



Serving children with visual impairments and their families since 1949

Pediatric Visual Diagnosis Fact Sheet™

---

## VISION ASSESSMENT



### WHAT IS A VISION ASSESSMENT?

A vision assessment is an organized procedure for gathering information about the health and function of the vision system. Assessments can be done at home and school as well as the doctor's office. Observations by caregivers, medical evaluation by a pediatric ophthalmologist, and vision evaluation by a teacher of the visually impaired and/or orientation and mobility specialist are all important. Optometrists also contribute to this process. All children with vision impairment should be assessed by a pediatric ophthalmologist, a teacher of children with vision impairments, and an orientation and mobility specialist.

### WHY ASSESS?

- To understand how the child uses vision to gather information
- To share information with family members and others living and working with the child
- To promote development based on the findings of the vision assessment
- To help determine whether the child will learn more effectively through auditory, print or tactile media
- To evaluate the child's ability to move safely in the environment
- To determine whether a child is eligible for services

### WHAT INFORMATION IS NEEDED?

#### Caregivers' Observations

Parents' and caregivers' observations provide valuable information that helps interpret a child's use of vision. Usually family members and caregivers have the greatest opportunity to observe children over time and in a comprehensive way. This important information is often unavailable to others outside the home. Research shows that families' observations of

their children have been accurate even when those observations contradict formal testing results.

**During an assessment, the vision specialist may ask the following questions:**

- What do you think your baby sees?
- What attracts his attention?
- Can he control his head?
- Is he sensitive to light?
- Does he stare at light?
- Does he rub his eyes?
- Does he reach for a toy in front or at the side?

### **Medical History**

Medical issues such as seizures, motor impairments, respiratory difficulties and other health issues may affect the child's functioning and ability to see. Medications have side effects, such as blurred vision, that could affect the final outcome of a vision assessment. Medications may also affect the child's responsiveness, including visual function.

### **WHAT PROCEDURES ARE USED?**

Many professionals use a variety of tests to assess vision. Vision information needed for each child will determine the tests and methods used. Before decisions are made about evaluation methods and materials, it is important to establish the following:

- what the family and others familiar with the child have observed;
- that the materials and activities used in the assessment are developmentally appropriate for the child;
- that these materials and activities are of interest to the child;
- whether the child needs extra time to respond.

**It is important to observe the child in both familiar and unfamiliar settings.**

### **WHAT HAPPENS IN THE OPHTHALMOLOGIST'S OFFICE?**

Doctors may use some of the following procedures and instruments to gather information about how the eye looks and how it is working:

- **Pupil Dilation** is used to view blood vessels and nerves by putting drops in the child's eye to enlarge the pupil.
- **Hand-held Slit Lamp** is used to examine the front parts of the eye including the cornea and some internal parts, especially the lens.
- **Binocular Indirect Ophthalmoscope** is used to determine the health of the inside of the eye including the retina, macula and optic nerve. A lens held between this instrument and the eye provides a three dimensional view of the child's eye. In addition, it allows the doctor to see the outer edges (periphery) of the retina that cannot be seen with other instruments.

- **Direct Ophthalmoscope** is used to determine the health of internal structures including the retina, macula, optic nerve, and occasionally, the lens. It gives a magnified view of the optic nerve and macula.
- **ERG (Electroretinogram)** is used to measure the function of the retina.
- **VEP (Visual Evoked Potential)** is used to gather information about the visual system. A flashing light stimulates the eye and the transfer of information can be measured in activity of visual pathways in the brain. However, evidence of this activity will not tell us how the child will use her vision day by day.

The diagnosis of some eye conditions is dependent on the use of additional tests, including:

- **MRI (Magnetic Resonance Imaging)** examines soft tissue structures inside the body not seen with X-Rays.
- **CT Scan (Computerized Axial Tomography)** creates pictures of cross sections of the body. These images of tissues are produced by passing X-Ray beams at various angles through the area of the body to be studied.

