



# CHDP PEDIATRIC VISION SCREENING



Child Health and Disability Prevention (CHDP) Program  
Systems of Care Division (SCD)  
California Department of Health Care Services  
Adapted by Los Angeles County CHDP Program

CHDP Vision Screening Training 2019



## Learning Objectives

- Understand the importance of vision screening during childhood.
- Become aware of eye problems that affect vision.
- Describe and implement the CHDP program guidelines for referral and follow-up.
- Identify the steps of vision screening and document results.



# Why Perform Vision Screening?

- Recommended as part of the American Academy of Pediatrics [Bright Futures Periodicity Schedule](#)

American Academy of Pediatrics  
Bright Futures/American Academy of Pediatrics

Recommendations for Preventive Pediatric Health Care

These recommendations represent a consensus by the American Academy of Pediatrics (AAP) and Bright Futures. The AAP continues to be committed to the goal of providing a comprehensive health care experience for the child population of our country. Refer to the specific guidelines by age as listed in the Bright Futures Guidelines (pages 31-36). Contact the AAP Bright Futures Center for Health Supervision of Children and Adolescents at 800.422.4646 or visit [www.brightfutures.org](http://www.brightfutures.org).

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RECOMMENDATION	INFANCY												EARLY CHILDHOOD																
	NB	1-2 mo	3-5 mo	6-11 mo	12 mo	15 mo	18 mo	24 mo	30 mo	3 y	4 y	5 y	6 y	7 y	8 y	9 y	10 y	11 y	12 y	13 y	14 y	15 y	16 y	17 y	18 y	19 y	20 y	21 y	
<b>VISION</b>	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★

★ = Risk Assessment  
● = Perform Vision Screening



# Why Perform Vision Screening?

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AGE	INFANCY							EARLY CHILDHOOD							
	NB	3-5 day	By 1 mo	2 mo	4 mo	6 mo	9 mo	12 mo	15 mo	18 mo	24 mo	30 mo	3 y	4 y	
<b>Vision</b>	★	★	★	★	★	★	★	★	★	★	★	★	●	●	

AGE	MIDDLE CHILDHOOD					ADOLESCENCE											
	5y	6y	7y	8y	9y	10y	11y	12y	13y	14y	15y	16y	17y	18y	19y	20y	21y
<b>Vision</b>	●	●	★	●	★	●	★	●	★	★	●	★	★	★	★	★	★

★ = Risk Assessment  
● = Perform Vision Screening



# Bright Futures Pre-visit Questionnaire\*

- Perform risk assessment using the Bright Futures Pre-visit Questionnaire on the following ages:  
- 0 - 35 months, 7y, 9y, 11y, 13-14y, and 16-21y

Sample Pre-visit Questionnaire for a 7-year-old

Questions About Your Child		Yes	No	Unsure
Have any of your child's relatives developed new medical problems since your last visit? If yes, please describe:		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vision	Do you have concerns about how your child sees?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Has your child ever failed a school vision screening test?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Does your child tend to squint?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

A positive risk assessment will require a vision screening

\* The following *Bright Futures Tool and Resource Kit* materials are available for download for review and reference purposes only. For any other use, to make multiple copies of specific items, or to incorporate forms into an Electronic Medical Record System, please contact [institutions@aap.org](mailto:institutions@aap.org).



# Why Perform Vision Screening?

Primary Care Clinics and Schools:

- The first line of defense to detect preventable vision loss in children.

Early detection of amblyopia - “lazy eye”



## Amblyopia

- Amblyopia is the leading cause of vision loss among children.
- Eyes and brain are not working together.
- One eye sees a blurred view and the other a normal view. The brain only processes the normal view.



## Amblyopia

### **Amblyopia can only develop during childhood.**

- If not treated in childhood, amblyopia may result in permanent vision loss.
- The most common cause of vision loss in adults 20-70 years of age is untreated childhood amblyopia.



