

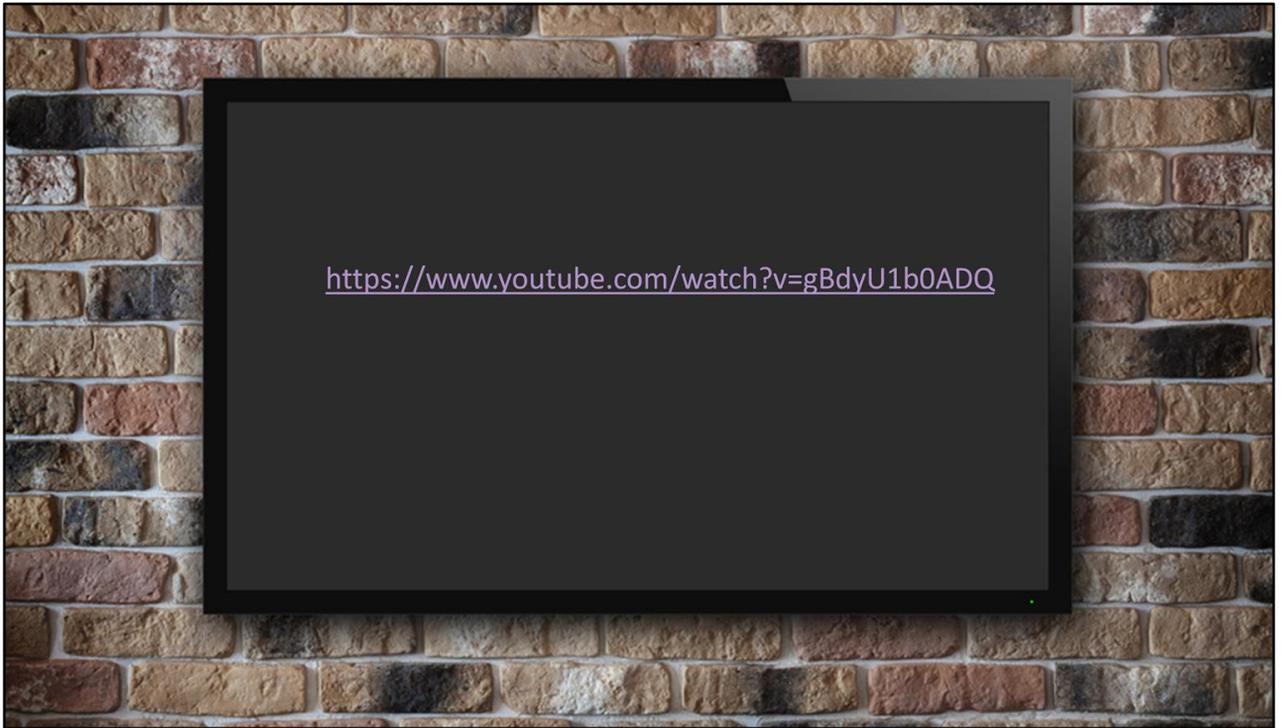


**VISION**

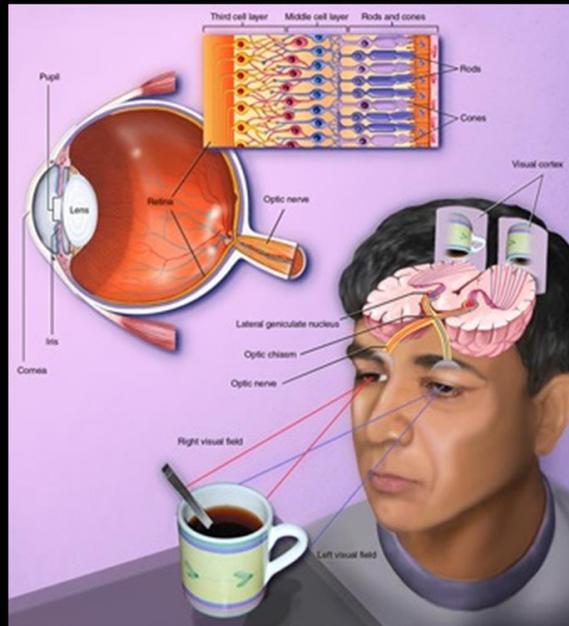


# Designated Service Coordinator Training

*Supporting Families who have children who are deaf, hard of  
hearing, visually impaired, blind or deaf-blind*



The following short video, about one and a half minutes, is a simple overview of some of the parts of the eye and the optic pathways to the brain. It is a good reminder that we actually “see” with our brains.



<http://www.brainfacts.org/sensing-thinking-behaving/senses-and-perception/articles/2012/vision-processing-information/>  
 Illustration by Lydia V. Kibiuk, Baltimore, Md.; Devon Stuart, Harrisburg, Pa.

On this slide, you see an illustration that labels the parts of the eye and central nervous system shown in the previous video, and an expansion on that information. The eye is a very complicated organ, and not every part of the eye is illustrated. If you have a child whose eye condition includes a part of the eye not in this illustration you will find information in the resources section later in this presentation under [American Foundation for the Blind Glossary of Eye Conditions](#).

