F. (Eds.). (2004). APA Educational Guidelines for Pediatric Residency. Ambulatory Pediatric Association Website. Available online: <a href="http://www.ambpeds.org/egweb">www.ambpeds.org/egweb</a> . [Accessed 07/22/2005]. Project to develop this website was funded by the Josiah Macy, Jr. Foundation 2002-2005. |  |

|   |  |
|---|--|
| <b>Standard Rotation: Newborn Nursery</b>   |  |
| <b>Primary Goals for this Rotation</b>  |  |
| <b>3.16 GOAL: Delivery Room. Assess and manage a newborn in the delivery room, including resuscitation and stabilization of a critically ill neonate.</b>   |  |
| 3.16.1 : Explain risk factors at delivery that warrant having a pediatrician in attendance.   |  |
| 3.16.2 : Describe the necessary medical equipment for neonatal resuscitation, and demonstrate its proper use.   |  |
| 3.16.3 : Accurately assess and manage normal and high-risk newborns immediately following delivery, including: <ul style="list-style-type: none"> <li>1. Assess the need for immediate resuscitation.</li> <li>2. Assign the 1-minute, 5-minute and subsequent Apgar scores.</li> <li>3. Use appropriate technique for suctioning the nose and mouth.</li> <li>4. Demonstrate at least two steps to reduce radiant heat loss.</li> <li>5. Demonstrate bag and mask ventilation.</li> <li>6. Demonstrate intubation and ventilation.</li> <li>7. Perform cardiac compression.</li> <li>8. Place an umbilical venous catheter.</li> <li>9. Demonstrate appropriate use of medications during neonatal resuscitation.</li> <li>10. Interpret scalp and cord blood gases.</li> <li>11. Rapidly inspect for signs of major malformations.</li> </ul> |  |
| 3.16.4 : Pass a course in neonatal life support (e.g., AAP/AHA Neonatal Resuscitation Program).   |  |
| 3.16.5 : Demonstrate the immediate management of infants born to mothers with abnormal prenatal screening tests (antibody screening; rubella screening; HIV, HSV, syphilis, gonorrhea, hepatitis B, Group B Strep, tuberculosis and chlamydia testing).   |  |
| 3.16.6 : Describe the rationale and use of eye prophylaxis, vitamin K1 administration, and hepatitis B vaccine and HBIG.  |  |
| 3.16.7 : Discuss immediate breastfeeding and early bonding between baby and family and describe how hospital routines can facilitate or impede these natural processes.   |  |
| 3.16.8 : Describe how obstetricians and pediatricians can communicate and work together as a team to improve outcome at high-risk deliveries.   |  |
| 3.16.9 : Discuss prevalence and infant health issues of home deliveries by nurse midwives in one's own community.   |  |
| 3.16.10 : Recognize the risks and liabilities of home birth, as well as ways  |  |

|   |  |
|---|--|
| the nurse midwife and pediatrician can work together to benefit the infant born at home.  |  |
| <p>3.16.11 : For these common conditions, demonstrate delivery room assessment and management; and manage newborns independently; and list criteria for consultation or transfer to level II or III nursery:</p> <ol style="list-style-type: none"> <li>1. Meconium stained fluid</li> <li>2. Respiratory depression and other common effects of maternal anesthesia, medications, or substance use/abuse</li> <li>3. Complicated labor (e.g., decelerations, maternal hypertension)</li> <li>4. Complicated delivery (e.g., problems with Cesarean Section, instrument-assisted deliveries, breech presentation, cord prolapse, placenta abruption, oligo- or polyhydramnios, precipitous deliveries)</li> <li>5. Cyanosis, respiratory distress or heart murmur</li> <li>6. Cardiorespiratory depression or abnormal blood gases</li> </ol> |  |
| 3.16.12 : Describe the care and treatment of an infant following delivery that occurred unexpectedly at home or in transit to hospital.   |  |
| <b>3.17 GOAL: Comprehensive Care in Level I Nursery. Provide comprehensive care in a level I nursery.</b>   |  |
| 3.17.1 : Explain the role of the primary care pediatrician in the level I nursery and how it relates to the continuum of office health supervision care.  |  |
| 3.17.2 : Effectively communicate with the mother's obstetrician during the hospital stay and her primary care provider prior to the infant's discharge.   |  |
| 3.17.3 : Describe normal physiologic changes in neonatal transition, signs of abnormal responses and strategies for their management.   |  |
| 3.17.4 : Describe the rationale behind various nursery and delivery routines and how these affect the health and well-being of families and newborns (e.g., rooming in, on-demand feeding, 24 hour discharge of the newborn, glucose water feeds).  |  |
| 3.17.5 : Function as a pediatric consultant to health professionals in the newborn nursery, obstetrical ward, and delivery room for routine, normal pregnancies, deliveries and newborn care.   |  |
| 3.17.6 : Identify the role and scope of practice of general pediatricians, neonatologists, perinatologists, obstetricians, family physicians, nurse midwives, lactation consultants, primary care nurses for OB/Newborn, and social workers in relation to the normal nursery; and work collaboratively with these professionals in the care of newborns.   |  |
| <b>3.18 GOAL: Assessment, Screening and Prevention (Normal Newborns). Assess newborns, using history, physical exam and routine screening procedures, and provide preventive counseling and intervention as indicated.</b>  |  |
| 3.18.1 : Obtain and interpret information relevant to newborn health including:   |  |

|  |  |
|--|--|
| <ol style="list-style-type: none"> <li>1. Maternal medical, prenatal and obstetric history</li> <li>2. Family history</li> <li>3. Results of maternal screening tests (e.g, Rh), rubella, hepatitis B and C, serology for syphilis, HIV, tuberculosis, illicit drugs, blood type, group B streptococcus, herpes simplex virus, gonorrhea, and chlamydia</li> <li>4. Maternal medication use or substance use/abuse</li> <li>5. Results of prenatal ultrasound testing</li> </ol>   |  |
| <p>3.18.2 : Obtain and interpret a social history to assess the physical and psychosocial environment in the infant's home.</p>  |  |
| <p>3.18.3 : Understand and demonstrate appropriate timing for newborn exams and define the key reasons for doing the exams (e.g., determine state of transition, assess risks, identify abnormalities, and demonstrate normal findings and behaviors to parents).</p>  |  |
| <p>3.18.4 : Perform a neonatal physical examination and identify normal and abnormal findings related to:</p> <ol style="list-style-type: none"> <li>1. Gestational age assessment and growth category (AGA, SGA, LGA)</li> <li>2. Vital signs and measurements</li> <li>3. General appearance and identification of anomalies</li> <li>4. HEENT (red reflex, intact palate, short frenulum, caput, cephalohematoma)</li> <li>5. Neck and clavicles</li> <li>6. Neurologic system (symmetry, tone, reflexes, suck, behavioral state, head size and shape, spine)</li> <li>7. Respiratory effort</li> <li>8. Skin</li> <li>9. Chest and breasts</li> <li>10. Heart</li> <li>11. Lungs</li> <li>12. Abdomen (including umbilical cord)</li> <li>13. Genitalia</li> <li>14. Femoral and brachial pulses</li> <li>15. Hips (Ortolani and Barlow maneuvers)</li> <li>16. Extremities</li> </ol> |  |
| <p>3.18.5 : Describe current standards for newborn screening, including:</p> <ol style="list-style-type: none"> <li>1. National (AAP) recommendations for universal newborn hearing screening</li> <li>2. State neonatal blood-screening program, including diseases screened for, timing, testing procedures and process for notification of abnormal results</li> <li>3. Current recommendations for maternal Group B Streptococcus</li> </ol>   |  |

|  |  |
|--|--|
| <p>screening and the evaluation of exposed neonates</p> <ol style="list-style-type: none"> <li>4. Appropriate use of other screening tests or protocols and their indications (e.g., blood type and Coombs, glucose, hematocrit)</li> <li>5. Appropriate use of testing to identify prenatal exposure to substances of abuse</li> </ol>  |  |
| <p>3.18.6 : Communicate effectively with parents and family in a professional and caring manner that honors family values and enhances their parenting skills and confidence.</p>  |  |
| <p>3.18.7 : Provide anticipatory guidance and prevention counseling throughout hospital stay and at time of discharge, according to recommended guidelines (e.g., AAP, Bright Futures).</p>  |  |
| <p><b>3.19 GOAL: Common Signs and Symptoms (Normal Newborns).<br/>Evaluate and appropriately treat or refer newborns with these commonly presenting signs and symptoms.</b></p>  |  |
| <p>3.19.1 : Recognize, describe clinical significance of, and develop a strategy to evaluate, manage and/or refer newborns with these common newborn signs and symptoms:</p> <ol style="list-style-type: none"> <li>1. Large birth marks (mongolian spots, hemangiomas, port wine spots)</li> <li>2. Rashes and markings secondary to birth trauma</li> <li>3. Papular and pustular rashes (erythema toxicum, pustular melanosis, staph. Pustulosis, milia)</li> <li>4. Peripheral and central cyanosis</li> <li>5. High or low temperature</li> <li>6. Tachypnea</li> <li>7. Heart murmur-asymptomatic and symptomatic</li> <li>8. Abdominal distension and masses</li> <li>9. Two vessel umbilical cords</li> <li>10. Abnormal findings on the Barlow or Ortolani</li> <li>11. Swollen breasts</li> <li>12. Vaginal bleeding</li> <li>13. Subconjunctival hemorrhages</li> <li>14. Corneal opacities or absent red reflex</li> <li>15. Facial palsy</li> <li>16. Fractured clavicle</li> <li>17. Brachial plexus injury</li> <li>18. Cephalohematoma or caput</li> <li>19. Ear tags, pits</li> <li>20. Palate abnormalities (cleft, submucous cleft)</li> <li>21. Polydactyly</li> <li>22. Syndactyly</li> <li>23. Plethora</li> <li>24. Pallor</li> <li>25. Respiratory distress</li> <li>26. Abnominal mass</li> </ol> |  |

|  |  |
|--|--|
| <ul style="list-style-type: none"> <li>27. Genitourinary abnormalities (ambiguous genitalia, hypospadias, undescended testicle)</li> <li>28. Microcephaly</li> <li>29. Macrocephaly</li> <li>30. Sacral dimple, pit, hair tuft</li> </ul>  |  |
| <p><b>3.20 GOAL: Common Conditions (Normal Newborns). Evaluate and appropriately treat or refer newborns with these commonly presenting conditions.</b></p>  |  |
| <p>3.20.1 : Recognize, describe clinical significance of, and develop a strategy to evaluate, manage and/or refer newborns with the following common newborn clinical situations:</p> <ul style="list-style-type: none"> <li>1. Large and/or small for gestational age babies</li> <li>2. Infant of a diabetic mother</li> <li>3. Infant of substance abusing mother</li> <li>4. Child with ABO/Rh incompatibility</li> <li>5. Polycythemia</li> <li>6. Premature/postmature infant</li> <li>7. Jitteriness</li> <li>8. Transient metabolic disturbances (hypoglycemia, etc.)</li> <li>9. Delayed urination</li> <li>10. Delayed stooling</li> <li>11. Vomiting feeds/bilious emesis</li> <li>12. Poor/delayed suck</li> <li>13. Respiratory distress with feedings</li> <li>14. Jaundice</li> <li>15. Infant with risk factor for DDH (girl breech, +family hx)</li> <li>16. Infant with abnormalities on prenatal ultrasound (pyelectasia, hydronephrosis, choroids plexus cyst)</li> <li>17. Dysmorphic infant or infant with known chromosomal abnormality (e.g., Trisomy 21)</li> <li>18. Multiple births (near and at term)</li> <li>19. Eye discharge</li> <li>20. Abnormal newborn hearing screen results</li> <li>21. Infant born to a mother with a significant medical condition (lupus, seizure disorder, obstetrical condition such as HELLP syndrome)</li> </ul> |  |
| <p>3.20.2 : Use and/or interpret clinical tests commonly used in Newborn Nursery setting, such as:</p> <ul style="list-style-type: none"> <li>1. Physiologic monitoring (HR, RR, pulse oximetry, blood gas, doppler BP measurement)</li> <li>2. Dubowitz exam for gestational age assessment, premature and term infant growth curves</li> <li>3. CBC, ABO typing and Coombs testing, blood glucose/glucometer,</li> </ul>   |  |

|  |  |
|--|--|
| bilirubin (serum and transcutaneous), maternal cord blood antibodies<br>4. Xray of chest, abdomen<br>5. Ultra sound of kidneys/bladder, head, hips, lower spine  |  |
| 3.20.3 : Be familiar with common assessment tools and studies used by obstetricians to assess normal pregnancies and infant well-being close to term and during the labor and delivery process.  |  |
| 3.20.4 : Discuss common post-delivery obstetrical issues that mothers face, and how these affect their recovery and ability to care for their newborn:<br><br>1. C-section delivery<br>2. Tubal ligation<br>3. Retention of placenta<br>4. Post-partum hemorrhage<br>5. Post-partum depression<br>6. Post-partum infections<br>7. Hypertension   |  |
| 3.20.5 : Discuss care and communication issues for an infant being placed for adoption (including both birth and adoptive parents).  |  |
| <b>3.21 GOAL: Nutrition (Normal Newborns). Manage breast- and bottle-feeding in the newborn period.</b>  |  |
| 3.21.1 : Assess a newborn's nutritional status based on maternal medical and obstetrical history and infant's history (e.g., illness, feeding, stools, urination) and physical exam (e.g., weight expected for gestational age, subcutaneous fat, hydration, neurologic or oral/facial anomalies) and implement appropriate feeding plans.   |  |
| 3.21.2 : Counsel parents about feeding choices and assess for potential risks/difficulties.  |  |
| 3.21.3 : Encourage and support mothers who are breastfeeding.  |  |
| 3.21.4 : Counsel and support mothers who are formula feeding.  |  |
| 3.21.5 : Refer mothers to WIC and other resources for assistance with food purchase, nutrition education, and breastfeeding support equipment.   |  |
| 3.21.6 : Recognize and manage these conditions:<br><br>1. Common problems for breastfeeding infants and mothers<br>2. Maternal use of medications that are transmitted via breast milk<br>3. Maternal infections and risk of transmission (Hepatitis B, Hepatitis C, HIV)<br>4. Preserving breastfeeding while managing jaundice<br>5. Newborn who is a poor feeder<br>6. Feeding plans for the SGA or premature infant<br>7. Feeding plans for the infant of a diabetic mother<br>8. Feeding plans for the infant with a cleft palate |  |

|  |  |
|--|--|
| 9. Feeding plans for neurologically depressed/abnormal newborn   |  |
| <b>3.22 GOAL: Infections (Normal Newborns). Assess and manage common infections in the normal newborn nursery.</b>   |  |
| 3.22.1 : Identify common and important perinatal infections.   |  |
| 3.22.2 : Discuss methods for screening and, where appropriate, preventive treatment of mother and infant (chlamydia, CMV, gonorrhea, group B strep, hepatitis B, hepatitis C, HSV, HIV, tuberculosis, HPV, parvovirus, rubella, syphilis, toxoplasmosis, and varicella).   |  |
| 3.22.3 : Identify newborns at risk for bacterial sepsis by history, physical exam, and laboratory studies.   |  |
| 3.22.4 : Practice the AAP/ACOG accepted policies for infection reduction in the newborn nursery.   |  |
| 3.22.5 : Describe why umbilical cord care is routinely performed and what methods are available.   |  |
| 3.22.6 : Counsel parents about recommendations on routine Hepatitis B vaccination, including risks, benefits, alternatives, and common side effects.   |  |
| 3.22.7 : Recognize and manage: <ul style="list-style-type: none"> <li>1. Newborn with signs of sepsis (e.g., fever, poor feeding, tachypnea, low temperature)</li> <li>2. Infant born to mother with fever</li> <li>3. Infant born to mother with a history of a perinatal infectious disease (e.g., group B strep, chlamydia, syphilis, HSV)</li> <li>4. Infant born to mother with prolonged rupture of membranes</li> <li>5. Infant born to mother who received antibiotic during delivery</li> </ul> |  |
| <b>3.23 GOAL: Jaundice. Recognize and manage jaundice in the newborn period.</b>   |  |
| 3.23.1 : Interpret maternal history for factors contributing to jaundice (Rh, blood type, gestational age, infection, family history of jaundice in infants, etc.).  |  |
| 3.23.2 : Interpret infant's history for possible etiologies of jaundice (e.g., infrequent or ineffective feeding, poor urine or stool output, acholic stool, blood type, risk factors for infection, metabolic disease).   |  |
| 3.23.3 : Perform a physical exam to assess for jaundice or other evidence of hepatic dysfunction (e.g., skin color, sclerae, bruising, cephalhematoma, organomegaly).  |  |
| 3.23.4 : Demonstrate use and interpretation of transcutaneous bilirubin monitoring.  |  |
| 3.23.5 : Obtain laboratory tests judiciously for management of the jaundiced infant (blood type/Coombs, total, fractionated bili, Hct, peripheral blood smear).  |  |
| 3.23.6 : Correctly interpret test results to evaluate jaundice in the clinical setting.  |  |

|   |  |
|---|--|
| 3.23.7 : Counsel parents about types of jaundice (physiologic, insufficient breastfeeding, breast milk, hemolytic, etc.) and their natural history.   |  |
| 3.23.8 : Counsel parents about when to be concerned about jaundice (e.g., icterus beyond the face and chest, poor feeding, fever, irritability).  |  |
| 3.23.9 : Discuss the current AAP practice parameters regarding diagnosis and management of the jaundiced infant.  |  |
| 3.23.10 : Interpret the significance of a total serum bilirubin level in the context of early discharge of newborns, with reference to normative data based on age in hours.  |  |
| 3.23.11 : Describe indications for phototherapy and exchange transfusions.  |  |
| 3.23.12 : Describe the use of phototherapy in both the hospital and the home and explain risks (e.g., dehydration, eye injury, and disruption of breastfeeding routines).   |  |
| 3.23.13 : Counsel parents about ways to improve jaundice at home (e.g. frequent feedings, exposure to sunlight, etc.).  |  |
| <b>3.24 GOAL: Anticipatory Guidance at Nursery Discharge. Provide anticipatory counseling at nursery discharge that relates to newborn behavior, family adjustment, injury prevention, and access to medical services.</b>  |  |
| 3.24.1 : Discuss priorities for anticipatory counseling, especially in face of time constraints due to "early discharge."   |  |
| 3.24.2 : List resources that can be used to supplement counseling by the physician.   |  |
| 3.24.3 : Provide routine counseling on topics such as: <ol style="list-style-type: none"> <li>1. Routine follow-up appointment time (e.g., 3-5 days of age for early discharge and breastfeeding infants)</li> <li>2. How and when to contact the office for advice or earlier appointment</li> <li>3. For infants discharged early: warning signs of jaundice, infection, dehydration, and feeding problems; interaction with visiting nurse, need to do repeat newborn screening blood tests</li> <li>4. Needed medical, social, and WIC services</li> <li>5. Normal infant behaviors related to crying, sleep, and wakefulness and how to deal with common problems (hiccups, sneezes, vaginal bleeding, breast masses/discharge, care of umbilical cord, care of penis)</li> <li>6. Postpartum adjustment including the need for rest and support, and the potential for postpartum "blues" (e.g., depression, anxiety, feelings of inadequacy, fear, resentment)</li> <li>7. Uniqueness of each infant's temperament and how to identify and respond to this</li> <li>8. Potential for sibling rivalry and ways to handle this</li> <li>9. Injury prevention (e.g., car seat for discharge, crib safety, water temperature settings, smoke alarm, constant supervision of newborn with siblings or pets, sleep position, environmental exposures like</li> </ol> |  |

|   |  |
|---|--|
| cigarette smoke)<br>10. Significance of increasing jaundice, feeding problems or fever in this age group and the rapidity with which medical care should be sought  |  |
| 3.24.4 : Provide written discharge instructions, documentation of immunization (HBV) given, and results of hearing screen.  |  |
| <b>3.25 GOAL: Pediatric Competencies in Brief (Normal Newborns). Demonstrate high standards of professional competence while working with patients in the normal newborn nursery. [For details see Pediatric Competencies.]</b>   |  |
| 3.25.1 : Competency 1: Patient Care. Provide family-centered patient care that is development- and age-appropriate, compassionate, and effective for the treatment of health problems and the promotion of health.  |  |
| 3.25.1.1 :Use a logical and appropriate clinical approach to the care of newborns, applying principles of evidence-based decision-making and problem-solving.   |  |
| 3.25.1.2 :Provide sensitive support to patients and their families in the delivery room and level 1 and 2 newborn nursery.  |  |
| 3.25.2 : Competency 2: Medical Knowledge. Understand the scope of established and evolving biomedical, clinical, epidemiological and social-behavioral knowledge needed by a pediatrician; demonstrate the ability to acquire, critically interpret and apply this knowledge in patient care. |  |
| 3.25.2.1 :Demonstrate a commitment to acquiring the knowledge needed for the care of newborns in the delivery room and level 1 and 2 nursery.   |  |
| 3.25.2.2 :Know and/or access medical information efficiently, evaluate it critically, and apply it to newborn care appropriately.   |  |
| 3.25.3 : Competency 3: Interpersonal Skills and Communication. Demonstrate interpersonal and communication skills that result in information exchange and partnering with patients, their families and professional associates.   |  |
| 3.25.3.1 :Provide effective patient education, including reassurance, for condition(s) common to the newborn nursery.   |  |
| 3.25.3.2 :Communicate and work effectively with staff, health professionals, specialists, referring and primary care providers to create and sustain information exchange and teamwork for patient care.  |  |
| 3.25.3.3 :Develop effective strategies for teaching students, colleagues and other professionals.   |  |
| 3.25.3.4 :Maintain accurate, legible, timely, and legally appropriate medical records for newborns (summary of maternal record, labor and delivery note, admission note, daily progress notes, consultant notes and discharge summaries).   |  |
| 3.25.4 : Competency 4: Practice-based Learning and Improvement. Demonstrate knowledge, skills and attitudes needed for continuous self-assessment, using scientific methods and evidence to investigate, evaluate, and improve one's patient care practice.                                   |  |
| 3.25.4.1 :Use scientific methods and evidence to investigate, evaluate, and improve patient care practice in the nursery setting.   |  |
| 3.25.4.2 :Identify standardized guidelines for diagnosis and treatment of conditions common to the newborn nursery, and adapt them to the individual needs of specific  |  |

