Chest Pain – Documentation of Family History	
Measure Description: Proportion of patients, 5-18 years old, with a chief complaint of chest pain who have documentation of a family history of early coronary artery disease, cardiomyopathy and sudden cardiac or unexplained death.	
Numerator	Number of patients with documentation of family history[1] of early coronary artery disease[2] (in a first and/or second degree relative[3]), cardiomyopathy, and sudden cardiac or unexplained death during the measurement period or in the past 12 months from the clinic visit[4].
Denominator	Number of patients, ages 5-18 years old, seen for initial consultation in an ambulatory pediatric cardiology clinic visit[1] with a chief complaint of chest pain during the measurement period.
Denominator Exclusions	• Patients who were adopted and have unknown family history
Denominator Exceptions	None
Definitions/Notes	1. **Documentation of family history**: includes documentation of the presence or absence of cardiomyopathy, early coronary artery disease, and sudden cardiac or unexplained death 2. **Early coronary artery disease (CAD)**: includes those with CAD before the age of 55 years for males and before the age of 65 years in females. 3. **First and/or second-degree relative**: a patient's first-degree relative is a parent, sibling, or child. A second-degree relative is an uncle, aunt, nephew, niece, grandparent, grandchild, or half-sibling. 4. **Clinic Visit:** If the patient has had multiple visits during the measurement period, use the most recent visit (i.e. last visit in the measurement period).
Measurement Period	Quarterly
Sources of Data	Retrospective medical record review, electronic medical record
Attribution	This measure should be reported by pediatric cardiologists and practitioners evaluating children in the outpatient setting.
Care Setting	Outpatient
Rationale	
Family history should document the presence or absence of cardiomyopathy, early coronary artery disease in a first-degree relative, and sudden cardiac or unexplained death. Several retrospective studies have shown chest pain can be the presenting symptom in HCM[1-5]. The AHA recommendations for screening child athletes recommends obtaining a family history to include HCM, DCM, SCD<50[6]. Our expert panel supports this recommendation in children presenting with chest pain. Class IIa recommendation	

Level of evidence: C

Clinical Recommendation(s)

ACC/AHA Guidelines

A Scientific Statement From the American Heart Association Expert Panel on Population and Prevention Science; the Councils on Cardiovascular Disease in the Young, Epidemiology and Prevention, Nutrition, Physical Activity and Metabolism, High Blood Pressure Research, Cardiovascular Nursing, and the Kidney in Heart Disease; and the Interdisciplinary Working Group on Quality of Care and Outcomes Research. Circulation. 2006; 114:2710-2738

Other guidelines:

Expert panel on integrated guidelines for cardiovascular health and risk reduction in children and adolescents. Pediatrics 2011; 128;S213-S256

Expert Panel on Integrated Guidelines for Cardiovascular Health and Risk Reduction in Children and Adolescents and Grading of the Evidence Review for the Role of Family History in Cardiovascular Health ; NIH Publication No. 12-7486 October 2012

- Overwhelmingly consistent evidence from observational studies strongly supports inclusion of a positive family history of early coronary heart disease in identifying children at risk for accelerated atherosclerosis and for the presence of an abnormal risk profile. (Grade B)
- For adults, a positive family history is defined as a parent and/or sibling with a history of treated angina, myocardial infarction, percutaneous coronary catheter interventional procedure, coronary artery bypass grafting, stroke or sudden cardiac death before age 55 years in men or age 65 years in women. Because the parents and siblings of children and adolescents are usually young themselves, it was the Expert Panel's consensus that when evaluating family history in a child, history should also be ascertained for the occurrence of CVD in grandparents, aunts, and uncles, although the evidence supporting this is insufficient to date. (Grade D)
- Overwhelmingly consistent evidence from observational studies shows that identification of a positive family history for CVD and/or CV risk factors should lead to evaluation of all family members, especially parents, for CV risk factors. (Grade B)
- Family history evolves as a child matures, so regular updates are necessary as part of routine pediatric care. (Grade D)
- Education about the importance of accurate and complete family health information should be part of routine care for children and adolescents. As genetic sophistication increases, linking family history to specific genetic abnormalities will provide important new knowledge about the atherosclerotic process. (Grade D).

References:

1. 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.
2. Yetman AT, McCrindle BW, MacDonald C, Freedom RM, Gow R. Myocardial bridging in children with hypertrophic cardiomyopathy--a risk factor for sudden death. N Engl J Med 1998;339:1201-9.
3. Azzano O, Bozio A, Sassolas F, et al. [Natural history of hypertrophic obstructive cardiomyopathy in young patients: apropos of 40 cases]. Archives des maladies du coeur et des vaisseaux 1995;88:667-72.
4. Hickey EJ, McCrindle BW, Larsen SH, et al. Hypertrophic cardiomyopathy in childhood: disease natural history, impact of obstruction, and its influence on survival. Ann Thorac Surg 2012;93:840-8.
5. Sharma J, Hellenbrand W, Kleinman C, Mosca R. Symptomatic myocardial bridges in children: a case report with review of literature. Cardiol Young 2011;21:490-4.

6. Maron BJ, Thompson PD, Ackerman MJ, et al. Recommendations and considerations related to preparticipation screening for cardiovascular abnormalities in competitive athletes: 2007 update: a scientific statement from the American Heart Association Council on Nutrition, Physical Activity, and Metabolism: endorsed by the American College of Cardiology Foundation. Circulation 2007;115:1643-455

Challenges to Implementation

Family members may have poor knowledge/recollection as to actual diagnoses of relatives. Many non-myopathic conditions (e.g. CHF) are referred to by laypersons by various terms such as “enlarged heart”.

Authors

Roy Jedeikin, FACC
Sarina Behera, FACC
John Hokanson, FACC
Jimmy Lu, Affiliate
Bahram Kakavand, FACC
Jeff Boris, FACC
Brian Cardis, NMI
Manish Bansal, Affiliate