As the video demonstrated, light bounces off objects, and passes through the cornea of the eye. The amount of light coming into the eye is regulated by the automatic adjustment of the iris, the colored part of the eye that controls when the pupil dilates and constricts. The light then passes through the lens of the eye, which also adjusts to focus on items as they are near or far. In young children, this skill is not fully developed. Ideally, the focusing power of the cornea and lens work together to pinpoint the light on the back of the eye on the part of the retina that sees the most detail. This point is called the macula, specifically the fovea. The fovea has the most rods and cones. Rods and cones are the nerves that pick up the light within the eye and turn the light into electrical impulses. Those impulses are sent to the optic nerve head, which an eye doctor can see inside the eye during a dilated examination.

Because of the shape of the lens of the cornea, all images passed into the eye are actually “reflected” onto the retina upside down. It is later within the visual

processing centers of our brains that we reverse the retinal image so that the image we finally perceive is right-side up.

Once the electrical impulse is at the optic nerve, the transmission to brain begins. Each eye, if typical, takes in light from each visual field. The right eye sees all the right visual field (which is the right eye's temporal visual field) and part of the left visual field (which is the right eye's nasal visual field). The left eye sees all of the left visual field (temporal visual field) and part of the right visual field (nasal visual field). The optic nerve from each eye moves back from the eye towards the brain, but something special happens at this point here, the optic chiasm. At this point the nasal section of each nerve crosses over and joins the nerve from the other eye. This is one of the biological features that help humans have binocular vision. Binocular vision is what allows us to develop depth perception.

Once the electrical signal reaches the occipital cortex, the actual visual processing begins. While this is the area where many visual processing tasks occur, other areas of the brain are also involved in accurate and efficient use of visual information.

# Definition and Prevalence

## *IDEA defines Visual impairment including blindness as ...*

- ...an impairment in vision that, even with correction (glasses or contacts), adversely affects a child's educational performance. The term includes both partial sight (also called low vision) and blindness.

## *Prevalence*

- Difficult to determine
- About 4% of preschoolers have myopia, 21% have hyperopia, and 10% have astigmatism (Borchert et al, 2011)
- 2.2% of children under age 4 were reported with a visual disability per American Community Survey

It is difficult to determine prevalence because many children with visual impairments have an additional disability, and are reported under that disability rather than under visual impairment, in both federal and state systems. It is believed that many reports are a low estimate.

# There is no newborn vision screening



<https://www.iowaoptometry.org/birth-to-age-three>

The vision test (ERG) similar to the newborn hearing screening is very invasive

<https://www.youtube.com/watch?v=R-S3p-ryHuU>

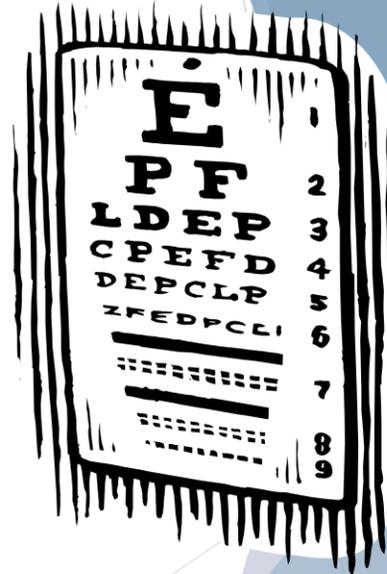
The retina is not fully developed at birth

The vision test similar to the hearing test used for newborn hearing screening would be testing an organ that is not fully mature.

One test (electroretinogram, or ERG, is very invasive and only done when absolutely needed for babies with possible retinal disease, at 6 months of age or older.

# Identification

- ▶ As early as possible
- ▶ Take Action If:
  - ▶ Suspected or diagnosed eye condition
  - ▶ Does not pass Functional Screen



This is information that all service coordinators should be aware of, even those who are not designated service coordinators:

It is important that we identify children as early as possible when vision is a problem.

Several visual conditions have a much higher chance for improvement and treatment when found early. It is also important to become aware of visual issues as young as possible because we know that children with visual loss have a high risk for developmental delay. When a visual loss is identified, we can provide appropriate intervention and work to avoid developmental delays.

There are basically two avenues that you, as the service coordinator, should consider when referring for follow up:

First, you will need to take action when a child is suspected or diagnosed with an eye condition. This would include a child who has been diagnosed with a potentially DSCC eligible condition.

Second, if a child does not pass a functional vision screening, you will take action.