|   |  |
|---|--|
| patients.   |  |
| 3.25.4.3 :Identify personal learning needs, systematically organize relevant information resources for future reference, and address plans for lifelong learning about newborn care.  |  |
| 3.25.5 : Competency 5: Professionalism. Demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to diversity.  |  |
| 3.25.5.1 :Demonstrate personal accountability to the well-being of patients (e.g., following-up on lab results, writing comprehensive notes, and seeking answers to patient care questions).                                      |  |
| 3.25.5.2 :Demonstrate a commitment to professional behavior in interactions with staff and professional colleagues.   |  |
| 3.25.5.3 :Adhere to ethical and legal principles, and be sensitive to diversity.  |  |
| 3.25.6 : Competency 6: Systems-Based Practice. Understand how to practice high-quality health care and advocate for patients within the context of the health care system.  |  |
| 3.25.6.1 :Demonstrate sensitivity to the costs of clinical care in the nursery, and take steps to minimize costs without compromising quality.  |  |
| 3.25.6.2 :Recognize and advocate for families who need assistance during the hospital stay and after discharge.   |  |
| 3.25.6.3 :Recognize one's limits and those of the system; take steps to avoid medical errors.   |  |
| <b>Procedures</b>   |  |
| <b>7.1. GOAL: Technical and therapeutic procedures.</b> Describe the following procedures, including how they work and when they should be used; competently perform those commonly used by the pediatrician in practice.         |  |
| Bladder: catheterization  |  |
| Breast pump use   |  |
| Capillary blood collection (PKU, hct)   |  |
| Circumcision  |  |
| Conjunctival swab   |  |
| Gastric tube placement (OG/NG)  |  |
| Lumbar puncture   |  |
| Medication delivery: IM/SC/ID   |  |
| Medication delivery: IV   |  |
| Pulse oximeter: placement   |  |
| Suctioning: nares   |  |
| Suctioning: oral pharynx  |  |
| Suctioning: trachea (newborn)   |  |
| <b>7.2. GOAL: Diagnostic and screening procedures.</b> Describe the following tests or procedures, including how they work and when they should be used; competently perform those commonly used by the pediatrician in practice. |  |
| Hearing screening   |  |
| Monitoring interpretation: pulse oximetry   |  |

|  |  |
|--|--|
| Radiologic interpretation: chest X-ray   |  |
| <b>Source</b><br>Kittredge, D., Baldwin, C. D., Bar-on, M. E., Beach, P. S., Trimm, R. F. (Eds.). (2004). APA Educational Guidelines for Pediatric Residency. Ambulatory Pediatric Association Website. Available online: <a href="http://www.ambpeds.org/egweb">www.ambpeds.org/egweb</a> . [Accessed 07/22/2005]. Project to develop this website was funded by the Josiah Macy, Jr. Foundation 2002-2005. |  |

|  |  |
|--|--|
| <b>Standard Rotation: Pediatric Critical Care</b>  |  |
| <b>Primary Goals for this Rotation</b>   |  |
| <b>4.13 GOAL: Resuscitation and Stabilization (PICU). Recognize the critically ill patient and initiate appropriate stabilization and/or resuscitative measures.</b>   |  |
| 4.13.1 : Explain and perform steps in resuscitation and stabilization, particularly airway management, volume replacement and resuscitative pharmacology.  |  |
| 4.13.2 : Describe the common causes of acute deterioration in the previously stable patient in the PICU.   |  |
| 4.13.3 : Function appropriately in codes and resuscitations as part of the PICU team.  |  |
| <b>4.14 GOAL: Common Signs and Symptoms (PICU). Evaluate and manage, under the supervision of an intensivist, common signs and symptoms seen in critically ill infants, children and adolescents in the intensive care setting.</b>  |  |
| 4.14.1 : Evaluate and manage, under supervision of an intensivist, patients with signs and symptoms that present commonly to the intensive care unit (examples below). <ul style="list-style-type: none"> <li>1. Cardiovascular: acute life-threatening event, bradycardia, cardiopulmonary arrest, congestive heart failure, cyanosis, hypertension, hypotension, poor capillary perfusion, rhythm disturbances, tachycardia</li> <li>2. Endocrine: signs and symptoms suggestive of hypo- and hyperglycemia and adrenal insufficiency/crisis</li> <li>3. GI: abdominal distension, hematemesis and melena, icterus, peritoneal signs, vomiting</li> <li>4. Hematologic: pallor, petechiae, purpura, uncontrolled bleeding</li> <li>5. Infectious Diseases: endotoxic shock, fever</li> <li>6. Neurologic: acute weakness, altered mental status, coma, delirium, encephalopathy, seizures, tetany, thermoregulatory abnormalities</li> <li>7. Renal: anuria, hematuria, oliguria, polyuria, severe electrolyte disturbance</li> <li>8. Respiratory: apnea, cyanosis, dyspnea, hemoptysis, hypercarbia, hyperpnea, hypoxemia, increased or decreased respiratory effort, poor air movement, pulmonary edema, respiratory failure, stridor, tachypnea, wheezing</li> </ul> |  |
| <b>4.15 GOAL: Common Conditions (PICU). Recognize and manage, under the supervision of an intensivist, conditions that commonly present to the intensive care unit, using consultation when appropriate.</b>   |  |

|  |  |
|--|--|
| <p>4.15.1 : Evaluate and manage, under the supervision of an intensivist, patients with conditions that present commonly to the intensive care unit (examples below).</p> <ol style="list-style-type: none"> <li>1. General: burns (thermal, electrical), common intoxications, drug overdose, shock (cardiogenic, hypovolemic, distributive, toxic), inhalation injury, malignant hyperthermia, non-accidental trauma, submersion injury, toxic or caustic ingestion or inhalation injury, toxic shock syndrome</li> <li>2. Allergy Immunology: anaphylaxis, life-threatening angioedema, Stevens Johnson Syndrome</li> <li>3. Cardiovascular: arrhythmias, cardiac tamponade, congestive heart failure, cyanotic congenital heart disease, malignant hypertension, myocarditis/cardiomyopathy</li> <li>4. Endocrine: diabetes insipidus and adrenal insufficiency/crisis, diabetic ketoacidosis, hypo- and hyperglycemia, syndrome of inappropriate antidiuretic hormone (SIADH)</li> <li>5. Fluids, electrolytes, metabolic: inborn errors of metabolism, severe dehydration (hyper-, normo-, or hyponatremic), severe acid-base disturbances, severe electrolyte disturbance</li> <li>6. GI/Surgery: abdominal trauma (blunt/penetrating), acute abdomen, acute GI bleeding, fulminant hepatic dysfunction, hepatic dysfunction, pancreatitis, pre- and post-operative management, stress ulcer</li> <li>7. Hematologic: anemia (severe), disseminated intravascular coagulopathy (DIC), Deep venous thrombosis (DVT), neutropenia, sickle crisis, polycythemia, thrombocytopenia, tumor lysis syndrome</li> <li>8. Infectious disease: encephalitis, infant botulism, meningitis, nosocomial infections, sepsis</li> <li>9. Neurologic: acute increased intracranial pressure, brain death, cerebral edema, cerebrovascular accident (CVA), coma, encephalopathy, Guillain-Barre, head injury, spinal muscle atrophy, status epilepticus</li> <li>10. Pulmonary: acute respiratory distress syndrome (ARDS), epiglottitis, pulmonary edema, pneumothorax, respiratory failure/impending respiratory failure, severe croup and bacterial tracheitis, status asthmaticus, upper airway obstruction (infectious, structural, foreign body)</li> <li>11. Renal: acute renal failure, hemolytic uremic syndrome</li> </ol> |  |
| <p><b>4.16 GOAL: Diagnostic Testing (PICU). Utilize common diagnostic tests and imaging studies appropriately in the intensive care unit, obtaining consultation as indicated for interpretation of results.</b></p>   |  |
| <p>4.16.1 : Demonstrate understanding of common diagnostic tests and imaging studies used in the PICU by being able to:</p>  |  |
| <p>4.16.1.1 :Explain the indications for and limitations of each study.</p>  |  |

|   |  |
|---|--|
| 4.16.1.2 :Know or be able to locate readily age-appropriate normal ranges (lab studies).  |  |
| 4.16.1.3 :Apply knowledge of diagnostic test properties, including the use of sensitivity, specificity, positive predictive value, negative predictive value, likelihood ratios, and receiver operating characteristic curves, to assess the utility of tests in various clinical settings  |  |
| 4.16.1.4 :Discuss cost and utilization issues.  |  |
| 4.16.1.5 :Interpret the results in the context of the specific patient.   |  |
| 4.16.1.6 :Discuss therapeutic options for correction of abnormalities.  |  |
| 4.16.2 : Use appropriately the following laboratory and imaging studies when indicated for patients in the PICU setting:<br><br><ol style="list-style-type: none"> <li>1. CBC with differential, platelet count, RBC indices</li> <li>2. Blood chemistries: electrolytes, glucose, calcium, magnesium, phosphate</li> <li>3. Renal function tests</li> <li>4. Tests of hepatic function (PT, albumin) and damage (ammonia, bilirubin, liver enzymes)</li> <li>5. Serologic tests for infection (e.g., hepatitis, HIV)</li> <li>6. C-reactive protein, erythrocyte sedimentation rate</li> <li>7. Therapeutic drug concentrations</li> <li>8. Coagulation studies: platelets, PT/PTT, fibrinogen, FSP, D-dimers, "DIC screen"</li> <li>9. Arterial, capillary, and venous blood gases</li> <li>10. Detection of bacterial, viral, and fungal pathogens</li> <li>11. Urinalysis</li> <li>12. CSF analysis</li> <li>13. Gram stain</li> <li>14. Stool studies</li> <li>15. Toxicologic screens/drug levels</li> <li>16. Other fluid studies (e.g., pleural fluid, joint fluid)</li> <li>17. Chest X-ray</li> <li>18. Abdominal series</li> <li>19. Skeletal survey</li> <li>20. Cervical spine films</li> <li>21. CT scans of abdomen, chest and head</li> <li>22. MRI scans</li> <li>23. Basic concepts of cerebral blood flow studies</li> </ol> |  |
| <b>4.17 GOAL: Monitoring and Therapeutic Modalities (PICU).<br/>Understand how to use the physiologic monitoring, special technology and therapeutic modalities used commonly in the intensive care setting.</b>  |  |
| 4.17.1 : Demonstrate understanding of the monitoring techniques and special treatments commonly used in the PICU by being able to:<br><br><ol style="list-style-type: none"> <li>1. Discuss the indications, contraindications and complications</li> </ol>   |  |

|  |  |
|--|--|
| <ol style="list-style-type: none"> <li>2. Have a basic understanding of the general techniques (e.g., Seldinger technique for central venous line placement)</li> <li>3. Interpret the results of monitoring</li> </ol>  |  |
| <p>4.17.2 : Use appropriately the following monitoring techniques in the intensive care unit under supervision of an intensivist:</p> <ol style="list-style-type: none"> <li>1. Central venous pressure monitoring</li> <li>2. Invasive arterial blood pressure monitoring</li> <li>3. Intracranial pressure monitoring</li> <li>4. Pulse oximetry</li> <li>5. End-tidal carbon dioxide monitoring</li> </ol>  |  |
| <p>4.17.3 : Use appropriately or be familiar with the following treatments and techniques in the intensive care unit, including monitoring effects and anticipating potential complications specific to each therapy:</p> <ol style="list-style-type: none"> <li>1. Oxygen administration by cannula, masks, hood</li> <li>2. Positive pressure ventilation, including non-invasive modalities such as nasal/mask BiPAP/CPAP, bag and mask ventilation</li> <li>3. Principles of ventilator management, intubation and extubation procedures and criteria</li> <li>4. Analgesics, sedatives, and paralytics</li> <li>5. Enteral and parenteral nutrition</li> <li>6. Blood and blood product transfusions</li> <li>7. Vasoactive drugs (pressors and inotropes)</li> </ol> |  |
| <p><b>4.18 GOAL: Pediatric Competencies in Brief (PICU): Demonstrate high standards of professional competence while working with patients in the Pediatric Intensive Care Unit. [For details see Pediatric Competencies.]</b></p>   |  |
| <p>4.18.1 : Competency 1: Patient Care. Provide family-centered patient care that is development- and age-appropriate, compassionate, and effective for the treatment of health problems and the promotion of health.</p>  |  |
| <p>4.18.1.1 :Use a logical and appropriate clinical approach to the care of critically ill patients, applying principles of evidence-based decision-making and problem-solving.</p>  |  |
| <p>4.18.1.2 :Provide sensitive support to patients with serious illness and to their families, and arrange for on-going support or preventive services if needed.</p>  |  |
| <p>4.18.2 : Competency 2: Medical Knowledge. Understand the scope of established and evolving biomedical, clinical, epidemiological and social-behavioral knowledge needed by a pediatrician; demonstrate the ability to acquire, critically interpret and apply this knowledge in patient care.</p>   |  |
| <p>4.18.2.1 :Demonstrate a commitment to acquiring the knowledge base expected of general pediatricians caring for seriously ill children under the guidance of an intensivist.</p>  |  |
| <p>4.18.2.2 :Know and/or access medical information efficiently, evaluate it critically,</p>   |  |

|  |  |
|--|--|
| and apply it appropriately to care of patients in the PICU.  |  |
| <b>4.18.3 : Competency 3: Interpersonal Skills and Communication.</b> Demonstrate interpersonal and communication skills that result in information exchange and partnering with patients, their families and professional associates.                             |  |
| 4.18.3.1 :Provide effective and sensitive communication with patients and families in the intensive care setting.  |  |
| 4.18.3.2 :Participate effectively as part of an interdisciplinary team in the intensive care unit to create and sustain information exchange, including communication with the primary care physician.   |  |
| 4.18.3.3 :Maintain accurate, timely and legally appropriate medical records on complex and critically ill children.  |  |
| <b>4.18.4 : Competency 4: Practice-based Learning and Improvement.</b> Demonstrate knowledge, skills and attitudes needed for continuous self-assessment, using scientific methods and evidence to investigate, evaluate, and improve one's patient care practice. |  |
| 4.18.4.1 :Use scientific methods and evidence to investigate, evaluate and improve one's patient care practice in PICU setting.  |  |
| 4.18.4.2 :Identify personal learning needs, systematically organize relevant information resources for future reference, and plan for continuing acquisition of knowledge and skills.  |  |
| <b>4.18.5 : Competency 5: Professionalism.</b> Demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles and sensitivity to diversity.   |  |
| 4.18.5.1 :Demonstrate a commitment to carrying out professional responsibilities while providing care in the PICU setting.   |  |
| 4.18.5.2 :Adhere to ethical and legal principles, and be sensitive to diversity in the care of critically ill children.  |  |
| <b>4.18.6 : Competency 6: Systems-Based Practice.</b> Understand how to practice high quality health care and advocate for patients within the context of the health care system.  |  |
| 4.18.6.1 :Identify key aspects of health care systems, cost control, and mechanisms for payment as they relate to the intensive care setting.  |  |
| 4.18.6.2 :Recognize the limits of one's knowledge and expertise and take steps to avoid medical errors.  |  |
| <b>Procedures</b>  |  |
| <b>7.1. GOAL: Technical and therapeutic procedures.</b> Describe the following procedures, including how they work and when they should be used; competently perform those commonly used by the pediatrician in practice.  |  |
| Anesthesia/analgesia: conscious sedation   |  |
| Anesthesia/analgesia: pain management  |  |
| Arterial puncture  |  |
| Bladder: catheterization   |  |
| Burn: acute stabilization of major burn  |  |
| Cardioversion/defibrillation   |  |

|   |  |
|---|--|
| Central line: use/care  |  |
| Chest physiotherapy   |  |
| Chest tube placement  |  |
| Endotracheal intubation   |  |
| Endotracheal intubation: rapid sequence intubation  |  |
| Gastric lavage  |  |
| Gastric tube placement (OG/NG)  |  |
| Gastrostomy tube replacement  |  |
| Intravenous line placement  |  |
| Intraosseous line placement   |  |
| Lumbar puncture   |  |
| Medication delivery: endotracheal   |  |
| Medication delivery: IM/SC/ID   |  |
| Medication delivery: inhaled  |  |
| Medication delivery: IV   |  |
| Medication delivery: rectal   |  |
| Pulmonary function tests: peak flow meter   |  |
| Pulse oximeter: placement   |  |
| Seldinger technique   |  |
| Sterile technique   |  |
| Suctioning: tracheostomy  |  |
| Thoracentesis   |  |
| Tracheostomy tube: replacement  |  |
| Ventilation: bag-valve-mask   |  |
| Ventilation support: initiation   |  |
| V-P shunt external taps   |  |
| <b>7.2. GOAL: Diagnostic and screening procedures.</b> Describe the following tests or procedures, including how they work and when they should be used; competently perform those commonly used by the pediatrician in practice. |  |
| ECG: emergency interpretation   |  |
| ECG: perform  |  |
| Electroencephalogram (EEG)  |  |
| Monitoring interpretation: cardiac  |  |
| Monitoring interpretation: pulse oximetry   |  |
| Monitoring interpretation: respiratory  |  |
| Monitoring interpretation: Capnometry/end-tidal CO2   |  |
| Radiologic interpretation: abdominal ultrasound   |  |
| Radiologic interpretation: abdominal X-ray  |  |
| Radiologic interpretation: cervical spine X-ray   |  |
| Radiologic interpretation: chest X-ray  |  |
| Radiologic interpretation: CT of head   |  |
| Radiologic interpretation: extremity X-ray  |  |

|   |  |
|---|--|
| Radiologic interpretation: GI contrast study  |  |
| Radiologic interpretation: lateral neck X-ray   |  |
| Radiologic interpretation: MRI of head  |  |
| Radiologic interpretation: renal ultrasound   |  |
| Radiologic interpretation: skeletal X-ray (incl. abuse)   |  |
| Radiologic interpretation: skull film for fracture  |  |
| <b>Source</b>   |  |
| <p>Kittredge, D., Baldwin, C. D., Bar-on, M. E., Beach, P. S., Trimm, R. F. (Eds.). (2004). APA Educational Guidelines for Pediatric Residency. Ambulatory Pediatric Association Website. Available online: <a href="http://www.ambpeds.org/egweb">www.ambpeds.org/egweb</a>. [Accessed 07/22/2005]. Project to develop this website was funded by the Josiah Macy, Jr. Foundation 2002-2005.</p> |  |

|   |  |
|---|--|
| <b>Standard Rotation: Pediatric Emergency Medicine</b>  |  |
| <b>Primary Goals for this Rotation</b>  |  |
| <b>4.1 GOAL: EMS System for Children. Understand the basic principles and utilization of emergency medical services for children.</b>   |  |
| 4.1.1 : Describe the organization and utilization of emergency medical systems for children in one's local area, including:   |  |
| <ol style="list-style-type: none"> <li>1. Pre-hospital care: access, training, roles, and limitations of providers; transportation systems; state and local resources and pediatric treatment protocols</li> <li>2. Availability of trauma centers and other centers capable of providing care for critically ill and injured children</li> </ol>   |  |
| 4.1.2 : Describe the equipment, staff training, and reference material needed to insure office preparedness for emergencies.  |  |
| 4.1.3 : Discuss how principles of injury prevention apply to the role of EMS for children (e.g., in minimizing the consequences of injury).   |  |
| 4.1.4 : Demonstrate the ability to activate and use the local EMS for children, including interhospital transport.  |  |
| 4.1.5 : Describe indications for use of the automated external defibrillator (AED) in children.   |  |
| 4.1.6 : Describe the role of the pediatrician in preparing for and responding to disasters.   |  |
| <b>4.2 GOAL: Resuscitation and Stabilization (ED). Assess, resuscitate, and stabilize critically ill or injured children in the Emergency Department (ED) setting in a timely fashion.</b>  |  |
| 4.2.1 : Rapidly recognize and assess emergent patients, such as those in respiratory failure or shock.  |  |
| <ol style="list-style-type: none"> <li>1. Perform the primary survey (ABCs) for all patients in an efficient manner.</li> <li>2. Formulate a differential diagnosis quickly, especially with respect to conditions that may need respiratory or cardiovascular support or an immediate intervention (e.g. tension pneumothorax, increased intracranial pressure, cardiac tamponade, tracheostomy care, poisoning/toxicants).</li> <li>3. Differentiate between cardiogenic, distributive, and hypovolemic shock.</li> <li>4. Differentiate between respiratory distress and failure.</li> <li>5. Assist in evaluating and stabilizing a child with multiple traumas.</li> </ol> |  |
| 4.2.2 : Establish and manage the airways of infants, children and teens, recognizing the need for assistance with ventilation and/or oxygenation.   |  |

