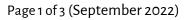
# **Pediatric Primary Care for Patients with Congenital Heart Defects** Point-of-Care Tool

## **OVERVIEW**

Perform and assess results of a basic cardiac exam

- $\odot$  Perform a physical exam
  - General appearance
  - Vital signs Pulses (upper vs. lower body), blood pressure, respiratory rate, O2 saturation (pre-post ductal, right hand vs. other extremities)
  - Palpation (chest)
  - Auscultation (heart)
- $\odot$  Note miscellaneous findings
  - Edema, hepatomegaly
  - Color (pallor/cyanosis), capillary refill
  - Lung exam (crackles)
  - Growth chart
  - EKG
- $\odot$  Develop and share a management plan based on recommendations of the pediatric cardiologist
  - Palivizumab
  - Routine vaccines and PCV23 vaccine
  - Regular cardiology follow-ups
  - Cardiac medications
  - Nutrition goals
  - Activity recommendations
  - Antibiotic and thrombosis prophylaxis
  - O<sub>2</sub> saturation goals
- Perform Newborn Critical Congenital Heart Disease Screening: (https://www.cdc.gov/ncbddd/heartdefects/hcp.html)





## **RECOGNIZE SYMPTOMS THAT MAY INDICATE A CHD**

Listen for and identify heart murmurs: include auscultation in supine, sitting, and standing positions

- ✤ Benign murmurs
  - Always systolic
  - Low pitched, "vibratory" or "musical" (not "harsh")
  - Heard only over a small area of the precordium
  - Louder in the supine position
  - Severity is less than 3 out of 6 (not associated with a thrill)
- Pathological murmurs (require cardiology referral)
  - Associated with cardiac symptoms such as cyanosis
  - Associated with bounding or weak peripheral pulses
  - Presence of abnormal heart sounds
  - Diastolic murmurs are always pathological
  - Loud systolic murmurs that have an intensity >3 out of 6 (ie., with thrill), long duration, and radiate
  - Abnormal cardiac silhouette or abnormal pulmonary markings on chest x-ray
  - Abnormal EKG findings
- $\odot$  Physical exam findings suggestive of a CHD in neonates
  - Cyanosis, particularly if it does not improve with O2 administration
  - Weak or absent peripheral pulses in the lower extremities
  - Irregular cardiac rhythm or abnormal heart rate
  - Tachypnea 60 or more breaths per minute with/without retractions
  - Hepatomegaly
  - Heart murmur (benign heart murmurs are more common)

#### Ask about chest pain

- $\Im$  Cardiac causes make up only 1% of chest pain in children.
- $\bigotimes$  A thorough history and physical exam are warranted in all cases.
- $\bigotimes$  Referral to a pediatric cardiologist is required when:
  - Patient presents with exertional chest pain
  - Pain is associated with palpitations, dizziness, or syncope
  - There are abnormal findings on physical exam, chest x-ray, and/or EKG
  - There is a family history of:
    - Sudden unexpected death
    - Hypertrophic cardiomyopathy
    - Long QT syndrome
    - Hereditary diseases with associated cardiac defects
  - Pain is chronic and/or recurrent and is a cause of significant worry for the patient and their family



## MONITOR THROUGHOUT CHILDHOOD AND ADOLESCENCE

Look for parent/caregiver strain

- ↔ Underemployment
- ✤ Financial difficulties
- $\bigotimes$  Lack of access to healthcare, reliable health insurance
- $\bigotimes$  Lack of appropriate and safe childcare, respite care
- $\,\,\,\odot\,\,$  Relationship strain (within the family as well as outside the family) and social isolation

Check for developmental delays and learning disabilities

- 🛞 Developmental screenings at all well visits
- ↔ Cognitive delays
- $\odot$  Fine motor and gross motor delays
- Social skills challenges
- ∞ Learning disabilities
- $\odot$  Difficulty with adaptive function/functional problems

Identify behavioral issues. Screen for mental health conditions and developmental disability throughout childhood and early adulthood.

- 🐼 adhd
- ↔ Mood disorders
- 😔 Anxiety
- 😔 Autism

### **ENSURE PARTNERSHIPS AND PATIENT SUPPORT ARE IN PLACE**

Identify community partners

- So Early Childhood Intervention programs
- Educational supports (ie., IEPs, 504 plans)
- $\odot$  National and local support networks for children with CHDs, special needs/disabilities

Identify subspecialty providers and therapists

- $\Im$  Congenital cardiology care physicians, even if patient is stable
- Consider additional subspecialty care as appropriate: genetics, neurology, pulmonology, gastroenterology, endocrinology, orthopedics, psychiatry, behavioral health, developmental pediatrics, physical medicine, and rehabilitation (PMR).

Identify ancillary therapists

- Physical therapy (PT) / occupational therapy (OT) / speech-language therapy (ST)
- ✤ Feeding teams
- ↔ Nutritional teams

This project is supported by the Centers for Disease Control and Prevention of the U.S. Department of Health and Human Services (HHS) as part of a financial assistance award totaling \$400,000 with 100 percent funded by CDC/HHS. The contents are those of the author(s) and do not necessarily represent the official views of, nor an endorsement, by American Academy of Pediatrics, CDC/HHS, or the U.S. Government.

