Goals

• Describe the health care needs of children, adolescents and their families, and how family, community and society influence both health and disease. Recognize how socioeconomic, cultural, and personal factors affect access to services and create potentially vulnerable populations.

• Acquire a basic knowledge of growth and development (physical, physiologic and psychosocial) and of its clinical application from birth through adolescence.

• Integrate strategies for health promotion as well as disease and injury prevention.

• Demonstrate competency in history and physical exam skills for infants, children and adolescents.

• Demonstrate oral and written communication skills that will facilitate the clinical interaction with and care of children, adolescents and their families.

• Acquire the basic knowledge necessary for the diagnosis and management of common acute and chronic illnesses in the pediatric outpatient population.

• Apply clinical problem solving skills to the unique health care considerations in childhood and adolescence.

• Exemplify professional behavior appropriate for clinical practice with children and adolescents. Explain the pediatrician’s role in the healthcare of children and adolescents.

• Take responsibility for your own medical education, and develop the habits of mindfulness and reflection.

• Incorporate constructive suggestions and identify and critically evaluate relevant information in the care of pediatric patients and populations to continuous updating of your skills.

PROFESSIONAL CONDUCT & ATTITUDES

Knowledge, skills, clinical reasoning, and informed decision making, while crucial to a physician’s practice of medicine, are insufficient to guarantee successful clinical interactions. A physician must have well-developed interpersonal skills that facilitate communication, and must also demonstrate attitude, behaviors, and beliefs that serve to promote the patient’s best interest.

Pediatrics poses unique challenges to professional conduct and attitudes. The patient constantly changes as growth and development proceed. The patient's ability to participate actively in the clinical interaction progresses, as does his or her knowledge, experience, and concerns. The adolescent presents specific challenges, including such issues as privacy, risk-taking behaviors, confidentiality and personal involvement with health. The role of parents in the clinical interaction, and their knowledge, experience, and concerns, also develop and change as an individual child grows and subsequent children are born. The way a physician communicates can have a lasting effect in how parents, children, and adolescents handle situations and interact with the physician.

Cultural, ethnic, and socioeconomic factors also affect personal and family traits and behaviors, with varying effects on child rearing practices. Recognition of and respect for difference are important. The student must be alert for the child or adolescent at risk. The physician’s primary obligation is to promote the best interest of the patient.
Students have a personal responsibility for their own education and for development of life-long learning skills. They must interact with all staff, including their peers and their teachers, in a manner that demonstrates respect for each individual and that promotes personal and group learning.

**Competencies in Professional Conduct and Attitudes:**

A. *Humanism and Professionalism in Patient and Family Encounters:*

Demonstrate behaviors that respect the patient’s privacy, modesty, & confidentiality. Demonstrate communication skills with patients and families that convey respect, integrity, flexibility, sensitivity, and compassion. Demonstrate respect for patient, parent, and family attitudes, behaviors and lifestyles, paying particular attention to cultural, ethnic, and socioeconomic influences to include actively seeking to elicit and incorporate the patient’s, parent’s, and family’s attitudes into the health care plan. Demonstrate behaviors and attitudes that promote the best interest of patients and families, including showing flexibility to meet the needs of the patient and family. Recognize biases, limitations and successes.

B. *Professionalism with Members of the Health Care Team*

Demonstrate collegiality and respect for all members of the health care team.

C. *Professionalism in the Learner Role*

Demonstrate a positive attitude and regard for education by demonstrating intellectual curiosity, initiative, honesty, responsibility, dedication to being prepared, maturity in soliciting, accepting, and acting on feedback, flexibility when differences of opinion arise, and reliability (including completing all assignments with honesty). Demonstrate behaviors that promote well-being and balance of demands.

D. *Professionalism and Society*

Describe a pediatrician’s role and responsibility in advocating for the needs of patients (individual and populations) within society.