|   |  |
|---|--|
| <ol style="list-style-type: none"> <li>1. When caring for the critically ill child in the ED, demonstrate proficiency in proper airway positioning and suctioning, administration of supplemental oxygen, bag-valve-mask ventilation, management of nasal and oral airways, endotracheal intubation, rapid sequence induction, mechanical ventilation, oro- and naso-gastric tube placement, and C-spine immobilization to protect the airway in a head trauma patient.</li> <li>2. Explain indications and describe technique for and complications of nasotracheal intubation, needle thoracotomy, emergency cricothyroidotomy, transtracheal ventilation and laryngeal mask airway.</li> </ol>   |  |
| <p>4.2.3 : Establish vascular access in the critically ill child as indicated, including cannulation of peripheral veins and intraosseous needle insertion.</p>   |  |
| <p>4.2.4 : Explain indications and describe technique for central venous access and arterial access.</p>  |  |
| <p>4.2.5 : Manage fluid and pressor therapy in the initial resuscitation of patients in distributive, hypovolemic, and cardiogenic shock.</p>   |  |
| <p>4.2.6 : Demonstrate proficiency at cardiopulmonary resuscitation by:</p>   |  |
| <p>4.2.6.1 :Obtaining and maintaining certification as a provider of Advanced Pediatric Life Support</p>  |  |
| <p>4.2.6.2 :Directing resuscitation efforts in mock codes and in actual emergency situations</p>  |  |
| <p>4.2.6.3 :Using resuscitation drugs appropriately</p>   |  |
| <p><b>4.3 GOAL: Common Signs and Symptoms (ED). Evaluate and manage common signs and symptoms in infants, children, and adolescents that present to the ED and urgent care center.</b></p>  |  |
| <p>4.3.1 : Evaluate and manage patients with signs and symptoms that present in the ED setting (examples below).</p> <ol style="list-style-type: none"> <li>1. General: acute life threatening event (ALTE), agitated/disturbed child, alleged or suspected child abuse or neglect, dehydration, exercise intolerance, failure to thrive, fatigue, fever, hypothermia, malaise, septic or ill-appearing infant/child, sudden death, weight loss, unexplained crying</li> <li>2. Allergy/immunology: acute allergic reactions, anaphylaxis</li> <li>3. Cardiorespiratory: apnea, bradycardia, chest pain, cough, cyanosis, hypertension, hypotension (including orthostatic), palpitations, respiratory distress, respiratory failure, stridor, syncope tachycardia, tachypnea or shortness or breath, wheezing</li> <li>4. Dental: pain or trauma of mouth, jaw or tooth; tooth injury or loss</li> <li>5. Dermatologic: hair loss, itching, skin rash</li> <li>6. EENT: abnormal pupils or eye movement, dizziness, earache, ear discharge, eye pain, hearing loss, nosebleed, painful swallowing, sore throat, sudden red eye, visual disturbances</li> </ol> |  |

|  |  |
|--|--|
| <ol style="list-style-type: none"> <li>7. Endocrine: heat/cold intolerance, polyphagia, polydipsia</li> <li>8. GI: abdominal pain, constipation, diarrhea, difficulty swallowing, distension, GI bleeding, jaundice, vomiting (bilious and non-bilious)</li> <li>9. GU/Renal: bloody or discolored urine, edema, decreased or increased urination, dysuria, groin or scrotal mass or pain, urinary frequency or urgency</li> <li>10. GYN: menstrual problems, vaginal bleeding, vaginal discharge</li> <li>11. Hematologic/Oncologic: abnormal bleeding, acute illness or fever in a neutropenic child/cancer patient, bruising, hepatosplenomegaly, lymphadenopathy, masses, pallor, petechiae</li> <li>12. Musculoskeletal: arthralgia, back pain, inability to move an extremity, joint swelling, limb pain, limp, trauma</li> <li>13. Neurologic: abnormal movements, ataxia, bulging fontanel, coma, confusion, dizziness, fainting spells, headache, head injury, lethargy, paralysis, seizures, spasticity, stiff neck, weakness</li> <li>14. Psychiatric: anxiety, depression, hallucinations, hysteria, suicidal ideation, violent behavior</li> <li>15. Surgery/trauma: acute abdomen, burns, lacerations, trauma (Note: for major trauma, work with surgical trauma team)</li> </ol>  |  |
| <p><b>4.4 GOAL: Common Conditions (ED). Recognize and manage common illnesses and injuries that present emergently.</b></p>  |  |
| <p>4.4.1 : Evaluate and manage patients with common diagnoses that present in the ED setting (examples below).</p> <ol style="list-style-type: none"> <li>1. Allergy/immunology: acute illness in an immunocompromised child, anaphylaxis, angioedema, asthma, serum sickness, urticaria</li> <li>2. Cardiovascular: acute illness in a patient with congenital heart disease, congestive heart failure, cardiomyopathy, dysrhythmias (asystole, atrial fibrillation and flutter, bradycardia, electromechanical dissociation, SVT, ventricular fibrillation and tachycardia,), endocarditis, Kawasaki's disease, myocarditis, shock (hypovolemic, cardiogenic, distributive), pericarditis, rheumatic fever</li> <li>3. Dermatology: acute drug reactions, bite and sting injuries, contact dermatitis, cutaneous manifestation of systemic and/or contagious diseases, infections of skin and hair (bacterial, fungal, and viral), pediculosis, scabies, warts</li> <li>4. Endocrine/Metabolic: acute adrenal insufficiency, acute illness in a child with underlying endocrine/metabolic disease, diabetes insipidus, diabetes mellitus and ketoacidosis, hypocalcemia, hypoglycemia, hypo- and hypernatremia, inborn error of metabolism, syndrome of inappropriate secretion of antidiuretic hormone (SIADH), thyroid disease</li> <li>5. GI/surgical: acute abdomen, appendicitis, biliary tract disease, bowel obstruction, caustic ingestion, constipation, dehydration, foreign body in GI tract, gastroenteritis, gastroesophageal reflux, hepatitis,</li> </ol> |  |

|  |  |
|--|--|
| <p>hepatosplenomegaly, ileus, incarcerated hernia, inflammatory bowel disease, intussusception, malrotation, pancreatitis, peptic ulcer disease, peritonitis, pyloric stenosis, upper and lower GI tract bleeding</p> <ol style="list-style-type: none"> <li>6. GU/renal: acute hypertension, acute illness in a child on chronic dialysis or with transplanted kidney, acute renal failure, balanitis, edema, epididymitis, hematuria, labial adhesions, paraphimosis, phimosis, proteinuria, STD, renal lithiasis, testicular torsion, urinary tract infection</li> <li>7. GYN: cervicitis, dysfunctional vaginal bleeding, ovarian torsion, pelvic inflammatory disease (PID), pregnancy (intrauterine, ectopic, abortion), ruptured ovarian cyst, sexually transmitted diseases</li> <li>8. Hematologic/Oncologic: anemia, fever in a child with sickle cell disease or leukemia, coagulopathy, hemophilia with acute trauma, Henoch Schönlein purpura, possible tumor (masses), sickle cell pain crisis, sequestration and chest syndrome, thrombocytopenia</li> <li>9. Infectious disease: adenitis, cervical cellulitis (especially facial/orbital), dental abscess, encephalitis, fever without source, HIV/AIDS, infected wounds and bites, meningitis, otitis media/externa, pelvic inflammatory disease, pharyngitis, stomatitis, sinusitis, sepsis/bacteremia, [also infections in other categories]</li> <li>10. Neurologic: afebrile seizures, altered mental status, ataxia, brain tumor, febrile seizures, increased intracranial pressure, migraine, muscle contraction headache, paresis/paralysis, shunt malfunction/infection, status epilepticus</li> <li>11. Ophthalmologic: corneal abrasion, conjunctivitis, infection, ocular foreign body, hyphema, trauma</li> <li>12. Orthopedic: arthritis, common dislocations, discitis, fractures, gait disturbance, Osgood Slatter's Disease, overuse syndromes, osteomyelitis, septic arthritis, sprains, strains</li> <li>13. Otolaryngologic: epistaxis, foreign body aspiration, peritonsillar or retropharyngeal abscess</li> <li>14. Pulmonary: acute illness in a child with cystic fibrosis, asthma (including status), bacterial tracheitis, bronchiolitis, bronchopulmonary dysplasia (BPD), croup, epiglottitis, foreign body aspiration, pleural effusion, pneumonia, pneumothorax, respiratory failure, smoke inhalation</li> <li>15. Trauma/surgical: burns, closed head injury, dental injuries, intracranial hemorrhages (subdural, epidural, subarachnoid), skull fractures, soft tissue injury (including lacerations, abrasions, and contusions), major trauma to head or face, neck or spine, chest, abdomen, urogenital tract, major vessels or organs (with surgeon/trauma team)</li> <li>16. Toxicants/environmental injuries: electrical injury, heat and cold injury, ingestion/poisoning (unknown substance or common poisons: acetaminophen, antidepressants, benzodiazepines, carbon monoxide,</li> </ol> |  |
|--|--|

|   |  |
|---|--|
| <p>cocaine, cough and cold medicines, digitoxin, drugs of abuse, hydrocarbons, iron, narcotics, neuroleptics), smoke inhalation, submersion injury/near drowning, weapons of mass destruction or biological/chemical weapons</p> <p>17. Psychiatric: combative patient, conversion reaction, depression, suicide attempt/ideation, panic attacks</p> <p>18. Rheumatologic: arthritis, dermatomyositis, lupus, joint or soft tissue pain</p> <p>19. Social: child abuse or neglect, intimate partner violence, rape, sexual abuse, substance abuse</p>   |  |
| <p><b>4.5 GOAL: Diagnostic Testing (ED). Use common diagnostic tests and imaging studies appropriately in the ED setting.</b></p>   |  |
| <p>4.5.1 : Demonstrate understanding of common diagnostic tests and imaging studies used in the ED by being able to:</p>  |  |
| <p>4.5.1.1 :Explain the indications for and limitations of the study.</p>   |  |
| <p>4.5.1.2 :Understand the benefits and disadvantages of family presence during procedures.</p>   |  |
| <p>4.5.1.3 :Know or be able to locate readily age-appropriate normal values for lab studies.</p>  |  |
| <p>4.5.1.4 :Apply knowledge of diagnostic test properties, including the use of sensitivity, specificity, positive predictive value, negative predictive value, likelihood ratios, and receiver operating characteristic curves, to assess the utility of tests in various clinical settings.</p>   |  |
| <p>4.5.1.5 :Discuss cost and utilization issues.</p>  |  |
| <p>4.5.1.6 :Interpret test results in the context of the care of the specific patient.</p>  |  |
| <p>4.5.1.7 :Discuss therapeutic options for correction of abnormalities.</p>  |  |
| <p>4.5.2 : Use appropriately the following laboratory studies when indicated for patients in the ED setting:</p> <ol style="list-style-type: none"> <li>1. CBC with differential count, platelets, RBC indices</li> <li>2. Bacterial, viral, and fungal cultures and rapid screens</li> <li>3. Serologic tests for infection (e.g., monospot, VDRL, hepatitis)</li> <li>4. Blood chemistries: electrolytes, calcium, magnesium, phosphate, and glucose</li> <li>5. Arterial, venous, and capillary blood gases</li> <li>6. Renal function tests</li> <li>7. Tests of hepatic function and damage</li> <li>8. Drug levels and toxic screens</li> <li>9. Gram stain</li> <li>10. Wet mount</li> <li>11. Urinalysis</li> <li>12. CSF studies</li> <li>13. Stool studies</li> <li>14. Coagulation studies</li> <li>15. Pregnancy test (urine, blood)</li> </ol> |  |

|  |  |
|--|--|
| 16. Other fluid studies (e.g., pleural fluid, joint aspiration fluid)  |  |
| <p>4.5.3 : Use the following imaging or radiographic studies when indicated for patients in the ED setting:</p> <ol style="list-style-type: none"> <li>1. Plain radiographs of chest, skull, extremity bones, abdomen, cervical spine</li> <li>2. Other imaging techniques, such as CT, MRI, ultrasound, and nuclear scans (interpretation not expected)</li> <li>3. Contrast or air enema for suspected intussusception or upper GI series for suspected malrotation</li> </ol> |  |
| <p>4.5.4 : Use the following screening and diagnostic studies when indicated for patients in the ED setting:</p> <ol style="list-style-type: none"> <li>1. Electrocardiogram</li> <li>2. Vision screening</li> <li>3. Appropriate urgent use of echocardiography</li> </ol>  |  |
| <p><b>4.6 GOAL: Monitoring and Therapeutic Modalities (ED). Understand how to use physiologic monitoring and special technology and treatment in the ED setting.</b></p>   |  |
| <p>4.6.1 : Demonstrate understanding of the monitoring techniques and special treatments commonly used in the ED by being able to:</p> <ol style="list-style-type: none"> <li>1. Discuss indications, contraindications, and complications.</li> <li>2. Demonstrate proper use of technique or treatment for children of varying ages.</li> <li>3. Interpret results of monitoring based on method used, age, and clinical situation.</li> </ol>                                 |  |
| <p>4.6.2 : Use appropriately the monitoring techniques used in the ED:</p> <ol style="list-style-type: none"> <li>1. Physiologic monitoring of temperature, blood pressure, heart rate, respirations</li> <li>2. Pulse oximetry</li> </ol>   |  |
| <p>4.6.3 : Utilize appropriately the treatments and techniques used in the ED:</p> <ol style="list-style-type: none"> <li>1. Universal precautions</li> <li>2. Gastrointestinal decontamination for poisoning</li> <li>3. Administration of nebulized medication</li> <li>4. Injury, wound and burn care</li> <li>5. Suturing and topical adhesive</li> <li>6. Splinting</li> </ol>  |  |

|  |  |
|--|--|
| <ol style="list-style-type: none"> <li>7. Oxygen delivery systems</li> <li>8. Gastric button replacement</li> </ol>  |  |
| <p>4.6.4 : Demonstrate understanding of the following methods of anesthesia or pain management used in the ED:</p> <ol style="list-style-type: none"> <li>1. Methods for recognizing and evaluating pain</li> <li>2. Topical/local/regional anesthesia</li> <li>3. ASA classification system</li> <li>4. Procedural sedation</li> <li>5. Rapid sequence intubation</li> <li>6. Sedatives, non-narcotic and narcotic analgesics</li> <li>7. Behavioral techniques and supportive care</li> <li>8. Other non-pharmacologic methods of pain control (e.g., distraction techniques and humor therapy)</li> </ol> |  |
| <p><b>4.7 GOAL: Pediatric Competencies in Brief (ED). Demonstrate high standards of professional competence while working with patients in the Emergency Department. [For details see Pediatric Competencies.]</b></p>   |  |
| <p>4.7.1 : Competency 1: Patient Care. Provide family-centered patient care that is development- and age-appropriate, compassionate, and effective for the treatment of health problems and the promotion of health.</p>   |  |
| <p>4.7.1.1 :Use a logical and appropriate clinical approach to the care of emergency patients, applying principles of evidence-based decision-making and problem-solving, and demonstrating the ability to prioritize. Perform accurate ED triage.</p> <ol style="list-style-type: none"> <li>1. Demonstrate the ability to multi-task by providing simultaneous care to multiple patients, with varying levels of acuity and severity of illness.</li> <li>2. Use appropriate timing of diagnostic and therapeutic interventions.</li> <li>3. Adjust pace to ED patient acuity, volume and flow.</li> </ol> |  |
| <p>4.7.1.2 :Provide sensitive support to patients and families in the ED.</p> <ol style="list-style-type: none"> <li>1. Provide sensitive support to critically ill patients and their families; arrange for ongoing support and/or preventive services if needed.</li> <li>2. Be sensitive to the needs of families who use the ED for minor illness care (e.g., need for better orientation to the health care system, lack of community services or medical home).</li> </ol>   |  |
| <p>4.7.2 : Competency 2: Medical Knowledge. Understand the scope of established and evolving biomedical, clinical, epidemiological and social-behavioral knowledge needed by a pediatrician; demonstrate the ability to acquire, critically interpret and apply this knowledge in patient care.</p>  |  |
| <p>4.7.2.1 :Demonstrate a commitment to acquiring the base of knowledge needed for the care of children in the ED.</p>   |  |
| <p>4.7.2.2 :Demonstrate the ability to efficiently access medical information, evaluate it critically and apply it to pediatric care in the ED.</p>  |  |

|   |  |
|---|--|
| 4.7.3 : Competency 3: Interpersonal Skills and Communication. Demonstrate interpersonal and communication skills that result in information exchange and partnering with patients, their families and professional associates.  |  |
| 4.7.3.1 :Provide effective patient education, including reassurance, for a condition(s) commonly seen in the ED.  |  |
| 4.7.3.2 :Participate effectively as part of an interdisciplinary team in the ED to create and sustain information exchange, including communication with the primary care physician.  |  |
| 4.7.3.3 :Provide case-based teaching related to clinical situations encountered in ED (for students, colleagues, other professionals and/or laypersons).  |  |
| 4.7.3.4 :Maintain accurate, timely and legally appropriate medical records in the ED and urgent care settings.  |  |
| 4.7.4 : Competency 4: Practice-based Learning and Improvement. Demonstrate knowledge, skills and attitudes needed for continuous self-assessment, using scientific methods and evidence to investigate, evaluate, and improve one's patient care practice.  |  |
| 4.7.4.1 :Use scientific methods and evidence to investigate, evaluate and improve one's patient care practice in the ED.  |  |
| 4.7.4.2 :Identify personal learning needs, systematically organize relevant information resources for future reference, and plan for continuing acquisition of knowledge and skills.  |  |
| 4.7.5 : Competency 5: Professionalism. Demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to diversity.   |  |
| 4.7.5.1 :Demonstrate a commitment to professionalism despite the pace and stress of the ED setting.   |  |
| 4.7.5.2 :Adhere to ethical and legal principles, and be sensitive to diversity. <ol style="list-style-type: none"> <li>1. Identify and describe potential ethical dilemmas that one may encounter in the ED (e.g., such as resuscitation of patients with little hope of recovery; treatment of disabled patients; providing confidential care to mature minors [pregnancy termination, STDs, substance abuse]; foregoing life-sustaining treatment; identifying and referring organ donors).</li> <li>2. Discuss key principles and identify resources for information about legal issues of importance to practice in the ED (e.g., emergency care for indigent patients; laws regarding interhospital patient transfer; consent-to-treat issues in the emergency treatment of minors; rights of parents to refuse treatment and legal options of providers; reporting of child abuse and neglect; death reports; and obligations of physicians in the ED to facilitate follow-up care).</li> </ol> |  |
| 4.7.6 : Competency 6: Systems-Based Practice. Understand how to practice high-quality health care and advocate for patients within the context of the health care system.   |  |
| 4.7.6.1 :Identify key aspects of health care systems, cost control, billing, and reimbursement as this relates to ED care and follow-up.  |  |
| 4.7.6.2 :Demonstrate sensitivity to the costs of care in the ED setting and take steps to minimize costs without compromising quality.  |  |

|   |  |
|---|--|
| 4.7.6.3 :Recognize and advocate for families who need assistance to deal with system complexities.  |  |
| 4.7.6.4 :Recognize one's limits and those of the system; take steps to avoid medical errors.  |  |
| <b>Procedures</b>   |  |
| <b>7.1. GOAL: Technical and therapeutic procedures.</b> Describe the following procedures, including how they work and when they should be used; competently perform those commonly used by the pediatrician in practice. |  |
| Abscess: I & D of superficial abscesses   |  |
| Abscess: aspiration   |  |
| Anesthesia/analgesia: conscious sedation  |  |
| Anesthesia/analgesia: digital blocks  |  |
| Anesthesia/analgesia: local/topical   |  |
| Anesthesia/analgesia: pain management   |  |
| Arterial puncture   |  |
| Arthrocentesis  |  |
| Bladder: catheterization  |  |
| Burn: management of 1st & 2nd degree  |  |
| Burn: acute stabilization of major burn   |  |
| Cardioversion/defibrillation  |  |
| Cervical spine immobilization   |  |
| Conjunctival swab   |  |
| Endotracheal intubation   |  |
| Endotracheal intubation: rapid sequence intubation  |  |
| Ear: cerumen removal  |  |
| Eye: contact lens removal   |  |
| Eye: irrigation   |  |
| Eye: eyelid eversion  |  |
| Eye: patch  |  |
| Eye: fluorescein eye exam   |  |
| Foreign body removal (simple): nose   |  |
| Foreign body removal (simple): ear  |  |
| Foreign body removal (simple): conjunctiva  |  |
| Foreign body removal (simple): subcutaneous   |  |
| Foreign body removal (simple): vagina   |  |
| Gastric lavage  |  |
| Gastric tube placement (OG/NG)  |  |
| Gastrostomy tube replacement  |  |
| Gynecologic evaluation: postpubertal  |  |
| Immobilization techniques for common fractures & sprains  |  |
| Ingrown toe nail treatment  |  |
| Inguinal hernia: simple reduction   |  |

|   |  |
|---|--|
| Intravenous line placement  |  |
| Intraosseous line placement   |  |
| Lumbar puncture   |  |
| Medication delivery: endotracheal   |  |
| Medication delivery: IM/SC/ID   |  |
| Medication delivery: inhaled  |  |
| Medication delivery: IV   |  |
| Medication delivery: rectal   |  |
| Pulmonary function tests: peak flow meter   |  |
| Pulse oximeter: placement   |  |
| Rectal swab   |  |
| Reduction of nursemaid elbow  |  |
| Reduction/splinting of simple dislocation   |  |
| Sexual abuse: exam/evaluation   |  |
| Sterile technique   |  |
| Subungual hematoma: drainage  |  |
| Suctioning: nares   |  |
| Suctioning: oral pharynx  |  |
| Suctioning: trachea (newborn)   |  |
| Suctioning: tracheostomy  |  |
| Throat swab   |  |
| Tooth: temporary reinsertion  |  |
| Tracheostomy tube: replacement  |  |
| Urethral swab   |  |
| Vaginal lavage  |  |
| Venipuncture  |  |
| Ventilation: bag-valve-mask   |  |
| Ventilation support: initiation   |  |
| Wood's lamp examination of skin   |  |
| Wound care and suturing of lacerations  |  |
| <b>7.2. GOAL: Diagnostic and screening procedures.</b> Describe the following tests or procedures, including how they work and when they should be used; competently perform those commonly used by the pediatrician in practice. |  |
| ECG: emergency interpretation   |  |
| ECG: perform  |  |
| Monitoring interpretation: cardiac  |  |
| Monitoring interpretation: pulse oximetry   |  |
| Monitoring interpretation: respiratory  |  |
| Radiologic interpretation: abdominal ultrasound   |  |
| Radiologic interpretation: abdominal X-ray  |  |
| Radiologic interpretation: cervical spine X-ray   |  |
| Radiologic interpretation: chest X-ray  |  |