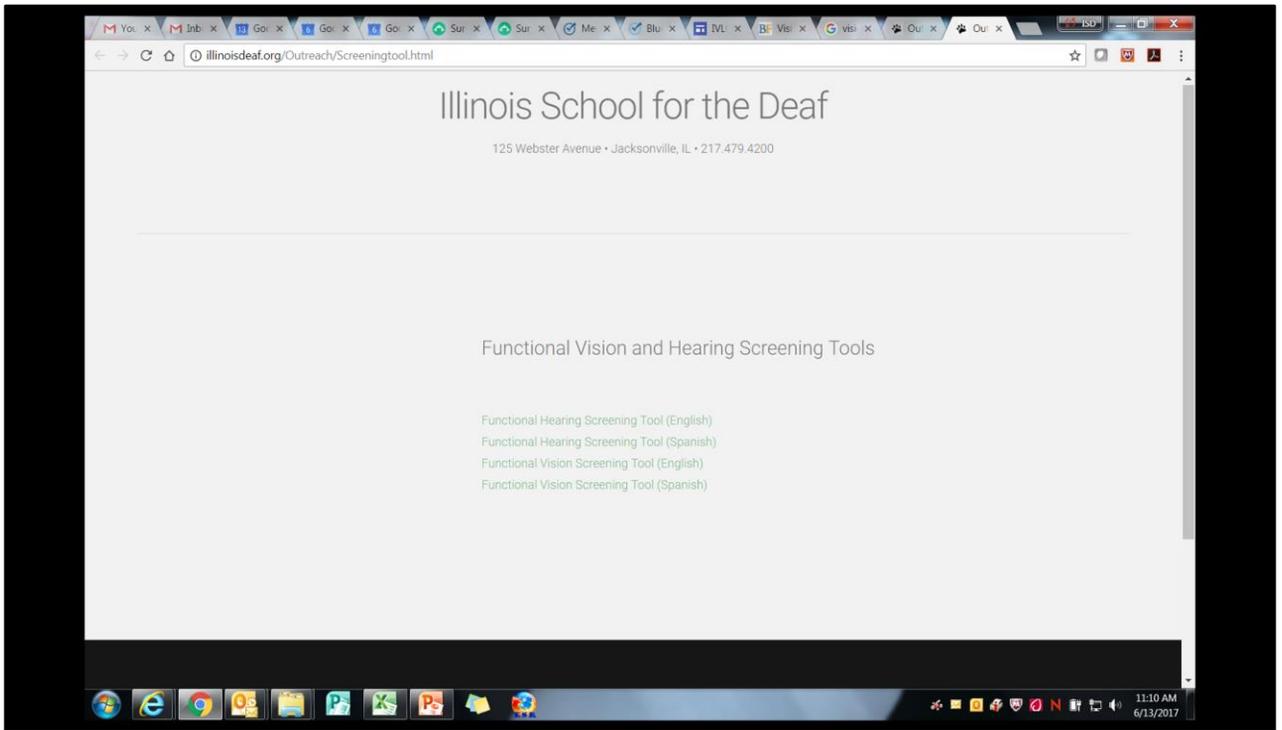
Let's look quickly at the functional vision screening tool and then we will discuss the appropriate actions for you to take in each of these situations.

# Illinois Vision Screening Tool available at:

[bit.ly/ISDOutreach](http://bit.ly/ISDOutreach)

- ▶ Tool available in English

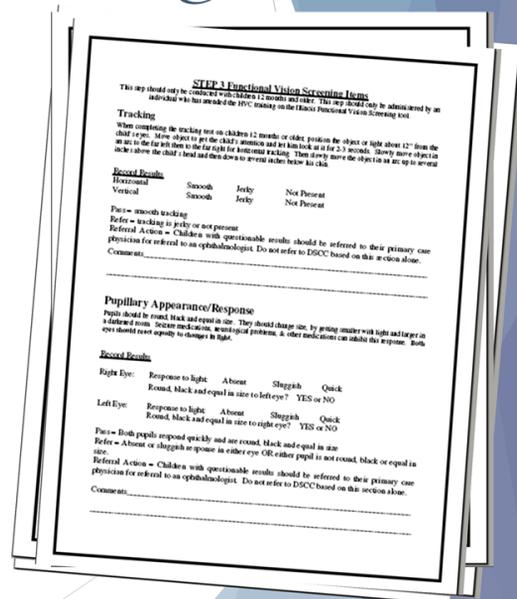
The Screening tool is available to you on the ISD Outreach WebSite.. The address is on your screen now.



Snapshot of the website and where to find the tools

# Functional Vision Screening

- ▶ Three Step Tool
  - ▶ Initial Observation
  - ▶ Developmental Sequence Checklist
  - ▶ Functional Vision Screening Items



All children should be screened for vision and hearing concerns. This screening typically happens during the global evaluation. Information gathered from the screening is used by all service coordinators as they prepare the IFSP. This information pertains to the domain area “physical development” which includes vision and hearing.

The Functional Vision Screening tool was developed in 2002 as a result of requests from those in the field that needed an avenue for determining what typical development really looked like. This has become our most popular training. We have heard great feedback from providers around the state who have helped families with early identification of vision issues.

There are three parts to the tool.

1. The first step is very quick. It is designed to point out obvious vision issues with heavy emphasis on issues that are the most common in our youngest population.
2. The second step is a quick checklist that helps providers and family members know what typical development looks like. The screener can interact with the child for a few minutes and check to see that the child is using vision in an age appropriate manner.
3. The final step is a little more involved. It consists of four testing items including pupillary response, field of vision, tracking, and eye alignment. The entire three-step screening typically takes about 10 – 15 minutes to complete. The tool looks at use of vision in a variety of aspects. Free trainings are offered around the state through IL School for the Deaf Outreach and IL School for the Visually Impaired on

the use of this three-part Illinois Functional Vision Screening tool. Those intending to use the tool are encouraged to complete the training. However, steps one and two can be used without the training and can be completed without use of step three. Training is strongly recommended for those who wish to include step three when using the tool.

