

SoundBeginnings

A Kansas Resource Guide

**For Families With Infants and Toddlers
Who Are Deaf/Hard of Hearing**

SoundBeginnings

ACKNOWLEDGMENTS

Sound Beginnings expresses extreme gratitude to members of the Early Intervention Task Force for sharing their expertise, time and energy to develop the Kansas Resource Guide for Families with Infants and Toddlers who are Deaf/Hard of Hearing. Their commitment demonstrates their strong belief in the importance of providing a broad scope of information about **early** intervention to families and service providers. A special note of appreciation is given to **Jane Schwartz**, Chair of the Task Force, who maintained our focus. Special thanks to Judy Conley, Hartley Family Center, who typed many drafts of this document.

Early Intervention Task Force Members

Jane Schwartz, MS, Teacher of the Deaf/Hard of Hearing and ECSE, Rainbows United, Inc.
Carol Busch, MS, Teacher of the Deaf/Hard of Hearing and ECE, Kansas State School for the Deaf
Stephanie Frost, MS, Ed, Teacher of the Deaf/Hard of Hearing, Russell Child Development Center
Liane Garner, MS, CCC-SLP, Speech-Language Pathologist, Director, St. Joseph Institute for the Deaf
Lynn Hayes, EdD, Director, Hartley Family Center University of Kansas Medical Center
Janea Kuda, CED, Teacher of the Deaf/Hard of Hearing, St. Joseph Institute for the Deaf
Teresa Kennalley, MA, Director of Audiology, Via Christi Medical Center
Valerie Kerschen, MD, Developmental Pediatrician, Wesley Medical Center
Brenda Lancaster, Parent of children with hearing loss
Lorraine I. Michel, PhD, CCC-SLP, Director, Children's Developmental Services, KDHE
Dawn O'Brien, M Ed, Assistant Director, Kansas Commission for the Deaf and Hard of Hearing
Molly Pottorf, MA, CCC-A/SLP, Audiologist, Via Christi and Wichita Public Schools
Carmen Schulte, MA, CCC-A, Audiologist, Wichita State University
Marla Staab, MS, CCC-SLP, Coordinator of Clinical Services, Herndon Clinic, Fort Hays State Univ.
Kim Symansky, MA, Early Childhood Teacher of the Deaf/Hard of Hearing, KS School for the Deaf
Kim M. Sykes, MA, CCC-A, Coordinator of Newborn Hearing Screening, KDHE
Cindy Wiechman, Parent of a child with hearing loss
Judy Widen, PhD, Associate Professor, Audiology, University of Kansas Medical Center

Kansas Commission for the Deaf and Hard of
Hearing
3640 SW Topeka Blvd., Suite 150
Topeka, KS 66611-2373
(800) 432-0698

Kansas Department of Health and Environment
Newborn Hearing Screening Program
Infant-Toddler Services
Services for Children with Special Health
Care Needs
Make A Difference Information Network
900 SW Jackson, Landon State Office Building
Topeka, KS 66612-1220
(800) 332-6262

Graphic designs for "Sound Beginnings" by Craghead and Harrold, Inc., Wichita, KS.

Quotes from Kansas Parents.

Guidelines will be reviewed every two years and updated as needed.

"Even though I knew before the testing that my daughter was not hearing, I did not want to believe it when they told me the results. I wasn't going to let this hold her back."

Mother of a child with severe/profound hearing loss and vision loss.

"A million things were running through my mind...will I have to learn sign language? Who will help us? Who can help us? So many questions. I love my son, and our family will do whatever it takes to see him succeed."

Father of a deaf child.

"I'll never forget those words..... 'Mom, I'm afraid your son can't hear you.' I immediately started to cry like a baby. One year later he is responding great with his hearing aids and our family is getting better at sign language all the time. We now know that it's not the end of the world..... he'll just use a different form of communication and that is okay. It just makes him more special."

Mother of a deaf child.

"We had some tough choices in the beginning, but we decided we wanted our sons to be able to work in the world without the world having to change for them. Through speaking and listening, our oldest son functions in the hearing world just like a hearing person. We know the same is possible for our baby."

Father of two deaf sons

"After I got over the initial shock of the doctor telling me my son has a hearing loss, I told my wife this will make a great story during the Olympics or his political campaign. I never had a doubt that my son would overcome this and be a great person. Then when our infant daughter was diagnosed, it didn't make it any easier but I knew we, as a family, could handle it."

Father of two children with moderate hearing loss.

"There is a reward at the end of the journey – to see your child go out into the world and get married, get a job, become a homeowner, etc. You remember that many of your fears were unfounded. Our daughter is a happy, healthy, productive, and delightful adult."

Parent of a profoundly deaf young adult.

PREFACE

Over 24,000 children are born every year in the United States with some level of hearing loss. Studies have shown that the earlier a child is identified with a hearing loss and begins early intervention, the more likely they are to develop language and communication skills on par with their peers, and lead full and productive lives.

Kansas enacted legislation, effective July 1, 1999, to provide screening for the early detection of hearing loss in newborn infants. Newborn hearing screening makes a difference for all children and their families: information about hearing and typical hearing milestones is valuable for all parents in the care of their child. One of our nation's goals is to confirm hearing loss by three months of age, with appropriate intervention by six months of age. Early detection of hearing loss in an infant, early medical management as needed, and the initiation of early intervention and treatment before six months of age has been shown to be highly effective in promoting a child's development. **Early intervention services, as desired by the family, should begin as soon as possible.**

The Resource Guide is based on the following beliefs:

A child with a hearing loss and his or her family should have access to:

- ★ Assessment, diagnosis, and intervention as early as possible.
- ★ Family-centered programs that provide early language acquisition.
- ★ Information about where to receive health and medical services.
- ★ Natural language development through the visual and/or auditory channels as early as possible.
- ★ A linguistically rich environment.
- ★ Qualified personnel who are proficient in the family's preferred mode of communication and primary language.
- ★ Children and adult role models who share the family's communication mode and primary language.
- ★ An early intervention program that embraces high expectations, standards, and evaluation criteria.
- ★ An early intervention program planned and delivered by qualified personnel in collaboration with the family.
- ★ The most current resources and assistive technology.

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INTRODUCTION

This Resource Guide has been designed for you to read at your own pace. You may find yourself reading some sections now and some later. It may be helpful to read certain sections more than once.

You can use this Resource Guide to find out about:

- ★ Dealing with feelings
- ★ Community support systems, resources, and programs
- ★ Hearing, hearing testing, hearing loss, and amplification
- ★ Choices for communication
- ★ Resources for financial assistance

As you look over this guide, you may think of questions and ideas you haven't considered. There is no one "right" way when it comes to finding the program that will help your child to succeed. You will make many decisions in the days ahead. Give yourself the time you need. Your child's needs, as well as the needs of your family, will change with time. Remain open to new ideas.

"Now I know there are so many ways to say 'I love you' that don't have to be heard."

Mother of two children, moderate to profound hearing loss.



FEELINGS AND EMOTIONS

*“Hearing is the only thing your child can’t do today,
that you thought he could do yesterday.”*

Most people do not know much about hearing loss and what it means for their child and family. You may not have heard much of what was said after you were told the initial diagnosis – “your child has a hearing loss.” Instead, many questions may have raced thru your mind:

“Can it be corrected?”
“What caused it?”
“Will it get better?”
“Will it get worse?”
“Can he learn to talk?”
“Can she go to regular school?”
“If we have more children, will they have a hearing loss, too?”
“Can he get married?”
“Will she be able to get a job?”

The answers to some of these questions may not be what you want to hear – “No, this type of hearing loss cannot be medically or surgically corrected.” “We don’t know for sure what your child’s future holds – it depends on a lot of things.” You want the best for your child, but now you may not know what to do.

*“There is not a day that goes by that I am not reminded that my child
has a hearing loss – but there is also not a day that goes by that I am
not thankful for all the joy she gives me by little things she does that so
many other parents get to take for granted.”*

In the days and weeks following the confirmation of your child’s hearing loss, you may feel as if you are on a roller coaster. Your feelings may swing from despair to hope, from sadness to anger, from feeling incompetent to feeling confident. As you carry out your daily routines – finishing a chore or arriving at a destination – you may realize that your mind was somewhere else, thinking about your child and what you should do. You may also find unexpected sources of strength within yourself to do what has to be done in spite of your feelings. Working through your feelings takes time.

“One of my first questions was ‘Will he be able to talk?’ – my husband’s was ‘Will he be able to participate in sports?’.”

Family members may also experience these same feelings of confusion and helplessness. Each person reacts differently to the news that your child has a hearing loss. For some there is a feeling of loss; for others, denial. Keep in mind that most families need time to adapt to the changes that the diagnosis of hearing loss will present and that each will react in a different way. Recognizing and sharing feelings is usually the best way to deal with them, and support is available from many sources, including family, friends, and professionals.

“Our audiologist became like one of our family. She cried and laughed with us and made sure we knew there were no limitations for our babies.”

The professionals who evaluate your child’s hearing will have recommendations for you: see an ear specialist; meet with early intervention professionals; have more testing done. As you follow these recommendations, you will meet people who help answer your questions and explain the decisions you must make. The information they give you and opinions they express may result in more confusion for you. Continue to pursue answers to your questions.



Though your child has a hearing loss, it is important to talk, sing, read, and play with him/her. Along with being fun, this early interaction provides a solid foundation for learning to communicate. The rest will all come in time – along with joys and surprises you might not imagine today.

Quotes in this section are from a Kansas mother of two children who are hard of hearing.

WHO WILL HELP US?

You will meet many new people because of your child's hearing loss. These people may include audiologists, early intervention specialists, medical professionals, and parents and caregivers of children with a hearing loss. Following is a brief description of the ways each may help you.

Audiologist

The audiologist may help by:

- ★ Having the skills and equipment for infant hearing testing.
- ★ Recommending amplification (hearing aids, FM systems) or cochlear implants to meet the needs of your child.
- ★ Providing audiologic follow-up, monitoring and maintaining your child's amplification system including well-fitting earmolds.
- ★ Testing your child with and without amplification and discussing your child's responses to sounds.
- ★ Providing information about early intervention program options and working with you and early intervention specialists.

"When we found out he was deaf, we were devastated. But, all of the stress of going through the process of getting help was worth it when we heard him speak the words 'I love you mom'."

Mother of a deaf son

Early Intervention Specialist

The Early Intervention Specialist may be a Speech-Language Pathologist, Teacher of the Deaf/Hard of Hearing, Audiologist, Early Childhood Special Educator, Occupational Therapist, Physical Therapist, etc. Each of these professions has special expertise to help your infant and you. You may work with one or more of these professionals. Each Early Intervention Specialist may help by:

- ★ Describing the supports and available services through early intervention programs and your family's participation.
- ★ Discussing your observations and concerns about your child.
- ★ Answering your questions about the effects of your child's hearing loss on communication, participation in family activities, and learning.
- ★ Helping to assess both your child's and family's strengths and needs.
- ★ Providing a comprehensive family centered early intervention program that will help your child with listening and communication skills.
- ★ Working with you and the audiologist to help you and your child make the best use of amplification and ensuring that the amplification is working properly.
- ★ Documenting records of your child's progress in communication and developmental areas.
- ★ Working with you to plan for your child's educational needs when, at age 3, your child is ready to transition from the early intervention program.
- ★ Providing opportunities for networking with adults and children with hearing loss.

Pediatrician/Family Practitioner

Your child's primary care physician may help by:

- * Working with an audiologist experienced in infant hearing testing.
- * Providing information about medical and/or surgical treatment for the various types of hearing loss.
- * Referring promptly for amplification and early intervention upon confirmation of a hearing loss.
- * Referring you to early intervention programs and specialist counseling (*i.e.*, ENTs, Geneticist).
- * Treating, or referring to an ENT, when your child has a middle ear condition that may further limit hearing.

Otolaryngologist or Ear, Nose, Throat (ENT) Physician

The ENT may help by:

- * Confirming the nature and/or type of the hearing loss.
- * Discussing possible medical or surgical treatment, including cochlear implants, for different types of hearing loss.
- * Referring promptly for amplification and early intervention upon confirmation of a hearing loss.
- * Authorizing the use of hearing aids for your child.
- * Evaluating your child's need for ventilation tubes if chronic middle ear infections exist.
- * Following your child throughout life for ear healthcare.

Parents of Children Who Are Deaf or Hard of Hearing (D/HH)

Parents (hearing/deaf) may help by:

- * Sharing what they have experienced and preparing you for what you may expect with professionals and early intervention programs.
- * Providing information about people and resources that have been helpful.
- * Listening to you and answering your questions when possible.
- * Sharing their initial feelings about being a parent of a child with hearing loss and how these feelings changed with time.
- * Telling you about their child's activities and achievements.
- * Getting your children together for playtimes and social interaction.

*"When I found out my son was deaf, I was so confused, I didn't know how to feel or even react. He was still my baby and no matter what he did in life, or what was wrong with him, he'd always be my baby."
Mother of a deaf child.*

Adults Who Are Deaf or Hard of Hearing

Deaf/hard of hearing adults may help by:

- ★ Sharing life experiences.
- ★ Serving as a role model.
- ★ Serving as a language model.

