

Resource Manual

for families with a young child who is
deaf or hard of hearing



Information gathered together by the staff of the
Parent-Infant Program for Children
who are Deaf and Hard of Hearing,
age birth to five years old, and their families



Product of
North Dakota School for the Deaf/
Resource Center for Deaf and Hard of Hearing



A Division of the North Dakota Department of Public Instruction, Dr. Wayne Sanstead, Superintendent
NDSD/RCDHH does not discriminate on the basis of race, color, national origin, sex, age, or disability in
employment or provision of services.

How to access services from North Dakota School for the Deaf/ Resource Center on Deaf and Hard of Hearing

Families, school districts, area education agencies, other interested individuals and North Dakota School for the Deaf/Resource Center on Deaf and Hard of Hearing (NDSR/RCDHH) work together to provide appropriate services...

For on-site school-age programs:

- 1** Contact your local school district
- 2** Contact North Dakota School for the Deaf.
Carmen Suminski,
Superintendent: 701-665-4400
Toll Free: 1-800-887-2980
- 3** Tour North Dakota School for the Deaf's campus with your area education agency and local school district staff
- 4** Work with your school district to schedule an IEP meeting to determine placement that includes a NDSR/RCDHH representative.



Parent-Infant Programs & Outreach Regional Offices

Program Coordinator

1401 College Drive North
Devils Lake, ND 58103
(701) 665-4400

Toll Free: 1-800-887-2980

Northwest

Memorial Hall
500 University Avenue West
Minot, ND 58701
(701) 858-3357

Southwest

418 East Broadway, Suite 228
Bismarck, ND 58501
(701) 328-3987

Northeast

1401 College Drive North
Devils Lake, ND 58301
(701) 665-4420

Southeast

1510 12th Avenue North
P.O. Box 5036
Fargo, ND 58105
(701) 231-6036

To access Outreach Services:

- 1** Contact the designated person listed below for each service area:

Parent-Infant Program:

(For birth to age five)

Carol Lybeck.....701-665-4400
Carol.Lybeck@sendit.nodak.edu

School Age Services:

(Assessments & Consultations)

Carol Lybeck...701-665-4400
Carol.Lybeck@sendit.nodak.edu

Adult Services:

Pam Smith.....701-665-4401
Pam.Smith@sendit.nodak.edu

Interpreting/Communication

Lilia Bakken.....701-665-4423
Lilia.Bakken@sendit.nodak.edu

Dual Sensory/Deafblind

Sherri Nelson.....701-231-6033
shnelson@nd.gov

Summer Camps

Linda Ehlers.....701-231-6036
Linda.A.Ehlers@sendit.nodak.edu

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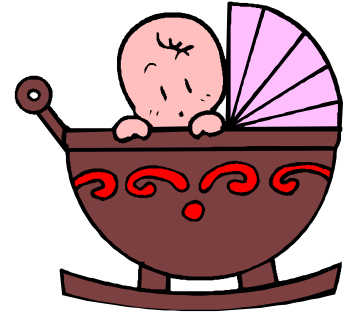
This resource manual was put together at the request of several parents in our parent-infant program. We hope you find the information useful. The staff of the outreach department hopes to continue to add informational pages as they are developed and requested by families.

If you have ideas that you would like to see information on, please contact your regional outreach office and let them know. As time goes on, the information, especially in the resource section may become outdated. We will try to keep the information updated, however, if you find an error, please bring it to our attention. Thank you.

Facts and Figures on Hearing Loss in Children

Did you know?

- ❖ Every day in the United States, approximately 1 in 1,000 newborns (or 33 babies every day) is born profoundly deaf with another 2-3 out of 1,000 babies born with partial hearing loss, making hearing loss the number one birth defect in America. (Ross et al., 2008)
- ❖ Newborn hearing loss is 20 times more prevalent than phenylketonuria (PKU), a condition for which all newborns are currently screened.
- ❖ Of the 12,000 babies in the United States born annually with some form of hearing loss, only half exhibit a risk factor – meaning that if only high-risk infants are screened, half of the infants with some form of hearing loss will not be tested and identified. In actual implementation, risk-based newborn hearing screening programs identify only 10-20% of infants with hearing loss. When hearing loss is detected beyond the first few months of life, the most critical time for stimulating the auditory pathways to hearing centers of the brain may be lost, significantly delaying speech and language development. (Harrison & Roush, 1996)
- ❖ Only 69% of babies are now screened for hearing loss before one month of age (up from only 22% in 1998). Of the babies screened, only 56% who needed diagnostic evaluations actually received them by three months of age. Moreover, only 53% of those diagnosed with hearing loss were enrolled in early intervention programs by six months of age. As a result, these children tend to later re-emerge in our schools' special education (IDEA, Part B) programs.
- ❖ When children are not identified and do not receive early intervention, special education for a child with hearing loss costs schools an additional \$420,000, and has a lifetime cost of approximately \$1 million per individual. (Johnson et al., 1993)



Who Can Help?

You will meet many professionals and other people who can help you and your child. This section briefly describes who may be a part of your family's care team, and how each of them can help.



Pediatrician or Family Practitioner

- ◆ Refers you to an audiologist who works with infants and young children.
- ◆ Answers questions you may have about medical treatment of your child's hearing loss.
- ◆ Helps you access early intervention services.
- ◆ Treats your child or refers to ear specialists for middle ear problems, such as ear infections, that can affect your child's hearing.

Otologist, Otolaryngologist or Ear, Nose, & Throat (ENT) Doctor

- ◆ Makes sure there is not a treatable condition in your child's outer or middle ear that is causing the hearing loss.
- ◆ Explains and talks with you about possible medical or surgical treatments for hearing loss.
- ◆ Diagnoses and treats ear infections and other medical problems that can affect your child's hearing.
- ◆ Gives approval or "medical clearance" for your child to wear hearing aids.
- ◆ Schedules other tests to find out more about the causes of your child's hearing loss.

Audiologist

- ◆ Has the proper training and equipment to test hearing. **PEDIATRIC AUDIOLOGISTS** specialize in working with infants and young children.
- ◆ Obtains detailed information about your child's hearing.
- ◆ Recommends and fits amplification (hearing aids, FM systems, cochlear implant).
- ◆ Adjusts your child's hearing aids when needed.
- ◆ Works with you to assess how well your child responds to sounds at home.
- ◆ Provides information about early intervention options to your family.
- ◆ Works with you and your early intervention specialist to maintain your child's amplification.

Developmental Disabilities Coordinator

- ◆ Helps families with children birth to three access services they need.
- ◆ Helps families with children birth to three find resources to pay for services.

Early Intervention Specialist for the Deaf and Hard of Hearing (D/HH) Infants and Toddlers [Parent Infant Program (PIP)]

- ◆ Works with families of children birth to three years old with communication and learning needs.
- ◆ Provides you and your child with individualized and family-centered services that will help your child learn communication and language skills.
- ◆ Helps assess your child's and family's strengths and needs.
- ◆ Helps answer questions about how your child's hearing loss affects communication, learning, and participation in school and society.
- ◆ Talks with you about your observations and concerns about your child.
- ◆ Works with your child's audiologist to help you learn to use your child's amplification. Also helps make sure your child's amplification devices are working well.
- ◆ Keeps records of your child's progress in communication and development.
- ◆ Gives you support during difficult times.
- ◆ Gives you opportunities to network with other adults and children with hearing loss.
- ◆ Helps define your child's educational needs when your child is ready to "graduate" from early intervention.



Medical Geneticist/Genetics Counselor

- ◆ Determines if there is a genetic cause for your child's hearing loss.
- ◆ Provides counseling to families about the implications of a genetic hearing loss.

Speech Language Pathologist

- ◆ Provides speech and language therapy to help make your child's speech more understandable.
- ◆ Evaluates your child's speech and language skills.

Aural Rehabilitation Specialist

- ◆ Develops your child's listening skills to help your child learn speech and language.

Counselor/Therapist

- ◆ Gives emotional support for children and families.
- ◆ Helps you and your family with emotional issues surrounding your child's hearing loss.

Taken and adapted from Idaho's Help and Hope Family Resource Guide for Infants & Young Children who are Deaf or Hard of Hearing

Other Parents of Children who are Deaf and Hard of Hearing

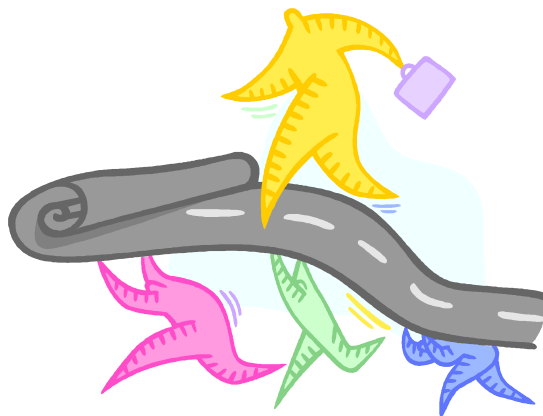
- ◆ Share experiences they have had.
- ◆ Tell you about the helpful people and resources they have found.
- ◆ Listen to you.
- ◆ Share their feelings about parenting a child with hearing loss.
- ◆ Tell you about their child’s achievements.
- ◆ Meet with you so your children can play together.

Support Groups:

<p>Family Voices of North Dakota PO Box 163 (312 2nd Ave. W.) Edgeley, ND 58433 Ph: 701-493-2634 Email: fvnd@drtel.net</p>	<p>North Dakota Hands & Voices P.O. Box 5734 Fargo, ND 58103 Ph: 701-484-1605 Email: handsandvoicesnd@midco.net</p>
<p>Alexander Graham Bell Association for the Deaf and Hard of Hearing 3417 Volta Place, NW Washington, DC 20007 Ph:(202) 337-5220 TTY: (202) 337-5221 Email: info@agbell.org Website: www.agbell.org</p>	<p>American Society for Deaf Children #2047—800 Florida Avenue N.E. Washington, DC 20002-3695 Ph: (800) 942-2732 asdc@deafchildren.org Website: www.deafchildren.org</p>

Adults who are Deaf and Hard of Hearing

- ◆ Share personal experiences about being deaf or hard of hearing.
- ◆ Share educational, social and cultural perspectives.
- ◆ Show you different methods of communication.
- ◆ Act as a role model for your child.
- ◆ Provide encouragement for your family in meeting challenges and raising a successful child.



Taken and adapted from Idaho’s Help and Hope Family Resource Guide for Infants & Young Children who are Deaf or Hard of Hearing

HEARING AND HEARING LOSS

HOW WE HEAR:

The ear is commonly described as having three sections:

1. OUTER (EXTERNAL),
2. MIDDLE, and
3. INNER EAR.

The *OUTER EAR* funnels the sound waves of sound vibrations down through the ear canal causing the eardrum (tympanic membrane) to vibrate. This vibration causes the three *MIDDLE EAR* bones (ossicles) to vibrate, which amplifies the incoming sound. This creates movement of the fluid *INNER EAR* (cochlea), which sends nerve impulses to the brain. Once the brain receives the impulse, we have a sensation of sound.

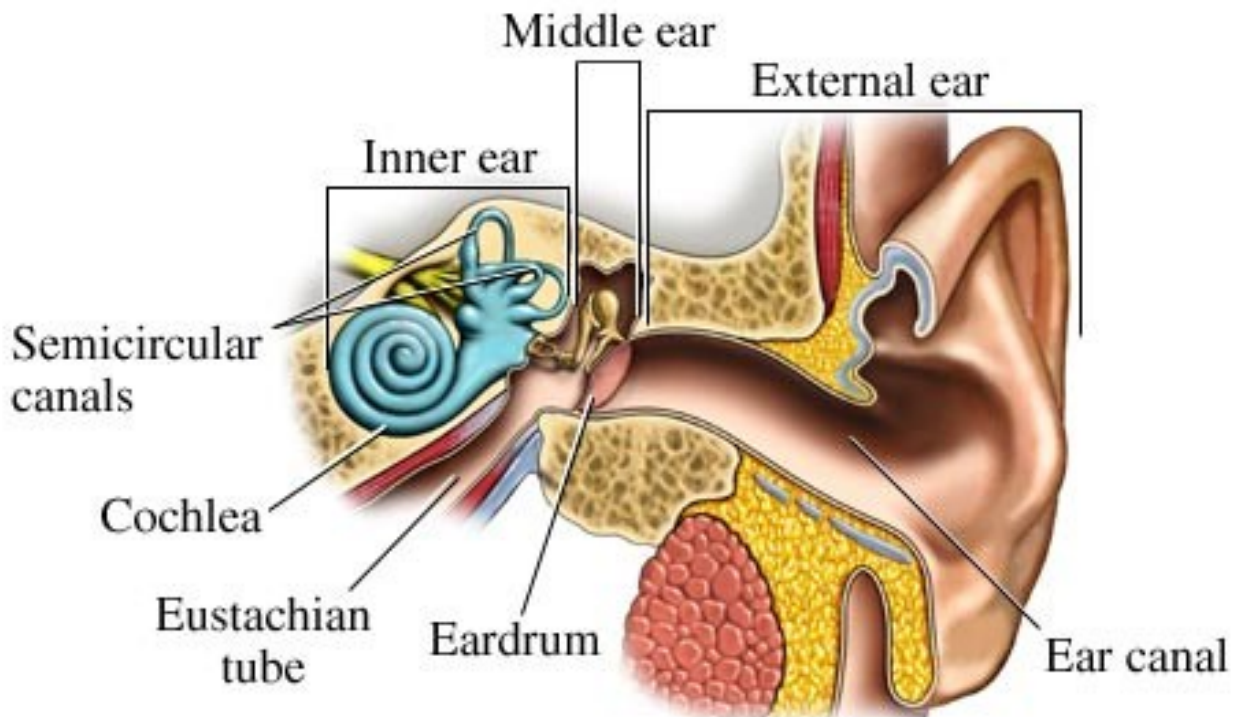


Image by Nucleus Communications, Inc. <http://www.nucleusinc.com>

Taken and adapted from Idaho's Help and Hope Family Resource Guide for Infants & Young Children who are Deaf or Hard of Hearing

TYPES OF HEARING LOSS:

Hearing loss can occur in either the outer, middle, or inner ear.

Conductive Hearing Loss

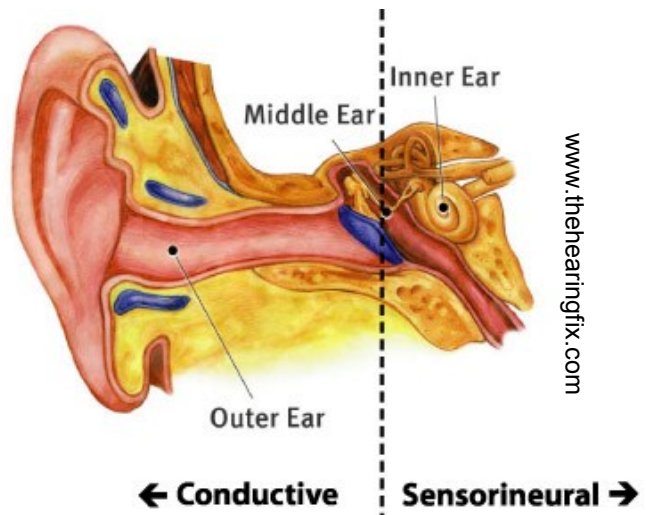
If there is a problem in the *OUTER* or *MIDDLE EAR*, a conductive hearing loss exists. This means that the outer or middle ear problem impedes the sound, that sound cannot be conducted into the inner ear. Common causes of conductive hearing losses are wax, fluid, damaged eardrum or ossicles. A conductive hearing loss can also be caused by an anatomic abnormality, either the absence of an opening to the ear canal, an absent or incomplete outer ear, or absent or incomplete middle ear system. This type of hearing loss is usually medically or surgically treated.

Sensorineural Hearing Loss

If there is a problem in the *INNER EAR*, the hearing loss is sensorineural. Common causes of sensorineural hearing loss are pre-natal infections, lack of oxygen, genetic factors, and abnormalities or diseases affecting the cochlea. Sensorineural hearing loss usually cannot be cured medically or surgically. Hearing aids or other amplification systems, such as assistive listening devices and cochlear implants, can help children hear better and develop speech and language.