|   |  |
|---|--|
| Radiologic interpretation: CT of head   |  |
| Radiologic interpretation: extremity X-ray  |  |
| Radiologic interpretation: GI contrast study  |  |
| Radiologic interpretation: lateral neck X-ray   |  |
| Radiologic interpretation: skeletal X-ray (incl. abuse)   |  |
| Radiologic interpretation: skull film for fracture  |  |
| Radiologic interpretation: sinus films  |  |
| Vision screening  |  |
| <b>Source</b>   |  |
| Kittredge, D., Baldwin, C. D., Bar-on, M. E., Beach, P. S., Trimm, R. F. (Eds.). (2004). APA Educational Guidelines for Pediatric Residency. Ambulatory Pediatric Association Website. Available online: <a href="http://www.ambpeds.org/egweb">www.ambpeds.org/egweb</a> . [Accessed 07/22/2005]. Project to develop this website was funded by the Josiah Macy, Jr. Foundation 2002-2005. |  |

|  |  |
|--|--|
| <b>Subspecialty Rotation: Cardiology</b>   |  |
| <b>Primary Goals for this Rotation</b>   |  |
| <b>5.13 GOAL: Prevention, Counseling and Screening (Cardiovascular). Understand the role of the pediatrician in preventing cardiovascular diseases, and in counseling and screening individuals at risk for these diseases.</b>  |  |
| 5.13.1 : Offer cardiovascular risk prevention counseling to all patients and parents and routinely screen for cardiovascular disease to identify individuals at increased risk.<br><br><ol style="list-style-type: none"> <li>1. Identify risk factors and provide information to patients and families regarding atherosclerotic heart disease and hypertension (family history or genetic predisposition to heart disease, lifestyle issues such as weight control, diet, exercise, and tobacco use).</li> <li>2. Provide regular screening for prevention of heart disease and hypertension (regular monitoring and plotting of BMI, cholesterol and lipid screening as indicated, and periodic blood pressure measurement).</li> </ol> |  |
| 5.13.2 : Provide cardiovascular preventive counseling to parents and patients with specific cardiac diseases about:<br><br><ol style="list-style-type: none"> <li>1. Indications, duration, and appropriate antibiotic regimens for bacterial endocarditis prophylaxis</li> <li>2. Indications and appropriate antibiotic treatment for rheumatic fever prophylaxis</li> <li>3. Routine influenza and pneumococcal immunization in children with cardiac disease</li> </ol>  |  |
| <b>5.14 GOAL Normal Vs. Abnormal (Cardiovascular). Distinguish normal from abnormal cardiovascular signs and symptoms.</b>   |  |
| 5.14.1 : Describe normal perinatal circulation and changes at birth and during the first year of life.   |  |
| 5.14.2 : Describe age-related changes in heart rate and blood pressure, including normal ranges from birth through adolescence.  |  |
| 5.14.3 : Explain the mechanism for the production of heart sounds and murmurs and differentiate between physiologic (normal, functional or innocent) and pathologic heart murmurs.   |  |
| 5.14.4 : Explain the findings on history and physical examination that suggest congenital heart disease or cardiovascular disease needing further evaluation and treatment.  |  |
| 5.14.5 : Interpret clinical and laboratory tests to identify cardiovascular disease, including: pulse and blood pressure monitoring, chest X-ray interpretation, pulse oximetry, hyperoxia test, electrocardiography, ECG monitoring reports and echocardiography reports.   |  |
| 5.14.6 : Describe the principles of electrocardiography, including normal voltages and rhythms. Differentiate normal from abnormal rhythms and voltages that suggest cardiovascular disease.   |  |
| <b>5.15 GOAL: Undifferentiated Signs and Symptoms (Cardiovascular).</b>  |  |

|   |  |
|---|--|
| <p><b>Evaluate, treat, and/or refer patients with presenting signs and symptoms that suggest a cardiovascular disease process.</b></p>  |  |
| <p>5.15.1 : Create a strategy to determine if the following presenting signs and symptoms are caused by a cardiovascular disease process, and determine if the patient should be treated or needs referral to a subspecialist.</p> <ol style="list-style-type: none"> <li>1. Shortness of breath</li> <li>2. Chest pain</li> <li>3. Cyanosis</li> <li>4. Syncope</li> <li>5. Wheezing</li> <li>6. Apparent life threatening event</li> <li>7. Failure to thrive</li> <li>8. Exercise intolerance</li> <li>9. Unexplained tachypnea, dyspnea</li> <li>10. Palpitations</li> <li>11. Abnormal heart sounds</li> </ol> |  |
| <p><b>5.16 GOAL: Common Conditions Not Referred (Cardiovascular).<br/>Diagnose and manage patients with common cardiovascular conditions that generally do not require referral.</b></p>  |  |
| <p>5.16.1 : Diagnose, explain and manage the following cardiovascular conditions:</p> <ol style="list-style-type: none"> <li>1. Tachycardia related to fever</li> <li>2. Peripheral pulmonic stenosis</li> <li>3. Functional (innocent) heart murmur</li> <li>4. Small, hemodynamically insignificant and closing VSD</li> <li>5. Small, hemodynamically insignificant and closing PDA within the neonatal period</li> <li>6. Musculoskeletal chest pain</li> <li>7. Mild hypertension</li> <li>8. Premature atrial contractions</li> <li>9. Benign premature ventricular contractions</li> </ol>                   |  |
| <p><b>5.17 GOAL: Conditions Generally Referred (Cardiovascular).<br/>Recognize, provide initial management of, and refer patients with cardiovascular conditions that generally require referral.</b></p>   |  |
| <p>5.17.1 : Identify, explain, provide initial management and refer the following cardiovascular conditions:</p> <ol style="list-style-type: none"> <li>1. Hypertension, moderate and severe</li> <li>2. Supraventricular tachycardia</li> <li>3. Bradycardia</li> <li>4. Congestive heart failure</li> <li>5. Cardiovascular collapse</li> <li>6. Cardiovascular syncope</li> <li>7. Chest pain associated with exercise</li> <li>8. Pathologic heart murmurs</li> <li>9. Congenital heart disease for initial diagnosis and followup</li> </ol>   |  |

|   |  |
|---|--|
| <p>5.17.2 : Identify the role and general scope of practice of pediatric cardiologists; recognize situations where children benefit from the skills of specialists trained in the care of children; and work effectively with these professionals in the care of children with congenital heart disease and other cardiovascular disease processes.</p>   |  |
| <p><b>5.18 GOAL: Congenital Heart Disease. Understand the general pediatrician's role in diagnosis and management of congenital heart disease in children.</b></p>  |  |
| <p>5.18.1 : Describe the presenting symptoms, signs/physical findings, pathophysiology, treatment and prognosis for the following congenital cardiovascular conditions:</p> <ol style="list-style-type: none"> <li>1. Ventricular septal defect</li> <li>2. Atrial septal defect</li> <li>3. Tetralogy of Fallot</li> <li>4. Patent ductus arteriosus</li> <li>5. Coarctation of the aorta</li> <li>6. Transposition of great vessels</li> <li>7. Tricuspid atresia</li> <li>8. Pulmonary atresia</li> <li>9. Hypoplastic left heart</li> <li>10. Aortic stenosis</li> <li>11. Pulmonic stenosis</li> <li>12. Total anomalous pulmonary venous return</li> <li>13. Mitral valve prolapse</li> <li>14. Truncus Arteriosus</li> <li>15. Atrioventricular canal</li> </ol> |  |
| <p>5.18.2 : Describe the association of congenital heart disease with the following genetic syndromes:</p> <ol style="list-style-type: none"> <li>1. Down's syndrome</li> <li>2. Marfan syndrome</li> <li>3. VACTERL association</li> <li>4. Trisomy 13</li> <li>5. Trisomy 18</li> <li>6. Williams syndrome</li> <li>7. Turner syndrome</li> <li>8. Chromosome 22 microdeletion (i.e., Velocardial facial, DiGeorge syndrome)</li> </ol>   |  |
| <p><b>5.19 GOAL: Acquired Heart Disease. Understand the general pediatrician's role in diagnosis and management of acquired heart disease in children.</b></p>  |  |
| <p>5.19.1 : Describe the presenting signs and symptoms, physical findings, pathophysiology, treatment and prognosis for the following acquired cardiovascular conditions:</p> <ol style="list-style-type: none"> <li>1. Supraventricular tachycardia</li> <li>2. Myocarditis/cardiomyopathy</li> <li>3. Kawasaki disease</li> <li>4. Acute rheumatic fever</li> <li>5. Bacterial endocarditis</li> </ol>  |  |

|   |  |
|---|--|
| 6. Essential hypertension<br>7. Long QT Syndrome<br>8. Complete atrioventricular block<br>9. Ventricular tachycardia  |  |
| <b>5.20 GOAL: Hypertension. Understand the general pediatrician's role in diagnosis and management of hypertension in children.</b>   |  |
| 5.20.1 : Classify a patient with hypertension as to severity according to current national guidelines, e.g., mild, moderate or severe.  |  |
| 5.20.2 : Develop a diagnostic plan for a child with hypertension that accounts for severity of the condition, including recognition and management of hypertensive emergencies.   |  |
| 5.20.3 : Manage a patient with hypertension using a step-wise approach that includes the role of diet, exercise, weight control and medications.  |  |
| 5.20.4 : Compare the commonly used antihypertensive drugs, considering indications and contraindications for use, mechanism of action and side effects.   |  |
| 5.20.5 : Identify the indicators for a cardiology or nephrology referral in a child with hypertension.  |  |
| <b>5.21 GOAL: Cardiovascular Drugs. Understand key principles related to the use of cardiovascular drugs.</b>   |  |
| 5.21.1 : Identify the indications, contraindications, mechanism of action and side effects of the commonly used cardiovascular drugs (antiarrhythmic, chromotropes, inotropes, diuretics, vasodilator, vasopressors).   |  |
| <b>6.95 GOAL: Pediatric Competencies in Brief (Subspecialty Rotation). Demonstrate high standards of professional competence while working with patients under the care of a subspecialist. [For details see Pediatric Competencies.]</b>   |  |
| 6.95.1 : Competency 1: Patient Care. Provide family-centered patient care that is development- and age-appropriate, compassionate, and effective for the treatment of health problems and the promotion of health.  |  |
| 6.95.1.1 :Use a logical and appropriate clinical approach to the care of patients presenting for specialty care, applying principles of evidence-based decision-making and problem-solving.   |  |
| 6.95.1.2 :Describe general indications for subspecialty procedures and interpret results for families.  |  |
| 6.95.2 : Competency 2: Medical Knowledge. Understand the scope of established and evolving biomedical, clinical, epidemiological and social-behavioral knowledge needed by a pediatrician; demonstrate the ability to acquire, critically interpret and apply this knowledge in patient care. |  |
| 6.95.2.1 :Acquire, interpret and apply the knowledge appropriate for the generalist regarding the core content of this subspecialty area.   |  |
| 6.95.2.2 :Critically evaluate current medical information and scientific evidence related to this subspecialty area and modify your knowledge base accordingly.   |  |
| 6.95.3 : Competency 3: Interpersonal Skills and Communication. Demonstrate interpersonal and communication skills that result in information exchange and partnering with patients, their families and professional associates.   |  |
| 6.95.3.1 :Provide effective patient education, including reassurance, for a condition(s) common to this subspecialty area.  |  |
| 6.95.3.2 :Communicate effectively with primary care and other physicians, other   |  |

|   |  |
|---|--|
| health professionals, and health-related agencies to create and sustain information exchange and teamwork for patient care.   |  |
| 6.95.3.3 :Maintain accurate, legible, timely and legally appropriate medical records, including referral forms and letters, for subspecialty patients in the outpatient and inpatient setting.  |  |
| 6.95.4 : Competency 4: Practice-based Learning and Improvement. Demonstrate knowledge, skills and attitudes needed for continuous self-assessment, using scientific methods and evidence to investigate, evaluate, and improve one's patient care practice.           |  |
| 6.95.4.1 :Identify standardized guidelines for diagnosis and treatment of conditions common to this subspecialty area and adapt them to the individual needs of specific patients.  |  |
| 6.95.4.2 :Identify personal learning needs related to this subspecialty; systematically organize relevant information resources for future reference; and plan for continuing acquisition of knowledge and skills.  |  |
| 6.95.5 : Competency 5: Professionalism. Demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to diversity.  |  |
| 6.95.5.1 :Demonstrate personal accountability to the well-being of patients (e.g., following up on lab results, writing comprehensive notes, and seeking answers to patient care questions).  |  |
| 6.95.5.2 :Demonstrate a commitment to carrying out professional responsibilities.   |  |
| 6.95.5.3 :Adhere to ethical and legal principles, and be sensitive to diversity.  |  |
| 6.95.6 : Competency 6: Systems-based Practice. Understand how to practice high-quality health care and advocate for patients within the context of the health care system.  |  |
| 6.95.6.1 :Identify key aspects of health care systems as they apply to specialty care, including the referral process, and differentiate between consultation and referral.   |  |
| 6.95.6.2 :Demonstrate sensitivity to the costs of clinical care in this subspecialty setting, and take steps to minimize costs without compromising quality   |  |
| 6.95.6.3 :Recognize and advocate for families who need assistance to deal with systems complexities, such as the referral process, lack of insurance, multiple medication refills, multiple appointments with long transport times, or inconvenient hours of service. |  |
| 6.95.6.4 :Recognize one's limits and those of the system; take steps to avoid medical errors.   |  |
| <b>Procedures</b>   |  |
| <b>7.1.GOAL: Technical and therapeutic procedures.</b> Describe the following procedures, including how they work and when they should be used; competently perform those commonly used by the pediatrician in practice.  |  |
| Cardioversion/defibrillation  |  |
| <b>7.2. GOAL: Diagnostic and screening procedures.</b> Describe the following tests or procedures, including how they work and when they should be used; competently perform those commonly used by the pediatrician in practice.                                     |  |
| ECG: emergency interpretation   |  |
| ECG: perform  |  |
| Monitoring interpretation: Holter   |  |

|  |  |
|--|--|
| Radiologic interpretation: chest X-ray   |  |
| <b>Source</b><br>Kittredge, D., Baldwin, C. D., Bar-on, M. E., Beach, P. S., Trimm, R. F. (Eds.). (2004). APA Educational Guidelines for Pediatric Residency. Ambulatory Pediatric Association Website. Available online: <a href="http://www.ambpeds.org/egweb">www.ambpeds.org/egweb</a> . [Accessed 07/22/2005]. Project to develop this website was funded by the Josiah Macy, Jr. Foundation 2002-2005. |  |

|   |  |
|---|--|
| <b>Subspecialty Rotation: Endocrinology</b>   |  |
| <b>Primary Goals for this Rotation</b>  |  |
| <b>5.22 GOAL: Prevention, Counseling and Screening (Endocrine). Understand the role of the pediatrician in preventing endocrine dysfunction, and in counseling and screening individuals at risk for these diseases.</b>  |  |
| 5.22.1 : Identify the individual at risk for developing endocrine dysfunction through routine endocrine counseling and screening of all patients and parents, addressing:   |  |
| <ol style="list-style-type: none"> <li>1. Normal variations in growth (including genetic short stature and constitutional growth delay)</li> <li>2. Expected and normal variations in body changes during puberty (information should be ethnic group specific)</li> <li>3. The importance of vitamin D supplements in breast-fed infants and select populations with low intake of vitamin D, calcium or phosphorus</li> <li>4. Diabetic screening for patients with symptoms of polyuria, polydipsia and polyphagia</li> <li>5. Diabetic, hypercholesterolemia and hypertriglyceridemia screening for any child who is obese</li> <li>6. Newborn metabolic screening, when appropriate</li> </ol> |  |
| 5.22.2 : Provide preventive counseling to parents and patients with specific endocrine conditions about:  |  |
| <ol style="list-style-type: none"> <li>1. The need for influenza vaccination in children with certain endocrine disorders (hypoadrenalism, diabetes mellitus, hypopituitarism, chronic steroid use, Cushing syndrome)</li> <li>2. The association of chronic steroid use and decreased bone density</li> <li>3. The importance of diabetes control for prevention of long-term complications such as retinopathy, neuropathy, nephropathy and gastroparesis</li> <li>4. The value of support groups and camps for children with diabetes mellitus</li> </ol>  |  |
| <b>5.23 GOAL: Normal Vs. Abnormal (Endocrine). Differentiate between normal, physiologic deviations from normal, and pathological states related to endocrinology.</b>  |  |
| 5.23.1 : Describe the normal developmental patterns of statural growth and weight gain, along with normal variations. Describe body proportions that can help to differentiate proportionate from disproportionate short stature.   |  |
| 5.23.2 : Perform Tanner staging (SMR) and explain the sequential physiologic events associated with puberty.  |  |
| 5.23.3 : Identify early puberty and differentiate it from premature thelarche and premature adrenarche.   |  |
| 5.23.4 : Describe the hypothalamus-pituitary-peripheral gland axis along with their stimulatory and inhibitory feedback mechanisms.   |  |
| 5.23.5 : Describe calcium and phosphorus homeostasis, vitamin D metabolism, parathyroid hormone functions, and their interrelationships.  |  |
| 5.23.6 : Explain the findings on clinical history and examination that suggest a  |  |

|   |  |
|---|--|
| <p>disease of endocrine origin and require further evaluation and treatment. Such diseases include hypo- and hyper-thyroid states, diabetes mellitus, diabetes insipidus, rickets, obesity, delayed or accelerated growth, early or delayed puberty, adrenal insufficiency and hyperactivity, and congenital adrenal hyperplasia.</p>   |  |
| <p>5.23.7 : Interpret clinical and laboratory endocrine tests to identify endocrine disease, including: bone age, vitamin D, calcium, phosphate and alkaline phosphatase, glucose, insulin, and hemoglobin A1C, T4, free T4, TSH, parathyroid hormone, serum and urine electrolytes and osmolality, cortisol and ACTH, FSH, LH, estradiol, testosterone, cortisol, rennin, adrenal androgens and precursor hormone levels, growth hormone, imaging studies (MRI, CT Scan, Ultrasound, and thyroid scans) and bone densitometry.</p>   |  |
| <p><b>5.24 GOAL: Undifferentiated Signs and Symptoms (Endocrine). Evaluate, treat and/or refer patients who present with undifferentiated signs and symptoms that may represent an endocrine disease process.</b></p>   |  |
| <p>5.24.1 : Create a strategy for determining if the following presenting signs and symptoms are caused by an endocrine disease process and determine if the patient needs treatment or referral:</p> <ol style="list-style-type: none"> <li>1. Fatigue</li> <li>2. Vomiting/Weight loss</li> <li>3. Short and tall stature</li> <li>4. Obesity</li> <li>5. Polydipsia</li> <li>6. Hypoglycemia</li> <li>7. Hyperglycemia</li> <li>8. Hypocalcemia</li> <li>9. Early or delayed puberty</li> <li>10. Acanthosis nigricans</li> <li>11. Headaches</li> <li>12. Dizziness</li> <li>13. Diplopia and blurred vision</li> <li>14. Polyuria</li> </ol>   |  |
| <p><b>5.25 GOAL: Common Conditions Not Referred (Endocrine). Diagnose and manage endocrine conditions in patients not generally requiring referral.</b></p>   |  |
| <p>5.25.1 : Diagnose, explain the pathophysiology of, and manage the following endocrine conditions:</p> <ol style="list-style-type: none"> <li>1. Abnormal newborn metabolic screening, including hypothyroidism, congenital adrenal hyperplasia, PKU, and galactosemia</li> <li>2. Premature adrenarche</li> <li>3. Premature thelarche</li> <li>4. Delayed puberty due to chronic disease or anorexia nervosa</li> <li>5. Exogenous obesity</li> <li>6. Familial short stature, constitutional delay of growth or puberty</li> <li>7. Short stature variants not meeting criteria for hormone therapy</li> <li>8. Gynecomastia in a pubertal male</li> <li>9. Infant of mother with gestational diabetes</li> <li>10. Transient hypocalcemia of a newborn</li> </ol> |  |