*"Parent's expression have a way of
describing when words cannot be heard.
Use all of your senses to communicate."
Deaf mother of a deaf child.*

You Can Help Your Child

Parents and family members may help by:

- ★ Learning as much as you can about hearing loss and communication.
- ★ Keeping all your appointments.
- ★ Committing to follow through with any recommendations you have accepted from the professionals working with you and your child.



"It is the rare parent who doesn't care about their children, but we all have different resources and responsibilities. People do the best they can with what they have."

Mother of a child with profound deafness.

HEARING AND HEARING LOSS

The Parts of the Ear

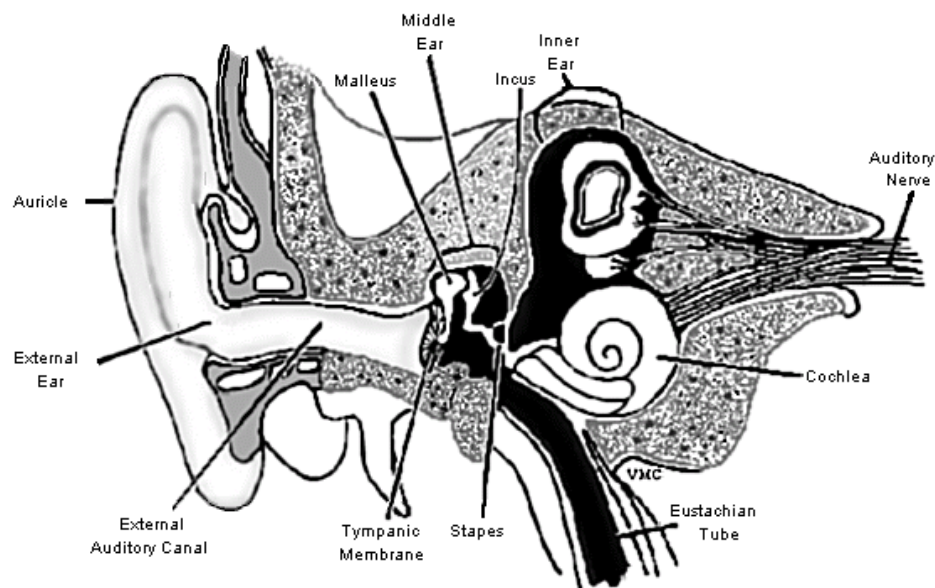
The ear is divided into three main sections: the outer ear, the middle ear, and the inner ear. Sound passes through all three sections of the ear before it goes to the brain. The brain interprets the sound and tells us what we are hearing. It tells us if we are hearing music, noise, a voice, a car horn, a dog, or other sounds.

Sound goes into the **outer ear**. The part of the outer ear that we can see is called the **pinna**. It catches sound which travels from the pinna through the **ear canal**. The sound pushes against the eardrum (tympanic membrane) which separates the outer ear and the middle ear. Sound hits the eardrum and makes it vibrate back and forth.

The **middle ear** contains the three smallest bones in the body. They are so small they can fit on a dime. Together these bones are called the **ossicles**. Individually they are called the malleus, the incus and the stapes. They are often referred to as the hammer, anvil and stirrup because of their shapes. When the eardrum moves, it makes the three bones move.

The **inner ear** is in the skull bone on the side of your head. This part of the ear contains the **cochlea** and the **hearing nerve**. The cochlea is shaped like a snail and contains thousands of tiny nerve endings called **hair cells**. These hair cells are tuned somewhat like the keys on a piano. Some of the hair cells respond to low pitch sounds, and some respond to high pitch sounds. These hair cells lead to the hearing nerve which connects the cochlea to the brain.

The three sections of the ear work together to help us hear. As sound hits the eardrum, it causes the eardrum to vibrate. The vibrations make the hammer, anvil and stirrup move which causes the nerve endings in the cochlea to move. The nerve endings send a message to the hearing nerve which carries the message to the brain. The brain tells us what we are hearing.



Graphic provided by the Kansas State Department of Education, Hearing Screening Guidelines

Types of Hearing Loss

Conductive hearing loss can occur if the structures of the outer or middle ear do not work correctly. Some causes of conductive hearing loss include impacted wax, perforation (hole) in the eardrum, or middle ear fluid and/or infection. These losses are generally perceived as a decrease in loudness and are more likely to respond to medical or surgical treatment.

Sensorineural hearing loss (sometimes referred to as nerve deafness) can occur if inner ear structures do not work correctly. Examples of sensorineural hearing loss are hair cell damage or malformation of the cochlea. Sensorineural losses are generally perceived as a loss of clarity of sound and are more likely to be permanent.

Mixed hearing loss is a combination of conductive and sensorineural hearing loss. An example of a mixed hearing loss is a child with permanent sensorineural loss *and* a temporary conductive loss due to middle ear fluid.

The types of hearing loss described above may present themselves in a variety of ways. If only one ear is affected, it is referred to as a **unilateral hearing loss**. When both ears are affected, it is known as a **bilateral hearing loss**. It is possible that the child's hearing loss may never change. Some children, however, may have a **progressive hearing loss**, where, over time, the hearing becomes progressively worse in one or both ears.



Audiologic Assessment of Infants and Toddlers

As of July 1, 1999 birthing facilities in Kansas are required to screen the hearing of infants within the first few days of life. If an infant does not pass a hearing screening, additional testing is needed to determine 1) if the infant has a hearing loss; 2) whether the hearing loss is medically treatable; 3) the degree (amount) of hearing loss; and 4) the configuration (shape) of the hearing loss. Several sessions are usually necessary in order for the audiologist to complete the testing.

OTOACOUSTIC EMISSIONS (OAE)	This test measures the response of the sensory cells in the cochlea to sound. A soft click is presented through a small probe placed in the infant's ear canal. The probe measures an echo that is returned from the infant's cochlea. The presence of an echo (an OAE) indicates a normally functioning cochlea. No echo indicates a 30 dB HL or greater conductive or sensorineural hearing loss. OAE testing is for all ages.
AUDITORY BRAINSTEM RESPONSE (ABR or BAER)	This test measures the response of the auditory system to sound. A soft (low level) click is presented to the ear through an earphone, insert earphone or via bone conduction. Surface electrodes, placed on the infant's head, record the response as the signal travels from the ear through the auditory nervous system to the brain. Brainstem responses are measured in the form of waves on a graph. For testing purposes, the infant must be quiet, sleeping, or perhaps sedated. ABR testing is for all ages.
TYMPANOMETRY	Tympanometry is not a test of hearing, but of middle ear function. A small probe is placed in the infant's ear canal. Using varying air pressure, the movement of the tympanic membrane (ear drum) is measured. Results of this test indicate the status of the middle ear. Abnormal results suggest that the infant may have a medically treatable condition (<i>e.g.</i> , a hole in the tympanic membrane, fluid in the middle ear (<i>e.g.</i> , otitis media), or abnormal movement of the small bones (ossicular chain) of the middle ear) and should have a medical referral. Tympanometry testing is for all ages. However, cautious interpretation is required when used with infants younger than four months of age.
ACOUSTIC REFLEX	This test uses the same probe as is used in tympanometry. A loud sound is presented and contraction of the muscles in the middle ear (a reflex) is measured. The reflex occurs when hearing is normal. The reflex does not occur when there is middle ear disease or a sensorineural hearing loss of greater than 40 dB HL. Acoustic reflex testing is for all ages. However, cautious interpretation is required when used with infants younger than four months of age.

AIR CONDUCTION TESTING	<p>This test measures hearing sensitivity to sounds (<i>e.g.</i>, speech, or pure tones) presented from speakers or earphones through the outer, middle, and inner ear to the brain. Visual reinforcement audiometry or conditioned play audiometry (see next page) are techniques used by the audiologist to determine that the child has heard the sound. In pure tone air conduction testing, a range of frequencies is presented at different loudness levels in order to determine the child's hearing thresholds. Additional testing must occur to determine whether a hearing loss is sensorineural, conductive or mixed.</p> <p>Air conduction testing is for all ages where reliable responses can be obtained.</p>
BONE CONDUCTION TESTING	<p>This test measures hearing sensitivity to sounds (<i>e.g.</i>, speech or pure tones) presented through a bone oscillator (small vibrator) placed on the bone behind the ear. Sound vibrations travel through the skull to the inner ear and the brain. Visual reinforcement audiometry or conditioned play audiometry (see next page) are techniques used by the audiologist to determine that the child has heard the sound. In pure tone bone conduction testing, a range of frequencies is presented at different loudness levels in order to determine the child's hearing thresholds. This test determines the sensorineural component of the hearing loss.</p> <p>Bone conduction testing is for all ages where reliable responses can be obtained.</p>
SPEECH AWARENESS THRESHOLD (SAT)	<p>This test measures <i>awareness</i> to speech presented through speakers, insert earphones, earphones or a bone oscillator. The purpose of this test is to obtain a speech threshold (<i>i.e.</i>, the softest level at which the child is aware of speech). The audiologist compares these results with those of the air conduction and bone conduction tests. Some very young children will respond to speech before they will respond to pure tones.</p> <p>Speech awareness testing is for all ages where reliable responses can be obtained.</p>
SPEECH RECEPTION THRESHOLD (SRT)	<p>This test presents speech through speakers, insert earphones, earphones or a bone oscillator in order to determine a threshold to <i>recognized</i> words. The child must know the names of some common objects in order to participate in this test. The audiologist presents words (<i>e.g.</i>, bathtub or cowboy), and is looking for the softest level at which the child repeats the word or points to a picture or toy correctly.</p> <p>Speech reception testing is for all ages where reliable responses can be obtained.</p>

How Infants And Toddlers Respond To Sound During Hearing Tests

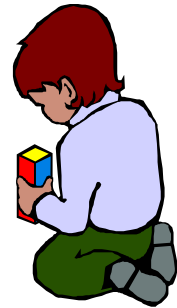
The purpose of audiometry is to determine the softest level (threshold) at which the infant/toddler responds to a range of frequencies (itches). Just as an adult is asked to raise a hand or push a button when a sound is heard, an infant/toddler can be “conditioned” to make a behavioral response to a stimulus.



Five Months to Two Years of *Developmental Age* Visual Reinforcement Audiometry (VRA)

The infant must be able to sit with minimal support and turn his/her head. The goal of VRA is for the infant to look at a toy spontaneously after hearing a sound.

- ★ Your baby will be seated on your lap in a special testing area called a sound treated booth. An audiology assistant will sit facing you in the booth to maintain the baby’s attention and observe his/her responses.
- ★ The audiologist in the testing area will present sounds (speech or pure tones) through the speakers in the booth, through insert earphones or through earphones placed on your baby.
- ★ When your baby shows a change in behavior (*e.g.*, looking around or stopping movement) after the sound is presented, the audiologist reinforces this change in behavior by activating a moving or specially lit toy. The assistant may initially show your baby the toy.
- ★ After the assistant regains your baby’s attention, the audiologist will present another sound.
- ★ When your baby learns to respond reliably to the sounds by looking at the toy, the audiologist will begin the hearing test.



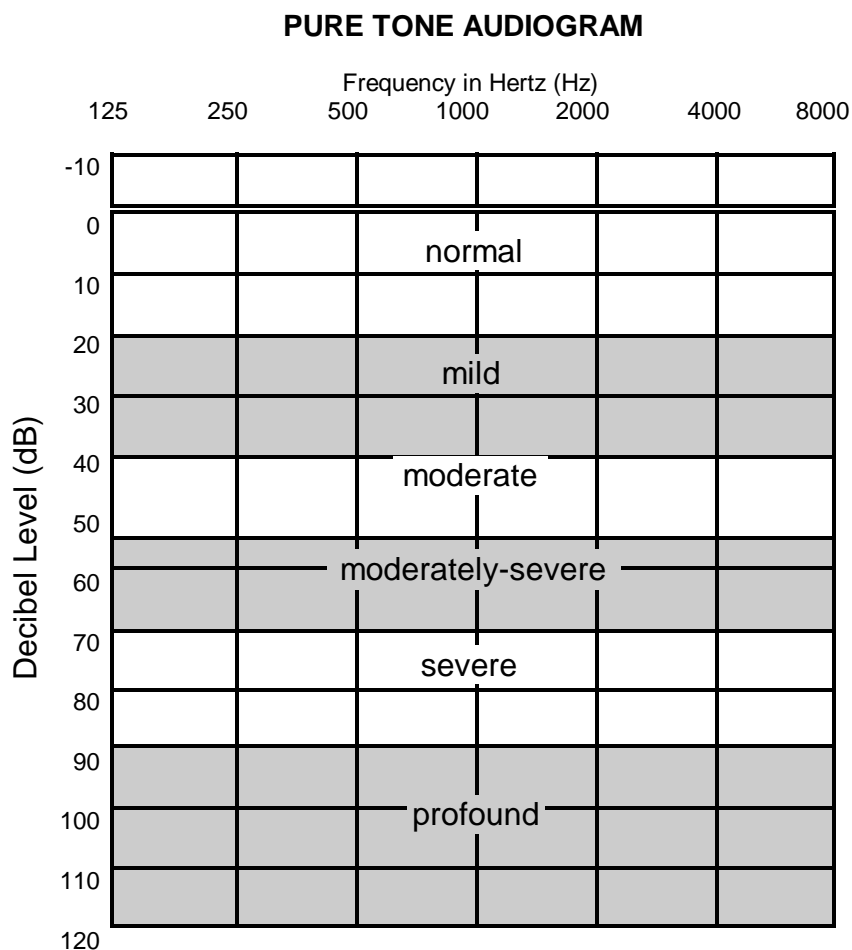
Two Years and Older Conditioned Play Audiometry (CPA)

The child must be able to manipulate objects such as blocks or stacking rings. The goal of CPA is for the child to “play the game” (*e.g.*, place the block in a container or stack a ring on the spindle) immediately after hearing the sound (a conditioned response).

