

WHAT'S NEW

From the U.S. Preventive Services Task Force

An Overview of Recommendations

AHRQ Publication No. 04-IP012

May 2004

Screening for Visual Impairment in Children Younger than Age 5 Years

What Does the U.S. Preventive Services Task Force Recommend?

The U.S. Preventive Services Task Force (USPSTF) recommends screening to detect amblyopia, strabismus, and defects in visual acuity in children younger than age 5 years.

What Are the Benefits of Early Detection of Visual Impairment?

Early detection and treatment of amblyopia and amblyogenic risk factors can improve visual acuity. Screening tests have reasonable accuracy in identifying strabismus, amblyopia, and refractive error in children with these conditions; more intensive screening compared with usual screening leads to improved visual acuity; and treatment

of strabismus and amblyopia can improve visual acuity and reduce long-term amblyopia.

Early detection and treatment of amblyopia and risk factors for this condition can improve visual acuity.

Which Screening Tests Should Clinicians Use?

The choice of screening tests depends on the child's age. During the first year of life, strabismus can be assessed by the cover test and the Hirschberg light reflex test. Newer automated techniques can be used to test children younger than age 3 years. Photoscreening can detect amblyogenic risk factors such as strabismus, significant refractive error,

and media opacities; however, photoscreening cannot detect amblyopia. Screening children younger than age 3 years for visual acuity is more challenging than screening older children and typically requires testing by specially trained personnel.

In children older than age 3 years, stereopsis (the ability of both eyes to function together) can be assessed with the Random Dot E test or Titmus Fly Stereotest; visual acuity can be assessed by tests such as the HOTV chart, Lea symbols, or the tumbling E. Traditional vision testing requires a cooperative, verbal child.

Traditional vision testing requires a cooperative, verbal child.

What's New from the U.S. Preventive Services Task Force is a series of fact sheets based on recommendations of the USPSTF. The USPSTF systematically reviews the evidence of effectiveness of a wide range of clinical preventive services—including screening, counseling, and chemoprevention (the use of medication to prevent disease)—to develop recommendations for preventive care in the primary care setting. **This fact sheet presents highlights of USPSTF recommendations on this topic and should not be used to make treatment or policy decisions.**

More detailed information on this subject is available in "Screening for Visual Impairment in Children Younger than Age 5 Years: Systematic Evidence Review for the U.S. Preventive Services Task Force," in the USPSTF recommendation statement, "Screening for Visual Impairment in Children Younger than Age 5 Years," and in "Screening for Visual Impairment in Children Younger than Age 5 Years: Update of the Evidence from Randomized Controlled Trials, 1999-2003," which can be found on the Agency for Healthcare Research and Quality (AHRQ) Web site (www.preventiveservices.ahrq.gov) and through the National Guideline Clearinghouse (www.guideline.gov). The update of the evidence and the USPSTF recommendation statement are available in print through the AHRQ Clearinghouse (1-800-358-9295, or ahrqpubs@ahrq.gov).

What Are the Potential Harms of Screening?

The USPSTF found no studies detailing permanent harms resulting from screening or data on the harms of false-positive screening. Potential harms may include “labeling” and the costs associated with further evaluation of children with false-positive results.

What Treatments Can Improve Visual Acuity?

Treatments that can improve visual acuity include surgery for strabismus and cataracts; use of glasses, contact lenses, or refractive surgery to correct refractive error; and visual training, patching, or atropine therapy of the nonamblyopic eye to treat amblyopia.

What Are the Potential Harms of Treatment?

Potential harms of treatment include disruption of normal eye development and temporary loss of visual acuity of the nonamblyopic eye, which resolves weeks after the completion of therapy.

What Are Common Causes of Visual Impairment in Children?

The most common causes of visual impairment in children are amblyopia and its risk factors, and refractive error not associated with amblyopia.

Amblyopia—reduced visual acuity without a detectable organic lesion of the eye—is usually associated with risk factors that interfere with normal binocular vision, such as strabismus (ocular misalignment), anisometropia (a large difference in refractive power between the 2 eyes), cataract (lens opacity), and ptosis (eyelid drooping). Refractive error not associated with amblyopia mainly includes myopia (near-sightedness) and hyperopia (far-sightedness); both are correctable regardless of the age of detection.

For more information, contact the following organizations:

healthfinder[®]
www.healthfinder.gov

National Eye Institute
National Institutes of Health
www.nei.nih.gov



**U.S. Department of Health
and Human Services**



**Agency for Healthcare
Research and Quality**
www.ahrq.gov



U.S. Preventive Services Task Force

Members of the USPSTF represent the fields of family medicine, gerontology, obstetrics-gynecology, pediatrics, nursing, prevention research, and psychology. Members of the U.S. Preventive Services Task Force* are:

Alfred O. Berg, MD, MPH
Chair

Janet D. Allan, PhD, RN, CS
Vice-chair

Ned Calonge, MD, MPH

Paul S. Frame, MD

Joxel Garcia, MD, MBA

Russell Harris, MD, MPH

Mark S. Johnson, MD, MPH

Jonathan D. Klein, MD, MPH

Carol Loveland-Cherry, PhD, RN

Virginia A. Moyer, MD, MPH

C. Tracy Orleans, PhD

Albert L. Siu, MD, MSPH

Steven M. Teutsch, MD, MPH

Carolyn Westhoff, MD, MSc

Steven H. Woolf, MD, MPH

*Members of the USPSTF at the time the USPSTF recommendation on this topic was finalized.