**KNOWLEDGE AND SKILLS**

The process of going from a patient’s chief complaint to the creation of an appropriate differential diagnosis and the formulation of a diagnostic therapeutic plan is the core of clinical medicine. Skills essential for competent medical care include the ability to conduct an interview, perform a physical examination, manage medical data, communicate written and oral information, integrate basic science knowledge, search and read the literature critically, and teach.

A. *Interviewing Skills:*

- Demonstrate an ability to perform an age-appropriate history and physical examination in children of all ages.
- Demonstrate an ability to obtain the following information in an age-appropriate and sensitive manner from a child and or the accompanying adult.
- List the information from the history of pregnancy, labor, and delivery obtained from the parents or medical record that has implications for the health of the newborn.
- Describe how gestational age can be assessed with an instrument such as the Ballard scale and identify key indications of gestational maturity.
- Describe the challenges for parents adjusting to a new infant in the home.
- List the differential diagnosis and complications for the following common problems that may occur in the newborn: jaundice, respiratory distress, poor feeding, large or small for gestation infants, and ‘state’ abnormalities which includes tremulousness, irritability, lethargy from causes such as drug withdrawal, hypoglycemia, and sepsis.
- Describe the unique features of the physician-patient relationship during adolescence including confidentiality and consent.
- Interview an adolescent patient, using the HEADSS method, to ask sensitive questions about lifestyle choices that affect health and safety (e.g. sexuality, drug, tobacco, and alcohol use) and give appropriate counseling.

B. *Physical Exam Skills:*
• Conduct a pediatric physical examination appropriate to the nature of the visit or complaint (complete vs. focused) and the age of the patient.
• Demonstrate an ability to perform the following examination skills.
• Perform a complete physical examination of the newborn infant.

C. Peer Communication Skills:
• Demonstrate effective oral and written communication with the health care team avoiding jargon and vague terms, as clear and professional as possible.
• Present a complete a well-organized verbal summary of the patient’s history and physical examination findings, including an assessment plan modifying the presentation to fit the time constraints and educational goals of the situation.
• Document the history, physical exam, and assessment and plan using a format appropriate to the clinical situation (e.g. inpatient admission, progress note, office clinic visit, acute illness, health supervision visit, etc).
• Describe the appreciation for others and different perspectives and methods.

D. Problem Solving Skills:
• Demonstrate an ability to generate an age-appropriate differential diagnosis and problem based on the interview and physical examination.
• Outline a diagnostic plan based on the differential diagnosis, and justify the diagnostic tests and procedures taking into account the test's sensitivity, specificity, and predictive value, as well as its invasiveness, risks, benefits, limitations, and costs.
• Interpret the results of diagnostic tests or procedures, recognizing the age-appropriate values for commonly used laboratory tests, such as the CBC, urinalysis, and serum electrolytes.
• Formulate a therapeutic plan appropriate to the working diagnosis.
• Formulate an educational plan to inform the health care team and family of your thought process and decisions.
• Search for relevant information using electronic (or other) data bases and critically appraise the information obtained to make evidence based decisions.
• Define patient safety as a discipline in the health care professions that applies safety science methods toward the goal of achieving a trustworthy system of health care delivery. Also patient safety is defined as an attribute of health care systems that minimizes the incidence and impact of adverse events and maximizes recovery from such events.
• List the knowledge and skills areas of patient safety skills.

E. Reflective Practice:
• Reflection means to look back and consider something. While such thoughtfulness can result in insight and learning, it does not automatically lead to the high level analysis, questioning, and reframing required for transformative learning. Critical Reflection is the process of analyzing, questioning, and reframing an experience in order to make an assessment of it for the purposes of learning (reflective learning) and/or to improve practice (reflective practice). Critical thinking in terms of open-mindedness and ability to seek answers to ambiguous problems.
• Describe the necessity of reflecting on experiences in order to make meaning, critical thinking and problem solving.
• Describe the importance of personal reflection in building relationships with patients.
• Describe how physicians must know their own biases, feelings, and thoughts in order to provide the best patient centered care.
• Describe how reflection requires taking on another’s view in order to practice patient centered care.