Mixed Hearing Loss

If the hearing loss involves both a conductive problem and a sensorineural problem, the hearing loss is known as a *mixed* hearing loss. The conductive component



DEGREE OF HEARING LOSS:

Hearing loss is categorized as **Mild, Moderate, Severe, Profound, or Unilateral**. Hearing loss can be entirely within one category, or pass through several across frequencies; for example, a child can be described as having a “mild-moderate hearing loss,” or a “moderate-to-profound hearing loss.” See the section entitled “**How Much My Child Can Hear?**” for more details about the impact of the various degrees of hearing loss.

Taken and adapted from Idaho’s Help and Hope Family Resource Guide for Infants & Young Children who are Deaf or Hard of Hearing

How much can my child hear?

Hearing loss can range from a mild to a profound degree. How much your child can hear depends on the degree of hearing loss and what decibel level your child can hear at different frequencies. The following refer to bilateral hearing loss (in both ears).

Degree of Hearing Loss	Description <i>Also included is an example of the brain's ability to hear speech with a hearing loss of the sentence "Freddie thought he should find a whistle."</i>
<p>Mild 21-40 dB</p> <p>Freddie though- e -ould -ind a whi-le.</p>	<p>Children with a mild hearing loss may have difficulty hearing soft, or distant speech. They can miss up to 10% of speech or more, in a noisy environment. Studies suggest that children with mild hearing loss may have difficulty in school without appropriate accommodations, such as an FM system or preferred seating. Hearing aids may be recommended.</p>
<p>Moderate 41-70 dB</p> <p>-reddie -ough- -e -ould -i- a -i-le.</p>	<p>Children with moderate hearing loss may miss 50-100% of speech without hearing aids. Hearing aids and intervention services can help support your child as s/he learns to hear and speak. Sign language is also known to augment speech, language and overall development</p>
<p>Severe 71-90 dB</p> <p>-e-ie -ou- -e -ou- -i- a -i-le.</p>	<p>Children with severe hearing loss may miss 100% of speech. These children may <i>respond</i> to loud voices or environmental sounds, however, they may not know what these sounds mean. Use of amplification (hearing aids or a cochlear implant) with aural training and/or sign language can greatly increase language development.</p>
<p>Profound 91 dB +</p> <p>LOUDsoft LOUD soft soft LOUD soft LOUDsoft.</p>	<p>Children with profound hearing loss are usually more aware of vibrations than voice patterns. These children rely on vision as the primary avenue for communication and learning. Residual hearing with amplification may enhance speech development. Profoundly deaf children are potential candidates for cochlear implant. Use of sign language is also an option.</p>



Your child's ability to communicate can be improved greatly by introducing hearing aids and intervention as early as six months.

Taken and adapted from Hawaii Resource Guide for Families of Children with Hearing Loss/HI State Dept. of Health

What is Otitis Media?

What is Otitis Media?

Otitis Media is the scientific name for an ear infection. An ear infection is an inflammation of the middle ear, usually caused by bacteria, that occurs when fluid builds up behind the eardrum. Anyone can get an ear infection, but children get them more often than adults. Three out of four children will have at least one ear infection by their third birthday. In fact, ear infections are the most common reason parents bring their child to a doctor.

What are the symptoms of Otitis Media?

There are three main types of ear infections. Each has a different combination of symptoms.

- ◆ **Acute otitis media (AOM)** is the most common ear infection. Parts of the middle ear are infected and swollen and fluid is trapped behind the eardrum. This causes pain in the ear - commonly called an earache. Your child might also have a fever.
- ◆ **Otitis media with effusion (OME)** sometimes happens after an ear infection has run its course and fluid stays trapped behind the eardrum. A child with OME may have no symptoms, but a doctor will be able to see the fluid behind the eardrum with a special instrument.
- ◆ **Chronic otitis media with effusion (COME)** happens when fluid remains in the middle ear for a long time or returns over and over again, even though there is no infection. COME makes it harder for children to fight new infections and also can affect their hearing.

How can I tell if my child has an ear infection?

Most ear infections happen to children before they've learned how to talk. If your child isn't old enough to say "My ear hurts," here are a few things to look for:

- Tugging or pulling at the ear(s)
- Fussiness and crying
- Trouble sleeping
- Fever (especially in infants and younger children)
- Fluid draining from the ear
- Clumsiness or problems with balance
- Trouble hearing or responding to quiet sounds

What is a unilateral hearing loss?

A unilateral hearing loss means there is hearing loss in one ear. Whether the hearing loss is mild or profound, there are things you can do to help make listening easier for your child.

Strategies to help your child with a unilateral hearing loss:

- ❖ **Notice if you live in a noisy environment.** Make the house quiet so your child will hear you better.
- ❖ **Notice the distance** between you and your child when you communicate. Come closer when you want to talk to your child.
- ❖ Get your child's **attention before speaking.** Use gestures and keep your lips visible as much as possible.
- ❖ **Point out** environmental sounds (phones, cars, airplanes). It's difficult to find a sound source when you don't hear the same in each ear.



It's important for a child with unilateral hearing loss to maintain a healthy "good ear". This will prevent the hearing loss of the poorer ear from worsening.

Keep the ears healthy

- ❖ Note that babies can sometimes develop fluid in their ears from drinking their bottles lying down. **Hold your child on your lap in an upright position while giving them a bottle.**
- ❖ Have your child's **hearing tested** on a regular basis as recommended by your audiologist.
- ❖ If your child has an **ear infection**, go to your doctor right away. An ear infection may make it harder to hear in the good ear.
- ❖ Have a **speech and language assessment** every three to six months to check your child's language development.

Taken from Hawaii Resource Guide for Families of Children with Hearing Loss/HI State Dept. of Health

Testing your baby's hearing

Six Months to 2-2 1/2 Years

VISUAL REINFORCEMENT AUDIOMETRY (VRA):

Infants and toddlers older than six months can be tested using a behavioral technique known as Visual Reinforcement Audiometry. VRA is a behavioral audiometric test obtained in a sound-treated room. The child is seated on a parent's lap or in a chair between two calibrated loudspeakers, or using earphones. When a sound such as a tone at a specific frequency, speech, or music is presented, the infant's eye-shift or head-turn response towards the sound source is rewarded by activation of a lighted mechanical toy mounted near the loudspeaker. The child's attention then is distracted back to the midline so that additional sounds can be presented. Any test performed through loudspeakers rather than earphones is called "sound field" audiometry and does not test each ear separately; rather, sound field audiometry yields an audiogram for the better-hearing ear if there happens to be an ear difference in hearing. However, if the child tolerates wearing earphones, then the test assesses hearing in each ear separately.



www.allianceaudiologyllc.com/index.php/hearing-information

Two Years to Five Years

CONDITIONED PLAY AUDIOMETRY (CPA):

Young children can be tested using Conditioned Play Audiometry. This is a game-like activity where the child is trained to wait and listen for a sound and then performs a specific task when s/he hears it; For example, dropping a block in a bucket, stacking rings or pegs. As with VRA, it is possible to obtain detailed information about the hearing loss across frequencies for both ears. In addition, specific information regarding speech discrimination can also be obtained.



www.arizonabalance.com/caring-for-hearing/specialized-tests-for-hearing

Taken from Idaho's Help and Hope Family Resource Guide for Infants & Young Children who are Deaf or Hard of Hearing

Audiological¹⁵ Assessments of Infants and Toddlers

As of result of North Dakota Center for People with Disabilities at Minot State University receiving the First Sounds grant in April of 2000, all birthing facilities in North Dakota were provided with screeners to screen for hearing loss of infants within the few days of life. If an infant receives a “refer” on the 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 (an OAE) to indicate 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 an infant may have a medically treatable condition [e.g., a hole in the tympanic membrane, fluid in the middle ear (e.g. otitis media), or abnormal movement of the small bones (ossicular chain) of the middle ear] and should have a medical referral. Tympanometry is for all ages. However, cautious interpretation is required when used with infants younger than four months of age.

Taken and adapted from Florida’s Resource Guide for Families with Young Children with Hearing Loss.

Audiological Assessments of Infants and Toddlers - cont.¹⁶

ACOUSTIC REFLEX

This test uses the same probe as 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 the 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

This test measures hearing sensitivity to sounds (e.g., speech or pure tones) presented from speakers or earphones, through the outer, middle and inner ear to brain. Visual reinforcement audiometry or conditioned play audiometry are techniques used by the audiologists 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. Air conduction testing is for all ages where reliable responses can be obtained.

BONE CONDUCTION TESTING

This test measures hearing sensitivity to sounds 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 brain. Visual reinforcement audiometry or conditioned play audiometry 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. Bone conduction testing is for all ages where reliable responses can be obtained.



Taken and adapted from Florida's Resource Guide for Families with Young Children with Hearing Loss.

Audiological Assessments of Infants and Toddlers - cont.¹⁷

SPEECH AWARENESS THRESHOLD (SAT)

This test measures *awareness* to speech presented through speakers, insert earphones, earphones or a bone oscillator. The purpose of this test is to obtain a speech threshold (i.e. 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 to pure tones. Speech awareness testing is for all ages where reliable responses can be obtained.

SPEECH RECOGNITION THRESHOLDS (SRT)

This test presents speech through speakers, insert earphones, earphones, or a bone oscillator in order to determine a threshold to *recognized* words. The child must know names of some common objects in order to participate in this test. The audiologist presents words (e.g. 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. Speech recognition testing is for all ages where reliable responses can be obtained

Taken and adapted from Florida's Resource Guide for Families with Young Children with Hearing Loss.

Hearing Loss Simulations:

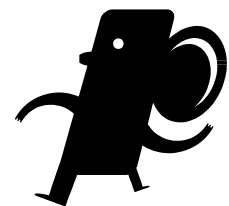
<http://facstaff.uww.edu/bradleys/radio/hlsimulation/>

http://www.betterhearing.org/hearing_loss/hearing_loss_simulator/index.cfm

<http://www.cdc.gov/niosh/mining/topics/hearingloss/hlsoundslike.htm>

http://www.e-a-r.com/hearingconservation/audio_main.cfm

OTHERS:

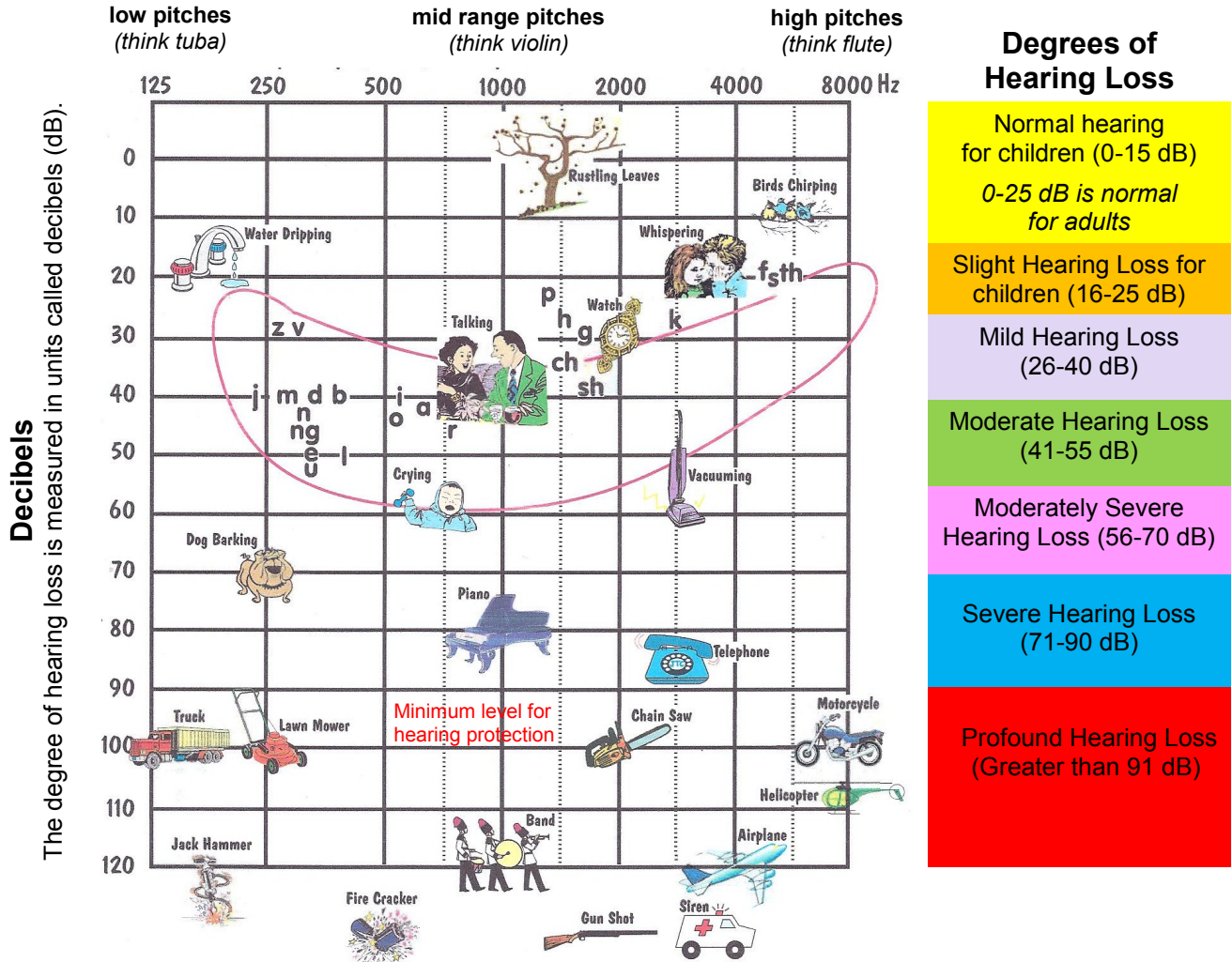


Taken from Kansas Parent-Resource Manual

What is an audiogram?

Frequency

This is the pitch of the sound. Frequency is measured by the number of waves or cycles that a sound makes in a single second. The scale that is used to measure cycles per second (cps) is called Hertz (Hz).



Adapted from familiar sounds audiograms from John Tracy Clinic and J.L. Northern & M.P. Downs (1984).

The audiologist will measure an individual's hearing and plot a graph called an audiogram. An audiogram is a graph used to show the softest sounds that a person can hear at different pitches.

Humans can hear sounds in the pitch or frequency range from 20 to 20,000 Hertz. The pitch range that is most important for hearing and understanding human speech is from 250-6000 Hertz.

The "banana shaped" area on the graph shows the range of sounds included in typical speech. Different sounds in our language vary in their pitch and loudness. For example, the "s" sound you use in the word "cats" is high in pitch and fairly soft. In contrast, the "o" sound in "bow" is low in pitch and fairly loud. The frequency and loudness of individual speech sounds as well as for various environmental sounds are shown on the audiogram.

How to read an audiogram?

Hearing is graphed on an audiogram, a graph of the softest sounds your child can hear. The graph is laid out like a piano keyboard, with low to high frequencies (low to high pitches) going from left to right, ... and the graph is laid out from soft sounds on the top to loud sounds on the bottom.

Testing hearing sensitivity by presenting sounds through head/ear phones or speakers measures air conduction, or how sounds travelling through air are conducted to the inner ear. The symbol "O" or a triangle represents responses from the right ear, obtained through earphones. The symbol "X" or square represents left ear responses from earphones. If the audiologist was unable to obtain separate responses for each ear using earphones and used speakers instead, s/he may use a "S" to represent how your child heard using both ears. An arrow (\swarrow , \searrow) at the bottom of the symbol denotes that no response was obtained for that sound.

Legend	Right	Left
Air Conduction	O	X
•with masking	△	□
Bone Conduction	<	>
•with masking	[]
No Response	↙	↘

Testing hearing sensitivity by presenting sounds through a special headset called a bone-conduction vibrator measures bone conduction, or how sounds are heard when the inner ear is directly stimulated by vibrations against the bone behind the ear. Inner ear, or bone-conduction responses, are also recorded on an audiogram. You may see some of the following symbols on your child's audiogram: "<," ">," "[," or "]"". These responses are used for determining the type of hearing loss your child has; conductive, mixed or sensorineural. If you are uncertain of the type of loss your child has, ask your child's audiologist. S/he can determine the type of loss your child has by examining the results from the hearing tests, tympanometry and medical evaluations.