Blurred View

Normal View



# Amblyopia

Common causes are:

- Untreated or unequal refractive errors (nearsighted, farsighted, astigmatism)
- Strabismus “crossed eyes”
- Obstruction (e.g. ptosis, cataract)



# Common Causes of Amblyopia

## 1. Types of refractive errors

- a. Myopia “nearsighted”: does not see objects well at far distances





# Common Causes of Amblyopia

1. Types of refractive errors
  - b. Hyperopia “farsighted”: does not see objects well at close distances



# Common Causes of Amblyopia

1. Types of refractive errors
  - c. Astigmatism: an irregular curve in the eye causing blurry vision at all distances

Astigmatism causes blur along one direction

ABCD  
Vertical lines may be more blurred

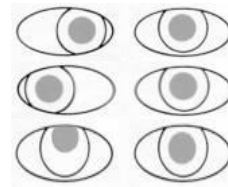
ABCD  
Horizontal lines can be more blurred



## Common Causes of Amblyopia

### 2. Strabismus “crossed eyes”: misalignment of the eyes

- One or both eyes turning inward
- One or both eyes turning outward
- One eye turning up or down
- May have double vision



## Common Causes of Amblyopia

### 3. Obstruction

- a. Ptosis: drooping of an eyelid due to a weak lid muscle.
  - May obstruct vision
  - Look for chin elevation in these children.





## Common Causes of Amblyopia

### 3. Obstruction

- b. Cataract: condition in which the lens of the eye becomes progressively cloudy, resulting in blurred vision.



## Screening Early is Best

- National Eye Institute (NEI)
  - Amblyopia affects 2-3% of children in the United States.
  - About 4.5 million children with preventable vision loss.
- Amblyopia is harder to treat after 5 years of age.
- By 7 years of age, some vision loss from amblyopia may become permanent.





## Treatment for Amblyopia

- Correcting the refractive error with consistent use of glasses and/or contact lenses
- Enable child to see as clearly as possible (e.g. removing a cataract)
- Forcing the child to use the weaker eye (via patching or eye drops to blur the better eye)



## Visual Acuity Screening Guidelines





# American Academy of Pediatrics Policy Statement

## [Pediatrics January 2016](#)

- Visual acuity screening using eye charts remains the gold standard. It can begin as early as 3 years of age.
- Screening with a tool such as a photoscreener is recommended for children 12 months of age and older unless they can reliably perform visual acuity screening with eye charts.



# Newborn to 35 Months (0-3 years)

## [Procedures for the Evaluation of the Visual System](#)

*Pediatrics* January 2016

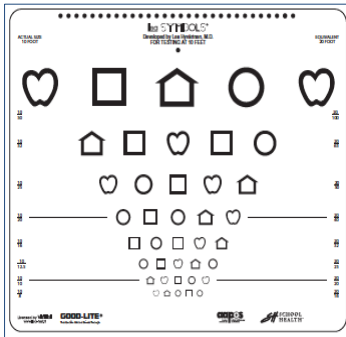
- Take a health history: Are there eye problems in close relatives?
- Check vision (tracking), eye movement (motility) and alignment (strabismus)
- Check pupils and red reflexes (round, equal, bright)

NOTE: This assessment can also be done on older children of any age with developmental delays.

