



# Texas School for the Blind & Visually Impaired Outreach Programs

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## **Early Identification of Hearing and Vision Loss Is Critical to a Child's Development**

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### **Importance of vision and hearing to development and learning**

Although every one of our senses plays a role in early development, vision and hearing certainly seem to lead the way. Much of early parent/child bonding has to do with the child's ability to make eye contact and sustain a gaze with his parents, respond to their voices by gurgling and cooing, and to be comforted by the sight and sound of them.

Much of the reason an infant is motivated to move is because he sees or hears something that intrigues him. He learns that things and people exist in the world primarily because he sees and hears them come and go. He visually tracks an object he pitches to the ground or hears it hit the floor. That tells him the object still exists, even though it is not in his hands any longer. When she cries she can hear Daddy calling to her or see Momma walk into the room. She can inspire her parents to linger and play with her by cooing and making eye contact, the earliest form of conversation. He learns about size, shape, color, functions of objects, social interactions, and so much more just by listening and looking at the world at work. Early development has critical links to a child having full use of his/her vision and hearing. When these senses don't work perfectly or not very well, everything is impacted.

### **It's hard to tell a parent there may be vision and hearing issues**

Professionals working with infants and families may have a hard time suggesting that there is a problem with a child's vision or hearing. This is especially true when the family is already dealing with their child's other medical or disability issues. After all, a family can only deal with so much at one time. Because infants are much harder to test for vision and hearing loss, many mild impairments (or sometimes even major impairments) may not be diagnosed quickly. Subjecting the family to another round of testing is always a hard call.

## **Learning about hearing and vision loss immediately is critical**

As we said earlier, much of the sensory information that is vital to children's development comes through the senses of vision and hearing. During the first three years of a child's life major neural networks are being formed in the brain. Much of this development comes from distance senses, i.e., vision and hearing, which allows us to know about things and people in the world even when we are not in physical contact with them. After the first three years, development of these neural networks becomes slower. Skills that may be gained in early intervention cannot be made as quickly when the child is older.

For these and other reasons, children should be regularly checked for vision and hearing problems. We know that even mild problems with these senses can have major impact on learning. A mild hearing loss in a noisy home or daycare center can result in a child who misses critical bits of information. He may miss sounds that let him develop normal language and speech patterns. He may miss instructions his parents or babysitter gave him and appear to be misbehaving. He may become withdrawn because he is not sure what is expected of him. If he has a visual field loss, he may constantly be stumbling over things. This has great impact on self-concept. A child who is sensitive to light may not enjoy or feel secure playing out of doors.

Every child, with or without a disability, should have regular and periodic vision and hearing checks. If the child is severely disabled, this can be even more important since their other senses may not be as useful in compensating for what they miss visually and auditorially. In fact, this is so important that schools complete vision and hearing screenings at regular intervals throughout the remainder of the child's educational career. These types of screenings are even more critical from birth to age three.

## **Parents should trust their intuition**

Parents know more about their child than anyone else does. Often we meet parents who tell us that they knew something was wrong with their child's vision and hearing before any of the doctors mentioned it. In fact, many have been told that they shouldn't go looking for trouble or that their child would "grow out of it."

Parents should trust themselves when they feel there is something wrong with the way their baby uses his vision or hearing. They should feel comfortable insisting that vision and hearing are tested, especially if their child is at high risk for vision and hearing loss.

## **Red flags**

There are many red flags associated with vision and hearing loss. Below are the syndromes, diseases and conditions, listed on the Texas Deafblind Census, that put a child at high risk for deafblindness. Children with these etiologies should be watched closely for vision and hearing problems.

### **Syndromes, Diseases and Conditions**

#### **Pre-Natal/Congenital**

Congenital Rubella

Congenital Syphilis

Congenital Toxoplasmosis

Cytomegalovirus

Fetal Alcohol Syndrome

Hydrocephaly

Maternal Drug Use

Microcephaly

### **Neonatal Herpes Simplex**

#### **Post-Natal/Non-Congenital**

Asphyxia

Direct Trauma to the Eye and/or Ear

Encephalitis

Infections

Meningitis

Severe Head Injury

Stroke

Tumors

Chemically Induced

#### **Related to Prematurity**

Complications of Prematurity

#### **Hereditary/Chromosomal**

Aicardi

Alport

Alstrom

Apert

Bardet-Biedl

Batten Disease

CHARGE

Chromosome 18, Ring 18

Cockayne

Cogan

Cornelia de Lange

Cri du Chat

Crigler-Najjar

Crouzon

Dandy Walker

Down

Goldenhar  
Hand-Schuller-Christian  
Hallgren  
Herpes-Zoster (or Hunt)  
Hunter (MPS II)  
Hurler (MPS I-H)  
Kearns-Sayre  
Klippel-Feil Sequence  
Klippel-Trenaunay-Weber  
Kniest Dysplasia  
Leber's Congenital Amaurosis  
Leigh Disease  
Marfan  
Marshall  
Maroteaux-Lamy  
Moebius  
Monosomy 10p  
Morquio  
Norrie  
NF-Neurofibromatosis (von Recklinghausen Disease)  
NF2-Bilateral Acoustic  
Neurofibromatosis  
Optico-Cochleo-Dentate  
Degeneration  
Pfeiffer  
Prader-Willi  
Pierre-Robin  
Refsum  
Scheie (MPS I-S)  
Smith-Lemli-Opitz  
Stickler  
Sturge-Weber  
Treacher Collins  
Trisomy 13 (Trisomy 13-15, Patau)  
Trisomy 18 (Edwards)

