



Why we screen vision in young children

An educational webinar presented by the *Year of Children's Vision* initiative



About the *Year of Children's Vision* initiative

- ∞ The goal of YOCV is to provide national guidance to staff of Head Start, Early Head Start and other early childhood programs to standardize approaches to vision screening, improve follow-up for eye care, provide family friendly educational information and consult with some of the nation's leading pediatric eye care providers to ensure best practices.
- ∞ YOCV was initiated by and is supported by leading national vision health organizations, for a complete list and other resources go to:
<http://nationalcenter.preventblindness.org/year-childrens-vision>



About today's presentation...

- ⌘ The goal of today's webinar is to help front-line screeners understand the critical importance of vision screening in young children and which children should be directly referred for eye exams rather than first participating in a vision screening.
- ⌘ A note about screenings and exams: vision screenings and eye examinations are complementary approaches to assessing eye problems; and are not competing health care strategies.



Your presenters

- ✎ **Jean E. Ramsey, MD, MPH:** Vice Chair of Education and Program Director, Department of Ophthalmology; Associate Professor for Ophthalmology and Pediatrics; Boston Medical Center/Boston University School of Medicine
- ✎ **Geoffrey E. Bradford, MD, MS:** Professor of Ophthalmology and Pediatrics; West Virginia University School of Medicine
- ✎ **Bruce D. Moore, OD, FAAO:** Marcus Professor of Pediatric Studies; New England College of Optometry
- ✎ **Sandra S. Block, OD, MEd, FAAO, FCOVD:** Medical Director, School-based Vision Clinics; Illinois College of Optometry





Jean E. Ramsey, MD, MPH

Vice Chair of Education and Program Director

Department of Ophthalmology

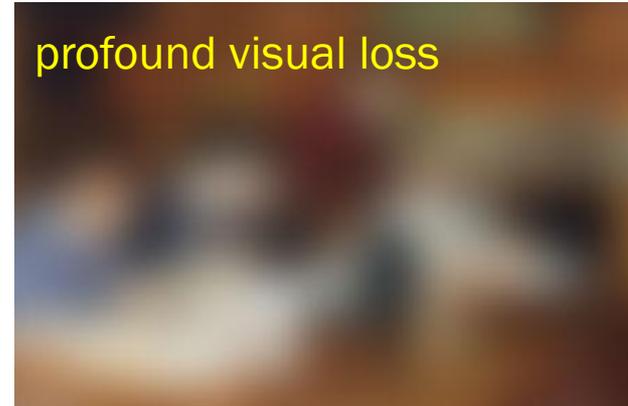
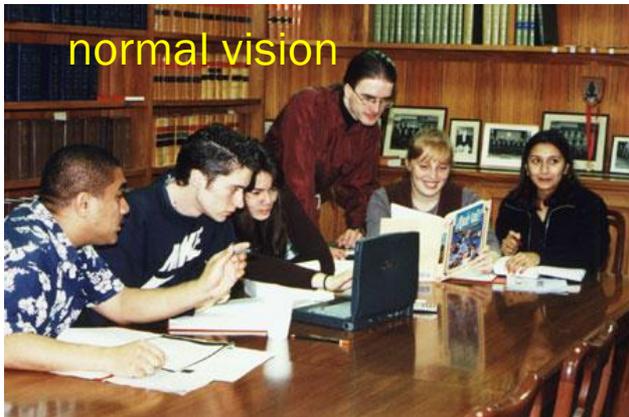
Associate Professor for Ophthalmology and Pediatrics

Boston Medical Center/Boston University School of Medicine

Eye Disorders and Diseases that Vision Screening is Designed to Detect

Why do Vision Screening?

- ∞ Maximize child's development and minimize visual difficulties



Why Do **Early** Vision Screening?



Why do Early Vision Screening?

- ∞ Identify children at risk of permanent vision loss from “amblyopia”
 - Poor vision in a healthy child with a normal healthy eye
 - Vision does not correct with glasses
 - Develops in children from birth to 8 or 9 years of age
 - Common condition: affects 2-4% of children

Amblyopia leads to irreversible vision loss if untreated; can be treated only during the early years of life



Does this child have amblyopia?



