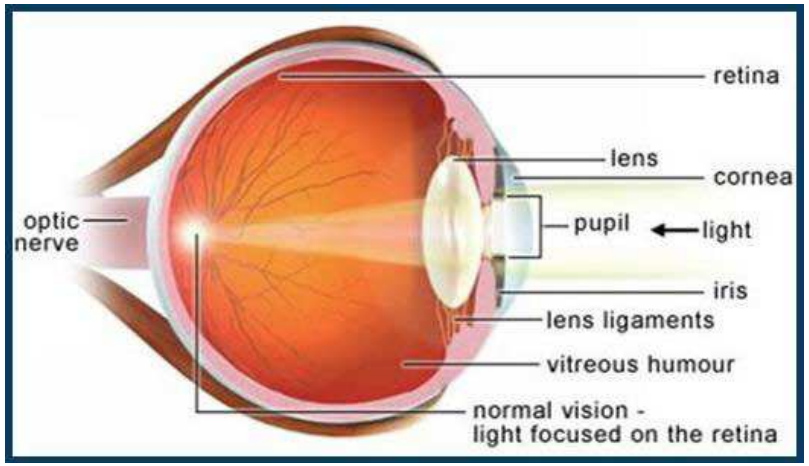
County of San Benito
Health & Human Services Agency
Public Health Services
Child Health and Disability Prevention Program

Child Health and Disability Prevention Program Online Vision Screening Training

Common Visual Problems

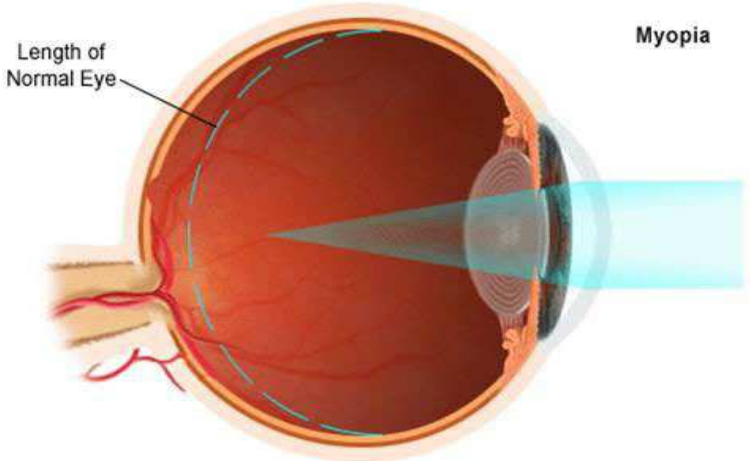
Refractive Errors - Myopia

Normal Vision



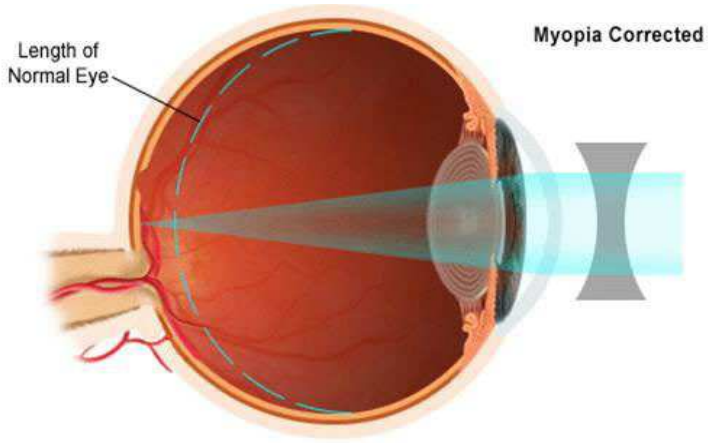
Refractive Error – means that there is a problem with focusing light accurately onto the retina due to the shape of the eye, resulting in blurry vision.
Myopia – means nearsightedness or the person can only see objects up close and objects in distance are blurry.