Turner  
Usher I  
Usher II  
Usher III  
Vogt-Koyanagi-Harada  
Waardenburg  
Wildervanck  
Wolf-Hirschhorn (Trisomy 4p)

Sometimes the child's etiology is unknown or the child may have only one diagnosed sensory loss. Professionals working with infants and young babies, as well as parents, should be aware of the red flags that may indicate a problem with either vision or hearing.

## **Hearing Loss**

### **At Risk Factors**

Malformation of the ear, nose, and throat  
Rubella during pregnancy  
Rh incompatibility  
Family history of hearing loss  
Apgar score from 0-3  
Severe neonatal infections  
Meningitis  
Low birth weight (under 3.3 lbs.)  
Hyperbilirubinemia  
Ototoxic medications  
Severe respiratory distress and/or prolonged mechanical ventilation (10 days or more)  
Neurodegenerative disorders  
Childhood infectious diseases such as mumps and measles

(Hearing, Speech and Deafness Center website, <http://www.hsd.org/>, June 2001)

### **Behavioral Indicators**

The child does not stop moving, does not quiet in response to speech, and/or does not arouse from light sleep to sudden loud noises.

At about 4-7 months, the child does not turn to sounds and voices or give an indication of detecting a sound source by eyes widening or blinking, fussing or quieting, increasing or decreasing overall activity level, changes in breathing or sucking patterns.

There is a lack of babbling, cooing, grunting, or the child stops these behaviors and does not

progress to speech.

The child does not respond to familiar sounds (such as mom's and dad's voices) by cooing/gurgling when he cannot see them.

The child does not use speech at an age when most children are beginning to use speech (approximately 9-12 months).

(SKI-HI Institute, 1998)

## **Vision Loss**

### **At Risk Factors**

Family history of vision loss (Retinoblastoma or Albinism)

Malformation of the ear, nose, and throat

Prematurity and low birth weight less than 3 lbs.

Birth trauma/head trauma

Anoxia

Cerebral Palsy

Congenital viral or bacterial infections (Rubella, CMV, Syphilis, Group B Streptococcus Infection, Toxoplasmosis, Chicken Pox, HIV)

Meningitis, Encephalitis, Hyperthyroidism, Microcephaly

### **Behavioral Indicators**

The child does not have eyes or eyelids that look typical.

The child does not recognize caregivers' faces or smile in response to their smiles around the age of 3 months.

He does not get excited when he sees his bottle or other familiar objects he likes.

At 4-6 months, the child's eyes do not seem to move together when following an object or person.

The child may turn or tilt his head in unusual positions when looking at an object.

The child may hold an object very close to his eyes.

The child may over-reach or under-reach for objects (accurate reaching usually occurs around 6 months).

## **What do you do?**

If there is a concern about vision or hearing, your ECI program should make a referral to the appropriate medical professional. We would like to encourage ECI personnel to work closely with their Teacher of the Visually Impaired, Teacher of the Deaf and Hearing Impaired, and/or TCB Children's Caseworkers in helping the families prepare for the doctor visits. These professionals have much to offer to the process. They can usually share the names of doctors, audiologists, and vision specialists who have more experience working with disabled children. Often they can guide the ECI professional and parents in compiling a list of concerns related to the way the child uses his vision and hearing. More importantly, they can provide parents with information about the types of testing that may be done and how to help prepare the child for testing. This level of support can be provided before an actual vision or hearing referral has

been made.

Parents and professionals must keep a close watch on a child's progress related to vision and hearing. Hearing and vision issues must not be ignored, especially if the child has other disabilities. When a problem is suspected, no time should be lost in following up on the concern. We owe it to our children not to lose that critical window of time between birth and age three. When early intervention can make such major differences in life-long functioning, they can't afford to wait.

## **References and Resources**

Hearing, Speech and Deafness Center website, <http://www.hsdcc.org/>, June 2001. Early identification of hearing loss. From Communication Update, published on HSDC Website, copyright 1996-99.

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SKI-HI Institute, 1998. Auditory development. Understanding Deafblindness: Issues, Perspectives, and Strategies. SKI-HI, Utah State University, Logan, Utah, p. 21.

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