

Cardiology

Competency Based Goals and Objectives

COMPETENCY 1. Patient Care. Provide family centered patient care that is developmentally and age appropriate, compassionate, and effective for the treatment of health problems and the promotion of health.

1. Understand the role of the pediatrician in preventing cardiovascular diseases, and in counseling and screening individuals at risk for these diseases.
2. Offer cardiovascular risk prevention counseling to all patients and parents and routinely screen for cardiovascular disease to identify individuals at increased risk .
 - ◆ 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).
 - ◆ 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).
3. Provide cardiovascular preventive counseling to parents and patients with specific cardiac diseases about:
 - ◆ Indications, duration, and appropriate antibiotic regimens for bacterial endocarditis prophylaxis.
 - ◆ Indications and appropriate antibiotic treatment for rheumatic fever prophylaxis.
 - ◆ Routine influenza and pneumococcal immunization in children with cardiac disease.
5. Perform a complete cardiac examination on infants, children and adolescents, describing findings and understanding their origin.
6. Perform a complete cardiac history, asking appropriate questions of the family of the child's behavior, signs, symptoms and concerns.
7. Order appropriate imaging and other diagnostic tests for a child with a potential cardiac problem.
8. 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.
9. Diagnose, explain, and manage the following cardiovascular conditions:
 - ◆ Tachycardia related to fever
 - ◆ Peripheral pulmonic stenosis
 - ◆ Functional (innocent) heart murmur
 - ◆ Small, hemodynamically insignificant, and closing VSD
 - ◆ Small, hemodynamically insignificant, and closing PDA within the neonatal period
 - ◆ Musculoskeletal chest pain
 - ◆ Mild hypertension
 - ◆ Premature atrial contractions
 - ◆ Benign premature ventricular contractions
10. Identify, explain, provide initial management, and refer the following cardiovascular conditions:
 - ◆ Hypertension, moderate and severe
 - ◆ Supraventricular tachycardia
 - ◆ Bradycardia

- ◆ Congestive heart failure
- ◆ Cardiovascular collapse
- ◆ Cardiovascular syncope
- ◆ Chest pain associated with exercise
- ◆ Pathologic heart murmurs
- ◆ Congenital heart disease for initial diagnosis and follow up

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.

1. Know and be able to distinguish normal from abnormal cardiovascular signs and symptoms.
2. Describe normal perinatal circulation and changes at birth and during the first year of life.
3. Describe age-related changes in heart rate and blood pressure including normal ranges from birth through adolescence.
4. Explain the mechanism for the production of heart sounds and murmurs and differentiate between physiologic (normal, functional or innocent) and pathologic heart murmurs.
5. Explain the findings on history and physical examination that suggest congenital heart or cardiovascular disease that requires further evaluation and treatment
6. Describe the principles of electrocardiography, including normal voltages and rhythms. Differentiate normal from abnormal rhythms and voltages that suggest cardiovascular disease.
8. 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.
 - ◆ Shortness of breath
 - ◆ Chest pain
 - ◆ Cyanosis
 - ◆ Syncope
 - ◆ Wheezing
 - ◆ Apparent life threatening event
 - ◆ Failure to thrive
 - ◆ Exercise intolerance
 - ◆ Unexplained tachypnea, dyspnea
 - ◆ Palpitations
 - ◆ Abnormal heart sounds
9. 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.
10. Describe the presenting symptoms, signs/physical findings, pathophysiology, treatment, and prognosis for the following congenital cardiovascular conditions:
 - ◆ Ventricular septal defect
 - ◆ Atrial septal defect
 - ◆ Tetralogy of Fallot

