



**Vision Screening:
Education, Evidence-Based Tools,
and Reducing the Gap Between
Vision Screening Referrals and
Confirmatory Eye Examinations**

P. Kay Nottingham Chaplin, EdD
March 25, 2023



**National Center
for Children's Vision
and Eye Health**
Prevent Blindness

1



Introduction and Disclaimers


- 22 years in vision screening field
 - Co-authored papers re: vision screening
 - Presented nearly 250 national webinars and evidence-based vision screening lectures at international, national, regional, state, and local venues
- *Education and Outreach Coordinator for the National Center for Children's Vision and Eye Health at Prevent Blindness*
 - Provide Technical Assistance
 - Oversee the national online Prevent Blindness Children's Vision Screening Certification Course
- Contracted vision screening consultant for Good-Lite and School Health Corporation (**vision screening tool images from Good-Lite and School Health are exclusive contractual agreements . . . not pushing product – purchase, if available, from your vendor**)
- *Prevent Blindness paying my time for presentation; Good-Lite paying travel expenses.*
- Consultant to the Vision Screening Committee, American Association for Pediatric Ophthalmology and Strabismus
- *Current focus:*
 - Helping to bridge the gap between vision screening referrals and eye exams by overcoming common barriers and cultural beliefs about eye exams and wearing glasses.
 - Encouraging age-appropriate and evidence-based vision screening – based on national guidelines and best practices – as part of a 12-component Strong Vision Health System of Care.

2


3 Learning Objectives

List 2 questions to ask parents to dig deeper into the "why" eye exams do not occur for referred students.

Describe evidence-based vision screening tools.



Describe 2 facilitators to help overcome barriers to follow-up eye care.




3


Association Between Vision and Learning

Henry looked to the right. He looked to the left. He looked up and he looked down. Where had Frog gone? Henry did not like being alone in the forest. "Frog, where are you?" Henry called. "Please come back!"

Henry looked to the right. He looked to the left. He looked up and he looked down. Where had Frog gone? Henry did not like being alone in the forest. "Frog, where are you?" Henry called. "Please come back!"



4



For good vision . . .

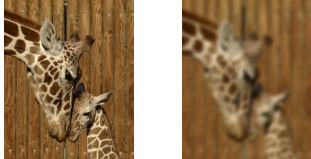
- Straight eyes

For good vision . . .

- Eyes and vision system work correctly

For good vision . . .



- Focused and clear image from each eye



5


How is Clear Vision Helpful for Children?

- Childhood development
- Education
- Child's self-esteem and confidence
- Improved classroom behavior
- Future employability
- Lifelong independence


6

Association Between Vision and Learning



Comment to "Vision problems can harm kids' development grades"
<https://medicalxpress.com/news/2017-07-vision-problems-kids-grades.html>

"I always thought I was just sitting too far from the blackboard to read the words and numbers the teachers were writing. It wasn't until my 8th grade year (having repeated 6th grade) that I was vision tested. Geez, what a difference when I went back to school as a freshman in high school. I could read everything, and my learning was so much easier."



7

5th grade – Cs & Ds. Consistently unruly in class. After VS & glasses, behaviors calmed almost immediately. 3 mo later – Bs & working on As. "You saved my nephew."

2015 study – low-income, ages 3 through 5 yrs – found: Improvement in academic progress, confidence & behavior - increase in focus during lessons & classroom participation & interaction

2016 study - 317 2nd & 3rd graders – 12 high-poverty schools – Baltimore City – Children *with* uncorrected hyperopia did not perform as well on reading assessments compared with children *without* hyperopia

2016 study in the UK – ages 4 and 5 yrs – found poor visual acuity at school entry is associated with reduced literacy (e.g., difficulty naming letters)

8

2016 study – ages 4 and 5 yrs with hyperopia (farsightedness ≥ 4.0 D) scored *significantly* worse on early literacy test than children with normal vision (e.g., print knowledge and identifying letters and written words)

True story from Charles Short – Indiana Lions District 25C – West Lafayette, IN

Peterseim, M. M., Papa, C. E., Parades, C., Davidson, J., Sturges, A., Oslin, C., Merritt, I., & Morrison, M. (2015). Combining automated vision screening with on-site examinations in 23 schools: ReFocus on Children Program 2012 to 2013. *Journal of Pediatric Ophthalmology & Strabismus*, 52(1), 20-24.

Collins, M. E., Mudie, L., Slavin, R. E., Corcoran, R. P., Owoeye, J., Chang, D., Friedman, D. S., & Repka, M. X. (2016). Prevalence of eye disease and reading difficulty in an inner city elementary school population – preliminary results of the Baltimore Reading and Eye Disease Study (BREDS). *Journal of AAPOS*, 20(4), e29-e-30. 433–436.e1

Bruce, A., Fairley, L., Chambers, B., Wright, J., & Sheldon, T. A. (2016). Impact of visual acuity on developing literacy at age 4-5 years: a cohort-nested cross-sectional study. *BMI Open*, 6(2), 010434. <https://doi.org/10.1136/bmiopen-2015-010434>


VIP-HIP Study Group, Kulp, M. T., Cner, E., Maguire, M., Moore, B., Pentimonti, J., . . . Ying, G. (2016). Uncorrected hyperopia and preschool early literacy: Results of the Vision in Preschoolers – Hyperopia in Preschoolers (VIP-HIP) Study. *Ophthalmology*, 123(4), 681-689. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4808323/pdf/nihms721639.pdf>.