Health Supervision

Health supervision, which includes assessment of growth and development, prevention of disease by immunization, prevention of injury by education, screening for treatable conditions and promotion of a healthy environment and a healthy lifestyle is essential to pediatric practice and primary care.

• List the most common preventable morbidities in childhood and describe strategies for prevention.
• Describe the components of a health supervision visit including health promotion and disease and injury prevention, the appropriate use of screening tools, and immunizations for newborns, infants, toddlers, school aged children, and adolescents.
• Describe the rationale for childhood immunizations and current recommendations.
• Discuss the rationale and indications for screening tests (such as environmental lead questionnaire, Hematocrit, domestic violence screening, CBC, urinalysis, cholesterol, blood lead level, and PPD).
• Describe the advantages of breastfeeding.
• Describe the signs and symptoms of common nutritional deficiencies in infants and children and how to prevent them.
• Identify children with specific or special nutritional needs.
• Describe nutritional factors that contribute to the development of childhood obesity and failure to thrive.
• Obtain a dietary history in children of different ages.
• Determine the caloric adequacy of an infant's diet.
• Provide nutritional advice to families regarding breastfeeding, addition of solids to an infant's diet, introduction of cow's milk to an infant's diet, healthy food choices for children and adolescents, and exercise and TV or video viewing and their effects on obesity.
• Define anticipatory guidance and describe how it changes based on the age of the child.
• Describe the emotional disturbances or medical conditions that may manifest in childhood and adolescence as alterations in school performance and peer or family relationship.
• List the components of health supervision for an adolescent, such as personal habits, pubertal development, immunizations, acne, scoliosis, sports participation, and indications for pelvic exam.
• Describe the common risk-taking behaviors of adolescents, such as alcohol and other drug use, sexual activity and violence.
• Describe the contributions of unintentional injuries, homicide, suicide, and to the morbidity and mortality of adolescents.
• Describe the features of common mental health problems in adolescence, including school failure, attention deficit, body image, eating disorders, depression, and suicide.
• Demonstrate an ability to provide age-appropriate anticipatory guidance about nutrition, behavior, immunizations, injury prevention, and pubertal development.
• List the ages at which prevalence of unintentional and intentional poisonings is highest and the passive and active interventions that decrease the incidence of childhood ingestions (e.g. licks or safety caps).
• Describe the developmental vulnerability for poisoning and accidental ingestions in infants, toddlers, children, and adolescents.
• Describe the acute signs and symptoms of accidental or intentional ingestion of acetaminophen, iron, alcohol, and/or narcotics.
• Describe the immediate emergency management of children with toxic ingestions (e.g. acetaminophen or iron).
• List characteristics of the history and physical exam that should trigger concern for possible physical, sexual, and psychological abuse and neglect e.g. such as inconsistency in the history, unexplained delays in seeking care, injuries with specific patterns or distributions on the body, or injuries incompatible with the child's development.
• Describe the medical-legal importance of a full, detailed, carefully documented history and physical examination in the evaluation of child abuse.
• Discuss the concurrence of domestic violence and child abuse and describe markers that suggest the occurrence of family violence.

**Development**

The physical maturation and intellectual, social and motor development of the child follow predictable patterns, and provide the physician with a good indicator of the child's health and neurologic function. Be familiar with normal patterns of development in order to detect deviations that might be the first sign of a medical or psychosocial problem.

• Describe the four developmental domains of childhood as defined by the Denver Developmental exam (gross motor, fine motor, language, and social development).
• Describe how abnormal findings on the developmental screening tools would suggest a diagnosis of developmental delay.
• Demonstrate an ability to assess psychosocial, language, physical maturation, and motor development in pediatric patients using appropriate resources (e.g. Bright Futures, the Denver Developmental Standard Test 2, and HEADSS).
• Describe how early experiences have a decisive impact on the architecture of the brain, and on the nature and extent of adult capacities.