Masking:

The triangle, square, "[" and "]" symbols indicate that the assessment used masking. Masking is a procedure audiologists use while testing to separate the two ears, acoustically. The process is very much like when you get an eye exam, and you don't want to test both eyes at the same time. You separate them by covering one then testing the other to determine if it is normal or impaired. In audiology noise is used as the masker. Covering the ears just wouldn't work. Instead, noise is introduced to one ear while the other ear is tested with a tone (or speech signal). To indicate that the hearing thresholds were obtained using masking, masked threshold symbols are used on the audiogram.

How to read an ²⁰audiogram - cont.

How hearing is measured:

Hearing is NOT measured in percentages. Instead, it is measured in an arbitrary unit of loudness called the DECIBEL. The decibel (dB, or dB HL) is a logarithmic scale. Physically, every 6 dB increase represents a doubling of sound pressure level. Perceptually, every 10 dB increase sounds twice as loud.

Every increase of 10 decibels (10 dB) sounds twice as loud. 20 dB sounds twice as loud as 10 dB... 40 dB sounds twice as loud as 30 dB and 8 times as loud as 10 dB (10 to 20 to 30 to 40 = 2 x 2 x 2 = 8). Normal hearing ranges is from 0 to 20 dB in all frequencies.

In Summary: What the audiogram tells you:

- What sounds of spoken language your child hears and doesn't hear.
- What kinds of hearing aids might help your child.
- What type of hearing loss your child has.

If your child has a conductive hearing loss, s/he may need medical treatment. If your child has a sensorineural hearing loss, s/he may need hearing aids.

If your child wears hearing aids

- If your child gets hearing aids, the audiologist will test the hearing with and without the hearing aids. The audiogram shows how much the hearing aids help your child hear.

Common audiogram/audiologic assessment abbreviations

You may also see the following abbreviations on your child's audiogram.

CNT - Could not test

DNT - Did not test

NR - No Response

SNHL - Sensorineural Hearing Loss

WNL - Within Normal Limits

VT - Vibrotactile Response

BC - Bone Conduction

AC - Air Conduction

PTA - Pure-Tone Average

UCL - Uncomfortable Loudness Level

HL - Hearing Level

MCL - Most Comfortable Loudness Level

SPL - Sound Pressure Level

SRT - Speech reception threshold

HA - Hearing Aid

SAT - Speech awareness threshold

Receiving a Hearing Aid²¹

Following diagnosis of hearing loss and determination that your child is a candidate for hearing aids, the process of obtaining and fitting hearing aids begins and includes five steps.



FIRST STEP: Medical Clearance

Children under age 18 years of age are required by law to have written medical clearance for use of amplification from their physician, preferably an otolaryngologist, before hearing aids are fit.

SECOND STEP: Selection of Hearing Aids

Selection of hearing aids involves making decisions on specific features and functional needs of the hearing aid, such as requesting a tamper resistant battery door, direct audio input, and selecting colors for the hearing aids and earmolds

Impressions are made of your child's ears at this time and custom earmolds are ordered. It is important to remember that your child is growing rapidly, therefore the earmolds and hearing aids need to be fit as soon as possible, preferably within one week. The longer the period between when the impressions are taken and the fitting, the less time the earmolds will last before replacement is needed.

THIRD STEP: Hearing Aid Fitting

Once the hearing aids and earmolds are ordered an appointment to fit the hearing aids is scheduled. At this appointment the audiologist will check that the earmolds fit well and will customize the programmed settings of the hearing aids to ensure that your child receives adequate access to sound. This is done by taking a special measurement of your child's ear called real-ear-to-coupler difference (RECD). This quick test measures unique characteristics of your child's ear with the custom earmold in place and allows the audiologist to account for the large physical variety that exists between children, even of the same age, in order to individualize the hearing aid settings to best meet your child's needs. The values from the RECD measurement along with your child's hearing test results are then used to precisely program the hearing aids. To do this, the audiologist performs additional measures in a test box (while you and your child relax) that stimulates how well the hearing aid settings will allow your child to hear soft, average and loud speech sounds, and also to make sure loud sounds will not be too loud. The audiologist will fine tune the settings during this test based on the results to make sure the hearing aids are set appropriately for your child.

Taken from Interactive Notebook for Families with a Child who is Deaf or Hard of Hearing/
Utah Newborn Screening Program

Receiving a Hearing Aid - cont.

FOURTH STEP: *Orientation to the Hearing Aids*

Orientation to the hearing aids begins at the hearing aid fitting appointment and is ongoing as you learn how to manage the daily function of the hearing aids and become comfortable with the process. The orientation includes training in the following:

- ❖ Caring for and cleaning hearing aids
- ❖ When the hearing aids should be worn
- ❖ How to keep the hearing aids on the ears
- ❖ Insertion
- ❖ Removal
- ❖ Overnight storage
(including how to turn off the hearing aids)
- ❖ Insertion and removal of batteries
- ❖ Information on battery life, storage, disposal and toxicity
- ❖ Basic steps to try when problems occur with batteries, feedback, plugged earmold and/or receiver
- ❖ How to use a hearing aid with a telephone (if appropriate)
- ❖ Moisture solutions
- ❖ Tools to help take care of hearing aids (e.g. battery tester, listening stethoscope)
- ❖ Issues dealing with loss of hearing aids (including spare hearing aids and any loaner program)
- ❖ Recommended follow-up appointments to monitor how hearing aids are working



As part of the orientation process you will be instructed on how to perform a listening check on the hearing aids. Each day before putting the hearing aids on your child, inspect the earmolds and hearing aids for any problems, such as cracks or broken parts. A listening check can then be performed to check the sound quality of the hearing aids and to make sure they are functioning. As part of the fitting you should receive a listening stethoscope and a hearing aid care kit from your audiologist.

FIFTH STEP: *Validation of Benefit*

To determine the benefit your child is receiving from the hearing aids, you will be asked to observe your child during typical daily activities. You should be provided with a questionnaire to help you assess how well your child is hearing in different situations. This information is valuable and is used by your audiologist to help determine if any changes in the hearing aid settings are needed. It also helps to guide other intervention decision, such as whether or not an FM system should be considered.

Taken from Interactive Notebook for Families with a Child who is Deaf or Hard of Hearing/
Utah Newborn Screening Program

Daily Hearing Aid Check²³

A listening check is a simple way to determine if a hearing aid is working properly. A hearing aid stethoscope and a battery tester are required to do a listening check and they can be purchased from most audiologists.

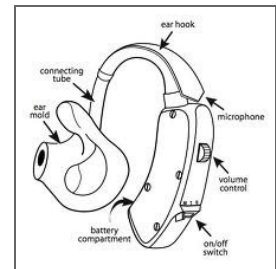
Listening checks should be done on a scheduled basis or whenever the hearing aid wearer has difficulty with the hearing aid.

First Thing to Check: Battery

- a. Does it need a new battery: Check with battery tester
- b. Is the battery properly placed in hearing aid?
- c. Is it turned on?

LISTENING CHECK:

1. Connect the listening tube/stethoscope to the canal portion of the ear mold or hearing aid (ITE)
2. Make sure the hearing aid is turned on
3. Listen to the sound quality. Hold the hearing aid about 1 to 1 1/2 inches from your mouth and talk comfortably into the hearing aid. If able, adjust the volume control and listen for gradual change in volume.



Say the **Ling Sounds: oo, ah, ee, sh, ss, mm**

- a. Does the signal sound clear?
- b. Is there any distortion, static or internal noise?
- c. Does the signal cut in and out? Does it cut out if there is movement of the hearing aid or if you press on the case?
- d. Does the signal gradually get louder and softer as you manipulate the volume wheel (if applicable)
 - 1.) Does the wheel turn easily?
 - 2.) There should not be breaks in the sounds as your change the volume.
 - 3.) Volume wheel may be disabled, especially if the user is young.
5. Turn hearing aid off and listen for it to shut off completely.

Daily Hearing Aid Check - cont.

VISUAL INSPECTION:

1. Ear Mold

- ❖ A properly fitting ear mold should not feedback (squeal) once it's in the child's ear.
- ❖ If your child is complaining that his/her ear hurts, look for any redness or sores when the earmold is out. The earmold could be rubbing against the ear.
- ❖ Look for cracks in the earmold. Also, check to make sure the sound opening is not clogged with wax as this could prevent sound transmission into the ear.

2. Tubing:

- ❖ Look for breaks or cracks in the tubing
- ❖ When the hearing aid/earmold is in the ear, the tubing should not be twisted

3. Case:

- ❖ Look to see if the case is dirty, especially around the area of the microphone.
- ❖ Look to see if it is cracked, chipped, broken or otherwise damaged

4. Batteries:

- ❖ Look for corrosion in the battery compartment
- ❖ Make sure the battery door closes properly
- ❖ Use battery tester to ensure sufficient voltage

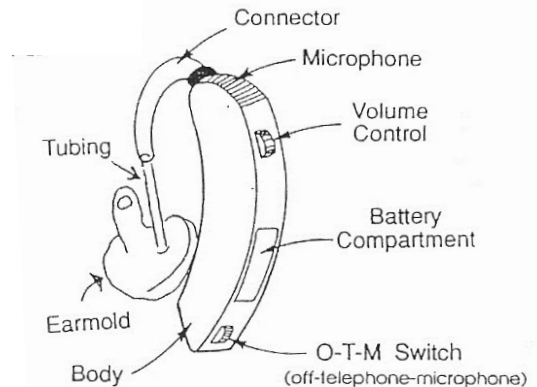
Put hearing aid on child at correct volume and check for feedback



SUMMARY OF DAILY HEARING CHECK ²⁵

1. Visually check the hearing aid

- a. cracks in the tubing
- b. water bubbles in tubing
- c. wax plugging earmold



2. Check the battery

- a. is it a fresh battery?
- b. is the battery properly placed in the hearing aid?

3. Turn hearing aid off and set the volume control at the lowest setting (if applicable)

4. Do the listening check () - put the earmold to your ear and cover earmold with the palm of your hand or use a stethoscope. Slowly turn volume control up louder and louder (if applicable)

5. Say the sounds

- a. oo
- b. ah
- c. ee
- d. sh
- e. ss
- f. mm

Listen for...

1. Does the hearing aid get louder and louder
2. Does the hearing aid goes on and off?
3. Does the hearing aid have a loud scratchy sound?

6. Put the hearing aid on your child at the correct volume and check for feedback

Post this sheet on the refrigerator or near the place where you will check your child's hearing aids and use it as a guide as you learn to become comfortable doing a hearing aid listening check.

Tips for keeping hearing aids²⁶ on little ears

You know that hearing aids are the key to your child's development of speech and language, but how do you convince your infant or toddler to keep them in his/her ears?

Just as your child may prefer not to wear shoes and socks, s/he may prefer not to have a hearing aid inserted in his/her ear(s). You will no doubt be frustrated when, after working hard to place the hearing aid in your child's ear, his/her small hand reaches up and immediately pulls it out!

The key to success is to teach your child, from the very first day, that you are in control of when and where s/he wears the hearing aid(s). As your child gets used to having the hearing aids in his/her ears, being able to hear better should encourage your child to leave them in. You can encourage your child's wearing of hearing aids by providing reinforcement. This can take the form of a reward that is only available when s/he is wearing hearing aid(s), such as a special game. Or it can be a natural consequence, such as being able to hear a song, or to talk to you, or to get encouragement and smiles from you as s/he learns to communicate. So, how do you get started?

Retention devices:

Retention devices help keep hearing aids on a small child, and can prevent your child from losing or breaking the hearing aid(s). Your audiologist or parent-infant specialist can help you identify such devices for your child. Some examples including Huggie Aids, alligator clips, Ear Gear, Critter Clips, toupee tape, hats and headbands.

Huggie Aids



www.adcohearing.com

alligator clips



<http://store.microsonic-inc.com>

toupee tape



www.babyhearing.org

pilot cap



www.hannaandersson.com

Ear Gear



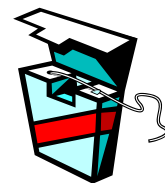
www.gearforears.com

Critter Clips



<http://www.listen-up.org>

Dental Floss and Fishing Line - Dental floss tied to a safety pin may not be as colorful as the above choices, but it can give the same security. The floss or line is tied around the tone hook of the hearing aid and the safety pin can be attached inside your child's clothing. It is important keep a short length on the floss or line.



For more ideas and more details on retention devices...go to:

<http://www.babyhearing.org/hearingamplification/aidchoices/practical.asp>

Tips for keeping hearing²⁷ aids on little ears - cont.

Ease of Insertion

What your child's earmolds are made of will affect how easily they slide into the ear. Also, if your child has a severe hearing loss, the part of the earmold that goes into the child's ear may be long and even curved. These factors, along with a squirming child, may make getting the earmold into the ear seem impossible. A lubricant and good insertion techniques can make this much easier. Put a small amount of lubricant on the part of the earmold that goes into the ear canal. Be careful not to block the sound opening. This makes it easier to slide the earmold into the ear.

You can find creams and oils that are made especially for use with earmolds. It is important to use a water based lubricant, such as **otoform** or **otoease**. These won't damage the earmold, and can prevent irritation in the ear. Vaseline is not water based, and so is not a good lubricant. Your audiologist can help you to locate these products as well as others.

Behavior plans

Your child should wear hearing aids during all waking hours so that s/he hears sounds throughout daily routines. That way, s/he will associate wearing hearing aids with hearing sounds, which will help the learning process. Be consistent in this daily routine and reinforce or reward your child for wearing the hearing aids. If a child absolutely refuses to keep the hearing aids on, and if there isn't a good reason for him or her to object to wearing them, see below.

Hearing aid concerns that need to be corrected

Although it is natural and expected that a young child will sometimes pull the hearing aids out of his or her ears, other correctable factors can cause this behavior.

Overamplification:

Your audiologist should use real ear measures to determine the sound pressure level that your child's hearing aids deliver. When the level of sound delivered is too high, it is called *overamplification*. A real ear measure is taken by putting a small, soft tube into your child's ear. The audiologist then plays sounds through a loudspeaker, and measures the level of sound pressure in the ear. Using real ear measures, your audiologist can monitor the level of sound pressure in your child's ear. This can be compared to guidelines for the maximum amount of sound that can be introduced without discomfort. The guidelines are based on age norms, although individuals differences may exist

Taken from Iowa Family Resource Guide

Tips for keeping hearing²⁸ aids on little ears - cont.

You should suspect over-amplification is the problem if your child repeatedly pulls the hearing aids out of the ears or seems to be blinking his or her eyes more than usual when wearing the hearing aids. If you see these signs, talk with your audiologist. Remember that loud sounds should not cause physical discomfort.



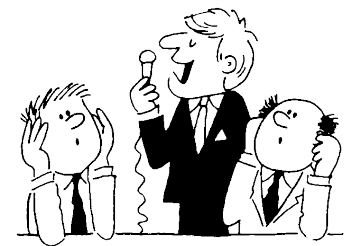
Ear infection

If your child has an ear infection, s/he may pull off the hearing aids because his or her ears are hurting. Be sure to talk to your physician and audiologist if you suspect that your child has an ear infection. They may recommend that s/he not wear the hearing aid until the ear infection clears. If your child's ears are actively draining, remove the hearing aids until the infection clears.

Feedback:

Feedback is a high-pitched squealing sound. It is likely to occur at some time with most hearing aids. With young children, it is typically related to the earmold.

- ❖ earmold that fits poorly
- ❖ earmold that is not completely inserted
- ❖ an earmold or your child's ear canal that is blocked by wax or by discharge from an ear infection
- ❖ an earmold, tubing or ear hook that is damaged
- ❖ a hat or blanket that covers the hearing aid and its microphone (feedback stops when you remove the hat or blanket)
- ❖ a hearing aid that is damaged



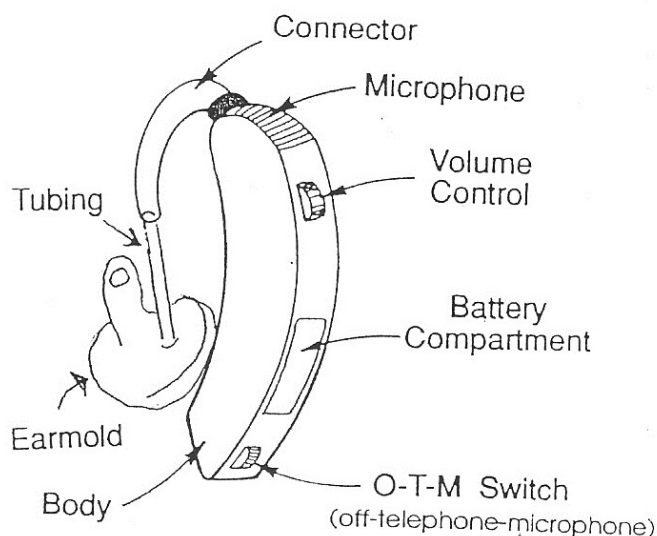
Don't turn down the volume of the child's hearing aid to control feedback. Hearing aids need to be worn at a certain volume. When the volume is reduced, the hearing aids won't function at the correct volume for your child. Temporarily turning down the volume is acceptable until you visit your audiologist to determine the cause of the feedback.