9

Early Identification & Treatment Make a Difference

• First grade reading ability found to be predictive of 11th grade reading outcomes, including:

- Reading comprehension,
- Vocabulary, and
- General knowledge.



Cunningham, A. E., & Stanovich, K. E. (1997). Early reading acquisition and its relation to reading experience and ability 10 years later. *Developmental Psychology*, 33(6), 934-945.

10

Academic Considerations for Vision

- Improved GPA (reading and math) - more likely for hyperopes than myopes
- Increased satisfaction with school
- Reduced stress
- Improved cognition, attention span, and focus
- Improved test scores
- Less task avoidance and need for discipline
- Less labeling- ADD or ADHD
- Earlier identification leads to improved outcomes

Academic Performance of Oylser School Students after Receiving Spectacle Correction. Thesis by Kimberly L. Renner; Graduate Program in Vision Science; The Ohio State University, 2017


Healthier Students Are Better Learners: A Missing Link in School Reforms to Close the Achievement Gap. Basch, CE. EQUITY MATTERS. Research Review No. 6 Columbia University; March 2010. <https://spark.oea.org/wordpress/wp-content/uploads/BaschReport.pdf>

11

“She got an award. . . . because she is one of the highest ranking children in her class in reading. So I said wow. And she said, ‘Yeal mom, I put on the glasses and I am reading!’”

Main Message:

This parent’s story shows what can happen in the classroom when a child received a vision screening, did not pass the vision screening, the parent/guardian received a referral from the vision screening for an eye examination by an eye doctor, the eye doctor examined the child’s vision and eyes, and prescribed treatment.




This process helped a child succeed in reading in the classroom.

Dudovitz, R. N., Izadpanah, N., Chung, P. J., & Slusser, W. (2016). Parent, teacher, and student perspectives on how corrective lenses improve child wellbeing and school function. *Maternal and Child Health Journal*, 20(5), 974–983. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4826825/pdf/nihms743856.pdf>

12

Comments from teachers:

- “ . . . these are the kids that . . . when they had to work independently they were distracting other kids. . . . But when they got the glasses that kind of just changed. It went away.”
- “I noticed with one or two of the students that got their glasses, the accuracy rate (on their math work) went up. Probably because they could see the numbers better in the books.”
- “The fluency rate has increase(d) for those students. They can see the words so they are more apt to practice reading because it’s not such a task for them.”
- “I think enthusiasm for learning just, I know one girl in particular that was struggling and she was so much more enthusiastic after she got the glasses and reading more.”




Dudovitz, R. N., Izadpanah, N., Chung, P. J., & Slusser, W. (2016). Parent, teacher, and student perspectives on how corrective lenses improve child wellbeing and school function. *Maternal and Child Health Journal*, 20(5), 974–983. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4826825/pdf/nihms743856.pdf>

13

3 Steps to Simple Solution




14



Observation

- Ages 3, 4, and 5 Years
- Ages 6 Years and Older

<https://nationalcenter.preventblindness.org/vision-screening-guidelines-by-age/>




National Center for Children's Vision and Eye Health
Prevent Blindness

15

Vision Screening . . . Begins with Observation

Signs of Possible Vision Problems in Children



If your child shows one or more of these signs, have your child seen by an eye doctor without delay.

Appearance	Behavior	Complaints
<ul style="list-style-type: none"> Eyes do not line up or look straight ahead – one appears to look toward nose, turned toward ear, upward toward forehead, or downward toward chin Eyeballs are red, irritated, or swollen Eyeballs are watery or red-irritated Eyeballs do not fully open (droopy) Recurring eye or bump (infection) on eyelid Color, growth, or shape of eyes show a white reflection in the pupil (middle of the eye) The pupil (the black circle in the colored part of the eye) in one eye is larger than the pupil in the other eye The iris (colored part of the eye) in one eye is not the same round shape and looks as if it is in the other eye Both eyes jerk back and forth quickly from side to side 	<ul style="list-style-type: none"> Closes or covers one eye when reading or looking at a close object Squints eyes when trying to see things near or far away Has head or same face when playing with a toy, trying to read, or trying to see something near or far away Has difficulty concentrating when reading, doing homework, or doing other classroom work Brings toys or books close to his or her face Blinks eyes more than usual or is cranky when doing close-up work Seems unusually clumsy: Bumps into things often or knocks things over Avoids doing near work or reading 	<ul style="list-style-type: none"> Eyes itch, burn, or feel sore/irritating Blurred vision when looking at near objects, such as toys or books, during near work Excessive tearing, or redness when doing near work Light or too bright Unable to see something other people can see Head worse at the end of the day Difficulty copying material from a whiteboard in the classroom

This publication is copyrighted. This sheet may be reproduced and/or translated for additional or personal use. The information provided in this Prevent Blindness fact sheet is designed to educate, not replace, the relationship that exists between patient and his or her doctor. Electronic reproduction, other means, in whole or in part, is not permitted without written consent. © 2016-2020 Prevent Blindness. All rights reserved.