Myopia



Myopia = Nearsighted

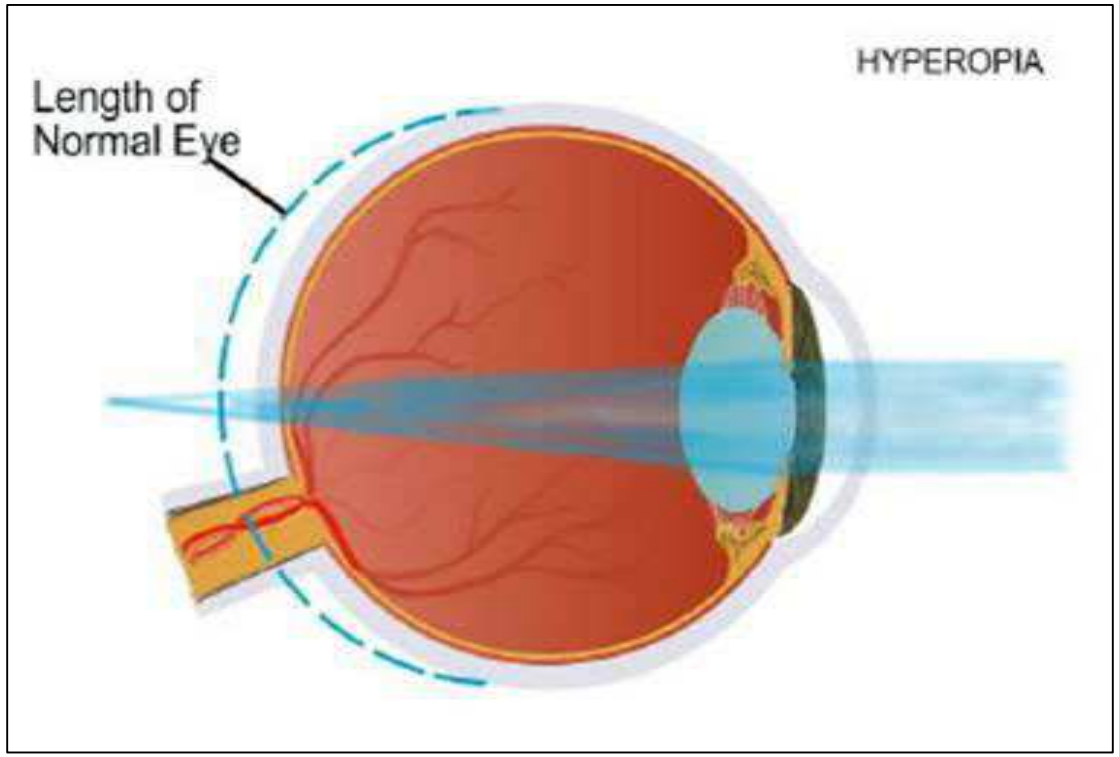
Myopia Corrected



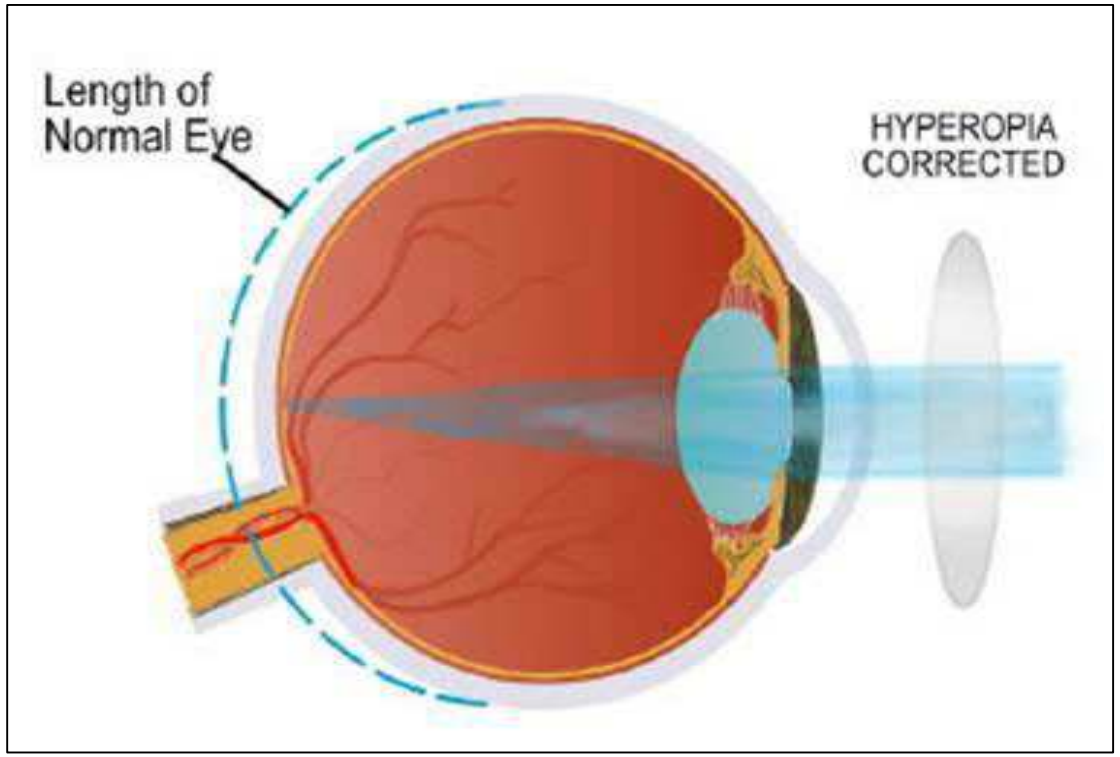
Objects are blurry in the distance

Refractive Errors - Hyperopia

Hyperopia



Hyperopia - Corrected



Hyperopia = Farsighted
Objects are blurry up close

Amblyopia

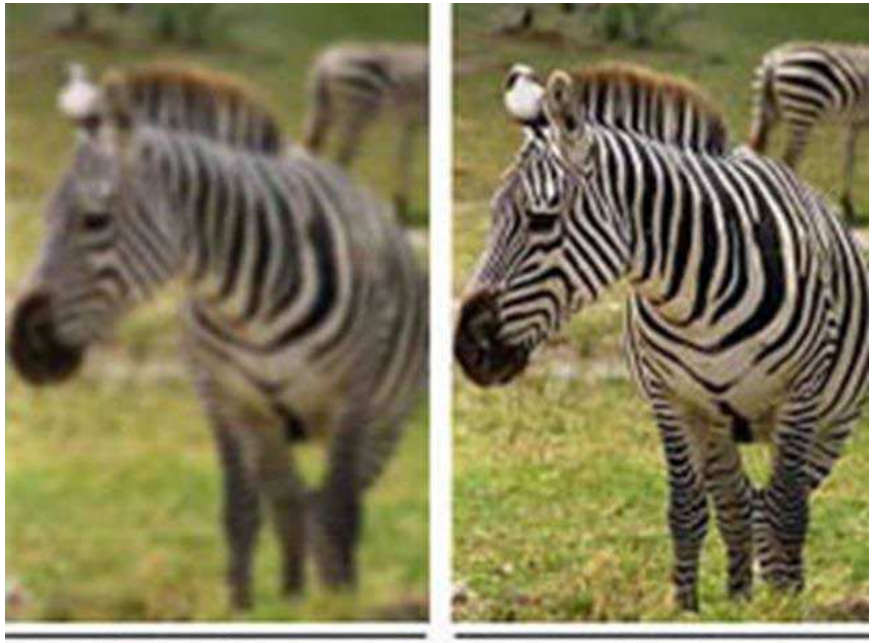


Fig. 1 Amblyopia occurs when one eye experiences a blurred view and the other a normal view, but the brain only processes the normal view

Amblyopia is the most common cause of vision problems in children

Common Causes of Amblyopia

- **Anisometropia** – The eyes have unequal refractive powers
- **Deprivation** – Anything that clouds the lens or blocks light from entering the eye
- **Strabismus** – The eyes are misaligned
- **Obstruction** – When a condition block the vision. It can be due to ptosis (drooping of an eyelid due to a weak muscle) or cataract (lens becomes progressively cloudy)

Importance of Screening for Amblyopia

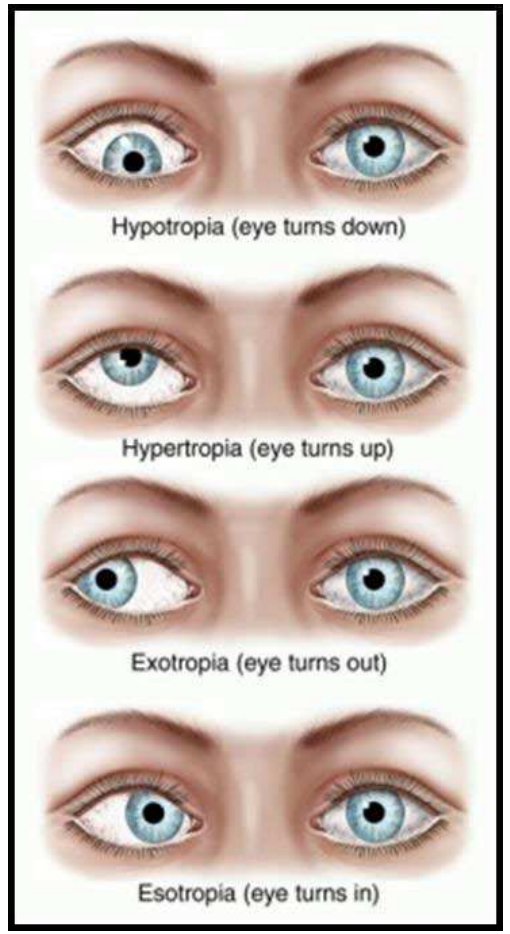
- Children who have amblyopia often go unnoticed because their eyes look perfectly normal
- It is the most common cause of monocular visual impairment among children and young adults