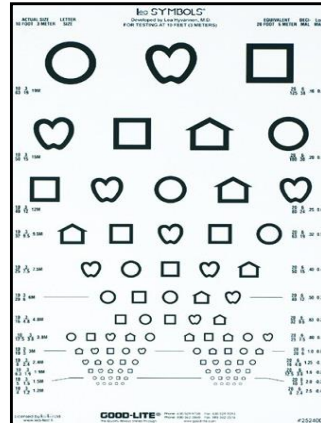


# Ages 3 through 5 years Recommended Chart Types

LEA Symbols®



Response card



# Ages 3 through 5 years Recommended Chart Types

HOTV Chart



Response card





## Age-Dependent Pass Guidelines

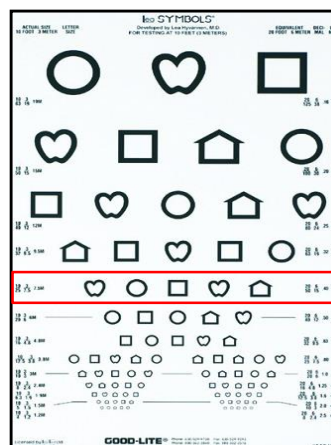
- **New AAP guidelines:**

- **3 years old:** the critical line to pass screening is the **20/50 (10/25)** line.
- **4 years old:** the critical line to pass screening is the **20/40 (10/20)** line.
- **5 years and older:** the critical line to pass screening is **20/32 (10/16)** or **20/30 (10/15)** line depending on the chart used.



## 3 Year Visit: 36 to 47 Months

- Must be able to identify the majority of the 20/50 (10/25) line with each eye.
- Recommended screening distance is 10-feet using a 10-foot chart.
- Opposite eye must be fully covered.







# 5 Years and Older

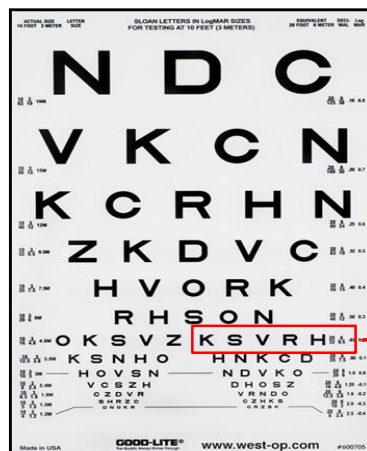
Use Sloan or Snellen letters for children who know their letters.

- Sloan letters chart is preferred over the Snellen letters chart



# 5 Years and Older

- Must be able to identify with each eye the majority of:
  - 20/32 (10/16) or 20/30 (10/15) line depending on the chart used.
  - For children who do not know their letters, use the LEA symbols chart, or the HOTV chart.

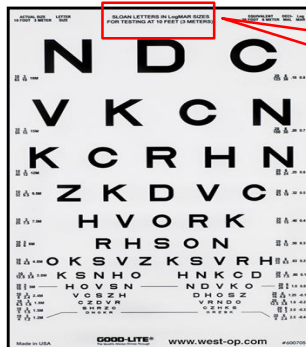


20/32



## 5 Years and Older

- Recommended screening distance is 10-feet using a 10-foot chart.
- Fully cover opposite eye.
- Repeat screening every 1-2 years.
- Risk assessment should be done when screening is not required.



FOR SCREENING AT 10 FEET



## American Association for Pediatric Ophthalmology and Strabismus (AAPOS) Vision Screening Kit

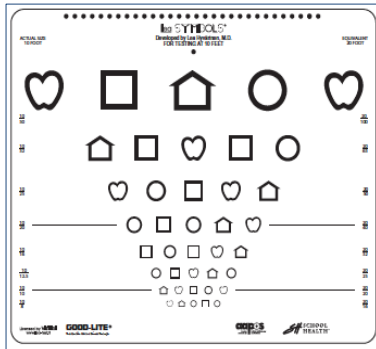


- Acuity charts for threshold or critical line screening:
  - Sloan letters
  - LEA symbols or HOTV chart
- Occluders:
  - patches/glasses/paddle
- 10 foot measuring cord
- Matching response card
- Informational DVD