A damaged or poorly fitting earmold may need to be remade. The tubing or ear hook may need to be changed. If earwax or discharge has blocked the earmold, the earmold will need to be cleaned. Your audiologist can troubleshoot the cause of the feedback and make the changes needed to prevent it.

Taken from Iowa Family Resource Guide

To check for cause of feedback

1. Take the hearing aid off your child and put finger over the end of the earmold canal hole.
 - a. If the whistling stops then the cause is probably the earmold is too small.
2. If whistling does not go away, take the earmold off the tone hook and put your finger over the hole of the tone hook.
 - a. If the whistling stops then the cause is probably in the tubing.
3. If the whistling does not go away, take the tone hook off the hearing aid and put your finger over the hole of the case.
 - a. If the whistling stops then the cause is probably in the tone hook.
4. If whistling does not go away, there is something wrong with the hearing aid.

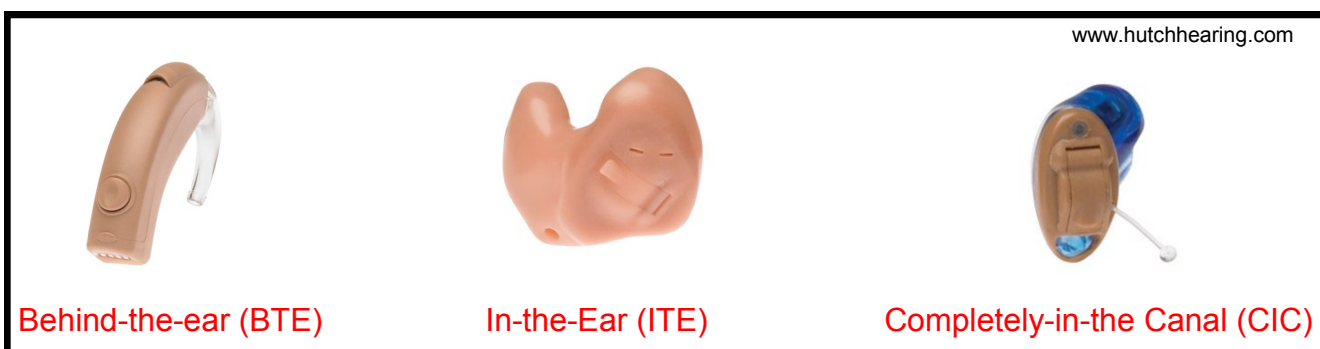


Amplification Devices and Cochlear Implants

What is a hearing aid?

A hearing aid is an external device that **amplifies sound** or makes **sound louder**. Hearing aids have a microphone that increases the loudness of sounds by a set volume. A “dispensing audiologist” can help you select the right type of hearing aid and fit for your child.

Hearing aids come in different sizes and styles. The style used for infants and children is the behind-the-ear (BTE) due to the fact that their ears are still growing. It is more feasible to change the earmold rather than the mechanical parts. Other styles include custom-in-the-ear (ITE) and completely-in-the-canal (CIC); which may possibly be used once children are in their teens.



A hearing aid CAN:

- ❖ Improve spoken communication with family and peers
- ❖ Make *ALL* sounds in the environment louder
- ❖ Improve speech and language development for many infants and toddlers with a hearing loss

A hearing aid CANNOT

- ❖ Cure a child’s hearing loss
- ❖ Make only speech sounds louder, as all sounds become louder too
- ❖ Make sounds clearer. (Characteristics of irregular patterns of hearing may not be corrected)

It’s important to **closely monitor your child’s responses** with his/her new hearing aids. In case you feel your child is not benefitting from the hearing aid, you can report that to the “dispensing audiologist” to have adjustments made or explore other amplification options.

Taken from Hawaii Resource Guide for Families of Children with Hearing Loss/HI State Dept. of Health

Parts of Behind-the-Ear Hearing Aid

Not all behind-the-ear hearing aids will have the same parts or features. Generally the more additional features a hearing aid has the more expensive it is to purchase. Your audiologist should discuss with you the features important for your child based on their individual needs. During an orientation to your child's hearing aid, the audiologist should show you all the parts of your child's hearing aid and their function. The parts described below are to give you an idea of what your child's hearing aid may contain. Be sure to ask the audiologist about things you do not understand or need explained again.



www.babyhearing.org

Battery

Hearing aids run on battery power. The size of the battery however differs with the type of hearing aid used. Although hearing aid batteries need to be changed often, the amount of battery life is dependent on the size of the battery, the amount of drain of the hearing aid and the number of hours the hearing aid is used. The life of a battery can vary from a few days to three weeks. The best batteries for hearing aids are called Zinc Air. This type of battery has a longer life because it is not activated until a paper tab is removed from the back of the battery before it is used.

How to correctly insert a battery into a hearing aid will be shown to you by your child's audiologist when you receive the hearing aid.



Hearing aid batteries are small and therefore can be a hazard if swallowed by a child. Therefore, children's hearing aids should have tamper proof battery doors. Batteries should be kept out of reach of children and pets. If a child swallows a battery they should immediately be taken to the emergency room or local hospital.

Switch

A switch may be located on the outside of your child's hearing aid. This switch allows you to turn the hearing aid on and off and change the settings. Some switches are labeled "M" for microphone, "O" to turn the hearing aid off, "T" for a telephone setting and "MT" for the microphone and telephone to work together. Digital hearing aids often have a button in place of switch you can push to change programs.

Taken from Interactive Notebook for Families with a Child who is Deaf or Hard of Hearing/
Utah Newborn Screening Program

Parts of Behind-the-Ear³² Hearing Aid - cont.

Volume Control

The volume control setting allows the overall loudness of the hearing aid to be turned up or down. It is a feature that may or may not be included on the outside of your child's hearing aids. If volume control is available, your audiologist will discuss with you the appropriate volume setting for your child.

Microphone

The microphone is the part of the hearing aid that picks up sound. When a sound enters the hearing aid it is changed into electrical energy and the sound is made louder. There are two types of microphones, omni directional and directional. An omni directional microphone picks up sound from all directions equally. If a person talking in front of your child is the same distance away as a person talking behind your child, the microphone picks up both sounds equally. An omni directional microphone is necessary for young children as they are often not looking at the person speaking. The speech a child overhears aids greatly in their development of language and therefore, requires an omni directional microphone to pick up sounds in all directions.

A directional microphone turns up the sounds coming from in front of your child more than other surrounding sounds. Directional microphones may help improve your child's ability to understand speech when background noise is present. For example, when a child enters school and background noise is prevalent, a directional microphone might help him/her to hear the teacher better. Therefore, a directional microphone should be considered when selecting a hearing aid for your child.

Earmold

The earmold is the custom piece an audiologist makes to help secure the hearing aid in the ear. After a sound goes through the earhook it will travel through the earmold to reach the ear canal. Earmolds should be made of a soft material and fit snugly in the ear canal to prevent feedback. Since this piece of the earmold is custom made, it must be remade often as your child grows. Earmolds will need to be replaced frequently, approximately every 6-8 weeks, during the first ear of life due to your child's rapid growth. As your child grows, the earmold fit becomes loose. This allows amplified sound to leak back to the microphone and cause feedback (a squealing or whistling sound). A snug fit is important for your child to maintain adequate access to sound. As your child gets older the length of time the earmold will last gradually increases.



www.babyhearing.org

Taken from Interactive Notebook for Families with a Child who is Deaf or Hard of Hearing/
Utah Newborn Screening Program

Parts of Behind-the-Ear³³ Hearing Aid - cont.

Earhook

The earhook or sometimes called a tone hook is the clear plastic part of the hearing aid that fits over the top of the ear. It helps to direct sound into the hearing aid and protects the microphone and receiver. Sometimes a filter will be used in an earhook. A filter helps shape or change the sound signal entering the ear. Be aware that the filter may look like debris in your child's earhook. Do not remove or clean the earhook without checking with your audiologist first.

Direct Audio Input (DAI)

Direct Audio Input (DAI) sends sounds from other sources directly to your child's hearing aid. This allows for the use of FM systems. This is an important capability for a child's hearing aid for future situations where a child would need a signal louder because of distance. *Every* child's hearing aid should include Direct Audio Input.

Telecoil

A telecoil is a magnetic loop that works with some phones to receive and amplify the electromagnetic signal from the telephone and increase the quality of phone use. The telecoil program is sometimes turned on by a switch or button found on the outside of a hearing aid marked by a "T". The telecoil may also allow for the use of other assistive listening devices.

Taken from Interactive Notebook for Families with a Child who is Deaf or Hard of Hearing/
Utah Newborn Screening Program

Medicaid may be able to assist in purchasing your child's hearing aid.

Eligibility Requirements

TANF families, individuals 65 & over, low income families, the elderly in mental institutions, children 21 & under in mental institutions, adopted children, pregnant women, **children up to age 18**, disabled, and/or blind.



Services Available

Adults and children may receive aids of certain types and batteries. Adults are eligible for replacement once every four years. Children are eligible for exam and replacement once every 2 years. Ear molds are also covered. There will probably be a co-pay of \$2 to \$3 per service provided.

Restrictions

Binaural aids require medical necessity and are not covered for adults unless a prior binaural user. Canal and digital aids are not covered. Must provide documentation of need in audiogram and ENT report.

Information taken from <http://www.hearingloss.org/content/medicaid-regulations>

What are the types of hearing aids?

Different types of hearing aids amplify sound in different ways. The following is a list of some basic terms used to describe the types of hearing aids commonly used today.

1. **Conventional or standard (analog) hearing aids** increase the loudness of sounds electronically. The audiologist makes changes in the response of the aid by adjusting an external control.
2. **Programmable hearing aids** increase the loudness of a sound by converting the sound digitally. The audiologist adjusts the response of the aid via computer or hand-held programmer. Programs may be customized to fit the user's specific hearing needs. This increases flexibility in fitting frequency/(dB) range to accommodate changes in hearing over time.
3. **Digital hearing aids** also increase loudness of sounds. The audiologist makes changes in the response of the aid by programming an internal microchip via a computer or hand-held programmer. The aid may have multiple channels that can be programmed for different frequencies and adjusted as needed. These hearing aids may come with a remote control to adjust the settings.
4. **Bone conduction hearing aids** are used by children with conductive hearing loss that haven't been medically or surgically treated. Bone conductors are used when the ear cannot accommodate a behind the ear (BTE) hearing aid. Sound is sent through a bone oscillator (vibrator), which lies against the head and is a part of the hearing aid. The aid is attached to a soft strap that is placed around the head or attached to a headpiece that is placed over the head.

What is an FM system?

A FM system is a device that **amplifies sounds** and **can help a child hear speech** more clearly when there is background noise. Many digital hearing aids have special features designed to reduce background noise. An audiologist can make recommendations whether an FM system is right for your child.

An FM system has:

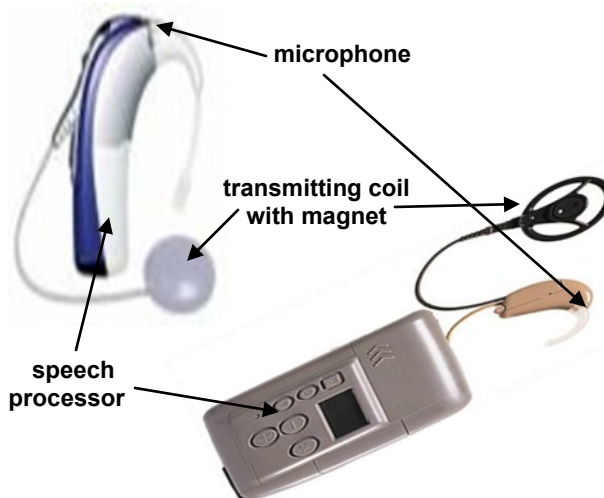
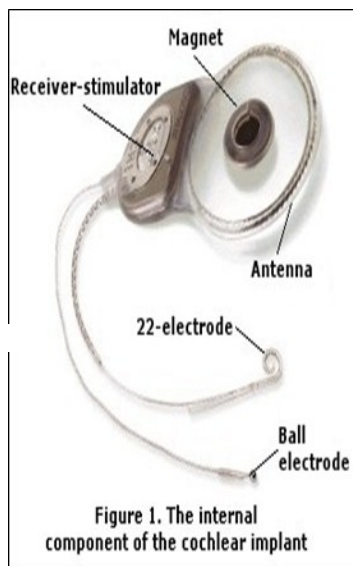
1. a microphone and transmitter worn by a speaker
2. a receiver worn by the child

A personal FM system receiver can be a small box that clips onto the waist/belt or is set inside a harness. There are also styles that provide direct input into the child's hearing aid through very small boxes that attach to the bottom of the hearing aids called boots.

Taken from Hawaii Resource Guide for Families of Children with Hearing Loss/HI State Dept. of Health

What is a cochlear implant?

A cochlear implant (CI) is a surgically implanted electronic device designed to help individuals with hearing loss to hear. It has internal parts that are implanted and external parts that are placed over the ear. A cochlear implant cannot “make a child who is deaf into a child who is hearing.” However, many children who are deaf and receive a cochlear implant learn to listen and speak through the use of the implant along with aural rehabilitation and speech therapy.



Other Parts: cables and batteries

Taken and adapted from Hawaii Resource Guide for Families of Children with Hearing Loss/HI State Dept. of Health

Where to find more information:

Cochlear Americas
13059 E. Peakview Ave.
Centennial, CO 80111
Ph: 800-523-5798
Or 303-7909010
Fax: 303-792-9025
www.cochlearamericas.com

Advanced Bionics, LLC
28515 Westinghouse Place
Valencia, CA 91355
Ph: 877-829-0026 (V)
800-678-3575 (TTY)
Fax: 661-362-1400
www.advandedbionics.com

Med-El Corporation, USA
2511 Old Cornwallis Rd
Suite 100
Durham, NC 27713
Ph: 888-633-3524
Fax: 919-484-9229
www.medel.com

Simulations of cochlear implants:

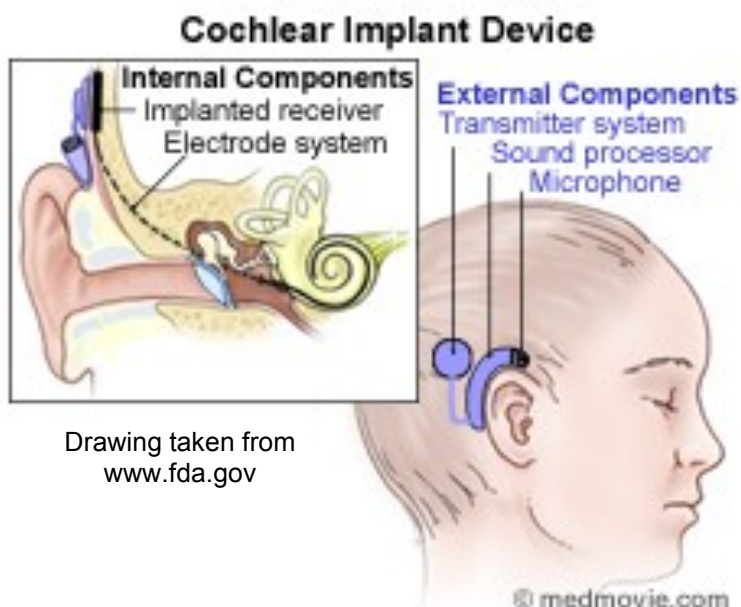
<http://www.utdallas.edu/~loizou/cimplants/cdemos.htm>

<http://www.healthaffairs.uci.edu/hesp/Simulations/simulationsmain.htm>

<http://www.ent.uci.edu/cochlear%20implant.htm> (also has video of surgery)

Others:

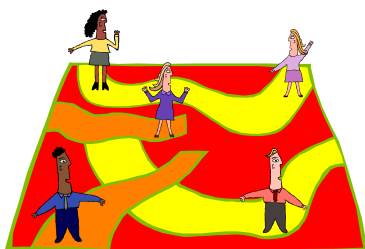
How a cochlear implant works?