- Amblyopia can cause permanent loss of vision early in life
- The effectiveness of treatment drops dramatically after age 10

Types of Strabismus

Strabismus – abnormal alignment of the eyes

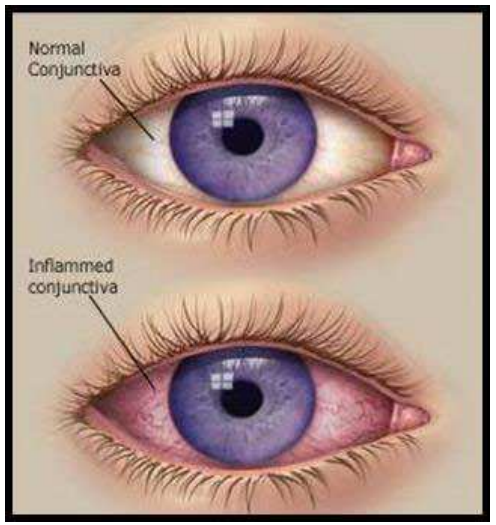
- **Hypotropia** – Eye turn downward
- **Hypertropia** – Eye turns upward
- **Exotropia** – Eye turns outward
- **Esotropia** – Eye turns inward

Up to 2-3% of children have some type of Strabismus



Other Vision Conditions

- **Conjunctivitis** (pink eye) – infection of the conjunctiva
  - May be caused by virus or bacteria
  - Can be contagious
  - Symptoms include: redness, itchiness, gritty feelings, and discharge on the affected eye
- **Ptosis** – Drooping of an eyelid due to a weak lid muscle
  - May obstruct vision
  - May cause amblyopia
  - May tilt chin up



Vision Screening

Importance of Vision Screening, Early Identification and Treatment

- It can prevent permanent loss of vision or blindness
- Children may not realize that they cannot see properly
- Most eye problems don not cause pain and often goes undetected
- Problems that are found early have a better chance of being treated successfully
- Vision loss can cause poor school performance

