

Echocardiogram for exertional chest pain	
Measure Description: Proportion of patients, 5-18 years old, with a history of exertional chest pain who had an echocardiogram.	
Numerator	Number of patients who had an echocardiogram (including comment regarding coronary artery anatomy) performed 6 months prior or 30 days after the clinic visit.
Denominator	Number of patients, ages 5-18 years old, seen for initial consultation in an ambulatory pediatric cardiology clinic for chief complaint of exertional chest pain during the measurement period.
Denominator Exclusions	<ul style="list-style-type: none"> • Previous cardiac MRI/CT within 6 months with documentation of coronary artery anatomy, or chest pain characteristic of musculoskeletal chest pain or exercise induced asthma. • Patient refusal
Denominator Exceptions	None
Definitions/Notes	None
Measurement Period	Quarterly
Sources of Data	Retrospective medical record review, electronic medical record
Attribution	This measure should be reported by physicians or physician extenders.
Care Setting	Outpatient
Rationale	
<p>Sudden death may occur with exertion related to coronary artery anomalies.¹ Coronary artery anomaly is the most common cardiac diagnosis to present with CP.² Exertional CP is useful for identifying coronary anomalies.² Class IIb recommendation. Level of evidence: B</p>	
<p>References:</p> <ol style="list-style-type: none"> 1. Eckart RE, Scoville SL, Campbell CL, et al. Sudden death in young adults: a 25-year review of autopsies in military recruits. Ann Intern Med 2004;141:829-34. 2. Kane DA, Fulton DR, Saleeb S, Zhou J, Lock JE, Geggel RL. Needles in hay: chest pain as the presenting symptom in children with serious underlying cardiac pathology. Congenit Heart Dis 2010;5:366-73. 	
Clinical Recommendation(s)	
<p>ACC/AHA Guidelines ACCF/ASE/AHA/ASNC/HFSA/HRS/SCAI/SCCM/SCCT/SCMR 2011 Appropriate Use Criteria for Echocardiography. A Report of the American College of Cardiology Foundation Appropriate Use Criteria Task Force, American Society of Echocardiography, American Heart Association, American Society of Nuclear Cardiology, Heart Failure Society of America, Heart Rhythm Society, Society for Cardiovascular Angiography and Interventions, Society of Critical Care Medicine, Society of Cardiovascular Computed Tomography, and Society for Cardiovascular Magnetic Resonance Endorsed by the American College of Chest Physicians. J Am Coll Cardiol. 2011;57(9):1126-66. "Symptoms or conditions potentially related to suspected cardiac etiology including but not limited to chest pain"</p>	

Other guidelines:

Management of pediatric chest pain using a standardized assessment and management plan. Pediatrics. 2011;128(2):239-45.

Challenges to Implementation

Exertional CP is an imperfect marker (both sensitivity and specificity)^{1,2}, and a high proportion (33% in one cohort) may have exertional CP³.

Exertional CP could also be exercise-induced asthma, and may not require an echocardiogram.

References:

1. Eckart RE, Scoville SL, Campbell CL, et al. Sudden death in young adults: a 25-year review of autopsies in military recruits. Ann Intern Med 2004;141:829-34.
2. Kane DA, Fulton DR, Saleeb S, Zhou J, Lock JE, Geggel RL. Needles in hay: chest pain as the presenting symptom in children with serious underlying cardiac pathology. Congenit Heart Dis 2010;5:366-73.
3. Saleeb SF, Li WY, Warren SZ, Lock JE. Effectiveness of screening for life-threatening chest pain in children. Pediatrics 2011;128:e1062-8.

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