<https://nationalcenter.preventblindness.org/wp-content/uploads/sites/22/2020/10/2A-Signs-vision-problems-in-children.pdf>

16

Vision Screening Approaches

Optotype-Based Screening

- Ages 3 years – through high school

Instrument-Based Screening

- Ages 3, 4, and 5 years

Cotter, S. A., Cyert, L. A., Miller, J. M., & 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. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4274335/pdf/optov-92-06.pdf>


Donahue, S. P., Baker, C. N., & AAP Committee on Practice and Ambulatory Medicine, AAP Section on Ophthalmology, American Association of Certified Orthoptists, American Association for Pediatric Ophthalmology and Strabismus, American Academy of Ophthalmology (2016). Procedures for the evaluation of the visual system by pediatricians. *Pediatrics*, 137(1), e20153597. <http://pediatrics.aappublications.org/content/pediatrics/137/1/e20153597.full.pdf>

17

Optotype-Based Screening

Optotype-Based Screening

- Tests of visual acuity using optotypes (letters or symbols) to measure visual acuity as interpreted by the brain
 - *Quantifiable measurement of the sharpness or clearness of vision when identifying specific optotype sizes at a standardized distance (e.g., 20/20)*



Cotter, S. A., Cyert, L. A., Miller, J. M., & 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. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4274335/pdf/optov-92-06.pdf>


Donahue, S. P., Baker, C. N., & AAP Committee on Practice and Ambulatory Medicine, AAP Section on Ophthalmology, American Association of Certified Orthoptists, American Association for Pediatric Ophthalmology and Strabismus, American Academy of Ophthalmology (2016). Procedures for the evaluation of the visual system by pediatricians. *Pediatrics*, 137(1), e20153597. <http://pediatrics.aappublications.org/content/pediatrics/137/1/e20153597.full.pdf>

18

Instrument-Based Screening

Instrument-Based Screening

- Analyzes STRUCTURE of the eyes
- Provides estimated information about amblyopia risk factors:
 - Significant refractive error (hyperopia [farsightedness], myopia [nearsightedness], astigmatism [blurred vision at both near and far], anisometropia [significant difference of refractive error between the two eyes])
 - Eye misalignment
- DOES NOT measure visual acuity (e.g., 20/20)
- Measurements CANNOT be converted to visual acuity values



Cotter, S. A., Cyert, L. A., Miller, J. M., & 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. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4274335/pdf/optov-92-06.pdf>


Cotter, S. A., Donahue, S. P., & Moore, B. (2021). Position statement on the relationship between visual acuity and refractive error in the context of preschool vision screening using instrument-based technology. *Optometry and Vision Science*, 98(1), 102. <http://www.optvts.com/resources/position-statement-on-the-relationship-between-visual-acuity-and-refractive-error-in-the-context-of-preschool-vision-screening-using-instrument-based-technology>

Donahue, S. P., Baker, C. N., & AAP Committee on Practice and Ambulatory Medicine, AAP Section on Ophthalmology, American Association of Certified Orthoptists, American Association for Pediatric Ophthalmology and Strabismus, American Academy of Ophthalmology (2016). Procedures for the evaluation of the visual system by pediatricians. *Pediatrics*, 137(1), e20153597. <http://pediatrics.aappublications.org/content/pediatrics/137/1/e20153597.full.pdf>

19

Importance of Appropriate Charts

- “Visual acuity scores can be significantly affected by the chart design.” (p. 1248)
 - Bailey, I. L. (2012). Perspective: Visual acuity – Keeping it clear. *Optometry and Vision Science*, 89(9), 1247-1248.
- Excluding optotype size, “each visual acuity level on a test chart should present an essentially equivalent task”. (p. 740)
 - Bailey, I. L., & Lovie, J. E. (1976). New design principles for visual acuity letter charts. *American Journal of Optometry & Physiological Optics*, 53(11), 740-745.



20

National and International Distance Visual Acuity Eye Chart Design Recommendations

- 1980 - National Academy of Sciences-National Research Council (NAS-NRC)**
 - Committee on Vision. (1980). Recommended standard procedures for the clinical measurement and specification of visual acuity. Report of working group 39. Assembly of Behavioral and Social Sciences, National Research Council, National Academy of Sciences, Washington, DC. *Advances in Ophthalmology*, 41:103–148.
- 1984 - International Council of Ophthalmology (ICO)**
 - www.icoph.org/dynamic/attachments/resources/icovisualacuity1984.pdf
- 2003 - World Health Organization Prevention of Blindness & Deafness (WHO)**
 - Prevention of blindness and deafness. Consultation on development of standards for characterization of vision loss and visual functioning. Geneva: WHO;2003 (WHO/PBL/03.91).
- 2010 – American National Standards Institute, Inc.**
 - ANSI Z80.21-1992 (R2004) Approved May 27, 2010

21

Similar recommendations across guidelines

- Optotypes approximately equal in legibility
- Horizontal between-optotype spacing = 1 optotype width
- Vertical between-line spacing = height of next line down
- Geometric progression of optotype sizes of 0.1 log units (logMAR, ETDRS)
- 5 optotypes per line
- Optotypes black on white background with luminance between 80 cd/m² and 160 cd/m²