**Growth**

Growth is a defining feature of childhood. Genetic and environmental factors influence the rate of growth and the final stature and body habitus the child attains. Regular monitoring of growth provides the clinician with one of the best indicators of the underlying health of the child.

• Describe variants of normal growth in health children, (e.g. familial short stature and constitutional delay).
• Identify and describe abnormal growth patterns based on the family growth history and the child's previous growth (e.g. microcephaly, macrocephaly, short stature, obesity, and growth abnormalities related to specific physical findings).
- Identify failure to thrive and overweight/obesity in a child or adolescent using BMI and other growth measures and outline the differential diagnosis and initial evaluation.
- Demonstrate ability to measure and assess growth including height/length, weight, and head circumference and body mass index in patient encounters using standard growth charts.

**Behavior**

Providing anticipatory guidance especially in the areas of normative or expected behaviors and identifications of abnormal behavior is critical to pediatric practice. Knowledge of age-appropriate behavior allows the physician to recognize deviant behaviors and facilitates earlier intervention.

- Identify normal pattern of behaviors in the developing child such as: newborn/infants: development and evolution of social skills, toddler: autonomy school age: independence adolescence: abstract thinking.
- Describe the typical presentation of common behavioral problems and issues in different age groups such as: newborn/infants: sleep problems, colic . Toddler: temper tantrums, toilet training, feeding problems. School age: enuresis, attention deficit adolescence: eating disorders, risk-taking behavior.
- Describe the emotional disturbances or medical conditions that may manifest as alterations in school performance and peer or family relationships.
- Describe how somatic complaints may represent psychosocial problems (e.g. recurrent abdominal pain, headache, fatigue, and neurologic complaints).
- Describe the types of situations where pathology in the family (e.g. alcoholism, domestic violence, depression) contributes to childhood behavior problems.

**Prevention**

Injuries cause the majority of deaths in childhood and adolescence. Illness and injury prevention must be a prominent and recurrent theme during health maintenance and other health care visits. Most childhood injuries are believed to be predictable and preventable.

- Describe how risk of illness and injury change during growth and development and give examples of the age-and development-related illnesses and injuries.
- Explain how screening for family violence may serve as an important preventative health practice.
- Provide age-appropriate anticipatory guidance for the following: motor vehicle safety, infant sleeping position, falls, burns, poisoning, fire safety, choking, water safety, bike safety, sexually transmitted diseases, firearms, and weapons.
- Describe poisonings and ingestions are major preventable causes of childhood morbidity and mortality.
- Describe the developmental vulnerability for poisoning and accidental ingestions in infants, toddlers, children, and adolescents.
- List the ages at which prevalence of unintentional and intentional poisonings is highest and the passive and active interventions that decrease the incidence of childhood ingestions (e.g. locks or safety caps).
- Describe the acute signs and symptoms of accidental or intentional ingestion of acetaminophen, iron, alcohol, and/or narcotics.
- Describe the immediate emergency management of children with toxic ingestions (e.g. acetaminophen or iron).
- Describe the role of the Poison Control Center (1-800-222-1222) and other information resources in the management of the patient with an accidental or intentional ingestion.
- Elicit a complete history when evaluating an unintentional ingestion or exposure to a toxic substance (including the substance, the route of exposure, the quantity, timing, and general preventive measures in the household).
- Provide age-appropriate anticipatory guidance for the following: motor vehicle safety, infant sleeping position, falls, burns, poisoning, fire safety, choking, water safety, bike safety, sexually transmitted diseases, firearms, and weapons.

**Medical Genetics**

A physician should be able to distinguish between congenital disorders (disorders present at birth) that are genetic from those that are non-genetic, as well as recognize common genetic diseases presenting later in childhood. Genetic abnormalities may produce congenital malformation, metabolic disturbances, specific organ dysfunction, abnormal growth patterns, and abnormalities of sexual differentiation.