1. A **microphone** is located on the behind the ear piece. The microphone picks up the sounds and changes it into an electrical current.
2. The electrical current goes down the **coil** to the sound processor (either a small box or behind the ear piece)
3. The **sound processor** codes the information into “electric speech information”. This information is like a map for the brain to interpret or understand sound
4. The electrical information goes to the coil that is held up magnetically to the head via the **implanted internal receiver**. Information then gets sent across the skin to the receiver.
5. The implanted receiver sends the signal to the electrodes in the **electrode array** that are implanted in the cochlea.
6. The electrode array sends the signal to the **brain** which then interprets the signals as “speech” or non-speech sounds.”

What are communication methods?

A communication method is an approach to help your child learn language and communication skills. Here is a brief description of communication methods used for children with hearing loss. Some professionals are trained in one method, while others may implement more than one method into their treatment.



When learning about the different styles of communication it's important to remember that you and your family know what's best for your child.

*When you are choosing a communication method, it is important to remember that no choice is permanent. If you choose an approach that focuses on one building block and does not seem to be working for your child after several months of **consistent** effort, there is no reason that you cannot try a different approach. The important thing is to communicate in one way or another with your child.*

American Sign Language (ASL)

DESCRIPTION: American Sign Language is a visual language used by many culturally Deaf persons in the United States and Canada. It is a distinct language with its own grammar and word order. English is often learned as a second language.

GOAL: To teach your child to learn a visual language. Your child will learn to communicate fully through the use of their eyes, hands, facial expressions and body movements.

PARENT INVOLVEMENT: You will also need to learn ASL in order to fully communicate with your child. Opportunities to learn ASL are available through books, audiovisual, interactive ASL classes and meeting other Deaf people. Through these experiences, parents may also learn more about deaf culture and deaf community resources.

For more information, contact

American Society for Deaf Children
P.O. Box 3355
Gettysburg, PA 17325
Phone: (717) 334-7922 (V/TTY)
www.deafchildren.org



Taken and adapted from Interactive Notebook for Families with a Child who is Deaf or Hard of Hearing/
Utah Newborn Screening Program

38 Auditory-Oral

DESCRIPTION: Your child will be taught to make the most of what hearing they have through the use of amplification (hearing aids, F.M system and/or cochlear implantation) Listening skills are encouraged through auditory learning intervention with a therapist or interventionist.

GOAL: To teach your child to develop listening and spoken language, through early, consistent and successful use of an amplification system or hearing technology.

PARENT INVOLVEMENT: You will need to work closely with the child's therapist or early interventionist to apply listening and spoken language activities in the home and to enhance your child's learning environment. You will also need to ensure fulltime use of amplification or hearing technology.

For more information, contact:

Alexander Graham Bell Association for the Deaf and Hard of Hearing
3417 Volta Place NW
Washington, DC 20007
(202) 337-5220 (V/TTY)
www.agbell.org



Auditory-Verbal

DESCRIPTION: Your child will be taught to make the most of their hearing through the use of amplification (hearing aids, FM system and/or cochlear implants) Listening skills are encouraged through parent-centered auditory learning activities that teaches parents how to incorporate language through the child's natural environment. Auditory-Verbal therapy is completed with a specialty trained Auditory-Verbal Therapist (AVT). Sign language is not used.

GOAL: To teach your child to develop listening and spoken language, through consistent and successful use of an amplification system or hearing technology.

PARENT INVOLVEMENT: With the help of therapists, you will need to incorporate auditory-verbal activities into your child's daily routine and play activities. It is important to provide a language-rich environment and to make hearing a meaningful part of your child's experiences. You will also need to ensure full-time use of amplification or hearing technology.

For more information, contact:

Auditory-Verbal International, Inc. (AVI)
2121 Eisenhower Avenue, Suite 402
Alexandria, VA 22314 (703) 739-1049 (V) (703) 739-0874 (TTY)
www.auditory-verbal.org

NOTE: Auditory-Verbal International, Inc. has joined Alexander Graham Bell Association

Taken and adapted from Interactive Notebook for Families with a Child who is Deaf or Hard of Hearing/
Utah Newborn Screening Program

Cued Speech

DESCRIPTION: Cued speech is a sound based system which uses eight hand shapes for consonant groups cued at four locations for the vowel groups. In combination with the lips, all sounds of spoken language look different and are understandable to the child. Cued Speech makes every word of English (or other spoken language) available to a child, regardless of hearing loss. It is a way for a hearing family to communicate with their deaf/hard of hearing child using the family's native spoken language.

GOAL: Your child will learn to speak through the use of amplification, lip-reading and the cues from the hand shape system.

PARENT INVOLVEMENT: You will use hand shape cues when you communicate with your child. Cued speech can be learned through intensive classes taught by trained teachers or therapists. Just like any manual communication system, it takes time and dedication to learn the cues and become proficient in their use.

For more information, contact

The National Cued Speech Association

23970 Hermitage Road
Cleveland, OH 44122
(800) 459-3529 (V/TTY)
www.cuedspeech.org



Cued Speech Association of Minnesota

5056 3rd Street NE
Fridley, MN 55421
www.cuedspeechminnesota.org



Manually Coded English System

DESCRIPTION: There are several signed systems, which modify the signs used in ASL to represent English grammar and word order. These sign systems are not languages but are visual representations of English. The signs are used to support English or to convey tenses, plurals, possessives, and other parts of the English language. Examples of manually coded sign systems are Signed English (a.k.a. Manually Coded English), Seeing Essential English (SEE I) and Sign Exact English (SEE II)

GOAL: Your child will learn to use signs as words and learn to sign using the word order and grammar of English. Your child will learn to sign the little words used in English such as "a" and "the" and grammatical endings such as "-ing" and "-ed".

PARENT INVOLVEMENT: You will also need to learn the signed system that you choose for your child and just like any manual communication system, it takes time and dedication to learn the system and become proficient at using it.

For more information, contact

S.E.E. Center for the Advancement of Deaf Children

P.O. Box 1181
Los Alamitos, CA 90720
Ph: 562-430-1467 (V/TTY)
Fax: 562-795-6614
www.seecenter.org



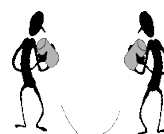
Taken and adapted from Interactive Notebook for Families with a Child who is Deaf or Hard of Hearing/
Utah Newborn Screening Program

CHOOSING A COMMUNICATION METHOD

Because every baby and every family is different, the decision about which way to communicate must be made carefully, based on your baby and family's needs. Sometimes a combination of ways to communicate is the best decision. Any decision will require commitment from you and from the professionals on your baby's team.

There are many ways to communicate with your child with a hearing loss. The primary methods of communication and various options are addressed briefly in this section. To help make these decisions, first set your family's personal goals for your child's language access. You may want to consider:

- Is it important that your child speak English?
- What is your native/home language?
- How will your child and family interact with the Deaf community?
- Do you desire your child to attend school with other deaf and hard of hearing children, or do you desire that your child attend community school or be home schooled.
- How will extended family, friends and society communicate with your child?
- Are there other spoken languages you desire your child to learn?
- Is your child in day care? What communication method will best be able to be followed through in this setting?



After evaluating your answers to these questions, look for methods of communication that will best suit your goals and opportunities for communication.

It is important to make a decision, rather than no decision at all.

Communication is at the heart and soul of our lives. Deaf and hard of hearing children need early language and communication intervention in order to succeed in life. In making the choice for a method of communication, you must consider the amount of your child's hearing loss, the communication approaches and education programs available in your area, what suits your child, what you and your family can learn and follow through with, and many other factors. When you are faced with these decisions, ask as many questions as you need to understand each of these factors. Visit programs and talk with other parents and people with hearing loss. Compare the advantages and disadvantages of each possible approach for your child and

your family. It is extremely important to make a choice, maintain interaction, and provide your child with clear and consistent language input.

No decision is irreversible. You may feel some consolation from knowing that you can review decisions about communication methods and educational programs each year. These decisions can be changed, as necessary, to provide your child with the best chances for success.

Confused? Overwhelmed? Wondering how in the world you're supposed to decide which approach to use with your child? Well, that's normal! There's a lot to know about each of these methods. The North Dakota School for the Deaf/Resource Center for Deaf and Hard of Hearing (NDSD/RCDHH) Outreach Specialist is able to discuss any questions or concerns you may have.

If you would like more information about communication methods, the NDSD/RCDHH Outreach Specialist will be able to recommend further resources.

We recommend Choices in Deafness: A Parents' Guide to Communication Options, ed. Sue Schwartz, Ph.D. It is published by Woodbine House, Inc., 6510 Bells Mill Rd., Bethesda, MD 20817, (800) 843-7323. Your local bookstore or library may be able to order a copy for you.

REMEMBER!

1. There are many different ways of communicating
2. Every child is different. There is no one "right" way for all children
3. Give one method your best shot. But if it doesn't work, be open to other options

Be Flexible...follow your child's lead. You may feel stressed out over choosing one of the options listed above...but many parents find that the best choice is to follow their child's lead. Some parents even combine ways of communicating it's important to be flexible.

www.infanthearing.org

www.babyhearing.org

www.ncbegin.com

www.nad.org



	American Sign Language/ English as a Second Language ASL/ESL Bilingual/Bicultural	Auditory Verbal Unisensory	Cued Speech	Oral Auditory-Oral	Total Communication
Definition	A manual language that is distinct from spoken English (ASL is not based on English grammar/syntax). Extensively used within and among the Deaf community. English is taught as a second language.	A program emphasizing auditory skills. Teaches a child to develop listening skills through one-on-one therapy that focuses on use of remaining hearing (with the aid of amplification). Since the method strives to make the most of a child's listening abilities, no manual communication is used and the child is discouraged from relying on visual cues.	A visual communication system of eight handshapes (cues) that represent different sounds of speech. These cues are used while talking to make the spoken language clear through vision. This system allows the child to distinguish sounds that look the same on the lips.	A program that teaches a child to make maximum use of his/her remaining hearing through amplification. This program also stresses the use of speech reading to aid the child's communication. Use of any form of manual communication (sign language) is not encouraged although natural gestures may be supported.	A philosophy of using every and all means to communicate with children with hearing loss. The child is exposed to a formal sign language system (based on English), finger spelling (manual alphabet), natural gestures, speech reading, body language, oral speech and use of amplification. The idea is to communicate and teach vocabulary and language in any manner that works.
Primary Goals	To be the child's primary language and allow him/her to communicate before learning to speak or even if the child never learns to speak effectively. Since ASL is commonly referred to as "the language of the Deaf," it prepares the child for social access to the Deaf community.	To develop speech, primarily through the use of aided hearing alone and communication skills necessary for integration into the hearing community.	To develop speech and communication skills necessary for integration into the hearing community.	To develop speech and communication skills necessary for integration into the hearing community.	To provide an easy, least restrictive communication method between the deaf child and his/her family, teachers and school mates. The child's simultaneous use of speech and sign language is encouraged as is use of all other visual and contexted cues.
Family Responsibility	Child must have access to Deaf and/or hearing adults who are fluent in ASL in order to develop this as a primary language. If the parents choose this method they will need to become fluent to communicate with their child fully.	Since the family is primarily responsible for the child's language development, parents are expected to incorporate on-going training into the child's daily routine and play activities. They must provide a language-rich environment, make hearing a meaningful part of all the child's experiences and ensure full-time use of amplification.	Parents are the primary teachers of cued speech to their child. They are expected to cue at all times while they speak; consequently, at least one parent and preferably both must learn to cue fluently for the child to develop age-appropriate speech and language.	Since the family is primarily responsible for the child's language development, parents are expected to incorporate training and practice sessions (learned from therapists) into the child's daily routines and play activities. In addition, the family is responsible for ensuring consistent use of amplification.	At least one, but preferably all family members should learn the chosen sign language system in order for the child to develop age-appropriate language and communicate fully with his/her family. It should be noted that a parent's acquisition of sign vocabulary and language is a long term, on-going process. As the child's expressive sign language broadens and becomes more complex, so too should the parents in order to provide the child with a stimulating language learning environment. The family is also responsible for encouragement of consistent use of amplification.
Parent Training	If parents are not deaf, intensive ASL training and education about Deaf culture is desired in order for the family to become proficient in the language.	Parents need to be highly involved with child's teacher and/or therapists (speech, auditory-verbal, etc.) in order to learn training methods and carry them over to the home environment.	Cued Speech can be learned through classes taught by trained teachers or therapists. A significant amount of time must be spent using and practicing cues to become proficient.	Parents need to be highly involved with child's teacher and/or therapists (speech, aural habilitation, etc.) to carry over training activities to the home and create an optimal "oral" learning environment. These training activities would emphasize development of listening, speech reading and speech skills.	Parents must consistently sign while they speak to their child (simultaneous communication). Sign Language courses are routinely offered through the community, local colleges, adult education, etc. Additionally, many books and audiovisual resources are available. To become fluent, signing must be used consistently and become a routine part of your communication.

Based on Communication Options—Reference Chart from BEGINNINGS

Our Family's Goals For Our Child's Language Access:⁴³

Use these questions to begin to evaluate your family's personal goals for communication.

- ◆ Is it important that our child speak English?

- ◆ Our native/home language?

- ◆ How will our child and family interact with the Deaf Community?

- ◆ Do we desire our child to attend school with other deaf and hard of hearing children?

- ◆ Do we desire that our child attend community school or be home schooled?

- ◆ How will our extended family, friends, and society communicate with our child?

- ◆ Are there other spoken languages we desire our child to learn?

- ◆ Will our child be in daycare? What communication mode will best be able to be followed through in this setting?

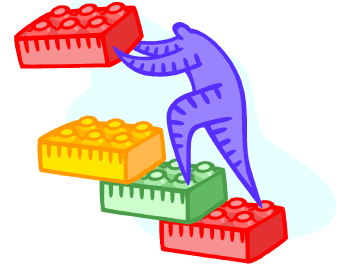
Please remember, these decisions can be changed as necessary.

Taken from Idaho's Help and Hope Family Resource Guide for Infants & Young Children who are Deaf or Hard of Hearing

BUILDING CONVERSATIONS

The following section is taken from the Language and Learning Section from Idaho's Help and Hope Family Resource Guide for Infants & Young Children who are Deaf or Hard of Hearing

One of the most amazing and important accomplishments of infancy and early childhood is the development of language. When a baby is born with a hearing loss, this process of developing language can be delayed. Such delays can be prevented or reduced through early detection of hearing loss and intervention. Family members can encourage a baby's language, listening and speech during natural daily routines.



Communication starts the moment your baby is born. As you cuddle your little one, you let the baby know, "I love you. I will keep you safe and warm." The process of learning language starts within healthy relationships in early infancy. Babies and parents make special connections through their own unique ways of communicating.



Experts say that how you connect with your baby

- ◆ Helps the baby feel secure
- ◆ Helps the baby learn

As you cuddle and play with your deaf or hard of hearing baby, you will find special ways to connect. You will discover lots of tools for starting conversations...using words, sounds, touches, facial expressions, hugs, silly games – just like with any baby. Have fun with your baby and you will figure it out. This next section gives you some additional ideas for starting early conversations with your baby.

GETTING STARTED

In the early weeks and months of your baby's life, you and your baby will make many discoveries about how to connect. Your animated face and voice will bring consistent smiles from your baby. Your baby will kick and move his or her arms to let you know s/he is excited to see you. S/he will look into your eyes, listen to your voices and watch intently as your facial expressions change. These enjoyable social interactions are the first step in your communication journey together. During the first eight months of life, babies are learning how to pay attention to those around them and how to engage in social routines with others. This early



social-emotional development is a main⁴⁵ building block for communication. Interactions, which we think of as “baby games,” are essential for getting communication started. When babies engage with others, they regularly respond with warmth, smiles and an expectation that “this is going to be fun.” This happens as early as three to four months of age and makes parenting a rewarding adventure.

Communication is a lot like a friendly game of volleyball or tennis. The ball goes back and forth between partners. They get into a nice rhythm. They try not to hog the ball. They enjoy each other’s company. Getting ready to communicate with your baby is just like this...enjoying each other, getting into a rhythm and taking social turns. Keep in mind that each baby is unique... what delights one will quiet another. Trust your instincts as you work to find a rhythm that is comfortable for you and your baby. The pleasure you two share will give your baby a sense of security and motivate him or her to learn.