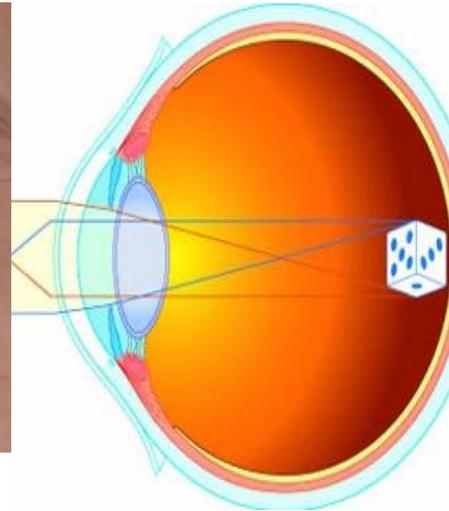
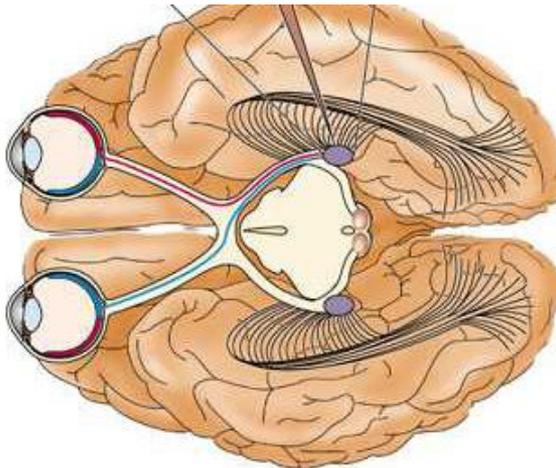
Children with amblyopia may look perfectly normal and function well.



Visual Development: Requirements

∞ Necessary for normal visual development:

- (1) Healthy ocular structures and healthy intact visual system
- (2) Eyes must be straight
- (3) Image transmitted from each eye must be focused and clear



Causes of Amblyopia

- ∞ Conditions that interfere with normal visual development:
- (1) **Deprivation:** structural problem
 - (2) **Strabismus:** misalignment of the eyes
 - (3) **Refractive Error:** blurry vision in one or both eyes



Deprivation: Structural Problem

∞ Deprivation (Structural problem)

- Image not able to be processed
- Can lead to profound irreversible visual loss
- Very early identification is critical
 - Visual axis must be cleared by 2-3 months of age
- Generally detected by pediatrician during very early childhood visits

Congenital cataract



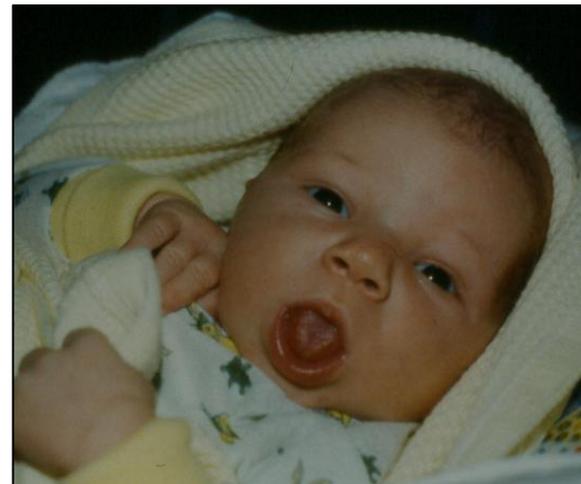
Congenital droopy eyelid



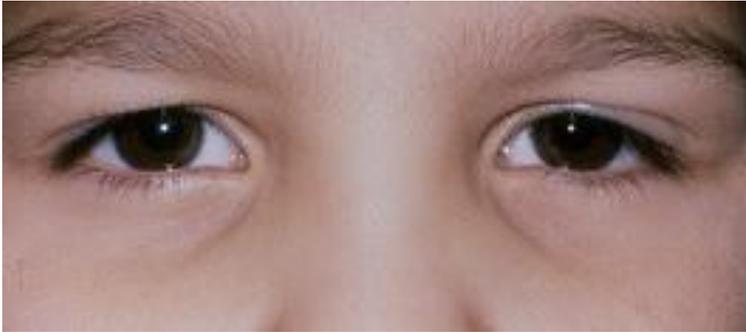
This is an emergency!