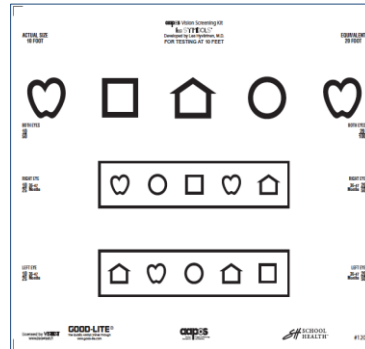


# Threshold and Critical Line Options

## Threshold

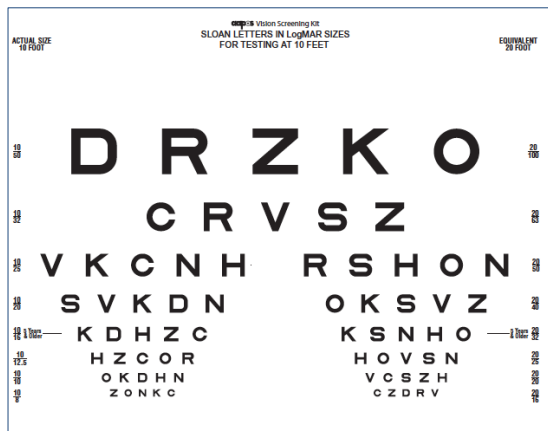


## Critical Line



# Threshold Screening

- Reading down the eye chart as far as possible.
- Threshold line is the smallest line child can pass.
- Can identify two-line difference between the eyes.
- Refer for two-line difference between the eyes, even within the passing range.

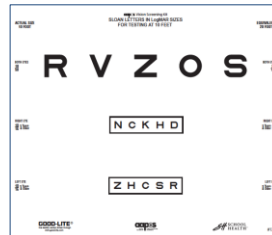
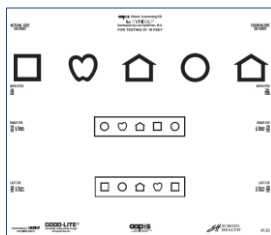






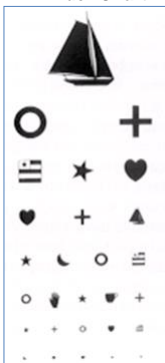
# Critical Line Screening: FASTER

- Critical line is defined as the line a child is expected to see normally and pass for that age.
- Each chart has two boxed “critical lines” - one for each eye. The top line of large symbols/letters is for practice before starting screening.
- The child only reads a single “critical” line with each eye.
- This method cannot identify two-line difference between the eyes.

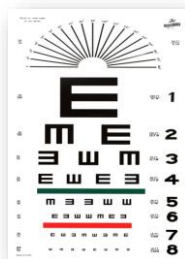


# Vision Screening Charts **NOT** Recommended

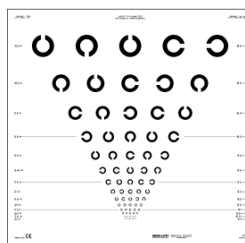
Kinder Chart



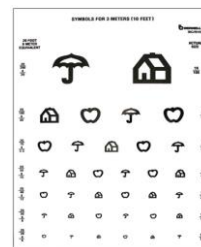
Tumbling E Chart



Landolt C Chart



House Apple Umbrella Chart



Allen Cards



# Occlude to Prevent Peeking

## Recommended\*



## Acceptable



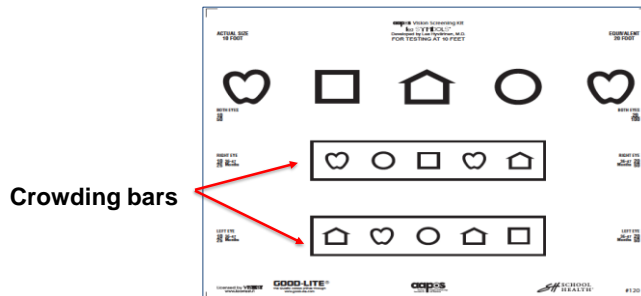
## Not Recommended



\* Assess for allergies to tape prior to placement

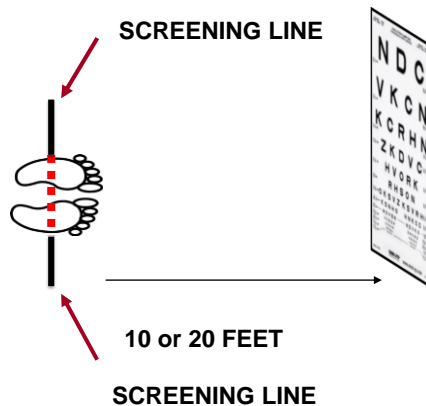
# Key Points

- Crowding bars make individual symbols/letters more difficult to identify when amblyopia is present.
- Use eye charts with lines of symbols/letters or matching cards with lines (crowding bars) around each symbol/letter to obtain the most accurate visual acuity assessment.