- ★ Your child may be on your lap or in a chair in a sound treated booth.
- ★ The audiologist in the testing area will present sounds (speech or pure tones) through speakers, insert earphones or through earphones placed on your child.
- ★ After the sound is presented, your child is taught to place the block in a container. The audiologist reinforces this behavior by praising the child.
- ★ When your child learns to respond reliably to the sounds by manipulating the toy, the audiologist will begin the hearing test.

What is an Audiogram?

An audiogram is a graph depicting hearing sensitivity. The **degree** or amount of hearing loss is determined by finding the **hearing threshold** which is the amount of sound just barely heard, and is measured in **decibels (dB)**, not in percentages. Zero (0) dB is the softest sound that can be heard by the average ear.

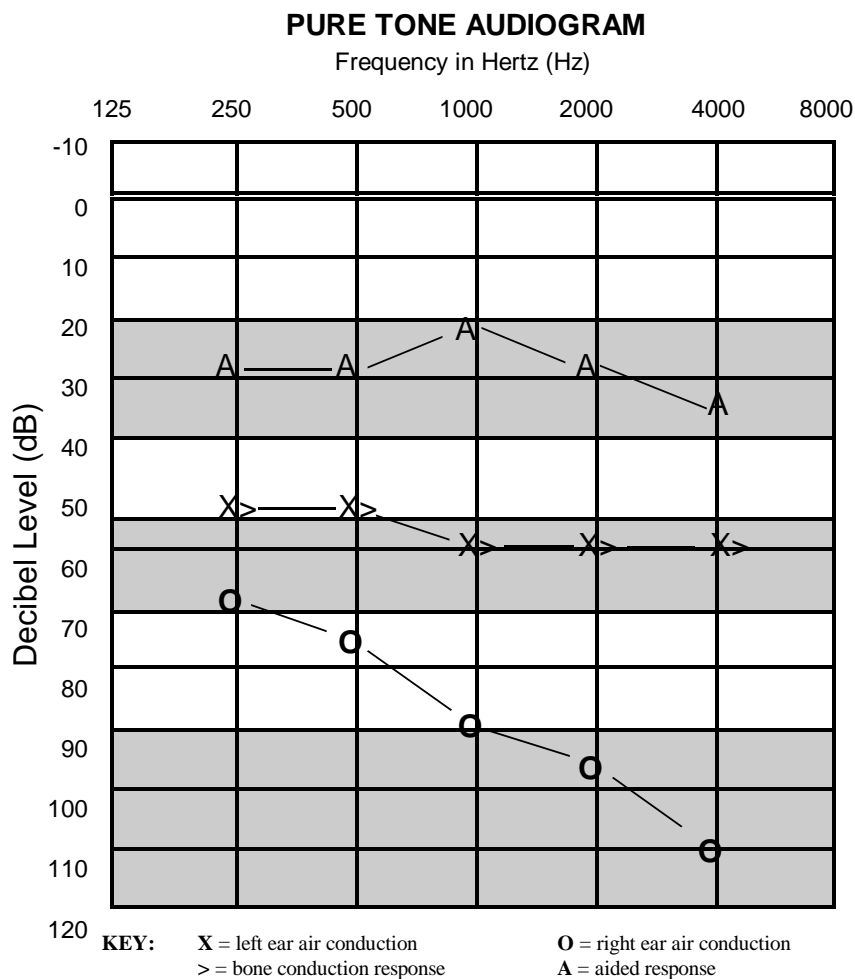


In addition to the degree of loss, the **frequency** or pitch is also plotted on the audiogram. Frequencies are measured in **Hertz (Hz)**. For example, the sounds made by a bullfrog are “low” frequency sounds between 125 and 250 Hz. The sounds made by a cricket are “high” frequency sounds between 4000 and 8000 Hz.

What Does an Audiogram Tell Me?

An audiogram tells several things:

1. Do both ears have the same thresholds or do the thresholds differ?
2. What is the degree (amount) of hearing loss?
3. Is there more hearing loss for some frequencies than others?
4. Is there a difference between the air conduction and bone conduction thresholds (an air-bone gap)?
5. What are the thresholds with hearing aids?

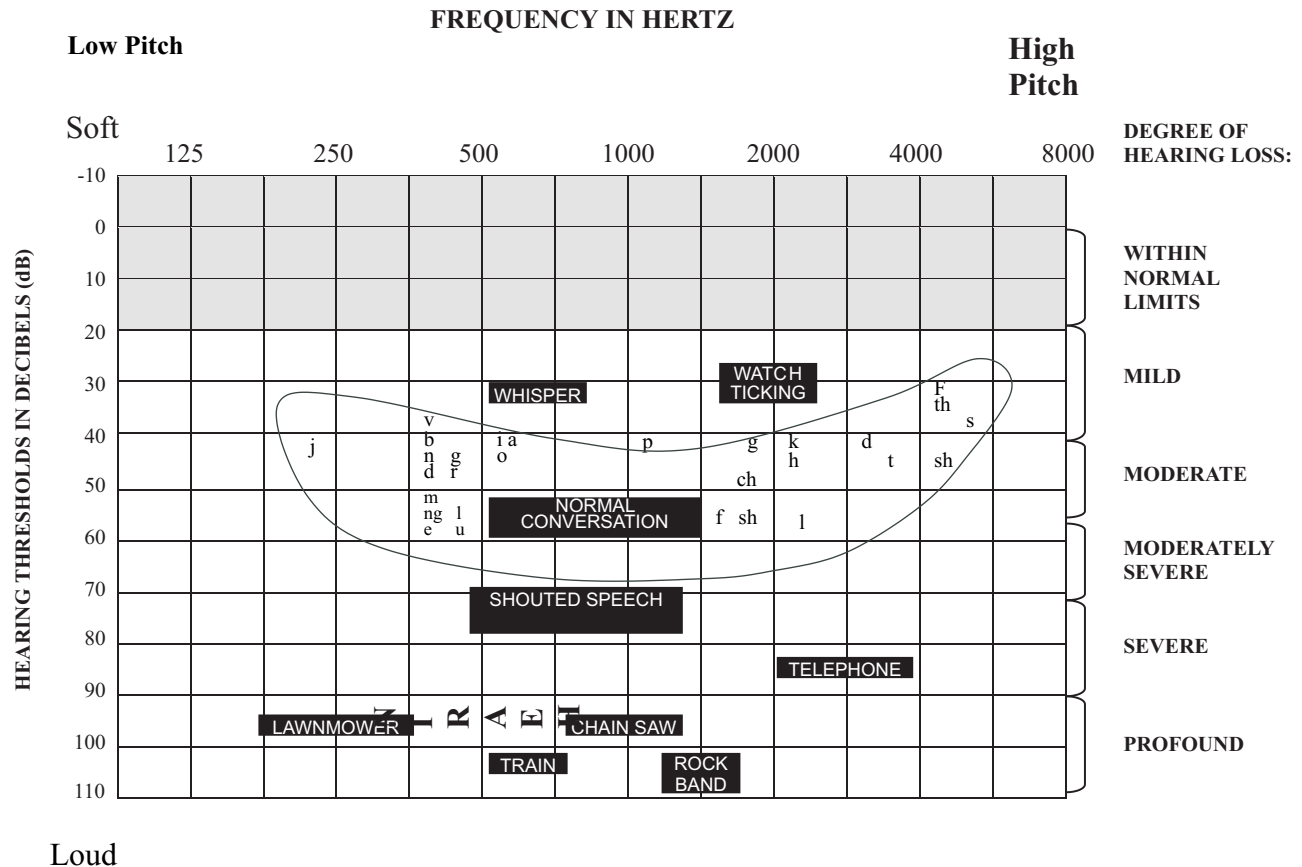


The audiogram above shows a moderately-severe hearing loss in the left ear (**X**). It is a “flat” pattern, *i.e.*, the low and high frequency hearing is nearly the same. The bone conduction (>) and air conduction results are equal in the left ear indicating a sensorineural hearing loss rather than a conductive or mixed hearing loss. The right ear (**O**) exhibits a severe to profound hearing loss. It has a “sloping” pattern, *i.e.*, there is more hearing loss in the high frequencies than in the low frequencies. The aided thresholds (**A**) on the audiogram show how loud the signal must be before it can be heard when hearing aids are worn.

Speech Banana

When the pitch and loudness of the many conversational speech sounds are displayed on an audiogram, they appear in the shape of a banana. Thus the term “speech banana” is used to refer to the location of conversational speech sounds on an audiogram.

Audiogram with Various Environment and Speech Sounds



Adapted from My Turn to Learn (1997). Lane, S., Bell, L., & Parson-Tylka, T. Surrey, BC: Elks Family Hearing Resource Centre.

Effects of Degree of Hearing Loss without amplification

Hearing loss has a significant impact on the development of language and speech. Without appropriate opportunities to learn language, children who are deaf or hard of hearing will fall behind their hearing peers in speech and language development. Delayed speech and language development, in turn, has a significant impact on the social-emotional and cognitive development of your child. These delays, in turn, may result in lower educational and employment levels in adulthood. Early detection of hearing loss and subsequent intervention results in reducing or eliminating the adverse effects.

DEGREE OF HEARING LOSS (Average at 500, 1000 & 2000 Hz)	EFFECTS OF DEGREE OF HEARING LOSS without amplification
Normal Hearing 0 – 20 dB HL (hearing level)	
Mild Hearing Loss 21 – 40 dB HL	The child will have trouble hearing soft sounds that are at a distance, short words, and speech that is present in “noise” (other sounds in the environment). A slight or mild hearing loss may cause language delay (<i>e.g.</i> , limited vocabulary), and as speech develops, some speech errors may occur.
Moderate Hearing Loss 41 – 55 dB HL	The child can hear only loud sounds including speech unless the sound is close. A moderate hearing loss can result in significant language delay (<i>e.g.</i> , problems understanding language, limited vocabulary development, problems using language), speech (articulation) errors, and differences in voice quality. The child will miss from 50-75% of the speech signal depending on the degree of hearing loss.
Moderately-Severe Hearing Loss 56 – 70 dB HL	The child can hear only very loud sounds (including speech) that are close. A moderately severe hearing loss results in significant language delay, speech (articulation) errors, and possibly atonal voice quality. The child can miss up to 100% of the speech signal, and will have difficulty with aspects of language such as idioms and multiple word meanings.
Severe Hearing Loss 71 – 90 dB HL	The child can hear only very loud sounds that are close to the ear, and understanding of sound (speech; environmental) is limited without visual and contextual clues. A severe hearing loss results in significant language delay, considerably reduced speech intelligibility, and atonal voice quality is likely.
Profound Hearing Loss 90 dB HL or greater	The child may hear very loud sounds that are close to the ear, but probably responds more to vibration. The child relies on visual cues as the primary sensory means of communication. Spoken language is significantly delayed, and disorders of articulation, intonation patterns, and speech rhythm will be present.

Hearing Aids

A hearing aid CAN:

- ★ Make *all* sounds in the environment louder (*e.g.*, speech, TV, air conditioner, vacuum).
- ★ Improve speech and language development for infants and toddlers.
- ★ Improve communication and interaction with family and peers.

A hearing aid CANNOT:

- ★ Cure the child's hearing loss.
- ★ Help the child hear sounds at frequencies at which there is no hearing.
- ★ Make only speech sounds louder.
- ★ Make sounds clearer if the child's cochlea is distorting the incoming sounds.

Choosing a Hearing Aid

There are many different styles and types of hearing aids. Different styles of hearing aids are worn in different places.

- ★ Behind-the-ear (BTE)
- ★ In-the-ear (ITE)
- ★ In-the-canal (ITC)
- ★ Completely-in-the-canal (CIC)
- ★ Body-worn units
- ★ Bone conduction units

Different types of hearing aids amplify sounds differently.

1. Conventional or standard hearing aids:

- ★ Increase the loudness of the incoming signal electrically.
- ★ The audiologist makes changes in the response of the aid by adjusting external screw controls on the hearing aid.

2. Digitally programmable hearing aids:

- ★ Increase the loudness of the incoming signal electrically.
- ★ The audiologist makes changes in the response of the aid by programming an internal microchip via a computer or hand-held programmer.
- ★ The hearing aid may have multiple channels and/or multiple memories to meet the specific needs of the user in different listening environments.
- ★ The hearing aid may also have a remote control to adjust the settings.

Adapted with permission. From *For Families Guidebook*, Schuyler, V., & Sowers, J. (1998). Hearing & Speech Institute, 3515 SW Veterans Hospital Rd., Portland, OR 97201.

