



DEDICATED TO THE
HEALTH OF ALL CHILDREN

THE OFFICIAL NEWSMAGAZINE OF THE AMERICAN ACADEMY OF PEDIATRICS

AAP News

The eyes have it

Advances in vision screening should lead to early diagnosis, treatment of preventable blindness in children

Daniel E. Neely

AAP News 2013;34;14

DOI: 10.1542/aapnews.2013345-14

The online version of this article, along with updated information and services, is located on the World Wide Web at:

<http://aapnews.aappublications.org/content/34/5/14>

AAP News is the official journal of the American Academy of Pediatrics. A monthly publication, it has been published continuously since 1948. AAP News is owned, published, and trademarked by the American Academy of Pediatrics, 141 Northwest Point Boulevard, Elk Grove Village, Illinois, 60007. Copyright © 2013 by the American Academy of Pediatrics. All rights reserved. Print ISSN: 1073-0397.

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™



Focus On Subspecialties

The eyes have it

Advances in vision screening should lead to early diagnosis, treatment of preventable blindness in children

by **Daniel E. Neely, M.D., FAAP**

Pediatricians often are the first and last lines of defense against preventable vision loss.

The National Eye Institute estimates vision loss from amblyopia affects up to 5% of the U.S. population, a staggering 4.5 million children (www.nei.nih.gov/news/statements/pediatric.asp). An even more shocking statistic from the Children's Eye Foundation is that 78% of preschool-aged children do not receive a vision screening (www.childrenseyefoundation.org/index.php/why-save-sight/why-save-sight).

Fortunately, recent advances in both vision screening resources and technology are making this process easier than ever for even the busiest pediatrician.

Measuring visual acuity

Vision screening performed by measuring the visual acuity of each eye using an acuity wall chart remains the gold standard for assessing the possible presence of amblyopia. Children as young as 3 to 5 years can be screened if the appropriate test materials are used. Examples of this would include symbol tests, such as Lea symbols used in conjunction with a match response card, enabling the child to simply point to the displayed test optotype.

Older children, typically ages 5 years and up, are best tested with a variant of traditional Snellen letter charts. Unlike the older Snellen eye charts that physicians are most familiar with, modern acuity charts utilize uniform logarithmic progression with equal numbers of block letters, known as Sloan letters, displayed on each line. School-aged children should be able to pass the 20/30 line with each eye when tested one eye at a time (this may read as 20/32 on logarithmic charts).

To help pediatricians perform accurate and efficient visual acuity testing, the American Association for Pediatric Ophthalmology and Strabismus (AAPOS) has developed an easy-to-use eye chart kit (see Figure 1) that is available from the AAP Bookstore, <http://tinyurl.aap.org/pub.221191>.

Instrument-based screening

If children are unable to perform visual acuity testing because of age, anxiety or developmental status, excellent alternatives to eye chart testing are available.

Instrument-based screening (traditionally called photoscreening)



technology has exploded during the last decade, and pediatricians now have a wide array of eye screening devices at their disposal. These automated devices are easy and efficient to use in even the youngest patients.

A recent study from the University of Iowa found that children as young as 1 to 3 years of age could be screened reliably using automated technology (Longmuir SQ, et al. *Pediatrics*. 2013;131:e764-e769, <http://pediatrics.aappublications.org/content/early/2013/02/05/peds.2012-1638.abstract>).

Furthermore, the Academy, the American Academy of Ophthalmology, AAPOS and the American Association of Certified Orthoptists have issued a joint statement endorsing instrument-based screening in children ages 6 months to 5 years of age (*Pediatrics*. 2012;130:983-986, <http://pediatrics.aappublications.org/content/130/5/983.full.html>).

Unlike acuity chart testing, instrument-based eye screening does not measure the actual visual acuity of the eye but rather assesses for the presence of amblyopia risk factors, such as significant refractive errors (myopia, hyperopia, astigmatism), asymmetry of the refractive error from one eye to the other (anisometropia), misalignment of the eyes

(strabismus) and the presence of media opacities (cataract).

Therefore, while instrument-based screening has definite advantages in children under the age of 3 years, children ages 5 years and up still should be tested with an acuity chart to document the visual acuity of each eye. In between these two stratifications, children ages 3-5 may be tested with equal efficacy using either an automated device or a visual acuity chart at the physician's discretion.

Pediatricians also should keep in mind that routine vision screening has its own CPT codes that can be utilized to compensate for the time and expense involved with well-child vision screening activities. CPT code 99173 should be used with screening tests of visual acuity (charts),

and CPT code 99174 should be used for instrument-based screening (photoscreening).

These recent developments in pediatric vision screening are certain to have a profound impact on the early diagnosis and treatment of preventable blindness from amblyopia and other ocular conditions of early childhood.



Dr. Neely is a member of the AAP Section on Ophthalmology.

The eyes have it
Advances in vision screening should lead to early diagnosis, treatment of preventable blindness in children

Daniel E. Neely

AAP News 2013;34;14

DOI: 10.1542/aapnews.2013345-14

Updated Information & Services

including high resolution figures, can be found at:
<http://aapnews.aappublications.org/content/34/5/14>

Subspecialty Collections

This article, along with others on similar topics, appears in the following collection(s):

Focus on Subspecialties

<http://aapnews.aappublications.org/cgi/collection/focus>

Permissions & Licensing

Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at:

</site/misc/Permissions.xhtml>

Reprints

Information about ordering reprints can be found online:

</site/misc/reprints.xhtml>

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™