## Key Points

- Screening line: marked at 10 (or 20)-feet on the floor.
- Screening line is midline to chart.
- Child should stand with **arch** of each foot on the line.
- Vision screening area
  - Out of traffic area
  - Have adequate lighting



## Key Points

- Adjust eye chart with the referral line close to the child's eye level.
- Each eye should be screened separately.
- Either critical line or threshold screening may be used.





## Automatic Referral for Eye Exam

Children with the following disorders should bypass screening and should be referred directly to an eye specialist:

1. Recognized eye disorders (e.g. strabismus, ptosis)
2. Known neurodevelopmental disorders:
  - Hearing impairment
  - Motor abnormalities (e.g. cerebral palsy)
  - Down Syndrome
  - Cognitive impairment
  - Autism spectrum disorder
  - Speech delay



## Automatic Referral for Eye Exam

3. Systemic diseases present (e.g. diabetes, sickle cell disease, hypertension)
4. Taking medications known to cause eye disorders
5. First-degree relative with strabismus or amblyopia
6. Prematurity: less than 32 weeks of gestation
7. Parent believes child has vision problem



## Visual Acuity Results Threshold Pass/Fail Criteria

AGE	PASS	FAIL and REFER, or RESCREEN WITHIN 6 MONTHS	DOCUMENTATION
3 years	LEA/HOTV: Correctly identified at least 3 of 5 symbols on 20/50 line or better	Missed 3 or more symbols on 20/50 line or worse  Two-line difference between the eyes, even within the passing range (e.g. 20/20 and 20/32)	Visual acuity to document is 20/63 or worse
4 years	LEA/HOTV: Correctly identified at least 3 of 5 symbols on 20/40 line or better	Missed 3 or more symbols on 20/40 line or worse  Two-line difference between the eyes, even within the passing range (e.g. 20/20 and 20/32)	Visual acuity to document is 20/50 or worse
5 years and older	LEA/HOTV/Sloan: Correctly identified at least 3 of 5 symbols/letters on 20/32 (or 20/30) line or better	Missed 3 or more symbols/letters on 20/32 (or 20/30) line or worse  Two-line difference between the eyes, even within the passing range (e.g. 20/20 and 20/32)	Visual acuity to document is 20/40 or worse
	Snellen ONLY: Correctly identified one more than half the letters on the 20/30 line or better	Snellen ONLY: Missed one more than half the letters on 20/30 line or worse  Two-line difference between the eyes, even within the passing range (e.g. 20/20 and 20/32)	



## Barriers to Screening

- Poor cooperation of young children
- Takes time to perform
- Staff not adequately trained
- Poor reimbursement for physicians



## Untestable (“Uncooperative”) Children

- If child is unable to cooperate during the screening, make a second attempt the same day (i.e. later during the same visit). If same day rescreening is not possible, reschedule as soon as possible, but no later than 6 months.
- Schedule follow-up appointment prior to the patient leaving provider office.
- If you cannot screen a child during the follow-up appointment, then refer to an ophthalmologist or optometrist experienced in the care of children for an eye examination.



## Follow-Up

- Maintain referral log to track status of referral.
- Follow-up with parent/guardian as needed.

	REFERRAL DATE	PATIENT'S NAME	D.O.B.	PROVIDER REFERRED TO	SPECIALITY	DATE OF APPT	DATE CONSULT REC'D	7 DAY FOLLOW-UP	30 DAY FOLLOW-UP
01	07-20-17	Doe, Janet	3-6-10	MLK	OPTOMETRY	9-3-17	9-27-17	9-10-17 Exam Done	10-3-17 Glasses Rec'd
02									
03									
04									
05									
06									



## Instrument-Based Vision Screening

- Instrument-based screening is the process of using an instrument such as a photoscreener, autorefractor or other device, to screen for risk factors for vision problems.
- Does not replace visual acuity screening with eye charts.
- Endorsed by American Academy of Pediatrics (AAP).