3. Digital hearing aids:

- ★ Increase the loudness of the incoming signal digitally by converting the incoming signal to a stream of numbers according to a mathematical formula called an algorithm.
- ★ The audiologist adjusts the response of the aid via computer or hand-held programmer.
- ★ Programs can be customized to fit the user's specific hearing loss.
- ★ Digital processing of noise and speech information allows for improved speech understanding.
- ★ Digital processing increases flexibility in fitting range to accommodate changes in hearing over time.

4. Transpositional hearing aids:

- ★ Increase the loudness of sound electrically.
- ★ Specific frequency information is "transposed" or moved into a range where it is audible to the listener.

5. Bone conduction hearing aids:

- ★ Used by some children with conductive hearing loss which cannot be medically or surgically corrected.
- ★ Sound is transmitted via a bone oscillator (vibrator) which is held firmly against the head and is attached to a hearing aid.
- ★ Used when the ear physically cannot accommodate behind-the-ear or in-the-ear hearing aids.

Which hearing aid is best for infants and young children?

Most infants and young children are fitted with two (binaural) behind-the-ear (BTE) hearing aids. Some children with special needs may benefit from wearing body aids which provide them with increased loudness (gain) without feedback or whistling problems. In-the-ear (ITE) and canal type instruments are not practical until the child's rate of growth has slowed.

Programmable and digital hearing aids have the added benefit of being more flexible if the child's hearing thresholds should change. Many adults who have worn conventional hearing aids in the past have switched to programmable or digital technology because of superior sound quality in the advanced technology. Improved sound quality make these instruments excellent for fitting infants and young children who are developing language.

Adapted with permission. From *For Families Guidebook*, Schuyler, V., & Sowers, J. (1998). Hearing & Speech Institute, 3515 SW Veterans Hospital Rd., Portland, OR 97201.

Hearing aids are not a one time purchase. The functional life of a hearing aid is four to six years. Hearing aids may need to be replaced due to being stepped on, chewed by the family pet, or lost. A new hearing aid which is technologically advanced may better meet the individualized needs of the child. Hearing aids also require repair due to a variety of circumstances (*e.g.*, humidity, normal wear, perspiration).

It is important to explore many options with your audiologist before choosing amplification for your child. The selected hearing aid(s) should meet your child's needs.

What are important features of hearing aids for infants and toddlers?

The hearing aid should:

- ★ Provide sufficient amplification to allow the child to hear speech sounds. (When the child has such a profound hearing loss that even the most powerful aid does not allow speech to be heard, parents may want to explore other options.) (See Cochlear Implants)
- ★ Have “Direct Audio Input” (DAI) and microphone-telecoil (M-T) switching options. These options allow the hearing aid to be coupled with other assistive devices. (See FM System Hearing Technology)
- ★ Have flexibility in making changes in tone, gain, and output limiting so adjustments can be made as more information is obtained about the child's hearing thresholds and responsiveness to sound.
- ★ Have tamper-resistant battery compartment and controls. *Hearing aid batteries are toxic. They should be monitored closely; they can be harmful if swallowed.*
- ★ Have a microphone that is most appropriate for the listening needs of the child. Directional microphones pick up sounds coming from the front. Omni-directional microphones pick up signals from all directions and may be more beneficial to a child who is mobile. Multiple microphones allow for switching between the omni- and directional microphone setting.
- ★ Have comfortable customized earmolds. Earmolds may need to be replaced every three to six months for a very young child because of the fast growth rate. The earmolds may last up to a year for older children.

Talk with the audiologist regarding other accessories such as battery testers, hearing aid stethoscopes, safety clips, and dehumidifiers.

Adapted with permission. From *For Families Guidebook*, Schuyler, V., & Sowers, J. (1998). Hearing & Speech Institute, 3515 SW Veterans Hospital Rd., Portland, OR 97201.

FM (Frequency Modulated) System Hearing Technology

Children who use hearing aids often have difficulty hearing speech in a noisy background or when the speaker is at a distance greater than three feet away. For these situations, a wireless FM (frequency modulated) system, formerly known as an auditory trainer, may be beneficial.

An FM system has two primary components, the receiver worn by the child and the microphone/transmitter worn by the person speaking. The receiver may be either a body-worn unit or a behind-the-ear unit. The receiver functions like a traditional hearing aid and has the capability of picking up a radio signal that is sent out by the microphone. The receiver and transmitter must be set to the same radio frequency so that the speaker's signal can be received by the child.

The system is designed to amplify the speaker's voice so that it is louder than any competing background noise. When using an FM system, the child can still hear his/her own voice and environmental sounds. The FM system may be used as the primary amplification system in some cases. Examples where FM systems may be used with an infant and toddler include riding in the car, at child care, and when the parent and child are in different rooms.

Cochlear Implants

What is a cochlear implant?

A cochlear implant is an electronic device, part of which is surgically implanted in the cochlea of an ear with profound hearing loss. Cochlear implants, once recommended only for people who gain little or no benefit from hearing aids (usually a profound hearing loss), are now sometimes recommended for children with severe hearing loss. Cochlear implant devices are made by several manufacturers and are changing rapidly. A cochlear implant has both implanted and external parts.

External Parts:

- ★ Speech processor
- ★ Microphone
- ★ Transmitter coil

Implanted Parts:

- ★ Electrode array
- ★ Receiver/stimulator

How does a cochlear implant work?

The microphone of the cochlear implant picks up sounds that are sent through a cord to electronic circuits inside the speech processor (worn in a pocket or harness or behind the ear). These circuits translate sounds into electrical signals which are sent back up the cord to the external transmitter coil. The coil emits radio signals which are picked up by the implanted receivers. The receiver/stimulator sends the electrical signals to the electrodes which have been implanted in the cochlea. The electrodes stimulate the acoustic nerve which carries impulses to the brain where they are interpreted as sound.

Where do you go to get information about a cochlear implant?

Cochlear implant surgery is a very specialized procedure requiring intensive habilitative therapy. Ask your audiologist for the latest information on implants. (See Resources: Cochlear Implant Centers)

Adapted with permission. From *For Families Guidebook*, Schuyler, V., & Sowers, J. (1998). Hearing & Speech Institute, 3515 SW Veterans Hospital Rd., Portland, OR 97201.

COMMUNICATION CHOICES / TERMINOLOGY

Communication Choices

Communicating with your child is of the utmost importance. Research shows that early communication is related to the development of positive self-esteem and to language-learning abilities. Responding to your child and encouraging him or her to respond to you is the key to your child's language development. There are different ways to communicate and different philosophies about communication. Every communication choice requires commitment from the family to enable your child to learn language. As you think about how your family now communicates with your child and how you would like to communicate with him or her in the future, you are thinking about communication "methods."

*"I'm not so sure that **how** we communicated was as critical as **that** we communicated."*
Mother of a child with profound deafness.

A most difficult decision facing a family with a deaf or hard of hearing child is choosing a communication method. One of the first questions you might ask is "What is the best communication method for my child?" People may tell you **their** method (oral, cued speech, ASL, Bi-Bi, Manually Coded English, etc.) is **best**. Keep in mind that no one method has been proven to be best for all deaf and/or hard of hearing children. For some children a combination of communication methods may be beneficial.¹

Decisions regarding communication should be based on your own observations of the needs of your child and family. Ask questions, talk to adults who are deaf and hard of hearing, and families with children who have a hearing loss. Discuss, read, and obtain as much information as you can about the various choices. Remember, no decision is irreversible. Monitor your child's progress and reevaluate decisions about your choice. Consider the following questions when choosing a communication method:

- ★ Will the communication method enable all of your family to communicate with your child?
- ★ Is the communication method in the best interest of your child? It should allow your child to have control over his/her environment, to share his/her feelings and concerns, and participate in the world of imagination and play.
- ★ Will the communication method enhance your relationship with each other as a family? It should promote enjoyable, meaningful communication among all family members and enable your child to feel part of your family and know what is going on.

The following pages provide a brief description of some of the different communication options available to you and your family. This is just a beginning point. These approaches represent a range from spoken English to American Sign Language.

¹ Lane, S., Bell, L., & Parson-Tylka, T. (1997). My Turn to Learn, p. 27, Elks Family Resource Center.

Communication Terminology

American Sign Language (ASL)

American Sign Language is a visual language with its own distinct grammatical structure which must be mastered in the same way as the grammar of any other language. ASL differs from spoken language in that it is visual rather than auditory and is composed of precise handshapes and movements. It is not a form of English.

Auditory – Oral

The Auditory-Oral method of teaching spoken language stresses the use of amplified residual hearing (through hearing aids or a cochlear implant), speech, and oral language development. Some programs utilize a multisensory approach (hearing, vision, touch) while others use a unisensory approach without the benefit of speechreading. Both approaches teach children to talk through listening without utilizing a formal sign system.

Auditory – Verbal

The Auditory-Verbal method, much like the auditory-oral method, relies on the principle that children with any degree of hearing loss deserve the opportunity to learn to listen and talk in the mainstream community. Auditory-Verbal therapy is conducted jointly by parents and the auditory-verbal therapist. Emphasis is placed on learning to listen without the use of speechreading or a sign system. It encourages spoken communication development in play.

Bilingual Approach

Bilingualism is the knowledge and regular use of two languages: American Sign Language and English.

Conceptually Accurate Signed English (CASE)

This communication style uses conceptually accurate signs in English word order. Signs are based on American Sign Language.

Cued Speech

Cued Speech is designed to clarify speechreading by using simple hand movements (cues) around the face to indicate the exact pronunciation of any spoken word. Since many spoken words look exactly alike on the mouth (*e.g.*, pan, man), cues allow the child to see the difference between them.

Signed English Systems

Signed English Systems (*e.g.*, Signing Exact English [SEE II], Signed English) use signs, fingerspelling, and gestures separately or in combination to represent English manually.

Total Communication

Total Communication was first defined as a philosophy which included use of any or all modes of communication (*i.e.*, speech, sign language, audition, speechreading, and fingerspelling). This philosophy led to the formation of manual systems (*e.g.*, Signing Exact English, Signed English) that represent spoken English. Today, the term Total Communication is commonly interpreted as Simultaneous Communication (signing while talking).

INFANT-TODDLER SERVICES IN KANSAS

Your Individualized Family Service Plan (IFSP)

Children from birth to age three with a confirmed hearing loss are eligible to receive professional help through Infant-Toddler Services.² Statewide, community-based early intervention networks provide multidisciplinary services for infants and toddlers with hearing loss at no cost to families. These services are designed to meet the special, individualized needs of your child and family. Families can choose not to participate in this statewide program; private agencies are also available to assist families if they so wish. (See Resources – Kansas)

Once your child's hearing loss has been confirmed by your audiologist, the audiologist will put you in touch with an agency that provides early intervention services in your area. In the Infant-Toddler Services system, your Family Service Coordinator (FSC) will assist you in obtaining coordination of services, access to community resources, and information about hearing loss. The FSC, and perhaps other service providers, will work with you to develop an Individualized Family Service Plan (IFSP).

The IFSP is a written plan that identifies the outcomes that you want your child to work toward and describes processes (services and activities) to help achieve those outcomes. Through the ongoing process of planning and adjusting of outcomes, services and activities to meet the changing needs of your child and family, the IFSP serves as a guide for you and the professionals working with you and your child. You, as parents, are essential participants in the development and revisions of the plan.

IFSP meetings will be conducted in your native language. Cultural preferences of you and your family will be respected. You may have family members, friends, parents of other children, and other professionals attend the IFSP meetings if you wish.

Your IFSP includes:

- ★ Results of the evaluation of your child.
- ★ Family information (optional)—information you wish to share about your family's resources (*e.g.*, family members who can help carry out intervention activities), priorities (*e.g.*, outcomes for your child that are most important to you), and concerns about your child.
- ★ Outcomes you want for your child.
- ★ A description of the services and activities which will help toward achieving these outcomes.
- ★ When early intervention services and activities should start and end, and where and how often the child and family will participate in these services and activities. Services and activities are to be natural learning experiences occurring in natural environments.

² A family may also contact Infant-Toddler Services for a hearing evaluation (audiologic assessment) for their child (birth through age two) when the family has concern about their child's hearing or if the child is at-risk for hearing loss (*e.g.*, did not pass hearing screening; risk indicators for late-onset or progressive hearing loss are present).

- * Who will be responsible for providing the services and activities (*e.g.*, family, extended family members, friends, professional service providers, etc.).
- * The name of the Family Service Coordinator working with you.
- * How the services will be paid for (*e.g.*, funding sources such as insurance, federal and state funds, local funds). Infant Toddler Services is the payor of last resort.
- * A transition plan to help you and your child when you are moving to another community, changing programs, or moving out of the Infant-Toddler Services system to other services when your child is age three. Contact Families Together, Inc., or Infant-Toddler Services in your local community to access information on transition to preschool service at age three.

Infant-Toddler Early Intervention Services Available:

- * Assistive Technology (includes hearing aids, earmolds, batteries)
- * Audiology
- * Family Service Coordination
- * Family Training, Counseling, and Home Visits
- * Health (does not include surgical services, hospitalization and health services to treat a medical condition, or immunizations)
- * Medical (for diagnosis or evaluation)
- * Nursing
- * Nutrition
- * Occupational Therapy
- * Physical Therapy
- * Psychological Services (related to your child's behavior)
- * Social Work
- * Special Instruction
- * Speech-Language Therapy
- * Transportation
- * Vision



RESOURCES

National Resources

Alexander Graham Bell Association for the Deaf, Inc.