The ideal time for the tool to be used is within the global evaluation both at initial and annual eval time. It can be completed by anyone, but it makes the most sense for the Developmental Therapist to incorporate screening tools for vision and hearing into the global evaluation each year. If at any point, a child does not pass a functional vision or hearing screening, it is time to take action.

It is important that someone is looking at the child's use of vision. If a concern is raised, you can respond in a way that will help the family address that need.

# Functional Vision Screening Alternative

## Infant See Program

- ▶ Only for babies 6-12 months of age
- ▶ Used in place of a functional vision screening
- ▶ Under the section of physical development on the IFSP
- ▶ [www.InfantSee.org](http://www.InfantSee.org)



There are alternatives to someone on the team doing a functional vision screening.

The importance of vision examination within the first year of life is gaining nationwide recognition.

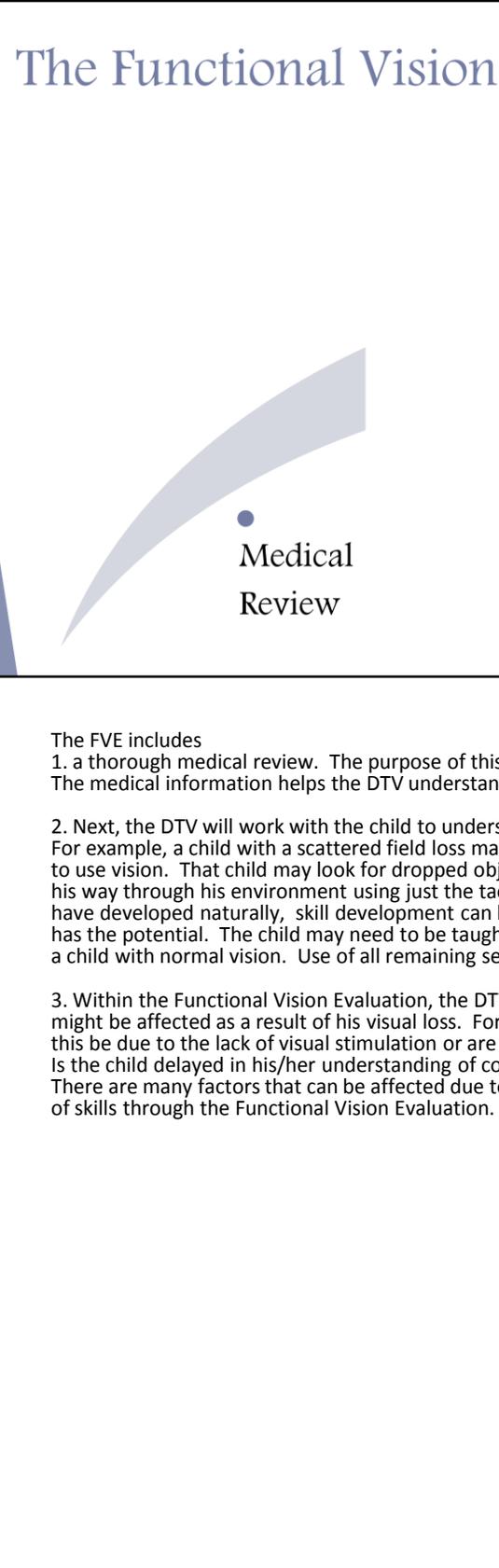
1. The **InfantSEE program** is one of the best ways to get FREE Infant eye exams from a participating local optometrist.
2. This is an avenue for ANY child ages 6-12 months to get a free eye exam.
3. This is one option that could be used as an alternative to the completion of a functional vision screening. It would be appropriate for service coordinators to make ALL families with infants ages 6-12 months aware of this opportunity regardless of whether there is a specific vision concern or not.
4. The results from this InfantSEE examination can be used when information is being gathered related to the five domain areas at intake or annual review, provided the exam was within the previous 6 months.
5. Go to [www.infantSEE.org](http://www.infantSEE.org) and use the doctor locator to find a local optometrist that offers free eye exams for infants ages 6-12 months. When families call, they must ask for an Infant See appointment. Most doctors only have a limited number of Infant See appointments each week and do not generally offer the information to families who do not ask for it.

## The Functional Vision Evaluation (fve)

- ▶ Developmental Therapist Vision Evaluator
- ▶ Procedure Code:
  - ▶ 99199 Visual Evaluation Assessment

Children with identified visual concerns will need a Functional Vision Evaluation. The FVE is completed by a Developmental Therapist Vision Evaluator. The codes used for authorizing a FVE are found under Vision. Be sure to use the code for FVE and NOT for an optometric exam. The codes are 99199 Vision Evaluation Assessment.

# The Functional Vision Evaluation (fve)



●  
Medical  
Review

The FVE includes

1. a thorough medical review. The purpose of this review is to understand the vision the child has and will have. The medical information helps the DTV understand what the child actually HAS as far as visual potential.

