Vision Screening: A Fact Sheet for Early Care and Education Programs

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 examination[1] when indicated) is an important step toward early detection of any possible vision problems. Early detection can also lead to effective intervention and restore proper vision. Head Start and Early Head Start programs, in collaboration with parents,[2] are required to perform or obtain the results of a child's vision screening within 45 calendar days of the child's entry into the program (30 days for programs of shorter duration).[3]

Health managers may begin by looking at a child's most recent physical for the date and results of a child's vision screening. Many programs also choose to do their own vision screening. Reasons may include:

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

Programs may conduct vision screening at any time, such as before or within the first few weeks of a new program year when many children are entering at once. Trained staff or volunteers can perform 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

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[1]A comprehensive exam is one in which an eye doctor diagnoses any eye disorders and diseases and prescribes treatment.

[2]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.

[3]Entry is defined as the first day the child enters the classroom or begins to participate in a home based or family child care program option.

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Vision Health: Engaging Families

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 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).

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?

> **Strabismus** is a condition in which a child's eyes are not straight or do not line up with each other. If the problem is not treated, it can cause amblyopia.
>
> **Amblyopia** (Lazy Eye) is a condition in which a child has reduced vision in an eye that has not received adequate use during early childhood.

The Year of Children's Vision has 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.

Before obtaining written parental consent/permission to screen, share the following information with families.

- 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.
- Family members 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.
- Families 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.
- 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.

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- Partner with the medical home about how to support families. Parents may need additional help understanding vision concerns, diagnoses, and recommended therapies.
- Offer families assistance to get to and from medical appointments, and find community resources for eyeglasses.
- Ask the family for permission to revisit the issue in the future, and then try again in a few weeks.

Types of Screening

There are two types of evidence-based screening:

- Optotype-based[4] screening for recognition visual acuity
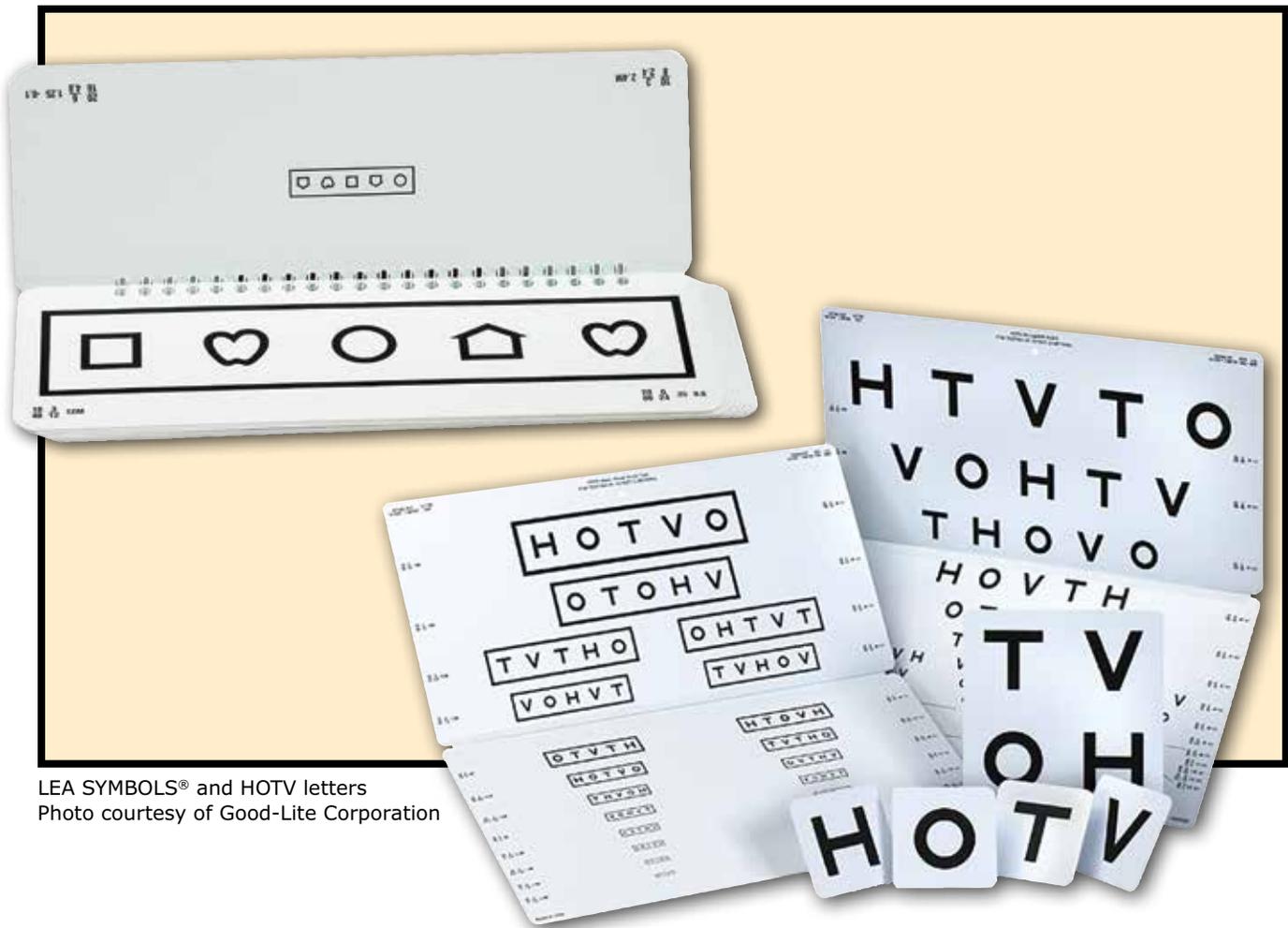- Instrument-based screening for refractive errors