Design guidelines = "ETDRS" or "logMAR" chart

22

Tips:

- Line outside optotypes
- 20/32 vs. 20/30
- 5 or 10 feet vs. 20 feet

YES

NO

23

Cast of Characters for National Guidelines

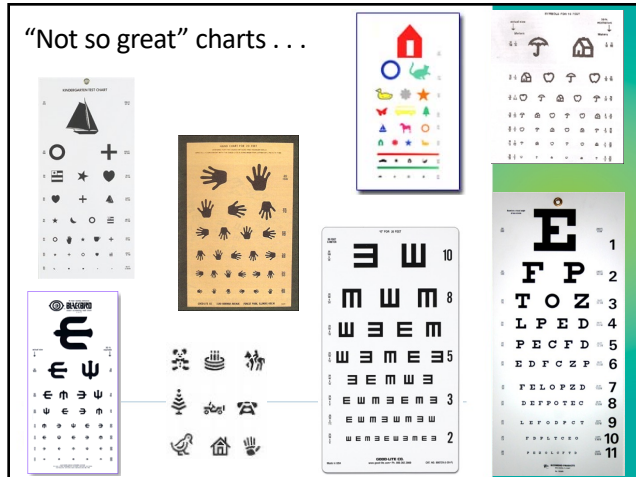
NCCVEH (ages 3, 4, and 5 years):

- National Center for Children's Vision and Eye Health at Prevent Blindness *for public health settings, primary care providers, early childhood agencies and educators, community organizations, and school nurses*
- Optometry
- Ophthalmology
- Family Advocates
- Nurses
- Public Health Professionals
- Educators

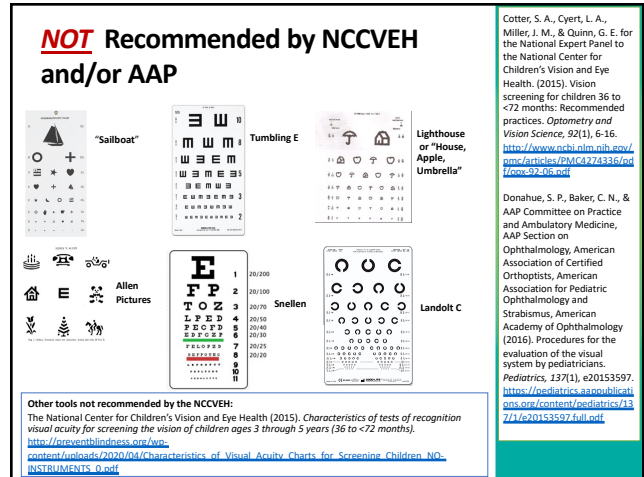
AAP or AAP/AAPOS/AAO/AACO for pediatricians (all ages):

- American Academy of Pediatrics
- American Association for Pediatric Ophthalmology and Strabismus
- American Academy of Ophthalmology
- American Association of Certified Orthoptists

24



25



26

Why NOT Recommended?

- The use of validated and standardized optotypes and acuity charts is important for an accurate assessment of vision.
- Charts not standardized.
- Children may not know their letters.
- Requires discrimination of direction, which is not sufficiently developed in preschool-aged children.
- Not well validated in screening environment.

Cotter, S. A., Cyert, L. A., Miller, J. M., & 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. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4274336/pdf/ovs-92-06.pdf>

Donahue, S. P., Baker, C. N., & AAP Committee on Practice and Ambulatory Medicine, AAP Section on Ophthalmology, American Association of Certified Orthoptists, American Association for Pediatric Ophthalmology and Strabismus, American Academy of Ophthalmology (2016). Procedures for the evaluation of the visual system by pediatricians. *Pediatrics*, 137(1), e20153597. <https://pediatrics.aappublications.org/content/pediatrics/137/1/e20153597.full.pdf>

27

Optotypes Beginning Age 3 Years

- NCCVEH
- AAP
- Recommend LEA SYMBOLS® and HOTV letters as optotypes

Cotter, S. A., Cyert, L. A., Miller, J. M., & 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. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4274336/pdf/ovs-92-06.pdf>

Donahue, S. P., Baker, C. N., & AAP Committee on Practice and Ambulatory Medicine, AAP Section on Ophthalmology, American Association of Certified Orthoptists, American Association for Pediatric Ophthalmology and Strabismus, American Academy of Ophthalmology (2016). Procedures for the evaluation of the visual system by pediatricians. *Pediatrics*, 137(1), e20153597. <https://pediatrics.aappublications.org/content/pediatrics/137/1/e20153597.full.pdf>

28

Threshold & Critical Line Screening

- Threshold screening
 - Move down chart until child cannot correctly identify majority of optotypes

National Center for Children's Vision and Eye Health

29

Threshold & Critical Line Screening

- Critical line screening
 - Use only line size child needs to pass according to child's age

National Center for Children's Vision and Eye Health

30

Preferred Optotype Format

NCCVEH national guidelines call for using single, LEA SYMBOLS® or HOTV letter optotypes surrounded with crowding bars for children ages 3, 4, and 5 years at 5 feet

Cotter, S. A., Cyert, L. A., Miller, J. M., & 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. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4274336/pdf/oxv-92-06.pdf>

31

Other Options

Prevent Blindness Position Statement on School-Aged Vision Screening and Eye Health Programs – Reviewed and Approved August 5, 2015. <https://preventblindness.org/wp-content/uploads/2011/06/Prevent-Blindness-Statements-on-School-aged-Vision-Screening-Approved-8-2015.pdf>

32

Unacceptable Occluders Ages 3, 4, and 5 years

- Hand
- Tissue
- Paper or plastic cup
- Cover paddle

Why unacceptable?

