



NHLBI guidelines on cholesterol in kids: What's new and how does this change practice?

by Sarah de Ferranti, M.D., M.P.H., FAAP,
and Reginald L. Washington, M.D., FAAP

New guidelines from the National Heart, Lung and Blood Institute (NHLBI) on reducing cardiovascular disease (CVD) in children and adolescents provide many recommendations that are consistent with previous AAP and American Heart Association (AHA) statements. A few provisions, however, are new and/or controversial, including the following:

- All children should undergo cholesterol screening once between ages 9-11 years and once between ages 17-21 years.
- Non-fasting total cholesterol and high-density lipoprotein (HDL) can be used for the initial lipid screening test.
- Clinicians may recommend low-fat or no-fat dairy at age 1 year for high-risk patients.
- For patients who fail lifestyle changes and require lipid-lowering medications, pharmacologic treatment should be considered at age 10 years.
- Once low-density lipoprotein (LDL) is optimized, high non-HDL cholesterol may be targeted for residual CVD risk reduction.

Guidelines based on extensive review

The NHLBI released *Expert Panel on Integrated Guidelines for Cardiovascular Health and Risk Reduction in Children and Adolescents* (www.nhlbi.nih.gov/guidelines/cvd_ped/) in November 2011. The report was endorsed by the Academy, and a summary was published in a supplement to *Pediatrics*, <http://pediatrics.aappublications.org/content/early/2011/11/09/peds.2009-2107C.citation>.

The guidelines present the results of an expert committee review of more than 1,000 published documents on CVD as it relates to children and adolescents. The guidelines cover a range of CVD risk domains; they grade the quality of evidence in pediatrics for the first time; and they can be integrated into the *Bright Futures* guidelines on pediatric health maintenance.

Data are presented that clearly support a relationship between early exposure to CVD risk factors and atherosclerosis, including pathology studies and studies of vasculature dysfunction. In a single document, these guidelines raise consciousness about both genetic and obesity-related CVD risk.

Although the guidelines are comprehensive (400-plus pages in the full document), much of what is recommended already is part of general practice, e.g. measure body mass index, encourage breastfeeding, assess family history and counsel about healthy lifestyle.

Goals of universal screening

The new recommendation with the most impact is to perform universal lipid testing (fasting or non-fasting) once between ages 9 and 11 years

and again between 17 and 21 years. This is in addition to selective screening previously recommended by the Academy and AHA. The goal is to identify familial hyperlipidemias (FH), found in one in 300-500 children but asymptomatic until there is myocardial ischemia. Untreated individuals with FH have a risk of premature coronary heart disease up to 20 times greater than those without FH. One study suggests that statin therapy can reduce the risk of cardiac events in FH to that of the general adult population but only if identified early.

In addition to the genetic LDL lipid disorders, universal lipid screening is likely to identify many more children with lipid abnormalities that require lifestyle modification. Data from the National Health and Nutrition Examination Survey suggest one in five U.S. adolescents has some type of lipid disorder (Centers for Disease Control and Prevention. *MMWR*. 2010;59(2):29-33).

The guidelines focus on lifestyle modification for the first six months in nearly all patients. Much of the initial management of identified CVD risk factors can be done in a primary care setting if nutrition support and lifestyle counseling are available. When lifestyle modifications fail to reduce the lipids to the desired level in patients with extreme lipid disorders, pharmacotherapy is recommended. Some fear this recommendation will lead to an avalanche of statin prescriptions for children. This fear probably is unfounded, based on the low prevalence of extremely elevated LDL, which is about 1% of the population.

In addition, the guidelines recommend initiating lipid-lowering medications in patients meeting criteria starting at age 10 years, whereas the 2008 AAP clinical report *Lipid Screening and Cardiovascular Health in Childhood* (<http://aappolicy.aappublications.org/cgi/content/full/pediatrics;122/1/198>) put more emphasis on age 8 years. Published data support clinical experience that in the short and medium term, lipid-lowering medications are well-tolerated and safe for the few patients who need them.

Limitations

These guidelines have some limitations. Emerging data suggest additional CVD risk factors such as early excess adiposity detected using weight for length in infants, inadequate sleep and high stress.

In addition, long-term safety and efficacy data on statins in childhood are not available, although adult studies support low side effects and reduced overall mortality.

Importantly, the burden of the guidelines on patients, families, providers and the health care system has yet to be explored.



Dr. de Ferranti



Dr. Washington

Dr. de Ferranti is a member of the AAP Committee on Nutrition. Dr. Washington is a member of the AAP Section on Cardiology and Cardiac Surgery.