3417 Volta Place, NW
Washington, DC 20007-2778
(202) 337-5220 V/TTY
agbell2@aol.com
www.agbell.com

An international organization comprised of parents, professionals, and oral children and adults who are D/HH; provides newsletters, journals, and information relating to oral education.

American Society for Deaf Children

1820 Tribute Road, Suite A
Sacramento, CA 95815
(916) 641-6084 V/TTY
Toll free: (800) 942-2732
asdc1@aol.com
www.deafchildren.org

An organization furthering the services of the International Association of Parents of the Deaf. Provides parent-to-parent support and information utilizing signed communication. Advocates for deaf children and families.
Prints the Endeavor (parent newspaper).

Auditory-Verbal International, Inc. (AVI)

2121 Eisenhower Avenue, Suite 402
Alexandria, VA 22313
(703) 739-1049 V
(703) 739-0874 TTY
avi@auditory-verbal.org
www.auditory-verbal.org

An international organization providing resources and information to parents and professionals on teaching children who are D/HH to speak using residual hearing and amplification.

Beginnings For Parents of Children Who are Deaf or Hard of Hearing, Inc.

3900 Barrett Dr., Suite 100
Raleigh, NC 27609
(800) 541-4327 V/TTY
(919) 571-4843 V/TTY
info@beginningssvcs.com
www.beginningssvcs.com/

A resource and reference organization that produces materials and videos oriented toward helping families make choices about communication methods.

Boys Town Research Hospital – Center for Hearing Loss in Children

555 N. 30th St.
Omaha, NE 68131-9909
(800) 320-1171 V/TTY
deafgene.registry@boystown.org
www.boystown.org/Btnrh/Chlc/index.htm

Provides information on childhood hearing loss to parents, children, other family members, and the public at large.

Cued Speech Center, Inc.
304 E. Jones Street
Raleigh, NC 27601
(919) 828-1218 V/TTY
www.ingenweb.com/cuedspeech/

State funded spoken language programs including training for parents, teachers, etc., auditory-verbal therapy, consultation services, educational counseling, etc.

John Tracy Clinic
806 W. Adams Blvd.
Los Angeles, CA 90007
(800) 522-4582 V/TTY
jtclinic@aol.com
www.johntracyclinic.org

Provides free home study program on teaching spoken language to infants and young children who are D/HH, plus clinics – all for parents. Available in Spanish.

**National Cued Speech Association
Nazareth College of Rochester**
4245 East Avenue
Rochester, NY 14618
NCSA@naz.edu

A resource and reference organization providing information on services, up-coming events, certification requirements, camps, affiliated centers and organizations, and publications.

SEE Center for the Advancement of Deaf Children
PO Box 1181
Los Alamitos, CA 90720
(562) 430-1467 V/TTY
www.seecenter.org/

Provides information on services for deaf children nationwide, parent information packets, workshops, and videotapes on Signing Exact English.

National Information Center on Deafness
Gallaudet University
800 Florida Avenue NE
Washington, DC 20002-3695
(202) 651-5051
(202) 651-5052 TTY
Clearinghouse.infotogo@gallaudet.edu
www.gallaudet.edu

Centralized source of information on topics dealing with deafness and hearing loss. Disseminates information on deafness, hearing loss, services, and programs available throughout the United States related to people with hearing loss.

Kansas Resources

Assistive Technology for Kansans Project

2601 Gabriel
Parsons, KS 67357
(800) 526-3648 (V)
(800) 500-1034 (TTY)
www.atk.lsi.ukans.edu/

Families Together, Inc.

501 Jackson Ste 400
Topeka, KS 66603
(913) 233-4777
www.familiestogether.com

***Hartley Family Center**

University of Kansas Medical Center
Hearing & Speech Department
3901 Rainbow Blvd.
Kansas City, KS 66160-7605
(913) 588-5750 V/TTY or 588-5937

***Herndon Speech-Language-Hearing Clinic**

Fort Hays State University, Albertson Hall
600 Park Street
Hays, KS 67601-4099
(785) 628-5366
www.fhsu.edu/commdis/GHclinic.html

Kansas Advocacy & Protective Services (KAPS)

3745 SW Wannamaker Road
Topeka, KS 66610
(785) 273-9414
(800) 432-8276 V/TTY

Kansas Commission for the Deaf and Hard of Hearing (KCDHH)

3640 SW Topeka Blvd., Suite 150
Topeka, KS 66611-2373
(785) 267-6100 V/TTY
(800) 432-0698 V/TTY Nationwide
www.ink.org/public/srs/kcdhh/KCDHH.html

KCDHH provides information on sign language classes, interpreters, interpreted performances/services, camps, parent groups, media, lending libraries.

Kansas Department of Health and Environment

900 SW Jackson, Landon State Office Bldg.
Topeka, KS 66612-1220
info@kdhe.state.ks.us
www.kdhe.state.ks.us

Infant-Toddler Services**

Landon State Office Bldg., Suite 1053
(785) 296-6135 (785) 296-8626 Fax
www.kdhe.state.ks.us/bcyf/cds/its/index.html

Services for Children with Special Health Care Needs

Landon State Office Bldg., Suite 1005N
(785) 296-1313 (785) 296-8616 Fax
www.kdhe.state.ks.us/shs/index.html

Newborn Hearing Screening Program

Landon State Office Bldg., Suite 1053
(785) 296-6135 (785) 296-8626 Fax
www.kdhe.state.ks.us/bcyf/cds/newborn_hearing.html

Make a Difference Information Network

Landon State Office Bldg.
(800) 332-6262 V/TTY

*Provides Early Intervention Services

**See Resources: Infant-Toddler Services Networks

Kansas Relay Center

734 Vermont
Lawrence, KS 66044
(800) 766-3777

Kansas School for the Deaf

450 E. Park Street
Olathe, KS 66061
(913) 791-0573
outreach@ksd.state.ks.us
www.sound.net/~ksdone/

Kansas Speech-Language-Hearing Association (KSHA)

3900 17th
Great Bend, KS 67530
(800) 248-KSHA (5742)
www.ksha.org

***Kansas State University**

Hearing & Speech Department
107 Leasure Hall
Manhattan, KS 66506
(785) 532-6011

***Rainbows United, Inc.**

Infant Toddler Services
340 S. Broadway
Wichita, KS 67202
(316) 267-5437 Ext. 158
www.rainbowsunited.org

***St. Joseph Institute for the Deaf**

7323 W. 97th Street
Overland Park, KS 66212
(913) 383-3535
sjikc@juno.com

Telecommunication Access Program (TAP)

700 SW Jackson, Suite 704
Topeka, KS 66603-3758
(785) 234-0200

*Provides Early Intervention Services

***University of Kansas**

Speech-Language-Hearing Clinic
2101 Haworth Hall
Lawrence, KS 66045
(785) 864-4690
(785) 864-5094 TTY

***University of Kansas Medical Center**

Hearing & Speech Department
3901 Rainbow Blvd.
Kansas City, KS 66160-7605
(913) 588-5750 V/TTY or 588-5937

***Wichita State University**

Speech-Language-Hearing Clinic
1845 Fairmont
Hughes Metropolitan Complex
Campus Box 99
Wichita, KS 67260-0099
(316) 978-3289

Infant-Toddler Services Networks

Arrowhead West, Inc.

401 Edgemore
Dodge City, KS 67801
(620) 225-5177
Area Served: Barber, Clark, Comanche,
Edwards, Ford, Gray, Harper, Hodgeman,
Kingman, Kiowa, Meade, Ness and Pratt

Bright Beginnings

Butler County Infant/Toddler Services

206 N Griffith, Suite B
El Dorado, KS 67042
(316) 320-1342 or (800) 650-9260
Area Served: Butler

Children & Families Network

Russell Child Development Center
714 Ballinger
Garden City, KS 67846
(620) 275-0291
Area Served: Finney, Grant, Greeley,
Hamilton, Haskell, Kearney, Lane, Morton,
Scott, Stanton, Wichita and Stevens

Clay, Washington, Marshall ICC

PO Box 219
Greenleaf, KS 66943
(785) 747-2604
Area Served: Clay, Marshall and Washington

Cloud/Republic ICC

220 East 19th
Concordia, KS 66901
(785) 243-7364
Area Served: Cloud and Republic

Coffey County ICC

Coffey County Special Education Coop
200 South Sixth
Burlington, KS 66839
(620) 364-5151
Area Served: Coffey

Douglas County Infant-Toddler Coordinating Council

2619 W 6th St, Suite B
Lawrence, KS 66049
(785) 843-3059
Area Served: Douglas

Early Childhood Committee Dream Team

Atchison Hospital Association
1301 N Second Street
Atchison, KS 66002
(913) 367-6634
Area Served: City of Atchison

Early Childhood Coordinating Council

Northwest KS Education Service Center
703 West Second Street
Oakley, KS 67748
(785) 672-3125 x120
Area Served: Cheyenne, Decatur, Graham,
Gove, Logan, Rawlins, Sheridan, Sherman,
Thomas, Trego, Wallace, part of Lane

Early Childhood Coordinating Council of Atchison & Jefferson Counties

Northeast KS Education Service Center
601 Woodson, PO Box 320
Lecompton, KS 66050
(785) 887-6711
Area Served: Jefferson and Atchison-except city of
Atchison; USD 343 in Douglas County

Flint Hills Special Education Coop

216 W 6th Ave
Emporia, KS 66801
(620) 341-2325
Area Served: Chase, Lyon, Morris and Greenwood

Geary County Infant-Toddler Services

Pawnee Mental Health Agency
814 Caroline Avenue
Junction City, KS 66441
(785) 762-7859
Area Served: Geary and Fort Riley

Harvey County Infant Toddler Program

Harvey County Special Education Coop
308 East 1st Street
Newton, KS 67114-3846
(316) 284-6580
Area Served: Harvey

Hays Interagency Coordinating Council

Hays Area Children's Center, Inc.
94 Lewis Drive
Hays, KS 67601
(785) 625-3257
Area Served: Ellis and part of Rush

Infant-Child Development

Salina Regional Health Center
139 N Penn
Salina, KS 67401
(785) 452-6382
Area Served: Dickinson, Ellsworth, Ottawa, and Saline

Infant-Toddler Services of Johnson County

9600 Lamar
Overland Park, KS 66207
(913) 993-9325
Area Served: Johnson County

Infant Toddler Services Network of Riley Co.

PO Box 471
Manhattan, KS 66505
(785) 776-6363
Area Served: Riley

Jewell/Lincoln/Mitchell County ICC

PO Box 586
Beloit, KS 67420
(785) 738-3581
Area Served: Jewell, Lincoln, and Mitchell

Kid-Link/DSNWK

1327 Main, Suite 2
Stockton, KS 676691
(785) 425-6766
Area Served: Norton, Osborne, Phillips, Rooks, Russell, Smith, and part of Decatur

Lakemary Center Infant Toddler Program

100 Lakemary Drive
Paola, KS 66071
(913) 557-4000
Area Served: Anderson, Linn, Miami, part of Franklin

Leavenworth County Early Childhood Coordinating Council

3500 S 4th Street
Leavenworth, KS 66048
(913) 680-6180
Area Served: Leavenworth

Marion County Early Intervention Services

302 W 8th Street
Florence, KS 66851
(620) 878-4720
Toll free: (877) 878-4519 Ext. 111
Area Served: Marion

MCKIDS (McPherson County, KS, Infant Development Services)

1106 Hospital Drive
McPherson, KS 67460
(620) 241-9590
Area Served: McPherson

Northeast Kansas ICC

600 Oregon
Hiawatha, KS 66434
(785) 742-7538
Area Served: Brown, Doniphan, Nemaha, and Jackson

Osage County ICC Infant-Toddler Services

Three Lakes Educational Coop
1318 Topeka Avenue
Lyndon, KS 66451
(785) 528-5003
Area Served: Osage and W. Franklin

Ottawa-Wellsville ICC

123 W. 4th, Suite 200
Ottawa, KS 66067
(785) 242-0910
Area Served: Part of Franklin (boundaries of
USD 289 and USD 290)

Parents and Children Together, Inc.