2. Next, the DTV will work with the child to understand how the child is using the vision that he/she does have. For example, a child with a scattered field loss may find his/her vision so inconsistent, that he/she may choose not to use vision. That child may look for dropped objects tactilely, may recognize familiar toys tactilely, and may find his way through his environment using just the tactile and auditory sense. While this child's compensatory skills have developed naturally, skill development can be enhanced by effective use of the vision for which that child has the potential. The child may need to be taught to use his vision, a skill that would have developed naturally in a child with normal vision. Use of all remaining senses will allow the child the most independent future possible.

3. Within the Functional Vision Evaluation, the DTV will also work to understand how the child's development might be affected as a result of his visual loss. For example, is the child displaying a lack of muscle tone? Could this be due to the lack of visual stimulation or are other more typical motor factors behind the muscle tone issues. Is the child delayed in his/her understanding of concepts such as object permanence or use of common objects? There are many factors that can be affected due to a lack of visual experiences. The DTV will cover a broad range of skills through the Functional Vision Evaluation.

# Two different evaluations

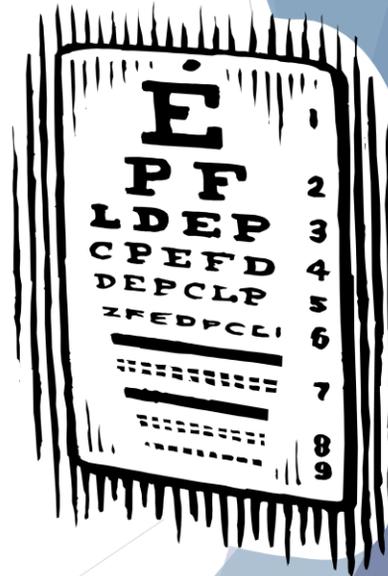


The FVE covers use of vision, compensatory skills, and will also include many aspects similar to a global evaluation— but the child will still need another therapist to do an evaluation that focuses on Global Development. The focus of the FVE is visual in nature rather than a test of global developmental skill levels. In the team discussions, these two reports will offer a very thorough understanding of where the child is in overall development with considerations for the visual loss.

# Next Steps

## Take Action If:

- ▶ Diagnosed eye condition
- ▶ Did not pass Functional Screen
  - ▶ Action:
    - ▶ DSCC when appropriate
    - ▶ EI Authorization for DT/V when appropriate



We outlined the first situation in which

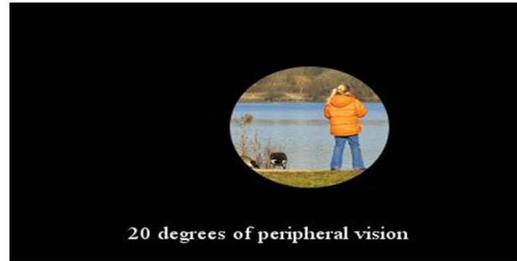
1. action should be taken –
2. that being if an eye condition is suspected or diagnosed as a primary concern. This would include instances when referral is indicated on reports gathered from an optometrist or an ophthalmologist.
3. The second situation occurs when a child does not pass a functional vision screening.
4. The child should be referred for follow up according to the appropriate procedures:
  - A *Screening Device for Determining Family Fees and Eligibility for All Kids and DSCC* form is completed at intake and a referral made to DSCC, if not already done, when a child presents with an eye impairment as a primary concern. In addition, when indicated by an optometrist or ophthalmologist report or as a result of the functional vision screening tool, a referral to DSCC should be made. If the child is DSCC eligible, ongoing support following diagnostics is provided by DSCC based on financial need. Children with an eligible eye impairment would be medically eligible for DSCC care coordination services, regardless of family income.
  - When it is identified that a child needs a referral to an optometrist, an optometric examination and a dispensing fee for eyeglasses should be authorized, when an enrolled optometrist is available. If no enrolled optometrist is available, the CFC should proceed with the provisional authorization process, following the procedures provided in the Provider Selection and Provisional Authorization Process section of the CFC Procedure Manual. When available, a family's private insurance will be billed for the optometric examination. Eyeglasses for children in EI are purchased through the IL Department of Corrections, at no cost to the family or its insurance. In addition, the service coordinator can refer for medical services using resources outside the Early Intervention system.

Take a moment to look back through the Illinois Functional Vision Screening Tool in your handouts. Notice that referral actions are also listed within the tool to help you determine appropriate follow up steps. Remember, early identification of vision concerns is important for healthy child development. A question about a child's ability to use vision – should always be followed up with an examination by an optometrist or ophthalmologist and not JUST a functional screening.

## Most common eye conditions & visual impairments in young children

- Refractive errors (often not a visual impairment)  
(myopia/hyperopia/astigmatism)
- Strabismus/amblyopia (often not a visual impairment)
- Optic nerve hypoplasia
- Retinopathy of prematurity
- Cortical/Cerebral Visual Impairment (CVI)

# Acuity and Field Loss



<https://theamazingeye.wordpress.com/2008/03/17/you-too-can-be-legally-blind-for-599/>

Three of the pictures above have been modified to demonstrate two types of visual impairments. The pictures on the top left represents typical vision. In this picture you can see a child with a blind pony-tail in an orange coat near an adult in a black coat. They are both wearing blue jeans, and their backs are to us. They are near a body of water, with some geese to their left. If you look carefully by the adult, you can see a black dog of a red leash.

