OBJECTIVES:

a. Describe the mechanisms of production of heart sounds and murmurs, with application to the differentiation between pathologic and physiologic (innocent) murmurs.

b. Explain the age-related changes in heart rate and blood pressure and identify normal ranges from birth through adolescence.

c. Differentiate between physiologic and pathologic variations in cardiac rhythm.

d. Describe the normal fetal circulation, the changes that occur at birth (transitional circulation), and the influence those changes have on the development of signs and symptoms of congenital heart disease in the neonate.

e. Understand the capabilities and limitations of electrocardiography and echocardiography.

f. Become familiar with the differential diagnosis and initial evaluation, management, and appropriate referral for the child presenting with symptoms/signs related to the CV system:
   1. Cyanosis
   2. Hypertension.
   3. Palpitations
   4. Bradycardia
   5. Syncope
   6. Chest pain
   7. Heart murmurs
g. An introduction to the anatomy, pathophysiology, clinical presentation, and management of:

1. Structural heart disease:
   - Aortic Stenosis (AS)
   - Patent Ductus Arteriosus (PDA)
   - Atrial Septal Defect (ASD)
   - Pulmonary Stenosis/Atresia
   - Atrioventricular (AV) canal defect
   - Tetralogy of Fallot
   - Coarctation of the Aorta
   - Ventricular Septal Defect (VSD)
   - D-Transposition of the great arteries (D-TGA)
   - Hypoplastic Left Heart Syndrome (HLHS)
   - Tricuspid Atresia (and single ventricle)
   - Total anomalous pulmonary venous return

2. Acquired Heart Disease:
   - Kawasaki Disease
   - Acute Rheumatic Fever
   - Myocarditis/endocarditis/cardiomyopathy
   - Bacterial Endocarditis
   - Essential Hypertension
   - Dyslipidemias

h. Ancillary Studies

1. Understand the utility of the following studies:
   - Electrocardiogram (ECG)
   - Chest radiograph (CXR)

2. Understand the indications for performing the following:
   - Cardiac Catheterization
   - 24 hour Holter
   - Treadmill Test
   - Echocardiogram

Rotation plan and medical student responsibility:

1. The medical student is expected to actively observe the evaluation, assessment, and disposition of pediatric cardiology patients
2. The rotating medical student will, at a minimum, read the chapter on pediatric cardiology in Nelson’s Textbook of Pediatrics or Rudolph’s Pediatrics (current edition) OR the collection of articles in the Pediatric Cardiology Elective Syllabus.

**Method of Evaluation:**
The Medical Student Evaluation Form will be used for evaluation of residents participating in the rotation and to provide feedback on performance. The medical student will meet with one of the attending cardiologists in order to assess their progress, provide constructive feedback on their performance, and allow the student an opportunity to make comments/suggestions regarding the quality of the elective.