

QUICK GUIDE

February 2018

VISION EVALUATIONS AFTER EPILEPSY SURGERY



OVERVIEW

Children after hemispherectomy, TPO disconnection, and occipital lobectomy benefit from a complete evaluation from a neuro-ophthalmologist every year. If a neuro-ophthalmologist is unavailable in your area, an optometrist (MD) or optometrist (OD) with experience working with neurologically complicated children may be helpful. Early diagnosis, coping strategies, and patient rehabilitation are critical after these surgeries.

MEDICAL EVALUATIONS

A comprehensive medical evaluation should include:

- **Standard** ophthalmic eye and **functional vision examination**, including assessment of acuity, binocular vision, oculomotor assessment (including evaluation of locomotion and exploration capacities), plus a visual efficiency examination to monitor acuity, strabismus, as well as tracking and visual stamina for near activities, fusion skills (converging/diverging), and reading efficiency. The assessment should also include evaluation of contrast sensitivity, processing speed, and contour integration. These evaluations generally may be done in conjunction with a teacher of the visually impaired (TVI) whose training focuses on the functional and educational activities which involve vision. The eye care specialist should be reminded to confirm the hemianopia and provide recommendations for reading, scanning, and safety at school. This assessment should also include nystagmus, strabismus, trouble with visual fixation, visual acuity, visual field and possible functional/compensatory strategies. The TVI would then take this information into the classroom.
- Objective and visual field perimetry: The eye care provider should also perform a **Goldmann perimetry test** or a **Humphrey threshold test**. These are very challenging tests for a child to endure. More often in a child, visual fields are measured by confrontation; however, confrontation examination is not a 100% reliable assessment. It's not absolutely necessary because a complete contralateral field loss is a known result of these surgeries, which the doctor can document in the report.
- A **neuropsychological evaluation** can help determine the presence of any visual processing disorder and help determine developmental concerns or other areas of need.

SCHOOL EVALUATIONS

The child after hemispherectomy, TPO disconnection, or occipital lobectomy should receive a comprehensive educational evaluation in all areas of suspected disability, including vision. A Functional Vision Evaluation or Assessment (FVE or FVA) should be performed by a teacher of the visually impaired who is a special educator with additional training in how a visual impairment affects education. They are the bridge between the medical diagnosis and the way the child is affected in the classroom. In some cases, they will provided direct services, but more often consult with the classroom teachers to maximize the learning environment and suggest modifications and adaptations. (Please see our template letter "The Comprehensive Educational Evaluation After Hemispherectomy as an example).

"It is important to note that in most school systems, the psychologists and other individuals who conduct assessment such as these have little experience with visually impaired students. There tend to be fewer of these students compared to students with other disabilities. In addition, many of the standard assessment tests and instruments that they use are not geared to the needs of children with visual impairments - for example, they may require your child to respond to pictures, or the expected results may be based on development patterns that are not typical for visually impaired children. Therefore, it's important for the teacher of students with visual impairments to be

involved when these types of evaluations are conducted to provide suggestions about appropriate assessment procedures and help interpret the results. It's also important for you to remember that as a parent, you too are part of your child's educational team and can contribute information about your child if you have concerns about the assessment process."

From American Foundation for the Blind, Family Connect

Your child's school district should perform the following assessments annually:

- **A functional vision assessment (FVA)** explores how your child uses his/her remaining vision and helps determine how the field cut impacts the child's ability to navigate the school environment and access the educational curriculum;
- **A learning media assessment (LMA)** examines the way your child uses his/her senses to obtain information and indicates the most effective ways in which she can be taught reading and other skills;
- **An orientation and mobility (O&M)** assessment determines whether your child needs training in learning how to safely move through their environment;
- **An assistive technology assessment** identifies what kinds of assistive technology may be most helpful for your child.

FUNCTIONAL VISION ASSESSMENT

The functional vision assessment will help to determine how your child uses his/her residual and useful vision in everyday life, and to identify areas of concern in safety, navigation, and reading. Generally done by a Teacher of the Visually Impaired (TVI) within the school district, the assessment should include a combination of formal tests and informal measures which may differ depending on your child's age. The TVI will review your child's records, spend time observing your child as she/he goes through the day, and should interview you, your child, and the classroom teacher.

The functional vision assessment should include:

- near and distance visual acuity;
- visual field;
- contrast sensitivity, or the ability of your child to detect differences in grayness and between objects and their background—that is, how clearly your child can see the elements of an image;
- color vision, or the ability to detect different colors and also hues within a color;
- light sensitivity, or response to light (sunlight or artificial light)

However, the school will usually want confirmation of the problems with eye control and CVI, including visual field loss, from an ophthalmologist or optometrist as well. You should have those completed assessments from your child's ophthalmologist completed before each school year begins.

LEARNING MEDIA ASSESSMENT (LMA)

The learning media assessment is another key assessment conducted by the TVI. It is used to find out which senses your child uses most to get information from the environment. Some teachers of students with visual impairments combine both the functional vision assessment and learning

media assessment into one process.