If you look to the picture to the right, there is a simulation of 20 degrees of peripheral vision, in which only the items in the center of the photo can be seen. The child in the orange coat, and one or two geese are visible, as is a smaller amount of the water. The other geese, along with the adult and dog, are nowhere to be seen. A variety of eye conditions might lead to vision loss like this, including retinal diseases like retinitis pigmentosa (also called RP), some retinal tears, and some optic nerve conditions, for example.

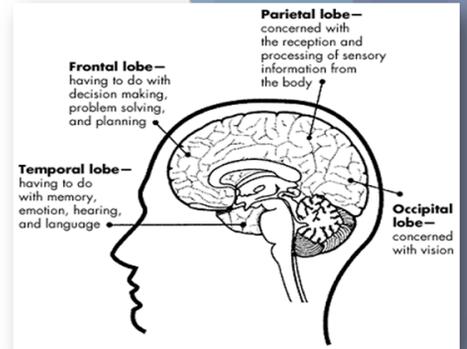
In the bottom left picture, 20/200 visual acuity is demonstrated. Acuity means clearness. 20/200 acuity, as well as 20 degree of vision, have been designated as “legal blindness” by many programs that offer funding or services for individuals who have visual impairments. In this picture of 20/200 acuity, the people in orange and black coats are visible, but the hair detail in the child is not apparent. It is difficult to tell if the birds on the left are geese or ducks. It is less clear that there is also a dog in the picture. Conditions that might lead to 20/200 vision include albinism, glaucoma, In the final picture on the bottom right, 20/400 vision is demonstrated. In addition,

central vision has been removed in the way peripheral vision was removed from the picture above it. The differences between the two persons in the picture are not apparent at all, and the visual information about the animals in the photo are all but lost. Conditions that might lead to similar vision might include corneal abrasions and diseases or macular degeneration.

It is vital to note that one can never make a perfect correlation between a specific eye condition and a specific visual simulation. Each child's visual experience will be different, and eye conditions have a spectrum of impact on vision and development.

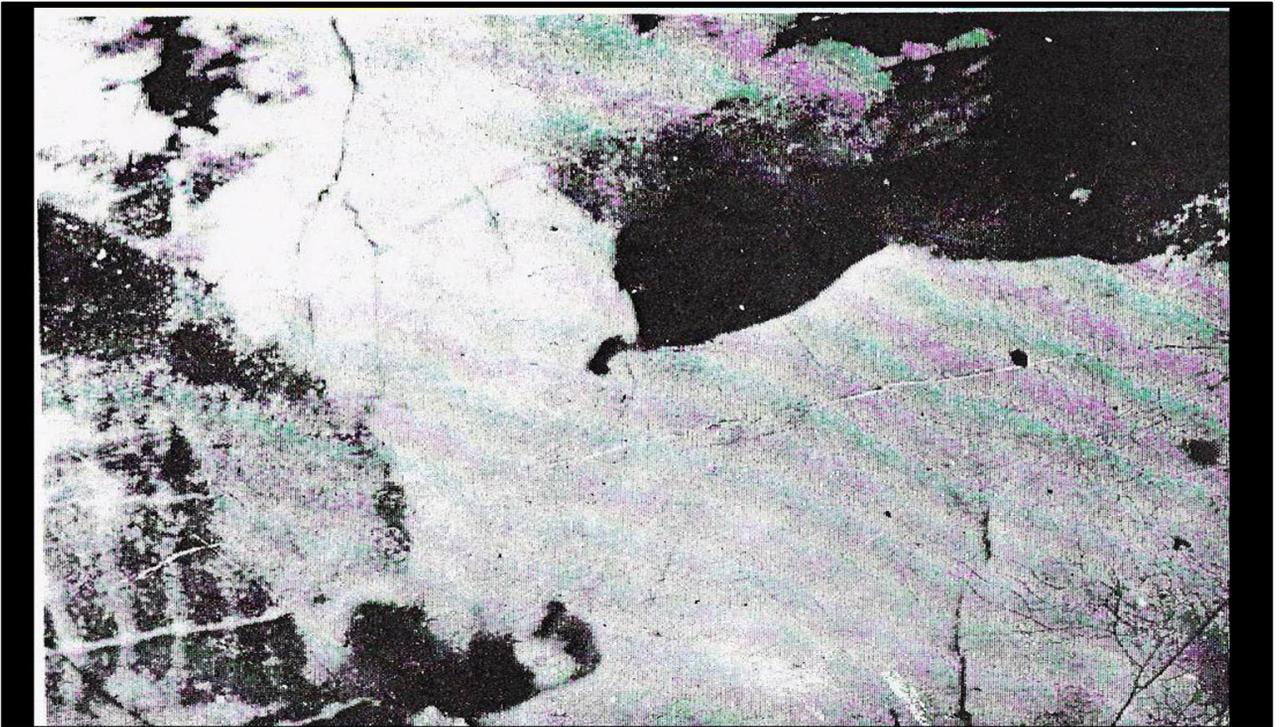
## Cortical/Cerebral/Neurological Visual Impairment (CVI)