|   |  |
|---|--|
| 11. Transient hypoglycemia of a newborn   |  |
| <b>5.26 GOAL: Conditions Generally Referred (Endocrine). Recognize, initiate management of, and refer patients with endocrine conditions that require referral.</b>   |  |
| 5.26.1 : Identify, explain the pathophysiology of, provide initial management for, and refer to a subspecialist the following endocrine conditions: <ol style="list-style-type: none"> <li>1. Adrenal insufficiency</li> <li>2. Ambiguous genitalia, hypogonadism, and micropenis</li> <li>3. Central and nephrogenic diabetes insipidus and psychogenic polydipsia</li> <li>4. Congenital adrenal hyperplasia</li> <li>5. Delayed or precocious puberty</li> <li>6. Diabetes mellitus type I (diabetic ketoacidosis (DKA), long-term management)</li> <li>7. Endocrine and genetic causes of obesity</li> <li>8. Genetic syndromes and familial inheritance patterns with endocrine abnormalities</li> <li>9. Hirsutism, hyperandrogenism, and polycystic ovaries</li> <li>10. Hypoglycemia in childhood and adolescence</li> <li>11. Metabolic bone disease including rickets and skeletal dysplasias</li> <li>12. Abnormalities of calcium, phosphorus, or magnesium homeostasis</li> <li>13. Short stature variants meeting criteria for hormonal treatment</li> <li>14. Tall stature and excessive growth syndromes</li> <li>15. Thyroid dysfunction and goiters</li> <li>16. Diabetes mellitus type II</li> </ol> |  |
| 5.26.2 : Identify the role and general scope of the practice of endocrinology. Recognize situations where children benefit from the skills of specialists trained in the care of children, and work effectively with endocrine specialists to care for children with endocrinology problems.  |  |
| <b>5.27 GOAL: Diabetes Mellitus (Types I and II). Diagnose and manage uncomplicated diabetes mellitus with or without the assistance of an endocrinologist.</b>   |  |
| 5.27.1 : List the findings on clinical history and examination that suggest a diagnosis of diabetes mellitus and/or diabetic ketoacidosis.  |  |
| 5.27.2 : Identify the risk factors for developing type 2 diabetes and provide routine screening for those at elevated risk.   |  |
| 5.27.3 : Differentiate Type I and Type II diabetes on the basis of findings from the clinical history, physical examination, and laboratory tests.  |  |
| 5.27.4 : Diagnose diabetes mellitus and diabetic ketoacidosis from presenting symptoms and confirmatory lab tests.  |  |
| 5.27.5 : Order appropriate confirmatory diagnostic serum and urine tests for diabetes mellitus and accurately interpret the results.  |  |
| 5.27.6 : Compare and contrast the different preparations of insulin and describe the pharmacokinetics of each.  |  |
| 5.27.7 : Discuss treatment regimens available for patients with Type II diabetes, including the use of oral medications, determination of initial dosages, drug pharmacokinetics, dose adjustments based on serum glucose levels, possible side effects and monitoring for safety.  |  |

|  |  |
|--|--|
| 5.27.8 : Order appropriate initial dosages of insulin, based on both clinical and laboratory findings, and adjust subsequent dosages based on serum glucose levels.  |  |
| 5.27.9 : Order appropriate IV and PO fluids to manage ketoacidosis and initial hyperglycemia with or without ketosis, realizing that insulin therapy may be required in the initial treatment of Type II diabetes.   |  |
| 5.27.10 : Recognize immediate life-threatening complications associated with the diagnosis and treatment of diabetic ketoacidosis and steps for initial treatment and stabilization. Refer for intensive care as indicated.  |  |
| 5.27.11 : Develop an educational plan for parents and patients that provides effective education regarding diabetes, availability of support groups and diabetic camps, diet and exercise, home glucose monitoring, adjustment of insulin or oral medications dosages, use of insulin pumps, response to illness, and preventive care.               |  |
| 5.27.12 : Develop a cost-effective plan for monitoring patients with diabetes, including use of hemoglobin A1-C levels and daily glucose profiles to assess control, frequency and severity of hypoglycemia and hyperglycemia, treatment compliance, and the development of long term complications such as retinopathy, nephropathy and neuropathy. |  |
| 5.27.13 : Identify the clinical and biochemical indicators that necessitate consultation or referral of a child with diabetes.   |  |
| <b>5.28 GOAL: Thyroid Disorders. Understand the general pediatrician's role in the diagnosis and management of patients with congenital and acquired hypothyroidism and hyperthyroidism.</b>   |  |
| 5.28.1 : Explain the findings on clinical history, examination, and laboratory tests that suggest the presence of a thyroid disorder (hypo- or hyper-thyroidism), including abnormal growth patterns, goiter, etc.   |  |
| 5.28.2 : Identify the thyroid function tests, including newborn screening, available for detecting and diagnosing a thyroid disorder, and describe the indications for ordering, limitations and interpretations.  |  |
| 5.28.3 : Discuss the identification, treatment, and follow-up in a patient with congenital hypothyroidism. Discussion should include the importance of early detection and limitations of newborn screenings, as well as treatment, monitoring and parental education.   |  |
| 5.28.4 : Identify imaging studies available for patients with a thyroid disorder and the indications for obtaining such studies.   |  |
| 5.28.5 : Discuss the causes of hyperthyroidism.  |  |
| 5.28.6 : Compare and contrast the different treatment options for hyperthyroidism, including oral medications, irradiation and surgery, and discuss the selection criteria for each treatment modality.  |  |
| 5.28.7 : Create an education, treatment and follow-up plan for a patient with a thyroid disorder that includes treatment, monitoring, potential complications, and long-term follow-up.  |  |
| 5.28.8 : Identify indicators for an endocrine referral of a child with a thyroid disorder.   |  |
| <b>6.95 GOAL: Pediatric Competencies in Brief (Subspecialty Rotation). Demonstrate high standards of professional competence while working with patients under the care of a subspecialist. [For details see Pediatric Competencies.]</b>  |  |
| 6.95.1 : Competency 1: Patient Care. Provide family-centered patient care that is development- and age-appropriate, compassionate, and effective for the treatment of health problems and the promotion of health.   |  |

|   |  |
|---|--|
| 6.95.1.1 :Use a logical and appropriate clinical approach to the care of patients presenting for specialty care, applying principles of evidence-based decision-making and problem-solving.   |  |
| 6.95.1.2 :Describe general indications for subspecialty procedures and interpret results for families.  |  |
| 6.95.2 : Competency 2: Medical Knowledge. Understand the scope of established and evolving biomedical, clinical, epidemiological and social-behavioral knowledge needed by a pediatrician; demonstrate the ability to acquire, critically interpret and apply this knowledge in patient care. |  |
| 6.95.2.1 :Acquire, interpret and apply the knowledge appropriate for the generalist regarding the core content of this subspecialty area.   |  |
| 6.95.2.2 :Critically evaluate current medical information and scientific evidence related to this subspecialty area and modify your knowledge base accordingly.   |  |
| 6.95.3 : Competency 3: Interpersonal Skills and Communication. Demonstrate interpersonal and communication skills that result in information exchange and partnering with patients, their families and professional associates.   |  |
| 6.95.3.1 :Provide effective patient education, including reassurance, for a condition(s) common to this subspecialty area.  |  |
| 6.95.3.2 :Communicate effectively with primary care and other physicians, other health professionals, and health-related agencies to create and sustain information exchange and teamwork for patient care.   |  |
| 6.95.3.3 :Maintain accurate, legible, timely and legally appropriate medical records, including referral forms and letters, for subspecialty patients in the outpatient and inpatient setting.  |  |
| 6.95.4 : Competency 4: Practice-based Learning and Improvement. Demonstrate knowledge, skills and attitudes needed for continuous self-assessment, using scientific methods and evidence to investigate, evaluate, and improve one's patient care practice.                                   |  |
| 6.95.4.1 :Identify standardized guidelines for diagnosis and treatment of conditions common to this subspecialty area and adapt them to the individual needs of specific patients.  |  |
| 6.95.4.2 :Identify personal learning needs related to this subspecialty; systematically organize relevant information resources for future reference; and plan for continuing acquisition of knowledge and skills.  |  |
| 6.95.5 : Competency 5: Professionalism. Demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to diversity.  |  |
| 6.95.5.1 :Demonstrate personal accountability to the well-being of patients (e.g., following up on lab results, writing comprehensive notes, and seeking answers to patient care questions).  |  |
| 6.95.5.2 :Demonstrate a commitment to carrying out professional responsibilities.   |  |
| 6.95.5.3 :Adhere to ethical and legal principles, and be sensitive to diversity.  |  |
| 6.95.6 : Competency 6: Systems-based Practice. Understand how to practice high-quality health care and advocate for patients within the context of the health care system.  |  |
| 6.95.6.1 :Identify key aspects of health care systems as they apply to specialty care, including the referral process, and differentiate between consultation and referral.   |  |
| 6.95.6.2 :Demonstrate sensitivity to the costs of clinical care in this subspecialty setting, and take steps to minimize costs without compromising quality   |  |

|   |  |
|---|--|
| 6.95.6.3 :Recognize and advocate for families who need assistance to deal with systems complexities, such as the referral process, lack of insurance, multiple medication refills, multiple appointments with long transport times, or inconvenient hours of service.   |  |
| 6.95.6.4 :Recognize one's limits and those of the system; take steps to avoid medical errors.   |  |
| <b>Procedures</b>   |  |
| <b>7.2. GOAL: Diagnostic and screening procedures.</b> Describe the following tests or procedures, including how they work and when they should be used; competently perform those commonly used by the pediatrician in practice.   |  |
| Bone age: interpretation  |  |
| Bone densitometer   |  |
| Radiologic interpretation: CT of head   |  |
| Radiologic interpretation: MRI of head  |  |
| Radiologic interpretation: skeletal X-ray (incl. abuse)   |  |
| <b>Source</b>   |  |
| Kittredge, D., Baldwin, C. D., Bar-on, M. E., Beach, P. S., Trimm, R. F. (Eds.). (2004). APA Educational Guidelines for Pediatric Residency. Ambulatory Pediatric Association Website. Available online: <a href="http://www.ambpeds.org/egweb">www.ambpeds.org/egweb</a> . [Accessed 07/22/2005]. Project to develop this website was funded by the Josiah Macy, Jr. Foundation 2002-2005. |  |

|   |  |
|---|--|
| <b>Subspecialty Rotation: Hematology/Oncology</b>   |  |
| <b>Primary Goals for this Rotation</b>  |  |
| <b>5.45 GOAL: Prevention, Counseling and Screening (Hematology/Oncology). Understand the role of the pediatrician in preventing hematologic or oncologic conditions, and in counseling and screening individuals at risk for these diseases.</b>  |  |
| 5.45.1 : Provide routine preventive counseling about hematology to all patients and families, addressing:   |  |
| <ol style="list-style-type: none"> <li>1. Adequate diet and iron intake to prevent iron deficiency</li> <li>2. Signs and symptoms of malignant disease</li> </ol>   |  |
| 5.45.2 : Provide preventive counseling to parents and patients with specific hematology/oncology conditions, addressing:  |  |
| <ol style="list-style-type: none"> <li>1. In a child with a sickle hemoglobinopathy, the importance of antibiotic prophylaxis, pneumococcal and routine immunizations, folic acid supplementation, and urgent need for evaluation for fever</li> <li>2. Risk of infections related to transfusion of blood or blood products, and alternatives to routine transfusion (i.e., direct donation, irradiation, freezing, filtration)</li> <li>3. Expected course of common childhood malignancies, with good and bad prognosticators</li> <li>4. Support groups and information available for children with cancer</li> </ol> |  |
| 5.45.3 : Provide regular hematology/oncology screening for patients:  |  |
| <ol style="list-style-type: none"> <li>1. Screen for hemoglobinopathies in the newborn period.</li> <li>2. Screen for iron deficiency anemia during the first two years of life, with particular emphasis on premature infants.</li> <li>3. Screen adolescent females for signs of iron deficiency and anemia yearly after menses has begun.</li> <li>4. Screen infants and toddlers for lead poisoning.</li> </ol>   |  |
| <b>5.46 GOAL: Normal Vs. Abnormal (Hematology/Oncology). Distinguish normal from pathologic states of the hematologic and lymphatic systems.</b>  |  |
| 5.46.1 : Describe the changes that occur over time in the hematologic indices of the normal infant and child (e.g., hemoglobin, hematocrit, MCV).   |  |
| 5.46.2 : Explain the findings on clinical history and examination that suggest a hematologic or oncologic disease that requires further evaluation and treatment.   |  |
| 5.46.3 : Interpret clinical and laboratory tests to identify hematologic or oncologic disease (CBC, including indices and blood smear review, reticulocyte count, ESR, PT, PTT, hemoglobin electrophoresis, iron, iron binding capacity, ferritin, transferrin, lead, uric acid, LDH, electrolytes, renal function, urinalysis).  |  |
| 5.46.4 : Explain the interpretation of a bone marrow aspirate.  |  |
| <b>5.47 GOAL: Undifferentiated Signs and Symptoms (Hematology/Oncology). Evaluate, treat, and/or refer patients with</b>  |  |

|   |  |
|---|--|
| <p><b>presenting signs and symptoms that may indicate a hematologic or oncologic disease process.</b></p>   |  |
| <p>5.47.1 : Develop a strategy to determine if the following presenting signs and symptoms are caused by a hematology/oncology disease process and determine if the patient needs treatment or referral:</p> <ol style="list-style-type: none"> <li>1. Fatigue/malaise</li> <li>2. Fever</li> <li>3. Bruising/bleeding</li> <li>4. Headache</li> <li>5. Limb pain/limp</li> <li>6. Seizure</li> <li>7. Lymphadenopathy</li> <li>8. Hepatomegaly and/or splenomegaly</li> <li>9. Weight loss</li> <li>10. Abdominal pain</li> <li>11. Vomiting</li> <li>12. Dizziness and gait disturbances</li> <li>13. Nevi</li> </ol>   |  |
| <p><b>5.48 GOAL: Common Conditions Not Referred (Hematology/Oncology).<br/>Diagnose and manage patients with hematological disorders that generally do not need referral.</b></p>   |  |
| <p>5.48.1 : Diagnose, explain, and manage the following hematologic or oncologic conditions:</p> <ol style="list-style-type: none"> <li>1. Iron deficiency</li> <li>2. Hemoglobin traits, including alpha and beta thalassemia, sickle cell, and hemoglobin E</li> <li>3. Transient erythrocytopenia of childhood</li> <li>4. Minor, common reactions to blood transfusions</li> <li>5. Benign bone cyst</li> <li>6. Idiopathic thrombocytopenic purpura</li> </ol>   |  |
| <p><b>5.49 GOAL: Conditions Generally Referred (Hematology/Oncology).<br/>Diagnose and initiate management of patients with hematological or oncological disorders that generally need referrals.</b></p>   |  |
| <p>5.49.1 : Identify, explain, initially manage, and seek consultation or refer the following hematology/oncology conditions:</p> <ol style="list-style-type: none"> <li>1. Anemia (exclusive of common iron deficiency or transient erythrocytopenia)</li> <li>2. Abnormal bruising or bleeding (inherited and acquired)</li> <li>3. Major complications of inherited bleeding disorders</li> <li>4. Hemoglobinopathies (sickle cell and other sickling disorders), including severe pain crisis, fever, stroke, sequestration and aplastic crises</li> <li>5. Urgent conditions in children under treatment for cancer, including fever and neutropenia, chicken pox exposure or illness, bleeding</li> <li>6. Neutropenia</li> <li>7. Thrombocytopenia including ITP</li> <li>8. Abdominal masses</li> </ol> |  |

|  |  |
|--|--|
| <ol style="list-style-type: none"> <li>9. Mediastinal masses</li> <li>10. Lytic bone lesions</li> <li>11. Suspected or confirmed CNS tumor</li> <li>12. Conditions that might predispose to malignancy (e.g., neurofibromatosis, Bloom syndrome (retinoblastoma), Down's syndrome, McCune Albright, and familial cancer)</li> <li>13. Coagulation disorders</li> </ol>   |  |
| <p>5.49.2 : In cases of serious or life-threatening disease, counsel the patient's families with sensitivity to their desire and need to know about:</p> <ol style="list-style-type: none"> <li>1. Prognosis and possible impact of the disease</li> <li>2. Likely steps in immediate and future treatment</li> <li>3. Decisions about treatment options which they may face</li> <li>4. Support services that they may seek in the hospital and community</li> </ol>  |  |
| <p>5.49.3 : Identify the role and general scope of practice of hematology/oncology; recognize situations where children benefit from the skills of specialists trained in the care of children; and work effectively with these professionals in the care of children with hematologic or oncologic diseases.</p>  |  |
| <p><b>5.50 GOAL: Common Malignancies. Discuss the presentation, pathophysiology, and prognosis of important malignancies in children and adolescents.</b></p>  |  |
| <p>5.50.1 : Summarize the common ages, presenting signs and symptoms, diagnostic procedures, principles of current therapy, prognosis, and long-term complications (due to disease or treatment) for the following malignancies and conditions:</p> <ol style="list-style-type: none"> <li>1. Leukemia (ALL, AML)</li> <li>2. Brain tumor</li> <li>3. Hodgkin's and non-Hodgkin's lymphoma</li> <li>4. Neuroblastoma</li> <li>5. Wilms' tumor</li> <li>6. Soft tissue sarcomas (rhabdomyosarcoma)</li> <li>7. Bone tumors (osteosarcoma and Ewing's sarcoma)</li> <li>8. Retinoblastoma</li> <li>9. Langerhans cell histiocytosis</li> </ol> |  |
| <p>5.50.2 : Compare and contrast the common acute side effects of frequently used chemotherapeutic drugs, including: cyclophosphamide, cytarabine, vincristine, anthracycline compounds, methotrexate and prednisone.</p>  |  |
| <p>5.50.3 : Be familiar with adjunctive medications that increase patients' tolerance of chemotherapy, e.g. folate, epogen, GCSF.</p>  |  |
| <p>5.50.4 : Discuss the common late complications of childhood cancer treatment that may present in childhood or adolescence. These include: learning disabilities, endocrine suppression and second cancers.</p>  |  |
| <p><b>5.51 GOAL: Iron Disorders. Discuss the appropriate methods of diagnosis and management of a patient with iron disorders.</b></p>   |  |
| <p>5.51.1 : Describe the normal requirements, absorption, and metabolism of iron from birth through adolescence.</p>   |  |
| <p>5.51.2 : Identify the common causes and features of iron deficiency (including</p>  |  |

|  |  |
|--|--|
| anemia) in all age groups and compare and contrast with anemia caused by chronic inflammation.   |  |
| 5.51.3 : Describe the diagnosis and treatment of iron deficiency, and discuss the follow-up necessary to assure success in treatment.  |  |
| 5.51.4 : Develop a treatment and education plan for managing iron deficiency. This should include: dietary management, replacement therapy, parent education, and follow-up.   |  |
| <b>5.52 GOAL: Blood Products. Understand indications for and complications related to the use of blood products.</b>   |  |
| 5.52.1 : Explain the appropriate indications for and potential risks of various blood products (e.g., red blood cell products, platelet concentrates, coagulation factors).  |  |
| 5.52.2 : Describe alternatives to blood transfusions. These should include: erythropoietin, GCSF, and other cytokines.   |  |
| 5.52.3 : Describe the indications for leukofiltration, irradiation of blood products, and use of CMV negative blood products.  |  |
| 5.52.4 : Summarize the signs and symptoms of a transfusion reaction. Develop an effective treatment plan to manage a transfusion reaction.   |  |
| <b>5.53 GOAL: Sickle Cell Disease. Understand the general pediatrician's role in the diagnosis and management of patients with sickle cell disease.</b>  |  |
| 5.53.1 : Explain the findings on clinical history, examination, and laboratory tests (including newborn screening) that suggest a diagnosis of sickle cell disease.  |  |
| 5.53.2 : Compare and contrast the different sickle cell syndromes, including presentation, treatment and complications. These syndromes include sickle cell anemia, hemoglobin SC, and hemoglobin S beta thalassemia.  |  |
| 5.53.3 : Discuss the common complications seen in a child with sickle cell disease. These include: hemolysis, hand-foot syndrome, anemia, aplastic crises, bone infarction, stroke, skin ulcers, pain episodes, priapism, sepsis and infections, cholelithiasis, chest syndrome, retinopathy, renal failure, and sequestration crises. |  |
| 5.53.4 : Outline the management of a patient who presents with a sickle crisis. These should include discussion and proper use of IV fluids, analgesics, antibiotics, oxygen, blood transfusions, and indications for hydroxyurea and stem cell transplant.  |  |
| 5.53.5 : Develop a preventive care plan for a patient with a sickle disease. These should include use of folate, prophylactic antibiotics, immunizations, prompt evaluation of febrile episodes and stroke screening.  |  |
| 5.53.6 : Identify the indicators for a hematology referral in a child with sickle cell disease.  |  |
| <b>6.95 GOAL: Pediatric Competencies in Brief (Subspecialty Rotation). Demonstrate high standards of professional competence while working with patients under the care of a subspecialist. [For details see Pediatric Competencies.]</b>  |  |
| 6.95.1 : Competency 1: Patient Care. Provide family-centered patient care that is development- and age-appropriate, compassionate, and effective for the treatment of health problems and the promotion of health.   |  |
| 6.95.1.1 :Use a logical and appropriate clinical approach to the care of patients presenting for specialty care, applying principles of evidence-based decision-making and problem-solving.  |  |
| 6.95.1.2 :Describe general indications for subspecialty procedures and interpret results for families.   |  |