## WHAT DO DOCTORS AND EDUCATORS EXAMINE?

### THE EYE

**Visual reflexes:** involuntary responses to stimuli. Tests of visual reflexes give information about how the eye automatically responds in different areas; such as, the pupil's response to light gives information about the visual pathway and how the optic nerve is working.

**Ocular motility:** the muscles of the eye and their effect on eye movements. Examination of ocular motility provides information on what the child responds to visually, how well she can locate and follow objects in the environment, and whether both eyes are working together.

**Visual motor ability:** the coordination of sight with other parts of the body. An example would be reaching toward an object at which a child is looking (visually directed reaching).

**Object/Pattern recognition:** the ability to discriminate details, color and shape of an object or pattern. These tests also give information about how well the child can see objects against different backgrounds. The assessment tool chosen must be selected according to the needs of the child.

**Field of vision:** the entire area that can be seen without shifting the head or the eyes, including central and peripheral fields.

### THE ENVIRONMENT

**Lighting and illumination:** type of light, the intensity and position of the light and the child's adaptation to light and glare are important considerations. Some children require strong, bright lights and can see better when the light is positioned at specific angles. Others

may be sensitive to light and perform better when light is diffused.

**Contrast:** the color difference between an object and its background.

**Position of the child:** particularly in the case of the child with multiple impairments, an evaluator will assess the most comfortable position for the child's best use of vision.

**Position of materials:** the visual diagnosis provides clues to an evaluator about how toys and materials can be shown or given to the child for maximum visual response. The child's behaviors will provide more information about how to position toys and materials.

## QUESTIONS FOR THE OPHTHALMOLOGIST

Because a visit to the ophthalmologist can be busy and overwhelming for everyone involved, it is very helpful for families to have some or all of the following questions ready ahead of time.

1. What caused my child's vision problem?
2. Is this eye condition hereditary?
3. Is my child's condition stable?
4. Is there any surgery that would help my child's vision?
5. Should there be restrictions on my child's activities?
6. Will glasses or contact lenses help? If so, how much will they help?
7. Will low vision aids help when my child is a little older?
8. What is my child's best viewing distance?
9. How does this eye condition affect my child's mobility?
10. Are my child's eyes sensitive to light?
11. What kind of lighting will help my child?

## GLOSSARY

1. **Optometrist:** A licensed specialist (O.D.) trained to examine eyes and related structures to determine vision problems. She may prescribe eyeglasses, contact lenses, or other vision aids.
2. **Orientation and Mobility Specialist:** A teacher trained to teach people who are visually impaired how to move safely around the environment.
3. **Pediatric Ophthalmologist:** A medical doctor (M.D.) who specializes in treating children's diseases of the eye. This doctor may perform surgery or prescribe other types of treatment, including eye glasses and contact lenses.

## RESOURCES

INSITE MANUAL(1988). Ski-Hi Institute, Logan, Utah. Topic 4, p.35.

Coleman, J. (1993). The Early Intervention Dictionary. Woodbine House, Bethesda, Maryland.

## ACKNOWLEDGMENTS

Project Coordinators: Namita Jacob and Julie Bernas-Pierce, M.Ed.  
Dr. Doug Fredrick, Nancy Akeson, Gail Calvello, Tanni Anthony, Chris Roman,  
Dottie Bridge, Deborah Ore-Bixler. Reviewers: Kathryn Neale Manalo

The Pediatric Visual Diagnosis Fact Sheets are sponsored by a grant from the  
Blind Children's Center and with support from the Hilton/Perkins Program  
through a grant from the Conrad Hilton Foundation of Reno, Nevada.

REPRODUCTION FOR RESALE IS STRICTLY PROHIBITED (1/98 BBF)

---

Article is used courtesy of Blind Babies Foundation.

**Main BBF Office:**  
Blind Babies Foundation  
5016 Mission St.  
San Francisco, CA 94112  
Website: <http://blindbabies.org>