- ◆ Patent ductus arteriosus
 - ◆ Coarctation of the aorta
 - ◆ Transposition of great vessels
 - ◆ Tricuspid atresia
 - ◆ Pulmonary atresia
 - ◆ Hypoplastic left heart
 - ◆ Aortic stenosis
 - ◆ Pulmonic stenosis
 - ◆ Total anomalous pulmonary venous return
 - ◆ Mitral valve prolapse
 - ◆ Truncus Arteriosus
 - ◆ Atrioventricular canal
11. Describe the association of congenital heart disease with the following genetic syndromes:
- ◆ Down Syndrome
 - ◆ Marfan Syndrome
 - ◆ VACTERL association
 - ◆ Trisomy 13
 - ◆ Trisomy 18
 - ◆ Williams Syndrome
 - ◆ Turner Syndrome
 - ◆ Chromosome 22 microdeletion (i.e., Velocardial facial, DiGeorge syndrome)
12. Describe the presenting signs and symptoms, physical findings, pathophysiology, treatment, and prognosis for the following acquired cardiovascular conditions:
- ◆ Supraventricular tachycardia
 - ◆ Myocarditis/cardiomyopathy
 - ◆ Kawasaki disease
 - ◆ Acute rheumatic fever
 - ◆ Bacterial endocarditis
 - ◆ Essential hypertension
 - ◆ Long QT Syndrome
 - ◆ Complete atrioventricular block
 - ◆ Ventricular tachycardia
13. Classify a patient with hypertension as to severity according to current national guidelines, e.g. mild, moderate, or severe.
14. Develop a diagnostic plan for a child with hypertension that accounts for severity of the condition, including recognition and management of hypertensive emergencies.

COMPETENCY 3. Communication Skills. Demonstrate interpersonal and communication skills that result in information exchange and partnering with patients, their families and professional associates.

1. Communicate effectively in a developmentally appropriate manner with patients and families to create and sustain a therapeutic relationship across the broad range of socioeconomic and cultural backgrounds.
2. Talk to family members about sensitive issues that relate to a patient's illness, e.g., coping with the child's altered needs in his/her home setting.
3. In cases of serious or life-threatening disease, counsel the patient's families with sensitivity to their desire and need to know about:
 - ◆ prognosis and possible impact of the disease

- ◆ likely steps in immediate and future treatment
 - ◆ decisions about treatment options which they may face
 - ◆ support services that they may seek in the hospital and community
4. Write an effective and timely consultation note that summarizes the findings and recommendations of the cardiologist and clarifies the continued role and responsibility of the consultant.
 5. Participate in the delivery of complex medical information.
 6. Participate in the delivery of “bad news” to a family.
 7. Maintain comprehensive, timely and legible medical records.

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.

1. Identify standardized guidelines for diagnosis and treatment of complex diseases and learn the rationale for adaptations that optimize treatment.
2. Discuss with the cardiologist the role he/she plays in addressing regional or state-wide health problems for children with congenital and other types of heart disease.
3. Identify personal learning needs, systematically organize relevant information resources for future reference, and plan for continuing data acquisition if appropriate.
4. Throughout a specialty rotation, take the initiative to evaluate your performance from the perspective of patients, staff, and colleagues; ask for input as needed to complete your self-audit.

COMPETENCY 5. Professionalism. Demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to diversity.

1. Demonstrate personal accountability to the well being of all patients, even when other physicians are primarily responsible for their care, for example, by following up on lab results, writing comprehensive notes, seeking answers to difficult patient care questions, and communicating with primary care physicians.
2. Reflect on your own biases toward particular illnesses or patient groups, and take steps to assure that these biases don’t interfere with the care you deliver.
3. Appreciate the psychosocial impact of cardiovascular disease on the child, family, parents’ work, school.
4. Respect your patients’/parents’ privacy, autonomy and need to maintain a positive self-concept, irrespective of age, gender, or health belief system, and regardless of acuity of disease.

COMPETENCY 6. Systems-Based Practice. Understand how to practice quality health care and advocate for patients within the context of the health care system

1. Clarify how documentation and billing/charges differ for consultations vs. referrals vs. on-going management of children treated by the cardiology service.
2. Demonstrate sensitivity to the costs of clinical care in this subspecialty setting, and take steps to minimize costs without compromising quality.
3. Describe patient and system factors that contribute to escalating costs of care in the subspecialty setting, and consider the impact of these costs on families and on the health care system.

4. Describe current advocacy efforts by AAP or other professional groups related to this cardiology and cardiovascular disease.
5. Support community prevention efforts related to this disease/subspecialty by working with a local professional organization or organizing a project to do with colleagues