



# Vision Screening

## **WHAT IS VISION SCREENING?**

Vision screening is an efficient and cost-effective method to identify children with visual impairment or eye conditions that are likely to lead to vision loss so that a referral can be made to an appropriate eye care professional for further evaluation and treatment

## **HOW IS VISION SCREENING PERFORMED?**

There are a number of methods used to screen a child's vision. The method chosen is largely dependent on the age of the child being screened and the experience of the examiner. Several methods of vision screening are discussed below:

Objective Testing:

### **INSPECTION OF THE EYE, PUPILS AND RED REFLEX**

This method can be used on children of all ages. At each well child visit, the examiner uses a flashlight to inspect the eyes for abnormality of shape or structure and to detect irregularity in pupil shape. The pupil constricts (become smaller) in bright light and dilates (become larger) in the dark, and both pupils should be the same size. An ophthalmoscope is used to observe the red reflex of the eye. The red reflex is a reflection from the lining of the inside of the eye that causes the pupil to look red in photographs. The red reflex should be bright and equal in both eyes.

### **PHOTOSCREENING**

This is an automated technique using a special camera which uses the red reflex to help identify risk factors for poor vision, such as refractive errors (the need for glasses) and other abnormalities in the eyes. It is fast and easy to learn and is now widely used in community group screenings. Information can be electronically submitted to a professional for interpretation if necessary. There may be an extra fee for this testing when performed at a doctor's office.

### **CORNEAL LIGHT REFLEX TESTING**

This simple test can be performed on any child using a penlight. As a child focuses on a penlight, the position of the light reflection from the front surface (cornea) of the eye is observed. The test is accurate only if the child looks directly at the light and not to the side. Normally the corneal light reflex is in sharp focus and centered on both pupils. The test is abnormal if the corneal light reflex is not crisp and clear or if it is "off-center."



## **COVER TESTING**

This test detects misalignment of the eyes. While the child focuses on a target, the examiner covers each eye sequentially to look for a "shift" in the alignment of the eyes. This test requires a cooperative child (usually 3 years or older) and an experienced examiner.

Subjective Testing:

## **VISUAL ACUITY TESTING**

The use of an eye chart requires a cooperative child, so successful testing is greatest with children 3 years and older. It is the only screening method that directly measures visual acuity and is the preferred exam for older children. Modifications of the adult eye chart make it easier to test children. For example, it is recommended that the 20-foot testing distance be shortened to 10 feet. Symbols or shapes can be used in place of letters. Testing with both eyes open initially is performed before carefully covering one eye at a time with a patch occlusion to test each eye separately. It is important to use a secure eye patch for testing individual eyes as young children might try to "peek" around the patch especially if there is a difference in vision between the two eyes.

## **WHAT KINDS OF EYE PROBLEMS CAN BE DETECTED ON A VISION SCREENING?**

The main goal of vision screening is to identify children who have or are at risk of developing [amblyopia](#), which can lead to permanent visual impairment unless treated in early childhood. Other problems that can be detected by vision screening include [strabismus](#) (eye misalignment), [cataracts](#), [glaucoma](#), [ptosis](#) (drooping eyelid), [refractive errors](#) such as [myopia](#) ("nearsightedness"), hyperopia ("farsightedness") and [astigmatism](#), and other more serious conditions such as tumors or neurological diseases.

## **WHO PERFORMS VISION SCREENING?**

Pediatricians, family practitioners, nurses and technicians can perform vision screening at regular well care office visits. In addition, many daycare programs, churches, schools and health departments offer vision screening programs for children.

## **AT WHAT AGE SHOULD A CHILD HAVE HIS OR HER VISION SCREENED?**

Vision screening is most effective when performed periodically throughout childhood. The earlier a problem is detected, the better the chance to obtain maximal vision through appropriate treatment. The first vision screening takes place in the newborn nursery when the doctor or practitioner inspects the newborn's eye, pupil and red reflex. The child's practitioner continues to perform age appropriate vision screenings throughout infancy and childhood



In some states a documented vision screening or comprehensive eye examination is required before beginning school.

## **WHAT IS THE DIFFERENCE BETWEEN VISION SCREENING AND A COMPREHENSIVE EYE EXAMINATION, AND WHICH IS MORE APPROPRIATE FOR MOST CHILDREN?**

Vision screening is more efficient and cost effective (which allows many more children to be examined) than a complete examination on every child. Only about 2 to 4% of children have an eye problem that requires treatment, so it is not practical to perform a comprehensive eye examination on every child. In addition, some problems are missed on a one-time comprehensive eye examination, so it is preferable to have several screenings performed over time. Also, mandated comprehensive eye examinations likely result in glasses being prescribed unnecessarily for many children.

Nevertheless, if a child has known risk factors for eye disease, if there is a family history of pediatric eye disease, or if a child has signs or symptoms suspicious for a vision problem, it is reasonable and appropriate for a child to have a comprehensive eye examination.

## **WHAT IF A CHILD FAILS HIS OR HER VISION SCREENING OR CANNOT COOPERATE FOR VISION SCREENING?**

By age 3 or 4 years, most children are able to cooperate for subjective visual acuity testing using an eye chart. If a child is unable to cooperate for visual acuity testing at age 3, a second attempt should be made within 6 months, if the child is age 4, a second attempt should be made within one month. If retesting is impossible or inconclusive, then the child should be referred for a comprehensive eye examination if possible, by an eye care provider who has experience with the assessment and treatment of children.

**Updated 04/2020**