|   |  |
|---|--|
| 6.95.2 : Competency 2: Medical Knowledge. Understand the scope of established and evolving biomedical, clinical, epidemiological and social-behavioral knowledge needed by a pediatrician; demonstrate the ability to acquire, critically interpret and apply this knowledge in patient care. |  |
| 6.95.2.1 :Acquire, interpret and apply the knowledge appropriate for the generalist regarding the core content of this subspecialty area.   |  |
| 6.95.2.2 :Critically evaluate current medical information and scientific evidence related to this subspecialty area and modify your knowledge base accordingly.   |  |
| 6.95.3 : Competency 3: Interpersonal Skills and Communication. Demonstrate interpersonal and communication skills that result in information exchange and partnering with patients, their families and professional associates.   |  |
| 6.95.3.1 :Provide effective patient education, including reassurance, for a condition(s) common to this subspecialty area.  |  |
| 6.95.3.2 :Communicate effectively with primary care and other physicians, other health professionals, and health-related agencies to create and sustain information exchange and teamwork for patient care.   |  |
| 6.95.3.3 :Maintain accurate, legible, timely and legally appropriate medical records, including referral forms and letters, for subspecialty patients in the outpatient and inpatient setting.  |  |
| 6.95.4 : Competency 4: Practice-based Learning and Improvement. Demonstrate knowledge, skills and attitudes needed for continuous self-assessment, using scientific methods and evidence to investigate, evaluate, and improve one's patient care practice.                                   |  |
| 6.95.4.1 :Identify standardized guidelines for diagnosis and treatment of conditions common to this subspecialty area and adapt them to the individual needs of specific patients.  |  |
| 6.95.4.2 :Identify personal learning needs related to this subspecialty; systematically organize relevant information resources for future reference; and plan for continuing acquisition of knowledge and skills.  |  |
| 6.95.5 : Competency 5: Professionalism. Demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to diversity.  |  |
| 6.95.5.1 :Demonstrate personal accountability to the well-being of patients (e.g., following up on lab results, writing comprehensive notes, and seeking answers to patient care questions).  |  |
| 6.95.5.2 :Demonstrate a commitment to carrying out professional responsibilities.   |  |
| 6.95.5.3 :Adhere to ethical and legal principles, and be sensitive to diversity.  |  |
| 6.95.6 : Competency 6: Systems-based Practice. Understand how to practice high-quality health care and advocate for patients within the context of the health care system.  |  |
| 6.95.6.1 :Identify key aspects of health care systems as they apply to specialty care, including the referral process, and differentiate between consultation and referral.   |  |
| 6.95.6.2 :Demonstrate sensitivity to the costs of clinical care in this subspecialty setting, and take steps to minimize costs without compromising quality   |  |
| 6.95.6.3 :Recognize and advocate for families who need assistance to deal with systems complexities, such as the referral process, lack of insurance, multiple medication refills, multiple appointments with long transport times, or inconvenient hours of service.                         |  |
| 6.95.6.4 :Recognize one's limits and those of the system; take steps to avoid   |  |

|   |  |
|---|--|
| medical errors.   |  |
| <b>Procedures</b>   |  |
| <b>7.1.GOAL: Technical and therapeutic procedures.</b> Describe the following procedures, including how they work and when they should be used; competently perform those commonly used by the pediatrician in practice.  |  |
| Bone marrow: aspiration/biopsy  |  |
| Central line: use/care  |  |
| Lumbar puncture   |  |
| Medication delivery: IV   |  |
| <b>7.2. GOAL: Diagnostic and screening procedures.</b> Describe the following tests or procedures, including how they work and when they should be used; competently perform those commonly used by the pediatrician in practice.   |  |
| Radiologic interpretation: abdominal ultrasound   |  |
| Radiologic interpretation: abdominal X-ray  |  |
| Radiologic interpretation: chest X-ray  |  |
| Radiologic interpretation: CT of head   |  |
| Radiologic interpretation: extremity X-ray  |  |
| Radiologic interpretation: MRI of head  |  |
| Radiologic interpretation: renal ultrasound   |  |
| Radiologic interpretation: renogram   |  |
| <b>Source</b>   |  |
| Kittredge, D., Baldwin, C. D., Bar-on, M. E., Beach, P. S., Trimm, R. F. (Eds.). (2004). APA Educational Guidelines for Pediatric Residency. Ambulatory Pediatric Association Website. Available online: <a href="http://www.ambpeds.org/egweb">www.ambpeds.org/egweb</a> . [Accessed 07/22/2005]. Project to develop this website was funded by the Josiah Macy, Jr. Foundation 2002-2005. |  |

|   |  |
|---|--|
| <b>Subspecialty Rotation: Nephrology</b>  |  |
| <b>Primary Goals for this Rotation</b>  |  |
| <b>5.20 GOAL: Hypertension. Understand the general pediatrician's role in diagnosis and management of hypertension in children.</b>   |  |
| 5.20.1 : Classify a patient with hypertension as to severity according to current national guidelines, e.g., mild, moderate or severe.  |  |
| 5.20.2 : Develop a diagnostic plan for a child with hypertension that accounts for severity of the condition, including recognition and management of hypertensive emergencies.   |  |
| 5.20.3 : Manage a patient with hypertension using a step-wise approach that includes the role of diet, exercise, weight control and medications.  |  |
| 5.20.4 : Compare the commonly used antihypertensive drugs, considering indications and contraindications for use, mechanism of action and side effects.   |  |
| 5.20.5 : Identify the indicators for a cardiology or nephrology referral in a child with hypertension.  |  |
| <b>5.64 GOAL: Prevention, Counseling and Screening (Nephrology). Understand the role of the pediatrician in preventing renal disease, and in counseling and screening individuals at risk for these diseases.</b>   |  |
| 5.64.1 : Provide routine prevention counseling about kidney health and disease to all parents and patients, addressing: <ul style="list-style-type: none"> <li>1. Normal voiding, toilet training and attainment of bladder control</li> <li>2. Female hygiene</li> <li>3. Urinary tract infections and nonspecificity of physical complaints in infants and young children</li> <li>4. Strategies to assure normal bowel and bladder habits</li> <li>5. Importance of routinely measuring blood pressures in children, especially overweight children and those with a family history of hypertension</li> </ul>   |  |
| 5.64.2 : In conjunction with a specialist, provide specific prevention counseling to parents and patients with renal diseases, addressing: <ul style="list-style-type: none"> <li>1. Need for medication adjustments in patients with impaired renal function, including many over-the-counter medicines</li> <li>2. Need for prophylactic medications for certain renal conditions</li> <li>3. Altered immunization schedule for children with specific renal diseases (e.g., those immunocompromised following renal transplantation, with chronic renal failure, nephritic syndrome, etc.)</li> <li>4. Importance of continued home and office monitoring in children with specific diseases (e.g., blood pressures in children with hypertension or urine protein for children with nephrotic syndrome)</li> <li>5. Risks of contact and other sports in children with a single kidney</li> </ul> |  |
| 5.64.3 : Provide routine nephrologic screening. <ul style="list-style-type: none"> <li>1. Use blood pressures beginning at age 3 to screen for hypertension, using age- and height-specific BP norms and blood pressure cuffs appropriate for patient's height and weight; discuss criteria for repeated measurements and</li> </ul>  |  |

|   |  |
|---|--|
| <p>further evaluation or referral.</p> <p>2. Obtain and accurately interpret urine for dipstick examination to screen for blood and protein at certain milestones (e.g., pre-school and pre-sports examinations).</p>   |  |
| <p><b>5.65 GOAL: Normal Vs. Abnormal (Nephrology). Differentiate between normal and pathological states related to the renal system.</b></p>  |  |
| <p>5.65.1 : Discuss the normal physiological development of the kidneys and bladder, including renal concentrating ability, glomerular filtration and sodium handling, normal voiding pattern, urine output and attainment of bladder control.</p>  |  |
| <p>5.65.2 : Describe age-related changes in blood pressure and normal ranges from birth through adolescence.</p>  |  |
| <p>5.65.3 : Differentiate transient or physiological proteinuria and/or orthostatic proteinuria from clinically significant (i.e. pathological) persistent or intermittent proteinuria.</p>   |  |
| <p>5.65.4 : Differentiate transient hematuria from clinically significant gross or microscopic hematuria.</p>   |  |
| <p>5.65.5 : Explain the findings on clinical history and examination that suggest renal disease and require further evaluation and treatment.</p>   |  |
| <p>5.65.6 : Discuss indications for, order and interpret clinical and laboratory tests to identify renal disease. Tests should include: urinalysis (dipstick and microscopic), 24-hr urine studies, spot urine calcium/creatinine, protein/creatinine and albumin/creatinine ratios, serum electrolytes, BUN, creatinine (and methods to estimate glomerular filtration rate), calcium, phosphorous and albumin; complete renal ultrasound (kidneys, collecting systems, bladder), intravenous pyelography, voiding cystourethrogram (radiographic and radionuclide), renal nuclear scans.</p>  |  |
| <p><b>5.66 GOAL: Undifferentiated Signs and Symptoms (Nephrology). Evaluate, treat, and/or refer patients with presenting signs and symptoms that may indicate a nephrologic disease process.</b></p>   |  |
| <p>5.66.1 : Create a strategy to determine if the following presenting signs and symptoms are caused by a renal disease process and determine if the patient needs treating, consultation or referral.</p> <ol style="list-style-type: none"> <li>1. Hypertension</li> <li>2. Edema</li> <li>3. Hematuria</li> <li>4. Proteinuria</li> <li>5. Growth retardation</li> <li>6. Vasculitic ashes.</li> <li>7. Arthritis and arthralgia.</li> <li>8. Urinary frequency and/or dysuria</li> <li>9. Oliguria</li> <li>10. Polyuria and/or polydipsia</li> <li>11. Abdominal pain</li> <li>12. Abdominal mass</li> <li>13. Acidosis</li> <li>14. Enuresis</li> <li>15. Deteriorating school performance</li> <li>16. Nausea, poor appetite, weight loss</li> <li>17. Pruritus</li> <li>18. Unexpected fractures</li> </ol> |  |

|  |  |
|--|--|
| 19. Unusual cravings for salt or potassium   |  |
| <b>5.67 GOAL: Common Conditions Not Referred (Nephrology). Diagnose and manage patients with common renal conditions who generally do not require referral.</b>  |  |
| <p>5.67.1 : Diagnose, explain, and manage the following renal conditions:</p> <ol style="list-style-type: none"> <li>1. Urinary tract infection, uncomplicated</li> <li>2. Minor electrolyte disturbances</li> <li>3. Dehydration</li> <li>4. Orthostatic and physiologic proteinuria</li> <li>5. Nonspecific urethritis</li> <li>6. Hypertension, mild</li> <li>7. Steroid-responsive nephrotic syndrome</li> <li>8. Nocturnal enuresis</li> <li>9. Urinary frequency without renal cause</li> <li>10. Hematuria without proteinuria, including resolving postinfectious glomerulonephritis</li> <li>11. Henoch-Schonlein purpura without persistent renal involvement</li> </ol>   |  |
| 5.67.2 : Describe how the primary care of children with chronic kidney disease differs from routine primary care, including changes in immunization schedules, management of growth and development, and learning and behavioral issues.   |  |
| <b>5.68 GOAL: Conditions Generally Referred (Nephrology). Recognize, initiate management of patients with renal conditions who generally require referral.</b>   |  |
| <p>5.68.1 : Identify, explain, initially manage, and refer the following renal conditions:</p> <ol style="list-style-type: none"> <li>1. Acute and chronic renal failure</li> <li>2. Hemolytic uremic syndrome</li> <li>3. Hypertension, moderate to severe</li> <li>4. Renal mass, cyst, hydronephrosis, dysplasia</li> <li>5. Diabetes insipidus</li> <li>6. Urolithiasis and/or nephrocalcinosis/hypercalcinuria</li> <li>7. Tubular defects (e.g., renal tubular acidosis, Fanconi's, Bartter's)</li> <li>8. Glomerulonephritis</li> <li>9. Steroid-resistant nephrotic syndrome</li> <li>10. Severe electrolyte imbalance</li> <li>11. Abnormal renal function in the acutely ill</li> <li>12. Vesicoureteral reflux</li> <li>13. Obstructive uropathy</li> <li>14. Henoch-Schonlein purpura (persistent renal involvement)</li> <li>15. Autoimmune diseases with potential for renal involvement (e.g., systemic lupus erythematosus, Wegener)</li> <li>16. Urinary tract infections with vesicoureteral reflux, hypertension, or other renal abnormalities</li> <li>17. Unexplained hematuria</li> <li>18. Proteinuria, other than orthostatic and physiologic</li> </ol> |  |
| 5.68.2 : Identify the role and general scope of practice of nephrologists and contrast with that of urologists; recognize situations where children benefit from the   |  |

|   |  |
|---|--|
| skills of specialists trained in the care of children; and work effectively with these professionals to care for children with renal disease.   |  |
| 5.68.3 : Discuss the indications for, basic principles and complications of substitution therapy in renal failure, e.g., hemodialysis, peritoneal dialysis and continuous hemofiltration.   |  |
| <b>5.69 GOAL: Fluid and Electrolytes. Understand the physiology of body fluids and electrolytes, abnormalities, and treatment.</b>  |  |
| 5.69.1 : Discuss the normal physiology of body fluids (water) and salts, including: intracellular vs. extracellular component, composition of salt in each (Na, K), intake and output, measured and insensible losses, and normal daily requirements.   |  |
| 5.69.2 : Recall the composition of commonly used intravenous and oral rehydration solutions.  |  |
| 5.69.3 : Implement maintenance and replacement fluid therapy (either oral or IV) in patients and make changes based on changes in the clinical condition, taking into account fluid and electrolyte deficits, maintenance needs, insensible losses, output, and intracellular vs. extracellular components. |  |
| 5.69.4 : Diagnose dehydration in a child, classify as to type and amount of dehydration, and evaluate the etiology.   |  |
| 5.69.5 : Discuss the different types of dehydration, methods of fluid replacement based on the type, and initial need for frequent assessment.  |  |
| 5.69.6 : Interpret acid-base laboratory values and discuss the differential diagnosis of metabolic acidosis and alkalosis. Describe one's approach to diagnosis and treatment.  |  |
| <b>5.70 GOAL: Urinary Tract Infection (UTI). Appropriately manage and refer, when necessary, patients with urinary tract infections.</b>  |  |
| 5.70.1 : Discuss findings on clinical history and examination that lead one to suspect a UTI.   |  |
| 5.70.2 : Compare and contrast the different methods of obtaining a urine specimen.  |  |
| 5.70.3 : Describe the method for making an appropriate diagnosis of a UTI prior to treatment and differentiate between pyelonephritis and cystitis.   |  |
| 5.70.4 : Implement appropriate antibiotic treatment of a suspected UTI and list indicators that would result in changes in therapy.   |  |
| 5.70.5 : Discuss the appropriate radiologic evaluation for a child presenting with a first UTI, taking into account the age and sex of the child.   |  |
| 5.70.6 : Describe indications for antibiotic prophylaxis for recurrent UTI and the long-term risks of recurrent UTIs.   |  |
| 5.70.7 : Identify indicators for a nephrology or urology consult or referral of a child with a UTI.   |  |
| <b>5.71 GOAL: Nephrotic Syndrome. Understand the pediatrician's role in the management of nephrotic syndrome.</b>   |  |
| 5.71.1 : Discuss findings on clinical history and physical examination that would lead one to suspect nephrotic syndrome.   |  |
| 5.71.2 : Discuss the different types of nephrotic syndrome, the current therapy of each, and the need for consistent therapy.   |  |
| 5.71.3 : Describe age-related differences in the etiology of nephrotic syndrome.  |  |
| 5.71.4 : Differentiate between steroid-resistant and steroid-responsive nephrotic syndrome.   |  |
| 5.71.5 : Identify indicators of the need for emergent management and urgent vs. non-urgent nephrology referral of a child with nephrotic syndrome.  |  |

|   |  |
|---|--|
| 5.71.6 : Along with a nephrologist, provide counseling to parents of children with nephrotic syndrome, addressing such issues as risk of infection, venous thrombosis and pulmonary edema, as well as treatment, medication side effects and importance of home monitoring.   |  |
| <b>5.72 GOAL: Systemic Conditions with Renal Involvement. Understand the pathophysiology and management of common systemic conditions that may present with renal involvement, and seek consultation or referral appropriately.</b>   |  |
| 5.72.1 : Identify and explain the renal involvement seen in the following systemic conditions: <ul style="list-style-type: none"> <li>1. Henoch-Schonlein purpura</li> <li>2. Systemic lupus erythematosus</li> <li>3. Sickle cell anemia</li> <li>4. Bacteremia and sepsis</li> <li>5. Shock</li> <li>6. Dehydration</li> <li>7. Vasculitis</li> <li>8. Diabetes mellitus</li> </ul> |  |
| <b>6.95 GOAL: Pediatric Competencies in Brief (Subspecialty Rotation). Demonstrate high standards of professional competence while working with patients under the care of a subspecialist. [For details see Pediatric Competencies.]</b>   |  |
| 6.95.1 : Competency 1: Patient Care. Provide family-centered patient care that is development- and age-appropriate, compassionate, and effective for the treatment of health problems and the promotion of health.  |  |
| 6.95.1.1 :Use a logical and appropriate clinical approach to the care of patients presenting for specialty care, applying principles of evidence-based decision-making and problem-solving.   |  |
| 6.95.1.2 :Describe general indications for subspecialty procedures and interpret results for families.  |  |
| 6.95.2 : Competency 2: Medical Knowledge. Understand the scope of established and evolving biomedical, clinical, epidemiological and social-behavioral knowledge needed by a pediatrician; demonstrate the ability to acquire, critically interpret and apply this knowledge in patient care.   |  |
| 6.95.2.1 :Acquire, interpret and apply the knowledge appropriate for the generalist regarding the core content of this subspecialty area.   |  |
| 6.95.2.2 :Critically evaluate current medical information and scientific evidence related to this subspecialty area and modify your knowledge base accordingly.   |  |
| 6.95.3 : Competency 3: Interpersonal Skills and Communication. Demonstrate interpersonal and communication skills that result in information exchange and partnering with patients, their families and professional associates.   |  |
| 6.95.3.1 :Provide effective patient education, including reassurance, for a condition(s) common to this subspecialty area.  |  |
| 6.95.3.2 :Communicate effectively with primary care and other physicians, other health professionals, and health-related agencies to create and sustain information exchange and teamwork for patient care.   |  |
| 6.95.3.3 :Maintain accurate, legible, timely and legally appropriate medical records, including referral forms and letters, for subspecialty patients in the outpatient and   |  |

|   |  |
|---|--|
| inpatient setting.  |  |
| 6.95.4 : Competency 4: Practice-based Learning and Improvement. Demonstrate knowledge, skills and attitudes needed for continuous self-assessment, using scientific methods and evidence to investigate, evaluate, and improve one's patient care practice.           |  |
| 6.95.4.1 :Identify standardized guidelines for diagnosis and treatment of conditions common to this subspecialty area and adapt them to the individual needs of specific patients.  |  |
| 6.95.4.2 :Identify personal learning needs related to this subspecialty; systematically organize relevant information resources for future reference; and plan for continuing acquisition of knowledge and skills.  |  |
| 6.95.5 : Competency 5: Professionalism. Demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to diversity.  |  |
| 6.95.5.1 :Demonstrate personal accountability to the well-being of patients (e.g., following up on lab results, writing comprehensive notes, and seeking answers to patient care questions).  |  |
| 6.95.5.2 :Demonstrate a commitment to carrying out professional responsibilities.   |  |
| 6.95.5.3 :Adhere to ethical and legal principles, and be sensitive to diversity.  |  |
| 6.95.6 : Competency 6: Systems-based Practice. Understand how to practice high-quality health care and advocate for patients within the context of the health care system.  |  |
| 6.95.6.1 :Identify key aspects of health care systems as they apply to specialty care, including the referral process, and differentiate between consultation and referral.   |  |
| 6.95.6.2 :Demonstrate sensitivity to the costs of clinical care in this subspecialty setting, and take steps to minimize costs without compromising quality   |  |
| 6.95.6.3 :Recognize and advocate for families who need assistance to deal with systems complexities, such as the referral process, lack of insurance, multiple medication refills, multiple appointments with long transport times, or inconvenient hours of service. |  |
| 6.95.6.4 :Recognize one's limits and those of the system; take steps to avoid medical errors.   |  |
| <b>Procedures</b>   |  |
| <b>7.1.GOAL: Technical and therapeutic procedures.</b> Describe the following procedures, including how they work and when they should be used; competently perform those commonly used by the pediatrician in practice.  |  |
| Bladder: catheterization  |  |
| Bladder: suprapubic tap   |  |
| <b>7.2. GOAL: Diagnostic and screening procedures.</b> Describe the following tests or procedures, including how they work and when they should be used; competently perform those commonly used by the pediatrician in practice.                                     |  |
| Radiologic interpretation: abdominal ultrasound   |  |
| Radiologic interpretation: voiding cystourethrogram   |  |
| Renal biopsy  |  |
| <b>Source</b>   |  |
| Kittredge, D., Baldwin, C. D., Bar-on, M. E., Beach, P. S., Trimm, R. F.  |  |

(Eds.). (2004). APA Educational Guidelines for Pediatric Residency. Ambulatory Pediatric Association Website. Available online: [www.ambpeds.org/egweb](http://www.ambpeds.org/egweb). [Accessed 07/22/2005]. Project to develop this website was funded by the Josiah Macy, Jr. Foundation 2002-2005.