Strabismus: Misaligned Eyes

- When should a child's eyes be straight?
- Good alignment by about 2-3 months of age:
 - Rarely well aligned at birth
 - Eyes should be straight when awake and alert and concentrating
 - Any misaligned eyes in children must be evaluated, even if intermittent



Strabismus: Misaligned Eyes



☞ Eyes can turn outward: exotropia

☞ May be intermittent

- Worse during visual inattention, fatigue
- Worse when looking at distance

☞ Reflex eye closure when outside



Strabismus: Misaligned Eyes

- ☞ Eyes can turn inward: esotropia
 - May be intermittent
 - Worse when focusing up close
 - Any amount of crossing can have significant visual consequences
- ☞ Eyes can have vertical misalignment: hypertropia
 - Less common



Strabismus: Misaligned Eyes

- Brain sees two different images when eyes are misaligned
- Young children are able to ignore the image from the misaligned eye, a process called suppression, i.e. **no double vision**
- The vision in the misaligned eye does not develop properly resulting in vision loss, i.e. **amblyopia**



Do children see double when their eyes are crossed?



Refractive Error: Blurry Vision

- ∞ **Refractive Error (blurry vision)**
 - Eye unable to focus clearly; brain receives a blurry image
 - If affects both eyes, neither eye will develop normal vision
 - Young child is unaware that vision is blurry
 - Eyes are often straight
 - Vision remains reduced even in glasses; amblyopia develops



Refractive Error: Blurry Vision

∞ Refractive Error (blurry image)

- May have unequal refractive error
- Brain may ignore one eye; that eye will lose vision
- Patient often sees fine with the one “good” eye
- Eyes typically straight



Discussion Take Home Points

Deprivation, strabismus, and refractive problems can interfere with normal visual development and lead to loss of vision, i.e. amblyopia

Many of these problems cannot be identified on casual observation and a good detection method is essential, such as vision screening

Without treatment, amblyopia results in permanent visual loss in one or both eyes. If detected early in life, amblyopia is treatable and reversible in nearly all cases.

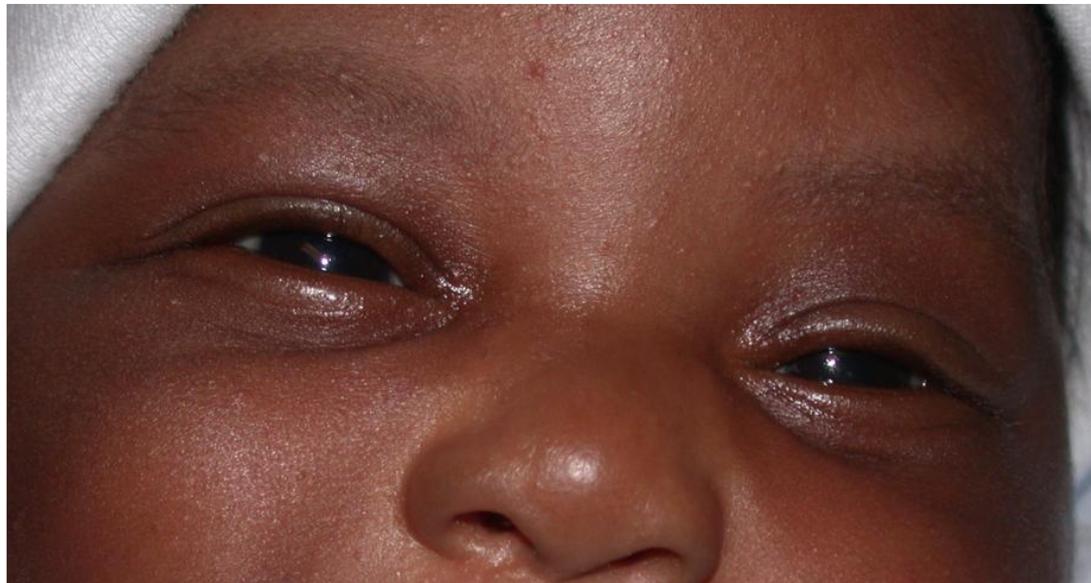
Head Start Program Performance Standards