Importance of Vision Screening, Early Identification and Treatment

- The difficulty of treatment for amblyopia increases with age
- The likelihood of curing the eye disorder decreases with increasing age of the child
- Undetected congenital cataracts, glaucoma, or ptosis can lead to blindness in early infancy
- Untreated refractive errors may affect learning

Definition of Visual Acuity

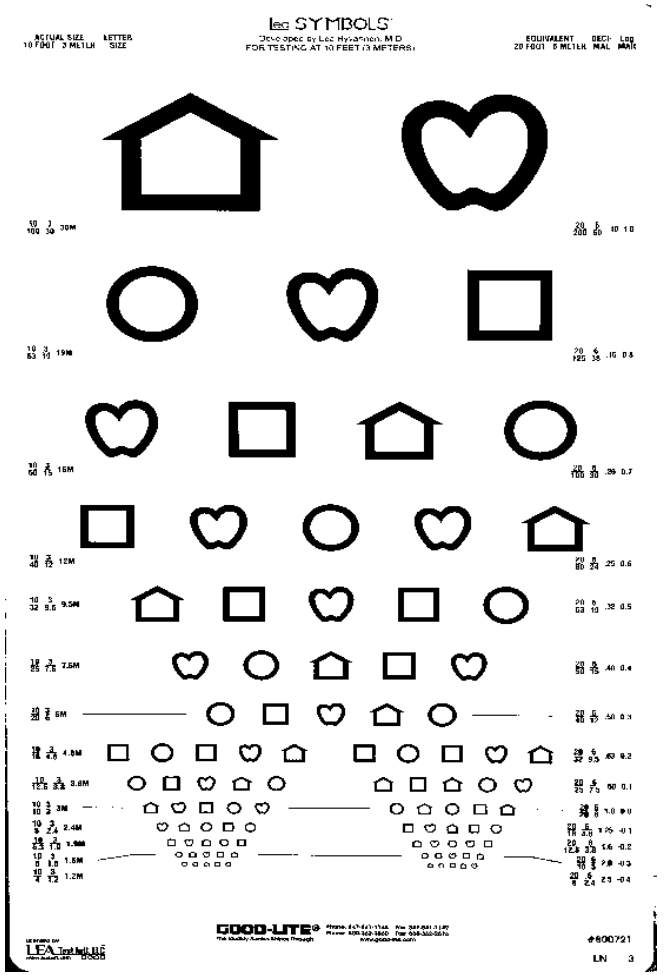
- **Visual acuity** – The measurement of the ability to identify black symbols (optotypes) on a white background at a standardized distance

- Common optotypes used are letters, numbers or shapes (ex. House, heart, square, circle)

Eye Charts Lea Symbols

- **<u>Lea Symbols</u>** – Eye chart with common shapes that children can easily identify. It is named after Lea Hyvarinen, the ophthalmologist who developed the chart

- Used for children ages 3-5 or older children who cannot recognize alphabet letters



Eye Charts HOTV Letters

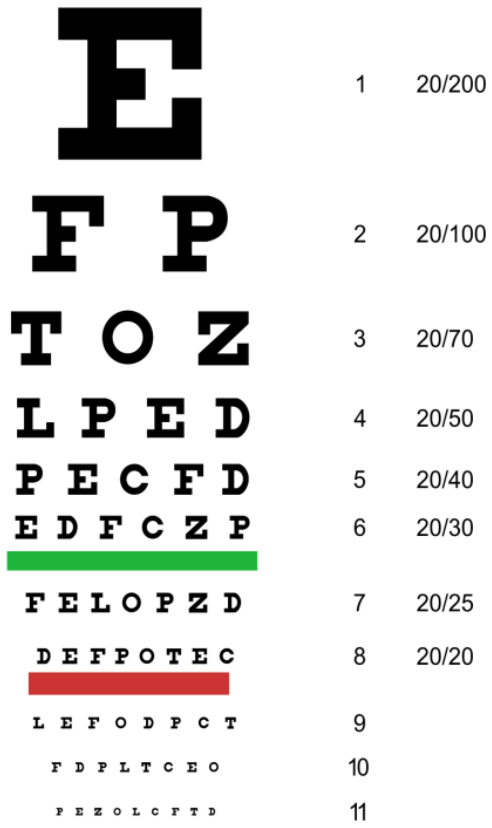
- **HOTV letters** – Alternating letters of H,O,T, and V that is used instead of LEA symbols for children ages 3-5. It can be taught to children prior to screening

- Lea symbols and HOTV letters are standardized charts and have validated optotypes that provide the most accurate vision assessments

Eye Charts Sloan Letters

- **Sloan Letters** – Designed by Louise Sloan in 1959
- CHDP prefers the use of Sloan letters over the Snellen Chart
- They are standardized
- They have the same spacing between each letter
- Gives a more accurate vision assessment
- Can be used for children >5-years-old or those who can recognize letters

Eye Charts Snellen



- **Snellen** – Named after ophthalmologist Herman Snellen, who developed the chart in 1862
- Although the Snellen chart is more widely used, Sloan letter charts present letters in a standardized fashion and should be used for acuity testing
- Still used by optometrist and ophthalmologist for children >5-years-old
- Can be used instead of Sloan letters if Sloan letters are not available for use