Regardless of what alternate media your child uses, it is important that all printed material be made accessible, including:

- textbooks and worksheets;
- information on bulletin boards, whiteboards, and chalkboards;
- maps and other pictorial material;
- standardized tests;
- lunch menus, signs, notices to students, etc.

If your child is already reading and writing, the TVI will also examine your child's literacy activities (the way in which she reads and writes) as part of the learning media assessment, as well as the materials (known as **literacy media**) that she uses. The teacher may also assess your child's reading speed, the degree of fatigue she may experience when reading, and how well she understands what she is reading. Based on this information, the teacher can make recommendations, such as whether your child would benefit from learning how to use a particular low vision or assistive technology device.

ORIENTATION AND MOBILITY ASSESSMENT

An orientation and mobility (O&M) assessment examines a child's ability to travel safely both indoors and outdoors, and with or without assistance, in unchanging (known as **static**), changing (known as **dynamic**), and unfamiliar environments. (An example of a static environment would include your home where the arrangement of furniture is typically unchanged over time. A dynamic environment would be a playground, where children are running around at different speeds, balls are flying through the air, and games are being played.)

An O&M instructor is a professional who has specialized training in how to teach travel skills and concepts such as spatial awareness will conduct this assessment. The assessment itself usually involves a combination of interviews and observation to see if your child would benefit from formal O&M instruction. O&M assessments are conducted for children of all ages and ability levels, including children who are not yet walking, those in wheelchairs, and those who may never travel unassisted.

Some teachers of students with visual impairments (TVIs) are also O&M instructors as and are dually certified in both areas; however, although others have some basic knowledge in the area of O&M, they are not qualified to assess your child's skills and needs for O&M instruction unless they have received specialized training and hold certificates in both special education in visual impairment and in O&M.

This assessment should be conducted in familiar, unfamiliar, and visually static (unchanging) and dynamic (changing) environments. The assessment will look at:

- Orientation skills and methods;
- Body and spatial concepts;
- Safety while traveling, with consideration of the child's walking speed;
- Visual scanning skills;
- Ability to judge distance and depth;
- Evaluate any O&M skills has previously learned such as protective techniques, sighted (human) guide technique, trailing, and use of the long cane.

The O&M assessment should also consider functional skills such as:

- Activities of daily living: Can your child store belongings independently? Can she use money to pay the bus fare or make a purchase at a store?
- Social skills: How does your child interact with others? Does she know how to ask for assistance? When assistance is offered and she does not need it, does she know how to decline it appropriately?
- Planning: What skills does your child have when it comes to planning a route, whether it is from her classroom to music class, from your home to the neighbor's house, or across town to the public library?
- Literacy skills: How does your child make a note of information she needs during travel? Does she print or audio record a list of items she wants to purchase, information about the bus schedule, or emergency telephone numbers she can call if she were to become lost?
- Use of optical aids and assistive technology: When traveling, does your child use low vision devices to gather information, such as a monocular to see a building number or a street sign, or a magnifier to read a print bus schedule?

ASSISTIVE TECHNOLOGY ASSESSMENT

Assistive technology (AT) refers to the variety of tools and devices that children with visual impairments (and other disabilities) can use to more effectively access their educational environment. An assistive technology assessment is done to identify which devices your child would most benefit from using. This can include any piece of adaptive equipment from something as low tech as a slant board to a high tech communication device such as a Dynavox or iPad with a special app. Correction of refractive errors (need for glasses) should be carefully assessed to be sure the visual acuity is maximized for any AT.

A comprehensive assistive technology assessment should review the need for any assistive technology **devices** or **services** (low tech to high tech) needed for the student to benefit from education, including the use of such devices in the student's home or in other settings. This helps reduce the academic demands on the child via these resources if possible so as to free up cognitive resources for richer learning.

A child after hemispherectomy, TPO disconnection, or occipital lobectomy should receive an AT assessment in conjunction with any other visual evaluation so that during these evaluations there is consideration and understanding of the significant visual field loss and other impairments which result from these surgeries. This ensures that the other evaluators use assistive technologies such as a stand/mount to position equipment in the optimal visual field, preferred colors, or reducing competing sensory information through their evaluations.

In addition, consider consulting with the child's occupational therapist when exploring assistive technology tools to take into account any motor challenges (such as hemiparesis after hemispherectomy.) Consideration should be made for the fact that the child only uses one hand to manage devices. How is the student going to access their AT tools in multiple classrooms when seated at a different desk? Is there a plan to have student carry equipment from place to place and set it up independently in each classroom, if possible, or will support staff be provided to do so?

Lastly, the child should be assessed in a quiet room without interruption. Because some of these procedures may be combined with others that remove or disconnect one auditory cortex (located

in the temporal lobe and responsible for processing hearing and listening), children post-surgically almost always struggle with proper processing of sounds and words in noisy environments. A quiet room ensures they will not be distracted by environmental noise and give the best opportunity for accurate assessment.

The most successful AT assessments come with hands-on training for both staff and student, learning strategies, a viable implementation plan (with technology 'cheat sheets' if needed until tools become familiar), and AT goals that align with IEP goals.



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