- Describe the genetic basis and clinical manifestations of the following syndromes, malformations, and associations: common chromosomal abnormalities (e.g. Trisomy 21, Turner syndrome), syndromes due to teratogens (e.g. fetal alcohol syndrome), and other common genetic diseases (e.g. cystic fibrosis, sickle cell disease, or hemophilia).
• List common medical and metabolic disorders (e.g. hearing loss, hypothyroidism, PKU, hemoglobinopathies) detected through newborn screening programs.
• Discuss the effects of maternal health and potentially teratogenic agents on the fetus and child, including maternal diabetes and age, alcohol use, and illicit drug use.
• Use a family history to construct a pedigree (e.g. for the evaluation of a possible genetic or a multifactorial disorder). One of these pedigrees will be presented and discussed within the group and led by a geneticist.

Child Advocacy

Physicians have a variety of roles in child health, including a public health role wherein they serve as patient and family advocates. Since children are unable to advocate for themselves and many of their families are not empowered, physicians must advocate for them at the individual, local, national, and global level.

• Describe barriers that prevent children from gaining access to health care, including financial, cultural, and geographic barriers. Identify opportunities for advocacy during a health supervision visit.

Common Acute and Chronic Pediatric Illnesses and Disabilities

Patients may come for medical attention because of a specific problem or complaint.

• Describe how you may solve the problems posed by the patient using information obtained from the history, the physical examination, and, when appropriate, laboratory tests and/or imaging studies.
• Describe the influence and effects of age, physical growth, developmental stage and family environment on a problem or complaint.
• Describe the long term medical needs, implications, and complications of a chronic disorder for the patient as well as the family.
  o For the list of problems or complaints address the ED-2 Table.
• Describe how chronic illness can influence a child's growth and development, educational achievement, and psychosocial functioning.
• Describe the impact that chronic illness has on the family's emotional, economic, and psychosocial functioning.
• Describe the impact of a patient's culture on the understanding, reaction to, and management of a chronic illness.

Therapeutics

Appropriate and successful treatment requires choice of the correct medication, the appropriate dose, and both a dosage form and dosing regimen that will maximize compliance. The pharmacokinetics (absorption, metabolism, distribution, and elimination) of medications change under the influence of growth and physiologic maturation. Child behavior and psychomotor development influence the form of medication dispensed and the expectation for compliance.

• List medications such as aspirin, tetracycline, and oral retinoic acid that are contraindicated or must be used with extreme caution in specific pediatric populations.
• Describe the appropriate use of the following common medications in the outpatient setting. Select generally accepted pharmacologic therapy for common or life-threatening conditions in pediatric patients.
• Describe the conditions in which fluid administration may need to be restricted or increased.
• Describe the physical findings in hypovolemic shock and the approach to restoration of circulating fluid volume (i.e. 'rescue' fluid infusion).
• Describe the causes and consequences of fluid imbalances and electrolyte disturbances leading to dehydration and such conditions as hypernatremia, hyponatremia, hyperkalemia, hypokalemia, and severe acidosis.
• Calculate and write orders for the fluid therapy oral or intravenous for a child with moderated and severe dehydration (‘rescue’ fluid to replenish circulating volume, deficit fluid, and ongoing maintenance).
• List symptoms of and describe the initial emergency management of shock, respiratory distress, lethargy, apnea, and status epilepticus in pediatric patients.
• Demonstrate the appropriate anticipatory guidance to prevent life-threatening conditions.
• Demonstrate the ‘ABC’ assessment as a means for identifying who requires immediate medical attention and intervention.
• Calculate a drug dose for a child based on body weight. Write a prescription e.g. for a common medication such as an antibiotic.
• Calculate and write orders for intravenous maintenance fluids for a child considering daily water and electrolyte requirements.