Acceptable Occluders

- Adhesive patches
- Two-inch-wide hypoallergenic paper tape
- Occluder glasses
- Paddle can be used for older children
- Re-usable occluders must be cleaned after each use!
- It is important to eliminate the possibility of peeking for an accurate screening outcome

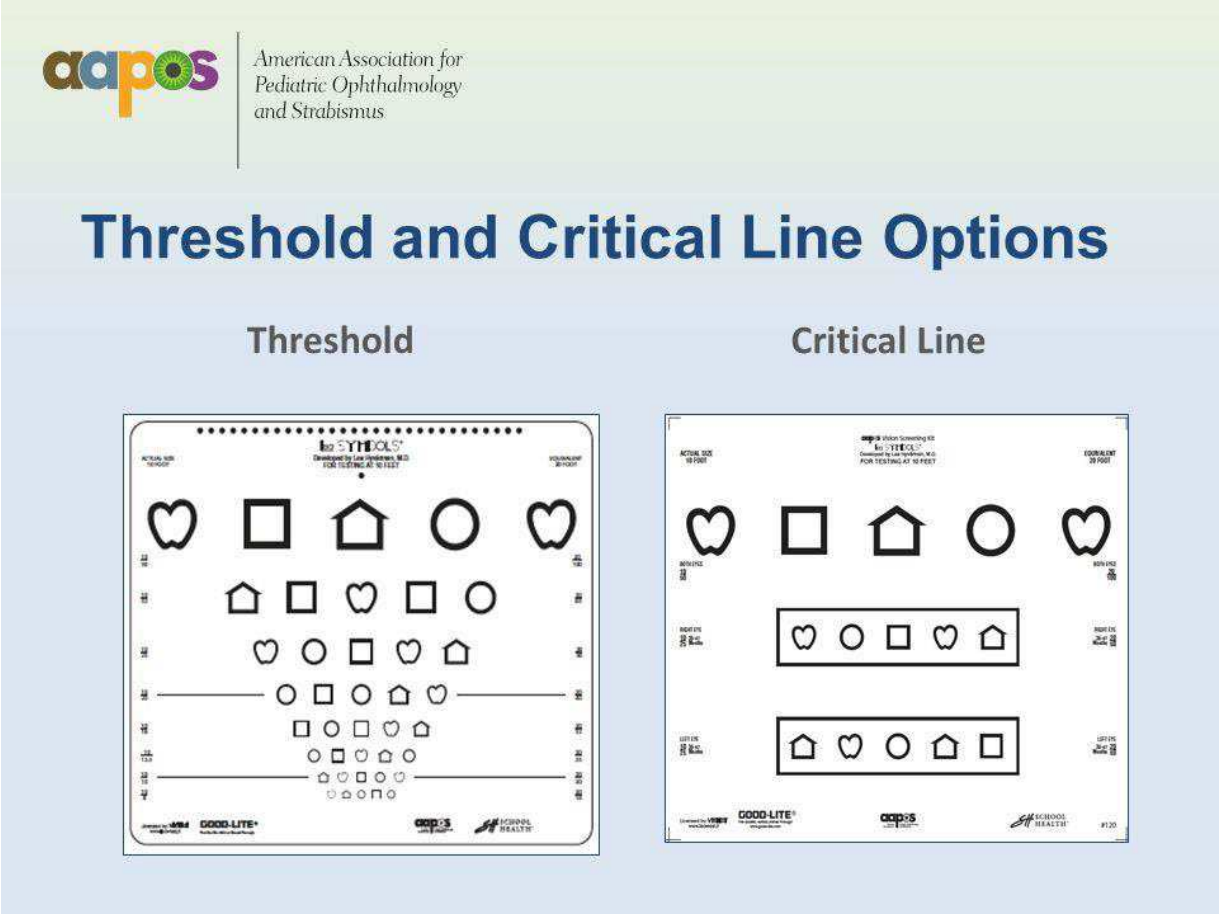
Automatic Referral to Optometrists/Ophthalmologists

Do not perform Visual Acuity Screening for these children

- Recognized eye disorders
- Known neurodevelopmental disorders
- Hearing impairment
- Motor abnormalities (e.g. cerebral palsy)
- Down syndrome
- Cognitive impairment
- Autism spectrum disorders
- Speech delay
- Systemic disease present
- Taking medications that may cause eye disorders
- First-degree relative with strabismus or amblyopia
- Prematurity – less than 32 weeks of gestation
- Parent believes child has visual problem

Critical Line or Threshold Screening

Threshold screening
Begins by asking the child to identify optotypes at the top line of the eye chart and continue down each line until the child can no longer identify the majority of the optotypes in a line.



Critical line screening
Is an alternative to threshold screening that requires less time to administer. The "critical line" is the age-dependent line a child is expected to see normally and pass.