150 Plaza Drive, PO Box 573
Liberal, KS 67905-0573
(620) 624-2222
Area Served: Seward

Pottawatomie/Wabaunsee Infant-Toddler Program

Special Services Cooperative
510 E Hwy 24
Wamego, KS 66547
(785) 456-7366
Area Served: Pottawatomie and Wabaunsee

Prairie Band Potawatomi Indians

15380 K Road
Mayetta, KS 66509
(785) 966-2527
Areas Served: Potawatomi Reservation

REACH Preschool

1406 East Eighth Avenue
Winfield, KS 67156
(620) 229-8304
Area Served: Cowley

Reno County Early Intervention Program

Early Education Center of TECH
303 East Bigger, PO Box 399
Hutchinson, KS 67504-0399
(620) 663-2671
Area Served: Reno

Sedgwick County Early Childhood Coordinating Council

Rainbows United, Inc.
340 S Broadway
Wichita, KS 67202-4321
(316) 267-5437 Ext.158
Area Served: Sedgwick

Shawnee County Infant-Toddler Services

TARC
2701 SW Randolph
Topeka, KS 66611
(785) 233-7374
Area Served: Shawnee

Southeast KS Birth to Three Program

KUAP
2601 Gabriel
Parsons, KS 67357
(620) 421-6550 Ext. 1641
Area Served: Allen, Bourbon, Chautauqua,
Cherokee, Crawford, Elk, Labette, Montgomery,
Neosho, Wilson, and Woodson

Sumner County ICC

Futures Unlimited, Inc.
2410 North A
Wellington, KS 67152
(620) 326-8906
Area Served: Sumner

**Sunflower Diversified Services,
Early Education Center**

1312 Patton Road
Great Bend, KS 67530
(620) 792-4087
Area Served: Barton, Pawnee, Rice, Rush
and Stafford

Wyandotte County Infant-Toddler Services

Wyandotte Comprehensive Sp Ed Coop
600 Minnesota Avenue
Kansas City, KS 66101
(913) 627-5626
Area Served: Wyandotte

Funding

Funding Resources

Health insurance may not cover hearing aids or assistive technology. You may wish to speak with your audiologist or Family Service Coordinator to access available funds. Some programs may be based on financial need.

Children's Miracle Network

Children's Mercy Hospital – Kansas City
(816) 346-1370

St. Francis Hospital – Topeka
(785) 295-8181

University of Kansas Medical Center
(913) 588-5937

Via Christi – Wichita
(316) 268-5000

Hear Now

Starkey Hearing Foundation International, Inc.
(800) 328-8602, Ext. 2358

Hearing Aids for Kids

10720 Dimple Dell Drive
Sandy, UT 84092-4835
(888) 495-2949

HIKE

Hearing Impaired Kids Endowment
(352) 688-2579

Make-A-Difference Information Network

You may receive a referral to: Medicaid,
HealthWave, Services for Children with Health
Care Needs, and/or Infant Toddler Services.
(800) 332-6262

Miracle Ear – National

PO Box 59261
Minneapolis, MN 55459-0261
(800) 234-5422

Starkey Fund

(800) 328-8602

United Cerebral Palsy

1660 L. Street, NW.
Suite 700
Washington, DC 20036
(800) 872-5827 (V) (202) 973-7197 (TTY)
Services may include financial assistance
and/or equipment loan programs.

Service Clubs That May Provide Financial Assistance*

**Business and Professional Women's Clubs,
National Federation**

2012 Massachusetts Avenue NW
Washington, DC 20036
(202) 293-1100

Civitan International

1 Civitan Place
Birmingham, AL 35213-1983
(205) 591-8910
(800) CIVITAN

International Shriner's Headquarters

2900 Rocky Point Drive
Tampa, FL 333607
(813) 281-0300

Kiwanis International

3636 Woodview Place
Indianapolis, IN 46268-3196
(317) 875-8755
(800) 549-2647

Lions Clubs International

300 22nd Street
Oak Brook, IL 60521
(708) 571-5466

PEO Sunflower Grants

Philanthropic Educational Organization
Applicant must be sponsored by an active Kansas
P E O.

Pilot International

244 College Street
PO Box 4844
Macon, GA 31213-0599
(912) 743-7403

Quota International

1420 21st St., NW
Washington, DC 20036
(202) 331-9694

Rotary International

1 Rotary Center
1560 Sherman Avenue
Evanston, IL 60201
(708) 866-3000

Sertoma International

1912 East Myer Boulevard
Kansas City, MO 64132
(816) 333-8300

*There may be other service clubs in your community or you may be referred to a local service club.

Deaf Culture

Organizations

Kansas Association of the Deaf

PO Box 10085
Olathe, KS 66951
www.cjnetworks.com/~fanslerbd/KAD/links.htm

National Association of the Deaf

814 Thayer Avenue
Silver Springs, MD 20910
(301) 587-1788 V
(301) 587-1789 TTY
NADinfo@nad.org
www.nad.org

Books

A Place of Their Own. (1989). VanCleve, J., & Crouch, B. Washington, DC: Gallaudet University Press. (*The creation of the Deaf community in America.*)

American Deaf Culture. (1989). Wilcox, S. (Ed.). Burtonsville, MD: Sign Media, Inc. (Linstok Press). (*Hearing and deaf authors explore cultural values.*)

At Home Among Strangers. (1989). Schein, J. Washington, DC: Gallaudet University Press. (*Deaf history and Culture.*)

Hand, Heart, & Mind: The Story of the Education of America's Deaf People. (1994). Walker, L. New York, NY: Dial Books. (*The Story of the Education of America's Deaf People.*)

Issues Unresolved. (1998). Weisel, A. Washington, DC: Gallaudet University Press. (*Perspectives on Language and Deaf Education.*)

Just a Deaf Person's Thoughts. (1996). Eastman, G. Washington, DC: Gallaudet University Press. (*What it means to be deaf in modern society.*)

Language in Motion. (1995). Schein, J., & Stewart, D. Washington, DC: Gallaudet University Press. (*Exploring the nature of signs.*)

Never the Twain Shall Meet. (1996). Winefield, R. Washington, DC: Gallaudet University Press. (*The communications debate between Bell and Gallaudet.*)

Signs of Success: Profiles of Deaf Americans. (1995). Washington, DC: Gallaudet University Press. (*Short stories of role models in the Deaf community.*)

The Other Side of Silence: Sign Language and the Deaf Community in America. (1990). Washington, DC: Gallaudet University Press. (*American Sign Language and the Deaf community.*)

Newspapers/Magazines

Deaf Life

c/o MSM Productions LTD.
PO Box 23380
Rochester, NY 14692-3380
(716) 442-6370
www.deaf.com

The Broadcaster

The National Association for the Deaf
814 Thayer Avenue
Silver Spring, MD 20910-4500
(301) 587-1788

The Endeavor

814 Thayer
Silver Spring, MD 20910
(301) 585-5400

Silent News

135 Gaither Drive, Suite F
Mt. Laurel, NJ 08054-1710
(856) 802-1977
www.silentnews.org

World Around You (Children)

KDES #6
800 Florida Avenue, NE
Washington, DC 20002-3695
(800) 526-9105

Videotapes

“An Introduction to the Deaf Community” (1993). *A culturally-sensitive overview of social, cultural, and communicative facets of the lives of Deaf people.*

“DEAFOLOGY 101” (1993). Deaf culture as seen through the eyes of a Deaf humorist, Ken Glickman. *Many situations unique to the world of the Deaf are explored.*

“Fingers that Tickle and Delight” (1994). Stories by Evelyn Zola . *A vivid portrait of a deaf woman’s life told through insight and humor.*

Website Resources

Alexander Graham Bell Association for the Deaf and Hard of Hearing	www.agbell.org
American Academy of Audiology	www.audiology.org
American Society for Deaf Children	www.deafchildren.org
American Speech-Language-Hearing Association	www.asha.org
Auditory-Verbal International, Inc. (AVI)	www.digitalnation.com/avi
Boys Town National Research Hospital	www.boystown.org/Btnrh/Index.htm
Central Institute for the Deaf	www.cid.wustl.edu
Cued Speech Center	www.ingenweb.com/cuedspeech
Deaf Digest	www.deafdigest.org
Deaf Related Websites	www.yellowstar.com
The Deaf Resource Library	www.deaflibrary.org
Deaf World Web	www.deafworldweb.org
Deaf World Web, Cyberkids	www.deafworldweb.org/dww/kids
Deaf/Hard of Hearing	www.familyvillage.wisc.edu/lib_deaf.htm
Ear Infections and Ear Tube Surgery	www.kidshealth.org/parent/infections/ear/ear_infections.html
Educational Audiology Association	www.edaud.org
Gallaudet University	www.gallaudet.edu
Gallaudet University-News & Information	www.gallaudet.edu/news_information.html

Hands and Voices	www.handsandvoices.org
Hear Us	www.hearus.org
Hearing Health Magazine	www.hearinghealthmag.com
HIP Magazine (for children)	www.hipmag.org
John Tracy Clinic	www.johntracyclinic.org
Kansas Instructors of the Deaf (KID)	www.kcnet.com/~tomport/kidinfo.html
KidSource OnLine	www.kidsource.com
Land of the Deaf	www.geocities.com/zaaffran/deaf.html
National Association of the Deaf (NAD)	www.nad.org
Oral Deaf Education (Oberkotter Foundation)	www.oraldeafed.org
Self Help for Hard of Hearing People	www.shhh.org
Where Do We Go From Hear?	www.gohear.org

Deafblind Resources (national and state)

American Foundation for the Blind

Eleven Penn Plaza, Suite 300
New York, NY 10001
1-800-AFB-LINE
afbinfo@afb.net
www.afb.org

Assistive Technology

2601 Gabriel, PO Box 738
Parsons, KS 67357
(620) 421-8367
www.atk.lsi.ukans.edu

DB-LINK

345 N. Monmouth Avenue
Monmouth, OR 97361
(800) 438-9376 V
(800) 854-7013 TTY
dblink@tr.wou.edu
www.tr.wou.edu.dblink.index.htm

Helen Keller National Center

111 Middle Neck Road
Sands Point, NY 11050
(516) 944-8900 (V)
(516) 944-8637 (TTY)
www.helenkeller.org

Helen Keller National Center

(Great Plains Region)
4330 Shawnee Mission Parkway, Suite 108
Shawnee Mission, KS 66205-2522
(913) 677-4562

Kansas School for the Blind

1100 State School
Kansas City, KS 66102-4486
(913) 281-3104
www.kssb.net

Kansas State Department of Education

Dual Sensory Impairment Project
120 SE 10th Avenue
Topeka, KS 66612-1182
(785) 296-0917
www.ksbe.state.ks.us

National Family Association of Deafblind

(800) 255-0411, Ext. 275
nfadb@aol.com
www.nfadb.org

National Federation of the Blind

1800 Johnson Street
Baltimore, MD 21230
(410) 659-9314
www.nfb.org

Cochlear Implant Centers

Colorado

Colorado Hearing and Balance

2125 East LaSalle Street, Suite 201
Colorado Springs, CO 80909
(719) 442-6984

Rocky Mountain Cochlear Implant Center

799 East Hamden, Suite 510
Englewood, CO 80110
(303) 788-7838

University of Colorado Hospital

360 South Garfield, Suite 400
Denver, CO 80209
(303) 372-3190

Kansas

University of Kansas Medical Center

Hearing & Speech Department
3901 Rainbow Blvd., 3031 Miller Bldg.
Kansas City, KS 66160
(913) 588-5937

Wichita Ear Clinic

427 N. Hillside
Wichita, KS 67214
(316) 686-6608

Missouri

Midwest Ear Institute

2940 Baltimore Avenue
Kansas City, MO 64108
(816) 531-0003

Nebraska

Boys Town National Research Hospital

555 North 30th Street
Omaha, NE 68131
(402) 498-6624

Ear Specialists of Omaha

4242 Farnam Street, Suite 142
Omaha, NE 68131
(402) 552-3277

University of Nebraska Medical Center

600 South 42nd Street, ENT Clinic
Omaha, NE 68198-9250
(402) 559-6108

Oklahoma

Hough Ear Institute

3400 N. W. 56th Street
Oklahoma City, OK 73112
(405) 947-6030

University Health Partners

1200 Everett Drive, Room 4NP522
Oklahoma City, OK 73104
(405) 271-8046

Parent Library

Books

Caring for Young Children: Signing for Daycare Providers and Sitters (Beginning Sign Language Series). (1993). Eugene, OR: Garlic Press.

Choices In Deafness: A Parent's Guide to Communication Options. (1996). Schwartz, S. (Ed.). Brentwood, MD: Woodbine House.

For Families: A Guidebook for Helping Your Deaf or Hard of Hearing Child Learn to Listen and Communicate. (1998). Schuyler, V., & Sowers, J. Portland, OR: Infant Hearing Resource.

For Hearing People Only. (1993). Moore, M., & Levitan, L. Rochester, NY: Deaf Life Press.

Hand, Heart, & Mind: The Story of the Education of America's Deaf People. (1994). Walker, L. New York, NY: Dial Books.

Hannie. (1996). Luetke-Stahlman, B., Hillsboro, OR: Butte Publications, Inc.

It Isn't Fair!: Siblings of Children with Disabilities. (1993). Klein, S., & Schleifer, M. Westport, CT: Bergin & Garvey.

Keys to Raising a Deaf Child. (1999). Frazier-Maiwald, V., & Williams, L. Hauppauge, NY: Barron's Educational Series, Inc.

Listening Games for Littles. (1997). Sindrey, D. Washington, DC: AG Bell

Listening to Learn: A Handbook for parents with Hearing Impaired Children. (1990). Adam, A., Fortier, P., Schiel, G., Smith, M., & Soland, C. Washington, DC: AG Bell.

My Turn To Learn. (1997). Lane, S., Bell, L., & Parson-Tylka, T. Surrey, BC: Elks Family Resource Center.

Not Deaf Enough. (1996). Candlish, P. Washington, DC: AG Bell Association.

The Signing Family: What Every Parent Should Know About Sign Communication. (1998). Stewart, D., & Luetke-Stahlman, B. Washington, DC: Gallaudet University Press.