- Inability of the brain to process visual information
- Effects vary greatly
- Caused by MANY things
  - Diagnosis may be made by medical evidence early in life or by symptoms later in life.
  - May occur along with other visual conditions.
  - New research shows that specific activities can help to partially “resolve” CVI issues if it begins early enough
  - Simulating CVI is very difficult to do because it varies so widely from child to child



<https://science.education.nih.gov/supplements/webversions/BrainAddiction/guide/lesson1-1.html>

As you learned earlier, the brain is a large part of the visual system. Any damage to the brain, especially to the occipital lobe (here the area on the right side of the brain) has the potential to impact vision. Like ocular conditions that cause visual impairment, it is not possible to say that there is always a specific visual outcome when a young child has CVI. However, the following simulation may help us understand the frequent frustrations and learning challenges that children with CVI may face due to vision difficulties. When we switch to the next slide, I want you to figure out what you are looking at. I will gradually support you. While we are looking, please work on your own and do not call out any answers. I will help each of you understand what we are seeing before we move on.



So looking at this, raise your hand if you know what is in the picture...

I will give you a hint, it is just one thing, not a lot of little things or a scene...

In fact, it is so big, not all of it can fit in the picture, just part of it...

It is a thing that used to be found in Chicago, it was kind of a craze for a while...

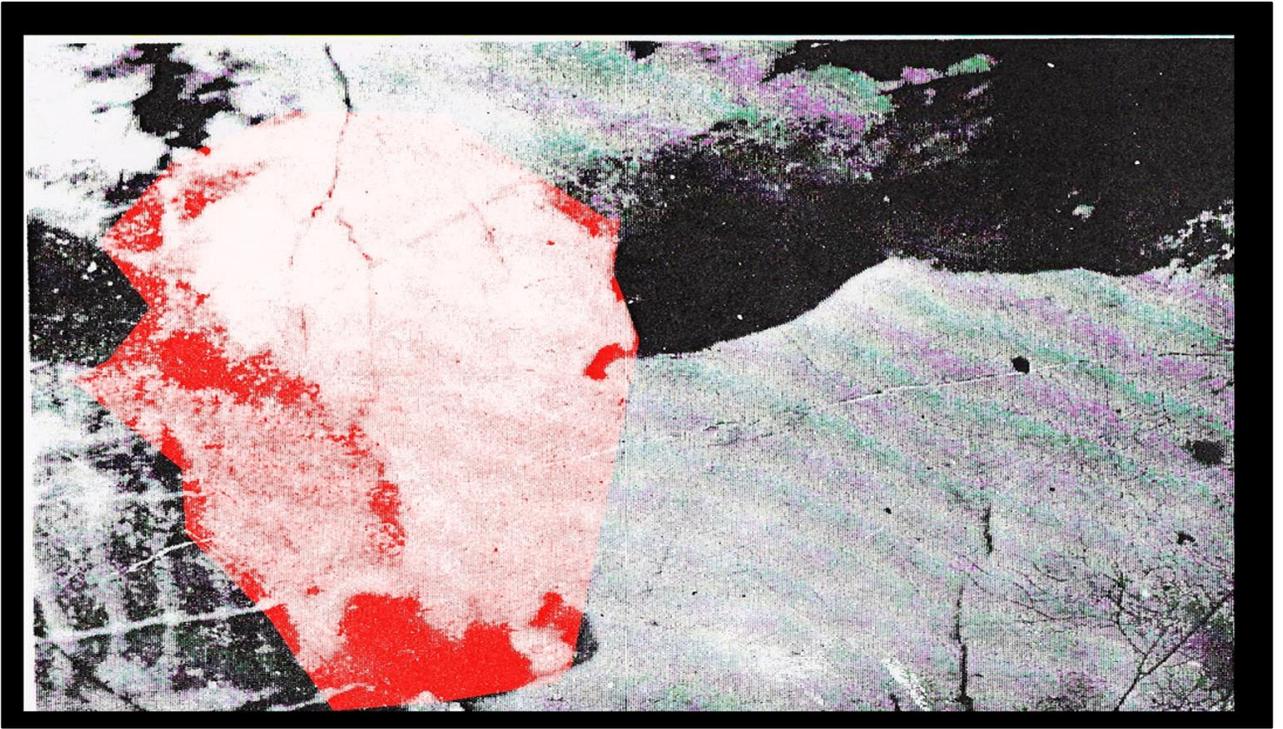
Now it is more often found on a farm...

Some people drink it's milk...