Visual Acuity Screening

- Select the eye chart based on the child's age and cognitive level
  - For children ages 3-5, use LEA symbols or HOTV chart
  - For children older than 5, use SLOAN chart
  - Use LEA symbols or HOTV chart for older children who cannot recognize letters
- If the child wears glasses, screen with the glasses on
- Show chart to child close-up, explaining the procedure in detail and simple terms the child can understand
- Review the optotypes (symbols) with the child to make sure the child is familiar with the optotypes (symbols)

Visual Acuity Screening

- Adjust appropriate eye chart with referral line close to the child's eye level
  - 3-years-old: eye level should be at the $\frac{10}{25}$ line ($\frac{20}{50}$ line on 20 ft. chart)
  - 4-years-old: eye level should be at the $\frac{10}{20}$ line ($\frac{20}{40}$ line on 20 ft. chart)
  - 5-years-old & older: eye level should be at the $\frac{10}{16}$ line ($\frac{20}{32}$ on 20 ft. chart)
- The child should stand with their heels on the "heel line" 10 or 20 feet away depending on child's age or eye chart used
- Give occluder to parent or child on the 10 or 20 ft. line, depending on chart used and age of child
- Be sure the eye is covered
- Examiner stand by the chart

Visual Acuity Screening

- Examine the right eye first by covering the left eye
- Watch the child to make sure that the left eye is completely covered with the occluder
- Point to the letter/symbols the child is to identify, being careful not to touch or cover the figure
- Start screen one line above the referral line
  - 3-years-old, start at line $\frac{10}{32}$
  - 4-years-old, start at line $\frac{10}{25}$
  - 5-years and older, start at line $\frac{10}{20}$ or $\frac{20}{40}$ (20 ft. chart)
- Acknowledge the child's response with "good", "right" each time even if the child is incorrect

Visual Acuity Screening

- To pass a line, the child must correctly identify more than half of the figures on the line without squinting
- Record the smallest line of figures the child can identify for the right eye
- Repeat the above procedures for the left eye by covering the right eye
- Then, repeat above procedure with both eyes uncovered
- If a child fails on the referral line, repeat line in reverse order (from right to left)
- Record the number from the line that the child successfully identified all of the optotypes

Pay Attention…

- To how you point to the letters/symbols on the chart
- The best practice is to place your finger/pointing device directly under the letters/symbols
- Make sure not to cover any part of the letter or symbols
- Make sure the child is not peaking!

What Does $\frac{20}{20}$ Mean?

- **Top Number** – How far you are from the chart
- **Bottom Number** – How far away a person with normal vision can read the chart
- As the bottom number increases, the vision worsens

Age-Dependent Referral Criteria for Visual Acuity Screening

- **Age 3 years** – Failure to correctly identify the majority of optotypes on the $\frac{10}{25}$ ($\frac{20}{50}$ on some charts) line, or worse, in either eye
- **Age 4 years** – Failure to correctly identify the majority of optotypes on the $\frac{10}{20}$ ($\frac{20}{40}$ on some charts) line, or worse, in either eye
- **Age 5 years and older** – Failure to correctly identify the majority of optotypes on the $\frac{10}{16}$ ($\frac{20}{30}$ or $\frac{20}{32}$ on some charts) line, or worse, in either eye
- **Age 3 years and older** (threshold method only) – Two-line difference between eyes, even within the passing range (e.g. a 4-year-old with $\frac{20}{20}$ in one eye and $\frac{20}{32}$ in the other eye)

Untestable Children and Rescreening Guidelines

- If the child is unable to cooperate during the screening, a second attempt should be made the same day (i.e. later during the same visit)
- If the same day rescreening is not possible, reschedule as soon as possible, but no later than 6 months
- When vision screening is unsuccessful, refer the child to an ophthalmologist or an optometrist who is experienced in the care of children for an eye examination
- Shyness, inattention or poor cooperation may be related to a vision problem

CHDP Vision Screening Documentation and Referrals

Documentation

- Record the smallest line of optotypes that the child can read more than half of the line
- If the child does not pass, record the failed screen on the medical record and refer to appropriate provider. For example, result for a three-year-old after the threshold screen:

OD $\frac{10}{25}$ (right eye)

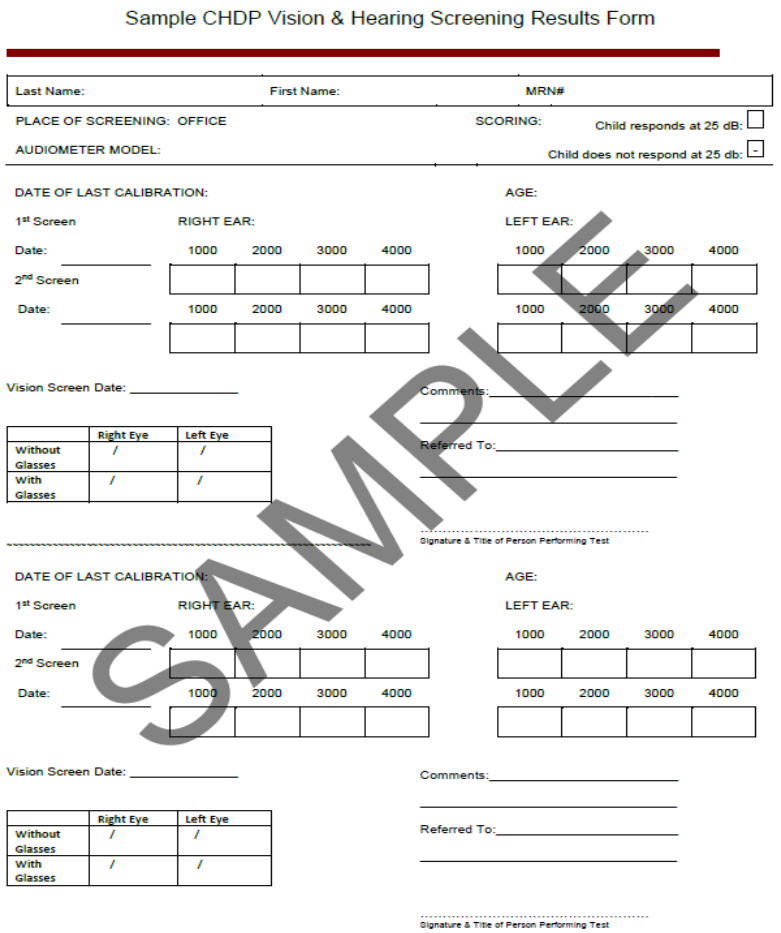
OS $\frac{10}{32}$ (left eye)