The Silent Garden: Raising Your Deaf Child. (1990). Ogden, P. Washington, DC: Gallaudet University Press.

What's That Pig Outdoors? A Memoir of Deafness. (1990). Kisor, H. Penguin USA.

When Your Child is Deaf: A Guide For Parents . (1991). Luterman, D., & Ross, M. York Press.

Videotapes

Auditory-Verbal Therapy for Parents & Professionals – Introduces AV therapy, speech-language development, etc., via parent stories and taped therapy sessions. Available from AG Bell. (202) 337-5220.

Becoming a Proficient Cued – Offers lessons and workbook skills for beginning cued. Available from AG Bell. (202) 337-5220.

Beginnings – A program that examines all communication choices without bias. Available from Beginnings V/TTY (800) 541-4327.

Do You Hear That? – Shows auditory-verbal therapy in session with children who have hearing aids or cochlear implants. For parents and professionals. Available from AG Bell (202) 337-5220.

Dreams Spoken Here – Shows the oral education process, impact of technology, and human interest stories. Free copy available from Oberkotter Foundation, (877)-ORALDEAF (877-672-5332).

Families With Deaf Children – You are hurt, confused, and like most parents, you have lots of questions. The best role models are parents of deaf children. Each parent has experienced what you might be feeling and has found answers. Available from Boys Town Press, (800) 282-6647 or BTPress@boystown.org.

Families With Hard of Hearing Children - Designed to provide answers when you need them. The best guides are other parents of hard of hearing children and professionals from different settings. Available from Boys Town Press, (800) 282-6647 or BTPress@boystown.org.

Home Total Communication Video Tapes - Shows over 1000 signs. Available from HOPE, Inc., 809 North 800 East, Logan, Utah 84321 (801) 752-9533.

Make a Joyful Noise – Resource guide for families of newly identified infants with hearing loss. Free copy available from Oberkotter Foundation, (877)-ORALDEAF (877-672-5332).

Parent Sign Series – Designed for parents of deaf children. Each tape has three parts: situation-specific interactions and conversation, review sentences, and vocabulary enrichment. 9 videotapes. Available from Sign Media, Inc. (800) 475-4756.

Sign With Me – Family Sign Language Curriculum. M. P. Moeller, M.S., and Brenda Schick, Ph.D., Center for Hearing Loss in Children, Boys Town National Research Hospital, Omaha, NE. Videos come in both Signed English and ASL. Available from Boys Town Press, (800) 282-6647 or BTPress@boystown.org

Children's Library

Books

Animal Signs: A First Book of Sign Language. (Picture board book). (1995) Slier, D. Washington, DC: Gallaudet University Press.

Cosmo Gets a Hearing Aid. (1995) Clemente, G., & Yelchin, E. Washington, DC: AG Bell.

Dina the Deaf Dinosaur. (1998) Addabbo, C. Stanford, CT: Hannacroix Creek Books.

Foods (Beginning Sign Language Series). (1997) Collins, S. Eugene, OR: Garlic Press.

Fruits and Vegetables (Beginning Sign Language Series). (1997) Collins, S. Eugene, OR: Garlic Press.

Happy Birthday!: A Beginner's Book of Signs (Board book). (1997) Bednarczyk, A., & Weinstock, J., Lipp, B. Austin, TX: Star Bright Books.

Holidays and Celebrations (Beginning Sign Language Series). (1999) Collins, S. Eugene, OR: Garlic Press.

Hooray for Harold: Dealing with Hearing Loss. (1997) Peters, T. Gladstone, NJ : Tim Peters and Co.

Mother Goose in Sign (Beginning Sign Language Series). (1994) Collins, S. Eugene, OR: Garlic Press.

Nursery Rhymes from Mother Goose: Told in Signed English (Signed English Series). (1992) Bornstein, H., & Saulnier, K. Washington, DC: Gallaudet University Press.

Opposites: A Beginner's Book of Signs (Board book). (1997) Bednarczyk, A., & Weinstock, J. Austin, TX: Star Bright Books.

Patrick Gets Hearing Aids. (1994) Riski, M., & Klakow, N. Warrenville, IL: Phonak, Inc.

Pets, Animals, and Creatures (Beginning Sign Language Series). (1997) Collins, S. Eugene, OR: Garlic Press.

Simple Signs. (1997) Wheeler, C. Wright's Lane, London: Puffin Books.

Signs For Me: Basic Sign Vocabulary For Children. (1990) Bahan, B., & Dannis, J. Berkley, CA: Dawn Sign Press.

Where's Spot? (1995) Hill, E. G. P. Putnam's Sons (In consultation with Gallaudet University)

Word Signs: A First Book of Sign Language (Board book). (1995) Slier, D. Washington, DC: Gallaudet University Press.

Videotapes

Read With Me – Eight 30 minute videos of popular stories in ASL.

Show ‘N Tell Stories – Bilingual Storytelling for Deaf Children and Their Families. Marlee Matlin introduces Brown Bear, Brown Bear, What Do You See? and This Is Me. Center for Education of Infant Deaf, Berkeley, CA.

Visual Storyreading – A series of videotapes of popular children’s books interpreted by deaf adults using American Sign Language. Kansas School for the Deaf. (913) 791-0550.

***Read, read, read books to your children, no matter what the communication method you choose.**

Lending Libraries

Connecting Point

Rainbows United

340 S. Broadway
Wichita, KS 67202
(316) 267-5437, Ext. 150
www.conectingpt.org

Early Childhood Resource Center

2601 Gabriel
Parsons, KS 67357
(620) 421-6550, Ext. 1651
(800) 362-0390, Ext. 1651
www.parsons.lsi.ukans.edu/kits/ecselib

Hartley Family Center

University of Kansas
Hearing & Speech Department
3901 Rainbow Blvd., 3031 Miller Bldg.
Kansas City, KS 66160
(913) 588-5750 V/TTY or 588-5937

St. Joseph's Institute for the Deaf

7323 W. 97th Street
Overland Park, KS 66212
(913) 383-3535
www.oraldeafed.org

Kansas Deaf-Blind Loan Library

Kansas School for the Blind
1100 State Avenue
Kansas City, KS 66102
(913) 281-3308 Ext., 417
(800) 572-5463

Kansas Commission for the Deaf and Hard of Hearing

3640 SW Topeka Blvd., Suite 150
Topeka, KS 66611
(800) 432-0698 V/TTY
www.ink.org/public/srs/kcdhh/KCDHH.html

Direct Order for Resources

ADCO

5661 South Curtice Street
Littleton, CO 80120
(800) 726-0851
sales@adcohearing.com

Alexander Graham Bell Association

3417 Volta Place NW
Washington, DC 20007
(202) 337-5220 V/TTY
www.agbell.org

Butte Publications, Inc.

P.O. Box 1328
Hillsboro, OR 97123-1328
service@buttepublications.com

Harris Communication

15159 Technology Drive
Eden Prairie, MN 55344-2277
(800) 825-6758

Modern Signs Press, Inc.

P.O. Box 1181
Los Alamitos, CA 90720
www.seecenter.org

COMMON TERMINOLOGY

AUDITORY BRAINSTEM RESPONSE (ABR):	A non-invasive test that measures auditory responses at the level of the brainstem in response to auditory stimuli. This test can indicate whether or not sound is being detected, even in an infant. This test may also be referred to as BAER or BSER. AABR refers to automated ABR screening devices.
ACOUSTICS:	Pertaining to sound, the sense of hearing, or the science of sound. Often used to refer to the quality of the sound environment.
ACQUIRED HEARING LOSS:	A hearing loss that is not present at birth. Sometimes referred to as adventitious loss.
ADVOCACY:	This term refers to the role parents or guardians play in monitoring their child's development. Advocating for your child means a) that rights are assured you by the law (IDEA) and b) actively participating in the decision-making process to ensure that the services are delivered in line with your goals for your child's development.
AMPLIFICATION:	The use of hearing aids and other electronic devices to increase the loudness of a sound so that it may be more easily received.
ASSISTIVE LISTENING DEVICES (ALD):	Assistive listening devices are amplification systems designed specifically to help people hear better in a variety of difficult listening situations.
ASSISTIVE TECHNOLOGY:	Devices and systems (<i>e.g.</i> , TTY's, visual alert systems) which improve communication and enhance the listening environment.
AUDIOGRAM:	A graph on which a person's ability to hear different pitches (frequencies) at different volumes (intensities) of sound is recorded.
AUDIOLOGIC ASSESSMENT:	A comprehensive evaluation of hearing which identifies the type and degree of hearing loss.
AUDIOLOGIST:	A person who holds a degree and license in audiology and is a specialist in testing hearing.
AUDITORY TRAINING:	The process of teaching a child to use residual hearing for awareness, identification, and interpretation of sound.
AURAL HABILITATION: (auditory training)	Numerous teaching methods designed specifically for improving a child's auditory speech perception performance. Methods include auditory experiences of spoken language that are meaningful and appropriate to the child's age and interests.
BABY SIGN:	Young children who are hearing do not say all their words correctly; they use a baby talk (ootie means cookie). Young children who are using sign language do not make the signs correctly; they use baby signs (one finger on chin instead of five fingers for the sign "mother").
BILATERAL HEARING LOSS:	Hearing loss in both ears.

BILINGUAL/BICULTURAL (BIBI):	Being fluent in two languages and participating in two cultures. For example, hearing (spoken English language) and the Deaf culture (sign language).
BINAURAL AMPLIFICATION:	Hearing aids worn on both ears.
BODY AID:	An amplification unit that is worn on the body. Primarily used only in special situations where behind-the-ear hearing aids cannot be used.
BONE CONDUCTION:	Sound received through the bones of the skull.
CHRONOLOGICAL AGE / ADJUSTED AGE:	Chronological age is how old the infant or child is based on his/her date of birth. It is referred to when comparing him or her to other children born at that same time. If a baby was born prematurely, however, his/her development may be measured at his/her adjusted age. Adjusted age takes into account the time between premature birth and the actual due date of a full term pregnancy. Doing this gives a more accurate reflection of what the baby's developmental progress should be.
CLOSED CAPTION:	TV or movie text presented on the screen.
COCHLEAR IMPLANT:	An electronic device surgically implanted to stimulate nerve endings in the inner ear (cochlea) in order to receive and process sound and speech.
COGNITIVE:	Refers to the ability to think, learn, and remember.
CONDUCTIVE HEARING LOSS:	Hearing loss due to failure of sound waves to reach the inner ear through the normal air conduction channels of the outer and middle ear.
CONGENITAL HEARING LOSS:	Hearing loss present at birth or associated with the birth process, or which develops in the first few days of life.
DEAF:	A hearing loss that is so severe that the child is unable to process linguistic information through hearing alone. (Also see Deaf Culture).
DEAF COMMUNITY:	A group of people who share common interests and a common heritage. Their mode of communication is American Sign Language (ASL). The Deaf community is comprised of individuals, both deaf and hearing, who respond with varying intensity to particular community goals which derive from Deaf cultural influences. The Deaf community in the United States may have a wide range of perspectives on issues, but emphasis remains on Deafness as a positive state of being.
DEAF CULTURE:	A view of life manifested by the mores, beliefs, artistic expression, understandings and language (ASL) particular to Deaf people. A capital "D" is often used in the word Deaf when it refers to community or cultural aspects of Deafness.
DEAFBLINDNESS:	Developmentally significant combined loss of vision and hearing.
DECIBEL (dB):	The unit of measurement for the loudness of a sound; the higher the number of the dB, the louder the sound.

EARMOLD:	A custom-made piece which fits into the outer ear and connects to a hearing aid.												
ELIGIBILITY:	A child must be determined eligible for early intervention or special education services based on specific disabilities and/or developmental delay (see Part B & Part C). Children with hearing loss are eligible for early intervention services.												
ENT:	A medical doctor who specializes in the ears, nose, and throat (ENT); sometimes referred to as an otolaryngologist or otologist.												
FINGERSPELLING:	Fingerspelling is a standardized series of handshapes to form letters.												
FM SYSTEM:	An assistive listening device that amplifies the speaker's voice transmitted via radio waves. The device reduces the problem of background noise interference and the problem of distance between speaker and deaf and hard of hearing (D/HH) listener.												
FREQUENCY:	The number of vibrations per second of a sound. Frequency, expressed in Hertz (Hz), determines the pitch of the sound.												
GAIN:	The amount of amplification provided. For example, a child with unaided hearing at 70 dB who, when amplified hears at 30 dB, is experiencing a gain of 40 dB.												
GENETIC COUNSELING:	Counseling for individuals with birth defect/genetic disorders which may involve hearing loss. Genetic counseling includes recurrence risk information for individuals with hearing loss and their families.												
HARD OF HEARING:	A hearing loss, whether permanent or fluctuating, which adversely affects an individual's ability to detect and decipher some sounds.												
HEARING AGE/AIDED AGE:	Age is measured from the time the child begins wearing hearing aids or a cochlear implant consistently.												
HEARING AID:	An electronic device that conducts and amplifies sound to the ear.												
HEARING IMPAIRED (HI):	A term sometimes used to describe any degree of hearing loss.												
HEARING LOSS:	<p>The following hearing levels are typically characterized as follows:</p> <table> <tr> <td>Normal/Hearing</td><td>0 dB to 20 dB</td></tr> <tr> <td>Mild Loss</td><td>21 dB to 40 dB</td></tr> <tr> <td>Moderate</td><td>41 dB to 55 dB</td></tr> <tr> <td>Moderately-Severe</td><td>56 dB to 70 dB</td></tr> <tr> <td>Severe Loss</td><td>71 dB to 90 dB</td></tr> <tr> <td>Profound</td><td>91 dB or more</td></tr> </table>	Normal/Hearing	0 dB to 20 dB	Mild Loss	21 dB to 40 dB	Moderate	41 dB to 55 dB	Moderately-Severe	56 dB to 70 dB	Severe Loss	71 dB to 90 dB	Profound	91 dB or more
Normal/Hearing	0 dB to 20 dB												
Mild Loss	21 dB to 40 dB												
Moderate	41 dB to 55 dB												
Moderately-Severe	56 dB to 70 dB												
Severe Loss	71 dB to 90 dB												
Profound	91 dB or more												
HEARING SCREENING:	Testing of the ability to hear selected frequencies at intensities above normal hearing. The purpose is to identify individuals with potential hearing loss, with minimal time expenditure, and to refer them for further testing.												

