

Primary Care Guide to Vision Screening

Epidemiology

- Most common cause of permanent vision loss in adults is untreated childhood amblyopia
- Only 40% of 5 year old children have ever had their vision tested
- 40 states require vision screening for elementary aged children (including Florida), 16 states require for preschool-age children (not Florida)
- (Early) Headstart: have to have vision screening within 45 days of starting
- 2-4% children have eye problem requiring treatment
- 20% of children and preteens have refractive errors requiring glasses

Visual Developmental Milestones

*adjust for prematurity

Age	Milestone
0-8 weeks old	Blink in response to bright light (6-8 weeks old: reliable tracking)
2-3 months old	Looks at hands, follows light and faces
4-5 months old	Looks at self in mirror, reaches hands to object
5-7 months old	Has full color vision, touch image of self in mirror, picks up dropped toy
7-11 months old	Depth perception develops, stares at small objects, plays peek-a-boo
11-12 months old	Watch quickly moving objects
12-14 months old	Interested in pictures, recognizes own face in mirror, points and gestures
18-24 months	Focuses near and far, points to body parts

Screening

- History: vision concerns, eyes that do not move together, family history of vision problems or retinoblastoma
- Physical exam: tracking, alignment, corneal reflex, cover/uncover, pupillary response, red reflex
- Obtain Welch Allyn Spot Vision Screener at:
 - 12 month WCC
 - 24 month WCC
 - Starting age 3, obtain visual acuity testing (LEA symbols/Snellen chart): if patient is not cooperative, do Welch Allyn Spot Vision Screener
- Normal visual acuity:
 - 3 years old: 20/50 or better
 - 4 years old: 20/40 or better
 - 5 years old and up: 20/30 or better

Welch Allyn Spot Vision Screener

Pros	Cons
Can be used for patients ≥ 6 months old (does not require much patient cooperation)	Estimates (rather than directly measuring) visual acuity
Tests for multiple visual pathologies	Very expensive
Portable, fast	

- Identifies:
 - Myopia (nearsightedness)
 - Hyperopia (farsightedness)
 - Strabismus (abnormal neuromuscular control of eye muscles (III, IV, VI))
 - Astigmatism (abnormal curvature)
 - Anisometropia (unequal refractive error)
 - Anisocoria (unequal pupil size)
- How to use:
 - Dim lights
 - Stand 3 feet from patient
 - Point device towards patient's face (device notifies if too close or too far) for 1 second
- Results:
 - Screening complete = continue performing routine screening
 - Complete eye exam recommended = refer to optometry vs ophthalmology

Referrals

Optometry: nearsightedness, farsightedness, astigmatism

- No need to place referral in EPIC

Ophthalmologist: strabismus, amblyopia, stye, infection, nasolacrimal duct stenosis, cataract, neurologic conditions (HIE, epilepsy, NF, cerebral palsy), prematurity, diabetes mellitus, JIA, craniofacial abnormalities, Down syndrome, Marfan syndrome, Sturge-Weber, sickle cell disease, congenital CMV, eyelid hemangiomas, etc.)

- Place referral in EPIC and link to medical diagnosis (do not use diagnosis "failed vision screen" as it is not covered by insurance)

- 2 months old: poor eye contact
- 3 years old: worse than 20/50 or 2 lines difference between the eyes
- 4 years old: worse than 20/40 or 2 lines difference between the eyes
- 5 years old: worse than 20/30 or 2 lines difference between the eyes

Resources

[Age-Appropriate Vision Milestones \(stanfordchildrens.org\)](#)

<https://www.maineaap.org/assets/conferences/Maine-AAP-Pediatric-Vision-Screening.pdf>

<https://www.stanfordchildrens.org/en/topic/default?id=normal-vision-90-P02094>

https://www.schoolhealth.com/media/pdf/Spot_Sample_Results.pdf

<https://preventblindness.org/childrens-vision-screening-and-intervention/>

https://www.uptodate.com/contents/refractive-errors-in-children?search=hyperopia&source=search_result&selectedTitle=1~46&usage_type=default&display_rank=1

<https://www.aao.org/eye-health/glasses-contacts/how-to-read-eyeglasses-prescription>

[Pediatric Vision Screening | American Academy of Pediatrics \(aappublications.org\)](#)

[Project Universal Preschool Vision Screening: A Demonstration Project | American Academy of Pediatrics \(aappublications.org\)](#)

[What Does 20/20 Vision Mean? - American Academy of Ophthalmology \(aao.org\)](#)