You might be thinking... “What is so special about all of this? Isn’t this what moms and dads do with any baby?” You are right. Communication with your deaf or hard of hearing baby will start in much the same way as it does with any baby. The message you want to communicate with your face, voice and body is, “We love you...let’s have some fun together.”

You can follow some simple rules of thumb as you get started with your wee little one:



Watch closely. What is your baby’s mood? Try to get into a rhythm that matches your baby’s mood. If your baby fusses, you can respond with a sympathetic face and soothing voices. If s/he smiles, use an animated face and voice in response.

Encourage your baby to look at your face and listen to you. Your baby will be interested in looking at you if you use various facial expressions and play social games that build anticipation. Vary your vocal inflections (like we normally do in baby talk) to encourage your baby to begin to listen to your voice.



Enjoy your baby. Parents tell us that it can be hard to focus on typical baby routines when they are worrying about the hearing loss. Other parents can reassure you that “it’s going to be all right.” Focusing on this message, you can relax a bit and enjoy your little one.

RESPOND TO YOUR BABY'S COMMUNICATION

How do babies communicate? All babies start to communicate well before they know any words. A baby's smile says, "I'm happy." or "Do that game again!" A baby cries to let us know, "I'm hungry," or "I need a diaper change." Babies coo to say, "I feel good." From the first month on, babies listen and pay attention to important voices around them. They discover their voices and play with sounds in squeals, grunts, coos and gurgles. Around six to ten months of age, babies discover that they can join sounds together to babble strings like "dadada," or "gagaga." When babies are about nine months of age, they start to point or reach. These gestures may mean, "I want that!" or "Look at me."

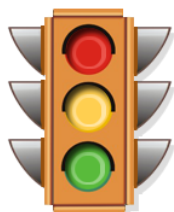
Family members can help get the communication game started by following two simple guidelines. You will probably notice that you are already doing this naturally. If you are, just keep it up! Follow the two R's of early communication:

Recognize your baby's signals. Ask yourselves: "What is my baby trying to say with his or her eyes, face, body or voice?"

Respond to these signals as communication. Remind yourselves, "Talk about my baby's ideas."

RECOGNIZING SIGNALS

You will notice over time that your baby will use a variety of ways to express her or himself. Several possibilities are listed below. Take time to observe your own baby. How is your baby communicating without words? What do you



think your baby means? Is s/he asking for attention or help? Does s/he want you to look at what s/he is looking at? Does s/he want more of something or want you to stop? Is s/he trying to share something fun with you? Have you noticed that even his or her cries have different meanings?

Gestures	Anticipating
Vocal sounds	(e.g. hears pat-a-cake and waits for game to start)
Body movements (kicking, getting excited)	Watching
Eye gaze	Touching
Reaching	Facial expressions
Scouting	Getting mad
Cries	Making happy sounds
Smiling	Vocal protests or whines

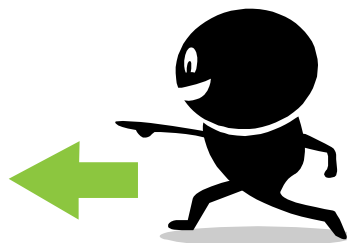
RESPONDING TO SIGNALS

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So we have reviewed some common signals to watch for and recognize. Remember to **look** for anything: a facial expression, eye contact, or a movement that might have meaning for you. Now step two is to **Respond** – when you give a response to your baby’s signals, you encourage your baby to communicate more, and you let your baby know, “I heard you!” Every time that you respond to a signal, your baby realizes that the gesture or vocalization or facial expression made you understand. Your baby will try to communicate that way again.

Every time that you respond, you are demonstrating that conversations have two sides, and that both partners get a turn (like that volleyball game). Babies love to communicate. Because they do not always hear us, babies who are hard of hearing or deaf may need us to respond very clearly.

- ◆ If your hard of hearing baby is just getting used to hearing aids, you want to stay close, use a pleasant but clear voice and talk about your baby’s interests and signals.
- ◆ If your family will be using a form of sign language, you want to stay in the baby’s line of vision, look at what your baby looks at, match the baby’s facial expression, and use simple signs and gestures.



The most important point at the beginning is to be sure that your baby knows that you responded. This will help your baby begin to predict that you will respond. That makes conversations exciting for both of you. The words will come in time.

FOLLOW YOUR CHILD’S LEAD

You want to respond to your baby’s communication, but you aren’t sure what kind of response to make. The best response follows your child’s lead.

Babies and adults are sometimes interested in different things. A mother wants to give her baby a juice cup and talk about drinking, but the baby may at first be fascinated by the condensation running down the outside of the cup. “Wet. Your cup is wet.” or “The drop is going down, down, down.” is closer to the baby’s thought than “Drink your juice.” or “This is a cup.”

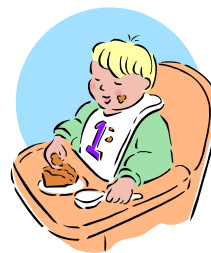


Babies are curious. They are constantly exploring their world. When we try to get their attention to talk about our own ideas, we are taking them away from their interests. They may even be confused if they are thinking about one idea, and getting communication about a different one!

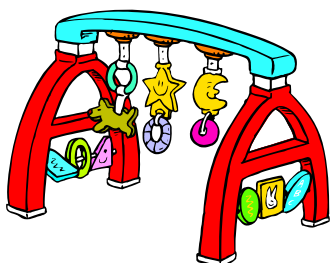
Idaho’s Help and Hope Family Resource Guide for Infants & Young Children who are Deaf or Hard of Hearing

Example #1

A baby touches her wet high chair tray after it is wiped off. How might her mother respond?



The mother might touch the tray and then say, "It's wet." (providing feedback). The mother shows her baby that she shares her baby's idea, and then talks directly about feeling the tray.

Example #2

An eight-month-old baby is playing with a toy and s/he pushes the swing while vocalizing.

How might his or her mother respond?

- A. Look at the swing with her daughter (joint attention) and
- B. Say, "swinging." (following her lead)

This Mom should look at what her baby looks at (joint attention) and talk about her baby's interest. It is as simple as that.

TALK ABOUT WHAT INTERESTS YOUR BABY

How does your baby let you know what is interesting? Usually, babies look at, touch, grasp, listen to and chew on objects they like. They try to reach interesting objects or light beams, or other babies. They laugh at unexpected actions and faces. They pay attention to what is interesting and new.

Do's	Don'ts
Provide information about the subject. "Airplane. Up-up-up."	Provide too much information. "That's an airplane. It can fly high in the sky and up in the clouds."
Leave a space for another turn. "Big airplane." Then wait expectantly for your baby to take a turn.	Decide what the baby's turn will be. "Can you say, 'Up?' Let's say, 'up'"
Support the child's topic. (Baby reaches for a rattle) "Want your rattle?" (Baby giggles in response to a game) This signals mom or dad to play more.	Change the subject (Baby reaches for a rattle) "Look...Here's a truck."
Encourage turns. (Baby laughs at being jumped.) "Jump again?"	Take too many turns. "You will like to jump. Want to jump again? Say jump. Say it again. Want to jump?"

We know all about those things, but for babies, they are new and exciting. When you talk or sign about your baby's experiences while they are happening, then your baby will pay attention to you too.


Idaho's Help and Hope Family Resource Guide for Infants & Young Children who are Deaf or Hard of Hearing

COMMENT ON OBJECTS, ACTIONS⁴⁹ AND PROBLEMS

You are the one who has the words for your baby's interests and curiosity. Now that you have become an expert conversationalist and a mind reader, it is time to become a tour guide.

You do get to take conversational turns, too. Your turns are responsive, but they add information. You know where the important, exciting objects, actions and problems are, and you know how to communicate about them. When you play with your baby, you can point out these features. This is called parallel talk.

You can give your baby a play by play of what is happening in the world. Remember, though, not to hog the turns or forget what your baby is attending to. If you play with your baby, you do it in steps. Different steps call for different parallel talk. For example, when you blow bubbles, you might guide him through these steps.

	Find the stick in the bubble bottle	"Where is it?" "Eew! Sticky!" "There it is."
	Get ready to blow!	"Ready?" "Blow."
	See bubbles everywhere, floating and popping.	"Up, up." "Pop, pop, pop!" "All gone."
	Feel wet circles everywhere.	"Wet table. Feels wet."

Some of the other activities you guide your baby through could be changing diapers, dressing, eating or getting ready to go in the car. Each of these activities happens in steps, and every one of those steps can become a conversation. What does your baby attend to during changing? It could be the stinky diaper, but it could be the mobile of birds that you hung over the changing table or crib. When you have your coats on and open the door, does your baby notice the cold air, or the keys you are ready to use?"

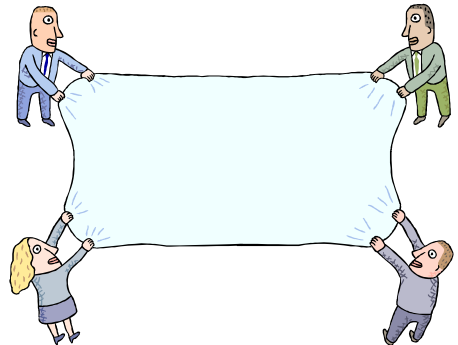
Example:

Look at the statement in each box under Baby's action. Think about what responses might expand the baby's idea. Look on the right to see some examples of parallel talk. These comments could expand the idea while sharing the baby's interest and attention.

Baby's action	Possible responses
Baby picking up cereal from tray	"Yum!" or "Mmmmm...good."
Putting one in mouth, big smile.	"You like cereal." or "In your mouth."
Reaching for more.	"More cereal?" or "Find more for mommy."

SUPPORT TAKING TURNS AND STRETCH TO EXPAND COMMUNICATION

Part of communication is showing that your partner's ideas are important to you. You may want to continue a conversation by encouraging your baby to take another turn. You may not get the message the first time. You may not immediately think of a way to respond. You may want to add something to your response to let your baby know you are interested and approving.



Tiny babies make lots of funny sounds. It is not always clear how to answer. As a parent, you have many ways of showing your baby approval and support.

- ◆ You can keep your eyes on your baby while the two of you communicate.
- ◆ You can smile and nod.
- ◆ You can let your face show the same feeling that your baby is showing
- ◆ You can add small words, such as “yes,” or “okay” to your response.
- ◆ You can wait expectantly for more communication.



This baby really likes to babble. Her mom encourages her by smiling, looking and making positive comments. They are having fun with communication.

Babies and toddlers are not always easy to understand. When they begin to say words, (often around 12 months of age), their early attempts can change a lot. Toddlers use jargon – a mix of gibberish and a word attempt or two. All babies are unclear at times. Their parents must become good meaning detectives.

When this toddler “talks” on the phone, he is producing jargon. It sounds like he is talking, but the words are hard to understand. The mother shows interest, and then picks up on the one word she follows (“baby”). She says, “Oh, did you see the baby?” Then she invites her toddler to go back to the conversation, “Say hello to grandma.”



KEEP IT SHORT AND SIMPLE

Having a conversation with a baby is different than having a conversation with an adult or an older child. When we talk with any young child, we make our face and our voice expressive, we try to say interesting things, and we use short, simple phrases and sentences. We repeat a lot, because we know that young children are not just trying to understand what we tell them, they are

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also trying to learn about the language⁵¹ we are using. Babies who are deaf or hard of hearing are trying to accomplish those same jobs. Because they have to pay close attention to get a message, they need many, many opportunities. Because the job of acquiring language is complicated, our messages need to be short and simple.

You have practiced responding to signals, commenting on your child's interests, following your baby's lead, and guiding conversations into new and exciting worlds. Every time you use one of these skills, you will also need to practice keeping your conversational turn short and simple.

Some people call the short, animated phrases we use with babies as "baby talk." Some people wonder if they should use baby talk. Rest assured that the changes we make in our voices and speech around babies serves an important purpose. The "sing song" that we use with babies has been called "motherese" or "parentese." It actually helps little ones figure out the complicated language they hear around them. So go right ahead and make your voice interesting (with lots of pitch variation) and keep your phrases short.

Here are some examples of parent conversation turns that are just right, or just a little bit too much:

Short and Simple	Maybe too much for right now:
Big bite!	You ate a big bite and your mouth is full!
Time to go night-night	Brush your teeth and then go to bed.
That's my sock	This is mommy's sock and this is your sock.
Mmmmm, good cereal.	That cereal tastes really yummy.

Here are some phrases parents might use with their babies. Both of them respond to a signal. One of them is a little too long. Which one do you think is short and simple?

Your baby fusses and pushes a toy away

A. "No more toy? Ok."



B. "You don't want this toy anymore? Let's find something else for you to look at."

You got it, The first phrase (A) is short and simple and the second phrase (B) is a little too long.

Visual motherese (for signing families)

Perhaps your family has made a decision to use sign language with your baby. When educators explain how hearing parents talk with their babies, you need to know how to use signing in the same way.

Researchers have found that adults automatically change their speech in similar ways when they talk to children. They do not talk to children in the same way they talk to other adults. This adult-to-child talk includes the use of short, simple phrases and changes in the pitch of their voice (called motherese). These changes make it easier for the child to learn language.

Deaf children may barely hear the pitch changes that parents put in their voices, but the same important changes can be put into their signs, their faces, and their bodies. When people ask questions, for example, the pitch of the voice goes up at the end of a yes-no question, and down at the end of a question starting with words like Where, When, Who, What, How or Why (a WH question). When people sign, their eyebrows and bodies replace pitch. The eyebrows go up for a yes-no question; they furrow, or go down for the WH-question, as the body is leaned slightly forward. This part of signing is called facial grammar.

Hearing babies know when their parents are happy, worried, angry or excited from their voices, even when the baby cannot see the parent's face. Your baby who is deaf needs to see your facial expression and your body movements to get the same information. Are you smiling, and letting your signs flow? Are you frowning and signing sharp, emphatic signs as you run to cover the electric outlet? Are you pretending to cry as you see a sad character in a story?

Your Parent-Infant Program Specialist can help you with your language and literacy goals for your child.



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GETTING READY ⁵³ FOR SCHOOL

Even though your baby is just beginning to grow and develop communication, sometimes you can't help thinking to yourself, "I know it's a long time in the future, but I still wonder about what is going to happen when my baby goes to school. Later on, where will my child go to school? Will my child be able to keep up with other children? How can I get my child ready now for reading, writing and arithmetic later on? In this section, you can learn how you can help prepare your baby for the experience of school without neglecting the other, important, work of early childhood.

Early Preparation for Later School Experience

Some early school skills are easy to teach. Your child may be saying or signing the alphabet, counting, even recognizing some words by age three or four. However, letters and numbers are only building blocks. Unless a child learns how to build a wall, a house, a sidewalk, or a school with those blocks, they will not be very useful. We say that a child who can count, name colors and shapes, and sign the alphabet song, but who has trouble with language and problem solving, has developed splinter skills.

To really prepare your child for school, you also want to provide other learning opportunities including language experiences, hands on experiences and print experiences.



Language Experience

Language is your first priority. No one learns reading without understanding the stories, no matter how well s/he knows the alphabet. No one understands mathematics without understanding the story problems, no matter how many numerals s/he can write. Social studies, science, even the rules of the game in P.E. are all very language based, and to fully participate in any classroom, your child needs to be able to communicate meaningfully on an academic level, which is different from conversation.

The language experiences that lead the two year olds to academic language later on come from following their leads and labeling their discoveries. Don't try to "teach concepts" beyond their cognitive level. If a child experiences all of the important parts of early development, then the next stage will have a good base. Be sure to:

1. Mark the **passing of time** (wait, now it's time, after your nap)
2. **Spatial concepts** (look inside, all over the floor! Eat in your highchair)
3. **Serialization** (That's BIG! Look how tiny! You have more)
4. **Classification** (Yes, that's a car, and that's a car, too. Look, I have your blue shirt and your red shirt) and
5. **Causality** (Uh-oh, I dropped it and it broke! Light on, light off)

Do it when they are attempting to call your attention to these aspects, or when the time is appropriate. You don't need to sit down and think, "Now how can I get seriation into my life today?" Rather, in any situation, think, "What does s/he seem to be noticing? How can I label the concept?"

