

VISION SCREENING FACT SHEET



NATIONAL CENTER ON
Early Childhood Health and Wellness



Parents¹ and early care and education staff cannot always tell when a child has trouble seeing. Observation alone isn't enough. This is why implementing evidence-based vision screening throughout early childhood is important.

Introduction

Children use all their senses to learn. Children's play with puzzles, crayons, balls, and blocks can improve important visual skills. These skills contribute to a child's school readiness. An uncorrected vision problem can be a barrier to this readiness.

Timely vision screening (coupled with an eye examination² when indicated) is an important step toward early detection of any possible vision problems. Early detection can lead to an effective intervention and help to restore proper vision. Young children rarely complain when they can't see well because to them, it's normal.

1. The term "parents" represents all of the people that may play a parenting role in a child's life such as grandparents or other family members in a caregiving role who have legal guardianship, and foster parents.

2. A comprehensive exam is one in which an eye doctor evaluates vision, diagnoses any eye disorders and diseases and prescribes treatment.

Evidence-based Vision Screening

Evidence-based is an umbrella term that refers to the use of the best research evidence (found in health sciences literature) and clinical expertise (what health care providers know).

Adapted from the National Institutes of Health <https://prevention.nih.gov/resources-for-researchers/dissemination-and-implementation-resources/evidence-based-programs-practices>

An evidence-based vision screening is a way to identify children who need an evaluation of their vision and eye health. Head Start and Early Head Start programs are required to obtain or perform an evidence-based vision screening.

45 CFR §1302.42 Child health status and care. (b)(2-3) Ensuring up-to-date child health status.

(2) Within 45 calendar days after the child first attends the program or, for the homebased program option, receives a home visit, a program must either obtain or perform evidence-based vision and hearing screenings.

(3) If a program operates for 90 days or less, it has 30 days from the date the child first attends the program to satisfy paragraphs (b)(1) and (2) of this section.

[https://eclkc.ohs.acf.hhs.gov/policy/45-cfr-chap-xiii/1302-42-child-health-status-care.](https://eclkc.ohs.acf.hhs.gov/policy/45-cfr-chap-xiii/1302-42-child-health-status-care)

Health managers may begin by looking at a child's most recent physical for the date and results of a child's vision screening.

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Some programs choose to do their own vision screening. Reasons may include:

- The results of the child's screening are unavailable;
- The child was uncooperative for an earlier screening;
- A family or staff member reports a concern about the child's vision; or
- The Health Services Advisory Committee recommends universal vision screening.

Trained staff or volunteers can perform evidence-based vision screening. Programs can contact [Prevent Blindness](#), which has a vision screening certification training program. The training is available from Prevent Blindness and its affiliates. Other qualified community groups can also conduct age-appropriate, evidence-based vision screening.

Some programs have worked with voluntary community groups such as:

- [Lions Clubs](#)
- [State](#) or community organizations
- Medical schools or ophthalmology training programs

Engaging Families and Promoting Health Literacy

It is easier for parents to partner with you and health care providers when they understand how vision influences their child's development and learning. Preparing parents about what to expect from a vision screening helps them know how to prepare their child. It is also important to talk about who will have access to their child's screening results. One of the best ways to promote children's vision health is by developing and implementing policies and procedures that both define and support ways for staff to collaborate with parents.

Consider these vision tips

- Include questions on the program's family health history form to identify children who may have a higher risk of vision problems. For example is there a family history of amblyopia, strabismus, or early and serious eye disease?
- Provide resources to help families learn more about healthy eyes and the importance of early detection of vision problems. Do families know that it isn't always possible to tell if children have a vision problem just by looking at their eyes? Or that young children seldom complain when they can't see well?

If your program performs vision screening, share the following information with families before obtaining written parental consent to screen.

- Why vision screening is important.
- What happens during vision screening, how it will be done, and who is going to do it.
- What parents can do to prepare their child.
- Parents can be present during the screening.
- Who will get the results, and how the program will communicate them—including whether the child passes, fails, or has to be rescreened, or should be referred for a vision examination.
- Parents may decline the screening and a referral, but the program will ask for documentation of their refusal.

If a family does not accept a referral for an eye examination or follow up on recommended treatment, consider these strategies.

- Demonstrate a respectful attitude regarding the parent's decision.
- To the extent possible, make sure that parent education materials are available in the languages spoken by program families, and written at an appropriate [literacy level](#).