## Common Vision Screening Instruments



Welch Allyn SureSight



Righton Retinoma



iScreen



PlusOptix S12R



Welch Allyn  
"Spot"



## What is the Difference Between Vision Screening with Eye Charts and Vision Screening with Devices?

- Vision screening with eye charts measure the actual visual acuity (e.g. 20/20).
- Vision screening devices DO NOT measure visual acuity directly.
  - Screening instruments test for eye conditions or risk factors that are known to cause decreased vision or amblyopia.



## Instrument Screening is Useful For:

- All children ages **1-3 years**
  - Usually unable to perform visual acuity screening
- Older children who are non-verbal, developmentally delayed.
- Other children who are untestable using the visual acuity chart.





# CHDP Vision Screening Certification Requirements

- Screeners must attend Vision Screening Training provided by CHDP staff (or another agency approved by local CHDP).
- Renew certification every four years.



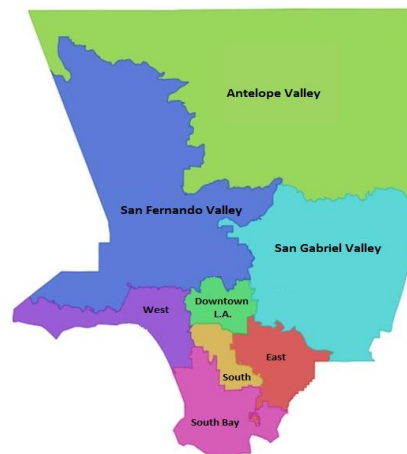
# County of Los Angeles CHDP

**North Regional Office**  
9320 Telstar Ave., Suite 226  
El Monte, CA 91731  
(855) 272-6820

**Southwest Regional Office**  
MLK Jr., Multi-Service  
Ambulatory Care Center  
12012 S. Compton Ave., Room 4-212  
Los Angeles, CA 90059  
(424) 338-1186

**Southwest Regional Satellite Office**  
Harbor-UCLA Medical Center  
1000 W. Carson St., Box 475  
Torrance, CA 90509  
(424) 338-1186

**East Regional Office  
Administrative Office**  
9320 Telstar Ave., Suite 226  
El Monte, CA 91731  
(626) 569-3750





## Acknowledgments

- These guidelines are based on recommendations from the American Academy of Pediatrics (AAP) and the National Expert Panel of the National Center for Children's Vision and Eye Health (NCCVEH) at Prevent Blindness.
- These slides have been adapted from the American Association for Pediatric Ophthalmology and Strabismus (AAPOS) with their permission.



## References and Links

- [Visual System Assessment in Infants, Children and Young Adults by Pediatricians](#)
  - American Academy of Pediatrics Policy Statement
  - Pediatrics. January 2016. Volume 137. Issue 1
- [Procedures for the Evaluation of the Visual System by Pediatricians](#)
  - American Academy of Pediatrics Clinical Report
  - Pediatrics. January 2016. Volume 137. Issue 1



## References and Links

- [Bright Future and Preventative Medicine Coding Fact Sheet](#)
  - American Academy of Pediatrics
  - AAP.org → Professional Resources → Practice Transformation → Coding at the AAP
  - Updated January 2016
- [Vision Screening for Children 36 to < 72 Months: Recommended Practices](#)
  - National Expert Panel to the National Center for Children’s Vision and Eye Health
  - Optometry and Vision Science. January 2015. Volume 92. No. 1
  - CHDP Health Assessment Guidelines Vision Screening 2017



## THE END





## How Do I Earn the Vision Screening Training Certificate?

1. A PHN must visit your site/clinic within 2 weeks upon completion of listening to the Vision Screening Training video. The visit will consist of review, practice session, and certification.
2. To receive your certificate, you must be able to correctly demonstrate the Vision Screening method with accurate documentation of screening results.



Your feedback is important to us, please take a moment to complete our online evaluation.