- Children can easily peek

Cotter, S. A., Cyert, L. A., Miller, J. M., & 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. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4724336/pdf/ovs.92.06.pdf>

33

Occluders – 3 Years to <10 Years




Cotter, S. A., Cyert, L. A., Miller, J. M., & 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. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4724336/pdf/ovs.92.06.pdf>

Donahue, S. P., Baker, C. N., & AAP Committee on Practice and Ambulatory Medicine, AAP Section on Ophthalmology, American Association of Certified Orthoptists, American Association for Pediatric Ophthalmology and Strabismus, American Academy of Ophthalmology (2016). Procedures for the evaluation of the visual system by pediatricians. *Pediatrics*, 137(1), e20153597. <https://pediatrics.aappublications.org/content/pediatrics/137/1/e20153597.full.pdf>

34

Instrument-Based Screening

- Use instruments OR tests of visual acuity for children ages 3, 4, and 5 years (NCCVEH and AAP)
- Age 6 years and older when children know letters in random order - eye chart – Sloan Letters (AAP)
- Instruments for age 6 years and older **IF** child or young adult cannot do test of visual acuity (AAP)

Cotter, S. A., Cyert, L. A., Miller, J. M., & 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. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4724336/pdf/ovs.92.06.pdf>

Donahue, S. P., Baker, C. N., & AAP Committee on Practice and Ambulatory Medicine, AAP Section on Ophthalmology, American Association of Certified Orthoptists, American Association for Pediatric Ophthalmology and Strabismus, American Academy of Ophthalmology (2016). Procedures for the evaluation of the visual system by pediatricians. *Pediatrics*, 137(1), e20153597. <https://pediatrics.aappublications.org/content/pediatrics/137/1/e20153597.full.pdf>

35

NCCVEH-“Approved” Instruments

- List: <https://nationalcenter.preventblindness.org/visual-screening-guidelines-by-age/#1587738048879-51c0c8e9-cd5c>
- Instruments on this list
 - Have supporting published, peer-reviewed evidence
 - Have undergone review by the National Expert Panel/Advisory Committee of the NCCVEH
 - Are appropriate for use in defined ages and setting

Plusoptix S12R, S12C, S16 WITHOUT visual acuity add-on component

Welch Allyn Spot Vision Screener


GoCheck Kids without visual acuity component

Retinomax (Right Mfg. Co Ltd.- Tokyo, Japan)

National Center for Children's Vision and Eye Health

36

Occluders – Aged 10 Years and Older



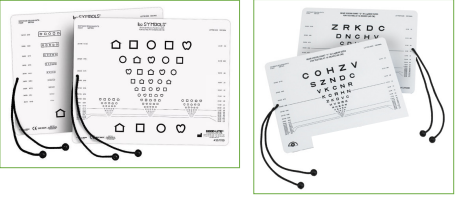
"Lollipop" Occluders

"Mardi Gras Mask" Occluder

Prevent Blindness. (2015). *Prevent Blindness position statement on school-aged vision screening and eye health programs*. <https://preventblindness.org/wp-content/uploads/2011/06/Prevent-Blindness-Statements-on-School-aged-Vision-Screening-Approved-8-2015.pdf>

41

Examples if Required to do Near Vision Screening




Can do critical line only with both eyes open or monocular screening like distance.

National Center for Children's Vision and Eye Health

42

If Required to do Stereoacuity Screening




PASS 2 Smile Test

Can be used for preschool and school-age children

Cotter, S. A., Cyert, L. A., Miller, J. M., & 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. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4274336/pdf/oox-92-06.pdf>

43

Examples if Required to do Color Vision Deficiency Screening



HRR Color Screening Booklet
6-Plate Screening Version


D-15 COLOR VISION TEST KIT


National Center for Children's Vision and Eye Health

44

Vision Screening is . . .

- Part of a process...not a single event.
- 1 of 12 components of a strong vision health system of care.





45

Best Practices and Research

Children's Vision and Eye Health

12 Components of a Strong Vision Health System of Care


<http://preventblindness.org/12-components-of-a-strong-vision-health-system-of-care/>



46

National Association of School Nurses Vision and Eye Health

(NCCVEH and NASN partnership)



About • Resources • Education & Events • Membership • Advo

Vision and Eye Health

RESOURCES / HEALTH AND PRACTICE TOPICS / VISION AND EYE HEALTH


<https://www.nasn.org/nasn-resources/resources-by-topic/vision-health>

The National Center for Children's Vision and Eye Health at Prevent Blindness has partnered with the NASN to provide national guidance for school nurses and others involved in front-line vision screening. The goal is to standardize approaches to vision health, facilitate follow-up eye care for students who do not pass vision screening, provide family/caregiver friendly educational information, and consult with leading pediatric eye care providers to promote best practices.