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Photo courtesy of Plusoptix, Inc.

- Consider that families may have different cultural expectations, and seek out a health provider or organization that may help to identify and address any misgivings a family may have about diagnosis or treatment.
- Partner with the health care provider to support families. Parents may need additional help understanding vision concerns, diagnoses, and recommended therapies.
- Offer parents assistance to get to and from medical appointments, and find community resources for eyeglasses.
- Ask the parent for permission to revisit the issue in the future, and then try again in a few weeks.

In addition to assuring timely vision screening, programs can support children and families who have been given treatment recommendations from an eye specialist (such as wearing glasses or patching

one eye for amblyopia), as well as reminding parents of follow-up visits to the eye doctor whenever recommended. Programs must track children who are referred to an eye doctor and the services they receive. Screening, examination, treatment and follow up when needed, as well as family support are all important parts of a child's Early Head Start and Head Start health experience.

Types of Evidence-based Screening

There are three types of evidence-based screening:

- Developmental milestones checklist (for infants under 12 months of age)
- Instrument-based screening for refractive errors
- Optotype-based³ screening for recognition visual acuity

3. The picture, letter, or number on an eye chart or card.

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Screening Infants and Toddlers

There are special considerations for screening infants and toddlers. The child's health care provider collects vision health information during well-child visits in accordance with the Bright Futures-AAP 2017 Recommendations for Preventive Pediatric Health Care.⁴ These visits regularly include an assessment of the health of the eye, including eye structure, movement, and reaction to light. The American Academy of Pediatrics says that, "Instrument-based screening, if available, should be first attempted between 12 months and 3 years of age and at annual well-child visits until acuity can be tested directly."⁵

The National Center for Children's Vision and Eye Health has compiled evidence on a checklist that can be used with young infants: [Eight Key Vision Development Milestones to Monitor from Birth to First Birthday](#).

Instrument-based Screening

Instrument-based screening uses automated technology. These instruments evaluate the structure of the eye for the presence of refractive error, eye misalignment, and ocular opacities. These are conditions that often lead to vision loss or amblyopia. Refractive errors happen when variations in the shape or size of the eye cause focusing problems. Unlike optotype screening methods, instrument-based screening does not provide a measurement of visual acuity.

Compared to visual acuity screening, instrument-based screening requires much less help from the child. This is especially useful with children who are unable or unwilling to cooperate with optotype-based screening. Follow the manufacturer's instructions to get the most accurate results.

The evidence for instrument-based screening as a useful tool is growing. For a list of [recommendations](#) and further guidance, go to the websites of the [National Center for Children's Vision and Eye Health](#) or the [Children's Eye Foundation](#).

According to the National Center for Children's Vision and Eye Health expert panel, it is acceptable to use either optotype or instrument-based screening with children ages 3-5 years old.⁶

Optotype-based screening

Optotype-based screening uses letters, numbers, or figures to assess visual acuity. Visual acuity is the ability to identify black symbols on a white background using specific sizes at a prescribed distance. The child is asked to identify the symbol or letter, either by naming it or playing a matching game.



LEA SYMBOLS® and HOTV letters.
Photo courtesy of Good-Lite Corporation

4. American Academy of Pediatrics (2016). 2017 Recommendations for Preventive Pediatric Health Care, retrieved from <http://pediatrics.aappublications.org/content/pediatrics/early/2017/02/15/peds.2017-0254.full.pdf>.
5. American Academy of Pediatrics. (2016). Visual System Assessment in Infants, Children, and Young Adults by Pediatricians, *Pediatrics*, 137 (1), 27-29. Retrieved from <http://pediatrics.aappublications.org/content/early/2015/12/07/peds.2015-3596>.
6. The recommendations developed by the National Expert Panel to the National Center for Children's Vision and Eye Health were sponsored by Prevent Blindness, and funded by the Maternal and Child Health Bureau of the Health Resources and Services Administration, U.S. Department of Health and Human Services. See Cotter, S.A., Cyert, L.A., Miller, J.M., and Quinn, G.E. for the National Expert Panel to the National Center for Children's Vision and Eye Health (2015). Vision Screening for Children 36 to <72 Months: Recommended Practices. *Optometry and Vision Science*, 92(1), 6-16. Retrieved from http://journals.lww.com/optvissci/Citation/2015/01000/Vision_Screening_for_Children_36_to_72_Months_.6.aspx.