Hands On Experience

Experience is the basis for later school learning. We learn to read, write and figure about things, actions, and relationships that we have experienced. To learn well in school later, your child needs to simply interact with a rich environment now. Does s/he have safe plastic containers of varied sizes, with and without lids, spouts and handles, to pour out of and into and squirt with for the bathtub or wading pool? Does s/he sit in the shopping cart and see the food come off the shelf, go through the cash register line, into bags, home and onto shelves in cupboards and refrigerator? Do you go for walks and take time to notice leaves emerging or falling, or bugs, or interesting animals in yards? In any experience, no matter how ordinary, notice what s/he is attending to, and attend to it also, with body language, words and actions. You are telling him or her, "Noticing is important. What interests you is worth learning about. *Curiosity is a virtue.*" Of course, by creating the opportunities and taking a turn at calling attention to things yourselves, you will open up his or her horizons even more. Just don't have all the ideas. S/he needs to have many of his or her own.



Print Experience

Awareness of interaction with print in the environment is vital.

Don't assume that your child knows that you read, not only books, but directions, signs, logos, recipes, labels, newspapers, magazines, closed captions (don't wait until s/he starts school to have that available) and telephone directories.

Communicate what you are doing overtly – “I need to look up the number in the phone book.” Get out the book in his or her line of vision. “It’s heavy. There are a lot of names. Here it is. I hope I remember the number: 555-9678, 555-9678.”



THE LITERATE HOME ENVIRONMENT

For preschoolers, literacy is many things, not just reading and writing. Preschoolers need to know that people read and write the print that is all around them. They need to know that there are reasons to read, write and use mathematics. We need to help them understand and enjoy stories, and encourage them to experiment with reading and writing. We should let them know that letters, numbers, words, sentences, and punctuation marks exist, and know their names. Most important, we need to build on their curiosity to help them want to know what people are reading, writing and calculating.



Think about these questions: where is the literacy potential in my home environment? How can I help my child notice my reading, writing and math and understand the purpose? How can I increase the amount of interaction about print, numbers, and stories between my child and me? How can I increase the amount of functional print available in the environment?

Where is the literacy potential in my home environment?

You might sit down and think about the ways that you use literacy or could use literacy or could use literacy already in your home. Your list might look like this.



Grocery Lists: I look in the cupboard and refrigerator and write things down, talking (signing) to myself as I go, or I empty the carton of milk and write MILK on the list on the refrigerator door.

Family Memos: There is a white board by the door or the telephone. Before I leave the house, I usually leave a message for my spouse or an older child, saying, “Gone to store. Be right back. Love you.”

Children’s Books: My older children bring me a book every night before bed and ask me to read it to them. Sometimes we read a chapter a night. Sometimes, it is the same book over and over.

Accessible Paper: There is a drawer with all kinds of paper (newsprint, old blank checks, lined paper, ends of spiral notebooks) and writing utensils



(pencils, ball point pens, crayons, gel pens) for experimenting with drawing and writing any time. Sometimes we turn the TV off and suggest that the children read or draw or write.

How can I help my child notice my reading, writing and math and understand the purpose?

You have your list of literacy in your home. Now you have to decide, “How can I call my child’s attention to all the reading and writing and calculating that happens every day? Add some more items to the list.

I can “think out loud” when I use reading, writing and math in my daily life: “This cereal box is almost empty. I will write ‘cereal’ on the list” “Look how much this new cereal costs. Do I have enough money?”

I can talk to someone else about what I am reading, writing or calculating: (to an older child) [Mom] “The paper says there will be snow. Where is your winter coat?” [Child] “I put it in the closet. I’ll get it.”

I can involve my deaf or hard of hearing child in the conversation. “This letter is for Daddy. Give it to Daddy.”



I can involve my deaf or hard of hearing child in the act of reading or writing or using numbers. “Let’s write Daddy a note. ‘Mommy and Evan are at the store.’ You write your name.” “There’s the pop machine. It costs 55 cents. You put in the money. See, the machine says how much you put in. Now it is 55. You can push the button.”

How can I increase the amount of interaction about print, numbers and stories between my child and me?

On another page, put a list of things that you could do to increase the print in the environment or the ways that you all your child’s attention to it. One easy entry could read: “I can follow all the conversation suggestions in the “Building Conversations” section of this manual.

You can also include ideas like these:

“I can increase the amount of functional print available in the environment:

- if I use closed captioning for television shows and movies when my child is in the room;
- if the family writes and signs group birthday cards, valentines and holiday greetings, and
- if I label drawers, cupboards and closets with pictures and category names for their contents (e.g. dishes, glasses, coats and boots, Susie’s clothes, Mommy’s clothes, pots and pans)

“I can increase my child’s attention to literacy if I pay attention when my child expresses even nonverbal interest in print or numbers in the environment, asking me to read them, name them or tell what they mean.”

“I can model the use of a TDD/TTY for telephone conversations.”

“I can read out loud the letters and cards that arrive from friend and family members.”

Sharing your goals with others

The more people who can give your child the same experiences, the faster your child will develop those language and problem solving skills needed to make school a pleasant experience. First, of course, you want to share your



child’s goals with other family members, including anyone outside the home who sees your child often. In addition, if your child goes to preschool, daycare, Sunday school, or playgroup, you can share your goals with the caretakers and teachers in these environments. In return, they can tell you about the chances for emerging literacy they provide in their settings.

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Family members are usually around to talk with, but other adults may be harder to find. A lot of parents send notebooks with their children. We can use these notebooks for a lot more than “John has a cough today,” or “Jane has her teddy bear in her backpack.” Here are some ideas.

When something exciting happens at home, sit down with your child and draw a picture (stick figures are fine) and collaborate on a few short sentences to write. Send the notebook to school and prime the other adult to ask about the experience. A preschool teacher might sit down and help the child reproduce a personal page of “drawing” and “writing” about the excitement that s/he can share with the other children or put on a bulletin board.

When your child seems interested in a new kind of print, write it in the communication notebook. “Jane noticed that the logo on the grocery bag was the same as the sign on the grocery store,” or “John said that Java Club has the same letter as his name when we bought coffee today.” Encourage teachers and caretakers to share similar anecdotes.

When the information in the communication notebook includes personal, safety or health items, take time to sit down and say, “Ms. Haines says you were dry all day! or “Look, here it says you fell down. Can I see your band-aid? Does it hurt?” Children begin to take it for granted that information is conveyed through print; they will begin to give their notebooks to adults with confidence that the adults will understand. They may also begin to tell an adult, “Write that down for Mom.”

More Ideas for Increasing Literacy Skills with Your Deaf or Hard of Hearing Toddler



- Any activity that requires taking turns, remembering, sharing or sorting while communicating is a good pre-reading activity. If you are unpacking groceries, say and sign, “Put all the cans on the table.”
- Talk and sign to your toddler all the time! - cleaning, gardening, sewing, and setting the table – any activity can be a time to share communication.
- Let your child play with alphabet blocks and magnetic letters. Make your own letters, numbers and words with crayons, pencils and paper.



- Point to an object and name what you see. Talk about it. If you are sorting laundry, say, “This is a towel.”
- Offer your child choices. Choices encourage your toddler to communicate and stimulate thinking. Point to some books. Say “Which one?” Let your child pick the story he likes best.

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Literacy Checklist

Every day, chances to encourage literacy happen. When we remember to write them down, we can share them with others and use them as reminders for other days. Here is a way to keep track of a few of the literacy opportunities that happen in a day.

What am I doing at home to encourage Literacy?

What were we doing?	What did I do that encouraged literacy awareness?	What did my child do then?

TERMS AND DEFINITIONS:⁶⁰

- Terms related to communication
- Terms related to hearing
- Terms related to community and services

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. Can be due to illness, risk factors, or exposure to noise (See “ <i>First Steps – Newborn Screening</i> ”). Also known as “late onset hearing loss.”
Advocate	A person who stands up for the rights of another person(s)
Ambient Noise	Background noise, which competes with the main speech signal
Americans with Disabilities Act (ADA)	This federal law was written to provide certain rights to people with disabilities. It applies to children as well. This law bans discrimination based on disability in the areas of public accommodations, state and local government services, employment, transportation and telecommunications. All public schools must comply with the ADA.
Amplification	The use of hearing aids, cochlear implants and other electronic devices to increase loudness of a sound so that it may be more easily received.
Assistive Listening Devices (ALD)	Amplification systems designed specifically to help people hear better in a variety of difficult listening situations.
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. The test can also assess how well a child is hearing with amplification
Audiologist	A person who holds a masters or doctoral degree with special training in identification, measurement and rehabilitation of persons with a hearing loss
Audiology	The science concerned with the sense of hearing

TERMS AND DEFINITIONS:

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.
Aural Habilitation	Training designed to help a person with hearing loss to make productive use of residual hearing. Sometimes includes training in speech reading (AUDITORY TRAINING)
Bilateral Hearing Loss	Hearing loss in both ears
Bilingual/Bicultural	Being fluent in two languages and membership in two cultures, such as hearing (spoken language) and the Deaf culture (American Sign Language).
Binaural Amplification	Hearing aids worn on both ears
Bone Conduction	Sound received through the bones of the skull
Child Development	The usual patterns in which a child grows and develops
Closed Captioned	Printed conversations for deaf or hard of hearing to read on a television or movie theatre screen
Cochlear Implant	An electronic device surgically implanted to stimulate nerve endings in the inner ear (cochlea) in order to receive and process sounds. It transmits auditory information directly to the brain, bypassing damaged hair cells in the cochlea.
Cognitive	Refers to the ability to think, learn and remember
Conditioned Play Audiometry (CPA)	Generally used when the child is at least 18 months old. The audiologist helps the child understand the rules for playing a game where the child listens for a sound and then performs a task (game).
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. In children, conductive loss is often temporary or medically correctable, and is most often associated with Otitis Media

TERMS AND DEFINITIONS:

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	Generally the term “deaf” refers to those who cannot hear well enough to rely on their hearing and use it as a means of processing information. The uppercase “Deaf” is used when referring to a particular group of deaf people who share a language, American Sign Language, and a culture
Deaf Community	A group of people who share common interest and a common heritage. Their mode of communication is American Sign Language (ASL). 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. Levels of deafness vary in individuals who consider themselves part of this community
Decibel (dB)	The unit of measurement for the loudness of a sound. The higher the dB, the louder the sounds and the worse the hearing loss
Developmental Delay (Disability)	Any physical, mental, visual, or hearing loss that limits a person in the activities of daily living
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 special education services, based on specific disabilities or developmental delay. Children with hearing loss are eligible for early intervention services
ENT	A medical doctor who specializes in the ears, nose and throat. Sometimes referred to as an otolaryngologist or otologist
Environmental Sounds	All sounds that occur in a given environment such as the sound of a train, plane, car, running water, etc.
Family Dynamics	Interactions within and surrounding the family

TERMS AND DEFINITIONS:

Fingerspelling	An organized system of hand shapes, which represent the letters of the alphabet, generally used to supplement sign systems
FM System	An assistive listening device worn by the speaker to transmit the speaker's voice directly via radio waves to a receiver worn by the listener. The device reduces the problem of background noise interference and the problem of distance between speaker and 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	Genetic counseling includes recurrence risk information for individual with hearing loss and their families
Hard of Hearing	A person who has a hearing loss that can be mild, moderate or severe
Hearing Age/Aided Age	Age 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	This term is sometimes used to refer to any person with a hearing loss whether they are deaf or hard of hearing. This term is not recommended because most people who are Deaf do not consider that they are hearing impaired.
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 and 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

TERMS AND DEFINITIONS:⁶⁴

I.D.E.A.	The Individuals with Disabilities Act. <u>Public Law 105-17</u> . Requires services for children from birth to 21 years of age with disabilities
Inclusion	Refers to the concept that students with disabilities should be integrated and included to the maximum extent possible with their (typically developing) peers in the educational setting
Individualized Education Plan (IEP)	A written plan, consisting of specific educational goals and objectives, developed by an education team, including the parents, to meet the educational needs of the child (ages 3-21)
Individualized Family Service Plan (IFSP)	A written plan for serving such disabled child, age 0 to 3, which outlines the strengths and needs of the child and family, how the services will be provided, and by whom
Infant Toddler Program	A statewide community based program which identifies infants and toddlers who have a developmental delay or disability, or conditions which lead to such a delay or disability; and which provides early intervention services to meet the individualized needs of those children and their families
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
Mixed Hearing Loss	A combination of conductive and sensorineural hearing losses
Monaural Amplification	The use of one hearing aid instead of two
Multi-Disciplinary Evaluation	Two or more qualified professionals evaluate the child's development to determine if there are any delays or conditions that would indicate the need for early intervention or special services

TERMS AND DEFINITIONS:⁶⁵

Oral	An unspecific term that is sometimes used when referring to individuals with a hearing loss who talk, but do not necessarily use sign language
Otitis Media	A middle ear infection. Children with recurring episodes may experience fluctuating hearing loss and may be at risk for speech language delays. Fluid can be present with or without infections and may cause temporary hearing loss, which can evolve into permanent loss
Otoacoustic Emissions (OAE)	An audiologic test that verifies cochlear activity often used in screening infants for hearing loss
Otolaryngologist	See: ENT
Part B	The section of Public Law 105-17 (IDEA) that refers to special education services available to eligible children aged 3 through 21 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
Pediatric Audiologist	An audiologist specifically trained in identification and treatment of hearing loss in infants and children
Post-Lingual Hearing Loss	Refers to hearing loss acquired after learning a first language
Pre-Lingual Haring Loss	Hearing loss that is present at birth or occurred prior to the development of speech and language
Progressive Hearing Loss	A hearing loss that increases over time
Psychosocial	Pertaining to, or involving both social and emotional issues
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.
Referral	Referring a child to the different agencies that will provide services

TERMS AND DEFINITIONS:

Relay Services	Relay Service/Relay Network – a service which involves an operator “relaying” conversation between a TDD/TTY user (generally a person with a hearing loss and/or a speech disorder) and a hearing/speaking individual using an ordinary, non-adapted phone
Residual Hearing	The amount of usable hearing that a person with hearing loss has
Sensorineural	A type of hearing loss (usually irreversible) caused by damage that occurs to the inner ear (cochlea) and/or the nerve of hearing
Speech Awareness Threshold	This is the faintest level at which an individual detects speech 50% of the time
Speech Banana	The area on an audiogram where most conversational sounds of spoken language occur (SPEECH ZONE)
Speech Intelligibility	The ability to be understood when using speech
Speech Reception Threshold	The faintest level at which an individual identifies 50% of the simple spoken words presented
Speech-Language Pathologist	A professional who works with individuals who have specific needs in the areas of speech and language
Speechreading/ Lipreading	The understanding of a speaker’s words by watching lips and facial expressions
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 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, TT – Text Telephone) Originally and often still called TTYs, these electronic devices allow the deaf and hard of hearing to communicate using a keyboard to type conversation and a visual display to read what is being typed

TERMS AND DEFINITIONS:⁶⁷

Transliterator	See: Interpreter
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

Resources⁶⁸

In this section you can find community programs that may be low cost or free. You can also find lawyers and help with legal problems.

ARC OFFICES:

- Help for children with developmental disabilities
- Help with your child's education and health
- Help when you have a problem getting services for your child

The Arc of North Dakota, Inc.

P.O. Box 12420
Grand Forks, ND 58208-2420
Phone: (701) 772-6191
Email: dsheppard@arcuv.com

The Arc of Barnes County

141 2nd Street NE
Valley City, ND 58072-3001
Phone: (701) 845-4189
Email: bigpandmrs@csicable.net

The Arc of Bismarck

P.O. Box 2081
Bismarck, ND 58502-2081
Phone: (701) 222-1854
Email: arcbis@midconetwork.com
Website: www.thearcofbismarck.org

The Arc of Cass County

215 University Drive North
Fargo, ND 58102-4639
Phone: (701) 293-8191
Email: arcadmin@arccassnd.com
Website: www.arccassnd.com

The Arc of Dickinson, Inc.

P.O. Box 1421
Dickinson, ND 58602-1421
Phone: (701) 483-4272
Email: arcdickinson@ndsupernet.com

Little Missouri Arc

608 1st Street NW
Bowman, ND 58623-4461
Phone: (701) 523-3330
Email: dovitt@ableinc.com

The Arc, Upper Valley, Inc.

2500 Demers Avenue
Grand Forks, ND 58201-4178
Phone: (701) 772-6191
Email: thearc@arcuv.com
Website: www.thearcuppervalley.com



Resources⁶⁹ - Legal Help

In this section you can find community programs that may be low cost or free. You can also find lawyers and help with legal problems.