| <b>Subspecialty Rotation: Neurodevelopmental Disabilities</b>  |  |
|--|--|
| <b>Primary Goals for this Rotation</b>   |  |
| <b>3.34 GOAL: School Performance. Understand the pediatrician's role in the promotion of school performance and the evaluation and management of school problems in children and adolescents.</b>  |  |
| 3.34.1 : Provide anticipatory guidance to families of school-aged children about habits that promote school performance, including adequate sleep, nutrition and exercise, predictable daily routines, limiting media exposure, providing a conducive environment for study, encouraging homework completion, and participating in parent-school activities. |  |
| 3.34.2 : Generate a differential diagnosis for the child with inadequate school performance.   |  |
| 3.34.3 : Coordinate an evaluation of a child with inadequate school performance that includes input from the child, the child's family and school, and psycho-educational testing.   |  |
| 3.34.4 : Provide information and support to the child who has a learning disability and his/her family.  |  |
| 3.34.5 : Manage medical conditions that contribute to inadequate school performance (e.g., ADHD, chronic illnesses, hearing impairment).   |  |
| 3.34.6 : Coordinate comprehensive care for children with inadequate school performance who have ongoing medical conditions.  |  |
| <b>3.35 GOAL: Developmental Disabilities/Mental Retardation. Understand the pediatrician's role in screening, diagnosing, managing and/or referring children with developmental disabilities and mental retardation.</b>   |  |
| 3.35.1 : Generate a differential diagnosis for the child with persistent global developmental delay, persistent motor delays, with abnormalities in speech and language development, and with persistent learning difficulties.  |  |
| 3.35.2 : Coordinate an evaluation of a child with persistent developmental symptoms.   |  |
| 3.35.3 : Know the effects that developmental disabilities have on child and family functioning and how to assist with them.  |  |
| 3.35.4 : Know the common medical complications associated with the more common developmental disabilities such as cerebral palsy, mental retardation, Down's syndrome and meningomyelocele.  |  |
| 3.35.5 : Know effective therapies available for children with cerebral palsy, mental retardation, genetic disorders and meningomyelocele.  |  |
| 3.35.6 : Coordinate comprehensive care for children with cerebral palsy, various degrees of mental retardation, genetic disorders and meningomyelocele.  |  |
| <b>3.38 GOAL: Autistic Spectrum Disorders. Understand the pediatrician's role in screening, diagnosing, managing and/or referring children with autism spectrum disorders.</b>   |  |
| 3.38.1 : Use history and observation to identify children with social interaction difficulties and communication impairments.  |  |
| 3.38.2 : Recognize developmental milestone red flags for autism spectrum disorders (e.g., absence of joint attention by 9-12 mo of age, absence of pretend play by 18 mo of age, language delays).   |  |

|  |  |
|--|--|
| 3.38.3 : Generate a differential diagnosis for ASD.  |  |
| 3.38.4 : Screen and refer identified children with the possibility of ASD.   |  |
| 3.38.5 : Be familiar with appropriate long-term management techniques and necessary components of an effective educational and habilitation program for children with autism spectrum disorders.   |  |
| <b>5.81 GOAL: Prevention, Counseling and Screening for Neurodevelopmental Disabilities (NDD). Understand the role of the pediatrician in preventing conditions that affect developmental and neurological functions in children, and in counseling and screening individuals at risk for these disorders.</b>  |  |
| 5.81.1 : Provide routine counseling to all parents and patients about: <ul style="list-style-type: none"> <li>1. The use of developmental screening tests and questionnaires for early diagnosis of neurodevelopmental disabilities (e.g., Ages and Stages, CHAT)</li> <li>2. Federal and state programs available to provide individualized and appropriate educational services to children of all abilities in the least restrictive environment</li> <li>3. Prevention of fetal exposures to drugs and alcohol</li> </ul>  |  |
| 5.81.2 : Provide specific counseling to parents and patients with NDD about: <ul style="list-style-type: none"> <li>1. The rights of the child and family when physical or developmental disabilities are present, including Individuals with Disabilities Education Act (IDEA), Section 504 of the Rehabilitation Act, the Americans with Disabilities Act (ADA), and the Family Medical Leave Act (FMLA)</li> <li>2. The natural history of specific neurodevelopmental disabilities, such as cerebral palsy, from infancy to early adulthood, including the impact of illness on the individual, family and community</li> <li>3. Advocacy roles for families in dealing with the child who has a disability, including being a health care case manager for their own child</li> </ul> |  |
| <b>5.82 GOAL: Normal Vs. Abnormal (NDD). Distinguish normal from pathological conditions affecting neurodevelopmental functions in children.</b>   |  |
| 5.82.1 : Describe normal development of the nervous system, as manifested in expressive and receptive language and play, cognitive, fine and gross motor development, loss of primitive reflexes, and socialization.   |  |
| 5.82.2 : Explain the findings on clinical history and examination that suggest neurodevelopmental dysfunction that requires further evaluation and treatment.  |  |
| 5.82.3 : Differentiate the child with transient dystonia of prematurity or idiopathic toe walking from the child with mild spastic diplegic cerebral palsy by recognizing abnormal movement patterns and the signs and symptoms of upper motor neuron disease.   |  |
| 5.82.4 : Discuss the time course of the acquisition and loss of primitive reflexes and the implications of persistence, especially in regard to the early diagnosis of cerebral palsy (e.g., in preterm infants).  |  |
| 5.82.5 : Recognize developmental variation in infants and young children and be able to differentiate between delayed, deviant and dissociated development in all of domains of development.   |  |

|  |  |
|--|--|
| 5.82.6 : Assess muscle tone in infants and children and differentiate normal tone from hypertonicity or hypotonicity.  |  |
| 5.82.7 : Differentiate the child with delayed language development from children with atypical development and symptoms of autism spectrum disorders.  |  |
| <b>5.83 GOAL: Undifferentiated Signs and Symptoms (NDD). Evaluate, treat and/or refer children with presenting signs and symptoms that may indicate conditions affecting neurodevelopmental function.</b>  |  |
| 5.83.1 : Create a strategy to evaluate the following situations and consult or refer, as indicated:<br><br><ol style="list-style-type: none"> <li>1. Abnormality of tone</li> <li>2. Alterations in strength and motor control</li> <li>3. Significant delays in motor development</li> <li>4. Genetic syndromes associated with developmental disorders</li> <li>5. Failure to thrive</li> <li>6. Drooling, dysphagia and feeding difficulties</li> <li>7. Recurrent respiratory illnesses in persons with severe disabilities</li> <li>8. Constipation</li> <li>9. Recurrent urinary tract infections and urinary hesitancy</li> <li>10. Developmental delays or deviancy in language acquisition</li> </ol> |  |
| 5.83.2 : Develop a system to evaluate minor physical abnormalities (dysmorphic features) as part of the evaluation of a child with NDD or delays.  |  |
| 5.83.3 : Provide counseling and support to the family of a child with cognitive, language or physical limitations who needs additional care coordination and access to community resources (e.g., using the Medical Home model from the AAP).  |  |
| 5.83.4 : Discuss and refer to appropriate family support resources, including respite care and educational services.   |  |
| 5.83.5 : Describe the eligibility for early intervention and special education services and procedures for the development of the Individualized Family Service Plan (IFSP) and the Individualized Education Plan (IEP).   |  |
| 5.83.6 : Develop a management strategy to help the family of an infant exposed to drugs or alcohol in-utero.   |  |
| <b>5.84 GOAL: Common Conditions Not Referred (NDD). Diagnose and manage patients with conditions affecting neurodevelopmental function that generally do not require referral.</b>   |  |
| 5.84.1 : Diagnose, explain, and manage the following NDD conditions:<br><br><ol style="list-style-type: none"> <li>1. Chronic constipation</li> <li>2. Mild, stable tonic-clonic or absence seizures</li> <li>3. Gastroesophageal reflux</li> <li>4. Impulsivity and attention deficits as part of uncomplicated ADHD</li> <li>5. Gastrostomy tube related issues (dislodgement, granulomas, leakage, local infections, participation in activities)</li> <li>6. Decubitus ulcers, grades 1 and 2</li> <li>7. Bladder colonization vs. infection in children with neurogenic bladder dysfunction</li> <li>8. School failures in children with chronic or disabling conditions</li> </ol>                       |  |
| <b>5.85 GOAL: Conditions Generally Referred (NDD). Recognize and</b>   |  |

|  |  |
|--|--|
| <p><b>initiate management of children with conditions affecting neurodevelopmental function that generally require referral.</b></p>   |  |
| <p>5.85.1 : Identify, explain, initially manage, and refer the following conditions affecting neurodevelopmental function:</p> <ol style="list-style-type: none"> <li>1. Cerebral palsy</li> <li>2. Spina bifida</li> <li>3. Autistic disorder</li> <li>4. Genetic syndromes associated with developmental disorders</li> <li>5. Congenital syndromes affecting development and function</li> <li>6. Autistic spectrum disorders</li> <li>7. Learning disabilities</li> <li>8. Speech and language disorders</li> <li>9. Mental retardation</li> </ol> |  |
| <p>5.85.2 : Identify the role and general scope of practice of neurodevelopmental pediatrics; recognize situations where children benefit from the skills of specialists trained in caring for children with neurodevelopmental disabilities; and work collaboratively and effectively with these professionals to care for children with neurodevelopmental disorders.</p>  |  |
| <p>5.85.3 : Describe basic strategies for behavioral and educational treatment of children with autism spectrum disorder.</p>  |  |
| <p>5.85.4 : Recall the medications used for management of the challenging behaviors often seen in children with NDD (e.g., for treatment of self-injurious behaviors).</p>   |  |
| <p>5.85.5 : Discuss the signs and symptoms of common neurosurgical problems in children with spina bifida.</p>   |  |
| <p>5.85.6 : Discuss the range of problems and treatment alternatives for bowel and bladder incontinence in spina bifida.</p>   |  |
| <p><b>6.95 GOAL: Pediatric Competencies in Brief (Subspecialty Rotation). Demonstrate high standards of professional competence while working with patients under the care of a subspecialist. [For details see Pediatric Competencies.]</b></p>   |  |
| <p>6.95.1 : Competency 1: Patient Care. Provide family-centered patient care that is development- and age-appropriate, compassionate, and effective for the treatment of health problems and the promotion of health.</p>  |  |
| <p>6.95.1.1 :Use a logical and appropriate clinical approach to the care of patients presenting for specialty care, applying principles of evidence-based decision-making and problem-solving.</p>   |  |
| <p>6.95.1.2 :Describe general indications for subspecialty procedures and interpret results for families.</p>  |  |
| <p>6.95.2 : Competency 2: Medical Knowledge. Understand the scope of established and evolving biomedical, clinical, epidemiological and social-behavioral knowledge needed by a pediatrician; demonstrate the ability to acquire, critically interpret and apply this knowledge in patient care.</p>   |  |
| <p>6.95.2.1 :Acquire, interpret and apply the knowledge appropriate for the generalist regarding the core content of this subspecialty area.</p>   |  |
| <p>6.95.2.2 :Critically evaluate current medical information and scientific evidence related to this subspecialty area and modify your knowledge base accordingly.</p>   |  |
| <p>6.95.3 : Competency 3: Interpersonal Skills and Communication. Demonstrate interpersonal and communication skills that result in information exchange and</p>   |  |

|   |  |
|---|--|
| partnering with patients, their families and professional associates.   |  |
| 6.95.3.1 :Provide effective patient education, including reassurance, for a condition(s) common to this subspecialty area.  |  |
| 6.95.3.2 :Communicate effectively with primary care and other physicians, other health professionals, and health-related agencies to create and sustain information exchange and teamwork for patient care.   |  |
| 6.95.3.3 :Maintain accurate, legible, timely and legally appropriate medical records, including referral forms and letters, for subspecialty patients in the outpatient and inpatient setting.  |  |
| 6.95.4 : Competency 4: Practice-based Learning and Improvement. Demonstrate knowledge, skills and attitudes needed for continuous self-assessment, using scientific methods and evidence to investigate, evaluate, and improve one's patient care practice.           |  |
| 6.95.4.1 :Identify standardized guidelines for diagnosis and treatment of conditions common to this subspecialty area and adapt them to the individual needs of specific patients.  |  |
| 6.95.4.2 :Identify personal learning needs related to this subspecialty; systematically organize relevant information resources for future reference; and plan for continuing acquisition of knowledge and skills.  |  |
| 6.95.5 : Competency 5: Professionalism. Demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to diversity.  |  |
| 6.95.5.1 :Demonstrate personal accountability to the well-being of patients (e.g., following up on lab results, writing comprehensive notes, and seeking answers to patient care questions).  |  |
| 6.95.5.2 :Demonstrate a commitment to carrying out professional responsibilities.   |  |
| 6.95.5.3 :Adhere to ethical and legal principles, and be sensitive to diversity.  |  |
| 6.95.6 : Competency 6: Systems-based Practice. Understand how to practice high-quality health care and advocate for patients within the context of the health care system.  |  |
| 6.95.6.1 :Identify key aspects of health care systems as they apply to specialty care, including the referral process, and differentiate between consultation and referral.   |  |
| 6.95.6.2 :Demonstrate sensitivity to the costs of clinical care in this subspecialty setting, and take steps to minimize costs without compromising quality   |  |
| 6.95.6.3 :Recognize and advocate for families who need assistance to deal with systems complexities, such as the referral process, lack of insurance, multiple medication refills, multiple appointments with long transport times, or inconvenient hours of service. |  |
| 6.95.6.4 :Recognize one's limits and those of the system; take steps to avoid medical errors.   |  |
| <b>Procedures</b>   |  |
| <b>7.2. GOAL: Diagnostic and screening procedures.</b> Describe the following tests or procedures, including how they work and when they should be used; competently perform those commonly used by the pediatrician in practice.                                     |  |
| ADHD home and school questionnaires   |  |
| Audiometry evaluation: interpretation   |  |
| Behavioral screening questionnaire  |  |
| Developmental screening test  |  |

|  |  |
|--|--|
| Language screening test  |  |
| Radiologic interpretation: MRI of head   |  |
| <b>Source</b><br><br>Kittredge, D., Baldwin, C. D., Bar-on, M. E., Beach, P. S., Trimm, R. F. (Eds.). (2004). APA Educational Guidelines for Pediatric Residency. Ambulatory Pediatric Association Website. Available online: <a href="http://www.ambpeds.org/egweb">www.ambpeds.org/egweb</a> . [Accessed 07/22/2005]. Project to develop this website was funded by the Josiah Macy, Jr. Foundation 2002-2005. |  |

|   |  |
|---|--|
| <b>Subspecialty Rotation: Neurology</b>   |  |
| <b>Primary Goals for this Rotation</b>  |  |
| <b>5.73 GOAL: Prevention, Counseling and Screening (Neurology).<br/>Understand the role of the pediatrician in preventing neurological diseases, and in counseling and screening individuals at risk for these diseases.</b>  |  |
| 5.73.1 : Provide routine neurological prevention counseling to parents and patients about: <ul style="list-style-type: none"> <li>1. Prevention of head and spinal cord trauma through use of seat belts, car seats, helmets, firearm safety, playground safety and diving injuries</li> <li>2. Avoidance of environmental toxins including lead, insecticides and other household poisons</li> <li>3. Public health and legislative strategies to reduce head and spinal cord injury</li> </ul>  |  |
| 5.73.2 : Provide specific counseling to parents and patients with neurological disorders, addressing: <ul style="list-style-type: none"> <li>1. Reducing long-term sequela from neurologic injury or congenital CNS disorders through rehabilitation and early intervention</li> <li>2. Providing appropriate home stimulation for preterm infants at risk for developmental delay</li> <li>3. The etiology and natural course of epilepsy, and treatment options and precautions for children with this condition</li> <li>4. The expected course, resolution, risk of seizure disorder, and potential treatment of simple febrile seizures</li> </ul> |  |
| <b>5.74 GOAL: Normal Vs. Abnormal (Neurology). Identify whether a child is normal or suffers from a neuropathological condition.</b>  |  |
| 5.74.1 : Describe normal neurological development, including language acquisition, cognition, motor development, loss of primitive reflexes, and socialization.   |  |
| 5.74.2 : Explain the findings on clinical history and examination that suggest neurologic dysfunction that requires further evaluation and treatment.   |  |
| 5.74.3 : Differentiate a peripheral from a central nervous system lesion, diffuse from focal, and static from progressive neurologic dysfunction. Using this knowledge, correctly localize the site of any lesion.  |  |
| 5.74.4 : Distinguish between a temporary neurological dysfunction (e.g., ataxia or lethargy due to anticonvulsant loading dose) from a pathological dysfunction (e.g., trauma, poisoning, severe infection, hypoglycemia, electrolyte imbalance).   |  |
| 5.74.5 : Discuss the diagnostic value of tests to aid in the diagnosis of neurologic diseases, including indications, limitations, and costs. Discuss the following tests: electroencephalogram (EEG), head computerized tomography scan (CT), head magnetic resonance scan (MR), lumbar puncture, psychometric testing, electromyography (EMG) and nerve conduction velocity (NCV).  |  |
| <b>5.75 GOAL: Undifferentiated Signs and Symptoms (Neurology).<br/>Evaluate, treat and/or refer patients with presenting signs and symptoms that may indicate a neurologic or neuromuscular disease process.</b>  |  |

|   |  |
|---|--|
| <p>5.75.1 : Create a strategy to determine if the following signs and symptoms are caused by a neurologic or neuromuscular disease process:</p> <ol style="list-style-type: none"> <li>1. Vomiting</li> <li>2. Weakness</li> <li>3. Seizures</li> <li>4. Failure to thrive</li> <li>5. Feeding difficulties</li> <li>6. Developmental delay</li> <li>7. Spasticity</li> <li>8. Hypotonia</li> <li>9. Abnormal movement or tics</li> <li>10. Headache</li> <li>11. School problems</li> <li>12. Behavior problems</li> <li>13. Sleep problems</li> </ol>   |  |
| <p><b>5.76 GOAL: Common Conditions Not Referred (Neurology). Recognize and manage neurological disease conditions that generally do not require referral.</b></p>   |  |
| <p>5.76.1 : Diagnose, explain, and manage the patient with the following neurologic conditions:</p> <ol style="list-style-type: none"> <li>1. Absence seizures</li> <li>2. Simple febrile seizures</li> <li>3. Static encephalopathy and cerebral palsy follow-up and co-management</li> <li>4. Headaches, including migraine and tension headaches</li> <li>5. Closed head trauma and simple linear skull fractures without evidence of concussion</li> <li>6. Transient neurological disturbances due to drug ingestions (e.g., antihistamines, benzodiazepams)</li> <li>7. Simple generalized tonic-clonic seizures</li> <li>8. Viral meningitis</li> <li>9. Attention problems including ADHD</li> <li>10. Simple tics</li> </ol> |  |
| <p><b>5.77 GOAL: Conditions Generally Referred (Neurology). Recognize and initiate management of neurological conditions that generally require referral.</b></p>   |  |
| <p>5.77.1 : Identify, explain, initially manage and refer the following neurological or neuromuscular conditions:</p> <ol style="list-style-type: none"> <li>1. Acute encephalopathy such as that caused by metabolic disturbances, lead ingestion, hypertension, anoxia, or drug/toxin overdose or ingestion</li> <li>2. Bacterial meningitis</li> <li>3. Brain tumor</li> <li>4. Initial evaluation for cerebral palsy</li> <li>5. Coma</li> <li>6. Increased intracranial pressure</li> <li>7. Encephalitis</li> <li>8. Headaches that are severe, progressive, refractory to simple therapy, or</li> </ol>  |  |

|   |  |
|---|--|
| <p>suggestive of malignancy</p> <ol style="list-style-type: none"> <li>9. Hydrocephalus</li> <li>10. Abnormal movements (chorea, ataxia, complex tics)</li> <li>11. Initial evaluation for mental retardation, loss of neurologic skills, autism</li> <li>12. Muscle weakness, flaccidity, or paralysis suggestive of Guillain-Barre, muscular dystrophy or hypotonia</li> <li>13. Neurocutaneous syndromes</li> <li>14. Complex seizures that are difficult to diagnose or manage, or those that present with status epilepticus or are associated with progressive neurologic impairment</li> <li>15. Stroke</li> </ol> |  |
| 5.77.2 : Identify the role and scope of practice of neurology; recognize situations where children benefit from the skills of specialists trained in the care of children; and work effectively with these professionals to care for children with neurologic disorders.  |  |
| 5.77.3 : Identify the role of other specialists (e.g., neurosurgery, rehabilitative medicine, psychology, psychiatry and neuropsychology) in the treatment of children with common neurological disorders.  |  |
| <b>5.78 GOAL: Seizures. Evaluate, manage, and refer patients with seizures.</b>   |  |
| 5.78.1 : Explain the findings on clinical history, examination and investigation that suggest a seizure disorder and classify the seizure as generalized (including absence), focal or complex partial.   |  |
| 5.78.2 : Manage uncomplicated seizures using a step-wise approach that begins with the most appropriate anticonvulsant for the type of seizure.   |  |
| 5.78.3 : Develop a step-wise plan for evaluation and treatment for a patient in status epilepticus.   |  |
| 5.78.4 : Identify the indicators that would lead to a neurology referral for a child with seizures, including infantile onset seizures, seizures that are complicated, intractable, or difficult to diagnose or manage, and status epilepticus.   |  |
| 5.78.5 : Explain the characteristics of simple febrile seizures, including epidemiology, genetic predisposition, natural history, risk factors for a seizure disorder and treatment options.  |  |
| 5.78.6 : Discuss common episodic events that may mimic seizures and the findings on history and examination that suggest that the event is not epileptic in origin (e.g., breath-holding spells, benign movement disorders, pseudoseizures, common sleep disorders).  |  |
| <b>5.79 GOAL: Headaches. Evaluate and manage headaches.</b>   |  |
| 5.79.1 : Take a thorough headache history including family history of headaches, location, duration, frequency, character, triggers and associated symptoms.  |  |
| 5.79.2 : Compare and contrast the symptoms associated with tension headaches, migraine headaches, chronic daily headaches and headaches associated with increased intracranial pressure and sinus disease.  |  |
| 5.79.3 : Compare the therapeutic options, both pharmacologic and non-pharmacologic, for treatment of migraine and tension headaches in children. Include mechanism of action, effectiveness, side effects, and costs.   |  |
| 5.79.4 : Identify the indicators for radiologic imaging (CT or MRI) in a patient with headaches.  |  |
| 5.79.5 : Identify the indicators for a neurology consult or referral in a child with  |  |