OU $\frac{10}{25}$ (both eyes)

This child failed because there is a difference of screening result in each eye

Documentation

This is a sample documentation form. You would indicate the vision screen result on the medical record of the child.



Sample CHDP Vision & Hearing Screening Results Form

Last Name: First Name: MRN#

PLACE OF SCREENING: OFFICE SCORING: Child responds at 25 dB: ☐

AUDIOMETER MODEL: Child does not respond at 25 db: ☐

DATE OF LAST CALIBRATION: AGE:

1st Screen RIGHT EAR: LEFT EAR:

Date: 1000 2000 3000 4000 1000 2000 3000 4000

2nd Screen

Date: 1000 2000 3000 4000 1000 2000 3000 4000

Vision Screen Date: _____

Comments: _____

Referred To: _____

	Right Eye	Left Eye
Without Glasses	/	/
With Glasses	/	/

Signature & Title of Person Performing Test

SAMPLE

DATE OF LAST CALIBRATION: AGE:

1st Screen RIGHT EAR: LEFT EAR:

Date: 1000 2000 3000 4000 1000 2000 3000 4000

2nd Screen

Date: 1000 2000 3000 4000 1000 2000 3000 4000

Vision Screen Date: _____

Comments: _____

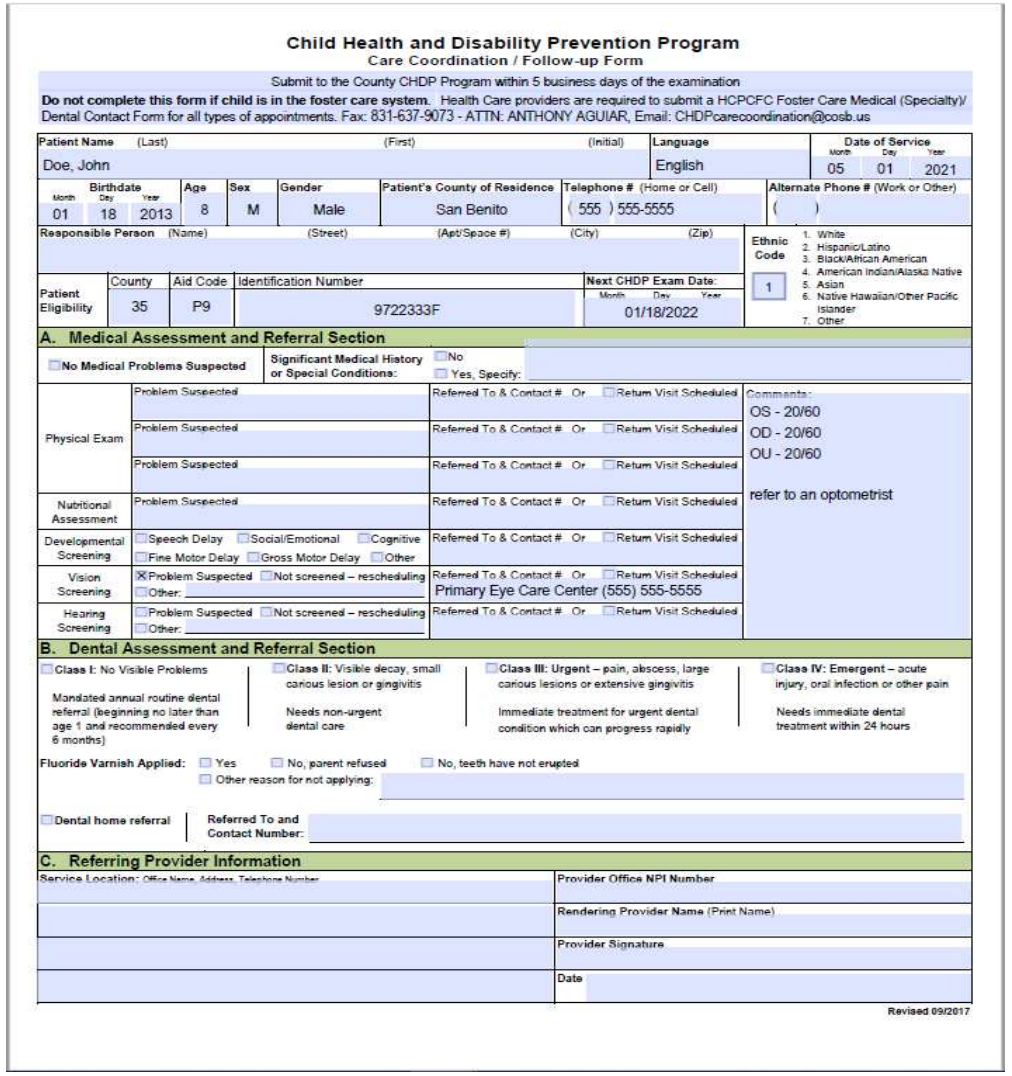
Referred To: _____

	Right Eye	Left Eye
Without Glasses	/	/
With Glasses	/	/

Signature & Title of Person Performing Test

CHDP Care Coordination Form

Since the state discontinued the use of PM 160, they have come up with a new care coordination form. This form is a way to communicate to the local CHDP program. For any fee-for-service or Gateway Medi-Cal child who has failed a vision screen, please complete this form and send it back to the CHDP department. Our fax # is: (831) 637-9073



Child Health and Disability Prevention Program
Care Coordination / Follow-up Form

Submit to the County CHDP Program within 5 business days of the examination

Do not complete this form if child is in the foster care system. Health Care providers are required to submit a HCPCFC Foster Care Medical (Specialty)/ Dental Contact Form for all types of appointments. Fax: 831-637-9073 - ATTN: ANTHONY AGUIAR, Email: CHDPcarecoordination@cosb.us

Patient Name (Last)	(First)	(Initial)	Language	Date of Service (Month Day Year)
Doe,	John		English	05 01 2021

Birthdate (Month Day Year)	Age	Sex	Gender	Patient's County of Residence	Telephone # (Home or Cell)	Alternate Phone # (Work or Other)
01 18 2013	8	M	Male	San Benito	(555) 555-5555	( )

Responsible Person (Name) (Street) (Apt/Space #) (City) (Zip)

Ethnic Code: 1

1. White
2. Hispanic/Latino
3. Black/African American
4. American Indian/Alaska Native
5. Asian
6. Native Hawaiian/Other Pacific Islander
7. Other

Patient Eligibility	County	Aid Code	Identification Number	Next CHDP Exam Date: (Month Day Year)
	35	P9	9722333F	01/18/2022

A. Medical Assessment and Referral Section

☐ No Medical Problems Suspected | Significant Medical History or Special Conditions: ☐ No ☐ Yes, Specify:

Physical Exam	Problem Suspected	Referred To & Contact # Or ☐ Return Visit Scheduled	Comments: OS - 20/60 OD - 20/60 OU - 20/60 refer to an optometrist
	Problem Suspected	Referred To & Contact # Or ☐ Return Visit Scheduled	
	Problem Suspected	Referred To & Contact # Or ☐ Return Visit Scheduled	
Nutritional Assessment	Problem Suspected	Referred To & Contact # Or ☐ Return Visit Scheduled	
Developmental Screening	☐ Speech Delay ☐ Social/Emotional ☐ Cognitive ☐ Fine Motor Delay ☐ Gross Motor Delay ☐ Other	Referred To & Contact # Or ☐ Return Visit Scheduled	
Vision Screening	☒ Problem Suspected ☐ Not screened – rescheduling ☐ Other:	Referred To & Contact # Or ☐ Return Visit Scheduled: Primary Eye Care Center (555) 555-5555	
Hearing Screening	☐ Problem Suspected ☐ Not screened – rescheduling ☐ Other:	Referred To & Contact # Or ☐ Return Visit Scheduled	

B. Dental Assessment and Referral Section

☐ **Class I:** No Visible Problems — Mandated annual routine dental referral (beginning no later than age 1 and recommended every 6 months)

☐ **Class II:** Visible decay, small carious lesion or gingivitis — Needs non-urgent dental care

☐ **Class III: Urgent** – pain, abscess, large carious lesions or extensive gingivitis — Immediate treatment for urgent dental condition which can progress rapidly

☐ **Class IV: Emergent** – acute injury, oral infection or other pain — Needs immediate dental treatment within 24 hours

Fluoride Varnish Applied: ☐ Yes ☐ No, parent refused ☐ No, teeth have not erupted ☐ Other reason for not applying:

☐ Dental home referral | Referred To and Contact Number:

C. Referring Provider Information

Service Location: Office Name, Address, Telephone Number	Provider Office NPI Number
	Rendering Provider Name (Print Name)
	Provider Signature
	Date

Revised 09/2017

Referrals

- Refer all children with abnormal screening results to a pediatric ophthalmologist or an eye care specialist
  - Refer children at high risk regardless of screening result
  - Head Start – Refer the child to the primary care provider

- Please refer the child to CHDP for any care coordination needs. CHDP contact: Phone (831) 637-5367 and fax (831) 637-9073

- Explain to parents the importance of early intervention as some may not understand the benefits of early treatment

Please Complete:

- In order to receive you certificate of completion, please complete and submit the post-test & evaluation

- For any questions, please contact the local CHDP office at (831) 637-5367

- If you feel that you need a 1:1 practicum, please notify us at Aaguiar@cosb.us or (831) 637-5367 so we can schedule a day to do the practicum with you

Thank you for participating in the County of San Benito Vision Screening Training!