Top Ten Things To Know
Evaluation of Screening Approaches for Heart Disease in Children and Adolescents

1. Undiagnosed heart conditions can present for the first time as sudden cardiac death. These include long QT syndrome, critical congenital heart disease, hypertrophic cardiomyopathy, and coronary artery anomalies.

2. At this time in the United States no standardized screening strategies exist for the school-age child.

3. In this advisory
   • potential screening approaches are reviewed,
   • a framework for evaluating the strategies is provided, and
   • insight into the elements required for endorsement and broad adoption is provided.

4. Communities sometimes seek supplementary strategies including electrocardiograph (ECG) screening that are modeled on approaches for athletes from other countries. However, the results for US communities are not necessarily the same for many reasons.

5. In school-age children, the 2007 AHA scientific statement, Recommendations and Considerations Related to Preparticipation Screening for Cardiovascular Abnormalities in Competitive Athletes: 2007 Update, considered screening in young athletes and stressed the importance of questionnaire risk assessment and physical exam, but did not support 12-lead electrocardiography or echocardiography as practical for mass or universal screening, and this continues to be seen as a relevant approach.

6. ECG screening for long QT syndrome in the newborn lacks evidence to support its use in routine screening, and there are no active ECG screening programs for this in North America. Pulse oximetry screening for critical congenital heart disease in infants is now endorsed based on the strength of studies and strategies to reduce false positives.

7. Underlying principles that should direct screening strategies:
   • should be based on sound principles
   • should be widely supported and available
   • performance is tracked
   • pediatric cardiovascular specialists are included in strategies
   • secondary prevention is emphasized and supported (e.g., CPR training, automated external defibrillators, AEDs)

8. Screening programs should not be implemented without “comprehensive, scientifically-based preliminary testing of screening hypotheses and methodologies.”

9. Advocacy groups play a role in moving screening strategies into practice. Data such as public health and economic impact help inform them. Pilot programs and scientific statements can help to provide these data and support decisions for endorsement or for additional resources for study.

10. While screening for potential life-threatening cardiovascular disease is an important public health concern, funding for the study of potential strategies is essential. Sound data and key stakeholder support will be needed before endorsement of universal screening programs can become a reality.

Mahle WT, et al; on behalf of the American Heart Association Congenital Heart Defects Committee of the Council on Cardiovascular Disease in the Young. Key concepts in the evaluation of screening approaches for heart disease in children and adolescents: a science advisory from the American Heart Association. *Circulation*. 2012; published online before print April 30, 2012, 10.1161/CIR.0b013e3182579f25. 
http://circ.ahajournals.org/lookup/doi/10.1161/CIR.0b013e3182579f25

© 2012, American Heart Association. All rights reserved.