|   |  |
|---|--|
| headaches.  |  |
| 5.79.6 : Counsel families about strategies for helping children with headaches of possible psychosomatic or psychosocial origin.  |  |
| <b>5.80 GOAL: Neurological Pharmacology. Understand the indications for the use, side effects, and mode of action of commonly used neurological drugs.</b>  |  |
| 5.80.1 : Compare and contrast the indications, contraindications, side effects and common drug interactions of the most commonly used neurological drugs.   |  |
| 5.80.2 : For each neurological drug, describe the laboratory tests needed to follow drug therapy, side effects and drug interactions.   |  |
| 5.80.3 : Describe the effect on the CNS of other commonly used drugs with known CNS action, including: antihistamines, antidepressants, stimulants for attention deficit disorder, over-the-counter cold preparations, and tranquilizers.   |  |
| <b>6.95 GOAL: Pediatric Competencies in Brief (Subspecialty Rotation). Demonstrate high standards of professional competence while working with patients under the care of a subspecialist. [For details see Pediatric Competencies.]</b>   |  |
| 6.95.1 : Competency 1: Patient Care. Provide family-centered patient care that is development- and age-appropriate, compassionate, and effective for the treatment of health problems and the promotion of health.  |  |
| 6.95.1.1 :Use a logical and appropriate clinical approach to the care of patients presenting for specialty care, applying principles of evidence-based decision-making and problem-solving.   |  |
| 6.95.1.2 :Describe general indications for subspecialty procedures and interpret results for families.  |  |
| 6.95.2 : Competency 2: Medical Knowledge. Understand the scope of established and evolving biomedical, clinical, epidemiological and social-behavioral knowledge needed by a pediatrician; demonstrate the ability to acquire, critically interpret and apply this knowledge in patient care. |  |
| 6.95.2.1 :Acquire, interpret and apply the knowledge appropriate for the generalist regarding the core content of this subspecialty area.   |  |
| 6.95.2.2 :Critically evaluate current medical information and scientific evidence related to this subspecialty area and modify your knowledge base accordingly.   |  |
| 6.95.3 : Competency 3: Interpersonal Skills and Communication. Demonstrate interpersonal and communication skills that result in information exchange and partnering with patients, their families and professional associates.   |  |
| 6.95.3.1 :Provide effective patient education, including reassurance, for a condition(s) common to this subspecialty area.  |  |
| 6.95.3.2 :Communicate effectively with primary care and other physicians, other health professionals, and health-related agencies to create and sustain information exchange and teamwork for patient care.   |  |
| 6.95.3.3 :Maintain accurate, legible, timely and legally appropriate medical records, including referral forms and letters, for subspecialty patients in the outpatient and inpatient setting.  |  |
| 6.95.4 : Competency 4: Practice-based Learning and Improvement. Demonstrate knowledge, skills and attitudes needed for continuous self-assessment, using scientific methods and evidence to investigate, evaluate, and improve one's patient care practice.                                   |  |
| 6.95.4.1 :Identify standardized guidelines for diagnosis and treatment of conditions common to this subspecialty area and adapt them to the individual needs of specific  |  |

|   |  |
|---|--|
| patients.   |  |
| 6.95.4.2 :Identify personal learning needs related to this subspecialty; systematically organize relevant information resources for future reference; and plan for continuing acquisition of knowledge and skills.  |  |
| 6.95.5 : Competency 5: Professionalism. Demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to diversity.  |  |
| 6.95.5.1 :Demonstrate personal accountability to the well-being of patients (e.g., following up on lab results, writing comprehensive notes, and seeking answers to patient care questions).  |  |
| 6.95.5.2 :Demonstrate a commitment to carrying out professional responsibilities.   |  |
| 6.95.5.3 :Adhere to ethical and legal principles, and be sensitive to diversity.  |  |
| 6.95.6 : Competency 6: Systems-based Practice. Understand how to practice high-quality health care and advocate for patients within the context of the health care system.  |  |
| 6.95.6.1 :Identify key aspects of health care systems as they apply to specialty care, including the referral process, and differentiate between consultation and referral.   |  |
| 6.95.6.2 :Demonstrate sensitivity to the costs of clinical care in this subspecialty setting, and take steps to minimize costs without compromising quality   |  |
| 6.95.6.3 :Recognize and advocate for families who need assistance to deal with systems complexities, such as the referral process, lack of insurance, multiple medication refills, multiple appointments with long transport times, or inconvenient hours of service.   |  |
| 6.95.6.4 :Recognize one's limits and those of the system; take steps to avoid medical errors.   |  |
| <b>Procedures</b>   |  |
| <b>7.1.GOAL: Technical and therapeutic procedures.</b> Describe the following procedures, including how they work and when they should be used; competently perform those commonly used by the pediatrician in practice.  |  |
| Lumbar puncture   |  |
| <b>7.2. GOAL: Diagnostic and screening procedures.</b> Describe the following tests or procedures, including how they work and when they should be used; competently perform those commonly used by the pediatrician in practice.   |  |
| Developmental screening test  |  |
| Electroencephalogram (EEG)  |  |
| Electromyography (EMG)  |  |
| Nerve conduction velocity   |  |
| Radiologic interpretation: CT of head   |  |
| Radiologic interpretation: MRI of head  |  |
| <b>Source</b>   |  |
| Kittredge, D., Baldwin, C. D., Bar-on, M. E., Beach, P. S., Trimm, R. F. (Eds.). (2004). APA Educational Guidelines for Pediatric Residency. Ambulatory Pediatric Association Website. Available online: <a href="http://www.ambpeds.org/egweb">www.ambpeds.org/egweb</a> . [Accessed 07/22/2005]. Project to develop this website was funded by the Josiah Macy, Jr. Foundation 2002-2005. |  |

|  |  |
|--|--|
| <b>Subspecialty Rotation: Pulmonology</b>  |  |
| <b>Primary Goals for this Rotation</b>   |  |
| <b>5.8 GOAL: Asthma. Diagnose and manage patients with asthma.</b>   |  |
| 5.8.1 : Identify the signs, symptoms, and pathophysiology of asthma, and differentiate asthma from other causes of cough, wheezing, shortness of breath and exercise intolerance.  |  |
| 5.8.2 : Discuss the indications, clinical significance, and limitations of diagnostic tests and procedures for asthma. Interpret the results of these tests and procedures: arterial blood gas, pulse oximetry, chest X-ray, pulmonary function testing, peak flow monitoring, spirometry, inhaler use (MDI, DPI), spacing devices (e.g. aero-chambers, inspirease,etc.), nebulizers, and asthma action plans.   |  |
| 5.8.3 : Classify the baseline disease severity of a patient with asthma according to current national guidelines, e.g., mild-intermittent, mild-persistent, moderate-persistent or severe-persistent.  |  |
| 5.8.4 : Identify associated diseases or co-morbid conditions related to asthma (e.g., GER, allergic rhinitis, etc.).   |  |
| 5.8.5 : Identify triggers that exacerbate a patient's asthma (environmental, seasonal, infectious) and provide counseling about avoidance where feasible.  |  |
| 5.8.6 : Compare the indications, effectiveness, side effects and costs of the different pharmacologic agents used in the treatment of asthma, and discuss "reliever" and "controller" therapy.   |  |
| 5.8.7 : Establish a treatment plan for the child with asthma that includes routine follow-up for reassessment, and the initial treatment and referral of the patient with impending respiratory failure due to asthma.   |  |
| 5.8.8 : Based on a patient's symptoms and disease severity classification, develop a written asthma action plan for home and school. Include assessment and recognition of asthma symptoms (e.g., symptom-driven vs. peak flow assessments), a step-wise pharmacological approach to the management of acute symptoms ("reliever" therapy) and chronic symptoms ("controller" therapy), and instructions about when to seek professional medical care. |  |
| 5.8.9 : Educate a patient and family about all aspects of asthma, including course of disease, quality of life, risk factors for sudden death, strategies to improve adherence to treatment, trigger avoidance, symptom recognition and monitoring, asthma action plans, medications and delivery systems, and seeking professional medical care.  |  |
| 5.8.10 : Discuss the factors that affect patient/family and school adherence to treatment protocols and the key role of support services in reducing barriers to care.   |  |
| 5.8.11 : Identify the indicators for an allergy or pulmonary referral of a child with asthma.  |  |
| <b>5.92 GOAL: Prevention, Counseling and Screening (Pulmonary). Understand the role of the pediatrician in preventing pulmonary disease, and in counseling and screening individuals at risk for these diseases.</b>   |  |
| 5.92.1 : Provide routine pulmonary counseling to all parents and patients about: <ul style="list-style-type: none"> <li>1. The hazards of cigarette smoke, including passive smoke, and available resources for smoking cessation</li> <li>2. The hazards of inhalational agents in home, school or work environments</li> </ul>   |  |

|   |  |
|---|--|
| <p>and in recreational exposure and abuse</p> <ol style="list-style-type: none"> <li>3. Significance of noisy breathing (e.g., stridor and snoring)</li> <li>4. The impact of obesity on risk for sleep-disordered breathing</li> <li>5. Risks of aspiration of foreign bodies (e.g., peanuts, candies)</li> </ol>  |  |
| <p>5.92.2 : Provide counseling to parents and patients with specific pulmonary diseases, addressing:</p> <ol style="list-style-type: none"> <li>1. Treatment and expected course of a patient with chronic lung disease, and access to support groups</li> <li>2. Annual influenza immunization for patients with chronic lung disease</li> <li>3. Prevention of exposure of high-risk patient to respiratory syncytial virus (RSV)</li> </ol>  |  |
| <p><b>5.93 GOAL: Normal Vs. Abnormal (Pulmonary). Distinguish normal from pathological pulmonary conditions.</b></p>  |  |
| <p>5.93.1 : Describe normal rates and patterns of breathing, including normal variations with sleep (e.g., brief apnea, periodic breathing), anxiety and fever.</p>   |  |
| <p>5.93.2 : Differentiate normal variations in chest wall anatomy (e.g., pectus excavatum) from those that impair ventilation (e.g., scoliosis).</p>  |  |
| <p>5.93.3 : Explain the findings on clinical history and examination that suggest pulmonary disease requiring further evaluation and treatment.</p>   |  |
| <p>5.93.4 : Identify system conditions that may present with respiratory symptoms or lead to pulmonary disease, including swallowing dysfunction, immunodeficiency and restrictive orthopedic conditions.</p>   |  |
| <p>5.93.5 : Identify indications and limitations of clinical and laboratory tests used to identify pulmonary-based disease and respiratory failure. Interpret the following tests: chest X-ray, pulmonary function test reports (e.g., spirometry and lung volume determinations), polysomnography reports, pulse oximetry, blood gas determination, sweat chloride testing, exercise challenge and bronchial provocation studies.</p>  |  |
| <p><b>5.94 GOAL: Undifferentiated Signs and Symptoms (Pulmonary). Evaluate, treat and/or refer patients presenting with signs and symptoms that suggest an abnormality of the respiratory system.</b></p>   |  |
| <p>5.94.1 : Create a strategy to determine if the following signs and symptoms are caused by an abnormality of the respiratory system and determine if the patient needs treatment or referral:</p> <ol style="list-style-type: none"> <li>1. Cough, both acute and chronic</li> <li>2. Wheezing</li> <li>3. Tachypnea</li> <li>4. Shortness of breath/dyspnea</li> <li>5. Exercise intolerance</li> <li>6. Recurrent pneumonia</li> <li>7. Failure to thrive</li> <li>8. Chest pain</li> <li>9. Apnea</li> <li>10. Noisy breathing (e.g., stridor or snoring)</li> <li>11. Digital clubbing</li> <li>12. Hemoptysis</li> </ol> |  |

|  |  |
|--|--|
| <p>13. Cyanosis<br/>14. Sleep disturbances</p>   |  |
| <p><b>5.95 GOAL: Common Conditions Not Referred (Pulmonary). Diagnose and manage pulmonary problems that generally do not require referral.</b></p>  |  |
| <p>5.95.1 : Diagnose, explain and manage the following pulmonary conditions:</p> <ol style="list-style-type: none"> <li>1. Apparent life threatening event (initial work-up and management)</li> <li>2. Asthma (mild intermittent and mild persistent)</li> <li>3. Bronchiolitis</li> <li>4. Bronchitis</li> <li>5. Chest pain</li> <li>6. Croup</li> <li>7. Follow up of apnea of prematurity</li> <li>8. Uncomplicated pneumonia (bacterial, viral)</li> </ol>   |  |
| <p><b>5.96 GOAL: Conditions Generally Referred (Pulmonary). Recognize and initially manage patients with pulmonary problems that generally require referral.</b></p>   |  |
| <p>5.96.1 : Identify, explain, initially manage and refer the following pulmonary conditions:</p> <ol style="list-style-type: none"> <li>1. Airway obstruction</li> <li>2. Apnea (central and obstructive sleep apnea syndrome)</li> <li>3. Apparent life-threatening event requiring further investigation or monitoring</li> <li>4. Asthma (moderate and severe persistent and mild persistent without adequate control)</li> <li>5. Bronchopulmonary dysplasia</li> <li>6. Cystic fibrosis</li> <li>7. Foreign body at or below the epiglottis or in the esophagus</li> <li>8. Pneumonia with empyema</li> <li>9. Pulmonary presentations and complications of HIV infection (Pneumocystis carinii infection and lymphoid interstitial pneumonitis)</li> <li>10. Moderate and severe persistent asthma</li> <li>11. Respiratory failure</li> <li>12. Pneumothorax</li> <li>13. Tuberculosis</li> <li>14. Volatile substance abuse or ingestion</li> <li>15. Hemoptysis</li> <li>16. Congenital lung malformations</li> <li>17. Ventilatory muscle weakness</li> <li>18. Psychogenic cough</li> <li>19. Interstitial lung disease</li> <li>20. Pleural effusion</li> </ol> |  |
| <p>5.96.2 : Identify the role and general scope of practice of pulmonology; recognize situations where children benefit from the skills of specialists trained in caring for children; and work effectively with these professionals to care for children with pulmonary disorders.</p>  |  |
| <p><b>5.97 GOAL: Chronic Lung Disease (CLD). Understand the general</b></p>  |  |

|  |  |
|--|--|
| <b>pediatrician's role in the management of bronchopulmonary dysplasia in children.</b>  |  |
| 5.97.1 : Collaborate with a pulmonologist to execute a respiratory management plan as part of the coordination of care for a child with chronic lung disease.  |  |
| 5.97.2 : Identify indicators that signify a worsening pulmonary condition in a child with CLD and may require a pulmonary referral and re-evaluation.  |  |
| 5.97.3 : Develop a written a plan for preventive care of children with CLD, including influenza vaccination and RSV prevention and prophylaxis.  |  |
| 5.97.4 : Discuss the medications used in the treatment of CLD, including indications, side effects, monitoring, and age- and weight-adjusted dosing.   |  |
| <b>5.98 GOAL: Cystic Fibrosis. Understand the general pediatrician's role in the management of cystic fibrosis.</b>  |  |
| 5.98.1 : Discuss the presenting signs and symptoms of cystic fibrosis and refer the patient for appropriate confirmatory testing, education, and treatment. Discussion should include high-risk populations, associated symptoms, treatment options and expected course of the disease.  |  |
| 5.98.2 : Participate in development and implementation of a coordinated pulmonary and nutritional treatment plan for a patient with cystic fibrosis, including recognition and treatment of acute episodic illnesses, nutritional deficiencies, intestinal obstruction and psychosocial issues. Discuss the multidisciplinary approach to cystic fibrosis care and the role of the general pediatrician.                                       |  |
| 5.98.3 : Identify indicators that signify an exacerbation of pulmonary symptoms. Provide appropriate initial treatment and referral to a specialty center for further evaluation and treatment.  |  |
| <b>5.99 GOAL: Maintenance of Airway Patency and Oxygenation. Recognize and manage upper airway obstruction and desaturation.</b>   |  |
| 5.99.1 : Recognize and manage upper airway obstruction. <ul style="list-style-type: none"> <li>1. Identify conditions that result in upper airway obstruction.</li> <li>2. Know indication for and demonstrate use of oropharyngeal airway vs. nasal trumpet.</li> <li>3. Discuss routine care of a tracheostomy and know how to recognize tracheostomy obstruction; demonstrate proficiency in replacement of a tracheostomy tube.</li> </ul> |  |
| 5.99.2 : Recognize desaturation that requires intervention and know the indications for use of appropriate oxygen delivery devices (e.g., simple nasal cannula, simple O2 mask, Venturi mask, partial rebreather and non-rebreather masks).  |  |
| <b>6.95 GOAL: Pediatric Competencies in Brief (Subspecialty Rotation). Demonstrate high standards of professional competence while working with patients under the care of a subspecialist. [For details see Pediatric Competencies.]</b>  |  |
| 6.95.1 : Competency 1: Patient Care. Provide family-centered patient care that is development- and age-appropriate, compassionate, and effective for the treatment of health problems and the promotion of health.   |  |
| 6.95.1.1 :Use a logical and appropriate clinical approach to the care of patients presenting for specialty care, applying principles of evidence-based decision-making and problem-solving.  |  |
| 6.95.1.2 :Describe general indications for subspecialty procedures and interpret   |  |

|   |  |
|---|--|
| results for families.   |  |
| 6.95.2 : Competency 2: Medical Knowledge. Understand the scope of established and evolving biomedical, clinical, epidemiological and social-behavioral knowledge needed by a pediatrician; demonstrate the ability to acquire, critically interpret and apply this knowledge in patient care. |  |
| 6.95.2.1 :Acquire, interpret and apply the knowledge appropriate for the generalist regarding the core content of this subspecialty area.   |  |
| 6.95.2.2 :Critically evaluate current medical information and scientific evidence related to this subspecialty area and modify your knowledge base accordingly.   |  |
| 6.95.3 : Competency 3: Interpersonal Skills and Communication. Demonstrate interpersonal and communication skills that result in information exchange and partnering with patients, their families and professional associates.   |  |
| 6.95.3.1 :Provide effective patient education, including reassurance, for a condition(s) common to this subspecialty area.  |  |
| 6.95.3.2 :Communicate effectively with primary care and other physicians, other health professionals, and health-related agencies to create and sustain information exchange and teamwork for patient care.   |  |
| 6.95.3.3 :Maintain accurate, legible, timely and legally appropriate medical records, including referral forms and letters, for subspecialty patients in the outpatient and inpatient setting.  |  |
| 6.95.4 : Competency 4: Practice-based Learning and Improvement. Demonstrate knowledge, skills and attitudes needed for continuous self-assessment, using scientific methods and evidence to investigate, evaluate, and improve one's patient care practice.                                   |  |
| 6.95.4.1 :Identify standardized guidelines for diagnosis and treatment of conditions common to this subspecialty area and adapt them to the individual needs of specific patients.  |  |
| 6.95.4.2 :Identify personal learning needs related to this subspecialty; systematically organize relevant information resources for future reference; and plan for continuing acquisition of knowledge and skills.  |  |
| 6.95.5 : Competency 5: Professionalism. Demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to diversity.  |  |
| 6.95.5.1 :Demonstrate personal accountability to the well-being of patients (e.g., following up on lab results, writing comprehensive notes, and seeking answers to patient care questions).  |  |
| 6.95.5.2 :Demonstrate a commitment to carrying out professional responsibilities.   |  |
| 6.95.5.3 :Adhere to ethical and legal principles, and be sensitive to diversity.  |  |
| 6.95.6 : Competency 6: Systems-based Practice. Understand how to practice high-quality health care and advocate for patients within the context of the health care system.  |  |
| 6.95.6.1 :Identify key aspects of health care systems as they apply to specialty care, including the referral process, and differentiate between consultation and referral.   |  |
| 6.95.6.2 :Demonstrate sensitivity to the costs of clinical care in this subspecialty setting, and take steps to minimize costs without compromising quality   |  |
| 6.95.6.3 :Recognize and advocate for families who need assistance to deal with systems complexities, such as the referral process, lack of insurance, multiple medication refills, multiple appointments with long transport times, or inconvenient hours of service.                         |  |

|   |  |
|---|--|
| 6.95.6.4 :Recognize one's limits and those of the system; take steps to avoid medical errors.   |  |
| <b>Procedures</b>   |  |
| <b>7.1.GOAL: Technical and therapeutic procedures.</b> Describe the following procedures, including how they work and when they should be used; competently perform those commonly used by the pediatrician in practice.  |  |
| Chest physiotherapy   |  |
| Medication delivery: inhaled  |  |
| Pulmonary function tests: peak flow meter   |  |
| Pulmonary function tests: spirometry  |  |
| Pulmonary function tests: perform   |  |
| Pulse oximeter: placement   |  |
| Suctioning: tracheostomy  |  |
| Thoracentesis   |  |
| Tracheostomy tube: replacement  |  |
| Ventilation: bag-valve-mask   |  |
| Ventilation support: initiation   |  |
| <b>7.2. GOAL: Diagnostic and screening procedures.</b> Describe the following tests or procedures, including how they work and when they should be used; competently perform those commonly used by the pediatrician in practice.   |  |
| Broncho-alveolar lavage   |  |
| Monitoring interpretation: pulse oximetry   |  |
| Monitoring interpretation: respiratory  |  |
| Pulmonary function tests: interpretation  |  |
| Radiologic interpretation: chest X-ray  |  |
| <b>Source</b>   |  |
| Kittredge, D., Baldwin, C. D., Bar-on, M. E., Beach, P. S., Trimm, R. F. (Eds.). (2004). APA Educational Guidelines for Pediatric Residency. Ambulatory Pediatric Association Website. Available online: <a href="http://www.ambpeds.org/egweb">www.ambpeds.org/egweb</a> . [Accessed 07/22/2005]. Project to develop this website was funded by the Josiah Macy, Jr. Foundation 2002-2005. |  |