- ∞ In collaboration with the child's parents:
 - Perform or obtain age-appropriate vision screening to identify areas of concern within 45 days of entry
 - Establish a follow-up system for children with identified health needs
 - Implement ongoing procedures to identify new or recurring developmental concerns



Kids deserve it!

jeramsey@bu.edu
jeanramsey@comcast.net



Thank you





Geoffrey E. Bradford, MS, MD

Professor of Ophthalmology and Pediatrics
West Virginia University School of Medicine

Importance of Detecting Vision Problems Early

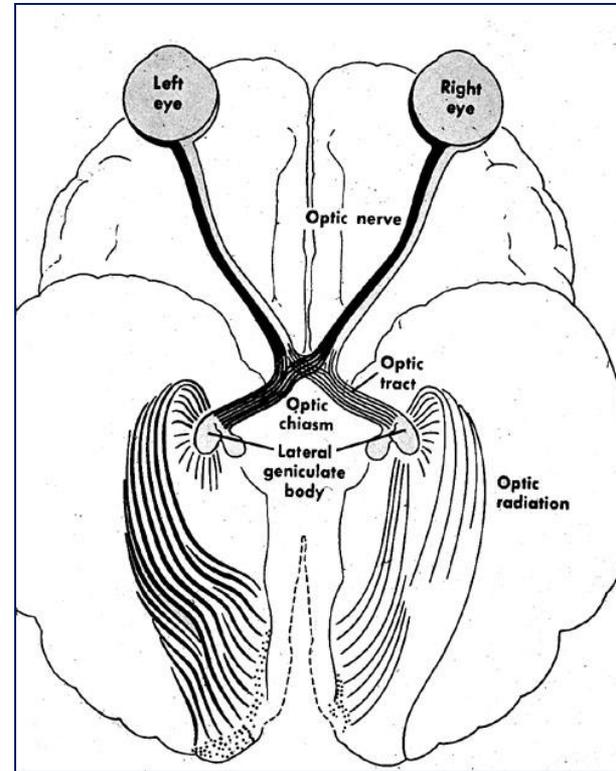
- ✎ There is a critical period for vision development in the initial years of a child's life
- ✎ Early treatment provides better results and prepares a child for kindergarten and grade school
- ✎ After the early critical years of life, amblyopia does not respond well to treatment efforts and vision loss is permanent.
- ✎ Adults with amblyopia have a 3x risk of losing vision in their remaining good eye from:
 - ✎ - adult onset eye disease
 - ✎ - ocular injury at work, at home or at play



Critical Period for Vision Development

Amblyopia

 Poor vision development in the brain because of an abnormality in one or both eyes



Visual Cortex



Early Treatment Allows for the Best Vision Potential

- ☞ Patching
- ☞ Atropine eye drops
- ☞ Glasses
- ☞ Surgery



- ☞ Later on: Safety glasses, sports goggles, no contact lenses



3X Increased risk of Later Vision loss

Childhood Accidents

BB guns, sticks, baseballs, pencils, dog bites, furniture, bikes, knives, darts, etc



Adulthood

Eye diseases

Glaucoma, Diabetes, Strokes

Macular degeneration, etc

Accidents

Home, work, play



Annual Screening is important!

- ☞ They determine which healthy children with no eye symptoms or family history warrant a visit to the primary care provider for further assessment.
- ☞ With your input, the pediatrician's evaluation can trigger a referral for an eye examination by a specialist in pediatric eye care.