CHILDREN'S CAUCUS

Committed to improving the response to child abuse. Ensures that all families have access to high-quality developmentally-appropriate early childhood care and education programs. Promotes the healthy development of all children. Supports a juvenile justice system. Ensures children are safe in their homes and communities from all forms of abuse, neglect, exploitation and violence.

Children's Caucus
P.O. Box 1511
Bismarck, ND 58502
Phone: (701) 250-0505/(701) 224-8090
<http://www.ndchildren.org>

There are three CACs serving North Dakota children and families:

**Medcenter One Dakota
Children's Advocacy Center**
200 E. Main St. #301
Bismarck, ND 58501
Phone: (701) 323-5626

**UND Northern Plains
Children's Advocacy Center**
20 1st Street SW
Minot, ND 58701
Phone: (701) 852-0836

**Red River
Children Advocacy Center**
Professional Building
100 S. 4th Street, Suite 410
Fargo, ND 58103
Phone: (701) 234-4580

LEGAL ASSISTANCE OF NORTH DAKOTA

Serves low income or elderly individuals and has offices in Bismarck, Minot, Fargo, Belcourt and New Town.

Administrative Office/Bismarck Law Office
1025 N. 3rd Street, Suite 8
P.O. Box 1893
Bismarck, ND 58502

Minot Law Office/Central Intake Unit
20 - 1st Street SW, Suite 201
Minot, ND 58702
Under Age 60: 1-800-634-5263 (M-TH 9 a.m.– 3 pm CST)
Over Age 60: 1-800-621-9886 (M-F, 8 a.m.-5 p.m. CST)

Fargo Law Office
118 Broadway #421
P.O. Box 1327
Fargo, ND 58107

Belcourt Office
BIA Road 7 - Bldg 85
P.O. Box 1365
Belcourt, ND 58316

New Town Office
345 Main Street
P.O. Box 217
New Town, ND 58763

Resources⁷⁰ - Legal Help

In this section you can find community programs that may be low cost or free. You can also find lawyers and help with legal problems.

LEGISLATIVE

- Find out about legislative bills
- Find out who your legislators are
- Send messages to the governor and your legislators
<http://www.legalassist.org>

NORTH DAKOTA PROTECTION & ADVOCACY SYSTEM

People served include infants, children and adults of all ages. There is no cost for services, however, P&A does implement general eligibility requirements, including that the individual must reside within the State of North Dakota. P&A has seven different advocacy programs that serve individuals with disabilities:

- Developmental Disabilities Advocacy Program;
- Mental Health Advocacy Program;
- Protection & Advocacy Project for Individual Rights;
- Protection & Advocacy for Beneficiaries of Social Security;
- Assistive Technology Advocacy Program.
- Help America to Vote Program (HAVA)
- Protection and Advocacy for Individuals with Traumatic Brain Injury

MAIN OFFICE: Bismarck

Wells Fargo Bank Building
400 East Broadway, Suite 409
Bismarck, ND 58501-4071
Phone: (701) 328-2950
Toll Free: 1-800-472670
Email: panda@nd.gov

REGION ONE: Williston

14 East Broadway
P.O. Box 2472
Williston, ND 58802-2472
Phone: (701) 774-4345
Email: panda@nd.gov

REGION FIVE: Fargo

1351 Page Drive, Suite 303
Fargo, ND 58103-3551
Phone: (701) 239-7222
Email: panda@nd.gov

TURTLE MOUNTAIN: Belcourt

129 Sandra Birdsell Avenue
Office #2
Belcourt, ND 58316
Phone: (701) 447-5066
Email: panda@nd.gov

REGION TWO: Minot

900 North Broadway, Suite 210
P.O. Box 2472
Minot, ND 58703-2379
Phone: (701) 857-7686
Email: panda@nd.gov

REGION SIX: Jamestown

2509 Circle Drive
LRC Building, Fourth Floor
Jamestown, ND 58402-0911
Phone: (701) 253-3295
Email: panda@nd.gov

REGION THREE: Devils Lake

1401 College Drive North
Devils Lake, ND 58301-1596
Phone: (701) 665-4426
Email: panda@nd.gov

REGION SEVEN: Bismarck

Wells Fargo Bank Building
400 East Broadway, Suite 409
Bismarck, ND 58501-4071
Phone: (701) 328-2950
Toll Free: 1-800-472670
Email: panda@nd.gov

REGION FOUR: Grand Forks

311 South 4th Street, Suite 112
Grand Forks, ND 58201-4792
Phone: (701) 795-3800
Email: panda@nd.gov

REGION EIGHT: Dickinson

135 Sims, Suite 206
Dickinson, ND 58601-5141
Phone: (701) 227-7444
Email: panda@nd.gov



Resources - Child Care and Respite

In this section you can find help locating child care and respite.

CHILD CARE RESOURCE AND REFERRAL NETWORK

- Child Care
- Resources for child care providers

Western North Dakota800-450-7801 or 888-223-1510

Eastern North Dakota888-778-3435 or 800-452-3646

Cass, Traill & Richland Counties800-452-3636

Stutsman, Barnes, Ransom, Sargent, Steele

Logan, LaMoure, Dickey, Eddy, Griggs,

Foster & Wells Counties800-452-3646

www.ndchildcare.org

NORTH DAKOTA ASSOCIATION OF COMMUNITY PROVIDERS

A state-wide association whose membership provides a wide range of services for people with disabilities - Developmental, Mental Health and Physical
Use link below to help find respite care providers in your community

Phone: (701) 222-4778

www.ndacf.org/providers.htm

Resources - Child Care and Respite

In this section you can find help locating child care and respite.

PATH, INC.

- Treatment Foster Care is available to children and youth from birth through age 18 with emotional, behavioral, intellectual, developmental, or medical needs who can benefit from specialized help in a family setting
- Respite Foster Care provides temporary childcare to families needing a break from caring for their foster children or their own children. PATH provides a variety of specialized programs and services specific to the needs of the local communities.

Administration

1112 Nodak Dr., Suite 105

Fargo, ND 58103

Phone: (701) 280-9545 or (800) 766-9321

Website: www.pathnd.org/

Bismarck

418 E. Broadway Avenue, Suite 25

Bismarck, ND 58501

Phone: (701) 224-9611 or (800) 766-9279

Devils Lake

1820 E. Walnut Street, Suite 5

Devils Lake, ND 58301

Phone: (701) 662-4913 or (800) 766-9389

Dickinson

135 Sims Street, Suite 204

Dickinson, ND 58601

Phone: (701) 225-3310 or (800) 766-9351

Grand Forks

212 S. 4th Street, Suite 401

Grand Forks, ND 58201

Phone: (701) 775-7725 or (800) 766-9356

Jamestown

300 2nd Avenue NE

Jamestown, ND 58401

Phone: (701) 251-9150 or (800) 766-9363

Turtle Mountain

P.O. Box 1970

Belcourt, ND 58316

Phone: (701) 447-0525 or (800) 303-4961

Minot

2000 Burdick Expressway E.

Minot, ND 58701

Phone: (701) 839-8887 or (800) 766-9885

Williston

1135 2nd Avenue West, Suite 202

Williston, ND 58801

Phone: (701) 572-7650 or (800) 766-9387

Minot (Temporary Contact Info)

315 S. Main, Suite 104

Minot, ND 58701

Dickinson, ND 58601

Phone: (701) 839-8990

Resources - Disability Services⁷³

In this section you can find help for disability services, vocational rehabilitation services, client assistance programs, independent living centers.

DEVELOPMENTAL DISABILITIES REGIONAL OFFICES

Developmental Disabilities is the entry point to a variety of services, including early intervention services for your child with a hearing loss or other developmental needs.

<p>Northwest Human Service Center 316 Second Avenue West P.O. Box 1266 Williston, ND 58802-1266 (701) 774-4600 (V)/(701) 774-4692 (TTY) Toll Free: (800) 231-7724</p>	<p>Southeast Human Service Center 2624 9th Avenue SW Fargo, ND 58103-2350 (701) 298-4500 (V)/(701) 298-4450 (TTY) Toll Free: (888) 342-4900</p>
<p>North Central Human Service Center 1015 S. Broadway, Suite 18 Minot, ND 58701 (701) 857-8500 (V)/(701)857-8666 (TTY) Toll Free: (800) 470-6968</p>	<p>South Central Human Service Center 520 Third Street NW P.O. Box 2055 Jamestown, ND 58402 (701) 253-6300 (V)/(701) 253-6414 (TTY) Toll Free: (800) 260-1310</p>
<p>Lake Region Human Service Center P.O. Box 650 200 Highway 2 SW Devils Lake, ND 58301-0650 (701) 665-2200 (V)/(701) 665-2211 (TTY) Toll Free: (888) 256-6742</p>	<p>West Central Human Service Center 1237 West Divide Avenue, Suite 5 Bismarck, ND 58501-1208 (701) 328-8888 (V)/(701) 328-8802 (TTY) Toll Free: (888) 328-2662</p>
<p>Northeast Human Service Center 151 South 4th Street Suite 401 Grand Forks, ND 58201-4735 (701) 795-3000 (V)/(701) 795-3060 (TTY) Toll Free: (888) 256-6742</p>	<p>DD Program Administrator Badlands Human Service Center 300 13th Avenue West, Suite 1 Dickinson, ND 58601-4875 (701) 227-7500 (V)/(701) 227-7574 (TTY) Toll Free: (888) 227-7525</p>

Resources - ⁷⁴Early Intervention

In this section you can find help if you have questions about your child's development or growth.

EARLY CHILDHOOD TRACKING: ND Native Americans

New Town (Mandan, Hidatsa, Arikara Nation).....(701) 627-4820
 Fort Totten (Spirit Lake).....(701) 766-4070
 Fort Yates (Standing Rock Sioux Nation).....(701) 854-3678
 Belcourt (Turtle Mountain).....(701) 477-0260

EARLY HEAD START

<p>BECEP Early Intervention 806 North Washington Street Bismarck, ND 58501 (701) 323-4400 www.bismarck.k12.nd.us/BECEP/ei-bto3/</p> <p><i>Serving Burleigh, Morton, Sioux, Grant, Oliver, Mercer, McLean, Emmons, Kidder & Sheridan Counties</i></p>	<p>North East Regional Kids 1826 South Washington Street, Unit 33B Grand Forks, ND 58201 (701) 795-3000 www.kidsprogramnd.com/</p> <p><i>Serving Grand Forks, Nelson, Pembina & Walsh Counties</i></p>
<p>K.I.D.S. Program 2493 4th Avenue W, Suite F Dickinson, ND 58601 (701) 483-4394</p> <p><i>Serving Stark, Dunn, Billings, Hettinger, Bowman, Slope, Adams & Golden Valley Counties</i></p>	<p>South Central Regional Kids 300 2nd Avenue NE, Suite 218 Jamestown, ND 58401 (701) 952-3500 www.kidsprogramnd.com/</p> <p><i>Serving Barnes, Dickey, Foster, Griggs, LaMoure, Logan, McIntosh, Stutsman & Wells Counties</i></p>
<p>Lake Region Kids. Program 218 SW 4th Street Devils Lake, ND 58301 (701) 662-6324 www.kidsprogramnd.com/</p> <p><i>Serving Benson, Cavalier, Eddy, Ramsey, Rolette & Towner Counties</i></p>	<p>Southeast Kids Program Eagles Early Childhood Center 3502 South University Drive Fargo, ND 58104 (701) 446-3927 www.kidsprogramnd.com/</p> <p><i>Serving Cass, Ransom, Richland, Sargent, Steele & Traill Counties</i></p>
<p>Minot Infant Development Minot State University 500 University Avenue W Minot, ND 58701 (701) 858-3054</p> <p><i>Serving Bottineau, Burke, McHenry, Mountrail, Pierce, Renville, & Ward Counties</i></p>	<p>Williston Infant Development Call State Office for contact information (701) 328-8953</p> <p><i>Serving McKenzie, Williams & Divide Counties</i></p>

Resources - Pediatric Audiologists ⁷⁵

* denotes Diagnostic Audiologist capability

<p>BISMARCK</p> <p><i>Medcenter One Hearing Centers</i> 225 N. 7th Street, Suite A Bismarck, ND 58501 Phone: (701) 323-8000 Fax: (701) 323-8018 Audiologists: Debra Arneson-Thilmony, Amy Mattheis*, Brady Ness* and Shelly Grossman</p> <p><i>Mid Dakota Clinic</i> 401 N. 9th Street Bismarck, ND 58501 Phone: (701) 530-5550 Fax: (701) 530-6422 Toll Free: (800) 472-2113 Audiologists: Joe Ness and Karen Jacobus</p>	<p>JAMESTOWN</p> <p><i>Jamestown Hospital</i> 419 5th Street NE Jamestown, ND 58401 Phone: (701) 253-4843 Toll Free: (800) 841-6340 Audiologist: Susan Matthiesen*</p> <p><i>Medcenter One Hearing Centers</i> Jamestown Clinic 300 2nd Avenue NE Jamestown, ND 58401 Phone: (701) 252-4100 Fax: (701) 952-4443 Audiologist: Doug Schauer</p>
<p>DEVILS LAKE</p> <p><i>North Dakota School for the Deaf</i> 1401 College Drive North Devils Lake, ND 58301 Phone: (701) 665-4400 Fax: (701) 665-4409 Audiologist: Brady Ness*</p>	<p>WILLISTON</p> <p><i>Professional Hearing Services, PLLC</i> 104 Main Street Williston, ND 58801 Phone: (701) 572-1077 Fax: (701) 572-1470 Audiologist: Julie Goebel</p>
<p>DICKINSON</p> <p><i>Heart River Hearing Aid Practice</i> 1051 3rd Avenue W. Dickinson, ND 58601 Phone: (701) 227-0728 Fax: (701) 264-1171 Audiologist: Kim Callahan</p> <p><i>Professional Hearing Center</i> 925 W. Villard Dickinson, ND 58601 Phone: (701) 227-4403 Audiologist: John Tongen</p> <p><i>St. Joseph Hospital</i> 30 West 7th Street Dickinson, ND 58601 Phone: (701) 456-4338 Phone: (701) 456-4830 Audiologist: David Ness*</p>	<p>GRAND FORKS</p> <p><i>Altru Hearing Center</i> 1000 S. Columbia Rd, Main Clinic 4D Grand Forks ND 58201 Phone: (701) 780-6301 Fax: (701) 780-1889 Audiologists: Mackensie Brandt*, Mandi Green*, and Rose Cotton*</p> <p><i>Fire Audiological Services</i> 1732 S. Washington Street, Suite 84 Grand Forks, ND 58201-4965 Phone: (701) 787-3728 Fax: (701) 738-2317 Audiologist: Kevin Fire</p> <p><i>University of North Dakota</i> P.O. Box 8040 Grand Forks, ND 58202 Phone: (701) 777-3728 Fax: (701) 777-4578 Audiologist: John Madden</p>

Resources - Pediatric Audiologists⁷⁶

* denotes Diagnostic Audiologist capability

FARGO

Catalyst Medical Center

1800 21st Avenue South
Fargo, ND 58103
Phone: (701) 365-8700
Fax: (701) 365-8701
Audiologist: Megan Jones

Hearing Solutions, Inc.

2700 12th avenue South, Suite D
Fargo, ND 58103
Phone: (701) 232-2438
Fax: (701) 232-2433
Audiologist: Matthew Frisk

Essentia Health

1702 South University Drive
Fargo, ND 58103
Phone: (701) 364-3425
Fax: (701) 364-8995
Audiologists: Marin Almer* and Cari Frisk*

Sanford Health

501 N. 4th Street
Fargo, ND 58122
Phone: (701) 234-2441
Fax: (701) 234-2606
Toll Free: (800) 437-4010
Audiologists: Michael Berg, Ardell Olson, and
Brian Qvammen*

MINOT

Professional Hearing Services, PLLC

315 South Main Street, Suite 316
Minot, ND 58701
Phone: (701) 852-6565
Fax: (701) 838-9381
Audiologists: Andrea Larson, Gerald Knapp,
and Valarie Streich

Trinity Health

101 3rd Avenue S.W. #203
Minot, ND 58701
Phone: (701) 857-5986
Fax: (701) 857-5029
Audiologists: Sheila Klein* and Jerrica Maxson*

MSU/Communication Disorders

500 University Avenue West
Minot, ND 58701
Phone: (701) 858-3059
Audiologist: Thomas Froelich*

<http://www.cdc.gov/ncbddd/hearingloss/CDROM/index.html>