HUGGIES:	The brand name of a plastic-ringed device designed to “hug” the hearing aid to the ear. Popular for infants and toddlers whose ears may be too small to hold the hearing aid snugly in place.
IDEA:	The Individuals with Disabilities Education Act, Public Law 105-17; formerly known as PL 94-142 and PL 99-457.
INDIVIDUALIZED EDUCATION PROGRAM (IEP):	The IEP is a written program developed by an educational team with the parents to meet the educational needs of the child (ages 3-21).
INDIVIDUALIZED FAMILY SERVICE PLAN (IFSP):	The IFSP is a written plan developed by parents or guardians with input from a multidisciplinary team to meet the individualized needs of the child (birth through 2) with developmental delays/disabilities and the child’s family.
INFANT-TODDLER SERVICES:	A statewide community-based program which identifies infants and toddlers who have a developmental delay or disability, or who have conditions which lead to a developmental delay or disability, and which provides early intervention services to meet the individualized needs of those children and their families. Infant-Toddler Services provides service coordination, screening, evaluation, assessment, and intervention.
INTENSITY:	The loudness of a sound, measured in decibels (dB).
INTERPRETER:	A person who facilitates communication between persons who are hearing and those who are deaf or hard of hearing.
INTONATION:	The aspect of speech made up of changes in stress and pitch in the voice.
LEAST RESTRICTIVE ENVIRONMENT:	A basic principle of Public Law 105-17 (IDEA), which requires public agencies to establish procedures to ensure that to the maximum extent appropriate, children with disabilities are educated with children who are not disabled. All services and educational placements must be individually determined (pertains to children ages 3 to 21) in light of each child’s unique abilities and needs.
MONAURAL AMPLIFICATION:	The use of one hearing aid.
MULTIDISCIPLINARY EVALUATION:	The child’s development is evaluated by two or more qualified professionals to determine if there are any delays or conditions that would indicate the need for early intervention or special education services.
NATURAL ENVIRONMENT:	Defined by the Individuals with Disabilities Education Act (IDEA) as: “Settings that are natural or normal for the child’s age peers who have no disabilities. To the maximum extent appropriate to the needs of the child, early intervention services must be provided in natural environments, including the home and community settings in which children without disabilities participate.”
ORAL:	A term that is used when referring to individuals with a hearing loss who talk but do not necessarily use sign language. Emphasis is placed on use of spoken language.

OTITIS MEDIA:	Fluid that is present in the middle ear, with or without infection, may cause temporary hearing loss. Children with recurring episodes may experience fluctuating hearing loss and may be at risk for speech-language delays.
OTOACOUSTIC EMISSIONS (OAE):	An audiologic test that verifies cochlear activity, often is used in screening for hearing loss and in evaluating infants suspected of hearing loss.
OTOLOGIST:	A physician who specializes in medical problems of the ear.
PART B:	The section of Public Law 105-17 (IDEA) that refers to special education services available to eligible children aged three through twenty-one in the public schools.
PART C:	The section of Public Law 105-17 (IDEA) that refers to early intervention services available to eligible children from birth through two years of age and their families.
PHONEMES:	Individual speech sounds.
PLAY AUDIOMETRY:	The audiologist tests hearing using play and a conditioned response. For example, when the child is presented with a sound, he or she is to drop a block into a container, indicating that the sound was heard. Sometimes referred to as conditioned play audiometry (CPA).
POSTLINGUAL HEARING LOSS:	Hearing loss which occurs following the acquisition of speech and language.
PRAGMATICS:	The social use of pre-symbolic (crying, pointing) and symbolic language (speech, sign) to comment, request, deny, question, etc.
PRELINGUAL HEARING LOSS:	Hearing loss which is present at birth or occurred prior to the development of speech and language.
PRESYMBOLIC COMMUNICATION:	Behaviors (eye contact, touching, crying, gesturing) a child uses to communicate wants and needs before symbols (speech/sign) are used.
REAL-EAR MEASUREMENT:	An audiological test that measures the actual output of the hearing aid in the ear canal. It assesses how effectively sound is actually being amplified by the hearing aids in the ear.
RELAY SERVICES:	Relay Service/Relay Network – A service which involves an operator “relaying” conversation between a TTY/TDD user (generally a person with a hearing loss and/or speech disorder) and a hearing/speaking individual using an ordinary, non-adapted phone.
RESIDUAL HEARING:	Auditory abilities of an individual with a hearing loss (i.e., the amount of usable hearing).
SEMANTICS:	The use of language in meaningful referents, both in word and sentence structures.

SENSORINEURAL:	A type of hearing loss caused by damage that occurs to the inner ear (cochlea) and/or the nerve of hearing. Sensorineural damage is usually irreversible.
SIGN BABBLING:	Infants who are hearing put sounds together (babble) before they talk. Infants who are exposed to sign language put handshapes together (sign babble) before they sign.
SIGNESE:	Families who are hearing talk to their infants in a special way called motherese or parentese. Families who are deaf sign to their infants in a special way called signese.
SPEECH AWARENESS THRESHOLD (SAT):	This is the faintest level at which an individual detects speech 50% of the time.
SPEECH BANANA (SPEECH ZONE):	The area on an audiogram where most conversational sounds of spoken language occur. It is called the “speech banana” because of the shape.
SPEECH INTELLIGIBILITY:	The ability to be understood when using speech.
SPEECH-LANGUAGE PATHOLOGIST:	A professional who works with individuals who have specific needs in the areas of speech and language.
SPEECH RECEPTION THRESHOLD (SRT):	This is the faintest level at which an individual identifies 50% of the simple spoken words presented.
SPEECHREADING (LIPREADING):	The interpretation of lip and mouth movements, facial expressions, gestures, prosodic and melodic aspects of speech, structural characteristics of language, and topical and contextual clues.
SUPRASEGMENTALS:	Parts of speech that include breath control, loudness, pitch, and duration. There are corresponding parts in sign production.
SYNTAX:	The way in which words are put together to form sentences, clauses, and phrases.
TACTILE AIDS:	A type of assistive communication device that emits a vibration or “tactile” signal to indicate the presence of sound(s). It is worn on the body and triggers the sense of touch or feeling to draw attention to information that cannot be heard by the individual with hearing loss.
TELECOMMUNICATION DEVICES:(TTY/TDD)	TTY = Teletypewriter. TDD = Telecommunication Device for the Deaf. Originally and often still called TTY’s, these electronic devices allow the deaf and hard of hearing to communicate via a text telephone system. This term appears in ADA (Americans with Disabilities Act) regulations and legislation.
TYMPANOGRAM:	A “pressure” or “impedance” test that tells how the ear canal, eardrum, Eustachian tube, and middle ear bones are working. It is not a hearing test.
UNILATERAL HEARING LOSS:	A hearing loss in one ear.
VISUAL REINFORCEMENT AUDIOMETRY (VRA):	A method of assessment in which the child is conditioned to look at a toy that lights each time he or she hears a sound.

Sound Beginnings Early Intervention Task Force members would like to acknowledge all those who reviewed the draft document and provided their thoughtful input, including members of the Sound Beginnings Advisory Committee and the Screening and Assessment and Amplification Task Forces. Finally, we thank the many states that shared their resources.

Advisory Committee

Lorraine I. Michel, PhD, CCC-SLP, Chair, Director, Children's Developmental Services, KDHE; **Tom Bell**, Sr. V.P./Legal Counsel, KS Hospital Association; **Judy Curran**, RN, Salina; **Sara Deubner**, Parent/Consumer, Families Together, Inc.; **Rebecca Gaughan**, MD, ENT, Kansas City; **Karl Hockenbarger**, SRS; **Abby Horak**, Director of Local Health, KDHE; **Jamey Kendall**, RN, Director, Special Health Services, KDHE; **Teresa Kennalley**, MA, CCC-A, Director of Audiology, Via Christi Medical Center; **Bryan Mann**, MD, Pediatrician, Hays; **Cheryl McCart**, RN, Newton Medical Center; **Carolyn Nelson**, Coordinator, Infant-Toddler Services (Part C), KDHE; **Alexa Pochowski**, PhD, Student Support Services, KSDE; **Diane Reed**, RN, Republic County Hospital; **Rebecca Rosenthal**, Executive Director, Kansas Commission for the Deaf and Hard of Hearing; **Jane Schwartz**, MS, Teacher of Deaf/ECSE, Rainbows United, Inc.; **Jerry Slaughter**, Executive Director, Kansas Medical Society; **Kim M. Sykes**, MA, CCC-A, Coordinator, Newborn Hearing Screening Program, KDHE; **Judith Widen**, PhD, CCC-A, Associate Professor, Audiology, K.U. Medical Ctr.

Newborn Hearing Screening Task Force

Teresa Kennalley, MA, CCC-A, Chair, Director of Audiology, Via Christi Medical Center; **Karen Andregg**, MA, CCC-A, Audiologist, Lawrence; **Deb Alfors**, Administrative Director, Shawnee Mission Medical Center; **Georgia Briery**, RN, Norton County Hospital; **Jane Campbell**, MA, CCC-A, Audiologist, William Newton Memorial Hospital; **Heidi Daley**, MS, CCC-A, Audiologist, Greenbush Educational Service Center; **Rick Deines**, MS, CCC-A, Audiologist, NW KS Educ. Service Center; **Steve Grillot**, MD, Family Practice, Colby; **Kim Hendricks**, MA, CCC-A, Audiologist, Garden City Medical Clinic; **Lorraine I. Michel**, PhD, CCC-SLP, Director, Children's Developmental Services, KDHE; **Dawn O'Brien**, MEd, Assistant Director, Kansas Commission for the Deaf/Hard of Hearing; **Bonni Pennie**, Parent/Consumer, Families Together, Inc; **Jane Schwartz**, MS, Teacher of the Deaf/ECSE, Rainbows United, Inc.; **Doreen Shanteau**, RN, Nursing OB, Mercy Health, Manhattan; **Irene Wagner**, MA, CCC-A, Audiologist, Wesley Medical Center; **Kathleen Weatherstone**, MD, Neonatologist, K.U. Medical Center; **Mike Weiser**, MA, CCC-A, Audiologist, Central KS ENT Association; **Judith Widen**, PhD, CCC-A, Associate Professor, Audiology, K.U. Medical Center.

Assessment and Amplification Task Force

Judith Widen, PhD, Chair, Associate Professor, Audiology, K.U. Medical Center; **Lorna Alexander**, Consumer; Director of Special Services, Greenbush Education Service Center; **Mary Counts**, MA, CCC-A, Audiologist, Lawrence Otolaryngology Associates, PA; **Debra Gilstrap**, MA, CCC-A, Clinical Audiologist, Hutchinson; **Teresa Kennalley**, MA, CCC-A, Director of Audiology, Via Christi Medical Center; **Richard E. Lutz**, MD, Pediatrician, Geneticist, Wichita; **Michael Machen**, MD, Family Practice, Quinter; **Bryan Mann**, MD, Pediatrician, Hays; **Lila McKee**, MA, CCC-A, Educational Audiologist, Hutchinson; **Lorraine I. Michel**, PhD, CCC-SLP, Director, Children's Developmental Services, KDHE; **Robert Moser**, MD, Family Practice, Tribune; **Pam Nicklaus**, MD, Pediatric ENT, Associate Professor, KU Medical Center; **Rebecca Rosenthal**, Director, Kansas Commission for the Deaf and Hard of Hearing; **Diane Schoening**, RN, Director of Nursing, Sabetha Community Hospital ; **Jane Schwartz**, MS, Teacher of the Deaf/ECSE, Rainbows United, Inc.; **Pam Shaw**, MD, Director of Ambulatory Pediatrics, K.U. Medical Center; **Ken Smith**, PhD, AuD, President/CEO, Hearing Associates, Inc., Overland Park; **Gail Sprecher**, MS, CCC-A, Assistive Technology Unit Coordinator, KS School for the Deaf; **Kim M. Sykes**, MA, CCC-A, Coordinator, Newborn Hearing Screening Program, KDHE; **Alicia Troike**, MA, CCC-A/SLP, Audiologist, Greenbush Educational Service Center