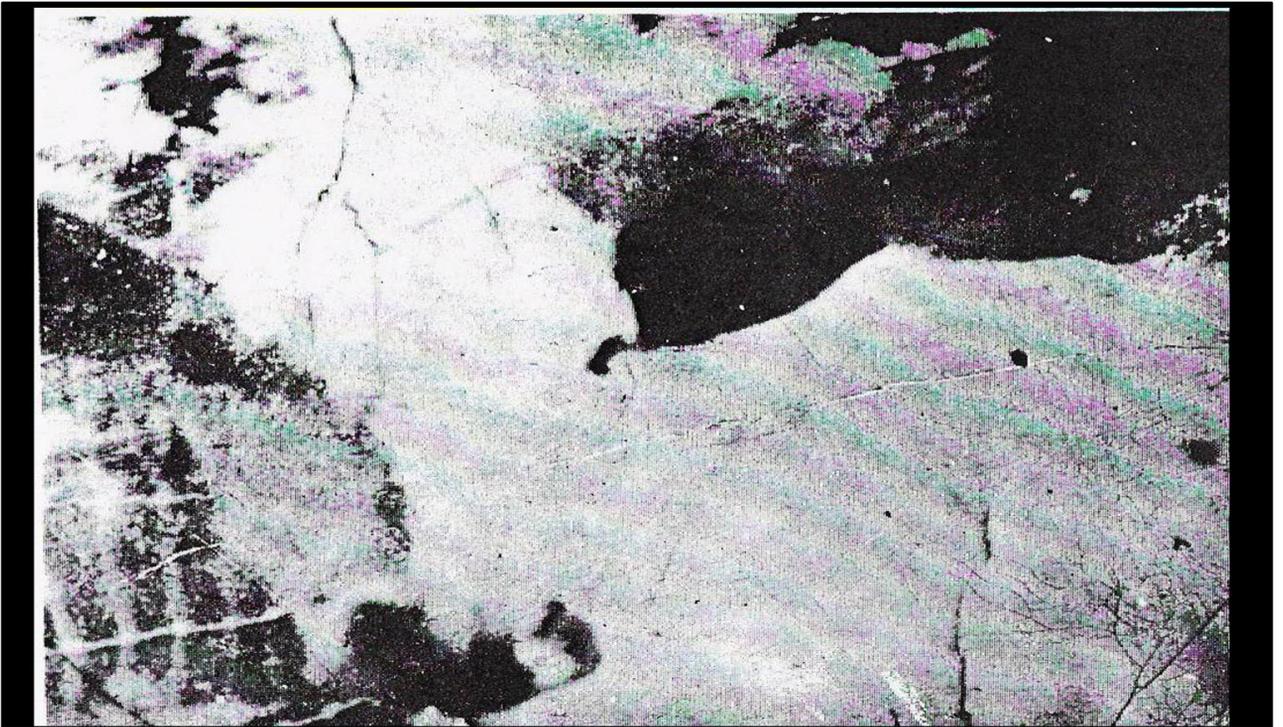
It is a cow...

It is the face and shoulders of a cow...

It is standing so you see the upper left side of it's body, and it is turning it's head to look directly at us and facing us...



In this frame, it's face is in red, and here are it's eyes, its nose, and its ears...



Now can you see it?

Was that hard work? Was it frustrating to use your vision? Did you have to concentrate? Did somethings help you use your vision, and did other things make it more difficult? That is the best I can do to try and simulate what it may be like, sometimes, for some children with cerebral visual impairment. For other children i may be very different.

▶ Support Contact:

▶ Andrea Marwah

▶ 708-409-8800

▶ [Andrea.marwah@illinois.gov](mailto:Andrea.marwah@illinois.gov)

▶ [www.soundbeginnings.com](http://www.soundbeginnings.com)



# Website Link

*This is where all your training materials  
will be housed.*

<http://www.illinoissoundbeginnings.org/>

www.illinoisoundbeginnings.org

For Families For Providers For **For baby Facilities** Resources Search

**Illinois** *Detection & Intervention Program*

- DSC Training
- Colic and Vomiting (CMV)
- ECHO - OAE Hearing Screening
- EHDI News for Physicians
- EHDIPALS.org
- EHDI Workgroup Webinars
- Guide By Your Side (GBYS)
- Reporting Resources




**UIC** UNIVERSITY OF ILLINOIS AT CHICAGO

**NEWS**

- [Learn American Sign Language \(9/21/2016\)](#)
- [ECHO Initiative webinars \(7/6/2016\)](#)
- [Introducing the Newest EHDI Physician Champion \(7/29/2015\)](#)

[Prev](#) | [Current](#) | [Next](#)

**PROGRAM PARTNERS**

UIC - Division of Specialized Care for Children  
Tel: 800-322-3722 TTY 217-785-4725  
Fax: 217-558-0773

Illinois Department of Public Health  
Tel: 217-782-4733

Illinois Department of Human Services  
Tel: 800-843-6154 TTY 800-447-6404

**EVENTS**



Illinois EHDI works with parents and providers to ensure all babies get screened for hearing loss no later than 1 month of age; all infants who do not pass their hearing screen receive a diagnostic evaluation no later than 3 months of age; and all infants with a hearing loss enroll in early intervention services no later than 6 months of age.

www.illinoisoundbeginnings.org/page.aspx?item=66

Detection & Intervention Program



## ILLINOIS SCHOOL FOR THE DEAF OUTREACH

**FREE** training and consultation for Illinois children  
with hearing loss

[bit.ly/ISDOutreach](http://bit.ly/ISDOutreach)



Search for Illinois School for the Deaf Outreach



State of Illinois  
Dept. of Human Services  
Illinois School for the Deaf

**Bruce Rauner, Governor**  
**James Dimas, Secretary**  
**Julee Nist, Superintendent**