Early childhood vision screening is a vital step toward ensuring children are prepared for life's challenges and joys





Bruce D. Moore, OD, FAAO

Marcus Professor of Pediatric Studies
New England College of Optometry

Children at Highest Risk Requiring Immediate Referral

- ☞ Evidence of strabismus. This is a major warning sign of problems!
- ☞ Central nervous system dysfunction ... including developmental delay, cerebral palsy, seizures, Down Syndrome.
- ☞ White pupil
- ☞ Visual inattentiveness



Children at High Risk Requiring Referral

- ✎ Autism spectrum
- ✎ Presence of child in an early intervention program
- ✎ Children with a family history of amblyopia, strabismus, or early and serious eye disease
- ✎ Maternal use of drugs or alcohol during pregnancy
- ✎ Maternal infection during pregnancy
- ✎ Children with significant learning disabilities



Should We Rescreen a Child Untestable on the First Screening?

- Screening is designed to identify children at high risk of the disorder
- Children who do not pass a valid screening are identified as high risk and require referral
- Data from the biggest study of preschool vision screening, the VIP Study, showed clearly that children untestable during screening are at a high risk of having significant vision problems





Sandra S. Block, OD, MEd, FAAO, FCOVD

Medical Director, School-based Vision Clinics
Illinois College of Optometry

Recap

- ∞ Vision screenings are required to be conducted within the short time frame after the child starts at the Head Start facility.
- ∞ In cases when a child has a neurodevelopmental problem, it is strongly suggested referral even if they are able to pass the screening.
 - Higher risk for many vision problems
 - Often do not complain when a vision problem does exist
 - May be more challenging to screen



Importance of follow up from screenings!

- ☞ Vision screenings are very good at suggesting there may be a vision problem
- ☞ Vision screenings do not offer diagnoses and / or treatments
- ☞ Comprehensive eye exams are the only place that a child's vision or eye health problem can be diagnosed and treated.



What are we looking for when screening at this age?

- ☞ Children are at risk for amblyopia which is vision that is decreased because they have uncorrected refractive error (nearsightedness, farsightedness and astigmatism) in amounts which blur their vision in one or both eyes significantly, an eye turn in which both eyes are not looking at the same point in space, or something blocks the vision in an eye such as cataract, a drooping lid, or other block to vision.
- ☞ The best time to correct the problem is early in the child's vision development.



What is done to treat vision problems in young children?

- ∞ Glasses or contact lenses
- ∞ Surgery
- ∞ Patching
- ∞ Nothing



Goals

- ∞ The primary purpose for vision screenings and comprehensive eye exams is:
 - to identify which children who are at risk for vision problems
 - ensure that they seek appropriate eye care from an optometrist or ophthalmologist (preferable a clinician who is comfortable with small children)
 - If provided glasses, the child follows the appropriate wearing schedule
 - If provided other recommendations, the child and their family follow the recommendations
- ∞ Ultimately, we are all working towards helping a child's vision develop normally so that they see well out of each eye, use their eyes together, and have healthy eyes.



Sandra S. Block, OD, M.Ed., FAAO, FCOVD
Diplomate, Public Health, American Academy of Optometry
Co-Chair, National Center for Children's Vision and Eye Health
Professor, Illinois College of Optometry
Medical Director, School-based Vision Clinics
Global Clinical Advisor, Special Olympics Lions Clubs International Opening Eyes

sblock@ico.edu





Questions for the presenters?

Conclusion of today's presentation

- ☞ Thank you to each of our presenters
- ☞ Today's webinar will be archived and available online, link will be sent via email
- ☞ Be on the lookout for more *Year of Children's Vision* events
 - Panel presentation at the NHSA Family Engagement Conference
 - NHSA BAM! Radio podcast
 - YOCV website: <http://nationalcenter.preventblindness.org/year-childrens-vision>
 - Future webinars and much more!

Thank you for attending!