The content on this page is organized according to the [12 Components of a Strong Vision Health System of Care](#).

47

Evaluating Your Vision Health Program

 12 Components of a Strong Vision Health System of Care

Annual Vision Health Program Evaluation Checklist

Evaluation Date: _____ Completed By: _____

Instructions: Review each component described below. Select the "Yes," "No," or other response that best describes your vision health program as it currently operates. Please note comments in the area indicated. Once you have responded to the questions in each of the components proceed to the "Vision Health System Action Plan" located on page 10 to identify areas for alteration or improvement in your program.


1. Our program ensures that all program/clients receive educational material, which respects cultural and literacy needs, about the importance of:

- a. Good vision for their child now and in the future
- b. Scheduling and attending an eye exam when their child does not pass vision screening
- c. Increased risk for vision problems in selected high-risk populations.


Check "Yes" or "No" Field of evaluation

Yes No We have vision health information in all native languages of the families that we serve.

Points 01: _____
Points 02: _____
Points 03: _____

 Visit <https://www.preventblindness.org/12-components-of-a-strong-vision-health-system-of-care> for more information and resources for the eye care program you serve and your health program.

<https://nationalcenter.preventblindness.org/wp-content/uploads/sites/22/2020/07/Vision-Screening-Program-Checklist.pdf>



48

Small Steps:
Bridging the Gap Between
Vision Screening Referrals and
Confirmatory Eye Examinations

Financial Logistical Lack of Knowledge Perceptual Cultural

Vision Screening Referral Confirmatory Eye Exam

National Center for Children's Vision and Eye Health

49

National Center for Children's Vision and Eye Health

Interaction and Learning From Each Other

Leaving time at end for your questions

Describing your common barriers and cultural beliefs **not** discussed in today's slides and how you worked with families to overcome those barriers and beliefs and achieved the eye examination and treatment/monitoring

If we do not have time, please email to Nottingham@preventblindness.org

50

National Center for Children's Vision and Eye Health

Why Resolve Barriers to Treatment?

- A failed vision screening **without** a follow-up, confirmatory eye examination, treatment and/or monitoring, and ongoing vision care is **not a complete vision screening**.
- **Undetected and untreated vision disorders** may be **difficult to treat**, lead to worsening and **permanent vision loss**, and **impact learning** if not treated early.
- One letter or one phone call may not be enough to ensure eye examination occurs.

National Center for Children's Vision and Eye Health

51

National Center for Children's Vision and Eye Health

Pathway from Vision Screening Referral to Eye Exam in an "Ideal World" ...

Child receives vision screening and referral for eye examination if the child does not pass vision screening.

Parents schedule and take their child to eye examination when their child receives a vision screening referral.

Child attends eye exam, receives treatment, and continues ongoing care.


National Center for Children's Vision and Eye Health

52

Misconceptions

As vision screeners, we often think parents and caregivers will automatically follow the ideal pathway from receiving vision screening referral, scheduling, and taking their children for an eye examination, receiving treatment, and continuing ongoing vision care.


We may not always consider the level of knowledge parents/caregivers have about vision and eye health, how they feel about their children wearing glasses, or other barriers and cultural beliefs related to the follow-up eye examination and ongoing vision and eye care.



53

Parents schedule and take their child to eye examination when their child receives a vision screening referral.

A breakdown in the "Ideal World Pathway" often happens at this step ...




54

Rate of Confirmatory Eye Examinations

Approximately 5% to 50% of children receive eye exam after vision screening referral

Neitzel, A. J., Wolf, B., Guo, X., Shakarchi, A. F., Madden, N. A., Repka, M. X., Friedman, D. S., & Collins, M. E. (2021). Effect of a randomized interventional school-based vision program on academic performance of students in grades 3 to 7: A cluster randomized clinical trial. *JAMA Ophthalmology*, 10.1001/jamaophthol.2021.3544. Advance online publication. <https://doi.org/10.1001/jamaophthol.2021.3544>.



55

Finding the "Why" the Breakdown Occurs

- Do not call families "noncompliant".
- Dig deeper to find the "why".
- Look at common barriers and cultural beliefs.
- Work with families to address barriers and beliefs.

DIG DEEPER




56

5 Examples of Cultural Beliefs

1. Home treatment:

"The simple things, for example, a child with eye inflammation are treated at home without consulting a doctor. We go to the pharmacy and take eye drop or eye ointment and we used the traditional treatment. For instance boiling salt water and using this as eye drops and tea water as well as chilli.

In the case of the child who has poor eyesight, we use the razor blade and sharply cut the both side of the child's eyes. The blood from the wound is wiped in their eye is said to be improve the child's vision."