According to the National Expert Panel to the National Center for Children's Vision and Eye Health, it is acceptable to use either type of screening with children ages 3-5.[5]

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. Visual acuity screening is done separately for each eye. This means one eye is occluded (covered) at a time.

Tiger Occluder
Photo courtesy of Good-Lite Corporation

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.

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[4]The picture, letter, or number on an eye chart or card

[5]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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LEA SYMBOLS® and HOTV letters
Photo courtesy of Good-Lite Corporation

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)

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.[6]

Children in Head Start and Early Head Start come from many different cultural and linguistic backgrounds. Before selecting a screening tool, be sure the child is familiar with the symbols or letters you plan to use. It is helpful to prepare children ahead of time so they understand what they will be asked to do during the screening. 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.

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[6]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

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Photo courtesy of Plusoptix, Inc.

Instrument-based screening uses automated technology. Unlike optotype screening methods, instrument-based screening does not provide a measurement of visual acuity. Rather, 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.

Compared to visual acuity screening, instrument-based screening requires very little help from the child. This is especially useful with children who are unable or unwilling to cooperate with optotype-based screening. The evidence for instrument-based screening as a useful tool is growing. Be sure to pay attention to the referral criteria that are programmed into the instrument in order to make appropriate referrals. For a list of recommendations and further guidance, go to the website of the National Center for Children's Vision and Eye Health.

There are special considerations for screening infants and toddlers. The child's medical home collects vision health information during well-child visits. These visits regularly include an assessment of the parts of the eye, and its movement and reflexes. The Bright Futures-AAP 2016 *Recommendations for Preventive Pediatric Health Care* recommends a visual acuity screen at ages 4 and 5 years, as well as in cooperative 3 year olds. Instrument based screening may be used to assess risk at ages 12 and 24 months, in addition to the well visits at 3 through 5 years of age.[7] Early Head Start programs should make use of this information.

[7]Recommendations for Preventive Pediatric Health Care (2016). American Academy of Pediatrics, *Pediatrics,* 137(1), 25–27. Retrieved from http://pediatrics.aappublications.org/content/pediatrics/137/1/1.64.full.pdf

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The American Academy of Pediatrics 2016 Visual System Assessment in Infants, Children, and Young Adults by Pediatricians Policy Statement says that instrument-based screening devices for vision screening, if available, can be used with young children at any age but have better success after 18 months of age.[8]

Whether they pass or fail a vision screening, some children should always be referred to an eye specialist. These include any child with a:

- Readily recognized eye abnormality [9]
- Known neurodevelopmental disorders in any area[10]
- Systemic disease known to be commonly associated with eye disorders
- Family history of strabismus, amblyopia, or high refractive error

As with any health condition, it is important to document the referral and track the services the child receives.

Rescreening

A child may be unable to pay attention, cooperate or understand what he or she needs to do during a first attempt at screening. These children have not "failed" their vision screening. They are considered "untestable". 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.[11] Untestable children should be rescreened as soon as possible but not longer than 6 months later.

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.

Ongoing Care

It is important to remember that screening only provides a vision assessment at one moment in time. Occasionally a family or staff member will identify a new or different vision concern after a child has been 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 family and the medical home promptly.

In addition to assuring timely vision screening, programs can support children and families with treatment recommendations (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.

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[8]Visual System Assessment in Infants, Children, and Young Adults by Pediatricians (2016). American Academy of Pediatrics, Pediatrics, 137 (1), 27–29. Retrieved from http://pediatrics.aappublications.org/content/pediatrics/137/1/1.51.full.pdf

[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.

[11]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.

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