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Children in Head Start and Early Head Start come from many different cultural and linguistic backgrounds and may not be familiar with specific symbols or letters, so before selecting an optotype-based screening tool, be sure the child is familiar with the symbols or letters you plan to use. It is also helpful to prepare children ahead of time so they understand what they will be asked to do during the screening. Children will be required to identify letters, numbers, or symbols.

For children ages 3-5 years old, use LEA SYMBOLS® or HOTV letters as optotypes as these are the only ones that currently meet best practice standards.

- LEA SYMBOLS® (common LEA SYMBOLS® are a circle, a square, an apple, and a house)
- HOTV letters (using H, O, T, V)

Both HOTV and LEA SYMBOLS® are linguistically appropriate tools for dual language learners, as the child can match the letters or symbols and does not need to identify them by name. Some optotypes are not appropriate for screening preschool children. For more information on best and acceptable practice screening tools and a list of unacceptable optotype-based tests and the reasons why, refer to the following [article](#).⁷

Visual acuity screening is done separately for each eye. This means one eye is occluded (covered) at a time. Preferred methods of occlusion are adhesive eye patches or 2-inch wide hypoallergenic surgical tape. Specially constructed glasses are acceptable. Holding a tissue, hand, paper cup, spoon, or paddle over a child's eye is not acceptable because it is not reliable. While not always obvious, it is easy for a child to peek around these objects. Even a momentary glimpse from the "covered" eye can negate the accuracy of the vision screening being done for the opposite eye.



Tiger Occluder. Photo courtesy of Good-Lite Corporation

Rescreening

Programs that perform vision screenings will need to determine when to rescreen children who do not pass. Some children may be unable to pay attention, cooperate or understand what they need to do during the first attempt at screening. This is especially true for visual acuity testing. These children may not have "failed" their vision screening. They may be considered "untestable."

Children who cannot be screened with optotype-based screening can often complete instrument-based screening and vice versa. Programs should consider using the alternate method for rescreening if both are available.

Research shows that preschool children who are "untestable" are almost twice as likely to have a vision problem as those who successfully pass a screening.⁸ They should be rescreened as soon as possible, but not longer than 6 months later. If a child fails or is untestable at the second attempt, consider referring the child for a full eye examination.

7. Characteristics of Tests of Recognition Visual Acuity for Screening the Vision of Children Ages 3 Through 5 Years (36 to <72 Months). Retrieved from http://www.preventblindness.org/sites/default/files/national/documents/Characteristics_of_Optotype_Based_Screening_Children_FINAL.pdf.

8. Maguire, M.G. (2007). Children unable to perform screening tests in vision in preschoolers study: proportion with ocular conditions and impact on measures of test accuracy. *Investigative Ophthalmology and Visual Science*, 48(1), 83-87.

Even if they pass a vision screening, special consideration should be given for a full eye examination by a pediatric eye specialist in any child with a:

- Readily recognized eye abnormality⁹
- Known neurodevelopmental disorders in any area¹⁰
- Systemic disease known to be commonly associated with eye disorders
- Family history of strabismus, amblyopia, or high refractive error

In these situations, coordination with the child's health care provider is the optimal way to recommend a referral.

Ongoing Care

It is important to remember that screening only provides a vision assessment at one moment in time. Occasionally a parent or staff member will identify a

new or different vision concern after a child has been previously screened. In addition, as children grow their eyes change and new signs of an eye problem or blurred vision can arise as they mature. Programs should address this new concern with the parent and the health care provider promptly.

Vision Screening Resources for Staff and Families

Programs may find it helpful to review [Children's Vision Health: How to Create a Strong Vision Health System of Care](#) developed by the [National Center for Children's Vision and Eye Health](#) (NCCVEH) and its partners for the [Year of Children's Vision](#) (YOCV). YOCV has also developed fact sheets in English, Spanish, and Chinese that programs can share with families. Programs can contact the NCCVEH for an electronic copy or engage local health partners to develop educational information in multiple languages.

9. Abnormalities such as a crossed or wandering eye or a droopy eyelid

10. Neurodevelopmental disorders with higher rates of vision problems include hearing impairments, cerebral palsy, cognitive impairments, autism spectrum disorders, and speech delays.



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School readiness begins with health!

This resource was prepared under Grant No. 90HC0013-02-00, a cooperative agreement of the Office of Head Start, Office of Child Care, and the Maternal and Child Health Bureau.

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