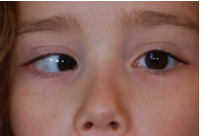
Alrasheed, S. H., Naidoo, K. S., & Clarke-Farr, P. C. (2016). Childhood eye care services in South Darfur State of Sudan: Learner and parent perspectives. *African Vision and Eye Health*, 75(1). <https://doi.org/10.6102/aveh.v75i1.315>

57

5 Examples of Cultural Beliefs

2. Perceptions about certain vision disorders:

Some parents were aware that eyes should be aligned while looking straight and that misalignment was a vision disorder while other parents considered the misalignment as a "sign of good luck". (p. 1464)



Senthilkumar, D., Balasubramaniam, S. M., Kumaran, S. E., & Ramani, K. K. (2013). Parents' awareness and perception of children's eye diseases in Chennai, India. *Optometry and Vision Science*, 90(12), 1462–1466. <https://doi.org/10.1097/OPTX.0000000000000364>

58

5 Examples of Cultural Beliefs

3. Child is too young to have vision problems:

Eye problems happened to adults after the eyes "get older".

Children's eyes are "new" and should therefore not have any problems yet.

"But since they are children, they don't suffer from any eye problems, not like us that are older" and "it's like a new car as you use it more it starts to have more wear on it . . . so a child is completely healthy . . . then as grandparents they need glasses".

Frazier, M., Garces, I., Scarinci, I., & Marsh-Tootle, W. (2009). Seeking eye care for children: perceptions among Hispanic immigrant parents. *Journal of Immigrant and Minority Health*, 11(3), 215–221. <https://doi.org/10.1007/s10993-008-9160-4>

59

5 Examples of Cultural Beliefs

4. Mistrusting school nurses:

Vision problem not considered priority, belief that screening results were inaccurate, examination not needed, and mistrust of school nurse.

Families don't believe their children needed a professional exam (they were unaware that their children failed the vision exam, parents thought their children intentionally failed the test to get attention, they did not believe the screening result, believe that school screening instruments are inaccurate, not trusting the school nurse, etc.).

Ethan, D., & Basch, C. E. (2008). Promoting healthy vision in students: Progress and challenges in policy, programs, and research. *The Journal of School Health*, 78(6), 411–416. <https://doi.org/10.1111/j.1524-1351.2008.00929.x>

Kimel I. S. (2006). Lack of follow up exams after failed school vision screenings: An investigation of contributing factors. *The Journal of School Nursing*, 21(3), 156–162. <https://doi.org/10.1177/1058486206282003>

60

5 Examples of Cultural Beliefs

5. Religious belief system:

Religious or cultural belief system did not allow for curative or supportive treatment.

"Both cultural and religious beliefs can affect whether parents seek medical attention, consent for traditional treatment, or attempt to refuse or limit traditional health care." (p. 48)

More than 30 churches identified in literature where doctrines, religious frameworks, or teachings include the limitation, refusal, or preference FOR PRAYER over traditional medical interventions.

Linnard-Palmer, L., & Kools, S. (2005). Parents' refusal of medical treatment for cultural or religious beliefs: An ethnographic study of health care professionals' experiences. *Journal of Pediatric Oncology Nursing*, 22(1), 48-57. <https://doi.org/10.1177/1093255305270263>

61

10 Examples of Common Barriers

- Lack of transportation or long travel time that may include an overnight stay (e.g., travel by ferry, airplane, or helicopter to nearest eye doctor).
- All adults in household work and jobs do not provide time off or adults encounter problems taking time off from work and no convenient time to go to eye doctor.

"You have to ask permission at work and it's hard to get it."
- Lack of insurance or provider does not accept insurance.

Frazier, M., Garces, I., Scarinci, I., & Marsh-Tootle, W. (2009). Seeking eye care for children: perceptions among Hispanic immigrant parents. *Journal of Immigrant and Minority Health*, 11(3), 215-221. <https://doi.org/10.1007/s10202-008-2161-4>

62

10 Examples of Common Barriers

- Cannot afford co-pay or amount toward deductible.

"I can't afford to pay co-pays or prescriptions when all I have is \$200 child support for rent, gas, diapers, and anything else I need for my apartment like dish soap or toilet paper."
- Lack of money, time, no transportation, non-English speaking families, fear of "outsiders" and many of our students live in households where the parents can't read or write.*
- Lack of knowledge about vision health and importance of good vision for learning.

Dodge, J. E., Banz, A., Angler, H., Kross, L., Edlund, C., & Carney, P. A. (2007). Insurance access not equal to health care: Typology of barriers to health care access for low-income families. *Annals of Family Medicine*, 9(6), 511-514.

*Written comment from December 2, 2005, webinar - "Children's Vision and Eye Health: New Resources for Vision Screening and Parent Education" - in partnership with the National Indian Head Start Directors Association (NIHSDA) for American Indian and Alaska Native (AIAN) Head Start programs - with Donna Fishman and Dr. Arina Sambolik, Health Specialist Region 9 Head Start - 12/2/05 - (375) registration

63

10 Examples of Common Barriers

- Glasses are cosmetically unappealing for females.

"Social stigma regarding the wearing of glasses was more often stated by parents having a girl child as they felt it is cosmetically unappealing."
- Language barriers.

"The doctors talk to you in English and we don't understand, and that's why we don't go."
- Glasses = Stigma and bullying.


"Wearing glasses is something that everybody else sees, so it is a problem for potential stigma or bullying."
- Scheduling challenges (e.g., not knowing how to schedule an eye exam).

