

Project Universal Preschool Vision Screening
Project Procedures for Screening Vision in the Primary Care Setting

Function to be Evaluated	Test	Recommended Testing Procedures	Referral Criterion	Passing Criterion
Visual Acuity	Same as community tests	Same as community recommendations	< 20/40 at ages 36 to 47 months < 20/30 at ages 48 to 59 months	Passes 20/40 level at ages 36 to 47 months Passes 20/30* level at ages 48 to 59 months
Stereopsis	Same as community tests	Same as community recommendations	Same as community recommendations	Same as community recommendations
Vision History	Review of medical history and parents' concerns	Review and update pediatric history for risk factors. Ask whether parent is concerned about eyes or vision	Positive family history (congenital cataracts, retinoblastoma) Positive systemic factors (premature birth, congenital infection, metabolic, genetic diseases, etc.)	No vision history factors No systemic factors No parental concern
External Inspection of Eyes	External Examination	Examination of eye and surrounding structures, evaluating for both symmetry and function. Penlight evaluation of conjunctiva, sclera, cornea, and iris.	Any observable structural abnormality	No observed structural abnormality
Ophthalmoscopic Examination	Red Reflex Check	With the room lights off, and the ophthalmoscope held 12-18 inches away, and with the lens dioptic power setting on "0", shine the light through the pupils. Compare the brightness of the red reflexes in the two eyes.	Dark spots in red reflex, blunted red reflex on one side, lack of a red reflex, or presence of a white reflex.	Symmetric red reflex
Tests for Ocular Muscle Motility and Eye Muscle Imbalances **	Corneal Light Reflex	Have the patient fixate on a small target you hold adjacent to the penlight at arms length. Shine the penlight at the bridge of the child's nose and compare the positions of the reflection of the penlight in the cornea (corneal light reflex). Observe the patient first with both eyes open, then with one eye occluded at a time to determine whether the patient stares at a stationary target and pursues a moving target at arm's length.	Asymmetric corneal light reflections.	Equal and symmetric corneal light reflections.
	Fixation/Tracking	Have the patient fixate a single letter or picture at arm's length. Cover the patient's right eye swiftly with your hand or an occluder and observe the left eye for re-fixational movement. Uncover the right eye, then cover the left eye, and observe the right eye for a re-fixational movement.	Inability to fix and follow with each eye equally in all directions.	Able to fix and follow equally with each eye in all directions Absence of fixational movement.
	Unilateral Cover Test		Presence of re-fixational movement.	

*Test all children aged 36 to 59 months using visual acuity and stereopsis. See referral guidelines for unreliable results or repeating the acuity and/or stereopsis screen. ** Fixation, following, and eye alignment should be more and more frequent between ages 2 to 4 months, and should appear adult-like by age 6 months.

Project Universal Preschool Vision Screening
Project Guidelines for Community-Based Screening
Vision Screening*

Minimum Testing Procedures

Function to be Evaluated	Type of Test	Specific Test	Minimum Testing Procedures	Passing Criterion
Monocular Distance Acuity	Chart tests Isolated optotypes with crowding	HOTV Chart LEA Chart HOTV cards with bars	<p>Test Distance = 10 feet (3m)</p> <p style="text-align: center;">Pretest (performed binocularly):</p> <p>Test child's ability to perform test by having child identify or match each of the 4 targets (20/100 or greater size). Child must successfully identify each of the 4 targets.</p> <p style="text-align: center;">Test Procedure (performed monocularly):</p> <p>Patch one eye. Constantly monitor for peeking. To proceed, child must identify or match each 20/100 target. Present one or two smaller targets up to critical line or size. Present 5 targets at critical line or size. Repeat test procedure with the other eye.</p> <p style="text-align: center;">Critical Line: 20/40 at 36 to 47 months 20/30* at 48 to 59 months</p>	Child must identify or match 4 out of 5 optotypes on the critical line with each eye tested monocularly.
Stereopsis	Random dot stereogram	Random Dot E	<p>Test Distance = 40 cm (630 arcsec)</p> <p>All testing, including pre-testing, should be done binocularly with the polarized glasses on.</p> <p style="text-align: center;">Pretest:</p> <p>Test child's ability to perform test by having child identify the location of the 3-dimensional E correctly on 4 out of 5 trials (E on left or right, above or below).</p> <p style="text-align: center;">Test Procedure:</p> <p>Test child's ability to identify the location of the stereo E. Tester should use 5 presentations, varying location in a nonsystematic manner.</p>	Child must locate stereo E on 4 out of 5 presentations.

*equivalent to 20/32 on recommended (LogMAR) tests

Project Universal Preschool Vision Screening

Screening is appropriate for children with apparently normal vision. Recent evidence suggests that parents are often the first to notice an eye or vision problem [Campbell, 1991 #668], including serious problems such as low vision or blindness [Hall, 1988 #1834] or congenital cataracts [Rahi, 1999 #1906]. Parents who suspect an eye or vision problem should be encouraged to get a diagnostic examination for their child. Additionally, children with global developmental delays should be referred for diagnostic examination.

- 1) A child may be referred if the child does not pass the first vision screening.

Community-based Screening

- 2) All children who do not pass acuity or stereopsis testing, or have unreliable results to either test in the community setting should be referred to the primary care clinician or eye specialist. The repeat screening by the primary care doctor or the diagnostic exam by the eye specialist should take place within days to weeks, not longer than one month.

Primary Care Screening

- 3) All children who do not pass risk factors or observation in the primary care setting should be referred to the eye specialist.
- 4) Children between 36-47 months of age who pass risk factors and observation, but fail visual acuity or stereopsis, may be referred immediately. If responses to acuity or stereopsis testing seem unreliable, the child should be re-screened within 6 months using the same tests. If unreliable results are again obtained during the re-screening, the child should be referred to the eye specialist.
- 5) Children between 48 to 59 months who pass risk factors and observation, but do not pass visual acuity or stereopsis, must be referred or re-screened within 1 month. If the child does not pass either re-screen test, or if unreliable results are obtained during the re-screening, the child should be referred to the eye specialist immediately.