Balraabramaniam, S. M., Kumar, D. S., Kurnasin, S. E., & Ramani, K. K. (2013). Factors affecting eye care-seeking behavior of parents for their children. *Optometry and Vision Science*, 90(10), 1138-42. <https://doi.org/10.1097/OPX.0b0000000000000000>

Frazier, M., Garces, I., Scarinci, I., & Marsh-Tootle, W. (2009). Seeking eye care for children: perceptions among Hispanic immigrant parents. *Journal of Immigrant and Minority Health*, 11(3), 215-221. <https://doi.org/10.1007/s10202-008-9160-4>


Casasini, V., Sanders, T., & Bruce, A. (2019). Challenges of eye health care in children and strategies to improve treatment uptake: A qualitative study from the perspective of eye care professionals in the UK. *British and Irish Ophthalmic Journal*, 10(1), 96-104. <https://doi.org/10.22541/auj.153>

64

 **4 Tips to Attempt Overcoming Barriers and Beliefs**

- Determine how the family wants the vision screening results.
 - In Person
 - Written?
 - Verbal by phone?
 - Text message?
 - Email?
 - What language?


65

 **4 Tips to Attempt Overcoming Barriers and Beliefs**

- Eye doctors stated: ". . . other family members, especially the in-laws in a joint family, act as barriers by stating their difference of opinions, creating doubts regarding the child's need for medical care, and sometimes confusing parents, not allowing them to seek care." (p. 1141)
- "Husband not allowing the wife to take the baby to consultation. In-laws don't allow the mothers to bring. Mother is scared basically blame will come on her" . . . (p. 1141)
- **Tip: In multi-generational households – talk with individual in family who makes the medical decisions.**


Balasubramaniam, S. M., Kumar, D. S., Kumaran, S. E., & Ramani, K. K. (2013). Factors affecting eye care-seeking behavior of parents for their children. *Optometry and Vision Science*, 90(10), 1138–42. <https://doi.org/10.1097/OPX.0000000000000010>

66

 **4 Tips to Attempt Overcoming Barriers and Beliefs**

1. Call local eye doctors and document for each eye doctor the following (and share this information with parents/caregivers):
 - a. Eye Doctor Name
 - b. Practice Name
 - c. Website Address
 - d. Physical Address
 - e. Telephone Number for Appointments
 - f. Hours Open for Business
 - g. Typical Time Eye Examinations Occur After an Examination is Scheduled
 - h. Whether or Not the Eye Doctor Accepts Medicaid
 - i. Other Types of Payment Accepted
 - j. Languages Spoken at the Office
 - k. Population Specialty (e.g., African American children, American Indian and Alaska Native children, Latinx children, etc.)
 - l. Whether or Not Interpreters are Provided
 - m. Whether or Not the Eye Doctor Examines and Treats Young Children
 - n. Whether or Not the Eye Doctor Examines and Treats Children With Special Health Care Needs, Including Infants and Toddlers (If the eye doctor does not see Children with Special Health Care Needs, will the eye doctor give you a name and telephone number of the closest eye doctor who will see Children with Special Health Care Needs?)
- Assign a volunteer to update the list every 6 months and include the revised date on the document to ensure families receive an up-to-date list.

67


 **4 Tips to Attempt Overcoming Barriers and Beliefs**

- Two questions to ask parents when taking a deeper dive into “why” eye examinations are not scheduled.
 1. “How would you feel if your child needed to wear glasses?”
 2. “What needs to happen for you to take your child for an eye examination . . . and how can I support you?”

68


IMPORTANT TO REMEMBER . . .

- We have categories of common barriers and cultural beliefs, but barriers and beliefs are unique to each family.
- Do not say parents are noncompliant. The “why” is different for each family.
- Co-create solutions to individual family barriers and beliefs.



One size does **NOT** fit all.

69



LINKS & RESOURCES

70

The Lack of Money Barrier

Programs:

- VSP (Vision Service Plan) Eyes of Hope Gift Certificate Program: Provides eye exams and eyeglasses.
- OneSight Eyeglass Referral Program: Assists clients with current eyeglass prescriptions with quality eyewear.

For further information:

- **Website:**
 - <https://preventblindness.org/vision-care-financial-assistance-information/>
- **Contact Tasha Lockridge:**
 - 800-331-2020
 - info@preventblindness.org

71

The “Lack of Knowledge” Barrier



Small Steps for BIG VISION

<ol style="list-style-type: none"> 1. Did you know? 2. 10 take home messages 3. Signs of vision problems in children 4. Association Between Vision and Learning 5. Vision and Classroom Behaviors 6. Difference between vision screening and eye exam 7. Importance of eye exam 8. 10 steps from vision screening to eye exam 9. How to Schedule an Eye Exam 10. Financial Assistance 	<ol style="list-style-type: none"> 1. ¿Sabía Usted? 2. Diez mensajes para llevar a casa 3. Signos de problemas oculares en los niños 4. Asociación entre visión y aprendizaje 5. Los comportamientos en el aula pueden estar relacionados con la mala visión 6. Diferencia entre una evaluación de la vista y un examen ocular 7. Importancia del examen ocular de seguimiento después de recibir una referencia de una evaluación de la vista 8. Diez pasos pequeños desde la evaluación de la vista hasta el examen ocular 9. Cómo programar un examen ocular 10. Asistencia financiera
---	---

<https://nationalcenter.preventblindness.org/parents-need-to-know/>

72

